

Contents

Admiralty -

Rifle + field exercises and
rifle practice instruction
for B N's fleet.

London 1886



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619⁶ AND 4
RIFLE AND FIELD EXERCISES
RIFLE PRACTICE INSTRUCTION
FOR
HER MAJESTY'S FLEET.



By authority of the Lords Commissioners of the Admiralty.

1886.

LONDON:

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CONTENTS.

I.—RIFLE EXERCISES.

II.—FIELD EXERCISES.

III.—RIFLE PRACTICE INSTRUCTION.

I.—RIFLE EXERCISES.

	PAGE
General directions - - - - -	3
SECTION	
1. Manual Exercise in Single Rank - - - - -	4
2. Manual Exercise in Two Ranks, and Piling Arms - - - - -	18
3. Paying Compliments with Arms - - - - -	21
4. Dismissing a Company - - - - -	21
5. The Firing Exercise - - - - -	21
6. Preparing for Cavalry - - - - -	32
7. A Feu-de-Joie - - - - -	33
8. Review Exercise - - - - -	34
9. Manner of Inspecting Arms - - - - -	35
10. Rifle Exercise for Petty Officers - - - - -	36
11. Sentries - - - - -	37
12. Sword Bayonet Exercise - - - - -	38
13. Funeral Exercise - - - - -	40

II.—FIELD EXERCISES.

PART I.

SQUAD DRILL.

GENERAL RULES.

No. I. Words of Command - - -

SECTION

1. Position of the Man - - -
2. Formation of the Squad in Single Rank -
3. The Side or Closing Step - - -
4. Formation of the Squad in Two Ranks -
5. Numbering - - - -
6. Stand at Ease - - - -
7. Forming Single Rank and Two Deep -
8. Turnings - - - -
9. Changing Ranks - - - -
10. Dressing when Halted - - -
11. Turning when on the March - - -

MARCHING.

12. Length of Pace - - - -
13. Cadence - - - -
14. Directing and Reverse Flanks - - -
15. Marching to the Front and Rear - -
16. The Halt - - - -
17. Stepping Out - - - -

CONTENTS.

v

SECTION	PAGE
18. Stepping Short - - - -	55
19. Marking Time - - - -	55
20. Stepping Back - - - -	55
21. Changing Feet - - - -	56
22. The Double March - - - -	56
23. The Motions of the Rifle - - - -	57
24. Changing Front by Wheeling or File Formation -	57
25. Changing Direction on the March - -	59
26. The Diagonal March - - - -	59
27. Marching in File - - - -	60
28. Wheeling in File - - - -	62
29. Men Marching in File forming Squad -	62
30. Taking Open Order - - - -	66
31. The Formation of Fours - - - -	67
32. Fours Wheeling, and Forming Squad -	70
33. A Squad formed in Fours closing on a Flank, or on the Centre and Reforming Two Deep -	71
34. Breaking off Files - - - -	72
DISMISSING.	
35. Dismissing a Squad - - - -	74
SKIRMISHING.	
36. Extending - - - -	74
37. Closing - - - -	75
38. Advancing and Retiring - - - -	76
39. Moving to a Flank - - - -	76
40. Changing Front, or Direction - - - -	77
41. Funerals for Petty Officers or Seamen -	78

PART II.

COMPANY DRILL.

GENERAL RULES.

NO.	PAGE
I. Men to be formed in a Company - . -	80
II. Sizing a Company - - -	80
III. The Men to know their places - -	80
IV. Formation and Telling-off of a Company -	80
V. Supernumerary Rank - - -	81
VI. Officers, &c. of a Company - - -	81
VII. Relative Proportion of Paces to Files -	81
VIII. Application of Squad Drill - - -	82
IX. Companies to be Drilled as if with the Battalion -	82
X. Companies to be Exercised by their own Officers -	82
XI. Companies to be Exercised on Rough Ground, and with the Ranks changed - - -	83
XII. Derangements in Telling-off to be quickly remedied	83
XIII. Assembling on Markers - - -	83
XIV. Markers giving Points - - -	84
XV. The Lieutenant - - -	84

SIZING, INSPECTING, AND PROVING.

SECTION

1. Sizing, Inspecting, and Proving a Company -	85
--	----

A COMPANY IN LINE AND COLUMN.

2. Formation of a Company - - -	87
3. A Company in Line taking Open Order -	88
4. Marching to the Front and Rear - -	91

WHEELING, OR FORMING, FROM THE HALT.

SECTION	PAGE
5. A Company Wheeling, or Forming, from the Halt, from Column into Line - - -	92
6. A Company Wheeling, from the Halt, from Line into Column - - -	93

WHEELING, OR FORMING, ON THE MARCH.

7. Wheeling, or Forming, from Column into Line, and Wheeling from Line into Column -	94
8. A Company in Column changing Direction -	94

MISCELLANEOUS MOVEMENTS AND FORMATIONS.

9. Marching Past - - -	95
10. The Diagonal March - - -	98
11. File Marching and Wheeling in File - - -	98
12. The Formation of Fours - - -	98
13. A Company marching in Files, or Fours, forming to the Front (or Rear); to the Right (or Left); or to the Right (or Left) about - - -	99
14. A Company formed in Fours closing on a Flank, or on the Centre, and re-forming Two Deep - - -	99
15. The Side or Closing Step - - -	100
16. Diminishing and Increasing Front, by breaking off Files and bringing them again to the Front -	100
17. Diminishing and Increasing Front, by breaking into Files, or Fours, and Re-forming Company -	100
18. Formation of Half-Companies and Sections -	101

SECTION	PAGE
19. Shelter Trench Exercise, Wallace Spades -	- 103

SKIRMISHING.

20. Company Skirmishing - - -	- 105
21. Bugle Sounds - - -	- 107
22. Skirmishers Firing - - -	- 108
23. Reinforcing, Prolonging, and Relieving -	- 110
24. Rallying Squares - - -	- 111
25. The Attack - - -	- 113
26. Formation of an Advanced and Rear Guard -	- 114

PART III.

FORMATION AND EVOLUTIONS OF A BATTALION.

GENERAL RULES.

NO.	
I. Application of Squad and Company Drill -	- 116
II. Battalions changing Position and Formations -	- 116
III. Words of Command - - -	- 116
IV. The Battalion Officer - - -	- 117
V. Giving Points - - -	- 117
VI. Allgnment and Points of Formation -	- 117
VII. Degrees of March - - -	- 118
VIII. Swords not to be Fixed - - -	- 119

CONTENTS.

ix

NO.	PAGE
IX. Keeping the Right Guide's place in Line -	- 119
X. Making way for an Officer, or Marker, to pass through the Line -	- 119
XI. The Front -	- 119
XII. Companies, when they lose their Order, to be Re-numbered -	- 120
XIII. A Battalion Firing -	- 120
XIV. A Battalion Dispersed, Re-assembling -	- 121

A BATTALION ON PARADE.

SECTION

1. Formation of a Battalion on Parade in Column	- 122
---	-------

FORMATION AND MOVEMENTS OF A BATTALION IN LINE.

GENERAL RULES.

NO.	
I. Marching in Line	- 126
II. Retiring in Line	- 126
III. Base Points and Markers	- 126
IV. Points to be kept clear	- 127
V. Formations without Points	- 127
VI. Closing to correct Intervals	- 127

FORMATION AND MOVEMENTS.

SECTION

2. Formation of a Battalion in Line	- 127
3. A Battalion in Line taking Open Order	- 130
4. Advancing and Retiring in Line	- 131

SECTION	PAGE
5. Dressing a Battalion in Line - - -	133
6. A Battalion in Line passing Obstacles -	133

COLUMN MOVEMENTS.

GENERAL RULES.

NO.				
I.	Use and Advantages of Columns	-	-	138
II.	Depth of Columns	-	-	138
III.	Application of Columns	-	-	138
IV.	Directing Flank in Column	-	-	139

MOVEMENTS.

SECTION

7.	Formation of a Battalion in Half and Quarter Column	-	139
8.	Forming Quarter Column from any more Open Column	-	139
9.	A Quarter Column opening from the Front, the Rear, or a Central Company	- - -	141
10.	Columns diminishing and increasing their Front, and passing Obstacles	- - -	143
11.	A Column changing Direction, and marching on an Alignment, or changing Position by the Flank March of Fours	- - -	144
12.	A Quarter Column Wheeling	- -	146
13.	A Column moving to a Flank in Fours	-	148
14.	A Quarter Column in Files, or formed in Fours to a Flank, wheeling to the Right or Left	-	149
15.	A Column when moving to a Flank in Fours, closing on, or opening from, any named Company	-	149
16.	Application of the Flank March of Columns in Fours	-	150

FORMATIONS OF COLUMN FROM LINE.

SECTION	PAGE
17. A Battalion in Line Wheeling into Column, from the Halt - - - - -	151
18. A Battalion in Line Wheeling into Column, on the March - - - - -	152
19. A Battalion in Line advancing in Column, or Columns of Half-battalions - - - - -	152
20. A Battalion in Line retiring from one Flank in Rear of the other; or from both Flanks in rear of the Centre or any named Company - - - - -	155
21. A Battalion in Line forming Column, or Quarter Column - - - - -	156

FORMATION OF LINE FROM COLUMN.

22. Wheeling, or Forming, from Column into Line -	159
---	-----

DEPLOYMENTS.

23. A Battalion in Column, or Quarter Column, deploying into Line - - - - -	160
---	-----

MOVEMENTS AND CHANGES OF FRONT IN ECHELON.

GENERAL RULES.

NO.	
I. Oblique Echelon - - - - -	164

MOVEMENTS AND CHANGES OF FRONT.

SECTION	
24. A Battalion in Line moving by Fours in Oblique Echelon and-forming Line - - - - -	164

SECTION	PAGE
25. A Battalion in Line changing Front - - -	- 166
26. A Battalion in Line advancing or retiring in Echelon -	166
27. Forming Line from Echelon - - -	- 167
28. A Battalion in Echelon forming Line in an Oblique Direction - - - - -	- 170

FORMATIONS TO RESIST CAVALRY.

GENERAL RULES.

NO.		
I. Various Methods - - - -	-	170
II. Receiving Cavalry in Line - - -	-	170
III. Squares - - - - -	-	170

FORMATIONS AND MOVEMENTS.

SECTION		
29. A Battalion preparing for Cavalry, in Line -	-	171
30. A Battalion in Column forming Square -	-	171
31. A Battalion in Columns of Half-battalions, forming Square - - - - -	-	173
32. A Battalion in Line forming Square -	-	173
33. A Square marching in any Direction -	-	173
34. A Battalion in Square re-forming Column -	-	174

SKIRMISHING.

GENERAL RULES.

NO.		
I. Divisions of a Battalion when Skirmishing -	-	175
II. Relative Strength of Skirmishers, Supports, and Reserves - - - - -	-	175

CONTENTS.

xiii

NO.	PAGE
III. Relative Duties of Skirmishers, Supports, and Reserves - - - - -	175
IV. Relative Distances of Skirmishers, Supports, and Reserves - - - - -	175
V. Time of Movements, and Cover - - - - -	176
VI. Principles of Movements to be explained - - - - -	177
VII. Points of Direction - - - - -	177
VIII. How Arms are carried - - - - -	177
IX. Posts and Duties of Battalion Officers - - - - -	177
X. Officers and Supernumeraries - - - - -	178
XI. Words of Command and Bugle Sounds - - - - -	178
XII. Position of Ammunition Reserve - - - - -	178
XIII. Scouts - - - - -	179

BATTALION SKIRMISHING.

SECTION

35. A Battalion in Line forming Column for Skirmishing and Extending - - - - -	179
36. A Battalion extended forming Rallying Squares - - - - -	181
37. A Battalion in Column forming Column for Skirmishing - - - - -	181
38. Flanking Parties - - - - -	182
THE ATTACK - - - - -	182

PART IV.

MISCELLANEOUS SUBJECTS.

INSPECTIONS OR REVIEWS.

SECTION

- | | | |
|--|---|---|
| 1. Inspection or Review of a Battalion | - | - |
| 2. Review of Two or more Battalions | - | - |

ROUTE MARCHING.

- | | | |
|---|---|---|
| 3. The Order of March | - | - |
| 4. Places of Officers | - | - |
| 5. Marching off, Marching at Ease, and passing Words of Command | - | - |
| 6. Halting when on the March | - | - |
| 7. Defiling, and Increasing and Diminishing Front | - | - |
| 8. Regulations concerning Stragglers | - | - |
| 9. Hurry and Stepping out to be prevented | - | - |

SINGLE RANK AND SKELETON DRILL.

- | | | |
|------------------------------------|---|---|
| 10. Battalion Drill in Single Rank | - | - |
| 11. Skeleton Drill | - | - |
| 12. Salutes | - | - |

FUNERALS.

- | | | |
|---------------------|---|---|
| 13. Funeral Parties | - | - |
|---------------------|---|---|

PART V.

- | | | |
|-------------------|---|---|
| THE LANDING PARTY | - | - |
| BUGLE SOUNDS | - | - |
-

PART VI.

FIELD FORTIFICATION.

	PAGE
HAZY INTRENCHMENTS AND FIELD FORTIFICATIONS	- 227
WORKING PARTIES - - - -	- 228
PROVIDING COVER - - - -	- 231
Shelter Trenches - - - -	- 231
Musketry Trenches - - - -	- 232
Breastwork - - - -	- 233
Cover for Artillery - - - -	- 234
Cover for Limbers of Field Pieces - - - -	- 236
Platforms - - - -	- 237
Parapets - - - -	- 238
Special Protection for Heads of Men firing over a Parapet - - - -	- 243
CLEARING THE GROUND - - - -	- 243
DEFENSIBLE HEDGES - - - -	- 246
DEFENSIBLE WALLS - - - -	- 248
OBSTACLES - - - -	- 250
DEFENCE OF A HOUSE - - - -	- 254
Details of Defence - - - -	- 256
DEMOLITIONS - - - -	- 258
Buildings - - - -	- 258
Bridges - - - -	- 258
Railways - - - -	- 260
ENCAMPMENTS AND BIVOUACS - - - -	- 261
Camps - - - -	- 261
Bivouacs - - - -	- 262
Latrines - - - -	- 263
Cooking - - - -	- 264
NOTES FOR THE PLATES - - - -	- 266

III.—RIFLE PRACTICE INSTRUCTION

PART I.

GUNNERY SHIPS.

	PA
Instruction in Gunnery Ships - - -	- 2

PART II.

ANNUAL COURSE FOR SHIPS.

Annual Course in Sea-going and First Reserve Ships, and in Flag or Receiving Ships at the Home Ports -	1 - 2
---	----------

PART III.

PRELIMINARY DRILL.

1. Cleaning Arms - - - -	- 2
2. Theoretical Principles in Four Lessons -	- 2
3. Aiming Drill - - - -	- 2

CONTENTS.

xvii

	PAGE
Position Drill - - - - -	- 298
Morris's Aiming Tubes - - - - -	- 305
Preliminary Firing - - - - -	- 311
Judging Distance Drill - - - - -	- 312

PART IV.

PRACTICE.

Ball Practice - - - - -	- 315
Judging Distance Practice - - - - -	- 336

PART V.

THE STADIOMETER.

Instructions for the use of the Stadiometer - - - - -	- 339
---	-------

PART VI.

PRIZES FOR GOOD SHOOTING, &c.

All Ships - - - - -	- 345
---------------------	-------

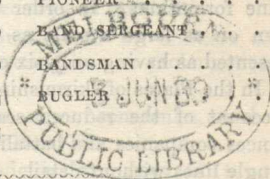
PART VII.
RETURNS.

Instructions as to the Forms to be used	-	-
Specimens of Forms	-	-

KEY TO PLATES.

Officers, Petty Officers, &c.

BATTALION LEADER . . .		PETTY OFFICER . . .	
RIGHT OR LEFT LEADER		NON-EXECUTIVE . . .	
OFFICER INSTRUCTOR . .		SEAMAN, FRONT RANK .	
LIEUTENANT		SEAMAN, REAR RANK .	
RIGHT GUIDE		PIONEER	
LEFT GUIDE		BAND SERGEANT	
NON-EXECUTIVE OFFICER		HANDSMAN	
CHIEF PETTY OFFICER .		BUGLER	
MARKER			



ORIGINAL FORMATION { Front Rank -----
Rear Rank -----

INTERMEDIATE FOR- { Front Rank -----
MATION { Rear Rank -----

FINAL FORMATION { Front Rank -----
Rear Rank -----

DIRECTION OF MOVEMENTS . . 

EXPLANATION OF PLATES.

1. In the Plates of Part II. the position of all ranks are shown throughout.

2. In Part III., Plates VI. and VII. give the position of all ranks in line and column. In the Plates of the various evolutions it has been considered sufficient to show the mounted officers, the directing guides, and all points in line formations. In order that the figures might be drawn on as large a scale as possible, the battalions are represented as having only six companies.

3. In the Plates of skirmishing movements in Part III. on account of the reduced scale, ranks, and in several instances companies and battalions, have been represented by single lines without detail.

DEFINITIONS.

GENERAL DEFINITIONS.

- Alignment.* An imaginary straight line lying between two points, or the prolongation of that line, upon which troops are to form, or march.
- Appui, Point of.* French, *appui*, "a support." The point of formation.
- Base Company, or Battalion.* The company, or battalion, from which a formation is regulated.
- Base Points.* The points given by markers as a base for forming line in prolongation of that base.
- Battalion.* Four, or more, companies, told off into half-battalions.
- Brigade.* A brigade is composed of two, or more, battalions.
- Column.* A succession of companies (or parts of companies), from front to rear, parallel to each other.
- Company.* A certain number of files, divided into half-companies and sections.
- Defile.* From the French *défilé*; a narrow pass.
- Deploy.* From the French *déployer*, to "display, unfold;" i.e., to unfold companies from column into line.

- Diagonal March.* A march by which troops move on their flank at an angle of 45° with their front.
- Distance.* The depth between men or corps from front to rear.
- Division.* Two, or more, brigades.
- Double Column.* Two single columns of different battalions, abreast of each other.
- Double Company.* Two companies of the same battalion, abreast of each other.
- Dress.* From the French *dresser*, "straighten." The word given to a soldier to correct their alignment.
- Drill.* From an obsolete French word "a soldier." The instruction and discipline of military exercises.
- Echelon.* Echelon is when the line is broken up into several parts, moving direct to the front or rear in succession. Oblique echelon is when the divisions of the line move in a wheel, less than the quarter circle, so that they are to be oblique to the former front, but parallel with each other.
- Evolution.* A movement by which troops change their position for attack or defence in various tactics, as distinguished from strategy. It meant the art of handling troops, and is now applying in the presence of an enemy. It is the evolutions learnt at drill. Strategy is the science of conducting the operations of war,—movements that place you out of sight of the enemy.

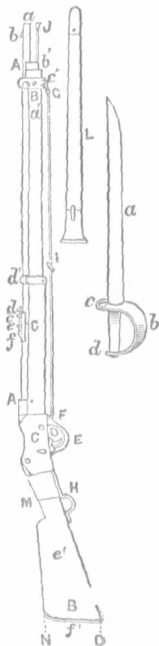
- File.* Two men; a front-rank man, and his rear-rank man.
- Flank, Inner.* That nearest to the point of appui.
- „ *Directing.* That by which companies march.
- „ *Outer.* That opposite to the inner flank.
- „ *Reverse.* That opposite to the directing flank.
- Front.* The front, with reference to an alignment, is the direction of the supposed enemy; see Part III., Gen. Rule XI. Used as a general term, the word signifies the direction in which men face when occupying the same relative position as when last told off.
- Front, Change of.* Taking up a new alignment on a base at an angle to, and either touching or intersecting, the former alignment.
- Interval.* The lateral space between men or corps.
- Line.* A battalion is said to be in line when its companies are deployed on the same alignment to their full extent, i.e., in two ranks. Columns are said to be in line when their fronts are on the same alignment.
- Manceuvre.* See *Evolution*.
- Pivot.* The flank man on whom or the point on which, a wheel is made.

<i>Rank.</i>	A line of men side by side.
<i>Section.</i>	The fourth part of a company.
<i>Skirmishing.</i>	Fighting in extended order.
<i>Squad.</i>	A division of a company for pur of interior economy. Also, a small ber of men formed for drill, or for
<i>Supernumeraries.</i>	The officers, and petty officers, posing the third rank.
<i>Wings.</i>	The divisions, or brigades, on the and left of the centre of an army.

I.
RIFLE EXERCISES.

FRONTISPIECE.

NAMES OF PARTS OF RIFLE.



AA Barrel.
a Muzzle.
b Foresight.
c Back sight } *d* Leaf.
 } *e* Slide.
 } *f* Bed.

BB Stock.
a' Forend.
b' Nose cap.
c' Upper band.
d' Lower band.
e' Butt.
f' Butt plate.
C Body.
D Trigger.
E Trigger guard.
F Guard swivel.
G Band swivel.
H Lever.
I Sling.
J Cleaning rod.

Sword Bayonet.
a Blade.
b Hilt.
c Ring.
d Catch.
L Scabbard.
M Small }
N Heel } For drill
O Toe } purposes.

MARTINI-HENRY RIFLE EXERCISES.

GENERAL DIRECTIONS.

I.

Names of Parts of the Rifle.—Untrained men, before they commence to learn the Manual and Firing Exercises, must be taught the names of the different parts of the rifle.

II.

Formation of Squad.—Seamen will be formed in squads of single rank to learn the Manual and Firing Exercises, by Numbers and in Quick Time; after which they will practice in two ranks what they have learned in one rank.

III.

Instructor to have Rifle.—The Instructor should always be provided with a rifle when at rifle drill, in order that he may be able to show the men the required positions and movements. Such practical instruction should, as far as possible, be substituted for the minute detail necessarily given in the text.

IV.

The Rifle to be used with care.—The rifle must be carefully handled, as any rough usage will injure it.

V.

How to carry the Rifle.—Except in the case of skirmish advancing, rifles are not to be carried loaded.

S. I. MANUAL EXERCISE IN SINGLE RANK.

1. BY NUMBERS.

I.

The Order.—Each man will first fall in as directed in Part I., S. 1. The rifle will then be placed perpendicular at his right side, the butt on the ground, its toe in line with the toe of the right foot. The right arm to be straight and bent; the right hand to seize the rifle between the thumb and index finger, the thumb pressed against the thigh, fingers slanting to the ground.

This is the position of *Attention*.

II.

SHOULDER—
ARMS.

The Shoulder from the Order.—The rifle a sharp cant upwards with the right hand, catching it with the left hand at the lower band; at the same time, the guard, at the full extent of the arm, with the forefinger and thumb of the right hand, the remaining fingers extended; the upper part of the rifle to rest in the hollow of the shoulder.

Two. Drop the left hand smartly to the ground.

III.

PRESENT—
ARMS.

The Present Arms.—Seize the rifle with the left hand at the lower band,

it a few inches by slightly bending the right arm, without moving the barrel from the shoulder; then slip the thumb of the right hand under the block, and the fingers under the guard slanting downwards; both arms close to the body.

Two. Without moving the head, raise the rifle with the right hand perpendicularly in front of the centre of the body, guard to the left; at the same time place the left hand smartly on the stock, the wrist on the guard, fingers pointing upwards, thumb close to the forefinger (its point in line with the mouth); the left elbow to be close to the butt, the right elbow and butt close to the body.

Three. Bring the rifle down close in front of the centre of the body, guard to the front, as low as the right hand will admit without constraint, and grasp it with the left hand, immediately behind the back-sight, thumb between stock and barrel; the right hand lightly holding the small of the butt, fingers slanting downwards; at the same time place the hollow of the right foot against the left heel, both knees straight, the weight of the rifle to be supported by the left hand.

IV.

SHOULDER—
ARMS.

The Shoulder from the Present Arms.—Bring the rifle to the right side, and seize it with the right hand at "The Shoulder" (No. II.), the left hand remain-

ing to steady it to its place, arm close to the body; at the same time bring right foot to its original position.

Two. { Drop the left hand smartly to the

V.

SUPPORT—
ARMS.

The Support.—Without bending arm, bring the butt across, till the rifle is in front of the centre of the back of the hand to the front, the butt crossing the point of the shoulder; place the left hand on the right.

VI.

SHOULDER—
ARMS.

The Shoulder from the Support.—Bring the rifle to "The Shoulder" (No. IV.) and at the same time drop the left hand smartly to the side.

VII.

ORDER—ARMS.

The Order from the Shoulder.—Bring the rifle with the left hand, little finger in line with the point of the right shoulder, arm close to the body.

Two. { Bring the rifle down in the left hand nearly to the ground, keeping the rifle close to the body; then set the rifle with the right hand between the hands as described in "The Order," and place the butt quietly on the ground, drop the left hand at the same time smartly to the side.

VIII.

- FIX—SWORDS.** { *Fixing Swords.*—Place the rifle between the knees, guard to the front, and at the same time seize the scabbard with the left hand, turning the handle of the sword towards the right front; then seize the handle with the right hand, knuckles downwards.
- Two.** { Draw the sword to the front; turn the point upwards when it is well clear of the body, and seize the rifle with the left hand under the upper band. Place the back part of the handle against the right side of the barrel, knuckles to the right, arm close to the body, and slide the spring on to the catch, and the ring on to the muzzle; lastly, seize the rifle with the right hand between the bands, straighten the knees.
- Three.** { Take time from the right, return to “The Order.”

IX.

- SHOULDER—** {
- ARMS.** { As detailed in No. II.
- Two.** }

X.

- PORT—ARMS.** { *The Port.*—Seize the rifle as in the first motion of “The Present Arms” (No. III.).
- Two.** { Bring the rifle to a slanting position in front of the body, guard to the left and downwards, the barrel crossing opposite the point of the left shoulder, and seize it at the same time with the thumb

and fingers of the right hand round the small of the butt, the thumb and forefinger of the left hand remaining round the muzzle of the rifle; the left wrist to be opposite the left breast, both elbows close to the

XI.

AS A FRONT
RANK, CHARGE
—SWORDS.

The Charge.—Turning on the right heel, point the right foot to the right, the left heel full to the front, and bring the rifle to a nearly a horizontal position at the right side, with the muzzle inclining a little upwards; the right wrist to rest against the hollow of the thigh below the knee; the right hand to grasp the small of the butt, the thumb and fingers of the left hand to be round the rifle.

AS A REAR
RANK, CHARGE
—SWORDS.

Remain steady at "The Port."

XII.

SHOULDER—
ARMS.

The Shoulder from the Charge, Front Rank.—Raise the rifle to a perpendicular position at the right side, and seize it with the right hand at "the Shoulder" (No. II.), turning at the same time to the front; the left hand remaining in its place, arm close to the body.

Two.
SHOULDER—
ARMS.

Drop the left hand smartly to the side. *The Shoulder from the Port, as a Rear Rank.*—Bring the rifle with the left hand to the right side, and seize it with the right hand at "the Shoulder" (No.

- the left hand remaining in its place, arm close to the body.
- Two. { Drop the left hand smartly to the side.

XIII.

- SLOPE—ARMS. { *The Slope from the Shoulder.*—Seize the rifle as in the first motion of “The Present Arms” (No. III.).
- Two. { Carry the rifle on to the left shoulder, and seize it with the left hand, the first two joints of the fingers grasping the inside of the butt, the forefinger half an inch from the heel, the thumb in front of the heel, the muzzle slanting to the rear, and the guard pressed gently against the hollow of the shoulder. The upper part of the left arm to be close to the side, the lower part of the arm to be horizontal, the toe of the butt to point to the centre of the left thigh; the right hand holding the small of the butt, thumb and fingers round the stock, arm close in to the body.
- Three. { Drop the right hand smartly to the side.

XIV.

- SHOULDER—ARMS. { *The Shoulder from the Slope.*—Seize the small of the butt with the right hand, fingers and thumb round the stock, arm close in to the body.
- Two. { Bring the rifle to the right side, and seize it with the right hand at “The Shoulder” (No. II.); the left hand to seize the rifle close above the lower band to steady it to the shoulder.
- Three. { Drop the left hand smartly to the side.

XV.

ORDER—ARMS. } As detailed in No. VII.
Two. }

XVI.

UNFIX—
SWORDS.

- Unfixing Swords.*—Place the rifle between the knees, guard to the right, and, placing the thumb of the left hand on the spring of the sword, back the right hand to the front, seize the sword with the right hand. Tighten the guard on the rifle, press the spring, and raise the sword upwards clear of the muzzle.
- Two.* { Drop the point, with the edge to the front, towards the scabbard, raising the right elbow as it falls; at the same time seize the scabbard with the left hand.
- Three.* { Guide the sword into it. Seize the rifle with the right hand between the bands, straighten the knees.
- Four.* { Taking the time from the right, to “the Order.”

Of the foregoing motions, Nos. III.—XVI. are performed in the “Review Exercise.” See Section 8.

XVII.

SLOPE—ARMS.

The Slope from the Order.—Carry the rifle to the left side and seize the butt with the left hand, the first two joints of the fingers grasping the inside of the butt, the forefinger half-an-inch from the heel, the thumb in front of the

Two. { Raise the rifle until the guard presses gently against the hollow of the shoulder, muzzle to point to the rear; at the same time drop the right hand smartly to the side.

XVIII.

ORDER—ARMS. { *The Order from the Slope.*—Drop the left arm to its full extent, and seize the rifle with the right hand between the bands.

Two. { Carry the rifle to the right side and come to “The Order.”

XIX.

TRAIL—ARMS. { *The Trail from the Order.*—Give the rifle a sharp cant upwards with the right hand, seizing it behind the back-sight, and bring it to a horizontal position at the full extent of the arm, fingers and thumb round the rifle.

XX.

SHOULDER—
ARMS. { *The Shoulder from the Trail.*—Tightening the grasp of the right hand, bring the rifle to a perpendicular position, and seize it with the left hand at the lower band, at the same time raising it slightly and holding it at “The Shoulder” (No. II.).

Two. { Drop the left hand smartly to the side.

XXI.

TRAIL—ARMS. { *The Trail from the Shoulder.*—Seize the rifle with the left hand, at the lower band, arm close to the body.

Two. { Seize the rifle with the right
behind the back-sight; then bring
down to "The Trail," at the same
dropping the left hand smartly to the

XXII.

ORDER—ARMS. { *The Order from the Trail.*—Raise
the muzzle, catch the rifle between
bands and come to "The Order."

Arms must never be trailed with fixed swords.

XXIII.

SHOULDER—
ARMS. { As detailed in No. II.
Two.

In the foregoing exercises, great care must be taken to preserve the squareness of the body, and to avoid rounding or sinking either shoulder.

XXIV.

SLING—ARMS. { *The Sling from the Shoulder.*—Raise
the rifle a few inches, and extend
sling with the left hand as high as
crown of the head.
Two. { Without moving the rifle, place
sling over the head, and seize the
of the butt with the left hand.
Three. { Slip the right arm between the
and the stock, push the butt to the
and drop the hands to the sides.

XXV.

SHOULDER—
ARMS.

Two.

Three.

The Shoulder from the Sling.—Bring the butt forward in front of the body with the right hand grasping the small, and seize the butt with the left hand.

Pass the right arm between the sling and stock, seize the guard with the forefinger and thumb, and raise the rifle to a perpendicular position.

Lift the sling over the head, bring the rifle to the shoulder, and drop the left hand smartly to the side.

XXVI.

ORDER—ARMS.
Two.

} As detailed in No. VII.

XXVII.

GROUND—
ARMS.

Ground Arms.—Turn the rifle on the heel, guard to the right, sink the body, bending both knees, and place the rifle flat on the ground, guard to the right, muzzle inclining to the right front, block axis pin in line with the heels; rise at once, and return to the position of *Attention*.

XXVIII.

TAKE—UP—
ARMS.

{ Sink the body as in grounding arms, take up the rifle and come to "The Order."

XXIX.

THE SHORT TRAIL. { Raise the rifle from the ground,
ing the barrel close to the shoulder.

XXX.

STAND AT-EASE. { *The Stand-at-Ease from the Order.*
Push the muzzle of the rifle to the
with the right hand, arm close to
side; at the same time carry back
right foot six inches and slightly
the left knee.

Men always fall in in this position.

2. IN QUICK TIME.

The men having been thoroughly instructed in Manual Exercise by Numbers, will be taught to perform it in Quick Time; the foregoing words of command given without the numbers, and executed as above described, a pause of Quick Time between each motion, a pause of Slow Time should be made between the first and last part of each command.

3. MOTIONS OF THE RIFLE PERFORMED ON THE MARCH.

The men will learn to perform the following motions of the rifle while marching; they may be taught at first, marking time. Each motion should be done as the right foot comes to the ground, the command being complete as the right foot comes to the ground.

When seamen, standing at "The Order," step off, will come to the trail as they take the first step; executing, or with swords fixed, when they will come to the shoulder; returning, in all cases, to "The Order," they halt.

When marching with trailed arms, in line, or to a flank fours, and ordered to turn into file, or form two deep; with trailed arms in line, and ordered to form four deep, they will come to "The Shoulder" as they turn or form, and will trail again on turning from file into line, or on forming fours, or on re-forming two deep from four deep.

When marching diagonally, arms will be carried at "The Trail."

When seamen marching with trailed arms are required to turn to the right (or left) about, they will bring their rifles to a perpendicular position by a turn of the wrist on the first pace of the turn, and will trail again on the fourth, or the sixth, pace on which they step off in the new direction;—if "The Slope," they will bring their rifles to a perpendicular position on the first pace of the turn, and slope down on the fourth pace.

Seamen, marching with trailed arms, while forming to a front or rear from fours, will bring their rifles to a perpendicular position as above.

The above rules will equally apply when seamen are ordered to mark time from the halt.

When men standing with ordered arms are directed to form fours, to close to the right or left, to step back, or to take any named number of paces to the front, they will come to "The Short Trail."

Skirmishers, supports, and reserves, if unloaded, move to "The Trail."

QUICK—	{	<i>From the Halt with ordered Arms.—</i>
MARCH,		
or QUICK.	{	Step off (or commence marking time), bringing the rifle to "The Trail" as the first step is taken.
MARK—TIME.		
SHOULDER—	{	<i>The Shoulder from the Trail.—As on the halt.</i>
ARMS.		
ALL—ARMS.	{	<i>The Trail from the Shoulder.—As on the halt.</i>

- CHANGE—
ARMS. } *Changing Arms at the Trail.*—
the rifle to a perpendicular position;
right side, carry it to the left side
pass it into the left hand.
Two. } Lower it to "The Trail," at the
time dropping the right hand smartly
to the side.
- CHANGE—
ARMS. } Change the rifle back to the right
Two. } in a similar manner.
- SHOULDER—
ARMS. } As already taught.
- SLOPE—ARMS. } As already taught.
- CHANGE—
ARMS. } *Changing Arms at the Slope.*—
the left hand up quickly and seize
small of the butt, fingers and thumb
round the stock; at the same time
the butt with the right hand, two
joints of the fingers round the
thumb in front of the heel.
Two. } Raise the rifle to a perpendicular
position, carry it across the body and
it on the right shoulder.
Three. } Drop the left hand smartly to the side.
- CHANGE—
ARMS. } Carry the rifle back to the left shoulder
Two. } in a similar manner.
Three. }
- SQUAD—HALT. } Halt, and come to "The Order."
- QUICK—
MARCH,
or QUICK. } As already taught.
- MARK—TIME. }

LOPE—ARMS. { Carry the rifle to the left side and seize the butt with the left hand, the first two joints of the fingers grasping the inside of the butt, the fore-finger half an inch from the heel, thumb in front of the heel.

Two.

Raise the rifle until the guard presses gently against the hollow of the shoulder, muzzle to point to the rear, and at the same time drop the right hand smartly to the side.

TAIL—ARMS.

Two.

Drop the left arm to its full extent and seize the rifle with the right hand behind the back sight.

Bring it down to the trail.

LOPE—ARMS.

As already taught.

**CHANGE—
ARMS.**

As already taught.

LOPE—HALT.

Drop the right arm to its full extent and seize the rifle with the left hand at the lower band, then seize the rifle with the right hand close above the left, then bring the rifle to "The Order," and drop the left hand smartly to the side.

Charging.—Seamen will be taught to charge as follows:—

x—SWORDS. As already taught.

**QUICK—
MARCH.** } As already taught.

LOPE—ARMS. As already taught.

**PREPARE TO
CHARGE.** } A caution.

CHARGE.

{ If as a front rank bring the
 "The Charge," if as a rear rank
 at "The Slope." The whole
 into double time.

SQUAD—HALT. As already taught.

Fixing Swords on the March.—When seamen march at "The Trail" are required to fix swords, they will take the rifle into the left hand, then draw the sword with the right hand, bringing it out of the scabbard between the left arm and the body, inclining the barrel of the sword upwards, muzzle opposite the left breast, and fix the sword as on the halt:—this done, they will come to "The Shoulder," and drop the left hand smartly to the side.

If marching with sloped arms, and required to fix swords, the men will bring their rifles to "The Trail" and then proceed as above described.

Care should be taken, in fixing, not to damage the muzzle of the rifle.

S. 2. MANUAL EXERCISE IN TWO RANKS, PILING ARMS.

1. *Manual Exercise in Two Ranks.*—When seamen have been taught all the motions of the Manual Exercise, singly or in squads in single rank, they will be practised in squads of two ranks.

2. *Movements performed in Open and Close Order.*—Manual exercise is performed with the ranks at open order. Before seamen formed in line are required to salute, presenting arms, they will take open order; but not salute in quarter column.

3. *Distance between Ranks with Trailed Arms.*—When a squad in two ranks is required to step off, the rear rank will make their first pace a short one, or if order

At the time the rear rank will step back a pace of 9 inches to give sufficient room for their rifles when trailed; when ordered to trail on the march, the rear-rank will step short a pace:--when the squad is halted, the rear-rank will regain its distance by taking a long pace as it comes to the halt. When ordered to trail at the halt, the rear-rank will step back a pace of nine inches; resuming its distance on coming to "The Order." When ordered to shoulder or to open arms from "The Trail" on the march, the rear-rank will lengthen its pace to regain its distance.

4. *Motions of both Ranks the same.*—The motions of the rifle in the Manual Exercise are performed in the same manner by both ranks, excepting in "The Charge."

5. *Piling Arms.*—In addition to the motions of the rifle taught in single rank, the squad in two ranks, at close order, will be taught to pile arms as follows:—

BY NUMBERS

—PILE.

On the word *Pile*, the rear-rank will step back a pace of nine inches, and the front-rank men draw back the right foot ready to turn to the right about.

ARMS.

On the word *Arms*, the front rank will turn about, bringing their rifles with them at the short trail; the whole will then place the butts of their rifles between their feet, guards to the left; after which the odd number rear rank and the even number front rank will incline their rifles towards each other and cross rods, the front rank man keeping his muzzle down and the rear rank man up.

Two.

The odd number front rank will with his left hand seize the rifle of the even number front rank by the muzzle, bearing it from him, and with his right hand lock rods by passing his own by the left

- of the rods and to the right of the muzzles of the other rifles.
- Three.* The even number front rank, placing his rifle between the bands, will bring the heel of the butt to his right hip, so as to form a triangle of equal sides with the other two butts.
- Four.* The even number rear rank will place his rifle between the muzzles of the front rank, sling upper end to the right. When there is an odd file, each man in the file will lodge his rifle against the file nearer his right hand.
- STAND—
CLEAR. { Ranks will step back a pace of nine inches and turn to the directing file.
- STAND—TO { Ranks will turn inwards, and draw on their arms by taking a pace of nine inches forward.
- BY NUMBERS
—UNPILE { On the word *Unpile*, seize the rifle with the right hand under the upper end, the front-rank men at the same time drawing back their right feet and turning to the right-about.
- ARMS. { On the word *Arms*, unlock the rifle without hurry, by inclining the muzzle inwards, and come to "The Order Arms."
- Two.* The front rank will then fall from the rear rank close on it by taking a pace of nine inches forward.

In piling arms, the word *Dismiss* will be given. *Stand-clear.* On again falling in, the men will place themselves as they stood before dismissing.

It is necessary to be careful in piling and unpling arms to prevent damage being done to the rods and sights.

S. 3. PAYING COMPLIMENTS WITH ARMS.

When a petty officer or seaman passes or addresses an officer, he will do so at "The Shoulder," with the left arm brought across the body, and the hand, fingers extended, meeting the sling of the rifle in line with the right elbow.

S. 4. DISMISSING A COMPANY.

SHOULDER ARMS.	}	As before detailed.
RIGHT (or LEFT) TURN.	}	As taught in squad drill, S. 8.
DISMISS.	{	Each man will take a side step outwards, wait a pause, and then move away quietly.

S. 5. THE FIRING EXERCISE.

The squad will fall in at "The Order."

The men will be instructed:—

1stly. To load and fire standing.

2ndly. To load and fire kneeling.

3rdly. To load and fire lying down.

Each of these exercises will be taught:—

1stly. By Numbers.

2ndly. In Quick Time.

Squads are only to be instructed in the Firing Exercise Numbers in single rank.

1. TO LOAD AND FIRE STANDING BY NUMBERS "THE ORDER."

Caution,—*Firing Exercise by Numbers, Standing*

At—YARDS.
READY.

Turn on both heels half right, ing the rifle round with the body. right foot to point to the right slightly inwards, the left to the eyes to look to the front.

Two.

Advance the left foot, moving body with it, ten inches to the left (viz., six to the front, and eight left), toes to point to the front; same time, bring the rifle to a horizontal position at the right side, with the of the butt just in front of the grasping the stock with the left immediately behind the back thumb between stock and barrel, the small of the butt lightly with right hand between the trigger and the loop of the lever, elbow rear. The left elbow to be kept the body as a support for the rifle.

Care must be taken that the body is erect, the left perpendicular, with the left breast over the left foot the shoulders are at the half-turn, and the feet near right angles.

Three.

Placing the thumb inside the the lever, open the breech by a downward pressure, take a card between the forefinger and thumb right hand, and put it into the chamber pressing it well home with the thumb then close the breech by placing

fingers under the lever, thumb resting on the top of the butt, and pressing the lever home to the catch:—this, when unloaded, is termed the “Ready position.”

Four.

Adjust the back-sight, and fix the eyes steadfastly on some object in front. Then return the hand to the “Ready position.”

The back-sight will be adjusted as follows:—With the forefinger and thumb of the right hand, move the sliding until the top is even with the line, or at the place on the flanges showing the distance named; then, if necessary, raise the flap carefully, preventing it from springing with a jerk, and return the hand to the “Ready position.”

In giving the command “*Ready*,” some distance should always be named.

Present.

Bring the rifle smartly into the hollow of the right shoulder, which must not be allowed to give way (carrying it to the front, so as to clear the body in doing so), pressing it to the shoulder with the left hand; and at the same instant bring the left elbow under the rifle, and the right elbow nearly square with, and well to the front of the right shoulder to form a bed for the butt, without moving the body, or eye; placing the forefinger round the trigger, but without pressing it; the top part of the heel-plate to be in a line with the top part of the shoulder; the right hand to hold the small of the butt lightly, thumb pointing

to the muzzle, which is to be directed a few inches below the mark on which the right eye is fixed; the left eye to be closed.

Two.

Raise the muzzle steadily, until the top of the foresight is brought in alignment with the object through the notch over the centre white line of the back-sight, pressing the trigger at the same time without the least motion of hand, eye, or arm, until the spring is released, still keeping the eye fixed on the object. The breathing to be restrained in performing this motion.

Three.

Bring the rifle to the "Ready position," open the breech as in 3rd motion of "The Ready" but sharply to return the cartridge case, then placing the thumb on the thumb patch and fore-finger on the trigger, the remaining fingers under the guard, press the trigger firmly without touching the lever. Secure the lever in the catch by clasp the loop and small of the butt with the right hand, put down the sliding bar, the flap of the back-sight, if raised, and return the hand to the "Ready position."

N.B.—If the lever should fail to click when pressing the trigger, this indicates that the action is not in good order, and the lever must then be pressed home with the right hand. The main spring should never be allowed to remain compressed when the rifle is loaded. The pen-

of the indicator shows when the spring is compressed and when released; in the former case the indicator points to the block axis pin, in the latter it points upwards at right angles to the block. Springs must never be cased when a cartridge is in the chamber.

When the word "*Ready*" is given to men at the 3rd motion of the "*Present*," they will proceed with the 3rd and 4th motions of the "*Ready*."

As the first motion of the "*Present*" will not be learned without practice and much care, the Instructor will frequently give the command "*As you were*," when each man will bring the rifle to the right side without moving any part of his body but his arms, or his eyes from the object to be aimed at. The Instructor will then point out the defects observed. By this means each man will soon be accustomed to get into the position readily, and will require a full command of his rifle with the left hand.

The squad will also be brought back to the "*Ready*" by the command "*As you were*" after the 1st and 2nd motions of the "*Present*" for the Instructor to explain the motion that follows next in order; the men maintaining the erect position of the body, and keeping the eyes fixed on the object they are to aim at.

The most minute attention is to be given to each man's position when at the "*Present*;" more especially to see that the body is firm and erect, that the sights are upright, that the rifle is pressed firmly to the shoulder with the left hand so as to resist the recoil on the explosion of the powder; that the trigger is pressed steadily without the slightest motion of the hand or arm, while the muzzle of the rifle is being raised, and until the spring is released; and that the eye is fixed upon the mark during and after

snapping, to ascertain if the aim has been deranged by movement of the trigger or body.

The position of the head with reference to the butt, when taking aim, must depend entirely on the elevation used. With small elevation, the butt must be brought to the head by raising the shoulder, or the cheek must be placed on the butt, by bending the head a little forward (not sideways), as to get the eye fixed on the object through the notch of the back-sight; as the distances increase the head must be raised or the shoulder lowered.

Too much pains cannot be taken to ensure that a man takes a deliberate aim at some object whenever he brings the rifle to the "*Present*"; for this purpose, bull's-eyes are to be placed on the ship's side.

2. TO ORDER ARMS FROM THE THIRD POSITION THE "*PRESENT*" STANDING.

ORDER—ARMS. { Turn on the right heel to the left
at the same time bring the left foot
to the right, seize the rifle with the
hand close in front of the left, and
to "*The Order.*"

3. TO UNLOAD ARMS.

UNLOAD—
ARMS. { Open the breech as in the 3rd
of the "*Ready*," but with only so
strength to withdraw the cartridge
the chamber. Return the cartridge
the pouch, and close the breech
directed in the 3rd motion of the
"*Present*," putting down the back-sight
raised.

4. TO LOAD AND FIRE STANDING IN QUICK TIME.

The men having thoroughly learned the Firing Exercise Numbers, standing, will next be taught to perform it Quick Time by the following words of command, which to be executed as before detailed, resting a pause of 10 seconds time between each motion.

Caution,—*Firing Exercise Standing.*

— YARDS.	}	In four motions.
READY.		
PRESENT.		In three motions.
DER—ARMS.		In one motion.

TO LOAD AND FIRE KNEELING, BY NUMBERS FROM "THE ORDER."

Caution,—*Firing Exercise by Numbers, kneeling.*

— YARDS.	{	Proceed as detailed for the first motion of the "Ready" from "The Order" (No. 1).
READY.		

Two.

Bring the rifle to a horizontal position at the right side as in the 2nd motion of the "Ready" from "The Order" (No. 1): at the same time sink on the right knee twelve inches to the rear and twelve to the right of the left heel, and square with the right foot, bringing the weight of the body at once on the right heel; and place the left forearm six inches behind, and nearly square with the left knee, left toes to point to the front, the butt to rest against the right side.

Three. } As detailed when firing standing.
 Four. }

The length of the leg in very tall men being greater than the breadth of the body, they have not room, in order to get the knee square with the foot; in such cases the knee will be inclined to the front, but not beyond the inside of the right foot of the man on the right.

PRESENT.	{	As detailed when firing standing placing the left elbow at once over left knee as a support. The body is to be raised off the heel in bringing rifle to the shoulder.
Two.		As detailed when firing standing.
Three.		As detailed when firing standing bringing the left forearm as directed in the 2nd motion of the "Ready kneeling."

The instructions which follow the "*Present*" standing are applicable to this position when on the knee.

6. TO ORDER ARMS FROM THE THIRD POSITION TO THE "PRESENT" KNEELING.

ORDER—ARMS. { Spring to *Attention*, turning on left heel to the front, and order as before detailed.

7. TO LOAD AND FIRE KNEELING, IN QUICK TIME.

The men having been thoroughly instructed in the motions of loading and firing on the knee by Numbers, next be taught to perform them in quick time by the following words of command, which are to be executed before detailed, resting a pause of quick time between each motion.

Caution,—*Firing Exercise, Kneeling.*

AT—YARDS.	}	In four motions.
READY.		
PRESENT.		In three motions.
ORDER—ARMS.		In one motion.

3. TO LOAD AND FIRE LYING DOWN BY NUMBERS
FROM "THE ORDER."

The squad is to be opened out to an interval of one side
ap.

Caution,—*Firing Exercise by Numbers lying down.*

AT—YARDS.	{	Proceed as detailed in the first motion of the "Ready" from "The Order" (No. 1).
READY.		
Two.	{	Place the right knee and left hand on the ground and lie down on the stomach, obliquely to the line of fire, then bring the body round, from the hips only, in the direction of the object, and change the rifle from the right to the left hand; the legs to be separated or the right foot hooked over the left ankle at the option of the firer.
Three.		
Four.		
PRESENT.	{	As detailed when firing standing, turn- ing over on the left side if necessary.
		As detailed when firing standing.
Two.	{	As detailed when firing standing, bringing the rifle into the shoulder clear of the collar-bone, both elbows to rest on the ground and be closed inwards, but without constraint, the rifle to be grasped firmly in the palm of the left hand.
		As detailed when firing standing.

- Three. { As detailed when firing standing
bringing the left fore-arm on to
ground.
- ORDER—ARMS. { Change the rifle from the left to
right hand, place the left hand on
ground, rise and order arms.

9. TO LOAD AND FIRE LYING DOWN IN QUICK TIME.

Caution,—*Firing Exercise lying down.*

- AT — YARDS. } In four motions.
READY. }
- PRESENT. In three motions.
- ORDER—ARMS. In one motion.

10. LOADING AND FIRING IN TWO RANKS.

When the men have learned all the motions of the Firing Exercise, standing and kneeling, in single rank, they practise the following modes of firing:—

1. Volleys, front rank kneeling.
2. Independent firing, front rank kneeling.

In both volley and independent firing, the front rank will kneel on the word *Ready*.

In firing volleys, or independently, the number of rounds will always be specified. When the order is to fire more than one round, the lever will not be closed after removing the cartridge case (in volley firing the thumb will remain in the loop of the lever until after the word “Ready” given), neither will the sliding bar of the back-sight be raised, be put down until after the last round. In all cases, on ceasing to fire, the men will order by word of command, first removing the empty cartridge case as directed in the 3rd motion of the “Present,” or unloading, as directed in No. 3.

If men have been brought to the "*Ready*" and are not required to fire, they will unload by word of command.

The mode of firing in square is detailed in S. 6.

11. VOLLEY FIRING.

Caution,—*Fire—Volleys.*

AT—YARDS.	}	As before detailed.
READY.		
PRESENT.	{	As before detailed, bringing the sights at once into the alignment.
FIRE.	{	Each man will at once press the trigger firmly, but without a jerk, and then proceed as detailed in the third motion of the " <i>Present</i> ."

EASE FIRING, As detailed in No. 10.

ORDER—ARMS. As before detailed.

N.B.—After the order "*Present*" the Instructor should pause before giving the order "*Fire*" a sufficient length of time to admit of the sights being carefully aligned. The order "*Fire*" must be given distinctly and with decision.

2. INDEPENDENT FIRING.

Caution,—*Rounds, Independent Firing.*

AT—YARDS.	}	As before detailed.
READY.		
COMMENCE.	{	Each man will come to the " <i>Present</i> " independently, take a calm and deliberate aim, and fire, avoiding all hurry.
EASE FIRING.	As detailed in No. 10.	
ORDER—ARMS.	As before detailed.	

S. 6. PREPARING FOR CAVALRY.

The Squad in two ranks:—

FIX SWORDS.
PREPARE FOR—
CAVALRY.

As taught in the "Manual Exercise"
The first rank will make a half-
turn and sink upon the right knee
without bringing the weight of a
body on the heel, and, at the same time
place the butts of their rifles on the
ground against the inside of their right
knees, guard to the right with the muzzle
slanting upwards so that the point of the
sword may be about the height of the
horse's chest; the left hand to grasp the
rifle firmly immediately above the lower
band, the right hand to hold the small
the butt, the left arm to rest upon the
thigh about six inches from the knee.
The second rank will come to the
"Ready position" (the muzzles of the
rifles to be slightly inclined upwards).

When men standing with unfixed swords are ordered
to prepare for cavalry, they will at once fix swords, and
proceed as before described.

When one rank only is required to fire, the caution "standing
(or kneeling) rank" will precede the order for firing.

—ROUNDS
INDEPENDENT
FIRING AT
—YDS. READY
COMMENCE or
FIRE—
VOLLEYS AT
—YDS. READY.
PRESENT.
FIRE.

Both ranks will proceed as detailed in
S. 5, except that on completing the
number of rounds ordered to be fired
they will return to the position "Prepare
for Cavalry."

KNEELING
RANK
PREPARE FOR—
CAVALRY.

This caution to be given should it be deemed necessary for the kneeling rank to come to the kneeling charge.

CEASE FIRING.
ORDER—ARMS
or UNLOAD
--ARMS.
ORDER—ARMS.
or
ORDER—ARMS.

As before detailed. Either rank that may not have been required to fire will order at the same time as the remainder.

If considered expedient, the standing and kneeling ranks may fire volleys alternately, time being allowed between rounds for the smoke to clear away.

S. 7. A FEU-DE-JOIE.

For this mode of firing the line will be drawn up at open order, as described in Part III., S. 3, except that the commanding officer will take post in the rear.

WITH BLANK
CARTRIDGE.
READY.
PRESENT.

Both ranks to stand; muzzles of rifles to slant upwards when loading, and to remain so.
Rifles to be elevated at an angle of 45°.

The right-hand man of the front rank commences the feu, which will run down the front and up the rear as quickly as possible. When the right-hand man of the rear rank has fired, the whole will glance their eyes to the front to bring the rifle to the "Ready position."

READY.
PRESENT. } As before directed.

The same to be repeated a third time.

ORDER—ARMS.

The commanding officer will then move to the front and give the following commands:—

SHOULDER—ARMS.

ROYAL SALUTE.

PRESENT—ARMS.

SHOULDER—ARMS.

ORDER—ARMS.

THREE CHEERS.

When artillery are present and are ordered to fire guns, seven will be fired before each round of the de-joie.

S. 8. REVIEW EXERCISE.

At inspections or reviews, the Manual and Firing Exercises will be performed in Quick Time. The men standing at "The Order" will be ordered to shoulder and take order, as described in Part IV., S. 1; after which the word of command will be as follows:—

Caution—*Manual Exercise.*

- I. PRESENT—ARMS.
- II. SHOULDER—ARMS.
- III. SUPPORT—ARMS.
- IV. SHOULDER—ARMS.
- V. ORDER—ARMS.
- VI. FIX—SWORDS.
- VII. SHOULDER—ARMS.
- VIII. PORT—ARMS.
- IX. CHARGE—SWORDS.
- X. SHOULDER—ARMS.
- XI. SLOPE—ARMS.

XII. SHOULDER—ARMS.
 XIII. ORDER—ARMS.
 XIV. UNFIX—SWORDS.
 CLOSE—ORDER. MARCH.

Caution,—*Firing Exercise.*

FIRE A VOLLEY. AT 400 YARDS.

READY. PRESENT. FIRE.

ORDER—ARMS.

or

FIRE—VOLLEYS.

AT 400 YARDS.

READY. PRESENT. FIRE.

ORDER—ARMS.

STAND AT—EASE.

S. 9. MANNER OF INSPECTING ARMS.

The company having been inspected, as directed in Part II., S. 1, swords having been unfixed, and arms shouldered, the inspecting officer will proceed as follows:—

FOR INSPECTION; PORT—ARMS.	{	When at "The Port," open the breech, and grasp the small of the butt with the right hand, thumb pointing to the muzzle.
----------------------------------	---	--

The officer will go down the ranks to see that the block free from rust, and otherwise clean; also, if necessary, see that it is free in its action.

LOSE ORDER—MARCH.

EXAMINE.	{	Rear rank take a pace of 10 inches to their right front.
ARMS.	{	Both ranks will make a half right turn, and bring their rifles to a perpen- dicular position.

Two.

{ Both ranks will come to the position of the "Ready," with muzzles of their rifles so inclined enable the officer to look through barrels.

The officer will now proceed to look through each bayonet to see that it is clean and free from rust. Each man, as the officer passes the file nearest to him, will close breech, by easing springs as directed in the 3rd motion of the "Present," order arms, resume his distance (if a rank man), and stand at ease.

S. 10. RIFLE EXERCISE FOR PETTY OFFICERS.

Petty officers, when moving with their companies or the battalion, will remain with unfixed swords, except when they are in a square or when charging in line, in which cases they will have their swords fixed.

Petty officers will stand at ease and come to attention with the men; they will also shoulder arms, slope (order arms), and order arms with them. The petty officers, during the performance of the Manual and Firing Exercises by rank and file, will remain steady at "The Shoulder," during the Sword-Bayonet Exercise at "The Order."

RECOVER—
ARMS.

{ *The Recover.*—Petty officers receive arms as follows:—Seize the rifle as directed in the first motion of "The Present Arms," then raise it perpendicular in front of the face, right hand grasping the small of the butt, thumb as high as the mouth, barrel to the front; at the same time place the left hand under the thumb in front of the heel, first joints of the fingers round the side of the butt.

TAKE UP THE
ALIGNMENT TO
THE LEFT. } Extend the left arm, back of the hand
down.

EYES—FRONT. Return to the "Recover."

TAKE UP THE
ALIGNMENT TO
THE RIGHT. } Shift the left hand to the small, and
extend the right hand.

STEADY. Return to the "Shoulder."

Markers giving points for a line or column formation will, on gaining the proper interval, halt, turn towards the covering officer, and recover arms, at the order Steady from him they will come to the Shoulder, and if it is to be a line formation they will turn to their front.

S. 11. SENTRIES.

Sentries are to walk about with their arms shouldered, sloped, or trailed; when at the halt they may support arms.

If moving at "The Slope," or "The Trail," they will not necessarily bring the rifle to a perpendicular position as they turn about at each end of their walk.

Salutes are to be as follows:—

Officers wearing more than two rings
of distinction lace on their sleeves - } Present Arms.

Officers other than the above, wearing
distinction lace on their cuffs - } Shoulder Arms.

Other officers - - - - - Attention.

S. 12. SWORD BAYONET EXERCISE.

The division fall in in two ranks, at "Close Order," are numbered from right to left.

FIX SWORDS. As detailed in the "Manual Exercise."

NOTE.—The front rank is then marched off a few paces and turned about, or single rank is formed in the usual manner.

GUARD. (From the Shoulder, Slope, or Order.) { Step back with the right foot, carrying it off six inches to the right, both knees, at the same time bring rifle to the position of "Charge Sword" except that the point of the sword is somewhat lower, the right wrist is to rest upon the upper part of the hip, and left elbow close to, and in front of body.

POINT. { Point quickly at the centre of breast, extending the arms, elbows unextended, and shifting the grasp of the left hand close to the guard, then resume the position of "Guard."

ADVANCE. { Move the right foot up in line with the left, and instantly advance the left foot.

POINT. As before detailed.

RETIRE. { Move the left foot back in line with the right, and instantly step back with the right foot,

POINT. As before detailed.

RIGHT—
PARRY. { Keeping the left elbow close in to the body, carry the point off quickly to the right front, at the same time inclining the barrel to the right, and then immediately return to the position of "Guard."

LEFT—PARRY. { As for "Right Parry," except that the point is carried off to the left front and the barrel is inclined to the left.

NOTE.—This parry will carry off all cuts or points delivered at the right (or left) side.—When necessary to parry high or low cut or point, the point must be smartly raised or lowered at the same time that it is carried to the right (or left).—The Instructor will occasionally direct the men to give a high or low parry, by denoting the point of the attack, thus:—

[HEAD (THIGH OR LEG) RIGHT (OR LEFT). A caution.
[PARRY. As above detailed.

ABOUT. { Turn to the right about on the heels, carrying the left foot off to the left, and at the same time smartly change the hold of the rifle with the right hand at the balance, grasping the small of the butt with the left, and sink down again to the position of "Guard."

NOTE.—The whole of the foregoing drill will now be gone through with the Rifle at the left side, after which the word "About" is to be again given, when the division resume their original front.

SHOULDER—
ARMS. { As in the "Manual Exercise," bringing the right foot up to the left.

GUARD. As before detailed.

SLOPE—ARMS. { As in the “Manual Exercise,”
ing the right foot up to the left.

GUARD. As before detailed.

ORDER—ARMS. { As in the “Manual Exercise,”
ing the right foot up to the left.

NOTE.—The original formation in two ranks is
be resumed.

UNFIX SWORDS. As in the “Manual Exercise.”

S. 13. FUNERAL EXERCISE.

This exercise will first be taught in single ran
numbers.

SHOULDER—
ARMS. }
PRESENT—
ARMS. } As usual.

“By
NUMBERS.”

REVERSE—
ARMS.

{ Throw the rifle out to the front
full extent of the left arm, give the
a cant with the right hand toward
body, bringing it inside the left
and turning the muzzle straight
the front; seize the rifle with the
hand under the lower band, barrel
front, muzzle pointing down, gun
high as the chin; and seize the
of the butt with the left hand
moving the rifle, arms to the full

- REST ON YOUR ARMS REVERSED.** { *Two.* Give the rifle a cant under the left arm, bringing the muzzle to the rear, sling uppermost; and with the right hand behind the body seize the rifle, and bring the right foot up to the left.
- STAND AT-EASE.** { Quitting the rifle with the right hand, bring it with the left to a perpendicular position, and lower it until the muzzle rests upon the toes of the left foot; then place the right hand open upon the butt, and cover it with the left.
- ATTENTION.** { The men's heads will lean on the breast, the movements of the feet being as usual.
- REVERSE—ARMS.** { The men will raise their heads, and spring to "Attention."
- REST ON YOUR ARMS REVERSED.** { Lay hold of the rifle with the left hand at the small, and bring it under the left arm, muzzle slanting to the rear, sling uppermost, grasping it with the right hand in rear of the body, as above described.
- "BY NUMBERS."** { As before described.
- PRESENT—ARMS.** { Seize the rifle with the left hand at the swell, thumb in front, back of the hand towards the body.
Two. Seize the small of the butt with the right hand, the back of it to the left, thumb pointing down.

Three. Turn the rifle with the close to the outside of the right arm, inclining the muzzle to the front, in position of "The Present Arms."

SHOULDER—
ARMS.
CLOSE—
ORDER,
MARCH.
ORDER—
ARMS.
STAND AT—
EASE.

} As usual.

This exercise will then be taught in two ranks in time, the men being drawn up at open order.

II.
FIELD EXERCISES.

II.—FIELD EXERCISES.

PART I.

SQUAD DRILL.

GENERAL RULES.

Words of Command.—1. Every command must be given, and distinctly pronounced, so as to be heard by all concerned.

Every command that consists of one word must be preceded by a caution; the caution, or cautionary part of a command, must be given slowly and distinctly; the last executive part, which, in general, should consist of only one word or syllable, must be given sharply and quickly; *Company—Halt: Half Right—Turn.* A pause of slow time will invariably be made between the caution, or cautionary part of a command, and the executive word.

When the last part of a caution is the signal for any preparatory movement, it will be given as an executive word, separated from the rest of the command by a pause of slow time; thus, *Right—Form, Quick—March*, as though there were two separate commands, each with its cautionary executive word.

When the men are in motion, executive words must be completed as they are commencing the pace which will bring them to the spot on which the command has to be

executed. The cautionary part of the word must, the be commenced accordingly.

N.B.—All the instructions relating to the position movements of the rifle when marching, will be found Rifle Exercises.

S. 1. Position of the Man.

The heels to be in line and closed. The toes turn so as to form an angle of 45 degrees. Both knees straight the body upright, the shoulders and body square to front. The head erect, eyes to look to the front. rifle placed as described in S. 1., Manual Exercise.

S. 2. Formation of the Squad in Single Rank.

Before commencing the drill, the men will be formed in single rank without intervals, that is, nearly touching each other. Each man is allowed a space of 24 inches.

The right-hand or left-hand man being first placed the remainder will fall in in line one after the other, each man slightly towards him, turning the elbow slightly outwards. Seamen must be carefully instructed in "The Touch" in this formation, it is the principal guide when marching. Each man, when properly in line, should be able to touch his right or left-hand man at the elbow; the body must be preserved in the position described in S. 1.

S. 3. *The Side or Closing Step.*

light Close,
Quick—March.

On the word *March*, each man will carry his right foot 12 inches direct to the right, and instantly close his left foot to it, thus completing the pace; he will proceed to take the next pace in the same manner: shoulders to be kept square, knees not bent, unless on rough or broken ground. The direction must be kept in a straight line to the flank, neither inclining to the front nor rear.

Squad—Halt.

On the word *Halt*, the men will complete the pace they are taking, and remain steady.

Seamen will be practised in closing to the left in like manner.

Seamen will also be practised in taking any given number of paces to either flank, and then halting without word of command; the command to be given thus, *Three paces to the right Close, Quick—March.*

S. 4. *Formation of Squad in Two Ranks.*

The squad will now be formed for drill in two ranks, as explained in Part II., Gen. Rule II. The men will take their places in succession, commencing from the flank on which they are ordered to form; each rear-rank man will be placed one pace of 30 inches from his front-rank man, measuring from heel to heel, and will cover him exactly, the two men thus placed forming "a File." When the squad consists of an uneven number of men, the third man from the left of the front rank will be a "flank" (or incomplete) "File." The file on the left of the right half squad will always be the centre of the squad.

S. 5. *Numbering.**Number.*

On the word *Number*, the right man of the front rank will call *One*; the next man *Two*, and so on in succession to the left. The rear-rank men will call the numbers of their respective rank men.

S. 6. *Stand at Ease.*

As detailed in the Rifle Exercises.

If the command *Stand-at-Ease* is followed by the command *Stand—Easy*, the men will be permitted to move their feet, but without quitting their ground, so that on command *Attention* no one shall have materially lost his dressing line. If men are required to keep their dressing accented, they should be cautioned not to move their left feet.

On the word *Squad* being given to men standing at ease, every man will at once assume the position of *stand at ease*, and on the word *attention* will spring up to the position described in S. 1.

Men should never be kept for any great length of time at attention.

S. 7. *Forming Single Rank and Two Deep.*

From the Right
(or *Left*), *Form*
Single Rank.

Quick--March.

If forming from the right, on the command *March* the front-rank man of the file will stand fast, and the rest of the squad will close to the left by the step; the rear-rank man of the file will come up on the left of his front-rank man as soon as there is room for him; the front-rank man of the next

will then halt, and so on to the left of the squad, each rear-rank man moving up on the left of his front-rank man.

on the Right } If forming from the left, on the word
(Left), Form } *March* the rear-rank man of the left file
single Rank. } will step up on the left of his front-rank
man, who will stand fast; the rear-rank
man of the next file will also stand fast,
ick—*March*. } the rest of the squad will close to the
continued.) } right; as soon as there is room for the
rear-rank man of the 2nd file from the
left, he will move up on the left of his
front-rank man, who will halt; the rear-
rank man of the 3rd file will then halt,
and so on to the right; each rear-rank
man moving up on the left of his front-
rank man, all touching to the left.

on the Right } On the words *Form Two—Deep*, the
(or Left), } even numbers will take one pace to the
orm Two— } rear.
Deep. }

ick—*March*. } On the word *March*, the whole will
close on the flank named, the rear-rank
men covering.

S. 8. Turnings.

Seamen will be taught how to turn to the right and
and to the right and left about, also how to make a
half-turn to the right and left, and a three-quarters turn
the right and left about

In going through these turnings, the left heel never quit the ground; but each man must turn on a pivot, the right foot being drawn back to the body to the right, and carried forward to turn it left.

Men are never unnecessarily to stand turned to the

S. 9. *Changing Ranks.*

*Change—
Ranks.*

Number.

On the word *Ranks*, the squad turn to the right-about; if the blank file, he will step up in line the new front rank, the new rear men covering off by the side step. The squad will then be re-numbered.

S. 10. *Dressing when Halted.*

*Right hand
Man of the
Front Rank, a
pace and a half
to the front—
March.*

Dress—Up.

1. Preparatory to teaching a squad dress by the right, the Instructor order the right-hand man of the rank to take a pace and a half to the front.

On the word *Dress—Up*, the man of the front rank, except the right-hand man, will take a pace to the front, turn their left feet, glance their eyes to the right with a slight turn of the head in the same direction, and, commencing from the right, will shuffle up with short quick steps until each man can just see the lower part of the face of the second man from him.

The body must be carried forward or backward with the feet; no bending forward or backward must be allowed; the shoulders must be kept perfectly square, and the position as described in S. 2 retained throughout.

The rear-rank men will continue looking to their front, and will cover and correct their distances as the front-rank men take up their dressing.

The Instructor will place himself two paces from the right flank, and should invariably fix on some casual object to which to dress his line. The faces of the men, not their breasts or feet, are to be the line of dressing.

Eyes—Front. { When the Instructor is satisfied that the line is correct, he will give the words *Eyes—Front*, on which the men will turn their heads and eyes to the front.

In like manner the squad will be taught to dress by the flank; also both by the right and left with the ranks changed.

2. *Dressing without Points.*—When seamen are on the ground they have to occupy, and their dressing is simply to be corrected, the words *Right* (or *Left*)—*Dress*, or after the word *Halt*, the word *Dress* only, will be given, on which they will shuffle up or back to their places successively, commencing with the man on the flank from which they are dressed.

It will be found most useful to accustom men to dress to an alignment not parallel or perpendicular, but oblique, to any well-defined adjacent line, such as the side of the ship.

S. 11. *Turning when on the March.*

This Section, in which the manner of turning *when on the march* is explained, will be practised in combination with Ss. 15, 26, and 27.

Right (Left, Front or Rear) — Turn. { 1. *Turning to the Right, and to the Front.*—On the word *Turn*, each will turn in the named direction and move on at once, without checking the pace.

2. *Making a Half Turn to the Right, or Left.*—Men will also be practised in making a half turn to the right or left, and then moving on (without checking their pace) in a diagonal direction, taking up fresh points, at once *when on the march* on.

3. *Turning to the Right About.*—Men will also be practised to turn to the right about *when on the march*. The word *Turn* being given as the left foot comes to the ground, the men will turn in three paces without losing the cadence, the fourth being a full pace in the new direction.

MARCHING.

The squad will first be taught to march straight to the front and rear, both by the right and left, in quick time; it will then be practised in turning about *when on the march*, in all the varieties of step, and in marking time, after which it will be exercised in the double time.

The men will be practised in changing the pace, *when on the march*, from quick to double, and from double to quick.

Before the executive word *Quick* or *Double*, the command *Break into Quick (or Double)*—*Time* should be given.

S. 12. *Length of Pace.*

In slow or quick time the length of a pace is 30 inches, except in "stepping out," when it is 33 inches, and in "stepping short," when it is 21.

In "double time" the length of a pace is 33 inches. The length of the side step is 12 inches.

N.B.—When a man takes a side pace to clear or cover another, as in forming four deep, which will be hereafter described, the pace will be 24 inches.

S. 13. *Cadence.*

In slow time, 75 paces are taken in a minute. In quick time, 116 paces, making 96 yards 2 feet in a minute and 3 miles 3 yards in an hour. In double time, 165 paces, making 151 yards 9 inches in a minute and 5 miles 275 yards in an hour.

S. 14. *Directing and Reverse Flanks.*

As explained in the Definitions.

S. 15. *Marching to the Front and Rear.*

By the Right,
(or Left). { On the caution *By the Right* (or *Left*), the man on the named flank of the leading rank will select points to march on, taking up a straight line to his front by first looking down the centre of his body between his feet, then fixing his eyes on some object straight to his front, and afterwards observing a nearer point in the same straight line.

During the march, care must be taken that neither the head nor the eyes are ever turned towards either flank; that

the shoulders are kept perfectly square and the body straight, that the front rank keep their dressing by the ton directed in S. 2; and that the rear rank accurately preserve their covering and distance. When the squad turns rear, a blank file, after turning about, will step and occupy the vacant space in the rear rank. On turning the front, he will resume his original place.

Quick—March. { The time having been given, on the word *March* the squad will step together, with the left foot.

The Instructor should occasionally remain halted in front of the man on the directing flank; and, by fixing his eye on some distant object, ascertain if the squad is marching straight to its front.

When a man finds himself a little behind, or before other men of his squad, he must be taught to recover his place in the rank gradually, and not to jump or rush, which would make him unsteady, and spoil the march of the rest of the squad.

S. 16. *The Halt.*

Squad—Halt. { On the word *Halt*, the moving file will complete its pace, and the rear file be brought up in line with it.

It is a general rule that after the word *Halt*, the squad, whatever their position, will stand perfectly steady, and be ordered to *Dress*.

S. 17. *Stepping Out.*

Step—Out. { When marching in quick time, on the words *Step—Out*, the men will lengthen their pace to 33 inches by leaning forward a little, but without altering the cadence.

This step is used when a slight increase of speed, without an alteration of cadence, is required; on the word *Quick*, the pace of 30 inches will be resumed.

S. 18. *Stepping Short.*

Step—Short. { On the words *Step—Short*, the foot advancing will finish its pace, and afterwards each man will take paces of 21 inches until the word *Forward* is given, when the usual pace of 30 inches will be resumed.

This step is used when a slight check is required.

S. 19. *Marking Time.*

Mark—Time. { On the words *Mark—Time*, the foot then advancing will complete its pace, after which the cadence will be continued, without advancing, by raising each foot alternately about three inches from the ground, keeping the body steady; on the word *Forward*, the usual pace of 30 inches will be resumed.

From the halt, the word of command will be *Quick, Mark—Time.*

S. 20. *Stepping Back.*

Step Back
Slow—March. { In stepping back, the pace will be 30 inches. Men must be taught to move straight to the rear, preserving their shoulders square to the front and their bodies erect. On the word *Halt*, the foot in front will be brought back square with the other.

Halt.

A few paces only of the step back can be necessary at a time.

S. 21. *Changing Feet.**Change—Feet.*

To change feet in marching, then advancing foot will complete its pace, the ball of the rear foot will be brought up quickly to the heel of the advancing one, which will instantly make a step forward, so that the cadence not be lost, in fact two successive steps will be taken with the same foot.

This may be required when any part of a battalion or single seaman, is stepping with a different foot from rest.

S. 22. *The Double March.*

*By the Right
(or Left),
Double—March.*

The time having been given, on the word *March*, the men will step together with the left foot; at the same time grasping the scabbard of the sword with the left hand, the head to be erect, and the shoulders square to the front; the knees being more bent, the body more advanced, than in other marches. The Instructor will be careful to habituate the men to this step of 33 inches.

Squad—Halt. As in S. 16, at the same time draw the left hand to the side.

The men will be taught to mark time in the same manner as in the quick.

S. 23. *The Motions of the Rifle.*

The motions of the rifle on the march which have not been already practised, should now be taught.

S. 24. *Changing Front by Wheeling or File Formation.*

1. *By Wheeling.*—On the word *March*, the right-hand man of the front rank, called the pivot man, will mark time, turning gradually with the squad, to the new front; the remainder will step off, the whole of the front rank turning their eyes to the left (the wheeling flank), except the left-hand man, who will look inwards, and step the usual pace of 30 inches, the other men regulating their length of pace according to their distance from the pivot flank; each man of the rear-rank will follow his front-rank man, and keep his proper distance and covering. During the wheel, the front-rank men must touch lightly, as explained in S. 2, towards the pivot flank, keeping their shoulders square in line; crowding must be carefully avoided; each man must yield to any pressure that may come from the pivot flank, and resist all pressure coming from the outer flank.

Right Wheel.
Wheel—March.

Squad, Halt—
Dress.

On the word *Halt*, which may be given at any period of the wheel, the men will halt and turn their eyes to the front; on the word *Dress*, they will take up their dressing by the right, as described in S. 10, No. 2.

Eyes—Front. { On the word *Front*, the men will
 { their heads and eyes to the front.

A squad will wheel to the left in like manner.

Nothing will sooner tend to enable the men to the length of step proportioned to their distances from pivot, than continuing the wheel without halting for revolutions of the circle.

When men are required to wheel to the rear of the ment they occupy, they will be turned about, and wheeled as above directed, receiving the words *Front—Dress*, followed by *Eyes—Front*, when in position.

After wheeling has been taught in quick time, it is practised in double time.

Right—Form.

Quick—March.

2. *By File Formation.*—On the word *Form*, the right-hand man of the front rank will turn to the right; the remainder will make a half-turn to the right. On the word *March*, all the men of the front rank will step off; each man, after glancing to the right, will move at the usual length of pace, by the side line, to his place in the new front rank, and take up his dressing by the right hand man of the rear-rank. The right-hand man of the rear-rank will preserve a diagonal position with his front man.

Eyes—Front. { On the word *Front*, the men will
 { their heads and eyes to the front.

A squad will form to the left in like manner.

If on the march, at the order *Right—Form*, the right-hand man of the front rank will turn to the right and dress the remainder as from the *Halt*.

This formation will be practised in double as well as in single time.

S. 25. Changing Direction on the March.

- | | | |
|---------------------|---|--|
| <i>Right—Wheel.</i> | { | On the word <i>Wheel</i> , the men will wheel to the right as explained in S. 24, No. 1; the pivot man turning gradually with the squad. |
| <i>Forward.</i> | { | On the word <i>Forward</i> , the whole will turn their eyes to the front and step off at a full pace. |

The Instructor will give the word *Forward* when he sees that the men are commencing the pace that will bring the front of the squad perpendicular to the direction in which he intends it to move: this may be done at any degree of angle.

In like manner, the squad will be taught to change direction to the left.

S. 26. The Diagonal March.

This march will first be taught commencing from the front, after which the men when marching in line will be practised in moving diagonally to either flank, by making a half turn in the direction required.

- | | | |
|---|---|---|
| <i>Half Right—
Turn.
Quick March.</i> | { | 1. <i>From the Halt.</i> —On the word <i>Turn</i> , the men will take a half turn to the right, and on the word <i>March</i> , each man will step off and move correctly in the diagonal direction, no longer keeping the touch. The right-hand man of the front rank will direct, and must therefore pay particular attention to his direction and pace. Each of the other front-rank men will glance towards the right, |
|---|---|---|

and will retain his relative position, keeping his right shoulder behind his left shoulder of the next man on the side. The rear-rank men will preserve their relative positions with their front-rank men, in order that they may be found to cover correctly when they halt and fronted.

*Squad,
Halt—Front.*

On the word *Halt*, the squad will halt, and on the word *Front*, it will turn to its original front.

If the diagonal march has been properly performed, the squad when halted and fronted will be found to be in a position parallel to its original position.

*Half Right—
Turn.*

2. *On the March.*—When the squad is marching to the front, and is required to move in a diagonal direction to the right, the word *Half Right—Turn* will be given, upon which the men will turn half right and move diagonally in that direction as described from the halt; when it is intended to resume the original direction, the word *Front—Turn* will be given, upon which every man will turn to his front and move forward without checking pace.

Front—Turn.

In like manner, the diagonal march will be practised to the left, from the halt and on the march.

The diagonal march will also be practised in double time.

S. 27. Marching in File.

Seamen will first be taught to commence marching in file, from the halt; after which they must be taught, when marching in line, to turn to either flank in file.

*Right (or
Left)—Turn.*

1. *From the Halt.*—Seamen when standing in file, must be instructed how to cover each other exactly. The head of the man immediately before each, when correctly covered, will conceal the heads of all the others in his front.

The strictest observance of all the rules for marching is particularly necessary when marching in file.

Quick—March.

On the word *March*, the whole will step off together at a full pace, and will so continue to step without increasing or diminishing the distance between each other. No looking down, nor leaning back is to be allowed. The leading man of the front rank is to be directed to march straight forward on some distant objects; the remainder of the front rank will cover correctly during the march; and the rear-rank men will dress correctly by their respective front-rank men.

*Squad,
Halt—Front.*

On the words *Halt—Front*, the men will halt and turn to their original front, and, if the marching has been properly performed, their dressing will be found correct.

Right—Turn.

2. *On the March.*—On the word *Turn*, the men will turn to the right, and move on in file.

Front—Turn.

The original direction is resumed by giving the word *Front—Turn*, on which the men will turn to the front, and then move on steadily in line.

In like manner men will be taught to turn to the left

from line and march in file, and when marching in turn again to the front.

Marching in file will be practised in quick time never in double time.

S. 28. *Wheeling in File.*

*Right (or
Left)—Wheel
or
Right—About
or Left—About
—Wheel.*

The squad, when marching in file, will be taught to change its direction by wheeling to the right or left, or to the right (or left). The leading file will move round a quarter, or half, of the circumference of a circle having a radius of four feet; the other men following on their footstep in succession, without increasing or diminishing their distances from each other, or altering the cadence, but the rank stepping rather longer during the wheel, especially with the outer file.

If a squad is halted, or ordered to mark time, when some of the files have wheeled into the new direction, the remainder should be taught to cover off, if required. The diagonal march on the words, *Rear files, Cover*; the word *Front* is to follow the word *Halt*, the rear files not be ordered to cover, but will move to their place on the word *Dress*.

S. 29. *Men marching in File forming Squad.*

1. *Forming to the Front at the Right.*
—When the squad, marching in file to the right, is ordered to form to the front,

*At the Halt,
Front Form—
Squad.*

at the halt, the front-rank man of the leading file will at once halt, his rear-rank man will move into his place as soon as there is room for him; the remainder will make a half-turn to the left, and form upon them as directed in S. 24, No. 2.

Eyes—Front.

Heads and eyes will be turned to the front.

*Front Form—
Squad.*

3. *Forming to the Front, in Quick Time.*—When a squad, marching in file to the right, is ordered to form to the front, the front-rank man of the leading file will at once mark time; his rear-rank man will move into his place as soon as there is room for him; the remainder will make a half turn to the left, and form upon them, marking time, the front-rank men taking up the dressing as they arrive at their places.

Forward.

As soon as the squad is formed, the word *Forward* will be given.

*On the March,
Front Form—
Squad.*

3. *Forming to the Front, in Double Time.*—When a squad, marching in file, to the right, is ordered to form to the front on the march, the front-rank man of the leading file will continue moving on, his rear-rank man will move into his place as soon as there is room for him; the remainder will make a half turn to the left, double up to their places, and take up the quick time as they successively arrive in line with the leading file.

*Rear Form—
Squad.
Forward.
or
On the March,
Rear Form—
Squad.*

4. *Forming to the Rear in Quick Double Time.*—The movement will proceed as described in No. 2 or 3 except that the men will make a halt to the right, and form on the right-hand leading file.

*Right Form—
Squad.*

Eyes—Front.

5. *Forming to the Right.*—When marching in file to the right, and ordered to form to the right, the leading file will wheel to the right, take two paces to their front, the rear-rank man will halt, and his front-rank man will form in front of him; the remainder will march in succession on their left, the front-rank men moving round their respective rear-rank men, forming successively in front of them, and being dressed as they march into their places. The word *Front* will be given when the squad is formed.

*Right-about
Form—Squad.*

6. *Forming to the Right-about.*—A squad, marching in file to the right, and ordered to form to the right-about, the leading file will wheel to the right, take two paces to their front, the rear-rank man will halt, and his front-rank man will form in front of him; the remainder will march on in file, wheel to the right on the spot where the leading file has wheeled, and forming successively on their left, the front-rank men moving round their respective rear-rank men, forming successively in front of them.

PLATE I.

Fig. 1.

THE DIAGONAL MARCH.

HALF RIGHT—TURN. QUICK MARCH. HALT—FRONT.



FILES FORMING SQUAD.

Fig. 2.—ON THE MARCH,
FRONT FORM—SQUAD.



Fig. 3.—RIGHT ABOUT—
FORM—SQUAD.

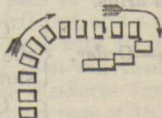
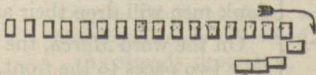


Fig. 4.

RIGHT FORM—SQUAD.



Eyes—Front. { them, and looking to the flank of
mation for their dressing. The
Eyes—Front will be given when
squad is formed. I

When marching in file to the left, a squad will be *few* to the front, or rear, or to the left or left about, on the principle as it is formed to the front, or rear, or to the *or right-about*, when the right is leading.

A squad marching in file will resume its original by the words *Halt—Front*, or *Front—Turn*.

S. 30. Taking Open Order.

The squad will always be ordered to shoulder taking open order, except when swords are fixed for tion of arms.

Open—Order. { On the word *Order*, the flank
the rear rank will step back two p
slow time and turn to the right.

March. { On the word *March*, the flank
will front and raise the disengage
horizontally from the elbow, and th
rank will step back two paces.

*Rear Rank—
Dress.* { On the word *Dress*, the rear-ran
dress by the right. Care must be
not to move the flank men when dr
the rear rank.

Eyes—Front. { On the word *Front*, the rear-ran
will turn their eyes to the front, a
flank men will drop their arms.

*Close—Order.
March.* { On the word *March*, the rear ran
take two paces to the front.

S. 31. *The Formation of Fours.*—PLATE IA.,

Figs. 1, 2, and 3.

In forming fours, the two files on the left of the squad ways make a complete four whatever their numbers may be; the left file acting as if even numbered, and the next as if odd numbered.

Fours— { 1. *At the Halt.*—On the word *Fours*, the rear rank will step back one pace of 18 inches.

Deep. { On the word *Deep*, the even numbers will take a pace of 24 inches to the rear with their left feet, and a pace of 24 inches to the right with their right feet.

Front. { On the word *Front*, the even numbers will move up in line with the odd numbers, by taking a pace of 24 inches to the left with their left feet, and a pace of 24 inches to the front with their right feet; the rear-rank men will then close up to their proper distances from the front rank, by taking a pace of 18 inches to the front.

Fours— As already described.

About. { On the word *About*, the squad will turn to the right-about, and the even numbers will form on the odd numbers, by taking a pace of 24 inches forward, with their right feet, and a pace of 24 inches to the left with their left feet.

Front. { On the word *Front*, the squad will turn to the right about, and re-form two deep as already described.

Fours— As already described.

PLATE IA.

FORMATION OF FOURS.

Fig. 1.—SQUAD WITH AN ODD FILE.

TELLING-OFF.



FOURS—DEEP.



Fig. 2.—SQUAD WITH A BLANK ODD FILE.

TELLING-OFF.



FOURS—DEEP.



Fig. 3.—SQUAD WITH A BLANK FILE.

TELLING-OFF.



FOURS—DEEP.



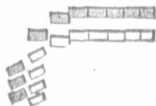
BREAKING-OFF FILES.

Fig. 4.—TWO FILES ON THE LEFT,

Fig. 5.

RIGHT—TURN, LEFT—WHEEL.

FILES TO THE FR



Right. { On the word *Right*, the squad will turn to the right, and the even numbers will form on the right of the odd numbers, by taking one pace of 24 inches to the right with their right feet, and one pace of 24 inches to the front with their left feet.

Front. { On the word *Front*, the squad will turn to the left, and re-form two deep as already described.

Fours— As already described.

Left. { On the word *Left*, the squad will turn to the left, and the even numbers will form on the left of the odd numbers, by taking one pace of 24 inches to the left with their left feet, and one pace of 24 inches to the rear with their right feet.

Front. { On the word *Front*, the squad will turn to the right, and re-form two deep as already described.

2. *On the March.*—A squad on the march will be taught to form fours on the words *Fours—Deep*, *Fours—Right*, and *Fours—Left*; in these formations the even numbers will move precisely as when forming from the halt, the odd numbers marking time two paces to enable them to do so.

On the word *Fours*, the rank in rear will step short two paces; if the word *Deep* follows, the odd numbers will mark time two paces, while the even numbers move to their places in fours; if the word *Right*, or *Left*, follows, the squad will first turn in the direction ordered, after which the odd numbers will mark time two paces while the even numbers move to their places.

When moving to a flank in fours, on the words *Half Right* (or *Left*)—*Turn*, each man will make a half turn to

the ordered flank, as in the diagonal march. When moving, diagonally or direct, to a flank in fours, on words *Front* (or *Rear*)—*Turn*, the men will turn as ordered and then form two deep without further word of command by the odd numbers marking time two paces, while even numbers get into their places, and the rank in regains its distance.

A squad moving to the front or rear, or to a flank in fours, may be ordered to *Form Two—Deep*, on which even numbers will fall back, or step up, into their place in file, and the rear rank will close on the front rank, the odd numbers marking time two paces.

A squad moving to a flank in file may be ordered to form *Fours—Deep*. On the word *Fours* the rear rank will incline from the front rank by a lengthened step in diagonal direction, and on the word *Deep*, the odd numbers will move to their places in fours, the even numbers marking time two paces.

A squad moving to a flank by the diagonal march may be ordered to form fours to that flank. On the word *Front* (or *Left*) the men will turn into file; they will then form four deep without word of command.

On the order to form fours while marking time, the rear rank will step back a pace of 18 inches, on the word

S. 32. *Fours Wheeling, and Forming Squad.*

1. *Wheeling*.—A squad moving to a flank in four ranks will wheel to the right or left, or to the right (or left) about the same manner as it wheels in files; each four ranks will successively round the same point. When the word *Front*

is given during a wheel, the leading four will march straight forward in the direction in which it is then turned; the remainder following. If the squad is halted, or ordered to mark time, when only some of the fours have wheeled, the remainder will move as directed in S. 28, on the words *Rear Fours, Cover.*

2. *Forming to the Front or Rear.*—When a squad moving in fours to a flank is ordered to form to the front or rear, those men of the leading section of fours who are already in their places will halt, mark time, or continue moving on as may be ordered, the other men of that section of fours will turn towards them, the remainder will make a half turn to the right or left, and the whole will move to their places, on arrival there proceeding as detailed in S. 29.

3. *Forming to the Right (or Left), or to the Right or (Left) about.*—When a squad moving in fours to a flank is ordered to form to the right (or left), or to the right (or left) about, it will at once form two deep, and then proceed as described in S. 29.

S. 33. *A Squad formed in Fours closing on a Flank, or on the Centre, and Re-forming Two Deep.*

For the following practices 10 or 12 files are required.

<i>On the Right (Left, or Centre), Close, Quick—March.</i>	}	A squad having formed four deep, will be taught to close on the right, left, or centre; the four men on the named flank, or in the centre, standing fast, the remainder closing on them by the side step.
---	---	--

From the Right
(Left, or
Centre),
Re-form Two
Deep.
Quick—March.

In re-forming two deep, on the *March*, the four men on the named flank or in the centre, will stand fast, the remainder will open out from them by a side step, and the even numbers will move up to their places in line in succession as the intervals are opened for them; the rear-rank men will step to their proper distances at the same time.

These formations will also be practised on the *march*. On the words *On the Right (Left, or Centre) Close* the files on the named flank, or in the centre, will move steadily forward at the stepping short pace, the remainder will close on them by the diagonal march; when all are closed, on the word *Forward* the squad will move on with a full pace.

On the words *From the Right (Left or Centre), Re-form Two Deep*, the file on the named flank, or in the centre, will move steadily forward at the stepping short pace, the remainder will incline outwards by the diagonal march, and the even numbers will move up into the intervals in succession, as they are opened for them, the rear-rank men regaining their proper distances at the same time: the squad will be completely formed in two deep, on the word *Forward* the squad will move on with a full pace.

S. 34. *Breaking off Files.*

A squad will be taught to reduce its front by breaking off files from either flank. A certain number of files (suppose three) will be broken off, as follows:

Three Files on the Left, right—Turn. left—Wheel. { On the word *Turn*, the named files will turn to the right, and on the word *Wheel*, they will wheel to the left, following the left flank of the remainder of the squad.

The front of the squad may be further reduced by any number of files (suppose two), as follows :

Two Files on the Left, right—Turn. left—Wheel. { On the word *Turn*, two more files will turn to the right, and on the word *Wheel*, will wheel to the left, following the left flank of the remainder of the squad ; the three files already in rear will mark time, then incline to their right by the diagonal march, and follow close in rear of the two files last broken off. Plate IA., Fig. 4.

Any number of files (suppose three) that have been broken off may be again ordered to the front, as follows :—

Three Files to the—Front. { On the word *Front*, the named files will make a half turn, and double up into their places in line ; the remaining files in the rear will incline to the left by the diagonal march, and step out till they cover the two files on the flank.

Two Files to the—Front. { On the word *Front*, the two remaining files will make a half turn to the left, and double up into line.

All the files may be brought to the front at once, by the words *Files to the Front*. Plate IA., Fig. 5.

Files that are broken off must lock up well, that they may not interfere with others who may be following them.

DISMISSING.

S. 35. *Dismissing a Squad.*

- Right (or Left)* { 1. *Without Arms*.—On the word
—Turn. { the men will turn as directed.

Dismiss. { On the word *Dismiss*, the rank
{ take a side pace outwards, wait
{ then move away quietly.

Right (or Left) { 2. *With Arms*.—As directed
—Turn, { Rifle Exercises, S. 4.
Dismiss. {

When there is only one rank it will act as a front

SKIRMISHING.

For skirmishing, the squad will be told off into and left half squad.

Skirmishers at the halt, if not ordered to kneel down, will stand at ease; on the last executive word will come to attention, and proceed with the ordered movement. When skirmishers are in movement, and they are ordered, they will halt (or halt and front), and at ease, unless ordered to kneel or lie down.

S. 36. *Extending.*

In extending, as a general rule, the front-rank man keep the direction, and the rear-rank man will regulate the interval, which will be always five paces between the ranks unless specially ordered otherwise.

*The Squad
all Skirmish.*

{ At this caution the squad, if standing at ease, will spring to attention.

*From the
Right, Left,
Centre, or
No.—File—
Extend,
or—Paces,
Extend.*

{ 1. *From the Halt.*—On the word *Extend*, the named file will stand at ease. The remainder will turn outwards, and step off in quick time, covering correctly, and without opening out. Each file, on gaining the ordered interval, will halt, front in the alignment, and stand at ease.

{ 2. *On the March.*—The named file will continue to move on; the remainder will make a half turn in the required direction, and break into double time, turning to the front and resuming the quick time as they gain their intervals in the alignment.

NOTE.—If the squad is advancing at the double it will ordered to break into quick time before being extended.

*From the —
— Paces —
Extend.*

{ 3. *Increasing Intervals between Files.*—If skirmishers are directed to increase the intervals, they will open out from the named file as described in No. 1 or 2.

No dressing, or correction of intervals, will be permitted the halt; the Instructor will simply point out the faulty man may have committed, without allowing him to move. All corrections will be made when the skirmishers are in motion.

S. 37. *Closing.*

{ 1. *From the Halt.*—The named file will stand at ease. The remainder will turn towards them, and close in quick time, front rank on front rank, rear rank

On the Right
(Left, Centre,
or No.—, File)
--Close.

on rear rank, each man halting, fire and standing at ease as he arrives, place.

The front-rank man of the file on the skirmishers are to close may be in any direction; the remainder will form up in the same direction.

2. *On the March.*—The named file continue to move on; the remainder make a half turn towards him, and in double time, turning to the front resuming the quick, as they are in their places.

If the squad is closed while retiring will move as above, continuing to rear rank leading.

On the — to —
Paces Close.

3. *Diminishing Intervals between*
 —If skirmishers are directed to diminish the intervals, they close on the file as described in No. 1 or 2.

S. 38. *Advancing and Retiring.*

Squad—
Advance, or
Retire.

Advancing.—The men will move in quick time.

Retiring.—The men will turn and step off in quick time.

The intervals will be kept from the centre.

S. 39. *Moving to a Flank.*

Right
(or Left)—
Incline.

The skirmishers, being already in position, will make a half turn, and move to the flank indicated, until ordered to resume their original direction to the front or rear, by the word *Advance* or *Retire*.

If the *Incline* is repeated, the skirmishers will move to the flank.

S. 40. Changing Front, or Direction.

Right (or left)—Wheel. { 1. *By Wheeling.*—The line of skirmishers will come gradually round on the principles laid down for a wheel in S. 24, No. 1; the outer man regulating.

Forward, or Halt. { The line will advance, regulated by the centre, or halt, as may be ordered.

If it is intended to throw back the line, the line will be moved about, and then proceed as above directed.

Change front to the Right (or left), on the word Right (or Left) Files. Double. { 2. *By File Formation.*—If at the halt, the Instructor, having given the caution, will place the named files in the direction required; on the word *Double*, the remainder will move across, by the nearest way, to their places in the new alignment. If on the march, the whole will move steadily forward till the word *Double*; the named files will then be placed rapidly in the required direction, and the remainder will move as above ordered.

If it is intended to throw back the line, or part of it, caution will be **CHANGE FRONT TO THE LEFT (OR RIGHT), ON THE TWO RIGHT (OR LEFT) FILES, OR CHANGE FRONT TO THE RIGHT (OR LEFT), ON THE TWO CENTRE (OR NO. — FILES)**; the movement proceeding as above described.

S. 41. Funerals for Petty Officers or Seamen.

The party appointed for the escort will consist of a bugler, 26 men, and one Petty Officer in command. They will be drawn up at open order, and the ranks open on one side step distance apart, arms shouldered, facing the boat from which the corpse is to be landed. When the corpse is brought out, the Petty Officer commanding the escort will place himself in front with his sword drawn, and proceed as follows:—

PRESENT ARMS. } As usual. Petty Officer salutes.

REVERSE ARMS. { As detailed in Rifle Exercises, S. 13.
The petty officers' swords are reversed under the right arm, the point of the sword downwards, edge upwards, hilt being grasped with the right hand.

The escort will be turned to the right or left, and march at the slow to the head of the procession. Petty Officer in command line with leading file front rank.

On arriving at the cemetery gates the ranks are in line outwards, halted, and turned inwards.

REST ON YOUR ARMS REVERSED. } As in Rifle Exercises, S. 13.

STAND AT—EASE. ATTENTION. { As detailed in the Rifle Exercises, S. 13.
the head being turned so as to face towards the corpse. The corpse, and the remainder of the procession, will be passed through the lane, the word ATTENTION will be given, on which the men will raise their heads.

REVERSE—ARMS. } As detailed in the Rifle Exercises, S. 13.

RANKS RIGHT
 AND LEFT—
 RN. SLOW—
 MARCH. HALT
 —FRONT.

The ranks will then be turned towards the grave and move in slow time, the front rank inclining towards the rear rank till at two paces distance from it; the escort will be halted and fronted, in open order, near the grave and turning towards it.

STAND ON YOUR
 ARMS RE-
 RAISED. STAND
 AT—EASE.

As before described.

The funeral service will be performed, after which the port will proceed as follows:—

ATTENTION. As already described.

PRESENT—
ARMS. } As detailed in the Rifle Exercises, S. 13.

SHOULDER
ARMS. } As usual.

PREPARE THREE
COLLEYS IN
THE AIR. } As usual.

WITH BLANK
CARTRIDGE,
READY. } As usual, except that both ranks will stand, and muzzles of rifles are to slant upwards.

PRESENT. { As usual, elevating the muzzle in the air.

FIRE. { As usual, coming down to the ready position with the last sound of the bugle.

ORDER—ARMS. As usual.

TO ORDER
—MARCH. } As usual.

The escort will then be marched off, in fours, in quick time.

PART II.

COMPANY DRILL.

GENERAL RULES.

I.

Men to be formed in a Company.—The men will be instructed in the movements of the company; a purpose from 18 to 20 files will be formed and told off as a company.

II.

Sizing a Company.—A company will be sized from the centre, the front and rear-rank men being of the same height.

III.

The Men to know their Places.—After the men of the company have once been sized, they must remember their relative heights, and be able to fall in, in their places.

IV.

Formation and Telling-off of a Company.—The company will fall in in two ranks at close order, and be numbered from right to left; it will then be told off into two companies and four sections. When the number of men is odd, the right half-company will be the stronger. When the half-company is divided into sections of unequal strength, the outer section will be the stronger. The left file

ht half-company will also be considered the centre of
s company.

V.

Supernumerary Rank.—The subordinate officers and petty
icers will be formed in a third or supernumerary rank,
will hereafter be described. Their duties are to control
expenditure of ammunition, correct any mistakes that
y occur while manœuvring, and take note of awkward
n. Too much attention cannot be paid to these points.

VI.

Officers, &c., of a Company.—The commander of the
npany will be termed "the lieutenant," the senior super-
merary "the right guide," and the junior supernume-
y "the left guide." Two petty officers will be told
as "right" and "left" markers, and will give points
required, each for his own flank of the company
cept the leading marker of a company moving from
e into column, who will proceed as directed in Part III.,
23). In the absence of an officer, his place will be taken
the next in rank, whether officer or petty officer; when
uired, leading seamen from the ranks will in like
nner supply the places of petty officers. Petty officers
not move out in front of the line at open order.

VII.

Relative Proportion of Paces to Files.—Each man occu-
p a space of about 24 inches; therefore, to ascertain
number of paces of 30 inches required for a given
mber of files multiply the number of files by 8, and
ide by 10, the latter operation being accomplished by

cutting off the last figure, which multiplied by 3 will be the odd inches. It will be useful to remember, that 1 pace requires 8 paces, 20 files 16, and so on—100 files 80 paces, 1,000 files 800.

VIII.

Application of Squad Drill.—All the rules laid down for the instruction of a squad in two ranks are equally applicable to the movements of a company; it will, therefore, be only necessary in this Part to describe the positions and duties of the officers and petty officers during these movements, and to add the different formations and movements of half-companies and sections that may be used when moving in column of route.

IX.

Companies to be Drilled as if with the Battalion.—When a company falls in alone, it will first be formed as a company in line, but in order to teach officers and petty officers the different positions it will occupy in battalion drill, it will be drilled both as a company in line and column, though it were with the battalion. The Instructor will state before each movement the supposed battalion position, upon which the officers and petty officers will move at once to their proper places.

X.

Companies to be Exercised by their own Officers.—A company of a battalion should be frequently exercised by its own officers, the lieutenant acting as Instructor, and one of the supernumeraries taking his place.

XI.

Companies to be Exercised on Rough Ground, and with Ranks changed.—A company should be exercised on rough and broken ground, as well as on smooth and level ground; and the rank which is in front during one drill should be in rear during the next, in order that every man may be equally well drilled. Companies should also be exercised with the ranks changed during the drill. On the words *Change Ranks*, the company will proceed as in Part I., S. 9, and the supernumeraries will turn outwards and double round to the new rear, the lieutenant moving round at the same time; the men need not be told off afresh unless they are intended to remain in that formation.

XII.

Derangements in Telling-off to be quickly remedied.—Great pains should be taken to accustom the men to remedy quickly, of their own accord, any derangement in the telling-off of the company. For example, the lieutenant will order certain files, or men, to fall out, and will then continue to drill the company without re-telling off. Men who are trained are not liable to fall into confusion, whatever casualties may occur on service. It is especially necessary that companies should be so exercised as to ensure, under circumstances, the ready formation of fours, upon which nearly all movements depend.

XIII.

Assembling on Markers.—Men should frequently be exercised in assembling, and rapidly forming company; for this purpose, the men will be dispersed, and the left flanker ordered to give a point either in line, or in column; the bugle sound *Assemble*, or on the word *Form on the marker*, they will run in, and form company on the left

marker; as they form, they will order arms and render attention. In line, when the left guide orders *Eyes—Front* and in column, when the guide comes up to take his place, the marker will fall to the rear.

XIV.

Markers giving Points.—1. A marker giving a point for his company to dress upon, in a line formation, will fall to the rear with recovered arms, turned towards the point of formation at arm's length in front of the alignment; when the guide approaches, he will hold out his inner arm at right angles to his body, with the fist clenched, on which the line will dress. Thus all lines will be dressed at arm's length in rear of the line of markers. A marker giving a point to drop his arm at the order *Eyes—Front* from the guide.

2. A marker, when giving a point for his company to form on in column, will recover arms while being covered by the guide coming to *The Shoulder* when correctly covered, or when covered simultaneously with other markers, as when they are given for companies to form on parade, on the *Steady*. When the guide comes up to take his place, the marker will fall to the rear.

XV.

The Lieutenant.—The lieutenant, though his usual position will, as hereafter stated, be in rear of the centre of his company, will, when the company is in motion, take up such position as will best enable him to superintend its movement; he should, in column, take care not to obstruct the covering. Lieutenants, previously to giving a command, should call out the number of their companies, thus, No. 1—*Halt*. In giving their words, they should carefully observe the rules laid down in Part I, Rules IV.

The rule laid down in Part I., S. 6, for a squad is equally applicable to the company and the battalion; on the cautionary word No.—, or BATTALION, the men, if standing easy, will at once assume the position of standing at ease.

N.B.—In this Part, words given by the Instructor of drill are in capital letters, those given by the lieutenant, guides, in *italics*.

SIZING, INSPECTING, AND PROVING.

S. 1. *Sizing, Inspecting, and Proving a Company.*

A company on parade will be sized, inspected, and proved as follows :—

The tallest man is selected and placed three paces in front of the right of the company.

Shoulder—Arms.

Left—Turn.

Dismiss.

The men will now fall in in single rank according to the rule.

Right-hand man three paces forward—March.

Next man three paces in front of the Left Centre of the company.

Size.—The men run in succession, from the right, to alternate flanks, placing themselves alternately front and rear rank.

Left Half-Company, Right Close, Quick March.

Left Half-Company, Halt.

The company will then be inspected as follows :—

Fix—Swords.

Open Order—March.

The Inspecting Officer will pass down the ranks that the appointments, clothing, &c., are clean, & in good order.

Unfix—Swords.

Shoulder—Arms.

For Inspection, } As detailed in the Rifle Exercises, §
Port—Arms.

Close Order—March.

Examine—Arms.—As detailed in the Rifle Exercises, § 10.

The company will then be told off and proceed as follows :—

Number.—The men having numbered, No.—, Left
Right Half Company, Nos.—, —, —, —, Left of Section.

Right Half-Company, Trail—Arms.

Left Half-Company, Trail—Arms.

Outer Sections, Order—Arms.

Inner Sections, Order—Arms.

Fours—Deep, Front.

Fours—Right, Front.

Fours—Left, Front.

Fours—About, Front.

This method of proving should generally suffice. The company may further be proved, if considered expedient, any particular movement in which it may be deficient.

A COMPANY IN LINE AND COLUMN.

S. 2. Formation of a Company.—PLATE II.

Figs. 1, 2, 3, and 4.

The company will fall in in two ranks, sized as directed.

S. 1. The lieutenant will be three paces in rear the centre; the guides and petty officers will form a third or supernumerary rank, two paces from the rear rank; the right and left guides in rear of their flank files, the markers in rear of the second file from their guides; the remaining supernumeraries will take post alternately in rear of the right and left half-companies, dividing the space. The bugler, pioneer, stretcher-men, and spare ammunition men will be in the supernumerary rank, also dividing the space.

Officers on all duties on shore under arms are to have their swords drawn without any word of command.

1. Formation in Line.—On the caution, **AS A COMPANY IN LINE**, the right guide will place himself on the right the front rank, and his marker will cover him.

2. Formation in Column.—On the caution, **AS A COMPANY IN COLUMN, BY THE LEFT (or RIGHT)**, the guide

of the flank named to direct will align himself with front rank, his marker placing himself in rear of the file.

S. 3. A Company in Line taking Open Order.

Arms will be shouldered, before taking open order.

OPEN—
ORDER.

1. *Taking Open Order.*—On the ORDER, the officers will recover swords; the guides will place selves one pace from the front rank; the left guide in front of the second rank; from the left, the right guide in front of the centre; the lieutenant passing the right of the company, will place himself one pace in front of the file from the right. Should an adjutant guide be present, he will take the place assigned to the left guide, pass the front. The supernumerary will step back two paces; the flank of the rear rank will step back two paces and turn to the right; and the marker will take one pace of 24 inches to his left, into the space vacated by the right-hand man of the rear rank.

On the word MARCH, the officers will take two paces to the front, look to the right, and dress; the right marker will take one side pace to his right, and one pace to his front with his left foot into the place vacated by his guide; and

MARCH.

rear rank will step back two paces, the flank men of the rear rank fronting at the same time, and raising their arms.

The petty officer on the right of the supernumerary rank will order *Rear Rank—Dress*, and, having dressed the rear rank, will give the words *Eyes—Front*, on which the flank men will drop their arms; the supernumerary rank will take up its dressing by the right.

STEADY.

The Instructor will dress the officers from the right, and give the word *STEADY*, on which they will carry swords and look to their front.

CLOSE—
ORDER.

2. *Taking Close Order.*—On the word *ORDER*, the officers will recover their swords; the lieutenant and right guide turning to the right, the left guide to the left.

MARCH.

On the word *MARCH*, the rear and supernumerary ranks will take two paces to their front, and the left guide will take his place in rear of the left file; the lieutenant will move to his place in rear, passing round the right flank of the company, the right marker taking two paces to his rear and one to his left, to make room for him to pass; the right guide will then resume his place on the right of the front rank, and the right marker will move up to his place on the right of the rear rank; the officers will carry their swords as they take post. If only one guide is present, he will pass to the right of the company by the rear.

PLATE II.

Fig. 1.
A COM-
PANY IN
LINE.

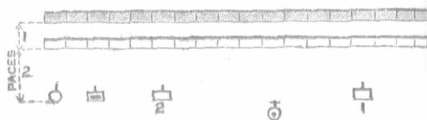


Fig. 2.
OPEN—
ORDER.

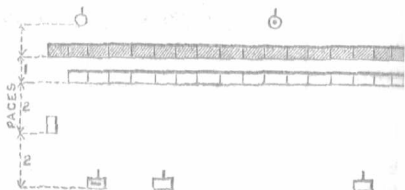


Fig. 3.
MARCH.

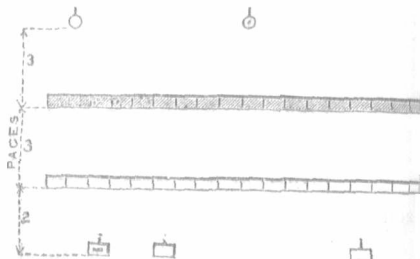
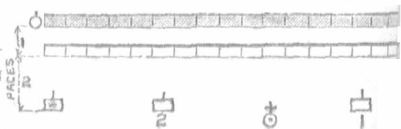
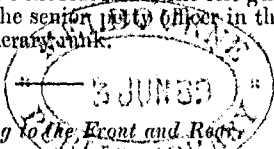


Fig. 4.
A COMPANY
IN COLUMN
BY THE
LEFT.



Arms will then be ordered.

When a company without an officer present takes open order, the petty officer acting as right guide will stand fast, the left guide and marker will move with the rear rank; the left guide and marker will move with the senior petty officer in the same manner as the supernumerary rank.



S. 4. *Marching to the Front and Rear.*

1. *Marching to the Front.*—The Instructor, having stated the supposed order of the battalion, will proceed as follows:—

THE LINE (OR COLUMN) WILL —ADVANCE.	} On the word ADVANCE, the guide will select points to march on.
---	---

QUICK (OR DOUBLE)— MARCH.	} As described in Part I., S. 15.
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2. *Marching to the Rear.*—When the company is to fire, the caution, THE LINE (OR COLUMN) WILL—FIRE, will be given, and the men will be turned about. The directing guide, if the company is in line, will fall to the rear of the centre to superintend the movement; if the company is in column, he will step up in line with the rear rank and select points to march on.

WHEELING, OR FORMING, FROM THE HALT.

A company will wheel, or form, from column into line, and wheel from line into column, as directed in Part I., 24. The officers and markers will move as follows:—

S. 5. *A Company Wheeling, or Forming, from the Column into Line.*

Caution,—AS A COMPANY IN COLUMN, BY THE

LEFT WHEEL
(or LEFT FORM)
INTO—LINE.

On the word LINE, the left guide fall to the rear, and the right guide up; the right marker will run over and give a point as directed in Gen. R. XIV., No. 1, where the outer flank of the company will rest when the movement is completed, turning to the right of the column; the left marker will give a point on the left of the company in like manner.

STEADY.

The Instructor will cover the rear and give the word STEADY.

QUICK—
MARCH.

On the word MARCH, the left guide will move to the left of the company to dress it, on the lieutenant's R. Dress, or as the files come up into line.

Company—
Halt, Dress.

In the case of a wheel, the lieutenant will give his word *Halt*, when wheeling flank of the company moves from the marker, and immediately follow it by the word *Dress*.

Eyes—Front.

The left guide, having completed dressing, will give *Eyes—Front*, and move into his place in rear.

STEADY.

On this word from the Instructor the markers will take post.

A company in column, by the right, will be turned to wheel, or form, into line to the right in a similar manner (except that the left guide will not move on the flank) on the words RIGHT WHEEL (or FORM) INTO—LINE.

the word MARCH, the rear-rank man of the pivot file step up to keep the right guide's place. In these movements, the company is considered the leading company of a column wheeling, or forming into column. When several companies are practised together, both markers of the leading company will give points as above described; each of the remaining companies will have only the inner flank marked. See Part III., S. 22.

3. 6. *A Company Wheeling, from the Halt, from Line into Column.*

Caution,—AS A COMPANY IN LINE.

- | | |
|--|---|
| BREAK INTO
COLUMN, TO
THE RIGHT. | { 1. <i>Breaking into Column, to the Right.</i>
—On the word RIGHT, the left guide will stand fast; the remainder will turn to the right about. |
| RIGHT—
HEEL, QUICK
—MARCH. | { On the word MARCH, the left guide will place himself on the left of the company, turning to the front of the column. |
| Company,
Halt—Front
—Dress. | { The lieutenant having given the words <i>Halt, Front—Dress</i> , on the completion of the wheel the right guide and the markers will take post in column. Having taken up their own dressing by the left, the men will look to the front. |

Breaking into Column to the Left.—A company in line is taught to wheel into column to the left in like manner; dressing, when in column, by the right. On the word LEFT, the right guide will stand fast, the remainder wheeling about; on the word MARCH, the right guide will place himself on the right of the company, turning to the front of the column.

3. *Wheeling Forward into Column.*—A company halted, may also wheel forward into column; the caution command being, COMPANY, RIGHT (or LEFT)—WHEEL—QUICK—MARCH; the word FORWARD, BY THE LEFT (or RIGHT), or HALT—DRESS, will be given when the company has wheeled square. When the wheel is to the right the right guide and his marker will fall to the rear, the right guide moving up, as the company commences its wheel; when the wheel is to the left, the right marker will fall to the rear.

WHEELING, OR FORMING, ON THE MARCH.

S. 7. *Wheeling, or Forming, from Column into Line* *Wheeling from Line into Column.*

1. *From Column into Line.*—While on the march, a company in column may wheel, or form, into line on the RIGHT (or LEFT) WHEEL, or FORM, INTO—LINE. When wheeling, or forming, to the reverse flank, the column may be ordered to march by that flank. In the case of a wheel, the word FORWARD, or HALT, will be given, on the completion.

2. *From Line into Column.*—A company in line may wheel, while on the march, into column, on the caution command laid down in S. 6, No. 3, by the words COMPANY, RIGHT (or LEFT)—WHEEL. FORWARD, BY THE LEFT (or RIGHT), or HALT, DRESS: the left will direct if the wheel is to the right, the right if it was to the left.

S. 8. *A Company in Column changing Direction.*

A company in column, on the caution CHANGE DIRECTION TO THE RIGHT (or LEFT) from the Instructor, may wheel into the named direction, by command of the Lieutenant. The word FORWARD will be given

ductor, at the required angle. When two or more companies are practised together, each company in rear will be ordered by its lieutenant to wheel at the same point as the leading company, and will receive from him the word *ward* as its front becomes perpendicular to the new direction. If the wheel is to the reverse flank, the guide (guides) of that flank will move up and lead during the change of direction.

SCCELLANEOUS MOVEMENTS AND FORMATIONS.

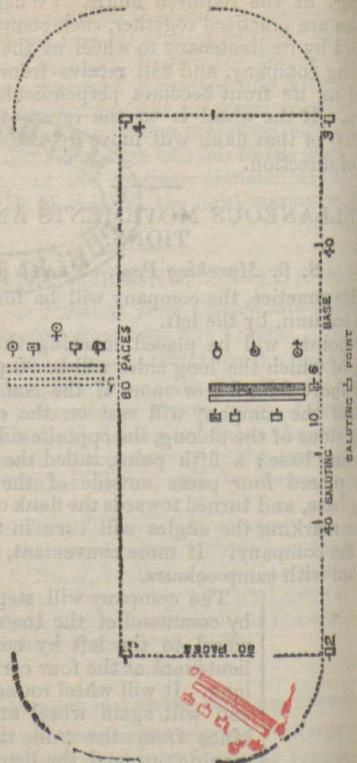
S. 9. *Marching Past.*

For this practice, the company will be formed as a company in column, by the left. Four points will be placed marking the angles of an oblong, of which the long sides will be 80 paces in length, the short sides 30, or more if the company is strong. The left of the company will rest on the centre of one of the long sides of the oblong, the opposite side will be called the saluting base; a fifth point, called the saluting point, will be placed four paces outside of the centre of the saluting base, and turned towards the flank of the company. The men marking the angles will turn in the same direction as the company. If more convenient, the points may be marked with camp colours.

The company will step off as usual, by command of the Instructor, and will wheel to the left by command of the lieutenant at the four corners of the oblong. It will wheel round the 1st point, and will again wheel at wheeling distance from the 2nd, the right guide moving up, and the lieutenant moving towards the right of the company.

PLATE III.

MARCHING PAST.



As the wheel is completed, the lieutenant will give the word *Forward*, and then *By the Right*, on which the men will come to *The Shoulder*; the lieutenant and guides will run out three paces in front of the company, the lieutenant moving round the right flank, and place themselves as when at open order in line, each officer taking up the quick time as he arrives at his place; the right marker will move up to the place vacated by his guide, to lead the company. When at ten paces from the saluting point, the officers will salute as follows, taking the time from the right. As the left foot comes to the ground, the sword will be brought smartly to the recover, the next time that foot comes to the ground, it will be lowered to the salute (the edge of the sword to be to the left, and the point to be 12 inches from the ground, in the direction of the right foot; the arm to be straight, hand just behind the thigh, the thumb flat on the handle of the sword; the left arm to remain steady): the head to be slightly turned to the saluting point while passing it. When at six paces beyond the saluting point, as the left foot comes to the ground, the officers will recover swords, make a pause of one pace, and on the following pace come to the carry; when at 20 paces, they will resume their places with the company, in double time, the lieutenant passing by the right; the right marker will take post at the same time.

Company—
 Left Wheel.
 Forward,
 by the Left.
 Company—
 Left Wheel.
 Forward.
 COMPANY—
 HALT.

On the command to wheel at the point, the left guide will move up, the right guide falling to the rear: in order *By the Left*, the men will wheel to the left with arms.

On the word *Forward* being given after a wheel, the leader of the company must at once observe some point in the straight line between himself and the next pivot point, and guide him in marching.

S. 10. *The Diagonal March.*

As in Part I., S. 26.

In column, the guide of the leading flank will move to the front, if not already there, and lead the company.

S. 11. *File Marching and Wheeling in File.*

As in Part I., S. 27.

For the positions of the officers, see the next Section.

S. 12. *The Formation of Fours.*

In forming fours, the men will move as explained in Part I., S. 31. Both in file marching and the flank march by fours, the guide of the leading flank will lead the company, being placed next to the pivot man of the file or four, with his marker in front of that man. The guide not leading the company will be on the reverse of the rear file or four; his marker on the reverse of the next file but one, or the next four. The superior

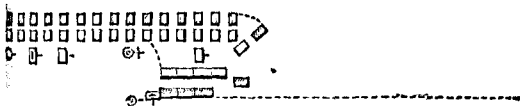
flank will close to the files they cover, as the company forms fours, to a flank.

13. *A Company marching in Files, or Fours, forming to the Front (or Rear); to the Right (or Left); or to the Right (or Left) about.*—PLATE IV.

These formations will be made as described in Part I., 29 and 32, the word COMPANY being substituted for word *Squad*, in the command. The guide of the flank formation will dress the men file by file as they come in, and when the company is formed will give the words *Front*, and take post in line. The supernumerary rank will form with the company.

PLATE IV.

RIGHT FORM—COMPANY.



14. *A Company formed in Fours closing on a Flank, or on the Centre, and re-forming Two Deep.*

A company having formed four deep will be practised in closing on the flanks and centre, and re-forming two deep, at the halt and on the march, as described in Part I., 33. The directing guide and the supernumerary rank close, and open out with the company.

S. 15. The Side or Closing Step.

A company will be practised in the side step, as explained in Part I., S. 3.

S. 16. Diminishing and Increasing Front, by breaking Files and bringing them again to the Front.

Files will be broken off, and brought again to the front as described in Part I., S. 34. If the files break off from the directing flank, the guide on that flank will turn to the remainder of his front rank, as the files drop in rear; his marker will move up and remain covered as long as there is a file in rear. When the obstacle is reached the lieutenant will give the executive word. If files break off successively till they amount to a company they will form fours (by word of command). When the obstacle is in front of the centre of a company the files, as a general rule, will turn to the right and then to the left.

S. 17. Diminishing and Increasing Front, by breaking Files, or Fours, and Re-forming Company.

A company in column may advance or retire from flank in files or fours, on the words **RIGHT** (or **LEFT**), **TURN**, or **FOURS—RIGHT** (or **LEFT**), **LEFT** (or **RIGHT**), **WHEEL**, **QUICK—MARCH**. These movements may be done when the column is on the march. If the instructor gives the caution **ADVANCE** (or **RETIRE**), **FOURS** (or **FILES**) **FROM THE RIGHT** or **(LEFT)**, the companies in battalion move off in succession from the column, the lieutenant will give the foregoing words of command.

The Company will increase its front as explained in Art I., Ss. 29 and 32; the directing guide taking his place at the word FORWARD.

S. 18. *Formation of Half-Companies and Sections.*

Formations of half-companies are used in forming square, finishing, and on the line of march, where columns may move with as large a front as the ground will admit. For this practice the company will be formed as a company in column.

COLUMN WILL ADVANCE QUICK (or (DOUBLE) MARCH.	}	As taught in S. 4.
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If the company is in column by the left, half-companies will be formed as follows:—

FORM HALF- COMPANIES.	{	At this order the lieutenant gives the words <i>Right Half-Company to the Front, Remainder Right Turn</i> ; the left guide takes charge of his half-company and orders it to make a half-turn to the front when its leading file is in rear of the centre of the right half-company and to turn to the front as it arrives in column of half-companies.
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Each guide takes post on the directing flank of his half-company and his marker two paces in rear of the flank; the lieutenant will be on the reverse flank of the rear of the company.

Half-companies can be formed from "Column" "by the left" in a similar manner; the non-directing half-company always being moved to the front.

If the company is retiring in column the directing company will be ordered to the rear; the non-directing half-company turning towards the directing half-company.

Sections can be formed from column of companies or half-companies in a similar manner; the guides in charge of and leading the outer sections and the men in the inner sections.

A column of half-companies advancing can be formed into company as follows:—

**FORM
COMPANY.**

{ At this order from the instructor the lieutenant will give the words *Sections to the Front*; the men will make a half-turn towards the directing flank and double up to their right, picking up the quick and their discharges as they arrive in the alignment; the guides and markers take their usual places in column.

If the column of half-companies is retiring the lieutenant's order will be *Rear Sections to the Rear*.

Column of sections advancing or retiring can be formed into half-companies or company in a similar manner, the instructor's order being **FORM HALF-COMPANY** or **FORM COMPANY** as required; the lieutenant's order always being *Rear Sections to the Front (or Rear)*.

A diminution of front may also be effected by turning to the right (or left), and then wheeling to the left (or right).

These movements are always to be done on the march.

A company may also move to a flank by half-companies or sections, on the principle laid down in S. 6, No. 3.

Changing direction in column of half-companies or sections, will be performed on the principle laid down in S. 6, No. 4, the half-company or section commanders giving the order.

Posts of Officers, &c., in Column of Half-companies.—The lieutenant will be on the reverse flank.

the centre of the company. The guides, markers, &c., will be posted as follows:—In column of half-companies, each guide will be on the directing flank of his half-company, his marker two paces in rear of the flank file; in column of sections, each guide will be on the directing flank of the outer section of his half-company, his marker on the same flank of the inner section; the remaining supernumeraries will retain their places.

S. 19. Shelter Trench Exercise, Wallace Spades.

PREPARE FOR
SHELTER
TRENCH
EXERCISE
FROM THE
RIGHT (LEFT).

The front rank men pass their rifles to their rear rank men and draw spades, holding them against the right side, at the full extent of the right arm, fingers round the helve, close to the blade. Markers double out and give points where the flanks of the company will rest when extended, turning towards the flank from which the extension is made. The Instructor will cover them and order "Steady." Officers return swords and take post in rear.

EXTEND.

The named file stands fast, the remainder turn outwards and step off, halting and fronting when each front rank man can by extending his arm touch the shoulder of the man on his right with the tip of his spade.

THE RIGHT
(or LEFT)
DRESS.

Keeping the right arms extended dress by the right (or left) as usual. The guide on the named flank will dress the company.

YES FRONT.

Front rank as usual, then place the spades on the ground, blades to the front, handles touching the toe of the right foot.

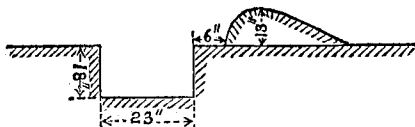
MARK OUT. { Supernumerary rank mark out man's work by running a line the tips of spades, and another the handles, then dividing the between each file.

COMMENCE (BUGLE G.). } Front rank commence digging.

When the trench is completed the men fall out with spades returned, standing at ease.

Each rank should work alternately for five minutes relieve at the bugle sound (G).

The trench when completed should be of the following shape and dimensions :—



Breadth=23 inches=length of spade.

Depth=18 inches=from tip of blade to ring of spade.

Height of parapet=18 inches=from tip of blade to top of spade.

In commencing to dig, the spade should be used perpendicularly and large pieces taken out and placed along the front, one foot clear of the front line, and clearly mark out the edge of the berm.

The supernumerary rank to push back any earth may be thrown too far to the front, and near the parapet.

The corners of the blade should never be used "picking," but the spade turned round and the pick used to dislodge stones, &c.

One company digs sufficient length of trench for two companies to occupy, front rank kneeling and rear rank lying down in rear.

NOTE.—As these tools are made as light as possible, it is not intended that they should be used in hard or stony soil, except when required for active service.

SKIRMISHING.

S. 20. *Company Skirmishing.*

The company will now be practised in skirmishing. The right half company extending as laid down in Part I., 36-40; the left half company acting as support. It should be clearly explained to the men that the object of moving in extended order is to enable them to take advantage of cover, and thus inflict the greatest loss upon the enemy with the least amount of danger to themselves. They should be instructed to avail themselves, for their protection, of the slightest inequality of ground, and the smallest patch of cover, and how to make the best of the cover; also how, in advancing or retiring, to run or creep from one point of cover to another without unnecessary exposure.

For drill purposes, after the word or bugle-call FIRE, skirmishers will be supposed to be under fire.

THE COMPANY WILL SKIRMISH.	{	At this order from the Instructor, the company will proceed as in squad drill, the officers will return their swords, the guides and markers will take post in rear of their half companies.
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FORM COLUMN. FOURS— RIGHT.	{	The left half company will form fours to the right, the leading four disengaging to the rear. The left marker marking where the left flank of his half company will rest in quarter column.
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QUICK (or
DOUBLE)
MARCH.

On the word "March," the right company stand fast, the remainder off in fours, and form six paces in front of the right half company, halting, facing, and dressing by order of their guide. The marker then takes post.

The Instructor will now explain to the column that the leading half company form the skirmishers or fighting line, second half company in support. The guides, assisted by their markers, will take charge of their half companies under the general control of the lieutenant. During the extension, they will see that the men take their proper intervals and preserve the general alignment. The guide should also see that the outer files lead in a true direction.

EXTEND.

At this order the right guide will extend his half company as taught in squad drill. The support will stand at ease. If not otherwise ordered, the extension will take place from the centre.

The extension completed, the lieutenant and guides will take such positions in rear of their commands as will enable them to superintend their men; they will repeat the orders given by the commander of the line of skirmishers. They will also take care that the men avail themselves of cover when under fire, preserving their intervals as far as possible, and that the men fire only when directed so to do, adjusting their sights, and aiming at precise objects.

ADVANCE.

The extended line will advance as taught in squad drill. The support will be sending out a connecting file, and will follow on when the skirmishers have advanced about 300 yards.

HALT.

As in squad drill.

S. 21. *Bugle Sounds.*

In order to teach the bugle sounds used in skirmishing, the bugle should be used at instruction when the men clearly understand skirmishing by word of command.

The bugle sounds will be found at the end of the book ; their names are as follows :—

- | | |
|--------------------|---------------------------|
| I. EXTEND. | X. WHEEL. |
| II. CLOSE. | XI. ALERT. |
| III. ADVANCE. | XII. PREPARE FOR CAVALRY. |
| IV. RETIRE. | XIII. QUICK. |
| V. HALT. | XIV. DOUBLE. |
| VI. FIRE. | XV. LIE DOWN. |
| VII. CEASE FIRING. | XVI. RISE. |
| VIII. ASSEMBLE. | XVII. CHARGE. |
| IX. INCLINE. | |

One G sounded on the bugle will denote the right of the line ; two G's the centre ; three G's the left.

The G, or G's, preceding any sound will denote the part of the line to which it applies. For instance : two G's before the *Extend* will signify to extend from the centre ; one G, followed by the *Close*, to close on the right ; one G, followed by the *Incline*, to incline to the right ; three G's, followed by the *Wheel*, to wheel to the left.

The *Halt* annuls all previous sounds except the FIRE. The *Incline* and *Wheel* must be preceded by the distinguishing G ; a double *Incline* will signify a direct turn to the flank indicated.

When the FIRE is combined with any other call, it should always be the last sounded, for if the men were ordered to fire they might not hear the second call.

The *Alert* implies unexpected danger ; when it sounds, the men in movement will at once halt, and wait for further orders.

When moving by sound of bugle, men will wait till bugle has ceased before they move.

Bugle sounds apply only to men extended; a squad invariably moves by word of its commander, who will use the words of command usual in close order, placing himself in front.

Whistle Sounds.—Whistle sounds are used either for signals, or to attract attention to the preconcerted signals of company commanders or section leaders.

Signals.—The following signals will be taught to officers and men, and used whenever such signals are required.

1. No enemy in Sight.—Cap held above the head as high as possible on point of sword or rifle.

2. Enemy in Sight.—Rifle or sword held up horizontally with both hands.

3. Ammunition required.—A belt and pouch held up on point of sword or rifle, as high as possible.

S. 22. Skirmishers Firing.

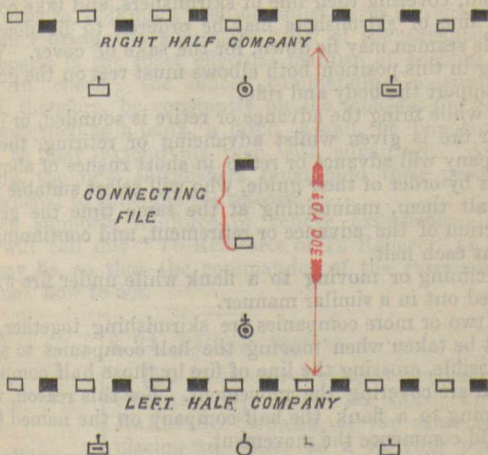
The word or bugle call FIRE is permissive, subject to the discretion of the commander of the line of skirmishers, who will name the number of men in the half company to fire. Skirmishers will at all times assume such a position as may be most convenient and may render their fire most effective. The guides, when they see that the enemy is within range, will select the men to commence firing.

On the word, or bugle call CEASE FIRING when at the halt, the men will remain steady, in whatever position they may be; when on the move, the movement will be continued, the men reforming files.

When firing in extended order at the halt, the guides and the backsight need not be shut down until the order is given to cease fire, or to advance or retire.

PLATE V.

COMPANY SKIRMISHING UNDER FIRE.



FIRE
Bugle-Call
FIRE
No. VI.
—Men Fire.

1. *Firing at the Halt.*—On the instructor's word FIRE, or on the call, the men, if not already seen from view, will take cover, the rear man coming up on the left of his rank man; fire will then be opened as above described.

The half company forming the support will extend, covering their line of skirmishers, and take cover.

A line of skirmishers may be ordered to lie down, single seamen may lie down, for the sake of cover. In firing in this position, both elbows must rest on the ground to support the body and rifle.

If while firing the advance or retire is sounded, on order fire is given whilst advancing or retiring, the company will advance or retire in short rushes of a few yards by order of their guide, who will select suitable places to halt them, maintaining at the same time the direction of the advance or retirement, and continuing fire at each halt.

Inclining or moving to a flank while under fire is carried out in a similar manner.

If two or more companies are skirmishing together, must be taken when moving the half companies, if possible, crossing the line of fire by those half companies which are covering the movement. For this reason, when inclining to a flank, the half company on the narrow flank should commence the movement.

S. 23. *Reinforcing, Prolonging, and Relieving.*

Any portion of a line of skirmishers may be relieved by its support, the lieutenant then taking the command.

A line of skirmishers may be prolonged to the right left by a company or its own support moving up and tending from its inner flank.

Relieving Skirmishers.

It is to be clearly understood that skirmishers acting as fighting line, whether attacking or maintaining an effective defence, holding a position, must never be relieved. When retiring, the successive relief of the skirmishers by supports is the most effectual manner of keeping an enemy in check; the officer commanding a support should, therefore, be constantly on the look-out for good positions, such as a bank, a ditch, a wall, or like cover, where he may extend his men with advantage. After retiring, the new skirmishers must hold their position and be ordered to continue the retreat. When supports reinforce or relieve skirmishers, the officer will call out "To Reinforce or To Relieve," as the case may be, so that the commander of the skirmishers may know how to act.

S. 24. Rallying Squares.

RALLY- SQUARE.	{	The Instructor having extended the company, will give the word FORM RALLYING SQUARE, at the same time placing an officer as a rallying point, who will hold up his sword and turn towards the supposed enemy. The men will run to the officer, form round him, without crowding, order arms, fix swords, and turn outwards.
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A rallying square is composed of a large number of men; the officer should order the faces to take a given number of paces to their front, and the men in the centre

will fill up the intervals which will thus be left at the corners; in this manner the square may be formed with one or two ranks, according to the number of men.

A company may be formed into several rallying squares on different points, placed as above described; the word being, **FORM RALLYING SQUARES.**

**THE SQUARE
WILL ADVANCE**

(RETIRE, or
MOVE TO THE
RIGHT, or
LEFT).

*The Square
will Advance
(Retire,
or Move to the
Right, or
Left). Inwards.*
—Turn.

Quick—March.

**THE SQUARE
WILL HALT.**

Square—Halt.

**PREPARE FOR
CAVALRY.**

*Prepare for
Cavalry.*

**RE-FORM—
COMPANY.**

*Unfix—
Swords.
Form on the
Marker.*

To Move the Square.—The Instructor's caution will be repeated by the officer or whom the square is formed; on this, the square will turn in the direction named. On the word *March*, the square will start off, marching by the left of the leading face if advancing or moving to the right, by the right if retiring or moving to the left.

On the Instructor's caution, the officer will give the word **HALT**, when the square will halt and turn outwards.

Preparing for Cavalry.—If the square is ordered to prepare for cavalry, the men will move as directed in the Rifle Exercises, S. 7.

Re-forming Company.—On this caution from the Instructor, the men will be ordered to unfix swords; the left marker will mark where the left flank of the company is to rest, turned towards the supposed enemy.

On this command from the officer the men will form company upon the marker.

AS A COMPANY
IN LINE
(or COLUMN BY
THE--).

A caution to indicate the supposed position of the company.

PREPARE FOR
CAVALRY.

1. *The Skirmishers.*—The skirmishers, under the direction of their guide, will run to the best cover that time may permit, and place themselves in position according to its nature.

Should there be no cover within reach, they, under the direction of their guides, may at once form rallying squares, unless otherwise ordered, by half companies. These squares may be moved in on each other as opportunity may offer.

2. *The Support.*—The support will at once move up into the best position to aid the skirmishers, and, if necessary, will open fire to check the attacking force. Should the cavalry still press upon them, they will form rallying squares.

If required to extend again from this formation the order will be **EXTEND**, on which each commander, after unfixing swords, will extend his own men, who will occupy their original positions.

S. 25. *The Attack.*

A double company should now be formed and practised in the attack as laid down, pp. 182-184, Part III.

Note.—It must be carefully explained that extended order is applicable both to the formation for attack and for skirmishing, but with the general difference that *in the attack* the object is to gradually bring up the battalion,

with as little loss as possible, to a point sufficiently near the position of the enemy whence the hottest fire can be poured in, and the final assault by the battalion, as a *compact body*, can be made; whereas in *skirmishing* the object is either to *cover* a body of troops not formed for attack, or to *feel* for an enemy when advancing through an inclosed or wooded country.

In the attack, therefore, men must not be permitted to seek cover during the advance, when by so doing they lose their interval and fail to move direct to their front; further, when exposed to artillery fire alone, they must not take advantage of cover except by word of command.

In skirmishing, as such cohesion of the portions of the battalion is not necessary, greater latitude in its formation and manœuvres are to be allowed.

S. 26. *Formation of an Advanced and Rear Guard.*

1. *An Advanced Guard.*—A company forming the advanced guard of a column marching along a road is divided into two parts. One half company will form a support, under the command of the lieutenant, about 300 yards from the column; the other half company, under its guide, will move about 200 yards in front of it, and will detach two files 100 yards to its front, two files 100 yards to its right front, and two files 100 yards to its left front; if the company is weak, one file only in front and one on each flank may be sent on. These three parties will each be in charge of a petty officer, or selected man. When either of the flanking parties is not required, it will at once join its half company. The support should send on a connecting file about 100 yards, and drop a connecting file the same distance in its rear.

. A connecting file should be sent out from the leading company of the column.

The executive words of command for an advance guard are the same as for men extended.

2. *A Rear Guard*.—A rear guard is formed in the same way as an advanced guard, the company being wheeled about as necessary; thus the front rank will always be on the side remote from the column. If the column is on the march, the guard may be formed by the various parties marching off in succession as the column gains the proper distances from them. A connecting file should be dropped from the rear company of the column.

When the column halts the rear guard will halt and turn to their own front.

PART III.

FORMATION AND EVOLUTIONS OF A
BATTALION.

GENERAL RULES.

I.

Application of Squad and Company Drill.—The evolutions of a battalion are effected by combinations of the movements that have been described in the company drill. The rules laid down in Part II. for the positions and movements of officers, petty officers, and men, are applicable, with a few exceptions hereafter specified, to all the movements of a company when with the battalion.

II.

Battalions changing Position and Formations.—Commanding officers, when drilling their battalions, should accustom themselves to make changes of position, formations, on fixed points dressed on previously determined alignments.

III.

Words of Command.—Words of command must be as described in Part I., Gen. Rules IV. When, from the noise of firing, the commanding officer's words are indistinctly heard, they should be repeated by the battalion officers.

IV.

The Battalion Officers.—1. The leaders and the officer instructor should be able to take up the distance required for the whole or any part of the front of the battalion; the eye will be found the most convenient and accurate guide in judging distances. When not marking points, they must afford every assistance to the commanding officer during a manœuvre, and move to their places when it is completed.

2. When only one leader is present, the officer instructor will take the place of the left leader. The chief petty officer will assist, when required, in covering the markers.

V.

Giving Points.—When battalion officers are required to give points, they will turn towards the alignment, and in line formations will be at arm's length from it.

VI.

Alignment and Points of Formation.—1. That point in the alignment upon which a formation is made, and from which all intermediate points are dressed, is called the Point of Appui. The Distant Point is that upon which the line, or intermediate points, are dressed.

2. To enable intermediate points to take up their covering correctly in an alignment, a second point will occasionally be required outside the point of appui, as a guide to the distant points; this point must be correctly dressed on the prolongation of the alignment. By means of successive points covering on this base, a formation may be prolonged in a straight line, to any extent.

3. In the deployment of a single battalion, the base points of the company of formation, which must be correctly covered from the point of appui, will be a sufficient guide for the markers of the remaining companies.

4. When battalions, or companies of a battalion, are drawn up successively into line, the outer flank of the last formation is always to be considered the point ofappui for the succeeding one.

5. The dressing, or covering, of all points must be directed by a leader, from the point ofappui.

6. As a general rule, the leader nearer to the point ofappui will cover the points; the right leader will do so in a central formation. On the completion of the formation the leader will give the word *Steady*, and take post.

7. The officer instructor will mark the outer flank of the battalion in formations that require it. In a central formation, the left leader will mark the left, the officer instructor the right of the battalion. The leaders, &c., will take post on the word *Steady* at the completion of the formation.

8. Markers do not give points in any movement until the executive order is given while the men are on march, except when forming line on the rear company, the quarter column, and deploying into line from column or half battalions.

VII.

Degrees of March.—1. The quick march is the usual one to be applied to all general movements of battalions and greater bodies in column or line.

2. The double march should not be applied to the movements of large bodies of men for a longer distance than required in a charge, or a short rush to seize a position. It should be used frequently in the movements of companies during the internal formations of a battalion, and in skirmishing.

VIII.

Swords not to be fixed.—Field movements, except where otherwise directed, and firings, except in square are to be performed with unfixed swords.

IX.

Keeping the Right Guide's place in Line.—When the right guide moves from the front rank in a line formation, his marker will take his place and preserve it till he returns; when both guide and marker move out, the rear-rank man of the right file will move up and keep the place.

X.

Making way for an Officer, or Marker, to pass through the Line.—When a mounted officer requires to pass through the line at any point, the two files at that point will take two paces to the rear and one pace outwards from each other, resuming their places when he has passed. When a guide has to make way for another officer, or a marker, to pass, he will take one pace to his front and a side pace to his left, stepping back when the officer, or marker, has passed.

XI.

The Front.—A battalion in line is supposed to be turned towards the enemy; the direction in which it is turned is called "the front."

All interior movements of the battalion are made with reference to this front. When the battalion breaks or wheels into column, and the companies wheel again into line, they wheel, as a rule, into their original order; the flank on which they would so wheel into line is the directing flank in column; thus if the line breaks or wheels into column to the right, the left directs, if to the left, the right directs. If it is required, as an exceptional case, to change the front of the line to the rear, the column is wheeled into line to the reverse flank, having previously been ordered to

cover, or to march, by that flank; the front of the line when formed, becoming, according to rule, *The Front*, the companies being re-numbered as directed in Rule X.

XII.

Companies, when they lose their Order, to be Re-numbered.—If companies lose their order, each lieutenant, when guide has given the words *Eyes—Front*, in line formation, or after giving *Halt—Front, Dress*, in forming column, warn his company of its new number. When companies lose their order on the march (S. 19), their lieutenants re-number them as they move forward in their new order. In line, the numbers of the companies run from right to left; in column, by the left, from front to rear.

XIII.

A Battalion Firing.—There are two descriptions of firing—volleys, and independent firing. Volley firing may be at the discretion of the commander, be by battalion, half-battalions, companies, half companies, or sections; or several bodies working by order of their respective commanders, and the number of rounds to be expended be fixed in all cases, specified. In independent firing, each company will work by order of its own lieutenant, and the number of rounds to be expended will also invariably be specified.

When firing volleys by half-battalions, companies, or parts of companies, in order to prevent the volleys being given simultaneously, the caution will be given to fire to the right or left of the battalion, or of half-battalion, or companies; the *Present* of the preceding body being the signal for the *Ready* of the next. After the completion of the first round by the battalion, half-battalion, or company, each half-battalion, company, or part of a company, will fire by order of its commander, without reference to the remainder.

The battalion leader's caution will be repeated, when necessary, by the battalion officers.

The requirements of the moment can alone determine the description of fire that will be most effective; but it may be assumed that, except under extraordinary circumstances, no firing should be permitted when smoke, or other causes, prevent such a view of the enemy being obtained as would ensure a reasonable certainty of an effective result. On this principle, the bugle sound, or order, to Fire will, as likewise in skirmishing, be permissive and not obligatory. The *Cease Firing* must, on all occasions, be complied with, although the men may not have expended the specified number of rounds.

It is to be understood that all firings in line will be the exception, and firing in skirmishing order the rule.

When in line prepared for cavalry, or in square, the firing will be conducted as explained in the Rifle Exercises.

In all firings in line, the section commanders will take post as in extended order, and superintend or, if necessary, command their sections; returning to their posts when the firing ceases. At funerals, and when firing a feu-de-joie, the officers remain in front.

XIV.

A Battalion Dispersed, Re-assembling.—A battalion should frequently be practised in assembling when dispersed, or in confusion. For this purpose the left markers will be placed, turned towards the supposed enemy in line, or in column, as may be directed by the commanding officer; the bugle will then sound the *Assemble*, or the words **FORM ON THE MARKERS** will be given, on which each company will form on its marker.

N.B.—In this part, words given by the commander of the battalion are in capitals; the battalion officers' word *Steady*, and words given by lieutenants or guides, in *italics*.

A BATTALION ON PARADE.

S. 1. Formation of a Battalion on Parade, in Column.

1. *Formation of the Battalion.*—As a general rule battalion will assemble on parade in column by the Plate VI., Fig. 2.

2. *Companies may be Equalized.*—Companies may equalized in point of numbers when the battalion is formed for field movement; but it is also necessary that a battalion should be accustomed to exercise with companies of unequal strength.

3. *Companies forming in Column on their Markers.*—The companies having been told off and proved as directed in Part II., the markers, under the direction of the officer instructor, will mark, as directed in Part II., Gen. Reg. XIV., No. 2, the spots on which the directing flank of their companies are to rest in column on any given alignment; each taking sufficient distance from the marker in front of him, to allow of his company being wheeled in line. On the *Advance* being sounded, the companies will be marched upon their markers into column, arms will be ordered, and the men allowed to stand at ease.

4. *Arrangement of Companies.*—Every company will be arranged as directed in Part II., S. 2, No. 2.

5. *Posts of the Battalion Officers, and Non-Executives.*—The usual post of the commanding officer in column is the directing flank of the leading company: the leader and officer instructor are on the reverse flank of the column; the right leader two paces from the centre of the right half-battalion, the left leader two paces from the centre of the left; the officer instructor two paces from the leader of the centre company. The non-executive officers will be

the reverse flank of, and two paces from the band; their assistants will be in rear of them.

When a column is ordered to advance or retire, the leader of the leading half-battalion will place himself in the rear of the directing flank of the second company from the front, to superintend the direction; keeping clear of the line of guides. When the order of companies in column on the march is changed, the leaders will change half-battalions. When a battalion is working by half-battalions, leaders do not change half-battalions.

6. *Post of the Chief Petty Officer.*—The chief petty officer will be in rear of the fifth file from the directing flank of the leading centre company, one pace distant from the supernumerary rank.

7. *Posts of Band, Buglers, Pioneers, Stretchermen, and Spare Ammunition Men.*—The band, buglers, pioneers, stretchermen, and spare ammunition men, will be placed on the reverse flank of the column; the band in several ranks three paces from the centre of the battalion, the pioneers two paces in front of the band, the buglers two paces in rear of the band, the stretchermen two paces in rear of the buglers, and the spare ammunition men two paces in rear of the stretchermen. When the battalion is manœuvring, the band, buglers, pioneers, stretchermen, and spare ammunition men will remain on the flank. In column of route, the band and buglers will move up to twelve paces in front of the leading company, formed in several ranks; the pioneers will move up to six paces in front of the band; the stretchermen will move to twelve paces in rear of the column, and the spare ammunition men to six paces in rear of the stretchermen.

In Plate VI., Fig. 2, the non-executives have fallen out; the band and buglers are shown as formed preparatory to marching past.

Stretchermen and spare ammunition men will pass as in column of route.

8. The battalion officers will always have their arms drawn when with the battalion.

9. *Telling off the Battalion.*—When a battalion assembled for exercise (in column by the left), it is told off as follows :—

TELL OFF THE —BATTALION.	{	On the words TELL OFF THE-BATTALION from the commanding officer lieutenant of the leading company call out <i>Number One</i> , then the lieutenant of the next company, <i>Number</i> and so on to the rear of the column.
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Nos. 1 to 3, RIGHT HALF-BATTALION. Nos. 4 to 6, LEFT HALF-BATTALION.	{	The commanding officer will name the companies which are to form the right half-battalion, and those which are to form the left.
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When companies in column are required to take order for inspection, the commanding officer will give the words OPEN—ORDER, MARCH, and each company will proceed as described in Part II., S. 2. Each lieutenant will receive the inspecting officer with a salute, and follow him during the inspection of his company, the men standing with shouldered arms. As the inspection of his company is completed, the lieutenant will close the ranks and give the words to order arms, and stand at ease; resuming his proper place in column.

PLATE VI.

Fig. 1.—A BATTALION IN LINE IN CLOSE ORDER.

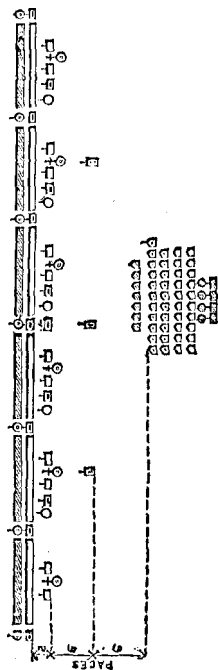
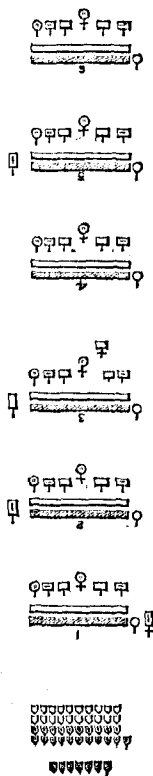


Fig. 2.—A BATTALION FORMED SINGLY ON PARADE, IN COLUMN BY THE LEFT.



FORMATION AND MOVEMENTS OF A BATTALION IN LINE.

GENERAL RULES.

I.

Marching in Line.—The rules laid down for marching are especially applicable when marching in line.

II.

Retiring in Line.—A battalion should never unsparingly stand turned to the rear: it should, therefore, about to retire, not be turned about till everything is for its instant march.

III.

Base Points and Markers.—In deployments formations of line, on any one company, a marker will be placed in front of each flank file of that company as a base point. A marker will also run out from each of the other companies, to mark the distance required for it, covering the line established by the base points. All the companies will turn to the battalion point of appui.

The base points will invariably move out on the battalion's caution, and remain steady until the whole line is formed. When the leader who has covered them will give the word *Steady*, on which they will fall in in their proper places. Each of the other markers will run out to give his company when within 20 paces of his ground, remaining steady. When the company in his rear receives the words *Eyes—Front*, he will fall in.

When markers move out to give points simultaneously they also take post together. When, during a line formation, a company is ordered to fire, the marker (or markers) in front will at once take post in rear.

IV.

Points to be kept clear.—As it is of great importance that the base points, and other markers, of a battalion forming line should be kept clear, companies must upon all occasions be halted in rear of them, and then dressed up into line.

V.

Formations without Points.—Line formations should also be frequently practised without points.

VI.

Closing to Correct Intervals.—After wheeling, or forming, into line, any intervals will be corrected, from the rear, by the leader who is not looking to the covering, assisted by the officer instructor, who will close the companies as may be required; the lieutenants will halt their own companies, except when the number of paces they are to close is named: when an entire half-battalion is closed, the leader will halt it. The right guide of the left-centre company who is the centre of the battalion, should, as a general rule, remain unmoved. A right guide will close with his company, unless files are out on its right, when, if it closes to the left to admit them, he will stand fast; but if the company next to him closes to the right, he will close with it till his files have all moved up.

FORMATION AND MOVEMENTS.

S. 2. *Formation of the Battalion in Line.*

PLATE VI. Fig. 1.

1. *Arrangement of Companies.*—When a battalion is formed in line, there is to be no interval between the companies. Each company will be arranged as described in

Part II., S. 1, except the company on the left of the which will have its left guide on the left of the front covered by his marker.

2. *Posts of Battalion Officers.*—For the purpose exercise when the battalion is alone, the commanding officer may occasionally be in front; but, as his post, when the battalion is in brigade, is always in rear, it is necessary to accustom the men to receive his words of command from that direction. When the battalion is ordered to fire, or to advance in line, the commanding officer will usually be in rear of the centre, at about twenty paces from the supernumerary rank.

The right leader will be in rear of the centre of the right half battalion, the left leader in rear of the centre of the left, the officer instructor in rear of the centre, at about ten paces from the supernumerary rank. The left leader and the officer instructor will dress by the right leader.

3. *Posts of Band, Buglers, Pioneers, &c.*—The band will be placed twelve paces from the supernumerary rank, in line with the centre of the battalion, two deep, at loose order, occupying no more space than is necessary. The pioneers will be two paces in front of the band, in single rank; the buglers will be two paces in rear of the band; the stretcher men two paces in rear of the buglers; and the spare ammunition men two paces in rear of the stretchermen.

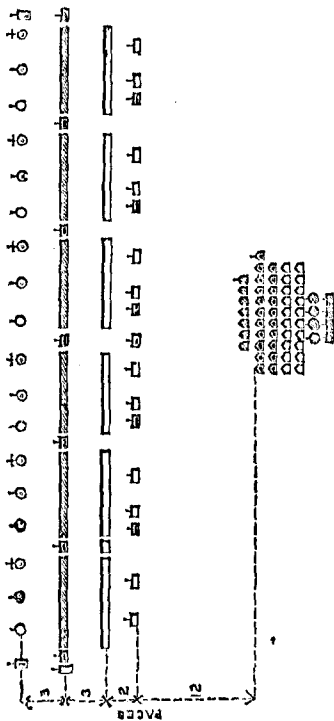
4. *Posts of Non-Executives.*—The non-executive of the battalion will be three paces in rear of the spare ammunition men with their assistants in rear of them.

5. *Post of the Chief Petty Officer.*—The chief petty officer will be in rear of the centre, aligned with the supernumerary rank.

PLATE VII.

A BATTALION FORMED IN LINE AT OPEN ORDER.

1



S. 3. A Battalion in Line taking Open Order.

PLATE VII.

Arms will be shouldered, before taking open order.

OPEN—ORDER.

1. *Taking Open Order.*—On the word **ORDER**, each company will proceed as directed in Part II., S. 3; except that the right-hand man only of the rear rank of each company, and the rear-rank man of the left of the line, will step back to mark the ground for the rear rank, and that the left marker of the left company of the line will move up into the place vacated by his guide. The right leader will move up to the right, the left leader and officer instructor to the left, of the front rank. The chief petty officer will cover the rear-rank flank men, and give the word *Steady*. He will also dress the supernumerary rank from the right, and give *Eyes—Front*. He will then fall in.

On the word **MARCH**, each company will proceed as directed in Part II., S.

MARCH.

The non-executives, buglers, band, pioneers, &c., will remain as posted in close order. The right leader will move up on the right of the line of officers and will dress them; the left leader will move up on the left of the line of officers. The officer instructor will remain on the left of the front rank. The commanding officer will place himself six paces in front of the centre of the line of officers.

Steady. { On the word *Steady* from the right leader, the officers will carry swords, and look to the front.

CLOSE—ORDER. { 2. *Taking Close Order.*—On the word ORDER, each company will proceed as directed in Part II., S. 3. The leaders and officer instructor will turn outwards.

MARCH. { On the word MARCH, the whole will resume their places, each company proceeding as directed in Part II., S. 3. The guide of the left company will place himself on its left, his marker covering him.

Arms will then be ordered.

S. 4. *Advancing and Retiring in Line.*

THE LINE WILL ADVANCE. { 1. *Advancing in Line.*—On the caution from the commanding officer, the centre guide will select points to march on under the superintendence of the officer instructor, who will give the word *Steady* as a signal, when the line of direction is determined.

Steady.

QUICK MARCH. { On the word MARCH, the whole battalion will step off, the touch being to the centre, the right guide of the left-centre company directing. The chief petty officer will stand fast until the line has advanced 10 or 15 paces; he will then follow in rear, under the direction of the officer instructor, who will remain

- covering him on the centre guide, until he sees the true line of direction being maintained.
- BATTALION—
HALT. { On the word **HALT**, the battalion will halt, every man remaining perfectly steady.
- THE LINE WILL
RETIRE. { **2. Retiring in Line.**—On the word **RETIRE**, the centre marker will turn about, and the officer instructor and chief petty officer will pass through the line, and place themselves behind it; the officer instructor superintending the direction of the centre marker, and giving the word *Steady* when the line of direction is determined. On the word **TURN** the battalion will turn about, and the right guides will fall to the present position of the centre of their companies.
- Steady.*
- RIGHT ABOUT—
TURN. {
- QUICK—
MARCH. { On the word **MARCH**, the battalion will step off, rear rank leading; the touch being to the centre, the marker at the centre of the rear rank directing; the officer instructor and chief petty officer proceeding as in the advance in line.
- BATTALION—
HALT—FRONT. { On the words **HALT—FRONT**, the battalion will halt and front; the right guides taking post, and the officer instructor and chief petty officer returning through the line, to their places in rear.

S. 5. Dressing a Battalion in Line.

When it is necessary to dress a battalion in line, the commanding officer will give the words **BY THE RIGHT** (*or LEFT*), **DRESS**, on which the right or left markers, according to the flank of dressing, and the marker on the distant flank of the line, will double out to the front, looking to the leader on the named flank. On the leader's word, or signal, the markers will halt, turn towards him, and cover, recovering arms as they turn; when they are covered, the leader will give the word *Steady*.

The commanding officer will then give the words **QUICK—MARCH**; each lieutenant will halt his company, and give the words *Dress up*, when it is within two paces of the alignment; and the guide of the named flank will dress it, give the words *Eyes—Front*, and fall in.

When all have completed their dressing, the leader will give a second word *Steady*, on which the markers will resume their places in line.

S. 6. A Battalion in Line passing Obstacles.

If the obstacles are small, the files whose progress is interrupted by them will break off as directed in Part II., S. 16, but without word of command. The moment the obstacles are passed, the files must move up again into line. Should the breadth of the obstacles be found to decrease, the files will form up successively as there is room for them; should it increase, additional files will at once break off. Great care must be taken that the men who remain in line continue to move straight forward;

neither closing on the intervals left by the men who have fallen to the rear, nor pressing upon the remainder of the battalion should the obstacle increase in breadth.

Files, in breaking off, should turn towards their own companies; thus, if an obstacle presents itself in front of the flanks of two adjoining companies, the files of the company on the right will turn to the right and wheel to the left, and those of the company on the left will turn to the left and wheel to the right. When the obstacle is in front of the centre of a company, the files, as a general rule, will turn to the right and wheel to the left. See Plate VIII., Fig. 1.

If a company, or half-company, is required to break off, it will move in fours; or if files break off successively, they amount to a half-company, they will form fours.

Should a line be halted while it is broken by obstacles, such as pools of water, marshy ground, or low bushes, the files that are broken off will form in rear of them, in a line parallel to the front; in this manner, the line will advance to the enemy unbroken, and every man will be able to see the enemy. See Plate VIII., Fig. 2.

ADVANCE
IN FOURS
FROM THE
RIGHT (or
LEFT) OF
COMPANIES

When a battalion is advancing, and the obstacles are such as to require the companies to break into fours, the commanding officer will give the command, ADVANCE IN FOURS FROM THE RIGHT (or LEFT) OF COMPANIES, followed by the words, FOURS — RIGHT, WHEEL (or FOURS — LEFT, WHEEL), and may name any flank to direct thus: No. 4 — COMPANY, to the RIGHT. The guides will follow themselves on that flank of the

OURS—RIGHT, LEFT—WHEEL (or FOURS— LEFT, RIGHT —WHEEL).	fours, which is nearest to the company of direction, and keep their distances, as far as circumstances will allow. When no company is named, that company will direct which would be at the head of the column if the words FRONT—TURN, were given. The markers will be responsible for the dressing. The leader of the half-battalion to which the directing company belongs will superintend the direction.
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When the ground will permit, the companies may be formed into line by the words FRONT FORM—COMPANIES, FORWARD; or ON THE MARCH, FRONT FORM—COMPANIES; or AT THE HALT, FRONT FORM—COMPANIES; they may be halted and fronted into column, and then wheeled into line. In forming to the front at the halt, no points are given, the guides proceeding as taught in Part S. 13; the line will, if necessary, be dressed as directed S. 5.

If all the companies of a battalion retiring in line are required to break into fours, the commands will be, RETIRE FOURS FROM THE LEFT (or RIGHT) OF COMPANIES. OURS—LEFT, RIGHT—WHEEL (or FOURS—RIGHT, LEFT WHEEL).

When retiring in fours the companies may form line, and continue to retire, by the words REAR FORM—COMPANIES, FORWARD; or ON THE MARCH, REAR FORM—COMPANIES; or they may be halted and fronted into column, and then ordered to wheel into line to the original front; or they may be ordered to form to the original front by the command RIGHT (or LEFT) ABOUT FORM—COMPANIES. In the last case, the markers will not give points,

PLATE VIII.

Fig. 1.—A BATTALION IN LINE PASSING OBSTACLES.

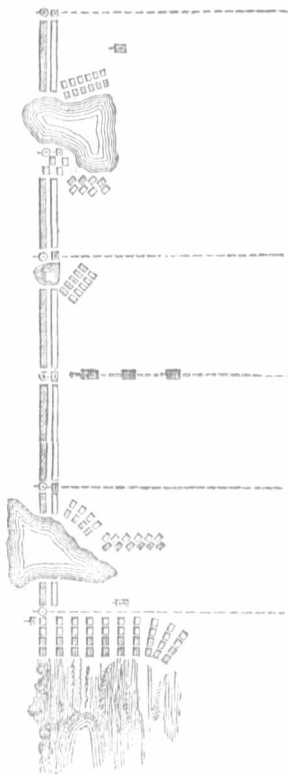


Fig. 2.—A BATTALION IN LINE HALTED WHILE BROKEN BY OBSTACLES.



the guides proceeding as taught in Part II., S. 13; should the dressing require correction, when the companies have formed, the line will be dressed as described in S. 5.

When the companies, having advanced in fours, are directed to turn into column, the flank that was leading when in fours will direct; when they turn into column after retiring in fours, the flank that was in rear will direct. *See Column Movements, Gen. Rule IV.*

COLUMN MOVEMENTS.

GENERAL RULES.

I.

Use and Advantages of Columns.—Columns are formed from line for convenience of movement. In case of attack they can readily be formed into line in any direction into square.

II.

Depth of Columns.—In column, each company is placed at a distance equal to its own breadth from the one immediately in front of it, measuring from the heels of the front rank of the one to the heels of the front rank of the other. Consequently a battalion in column occupies the same extent of ground that it would cover in line, less the front of the leading company. A half column is formed with the companies at half-company distance. A quarter column is formed with the companies at six paces distance.

III.

Application of Columns.—Columns, half, or quarter columns, are formed for the passage of defiles, and for manoeuvre; the employment of the one in preference to the other must necessarily depend on the ground and circumstances, and can only be determined by the commander on the spot. The quarter-column combines the convenience of moving in a small space, with the flexibility of forming in any manner to resist attack; and is applicable to all the changes of position of a column.

IV.

Directing Flank in Column.—When companies wheel from line into column to the right, the left flank will direct in column; when they wheel to the left, the right will direct; unless the column is ordered to cover, or to march, by the other flank, previous to forming line to that flank. In all other formations of column from line, the proper left flank directs, unless otherwise ordered.

MOVEMENTS.

S. 7. Formation of a Battalion in Half and Quarter Column.

The arrangement of a half or quarter column will be the same as that of a column, as described in S. 1, the distances only being different. The band, &c., will be formed in the rear. When a quarter column is on the march, the leader of the rear half-battalion will superintend the covering of the line of guides from the rear.

S. 8. Forming Quarter Column from any more Open Column.

QUARTER
COLUMN ON
THE LEADING
COMPANY.

or

QUARTER
COLUMN ON

1. *Closing from the Halt.*—A column may be closed to quarter column on the leading, rear, or on any named company. In closing on the rear, or on a central company, the companies in front will be ordered to turn about.

THE REAR
COMPANY.
(or No.—).
COMPANIES IN
FRONT, RIGHT
ABOUT—TURN.

QUICK—
MARCH.
No.—, *Halt—
Dress.*
No.—,
*Halt—Front,
Dress.*

Steady.

QUARTER
COLUMN ON
THE LEADING
COMPANY.
No.—, *Halt.
Front)—Dress.*

ON THE MARCH,
QUARTER
COLUMN ON
THE LEADING
COMPANY,
REMAINDER—
DOUBLE.
No.—, *Quick.*

When the column is being closed, leader of the half-battalion to which named company belongs will cover guides from the battalion point of view the guide of the named company.

On the word MARCH, the named company will stand fast; the remainder close on it to the distance required halting, or halting and fronting, by command of their lieutenants, as they are at their places. On the word *Dress*, men will take up their own dressing.

When the movement is completed, leader who has superintended the closing will give the word *Steady*, and return to his place.

2. *A Column on the March Closing to the Leading Company.*—When a column on the march is ordered to close on the leading company, the lieutenant of the company will give the words No.—, *Dress*, or, if retiring, No.—, *Halt—Front)—Dress*. The column will then be closed as already described.

3. *Closing to the Front, without halting.*—When a column is required to close without halting, the leading company will move on steadily in quick time; the remainder will close up in double time, resuming the quick step in succession, by command of their lieutenants, and gain their distances.

S. 9. *A Quarter Column opening from the Front, the Rear, or a Central Company.*

OPEN TO COLUMN FROM THE LEADING COMPANY.	{	1. <i>Opening from the Front.</i> —If opening from the front, on the caution, the officer instructor will mark the spot on which the directing flank of the rear of the column will rest, dressing himself on the line of guides.
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REMAINDER, RIGHT ABOUT— TURN.	{	The leading company will stand fast, the remainder will be ordered to turn about.
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QUICK— MARCH.	{	On the word MARCH, the companies turned to the rear will step off, the guide of the rear company marching with his outer shoulder just clear of the officer instructor. The lieutenant of the second company, having gained the distance required, will give the words <i>No.—, Halt—Front.</i> The other lieutenants in succession will halt and front their companies in like manner. Each guide, the moment his company has fronted, will correct his covering; the lieutenant will then give the word <i>Dress.</i>
No.—, Halt— Front.	{	
Dress.	{	

Steady.	{	As usual.
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OPEN TO COLUMN FROM THE REAR COMPANY.	{	2. <i>Opening from the Rear.</i> —If opening from the rear, on the caution, the officer instructor will mark the alignment, at the wheeling distance of a company in front of the spot on which the directing flank of the head of the column will rest.
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REMAINDER,
QUICK—
MARCH.

No.—, Halt.

Dress.

Steady.

On the word MARCH, all but the company will step off, the guide of leading company marching with his shoulder just clear of the officer instructor; each lieutenant will halt his company when it has gained the distance, on which the directing officer will turn about, correct his covering front; the lieutenant will then order his company to *Dress*.

As usual.

3. *Opening from the Rear, on the March.*—When a quarter column on the march is required to open from the rear, on the caution OPEN TO COLUMN FROM THE REAR COMPANY, the rear company will be halted by the lieutenant; the movement will then proceed as described, on the halt, but the officer instructor does not give a distance point. If it is required to open without halting, the caution will be, ON THE MARCH, OPEN TO COLUMN FROM THE REAR COMPANY. REMAINDER, DOUBLE; the companies in front of the rear company will be ordered by the lieutenants to break into quick time as they gain the required distance.

4. *Opening from a Central Company.*—In opening from a central company, the guide of that company will be the point of appui for the battalion, and the companies in front and rear of it will proceed as already described, the left leader giving a point for the guides of the left half-battalion to march upon, and the officer instructor giving a point for the guides of the right.

In opening from the front or rear, the leader of the half-battalion to which the named company belongs, in opening from a central company the right leader will superintend the covering of the guides from the battalion point of appui.

5. *Opening by the Companies Advancing, or Retiring, in Succession.*—When a battalion standing in quarter column is required to advance in column, it will receive the caution, **ADVANCE IN COLUMN**. The lieutenant of the leading company will at once give the words *No. 1, Quick March*; when that company has gained the required distance, the lieutenant of the second company will give the words *No. 2, Quick March*; and so on in succession. If a quarter column is required to retire in column, on the caution **RETIRE IN COLUMN**, the companies will be turned about in succession, commencing with the rear company, and marched off in like manner.

8. 10. *Columns diminishing and increasing their Front, and passing Obstacles.*

1. *Columns diminishing Front.*—When a column on the march arrives at a narrow space or defile, each company in succession will diminish its front: as each company clears the narrow space, it must again increase its front.

The methods of increasing and diminishing the front of a company have been explained in Part II., Ss. 16, 17.

2. *Passing Obstacles when Marching on an Alignment.*—When the march of a column on an alignment is interrupted by a pool of water, or any other obstacle which is impassable, the march will be continued direct to that obstacle, which will be passed by diverging on all occasions, when practicable, to the reverse flank; the alignment will again be taken up by the guides on the other side of the obstacle, at a point placed for that purpose. When marching on an alignment, directing guides should never diverge unless it is absolutely necessary.

3. *A Quarter Column diminishing Front.*—A quarter column may reduce its front by breaking off a file or two

from the flanks of companies, or by the companies advancing in succession (see Part II., Ss. 16, 17); or it may be in fours deep, and close on a flank, or on the centre.

S. 11. A Column changing Direction, and marching on a new Alignment; or changing Position by the Flank March of Fours.

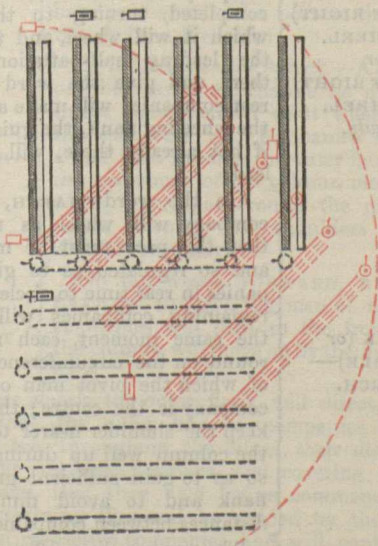
1. *Changing Direction.*—A battalion marching in column may change direction by the successive wheel of its companies round the same point. Should the wheel be to the reverse flank, the guides of that flank will move up to the lead during the change of direction, retaining the relative positions the flanks held when the column was marching by the directing flank: weak companies will march ahead, past the wheeling point before they wheel, the strong companies will wheel upon it.

The word FORWARD will be given to the leading company by the commanding officer; but each company that follows will receive that word from its lieutenant, as the front becomes perpendicular to the new direction.

In changing direction into a new alignment, if the column is halted before all the companies have changed their direction into the alignment, on the words *ALL COMPANIES, COVER*, those companies will be moved into it by the flank march of fours, by their lieutenants, the markers running out to mark the spots on which the directing flanks are to rest.

PLATE IX.

A QUARTER COLUMN WHEELING.



S. 12. *A Quarter Column Wheeling.*—PLATE IX.

BATTALION—
 QUARTER,
 HALF, or THREE-
 QUARTERS,
 LEFT (or RIGHT)
 —WHEEL.
 or
 LEFT (or RIGHT)
 —WHEEL.
Steady.

QUICK (or
 DOUBLE)—
 MARCH.

1. *Wheeling from the Halt.*—On caution, the markers of the leading company will run out to mark, as directed in Part II., Gen. Rules XIV., the spots where the flanks of the company will rest when the wheeling is completed, turning to the flank which it will wheel, and the leading half-battalion will follow them and give the word *Steady*; the rear companies will make a half turn to the wheeling flank, the guides of wheeling companies, if not already there, will move up to the lead.

On the word MARCH, the leading company will wheel as usual, except that the pace must be much shorter and so regulated as to give the rear companies in rear time to circle round. At the same moment, each man moving round on the circumference of a circle of which the pivot man of the leading company is the centre; the men must keep the shoulder nearer to the front of the column well up during the wheeling so as to gain sufficient ground to the flank and to avoid diminishing the distances between companies.

The commanding officer will give the word HALT when the leading company has wheeled to the required angle, at which time the rear companies shall

BATTALION—
HALT.
DRESS.

Steady.

also have circled round into the new position; the guides on the wheeling flank, if it is the reverse flank, will resume their places in column, the men will turn to the proper front, and remain steady until the word DRESS is given, on which they will take up their dressing by the directing flank. The base points will take post on the word *Steady* from the leader.

BATTALION—
LEFT (*or* RIGHT) {
—WHEEL.

2. *Wheeling on the March.*—A column on the march will change its direction in the same manner as it wheels from the halt; the rear companies making a half turn towards the outer flank, and the pivot man of the column moving at a very short pace round the wheeling point, keeping his shoulders square with his company.

BATTALION—
FORWARD,
BY THE LEFT
(*or* RIGHT).

On the words FORWARD, BY THE LEFT (*or* RIGHT), the men of the rear companies will turn to the front, and the column will move on by the directing flank.

During these wheels the outer flank will direct, and it is requisite that the outer files of companies should carefully preserve, throughout the wheel, their distances, and the same relative positions and covering on the leading company, that they held before commencing to wheel; the remaining files will be guided by the outer flanks of their respective companies, and will conform to them during the wheel.

The leader of the leading half-battalion will place himself on the outer flank of the leading company, to

regulate its pace: in order to do so, he must watch the guide on the outer flank of the rear company (who will continue to march at a full pace throughout the movement, and on whose movements the march of every man in the column should be made to depend); he must also keep the diagonal covering of the guides on the leading flank. The leader of the rear half-battalion will place himself on the inner and the officer instructor on the outer flank of the battalion. The lieutenants will see that the companies close up to their leading files. The word **DRESS** is given when the column halts, the leader of the leading half-battalion will cover the directing guides from the front.

These wheels should generally be practised in drill time.

S. 13. A Column moving to a Flank in Fours.

MOVE TO THE
RIGHT (or
LEFT) IN
FOURS.
FOURS—RIGHT
(or LEFT).
QUICK—
MARCH.

After the caution, the commanding officer will give the words **FOURS TO THE RIGHT (or LEFT)**, and, if halted, **QUICK—MARCH**; on which the column will move to the named flank in fours. Any company may be ordered to dress on that flank if no company is specified, the leading company of the column will dress. The guides of the leading flank will place themselves on that flank of the column. The leading fours which is nearer to the company of direction, and will keep the distances. The markers of the leading flank will be responsible for the dressing.

When it is required to move diagonally to the flank, the column will get the words **HALF LEFT (or RIGHT—TURN)** as soon as it is moving in fours.

S. 14. A Quarter Column in Files, or formed in Fours to a Flank, Wheeling to the Right or Left.

A column in files, or formed in fours to a flank, will wheel to the right, or left, on the principles laid down in S. 12; the leading files, or fours, of all the companies will wheel round the pivot in the same manner as the leading company of a column, the men on the outer or wheeling flank of the column preserving their distances and covering, the remainder of the column being guided by them during the wheel. The guide leading each company will place himself, if not there already, on the flank of the leading file, or four, nearer to the pivot, in order that he may be able to keep his distance; the markers will preserve the dressing. The battalion officers will take the same positions during the wheel as laid down in S. 12.

15. A Column, when moving to a Flank in Fours, closing on, or opening from, any named Company.

THE MARCH. QUARTER COLUMN ON No.—, or OPEN TO COLUMN FROM No.— REMAINDER, RIGHT (or LEFT)—WHEEL, INWARDS or	{	When a column moving to a flank in fours is required to close on, or open from, any named company, on the word WHEEL the named company will continue to move on at the quick, and the leading fours of the remainder will wheel, as ordered; the guides, if not there already, will change to that flank of the leading fours which is nearer the named company. As each company in succession arrives at the required distance, the guide will
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OUTWARDS)
 —WHEEL.
 DOUBLE.
 FORWARD.
 No.—, Quick.

change direction parallel to that of the named company, and the lieutenant will then resume his place. The guide, if he has changed flank, will then resume his place.

S. 16. *Application of the Flank March of Columns in Fours.*

The flank march of columns in fours will be the most useful in the advance or retreat of large bodies of troops.

A battalion in line may advance or retire in fours, to the right or left of companies, thereby becoming a column moving to a flank. In this formation it may pass any obstacles or broken ground without risk of delay or material loss of distance in the general line.

If a defile or bridge presents itself, the battalion may close on the company opposite to it; if a further reduction of front is required, one half-battalion may move to the other following: if necessary, any company may be ordered to move on in fours, the remainder following in succession as directed.

When the defile is passed, the leading half-battalion may be ordered to mark time or halt, while the rear half-battalion, or companies in rear, resume their position, or the rear half-battalion, or companies, may be ordered to double up. The column may then be ordered to move on again, or while moving by the flank march of fours may be wheeled in any direction, and then be opened.

Troops in this formation will be found flexible to the greatest degree, and as the companies move independently they will not be liable to disorder, and the battalion will at all times be ready to form line or square, as required. See S. 6, and S. 30, No. 4.

FORMATIONS OF COLUMN FROM LINE.

5. 17. *A Battalion in Line Wheeling into Column, from the Halt.*

BREAK INTO
COLUMN TO THE
—RIGHT.

1. *Breaking into Column to the Right.*
—On the caution, the right leader will move to the right of the line, the left guides will stand fast; the remainder of the battalion, including band, buglers, pioneers, &c., will turn about.

RIGHT—WHEEL.
QUICK (or
DOUBLE)—
MARCH.

On the word MARCH, the companies will move as described in Part II., S. 6; the right leader will cover the left guides, who will move up on the flanks; the band, buglers, pioneers, and the battalion officers, except the right leader, &c., will take post in column, as described in S. 1.

No.—, Halt—
Front, Dress.
Steady.

On the words No.—, *Halt, Front, Dress*, from the lieutenants, the companies will halt, front, and dress by the left; the right leader will give the word *Steady*, and move to his place on the completion of the movement.

2. *Breaking into Column to the Left.*—Column will be formed to the left in like manner, the right guides standing fast, and the left leader moving to the left of the line, ready to correct the covering of the guides. The right guides will turn to the left on the word MARCH, and move on the flanks.

3. *Wheeling Forward into Column.*—The line may also wheel forward from the halt into column, the caution and commands being, COMPANIES, RIGHT (or LEFT)—WHEEL,

QUICK (or DOUBLE)—MARCH, HALT—DRESS, or FORM BY THE LEFT (or RIGHT). The companies will move directed in Part II., S. 6, No. 3; the battalion officers, &c., will move to their places in column during the

S. 18. A Battalion in Line Wheeling into Column, or March.

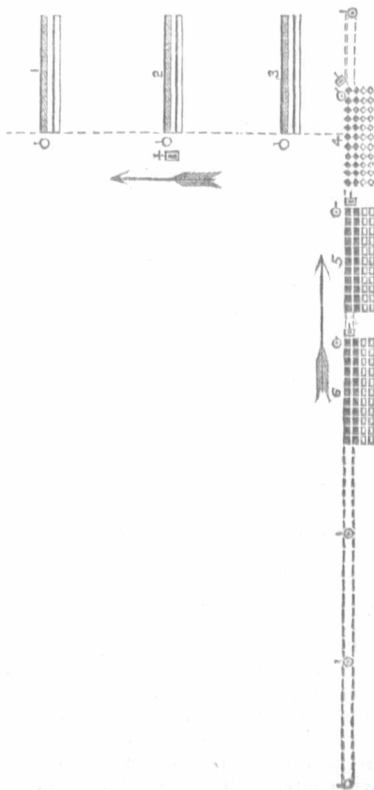
COMPANIES, RIGHT (or LEFT) —WHEEL. FORWARD BY THE LEFT (or RIGHT), or HALT, DRESS.	}	When a battalion, advancing or retiring in line, wheels into column the companies will move as described in Part II., S. 7; the battalion of band, &c., will move as directed in S. 27, No. 3.
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S. 19. A Battalion in Line advancing in Column or Column of Half Battalions.—PLATE X.

RIGHT (or LEFT) COMPANY TO THE FRONT. REMAINDER, FOURS—RIGHT (or LEFT). QUICK—MARCH. <i>Leading Company, by the Left. No.—, Half Left (or Right) Turn. Front Turn, by the Left.</i>	}	1. <i>Advancing in Column from a File.</i> —On the word MARCH, the named company will advance, the lieutenant of the word <i>Leading Company</i> , by the side of the company. The companies in fours will step out at the same time; and each in succession will be ordered by the lieutenant to make a half turn towards the front when the leading four is in rear of the company. The preceding company, and to the front as it arrives in column.
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PLATE X.

A BATTALION IN LINE ADVANCING IN COLUMN FROM THE RIGHT.



If the advance is from the right, on the caution, the left guide of that company will move up, the right guide and marker, and also the right guide and marker of the company next on the left, falling to the rear; the remaining left guides will move up, and right guides fall to the rear as their companies receive the words *By the Left*, and the column.

No.—, TO THE FRONT. REMAINDER, FOURS —INWARDS. QUICK—MARCH. <i>Leading Company, by the Left, No. 1.</i>	{	2. <i>Advancing in Column from Central Company.</i> —The movement proceed as above described; except as it may be intended to form line to the front, no attempt will be made correct the distances until ordered; companies in fours, in moving column will pass each other left left arm.
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Note.—See p. 120. GENERAL RULE XII.

3. *Advancing from a named Company on the March.* These movements may be done when the line is advanced on the words RIGHT, (or LEFT), COMPANY (or No.—), THE FRONT, REMAINDER, FOURS—RIGHT (or LEFT—INWARDS).

4. *Advancing in Columns of Half-Battalions.*—The battalion may advance from the right (or left) of half-battalions on the principle laid down in No. 1, on the words RIGHT AND —, TO THE FRONT; REMAINDER, FOURS—RIGHT (or LEFT).

The half-battalions will march by their right or left flank; the right or left half-battalion will direct, according to the direction of advance was from the right or left of half-battalions; the leader of the directing half-battalion will superintend the movement; the leader of the outer half-battalion will follow to its direction and interval, the officer instructor will follow at deploying interval from its outer flank.

5. 20. *A Battalion in Line Retiring from one Flank in Rear of the other ; or from both Flanks in Rear of the Centre or any named Company.*

RETIRE IN
COLUMN FROM
THE RIGHT
IN REAR OF
THE LEFT.

No. 1,
Fours—Left.
Quick—March.

No. 1, *Rear—*
Turn. By the
Right, No. —.

No.—, *Right*
about—Turn.
By the Right,
Quick—March.

No. 1.
A battalion will retire from the left in rear of the right in like manner.

Note.—See p. 120. GENERAL RULE XII.

RETIRE IN
COLUMN FROM
BOTH FLANKS
IN REAR OF
No.—.

1. *From one Flank in rear of the other.*

—If the retreat is to be from the right in rear of the left ; on the caution, the right company will form fours to the left by command of its lieutenant, the leading four disengaging to the rear. On the word *March*, the company will step off, moving parallel to, and four paces in rear of, the line, led by the guide of the leading flank. On arriving in rear of the left flank company the lieutenant will give the words *No. 1, Rear—Turn, by the Right, No. —.*

The remaining companies in succession, except the left, will move in like manner. To prevent loss of distance, each lieutenant will order his company to make a half turn towards the rear, when its leading four is in rear of the centre of the preceding company.

The left company will be turned about, and marched off by its lieutenant in time to follow at its proper distance in column.

2. *From both Flanks in Rear of a Central Company.*—This movement will be performed as directed in No. 1, commencing from the named flank (which should, as a rule, be that from which the

COMMENCING FROM THE RIGHT (or LEFT). { greater number of companies have move), all the companies from that flank moving into column first.

A battalion may also prolong the line to either flank the flank march of fours along the rear; suppose to the flank from the right. On the words PROLONG THE LINE TO THE LEFT FROM THE RIGHT; the right company will receive the words No. —, *Fours—Left*, and as soon as it has cleared the outer flank of the line, No. —, *Front—Turn—Halt—Dress up*; each of the other companies following in succession, and when halted in line, being dressed by the guide nearer the point of appui. See Part III., General Rule VI. On the words BATTALION—HALT, the movement will cease. Markers will not move out.

S. 21. *A Battalion in Line forming Column or Quarter Column.*—PLATE XI.

All formations of column from line will be in rear of the named company (or companies).

COLUMN
ON No.—.

1. *Forming Column on a Flank Company.*—On the caution, the right guide of the named company and his marker will fall to the rear; and, unless it is the left company, the left guide will move to the right guide and marker of the company next on the left falling to the rear. The leader of the half-battalion to which the named company belongs will move to the head of the column, ready to superintend the covering.

On the word RIGHT (or LEFT), all companies will form fours to the named flank, and disengage to the rear. The

REMAINDER,
FOURS—RIGHT
(or LEFT).

marker of the leading flank of the company that will form next in rear of the named company, will mark where its left flank will rest in column.

QUICK (or
DOUBLE)—
MARCH.

On the word MARCH, the companies in fours will step off, and move by the shortest lines to their places in column, changing direction in a line parallel to the leading company, as they reach the flank of the column. The marker of the leading flank of each company will run out, when within 20 paces of the column, to take up covering and distance.

No.—,
Halt—Front—,
Dress.

As each company gets into column, the lieutenant will give the words, No.—, Halt—Front, Dress, on which the company will halt, front, and take up its dressing by the left, the guide of which flank will, if in rear, move up; the marker who took up the covering taking post in column at the same time.

Steady.

When the formation is completed the leader will give the word *Steady*, and move to his place.

COLUMN ON
No.—. FOURS
—INWARDS.
QUICK (or
DOUBLE)—
MARCH.

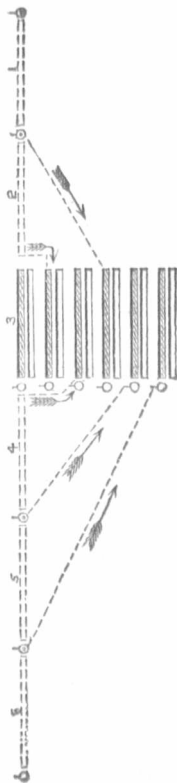
2. *Forming Column on a Central Company.*—In this formation the companies will form fours inwards, and move into column in rear of the named company, in the same manner as they form on the flank companies. The companies in fours, in moving into column, will pass left arm to left arm.

No.—, Halt—
Front—Dress.
Steady.

The right leader will superintend the covering, from the directing flank of the base company.

PLATE XI.

A BATTALION IN LINE FORMING QUARTER COLUMN ON THE RIGHT CENTRE
COMPANY.



In the preceding manœuvres, the leader not superintending the covering, the officer instructor, the band, &c., will move to their places during the formation.

Quarter column will be formed in like manner

FORMATION OF LINE FROM COLUMN.

S. 22. *Wheeling, or Forming, from Column into Line.*

- | | |
|--|--|
| <p>LEFT (or RIGHT)
WHEEL, or
FORM, INTO—
LINE.</p> | <p>1. <i>From the Halt.</i>—On the words LEFT (or RIGHT) WHEEL, or FORM, INTO—LINE, each company will proceed as described in Part II., S. 5, except that the leading company only will have both its markers out; each of the remainder will give a point opposite to where its inner flank will rest in line. The leader of the rear half-battalion will cover the markers from the rear of the column, and give the word <i>Steady</i> when they are covered.</p> |
| <p><i>Steady.</i></p> | |
| <p>QUICK--MARCH.</p> | <p>On the word MARCH, the companies will wheel, or form, as directed in Part II., S. 5.</p> |
| <p>No.—, <i>Halt</i>,
<i>Dress.</i></p> | <p>Each lieutenant, in the case of a wheel, will give the words No.—, <i>Halt</i>, followed by the word <i>Dress</i>, when the wheeling flank of his company is two paces from the marker of the company next in line. The leading company will wheel up to its own marker.</p> |
| <p>Eyes—<i>Front.</i></p> | <p>The left guide of the left company will move up on its left.</p> |

Steady. { The leader will then give a second word *Steady*, and take post, all markers falling in at the same time.

2. *On the March.*—When a column on the march wheels or forms, into line, the companies will move as described in Part II., S. 7.

A quarter column on the march may wheel into line successive companies from the rear; on the caution **LEFT TO THE LEFT (or RIGHT) ON THE REAR COMPANY**, the lieutenant of that company will at once order **LEFT (or RIGHT) WHEEL INTO LINE**, halting it when two paces from the alignment; each of the other lieutenants will wheel his company into line, in like manner, as it gains its proper distance. The markers of the rear company will give base points, the outer markers of the remainder mark their outer flanks. The officer instructor will not move out; the leader of the rear half-battalion will cover the markers.

DEPLOYMENTS.

S. 23. *A Battalion in Column, or Quarter Column, deploy into Line.*—PLATE XII.

Deployments will invariably be made on the leading company, and by the flank march of fours, unless the ground should render it necessary to move in files.

DEPLOY TO
THE LEFT
(or RIGHT).

1. *Deploying to either Flank.*—On the caution, the base points will move on; the leader of the leading half-battalion moving up to cover them; if the deployment is to the left, the left guide of the leading company, if directing, will fall to the rear, if to the right, he will

stand fast; the right guide, in either case, moving up; and the officer instructor will mark the distant flank.

FOURS—LEFT
(or RIGHT).
QUICK (or
DOUBLE)
MARCH.

No.—,
Right (or Left)

--*Dress.*

Eyes—Front.

No.—,
Left (or Right)

--*Wheel.*
Forward.

No.—,
Halt—Front,

Dress up,
Eyes—Front.

On the word MARCH, the companies in fours will step off. The guide nearer the point of appui will dress the leading company on the lieutenant's word, and then take post. Each of the other companies will be led by the guide on the leading flank, by the shortest line, to the spot where the outer flank of the company preceding it into line will rest; it will then change direction by command of its lieutenant, move parallel to the alignment, and when opposite to its place in line, will receive the words No.—, *Halt,—Front, Dress up.* The guide nearer to the point of appui will then dress the company, give the words *Eyes—Front*, and fall in; the other guides will take post on the words *Halt, Front, Dress up.*

Steady.

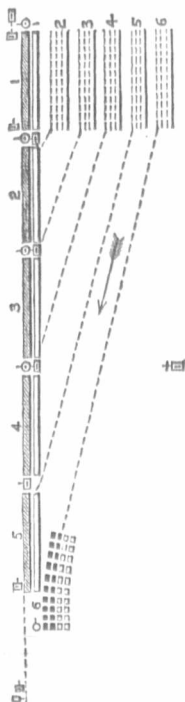
As usual.

Each guide will dress the men, whether they belong to his company or not, between the marker of the next company (towards the point of appui) and the outer marker of his own company.

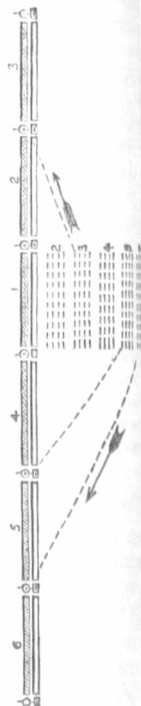
2. *Deploying to both Flanks.*—The deployment will be made on the principles above described for a deployment to the right. The caution and command will be, DEPLOY OUTWARDS, ONE COMPANY (or TWO, or MORE, COMPANIES) TO THE RIGHT. FOURS—OUTWARDS, QUICK-MARCH. The base markers will turn to the directing flank of the

PLATE XII.

No. 1. A QUARTER COLUMN DEPLOYING TO THE LEFT.



No. 2. A QUARTER COLUMN DEPLOYING OUTWARDS, TWO COMPANIES TO THE RIGHT.



column. The right leader will cover the markers from the point of appui, that is, whichever flank of the base company was directing in column; the chief petty officer moving up to the reverse flank of that company to assist him: the left leader and officer instructor will mark the flanks of the line. It is a general rule that the company, or companies, next in succession from the front shall move to the right.

3. *Deploying on the March.*—A battalion may be ordered to deploy while advancing in column towards an intended alignment, the leading company being halted by its lieutenant when the remainder form fours: the battalion command to form fours should be given when the leading company is three paces from the alignment. A column moving to a flank in fours may also be ordered to deploy; the leading company will be halted and fronted by its lieutenant on the battalion caution to deploy.

When a battalion in column or quarter column at the halt is to be moved to a flank in line, the battalion leader will order **IN LINE, MOVE TO THE RIGHT (or LEFT) IN FOURS**; on which the lieutenant of the leading company will give the words *Fours—Right (or Left), Quick March*; the remaining companies will be advanced as requisite and formed in fours by their lieutenants so as to follow the preceding company.

This may also be performed on the march; the lieutenants of the rear companies marking time, if necessary.

MOVEMENTS AND CHANGES OF FRONT IN ECHELON.

GENERAL RULES.

Oblique Echelon.—1. In oblique echelon, the distance from the leading flank of one company to the leading flank of the next will always be equal to the breadth of the company that would occupy that space, if formed into line.

2. When marching in oblique echelon, the leading guide must keep the proper distances from each other, carefully preserving their dressing, in a line parallel to the original alignment. They will look, for their distances and dressing to the flank towards which the battalion is inclining.

3. The lines of direction of the several companies must be parallel.

MOVEMENTS AND CHANGES OF FRONT.

S. 24. A Battalion in Line moving by Fours in Oblique Echelon and forming Line.

BY FOURS,
MOVE TO THE
RIGHT (or
LEFT) IN
ECHELON.
FOURS—RIGHT
(or LEFT)
COMPANIES,
LEFT (or
RIGHT)—WHEEL.
QUICK--MARCH.

1. *From the Halt.*—On the MARCH, the companies in fours wheel as directed.

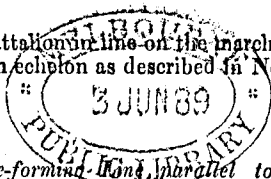
FORWARD.

On the word FORWARD, the companies will move on in the new direction; the guides on the leading flanks being in their usual places in fours. The guide of the leading company will select points to march upon; the leader of the leading half-battalion will superintend the direction from the leading flank of the leading company; the other leader and the officer instructor will look to the covering of the guides.

In a similar manner a battalion may move by fours in echelon to the rear.

2. *On the March.*—A battalion in line on the march will move to a flank by fours in echelon as described in No. 1.

COMPANIES,
LEFT (or
RIGHT)-WHEEL
FORWARD.
AT THE HALT,
FRONT FORM—
COMPANIES or
FRONT FORM—
COMPANIES or
ON THE MARCH,
FRONT FORM—
COMPANIES.



3. *Re-forming.*—Line parallel to the original alignment. —Line parallel to the original alignment may be formed by wheeling the leading fours of companies parallel to the original front and then front forming.

In like manner, when moving to the rear, line parallel to the original alignment may be formed by wheeling the leading fours of companies as above, and then forming about or to the rear as may be considered advisable.

S. 25. A Battalion in Line changing Front.

When a battalion in line is required to change front at small angle, the markers may be placed and the companies moved on them as detailed in S. 5, the lieutenants of the outer companies wheeling them up, if necessary.

For larger angles, the markers may be placed and the battalion ordered to form on them as explained in Part III. Gen. Rule XIV.

S. 26. A Battalion in Line advancing or retiring in Echelon.

The companies will invariably be marched off at wheel distance.

ADVANCE
(or **RETIRE**) IN
ECHELON FROM
THE RIGHT (or
LEFT).

No.—, *By the*
Right (or Left),
Quick—March.

or

No.—, *Right*
about—Turn.

By the Left
(or *Right*),
Quick March.

The lieutenant of the company on the named flank, if the battalion is to advance, will at once give the word *No.— By the Right (or Left), Quick—March* and when that company has gained the required distance, the next will be marched off by its lieutenant and so on in succession till all are in motion. By the guides of each company will be on the flanks, the markers will cover the files; if the advance is from the right, the right will direct, and *vice versa*. If the battalion is to retire, the companies will be turned about in succession, and marched off one after the other, at the required distance, as above described.

[in retiring from the right the present left will direct, and *vice versâ*.]

S. 27. Forming Line from Echelon.

LINE ON THE
LEADING COM-
PANY.

1. *Forming Line from Echelon on the Leading Company.*—On the caution, the base points will move out and be covered as usual.

REMAINDER,
QUICK—
MARCH.

No.—,
Halt—Dress up.
Eyes—Front.

On the word MARCH, the remaining companies will move up in succession into line, and be dressed by the guide.

Steady.

As usual.

LINE ON THE
REAR COMPANY.
REMAINDER,
RIGHT ABOUT—
TURN.

2. *Forming Line from Echelon on the Rear Company.*—On the caution, as in No. 1. The remaining companies will be turned about.

QUICK—
MARCH.

No.—,
Halt—Front,
Dress up.
Eyes—Front.

On the word MARCH, the companies turned to the rear will step off and form in succession on the rear company, each receiving the words *No.—, Halt—Front—Dress up*, when its proper front rank is in line with the rear rank of the last halted company.

Steady.

As usual.

LINE ON NO.—
COMPANIES IN
FRONT, RIGHT
ABOUT—TURN.

QUICK—

MARCH.

No.—, Halt—

(Front), Dress

up.

Eyes—Front.

Steady.

As usual.

In these movements, the distant flank, or flanks, will be marked by the officer instructor, or the left leader and officer instructor; the left guides will take post as line is formed.

4. *An Echelon forming Line on the March.*—A battalion in echelon on the march may form line in like manner: to the front, the leading company will be halted and dressed on the caution; if on the rear or a central company, the named company will be halted and dressed on the word REMAINDER (or COMPANIES IN FRONT), RIGHT ABOUT—TURN. Line may also be formed on the leading company without halting, on the words ON THE MARCH, LINE ON THE LEADING COMPANY: REMAINDER, DOUBLE, &c.

COMPANIES,
RIGHT (or LEFT)
—WHEEL.

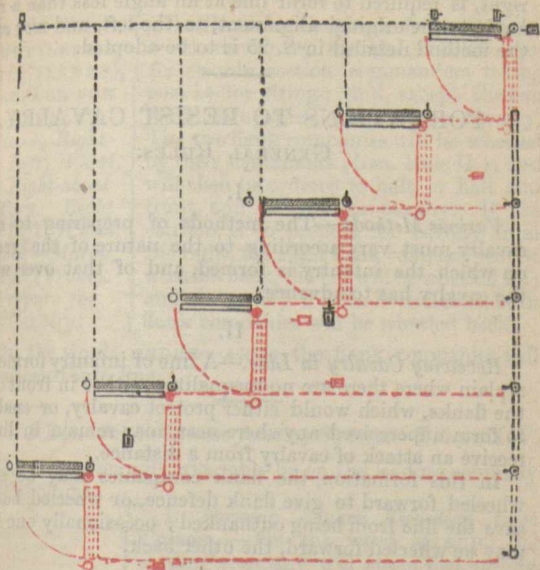
FORWARD.

LINE ON NO.—
(COMPANIES IN
FRONT: RIGHT
ABOUT—TURN).

3. *Forming Line from Echelon on Central Company.*—On the caution, as in No. 1. The companies in front of the named company will be turned about and on the word MARCH, line will be formed as described in Nos. 1 and 2.

5. *An Echelon forming Line at Right Angles to the original Alignment.*—If the battalion has advanced in echelon (Plate XIII.), and is required to form line to either flank, the companies will be wheeled a quarter circle to that flank after which line will be formed on the named company as already described the guides nearest to the named company directing. The named company will be halted and dressed as directed in No. 4.

PLATE XIII.



S. 28. *A Battalion in Echelon forming Line in an Oblique Direction.*

When a battalion, having advanced in echelon from the right, is required to form line at an angle less than a right angle to the original alignment, to the left, and vice versa, the method detailed in S. 25 is to be adopted.

FORMATIONS TO RESIST CAVALRY.

GENERAL RULES.

I.

Various Methods.—The methods of preparing to resist cavalry must vary according to the nature of the ground on which the infantry is formed, and of that over which the cavalry has to advance.

II.

Receiving Cavalry in Line.—A line of infantry formed on a plain where there are no inequalities, either in front or the flanks, which would either protect cavalry, or enable it to form unperceived anywhere near, may remain in line to receive an attack of cavalry from a distance.

In this formation, the flank companies may be either wheeled forward to give flank defence, or wheeled back to save the line from being outflanked; occasionally one flank may be wheeled forward, the other back.

III.

Squares.—Where there is any possibility of cavalry approaching unperceived, the infantry should be prepared to form square, two deep, at any moment.

FORMATIONS AND MOVEMENTS.

S. 29. *A Battalion preparing for Cavalry, in Line.*

FROM THE
NIGHT (LEFT, or
BOTH FLANKS),
PREPARE FOR
—CAVALRY.
No.—, *Right*
(or *Left*) *Wheel*,
or *Right-about*
—Turn. *Right*
(or *Left*) *Wheel*.
Quick—March,
Halt (Front).
Prepare for
Cavalry.

1. *Receiving Cavalry in Line.*—On the word CAVALRY, the line will at once fix swords, section commanders taking post as for firing; and, except the two flank companies, prepare for cavalry. The two flank companies will be wheeled by their lieutenants (Gen. Rule II.); and will then be ordered to halt, or halt and front, and prepare for cavalry. If the caution is to prepare for cavalry from the right, the right flank company will be wheeled back, the left will be wheeled up; and *vice versa*; if from both flanks, both flank companies will be wheeled back.

On the words ORDER—ARMS, the flank companies will be wheeled into line.

S. 30. *A Battalion in Column forming Square.*—PLATE XIV.

The formation will invariably be on the leading company of the column.

1. *Forming Square Two-deep from Column.*—On the word MARCH, the leading company will stand fast and fix swords (the flank files turning outwards, and the guide on the directing flank falling to the rear); the other companies will step off, and all except the rear company will wheel outwards by half-companies, by command of their lieutenants, as they arrive successively at half-com-

FORM SQUARE.

QUICK (or
DOUBLE)—
MARCH.

No.—,
Half-companies
—Outwards.

No.—,
Halt—Right-
about—Turn.

pany distance from the companies that precede them; when the half-companies have wheeled the quarter circle, they will halt and fix swords without word of command, touching towards the leading company.

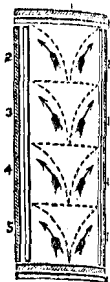
The rear company will close up and form the rear face of the square, being halted and turned about by its lieutenant, touching to its centre, and the flank files turning outwards. The officers and petty officers of the rear company will run into square the moment the second company from the rear receives the words *Half-companies—Outwards*.

If a column on the march is ordered to form square, the leading company will at once receive the words No.—, *Halt*, from its lieutenant; if retiring, the column will first be ordered to turn to the front.

2. Forming Square from Half Column.—

A half column will form square, on the words FORM SQUARE, in the same manner as a column (distances being, if necessary, previously adjusted), except that the commanding officer will give the words HALF COMPANIES—OUTWARDS, to all the centre companies.

PLATE XIV.
A COLUMN
FORMING SQUARE
TWO DEEP.



3. *Forming Square from Quarter Column.*—When a battalion in quarter column is required to form square, the commanding officer will open it to half column before forming square.

4. *A Column, Half, or Quarter Column moving to a Flank in Fours, forming Square.*—When a battalion in column moving to a flank in fours, is required to form square, the commanding officer will order it to turn to the front before forming square.

S. 31. *A Battalion in Columns of Half-Battalions, forming Square.*

A half-battalion column will form square, two deep, on its leading company, in the same manner as a column.

S. 32. *A Battalion in Line forming Square.*

When a battalion in line is required to form square, the commanding officer will wheel it into column before forming square.

S. 33. *A Square marching in any Direction.*

THE SQUARE
WILL ADVANCE
(RETIRE, or
MOVE TO THE
RIGHT, or LEFT).

A battalion formed in square may be ordered to march in any direction.

FOURS—
INWARDS.

On the word INWARDS, the companies that will form the side faces will form fours inwards, and the face that will be in rear will turn about.

QUICK—
MARCH.

On the word MARCH, the square will step off.

A square when advancing, retiring, or moving to a flank, will march as directed in Part II., S. 24.

SQUARE, HALT. { On the word HALT, the square will
and turn outwards, every man stand
steadily, unless ordered to close or dress.

S. 34. A Battalion in Square re-forming Column.

Swords having been unfixed :—

RE-FORM—
COLUMN. { 1. *Re-forming Column from Square.*
On the caution, RE-FORM—COLUMN
the side faces will turn about; the flank
men of the leading and rear companies
will turn respectively to the front and
rear.

QUICK—
MARCH. { On the word MARCH, the half-com-
panies will wheel into companies, re-
ceiving the words *No.—, Halt—Front.*
Dress from the lieutenants; the rear com-
pany will move to half-company distance
and will then receive the same command.

In these formations, the directing guides must run on
the instant the words QUICK—MARCH are given, and take
up their covering on the flanks of their companies.

SKIRMISHING.

When a battalion or a portion thereof is ordered to cover
the front or flanks of a larger body (for instance, a division
not formed for attack, or to feel for the enemy when ad-
vancing through an inclosed or wooded country, it will
extended on the general principles laid down for companies
skirmishing. It is, however, to be understood that a
battalion thus formed is not intended, in the case of
general engagement, to form part of the fighting line.

A false attack, made for the purpose of distracting
enemy's attention, may, however, be carried out with ad-
vantage by one or more battalions in skirmishing order.

The cohesion so necessary in the portions of a battalion
when attacking can be considerably relaxed in skirmishing.

GENERAL RULES.

I.

Divisions of a Battalion when Skirmishing.

A battalion formed for skirmishing or attacking will be arranged in separate columns of double companies.

II.

Relative Strength of Skirmishers, Supports, and Reserves.

Each column will consist of two companies in quarter column or half companies; the leading half company will be the fighting line, the 2nd its support, the 3rd and 4th its reserve.

Small columns of this description offer advantages for manœuvring and for rapidly extending into formation for skirmishing or attack.

III.

Relative Duties of Skirmishers, Supports, and Reserves.

—1. The movements of the skirmishers must depend in a great measure on the position and movements of the enemy. When skirmishers are covering a main body they should always, when practicable, protect and overlap its flanks.

2. It is the duty of the supports to assist and support the skirmishers in every way. The movements of the former must therefore correspond with those of the latter. The supports should be as nearly in rear of the centre of their own skirmishers as the configuration of the ground may permit, and in echelon with each other, having due regard to cover. The reserve will send relief to the skirmishing line, and supply supports, when necessary; it should therefore be placed as nearly as possible in rear of the centre of the formation.

IV.

Relative Distances of Skirmishers, Supports, and Reserves.

—The distance of supports from the skirmishers, and of reserves from supports, must depend on circumstances and

the nature of the ground. The supports should always be in the most convenient position to assist the skirmishers without being unnecessarily exposed to fire. For instance, when skirmishers have ascended a bank or hill, and are halted on the summit, it is evident that the supports must approach close to them without being exposed to fire, but on a plain they must necessarily be kept at a greater distance; the same remark applies to the reserve. As a general rule, on a plain, the distance between skirmishers and supports should be about 300 yards; between supports and reserves, about 500 yards; between the reserve and main body, 500 yards.

V.

Time of Movements, and Cover.—1. When not under fire, all movements will be in quick time; when under fire, all movements will be at the run.

2. Skirmishers, at the halt, when there are inequalities of ground, should at once avail themselves of them, but without advancing or retiring too far from the general alignment, or deviating from their original line of advance or retreat, and moving to a flank out of control.

3. Officers commanding supports must, with due regard to the assistance they should afford to the skirmishers, take advantage of all inequalities of ground and other objects affording cover to protect their men, and should make the men lie down when cover can be obtained by so doing; they must examine the ground well, and select positions that will protect them from cavalry, in case of attack, without preventing the skirmishers from forming upon them.

4. The officer commanding the reserve should always keep his men under cover when practicable; but, as the reserve is not immediately under fire, his attention should principally be directed to the selection of positions favourable to the relief and assistance of the skirmishers and

supports, with proper regard to the protection of the main body. When in the presence of cavalry, the reserve should be kept in column ; but under the fire of artillery it should be deployed into line.

VI.

Principles of Movements to be explained.—On an instruction parade, where there is variety of ground, the commanding officer should explain to the battalion the nature and advantages of the ground for attack or defence, and the general object he has in view.

VII.

Points of Direction.—1. Before extending the battalion the commanding officer will name a column of direction ; the centre of the column of direction will be the point of direction ; with two or more battalions the officer commanding will name the directing battalion.

2. When moving to a flank, obliquely or direct, the leading man will direct during this movement only.

3. When skirmishers become mixed, or are in disorder, the officer commanding may order any named man to direct, and the others will at once align themselves with him, without regard to their general places ; the officers and non-commissioned officers will take charge of proper portions of the line, and the whole will move and act by the new centre.

VIII.

How Arms are carried.—Arms will be carried as directed in the *Rifle Exercises*, S. 1.

IX.

Posts and Duties of Battalion Officers.—The right leader will be in command of the fighting line and supports, assisted by the officer instructor ; the left leader in general charge of reserves ; but it is to be understood that each column commander is responsible that the guide com-

manding the skirmishers knows the direction of the point to be attacked and the flank by which his movements are to be regulated before commencing the advance, and he is also to see that the supports and reserves are at hand in the proper time and place.

X.

Officers and Supernumeraries.—When a half company is extended the supernumeraries will be placed as described in Part II.; when in support, the guide will be in front. The officers, &c. of a reserve, when in quarter column, will always take post as in column by the left. The column commander goes out with the supports when extending.

XI.

Words of Command and Bugle Sounds.—1. Skirmishing movements must in general be regulated by word of command. Commands must be repeated by the lieutenants and every supernumerary belonging to the line of skirmishers.

2. Calls on the bugle may occasionally be necessary and substitutes for the voice, but as they are liable to be misunderstood, and may reveal intended movements to the enemy, they should seldom be used, unless for purpose of drill. The commanding officer's bugle will generally be found sufficient; repeated sounds only create confusion and delay.

3. Every battalion should have a well marked and simple bugle call.

4. Bugle sounds, as has been stated in Part II., only apply to men extended; supports and reserves invariably move by word of their commanders.

The bugle sounds will be found at the end of the book.

XII.

Position of Ammunition Reserve.—The ammunition reserve will follow the reserves at a distance of about 2 yards until they approach the fighting line, when it will

posted under cover in some convenient spot for the ready supply of ammunition to the fighting line; the pioneers will accompany it. Previous to an advance, each company of the fighting line should have reserve ammunition distributed, a portion of which may accompany the supports.

XIII.

Scouts, who should be men selected from the marksmen of a company, may precede the advance of a line of skirmishers. They should be accompanied by an officer, and should move from 100 to 200 yards in front of the fighting line.

They should send all information acquired to the rear, and as they approach an enemy fall back to join the fighting line.

BATTALION SKIRMISHING.

S. 35. *A Battalion in Line forming Column for Skirmishing and Extending.*

THE BATTALION WILL SKIRMISH.	}	As in company drill.
FORM COLUMNS.		
FOURS—RIGHT.	}	At this order, the right half companies of 1, 3, 5 and 7 stand fast, the remainder fours right.
QUICK (or DOUBLE) MARCH.		On the word MARCH, the half companies in fours will step off, and move by the shortest lines to their places in quarter column, changing direction in a line parallel to the leading company, as they reach the flank of the column. The marker of each half company will run out, when within 20 paces of the column, to take up covering and distance.

*Half Company,
Halt—Front—,
Dress.*

As each half company gets into column, the guide will give the word *Half Company, Halt—Front, Dress*, which the half company will halt, front, and take up its dressing by the left; the marker who took up the covering taking post in column at the same time.

The battalion leader will now name a column of direction.

NOTE.—The column of direction extends from the centre the remainder from the inner flank.

The senior lieutenant of the two companies will take command of the column, and immediately place it by the flank march of fours, so that, when extended, there will be an interval of 15 paces between the half companies of skirmishers.

The columns are distinguished as right, left, centre, (right or left centre) columns.

The battalion leader will now explain the point and object of the advance.

EXTEND.

The skirmishers will extend as taught in company drill. The supports and reserves standing at ease.

ADVANCE.

As in company drill, the supports and reserves following at the proper distance.

NOTE.—Reserve send a connecting file to supports, supports to fighting line.

FIRE.

The skirmishers will take cover, and open fire as taught in company drill. The supports will now extend in the same manner as the fighting line; the reserves will deploy into line and extend to one pace, and take cover or lie down.

NOTE.—When firing, the fire will be carefully regulated by the supernumerary rank, and the advance continued, if necessary, by short rushes of alternate half companies.

Reinforcing or prolonging a line of skirmishers may be carried out as in company drill, fresh supports being sent out if required.

ATTACKED BY CAVALRY.

S. 36. *A Battalion extended forming Rallying Squares.*

PREPARE FOR CAVALRY.	{	The fighting line and supports form "rallying squares" in echelon from the centre, by half companies, left move up, right back, except when attacked from the left, when right move up, left back. Supports close on fighting line as opportunity offers, reserves close as ordered, and receive cavalry as in line.
EXTEND.	{	The skirmishers may be extended again as in company drill.

If it is desired at any time to close on the reserve, the order will be given "CLOSE ON THE RESERVES," when the fighting line and supports will close independently on the reserves, forming quarter columns of half companies in rear of them, on the left markers.

If the battalion is again extended the reserves will form the fighting line and supports.

S. 37. *A Battalion in Column forming Column for Skirmishing.*

BATTALION WILL SKIRMISH.	}	As in company drill.
FORM COLUMN. FOURS— INWARDS.	{	At this order, the right half companies of 1 and 2 stand fast, their left half companies form fours right, the remainder form fours left. The right markers of 3, 5, and 7 give points (directed by the right leader) where the

QUICK (or
DOUBLE)
MARCH.

right flank of their column will rest at double company distance.

At this order the right half company of 1 stands fast, the remainder step off the left half companies of 1 and forming in rear of their right half companies as taught in company drill, S. 20, the right half company of 2 being halted by its guide when in quarter column. The remainder when their right flank is opposite their marker receive the order from the column commander *Front—Turn, Form—Half Companies*, as each half company arrives in quarter column its guide will give the words *Halt—Dress*, on which the markers will take post.

If the battalion is in quarter column it must be opened to column before forming column for skirmishing.

S. 38. *Flanking Parties.*

Skirmishers with supports, and, if necessary, a reserve may be extended to protect the flank of a column. In this case, the skirmishers will move parallel to the direction of the column when it advances or retires, the supports and the reserve will move in fours; the leading man of the skirmishers should communicate with the flank of the advance guard. When the column halts, the skirmishers, supports, and reserve will halt and front.

THE ATTACK.

A battalion is to be formed for an attack in the same manner as for skirmishing, the order being **BATTALION WILL ATTACK—FORM COLUMN, &c.** as before detailed.

In attacking it should be borne in mind that more cohesion is necessary between the parts of a battalion than in skirmishing. The supports and reserves are to be kept closer to the fighting line, and should gradually close on it as the enemy's position is approached, and the fighting line, although availing themselves of cover in the direct line of advance, are not to be permitted to diverge to the flank to obtain it, as by doing so the cohesion of an attacking body is lost.

After being formed into column of half companies the order will be—

ATTACK.

{ At this order the skirmishers will advance at the double and extend as if under fire (by order of the guide of half company), being halted when extended, and then advanced by short rushes.

{ As the fighting line move to the front the supports will be advanced in exactly the same manner as the skirmishers, covering the same extent of ground in rear.

The reserve, under the command of the junior lieutenant, deploy into line, extend to one pace, on the knee or lie down, and are advanced by order at the double.

NOTE.—The column commander goes out with the supports.

FIRE.

{ At this order the fighting line will fire volleys and continue the advance.

{ The supports continue to close to fighting line.

REINFORCE.

{ At this order from the column commander the supports reinforce, the advance being continued. The reserve is then extended so that they will cover the same extent of ground as the fighting line, still continuing the advance,

CHARGE.

and are gradually closed to within 8 paces of the fighting line.

When the fighting line is in position for the charge the bugles and drums play the Charge in quick time; the fighting line then commence independent firing and the reserve fix swords and advance (keeping time to the bugles and stopping close down). The fighting line, when the reserve is 20 paces from them, will be called by whistle, ordered to cease firing and fix swords; by this time the reserve is in line with them, the bugles and drums play in double time, the whole charge and cheer.

HALT.

At this order the men are to halt, the reserve company will then be ordered by the right, left, or centre, "Quick March," "Close on the Centre," and when 20 paces to the front halt, will fire three volleys by half companies at the retreating enemy. When firing commences the lieutenant of the company that formed the old fighting line will close his company in rear of the reserve company.

If it is intended to continue the advance, the old reserve company will form skirmishers and supports, the remainder the reserve.

NOTE.—As reserve nears the fighting line the time of bugles and drums will be quickened until every one is in line, when it should be at the double.

PREPARE FOR
CAVALRY.

} As in skirmishing.

PART IV.

MISCELLANEOUS SUBJECTS.

INSPECTIONS OR REVIEWS.

S. 1. Inspection or Review of a Battalion.

Formation.—The battalion will be drawn up in line at open order, as explained in Part III., S. 3, and a union jack will be placed at 80 or 100 paces in front of its centre.

GENERAL (or
ROYAL)
SALUTE.
PRESENT—
ARMS.

Receiving the Inspecting Officer.—1. When the inspecting officer arrives in front of the centre of the battalion, at a distance of about 50 or 60 paces, he will be received with a salute, the men, except those in the supernumerary rank, presenting arms, and the band playing. The officers will recover swords with the first motion of the rifles, pause on the second motion, and with the third will come down to the salute, as described in Part II., S. 9.

SHOULDER—
ARMS.

2. On the word ARMS, the men will shoulder; the officers will recover swords with the first motion of the rifles, and carry swords with the second motion.

Inspecting the Men.—The inspecting officer, accompanied by the commanding officer of the battalion, will then pro-

ceed along the front of the line; commencing on the right he will pass round the left flank and return along the rear to the men standing with shouldered arms. While he is going round the battalion, the band will play until he returns to the right of the line.

CLOSE—ORDER. } *Taking Close Order.*—The battalion
MARCH. } will take close order while the inspecting
 officer is proceeding to the union jack
 placed in front of the centre of the line.

BREAK INTO }
COLUMN TO }
THE RIGHT. } *Breaking into Column.*—The battalion
RIGHT— } will break into column to the right, and
WHEEL, QUICK } the pioneers, band, buglers, stretcher
—MARCH. } men, and spare ammunition men, will
Halt, Front, } move to their places in column of route.
Dress. }

Points for Marching past.—Four points will be placed: the officer instructor to mark the ground, as described in Part II., S. 9, one point six paces from the right of the line, one at six paces from the left of the line; the two points marking the saluting base will be covered in a line four paces from the union jack, at which the inspecting officer will usually place himself to see the companies march past.

Officers not in the Ranks.—All officers not in the ranks are to place themselves in rear of the saluting point.

Marching past.

Marching past in Column.—1. On the words **MARCH PAST, QUICK—MARCH**, the column will step off and march past, each company moving as directed in Part II., S. 9.

2. When marching past the inspecting officer, the commanding officer will be about eight paces in front of the

right centre section of the leading company, the right leader in front of the left centre section, a little in rear of him; the other battalion officers will follow in rear of the column at six paces distance, the left leader on the right, the officer instructor on the left. All the battalion officers will salute as they approach the inspecting officer. The commanding officer, after he has saluted, will move out and place himself near the inspecting officer, and remain there till the column has passed; the right leader proceeding in command of the battalion.

3. Officers will never salute more than once.

4. The band will commence playing as soon as the leading company has completed its second wheel. When it arrives in front of the inspecting officer, it will turn to the left, wheel to the right, and halt and front opposite to him, continuing to play until the rear of the column has passed.

5. Non-executives do not march past.

6. The chief petty officer marches past in his usual place in column.

BATTALION—

HALT.

LEFT WHEEL

INTO—LINE.

QUICK—

MARCH.

Halt—Dress.

Eyes Front.

When the battalion arrives on its original ground, it will be halted and wheeled into line.

Or, the battalion, the ranks having been closed after the general salute, may march past as follows :—

QUARTER-
COLUMN, BY
THE RIGHT, ON
No. 1.

Quarter column by the right having been formed on No. 1, the column will move to the right in fours; on reaching the 1st point, it will wheel to the left

REMAINDER
 FOURS—RIGHT.
 QUICK—
 MARCH.
 MOVE TO THE
 RIGHT IN
 FOURS.
 FOURS—RIGHT.
 QUICK—
 MARCH.
 LEFT WHEEL.
 FORWARD.
 HALT, FRONT.
 ADVANCE
 IN COLUMN.
 CHANGE—
 RANKS.
 MARCH—PAST.
 BY THE LEFT,
 QUICK—
 MARCH.
 BATTALION—
 HALT.
 CHANGE—
 RANKS.
 DRESS.
 MARCH PAST IN
 DOUBLE TIME.
 BY THE RIGHT,
 DOUBLE—
 MARCH.
 LEFT—WHEEL.
 FORWARD.
 QUICK.
 BY THE LEFT.

(in fours), receiving the word FORWARD as it completes the quarter circle. On the word FORWARD, the officers will take their places for marching past, by the rear of their companies. The column will be halted and fronted on the saluting base, the right markers at once taking up the covering. The commanding officer will then give the usual caution to advance in column; on which the lieutenant of No. 1 will march his company off and then bring it to the shoulder. The officers will salute as already laid down. When the leading company has passed the 3rd point the depth of the column at quarter distance, the right leader will order quarter column on the leading company and superintend the covering giving the word STEADY as usual.

After changing ranks the commanding officer will march the battalion off, the men moving at "The Trail." The battalion officers will not change half battalions, and will remain on the reverse flank.

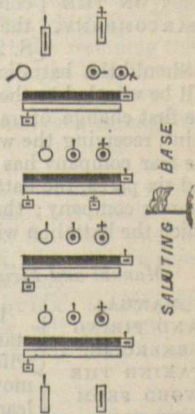
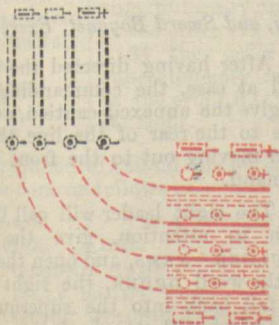
When the rear company has passed the 2nd point, the commanding officer will halt the battalion, and change rank. He will then march it past in double time; officers returning swords on the caution.

The guides will not change flanks.

When the column has passed the 3rd point, the commanding officer will wheel it to the left, and when square, break into quick time; the officers drawing

PLATE XV.

BATTALION MARCHING
PAST.



their swords. When the column reaches the 4th point, it will be again wheeled to the left, getting the word FORWARD when square. When the rear company has passed the point six paces, the column will be ordered to form line to the left on the rear company (Part II, S. 22, No. 2).

Should the battalion not be required to double, it will be wheeled to the right on passing the 2nd point, the first change of ranks, and again on reaching the point, receiving the word FORWARD when square. When the rear company has passed the point company distance and six paces, the battalion will be opened to column on the rear company; the ranks will then be changed; which the battalion will be wheeled into line.

Manual and Firing, and Sword Bayonet, Exercise.

- | | | |
|--|---|---|
| MANUAL
AND FIRING
EXERCISE,
TAKING THE
WORD FROM
THE RIGHT
LEADER. | } | 1. After having directed the men to stand at ease, the commanding officer will give the annexed caution, and then move to the rear of the line, the leader moving out to the front to command. |
| ATTENTION.
SHOULDER—
ARMS.
FOR MANUAL
EXERCISE,
OPEN—ORDER.
MARCH. | } | 2. The right leader will call the battalion to attention, give the word SHOULDER—ARMS, and open the ranks. On the word ORDER, the right flank will fall back into the supernumerary rank (which will step back two paces usual), their markers replacing them. lieutenants will step back with the supernumerary rank. On the word MARCH, the rear ranks will step back two paces as usual. |

3. The left leader and officer instructor, the pioneers, band, buglers, &c., will remain, throughout the manual and firing exercises, posted as in close order.

4. The leader will put the battalion through the manual and firing review exercise, as directed in the *Rifle Exercises*, S. 8 (the right guides remaining in the supernumerary rank when the line takes close order). After which he will fall back to his place in line, the right guides resuming their posts at the same time. In this exercise the battalion will work by the left hand man of the right half-battalion.

5. The left leader will then put the battalion through the sword bayonet exercise.

ATTENTION.

SWORD

BAYONET

EXERCISE.

FIX SWORDS.

FRONT RANK,

QUICK—

MARCH.

FRONT RANK—

HALT.

On the caution SWORD BAYONET EXERCISE from the left leader, the guides and markers fall back into the supernumerary rank, who will turn about at the order FIX SWORDS.

At the order QUICK MARCH, the supernumerary rank will step off, and at the order HALT, will halt and turn to the front.

6. If required to extend the battalion for cutlass drill, it will be done as follows :—

CUTLASS
EXERCISE.

{ The guides and markers fall to the rear.

GROUND ARMS.

HALF RIGHT TURN.

QUICK MARCH, when clear of the arms,

FRONT TURN.

COMPANIES, RIGHT WHEEL.

BATTALION, HALT.

DRAW SWORDS.

The front rank will then be advanced to half company distance and halted.

PREPARE FOR EXERCISE, FROM THE RANKS.
QUICK MARCH.

INWARDS TURN. Turn towards the officer drilling.

The general practice will then be gone through, and other part of the drill considered necessary afterwards.

INWARDS } Ranks will turn towards each other.
TURN. }

ON THE RIGHT CLOSE, DOUBLE—MARCH.
RETURN SWORDS.

RIGHT ABOUT TURN.

LEFT WHEEL INTO LINE.

The men will then be marched on their arms, the guides and markers taking post at the order, "TAKE UP ARMS."

The commanding officer will now take the orders of the inspecting officer regarding the remainder of the inspection.

S. 2. Review of two or more Battalions.

When two, or more, battalions are inspected together they may be formed in line with intervals of twelve paces between them, and proceed in the same manner as a single battalion. Or they may be formed, should the inspecting officer think proper, in a line of columns, at intervals of twelve paces.

In this section the cautions to be given by the commanding officer are printed in CAPITALS, those to be given by the battalion leaders in *italics*.

Formation in Columns.—1. The force will be formed in line of battalion quarter columns.

OFFICERS WILL
TAKE POST IN
REVIEW ORDER.

*Officers to the
Front.*

Quick—March.

2. On the word *Front*, from their commanders, the officers of each battalion will recover their swords, and on the word *March* they will move up to the front, and place themselves two paces in front of the column, at equal distances from each other, sized from flanks to centre; the tallest on the flanks, and the officer instructor on their left.

3. The battalion leader will be three paces from the line of officers, the right and left leaders two paces, the former in front of the centre, the latter dividing the interval between the battalion leader and the flanks; the non-executives will be in rear of the battalion.

4. The inspecting officer will be saluted without opening ranks; the men presenting arms, the officers saluting, and the bands playing. After the salute the force will be ordered to shoulder arms, and the inspecting officer will go down the line.

OFFICERS WILL
TAKE POST.

*Officers take
Post.*

Quick—March.

5. On the command *Officers take Post*, the officers of each battalion will recover swords and turn outwards from the centre; and on the words *Quick—March*, the whole will move back to their places in column.

6. When seamen are drawn up in line for inspection or review, after the salute has been paid to the inspecting officer, the officers commanding brigades and battalions, will post themselves upon that flank of their brigades, or battalions to which he repairs, where they will receive him, and accompany him to the extent of their respective commands; after which they will resume their original posts.

When seamen are reviewed in line of columns, the officer commanding brigades only, will accompany the inspecting officer to the extent of their respective commands; the commanding officers of battalions remaining at their post.

Marching Past.

1. *Marching past in Quarter Column.*—Points will be placed by an officer in the same manner as they are placed for a single battalion.

MOVE
TO THE RIGHT
IN FOURS.

Fours--Right.

Quick--March.

On the caution from the officer commanding, MOVE TO THE RIGHT IN FOURS, the commanders will order the battalions to form fours to the right, and on his signal they will give the word *Quick--March.*

Each battalion in succession, when it has reached the 1st point, will wheel to the left (in fours) by the word of command; when the column reaches the 2nd point, it will receive the words *Front--Turn, By the Right.* A battalion in quarter column will march past at "The Train." At every succeeding angle, each battalion will wheel to the left in double time, receiving the words *Forward--Quick--By the Left*, when that pace will not check the battalion's rear; an interval of thirty paces being preserved between the columns.

When marching past in quarter column, the battalion officers only will salute; and the brigade commander will move out and place himself near the inspecting officer whilst his brigade is passing.

The leading column, and the remaining columns in succession, will be wheeled into line of quarter column and halted, as they arrive at their places in the alignment.

2. *Marching past in Columns.*—When it is required to march past in column, each quarter column may be halted when it arrives at the saluting base, and ordered to advance in column, as described in S. 1.

ROUTE MARCHING.

S. 3. *The Order of March.*

1. The success of military operations depends in a great measure upon the compact and well-regulated order of march observed by an army in its several parts or columns.
 2. Troops may march, either in columns of companies, half-companies, or sections, in quarter columns formed in mass or line, or in fours, according to circumstances and the nature of the country.
 3. The rear companies, half-companies, or sections of a battalion or more considerable column, will follow every turn, and conform to any increase or diminution of front, which the head may make, at the same point as the leading company; each company acting in succession under the direction of its lieutenant.
 4. Troops marching on a road will observe the rule of the road.
 5. In route marching, the baggage should be in the rear. No impediments whatever should be permitted in the line of march; the artillery will generally be formed between the divisions or brigades of an army. When the admission of a portion of the baggage of an army into the line of march becomes unavoidable, it should be placed between the brigades, never between the battalions of a brigade.
-

S. 4. Places of Officers.

1. All officers are to remain constantly in their places during the march, unless required to move as stated in paragraph 5.

2. The leaders, when marching at ease, will march in the rear of their respective half-battalions; if there is only one leader, his post is in the rear of the battalion.

3. The lieutenants, when marching at ease, are to march in the rear of their companies, a guide leading.

4. Commanding officers, assisted by their officers and adjutants, will move from one part to another as occasion requires their presence, for the preservation of order, and particularly for the prevention of unnecessary defiling.

5. In like manner, the leaders and officers of companies will move, when required, to any part of their half-battalions or companies.

S. 5. Marching off, Marching at Ease, and Passing Review of Command.

1. On all occasions, when marching off the men must be perfectly silent, dress, and keep the step, as if moving in parade, until the word MARCH AT EASE, is given by the commanding officer of the battalion, and repeated by the lieutenants.

2. All words of command addressed to men marching at ease must be preceded by the word *Attention*, upon which the men will trail their arms, and take up the step; order and silence being resumed until the word is given to march at ease.

3. The words ATTENTION and MARCH AT EASE, are to be given from the commanding officer of the battalion, unless otherwise ordered, and are given as a command to the whole battalion, and repeated by all the lieutenants, who must speak loud enough to be heard distinctly, at least by the lieutenants.

next to them in column, as they will have to take the command from each other in succession.

4. When marching at ease, the ranks may be opened and the files loosened ; but each rank, section, or company must be kept perfectly distinct, and every man must remain in his place.

5. When a leader or lieutenant wants to send any notice to the commanding officer of the battalion, or to any company or section, the word must be passed by the officers, or officers and petty officers only.

S. 6. Halting when on the March.

1. Whenever the bugles sound the halt, the head of each battalion will halt and stand fast, although it may not be closed up to the preceding one ; but the following companies of each battalion must close up to half or quarter distance, unless the column is entering an alignment, or making any other movements preparatory to a formation to a flank.

2. When it is intended that the whole column should close up, the head will be halted without sound of bugle, and the word of command, QUARTER, HALF, or WHEELING DISTANCE, will be passed from front to rear ; when the rear is closed up, the bugle of the rear battalion will sound the halt as a notice.

S. 7. Defiling, and Increasing and Diminishing Front.

1. Columns on the line of march should always move with as large a front as the ground will admit of. No battalion, company, or section is, at any time, to defile or diminish its front, or attempt in any way to avoid any bad spot in the road, unless the preceding battalion or company has done so.

2. Whenever defiling is necessary, it must be executed with order and precision, as in manœuvring at a field

day, by the proper word of command preceded by the word *Attention*.

3. When a battalion or company comes to a defile, stream, or bad place in the road, where it might be more convenient for the men to defile individually, the officers must be on the alert, to keep their men from so doing.

4. Whenever a stream, ditch, bank, or other obstacle is to be crossed, it will be generally found that, instead of defiling or diminishing the front, the very contrary should be done, not only by causing the files of each section to open out gradually before they arrive at the ditch or obstacle, but even by increasing front to half-companies or companies.

5. When a bad place is to be passed the leaders and lieutenants will go to the head of their respective half-battalions and companies, to see that any orders which may have been given are obeyed with regularity and steadiness. They will remain at the spot till the whole of their half-battalions or companies have passed, and will then resume their stations in their rear, and give the words *March at Ease*.

6. It has been proved that the defiling of one battalion on the march, even if done with as much promptitude as is practicable on such occasions, causes a delay of ten minutes; the defiling of a brigade, consisting of three battalions, would therefore cause a delay of at least half an hour. In the winter, when obstacles such as pools of water are frequent, and the days short, a column which is constantly defiling without cause will not arrive at its quarters till after dark.

7. This order respecting defiling is, therefore, as much calculated to provide for the ease and comfort of the men as it is essential for the due performance of the movement of an army.

S. 8. Regulations concerning Stragglers.

1. No man is to remain behind or quit the ranks for any purpose whatever, without permission from the lieutenant of his company.

2. Officers are never to give permission to any man to quit the ranks excepting on account of illness, or for some other absolutely necessary purpose.

3. The officers must be particularly careful to prevent all men leaving the ranks for water. When water is required the battalion or column will be halted.

4. Men who obtain permission to fall out for any other cause than illness must invariably leave their arms, to be carried by the section they belong to, until they return.

S. 9. Hurry and Stepping-out to be prevented.

1. It is of the greatest importance that the men should never be hurried on the march; they are to be instructed that they are never to step out beyond the regular step, still less to double, unless by word of command.

2. When the proper distances of companies, or sections, cannot be preserved without an alteration in the step, it must always be effected by making the head of each battalion or company step short, instead of allowing the others to step out. Companies must invariably be kept intact, and the leading company of each battalion will, when necessary, step short until the last company of the battalion has closed up, even though a large interval should be thereby occasioned between it and the preceding battalion.

3. When the head of a company, suppose No. 4, cannot keep up without overstepping, or leaving its own sections at too great a distance, the officer commanding it must call out "No. 4 cannot keep up," which must be repeated by the officers or petty officers on the flanks of the leading

sections of the companies in front of No. 4 until it come up to the commanding officer, who will shorten the step at the head of the column, unless he perceives that some obstacle, ascent, or difficult ground in front will give time to No. 4 to close up; in the meantime No. 4, if no answer is returned to the notice of its having lost distance, will continue at the regular step.

4. In like manner, if the head of a battalion cannot keep up with the preceding battalion, the commanding officer will forward a notice to the head of the column, detaching files at the same time, to preserve the communication.

5. When obstacles delaying the march are frequent, it may be desirable, in order to avoid loss of time, that each company, after passing an obstacle should march on at the usual pace, without shortening its step, as the following company may overtake it at the next obstacle or ascent, but the leading section of a company should never be allowed to march on until the rear section has completely passed and closed up. The distance between companies may be occasionally increased with advantage, but each company in itself must be kept intact.

SINGLE RANK AND SKELETON DRILL.

S. 10. Battalion Drill in Single Rank.

When there is not a sufficient number of men to form a complete battalion, the companies may be formed, for practice, in single rank.

S. 11. Skeleton Drill.

1. The following method of forming a skeleton battalion for the instruction of officers and petty officers, will be adopted when a sufficient number of men cannot be collected to form a battalion in single rank.

2. A skeleton battalion will be formed of companies composed of two, four, or eight men each; representing, if there are two, the flanks of the company; if there are four, the flanks of half-company; if there are eight, the flanks of sections. The interval between the flanks will be preserved by means of a piece of rope held at the ends, which must at all times be kept at its full extent.

3. The ropes may be made to represent any number of files, the space for each (namely, 24 inches) being marked by a small piece of red cloth. Short pieces of wood should be fastened across the ends of the ropes, to enable the men to hold them.

S. 12. *Salutes.*

"Marks of respect which are to be paid to superior officers in uniform by parties of seamen armed and unarmed, when landed or marching on shore in military formation."

My Lords Commissioners of the Admiralty are pleased to direct that when an armed party is commanded by an officer, marks of respect are to be paid to all flag officers, generals of the Army, and captains of the Navy. On such occasions the officer in command of the party will call his men to "attention," and order them to "shoulder arms," and will salute personally by "carrying" his sword.

2. When an armed party is commanded by a petty officer, marks of respect are to be paid to all commissioned officers, and the petty officer will call his men to "attention," order them to "shoulder arms," and shoulder arms himself.

3. When an unarmed party of seamen is commanded by an officer, marks of respect are to be paid to officers of the same rank as by an armed party, but in a different manner.

The officer in command will call his men to "attention and order "eyes right," or "eyes left," according to side on which the superior officer is passing, and having passed him, "eyes front." The officers will salute, according to the custom of the service, with the hand,—the men looking together towards the officer to whom the mark of respect is being paid, but not salute with the hand.

4. When an unarmed party of seamen is commanded by a petty officer, marks of respect are to be paid to all commissioned officers in the same manner as by an armed party commanded by an officer; the petty officer salutes according to the custom of the service, with the hand.

5. The proper position, when on the march, of the officer or petty officer in command of a party of seamen, whether armed or unarmed, is that from which he can best superintend the regularity of his party.

Attention is called to the following changes in military salutes. (*Vide Queen's Regulations for the Army. Household Guards, 31st Dec. 1873.*)

When two regiments or armed parties meet on the march they are to be called to attention and pass each other with shouldered arms, swords drawn, bayonets fixed, and bugles playing.

Guards no longer stand to their arms on the approach of unarmed parties.

Guards turn out and stand with shouldered arms (they do not "present" as hitherto) while armed parties pass, unless there is an uncased colour, when they present the colour is passing only.

FUNERALS.

S. 13. *Funeral Parties.*

The party appointed for the escort, according to the rank of the deceased, will be drawn up at open order, facing the boat from which the corpse is to be landed. Small parties that are to march in files will be formed with their files extended at one side pace from each other. When the corpse is brought out, the officer or petty officer commanding the escort will proceed as follows :—

PRESENT—
ARMS.

} As usual. Officers saluting.

REVERSE—
ARMS.

{ As detailed in the *Rifle Exercises*,
S. 13.
The officers' swords are reversed under the right arm, the point of the sword downwards, edge upwards, the hilt being grasped with the right hand.

The ranks will then be closed; the officers keeping their swords reversed.

Large funeral parties will march by companies, half-companies, or sections, which will be placed at the head of the procession; when the column is formed, the ranks will again be opened, and the files will be extended to one side pace distance from the right.

In small parties, after the men have reversed arms, they will simply be turned to the left or right, and move to the head of the procession, both ranks wheeling about, if necessary.

SLOW—MARCH. { The party will move off in slow time followed by the music, with drums muffled.

Unless when specially ordered by the officer commanding the band will not commence playing the Dead March until within a short distance (about 300 yards) of the burying ground.

The remainder of the procession will be formed as follows:—

THE CORPSE.

**PALL BEARERS OF EQUAL RANK WITH THE DECEASED
ON EACH SIDE OF THE CORPSE
CHIEF MOURNERS.**

**OFFICERS, OR PETTY OFFICERS, TWO AND TWO,
ACCORDING TO RANK, THE JUNIORS IN FRONT.**

**COMPANIES (or
HALF-COM-
PANIES), RIGHT
(or LEFT)—
TURN, LEFT (or
RIGHT)—
WHEEL. HALT.
RANKS, IN-
WARDS—TURN.
FRONT RANK,
FOUR PACES
STEP BACK.
SLOW—MARCH.**

When the head of the procession arrives near the spot where it is to meet the clergyman, if the escort is formed: companies, half-companies, or section they will be ordered to turn to the left and wheel to the right, or *vice versa*. When the wheels are completed the escort will be halted, the ranks turned inwards, and the front rank ordered to step back four paces, or more if necessary, forming a lane for the corpse to pass through.

If the party is formed in files, the ranks will incline outwards, and will then be halted and turned inwards.

**REST ON YOUR
ARMS RE-
VERSED.**

} As detailed in the *Rifle Exercise*
S. 13.

- STAND AT—
EASE.
ATTENTION. } As detailed in the *Rifle Exercises* ;
the head being turned so as to look to-
wards the corpse. The corpse, and the
remainder of the procession, having
passed through the lane, the word AT-
TENTION will be given, on which the
men will raise their heads.
- REVERSE—
ARMS. } As detailed in the *Rifle Exercises*,
S. 13.
- RANKS RIGHT
AND LEFT—
TURN. SLOW—
MARCH. HALT
—FRONT. } The ranks will then be turned towards
the grave and move in slow time, the
front rank inclining towards the rear
rank till at two paces distance from it ;
the escort will be halted and fronted, in
open order, near the grave and turning
towards it.
- REST ON YOUR
ARMS RE-
VERSED. STAND
AT—EASE. } As before described.
- The funeral service will be performed, after which the
escort will proceed as follows :—
- ATTENTION. As already described.
- PRESENT—
ARMS. } As detailed in the *Rifle Exercises*,
S. 13.
- SHOULDER—
ARMS. } As usual.
- FIRE THREE
VOLLEYS IN
THE AIR. } As usual.
- WITH BLANK
CARTRIDGE,
READY. } As usual, except that both ranks will
stand, and muzzles of rifles are to slant
upwards.

PRESENT.	{	As usual, elevating the muzzle in the
	{	air.
FIRE.	{	As usual, coming down to the ready
	{	position with the last sound of the bugle.
ORDER—ARMS.		As usual.
CLOSE ORDER	{	As usual.
—MARCH.		

The escort will then be marched off, in fours, sections or half-companies, in quick time. In marching back, the music is not to play, or the drums to beat, until the party is entirely clear of the burying ground.

PART V.

THE LANDING PARTY.

General Organisation. — For operations on shore, each ship's company should be organised as follows :—

The Field and Machine Gun's crews ;

The Marines ;

The Starboard Watch of Seamen ;

The Port Watch of Seamen ;

Each unit being entirely complete in itself.

The further organisation depends upon a variety of circumstances.

If the ship is on detached service the seamen and marines will, according to their numbers, be landed as a single battalion or half-battalion ; indeed, it may sometimes be advisable with a squadron to land by ships. As a general rule, however, with a squadron it will be expedient that any force which may be landed should be organized as a brigade, the field guns being formed into batteries, and the seamen and marines into separate battalions, care being taken that the men are kept as much together by ships as possible.

Issue of Rifles.—The rifles will be issued as laid down in the Gunnery Manual; the odd numbered rifles being given to the starboard watch, and stowed in the starboard racks; the even numbers to the port watch, and stowed in the port racks.

Organisation of Riflemen.—The riflemen of each watch will be organised according to their numbers; as a section, a half-company, a company, or a half-battalion.

Number of Men in each Company.—Each company should, if possible, be limited to from 18 to 25 files.

Division into Companies.—In large ships the riflemen of each watch will be divided into two or more companies either by quarters, by boats' crews, or by the numbers on the rifles. The particular method to adopt will depend upon the class of ship and upon other circumstances.

When not liable to experience many changes, the boats' crews might be the basis in unarmoured ships, and the quarter bill, or boats' crews in ironclads, but, in no case, must this be too strictly adhered to, and particularly in ships in which alterations constantly occur; indeed, in such a case, a division by the numbers on the rifles is the simplest method.

Method of distinguishing the Companies.—Companies will be distinguished, on board the ship, by the letters of the alphabet and not by numbers.

Officers, &c. of the Rifle Companies.—The officers will belong to the same watch as the men. Each half-battalion will require one lieutenant as leader; and, to each company will be attached one lieutenant, or sub-lieutenant, in command; two sub-lieutenants, or midshipmen, as guides; two seamen gunner petty officers, armed with cutlass and pistol, as company petty officers, and two seamen gunner petty officers, or leading seamen, selected from the men armed with rifles, as markers.

Officers, &c. of a Battalion.—Each battalion will require :—

- 1 Battalion Leader.
- 1 Officer Instructor.
- 1 Chief Petty Officer (Gunnery Instructor).

Officers of a Brigade.—Each brigade will require :—

- 1 Captain, or Commander, to command.
- 1 Lieutenant to assist.

Field and Machine Guns.—With one gun, the crew will be taken equally from each watch ; but, with two, each gun's crew will belong to a different watch.

No. 1, the marker, and, if possible, four other numbers, will be filled up by seamen gunners who are not stationed at guns, the first two being also petty officers.

A lieutenant, or sub-lieutenant, will be placed in charge of the guns, assisted, if necessary, by a midshipman.

Officers of a Battery.—Each battery will require :—

- 1 Battery Leader.

Extra Parties.—For each watch of small arm men, for the field and machine guns' crews, and also for the marines, men will be told off as :—

Pioneers.		Armourers.
Stretchermen.		Signalmen.
Spare Ammunition Men.		Buglers.

In selecting men for these duties, the general system of organisation by watches will be adhered to.

The extra men required for the rifle companies will be selected from the men not otherwise stationed, and each watch will be in charge of an officer, or petty officer, who will be responsible to the senior officer of the landing party

of his watch; those required for the marines will be taken from that body, or from the band, and will be commanded by a non-commissioned officer under the superintendence of the senior marine officer. As a general rule, it will be advisable to weaken the engine-room strength of the ship by employing the stokers.

Pioneers.—These will be selected from the artificers, the proportion of one per company. The following implements, for which slings are provided, will be carried:

In slings over the left shoulder.	In the hand.	On waist belt.
A. Shovel.	Pickaxe.	Bill hook. Saw-backed Sword. Pistol.
B. Saw and File. Hand Axe.	Felling Axe.	Do.
C. Hammer. Auger. Cold Chisel.	Small Crowbar.	Do.
D. Spade.	Felling Axe.	Do.

Stretchermen.—The number of men required will be not less than two per company of riflemen, and per division of field guns; a petty officer, or leading seaman, will be placed in charge of each watch of stretchermen when the numbers exceed four per watch.

Stretchermen will be unarmed.

Each stretcherman will carry a supply of tourniquet which should be made on board.

Spare Ammunition Men.—The number of men required will be four per company; a petty officer, or leading seaman, will be placed in charge of each watch, when the number of men exceeds four per watch.

They will be armed with cutlasses, and, if possible, with pistols.

Stretchers, five feet six inches in length, and weighing not more than 5 lbs., will be provided in the proportion of one to every two men, for the carriage of one Spare Ammunition box. By these means spare ammunition, to the extent of about 20 rounds a man, can be transported. If the distance to travel be long, or, if a larger supply is required, some wheeled conveyance must be provided.

Although two men should not be expected to carry more than one box, still many more per company might be placed in the boats.

Armourers.—The number of armourers required will be one for every two companies, and one for each battery of field guns. They will be armed with cutlass and pistol. Bags, similar to the pioneers' tool bag, must be made of No. 1 canvas, and painted, to carry the following implements :—

Rifle Companies.

Tools :—

Bit, screw driver, stop nut.

Screw driver, very small.

„ large.

Pincers, pair of.

Hammer, small.

Punch, $\frac{3}{16}$ -inch.

File, smooth, half-round, 6-in.

„ bastard „ „

Spare parts :—

Strikers.

Springs, main.

„ trigger.

Extractors.

Screws, keeper, indicator.

„ swivel, lower.

Pins, extractor.

„ block axis, split.

Field Guns.

Tools :—

File, smooth, half-round, 8-inch.

„ bastard

Wrench, iron, friction pin. „

Chisel, cold, hand.

Punch, 10-inch.

Spare parts :—

Pins, friction.

Plates, guide.

The Signal Party.—The number of officers and required for signal purposes will be :—

With the officer in command, one officer, and seaman.

With each officer in command of more than one party of small arm men, one seaman.

With each officer in command of a battery of field guns, one seaman.

With each officer in charge of more than one company of marines, one marine.

With the boats, one seaman.

Signalmen will be armed with cutlass and pistol.

Semaphore signals will, as a rule, be used ; but, acting in conjunction with the Army, *flashing by flag* laid down in the Army and Navy Signal Book, will be the method adopted.

In the former case, each signalman will be provided with two flags, and two light staves ; and, in the latter case, with one flag, and one long staff.

The flags will be blue and white horizontal, and of the same size as those in use in the boats.

The signal officer, and each seaman, and marine, detailed for the duty, will be provided with a Boat's Signal Book.

Buglers.—The number of buglers required will be :—

With the officer in command, one seaman.

With each officer in charge of more than one company of small arm men, one seaman.

With each officer in command of a battery of field guns, one seaman.

With each officer in charge of more than one company of marines, one marine.

The seamen will be armed with rifles, or, if none available, with cutlasses, and, if possible, with pistols.

Equipment of Seamen for Service on Shore.—This must be left to the discretion of the officer in command, who will take into consideration the climate, the nature and probable duration of the service, and the weight which a man can carry.

The following table of weights may be of use to officers in this matter :—

	lbs.	ozs.
Serge jumpers and trousers -	- 1	12
Flannel - - -	- 1	0
Stockings - - -	- 0	12
Boots - - -	- 2	12
Gaiters - - -	- 1	0
Cap - - -	- 0	8
Knife and lanyard - - -	- 0	8
Black silk handkerchief -	- 0	4
Comforter - - -	- 0	8
Shirt - - -	- 1	0
Blanket - - -	- 5	14
Haversack - - -	- 0	6
Water bottle (full) - - -	- 2	8
Spoon - - -	- 0	3
Hat - - -	- 2	0
Drill cover for do. with curtain -	- 0	4
Flannel cholera belt - - -	- 0	6

	lbs.	ozs.
Comb - - -	0	1
Needles, thread, &c. - -	0	3
Towel - - -	0	7
Soap, according to circumstances.		
Tobacco		
Drinking cups as supplied -	0	8
Rifle, Martini-Henry -	8	12
Accoutrements for do. -	3	14
Sword bayonet, &c. -	2	10
Ammunition, packet containing 10 rounds - - a little over	1	0
Cutlass, &c. - - -	3	2
Pistol - - -	2	6
Accoutrements for do. -	2	1
36 rounds of pistol ammunition -	1	8

Stockings or Socks must be woollen. Preparatory to long march the feet of stockings or socks should be greased. Great care must be taken to see that the boots fit.

Blankets will be rolled up in the direction of their length by four stops at equal intervals, the ends being connected by a fifth stop; the blanket being worn like a belt collar over the left shoulder.

The stops should be prepared beforehand, made up in bundles by companies, issued when required, and stitched to the blankets. A flannel, a pair of stockings, and a towel can be carried rolled up in the blanket.

Haversacks will be worn over the right shoulder.

Haversacks, water bottles, and reserve pouches will be made up in lots by gun's crews and companies, ready for issue.

The Medical Department.—The number of sick and wounded to be provided for will be about 6 per cent. of the whole force. It is to be understood that all such

will, as soon as possible, be forwarded to the ships for treatment.

The total number of medical officers required with the landing party will be about 1 to every 250 officers and men; of these a number in the proportion of about 1 to every 600 men will be attached to the different battalions, &c., while the remainder will form a field hospital.

Those medical officers who are attached to battalions, &c. will be accompanied by two attendants, and after having taken the necessary measures to save life will forward all cases to the field hospital for treatment.

The number of attendants in the field hospital will be not less than four to each medical officer.

The stretchermen will be attached to the field hospital.

Under certain circumstances the field hospital might be in a ship placed conveniently near the shore, in which case sufficient boats must be provided to embark the wounded.

For distant expeditions special arrangements will be made for the transport of the sick, &c.

Landing Party fall in.—As one forenoon in each week is devoted to perfecting all the arrangements which would be required in action on board the ship, so another should be employed in perfecting the organisation for fighting on shore.

At the call for the landing party to fall in, every one repairs at once to his allotted station, each watch falling in and working its own side.

Here it must be clearly understood that, although it is recommended that the whole of the landing party should occasionally fall in to make sure that the arrangements for the whole are complete, yet it is not supposed that all would invariably be required to land at the same time.

On the contrary, as the boat accommodation is limited, and as the ship cannot be left entirely defenceless, it will be found as a rule that part only will be required.

The small arm men and marines provide their arms, accoutrements, and stand-at-ease. They are mustered, proved, and inspected, and, if ordered, the ammunition is served out. The lieutenants of companies then make their reports.

The field or machine guns' crews provide their arms, accoutrements, and stand-at-ease. They are mustered, completed to proper strength, and inspected, and, if ordered, the ammunition is served out. The officer in charge then makes his report.

The limbers will, as a rule, be packed beforehand; should they not be, the powder and projectiles will be provided, but the remainder of the gear will not be brought up unless special orders are given to pack the limbers.

The following might be the stations for providing gear and packing the limber:—

Nos. 1 to 6, to pack the gun and limber.

7 to 9, small stores.

10, water buckets.

11, slow match.

12, sponge, worm, and handspike.

13 and 14, bag with rope gear and swingletree.

15 and 16, derrick.

17 and 18, tackles.

Excused idlers, Ammunition.

The canvas cartouches (packed when required) will be kept in the magazine, the case shot in the limber boxes, and the remainder of the projectiles in the deal boxes in which they are supplied. These boxes should be marked and stowed in some handy place.

Slings must be fitted for the gun and limber. The men's harness, drag ropes, and slings should be stowed together in a marked canvas bag. The derricks, tackles for disembarking, sponge, worm, handspikes, swingletree, and slow match box should be kept in places convenient for handing up.

Boxes for small stores should be made and kept in the gunner's storeroom. Each would contain:—

Grease box (filled).	1 Washer.
2 G.S. keys.	1 Linchpin.
4 Portfires.	Friction tubes.
1 Portfire stick.	2 Tangent sights.
1 Portfire clipper.	2 Laniards.
Fuzes.	Priming irons.
Fuze extractor.	Pincers and spanner.
Hook borer and cylinder of bits.	Claw hammer.
2 Gun spikes.	Tube pocket, and
	All moveable leather straps.

If the storeroom is damp, special arrangements must be made for portfires, fuzes, and friction tubes.

Complete sets of packed drums, holders, or hoppers should be kept ready in small arm or machine gun magazine, and parties stationed to provide them when the landing party falls in.

In addition to the fittings for spare parts in the limbers of field machine guns, which should always be kept stowed as far as the allowance of spare parts will admit, special boxes for spare parts are issued for use on detached service; these should also be provided in case it is decided to land the guns without limbers. Under these conditions, suitable panniers should be made to strap on to an ordinary pack saddle, or to be carried on a pole by two men, each fitted to carry one drum for Gatling, or six holders or hoppers for Gardner or Nordenfelt rifle calibre guns, and the limber numbers will then carry this ammunition, attend carts or baggage animals if obtainable, and form a cover party for the guns.

A gun thus landed can form an integral part of a company, conforming to all its movements, and should be placed between the right and left half companies.

The extra parties provide their arms, fall in, and stand at-ease. They are mustered, completed to the proper strength from the men not otherwise stationed, and inspected, and, if ordered, the ammunition is served out. The officers or petty officers in charge then make their reports.

As a general rule, men not going to land will be stationed to supply spare gear.

The reserve pouches, blanket stops, haversacks, water bottles, and provisions will, as a rule, be issued beforehand; otherwise, although provided, they will not be served out without orders.

The following might be the stations for supplying spare gear:—

Water bottles	-	Carpenters.
Haversacks	-	Painters.
Reserve pouches	-	Working idlers not otherwise stationed.
Bearers	-	
Stretchers	-	
Blanket stops	-	Sailmakers.
Ammunition	{	Field Gun
	-	Pistol
	-	Rifle
		Excused idlers.
Provisions	-	Ship's Steward's party, assisted, if necessary, by party of Stokers.

The Boats.—Each boat must be tested to ascertain its capacity for carrying seamen and marines. The ordinary method of doing this is actually to place the men in each boat.

Boats, when employed in landing men, will, if possible, be towed by steamboats, otherwise oars must be used. The use of sails would be quite exceptional.

Each boat must carry :—

The full complement of oars, and two spare.

Three boathooks.

Anchor and cable.

Painter.

Shore line and stake.

Two gang boards.

Barricoes for water and pannikins.

Boatswain's and Carpenter's bags.

Answering pendant and staff.

Boat's Signal Book.

Compass (if allowed).

Kept in the boats.

Provided as in manning and arming boats.

The largest boat belonging to each ship will also carry:—

A vane or pendant as laid down in

Army and Navy Signal Book.

A set of boat's flags.

A light signal mast.

A pole for spreading out the flags.

Provided as in manning and arming boats.

Oars, when used, should invariably be slung with laniards.

The end of the cable should be fast forward, and the anchor ready for letting go from the stern.

Gang boards, two in number, should be placed at the side in boom boats, and amidships in cutters.

Boatkeepers.—The number of boatkeepers should be (as laid down in Boats' Signal Book) not less than four in boom boats, and two in cutters.

They should fall in with the landing party, and, after being completed to the proper strength, should, when ordered, get the boats alongside.

They should be told off as follows :—

One to steer, two to attend shore line, boathooks, gang boards, &c., and one the anchor and cable,

In cutters, the anchor will be attended by the coxswain.

Boatkeepers should, if possible, be armed with rifles; otherwise a strong guard must be left over the boats if they are to remain near the beach.

Loading the Boats.—If it can be avoided neither small arm men, nor marines, should be put into boats smaller than cutters. The smaller boats are required for a variety of miscellaneous duties.

On service it will generally be found that half the landing party is as many as can be carried in the boats with convenience and safety. Thus, they will usually carry:—

- | | | |
|----------------------------|---|---------------------|
| One watch of seamen. | } | One complete watch. |
| Do. marines. | | |
| One field gun. | | |
| or One watch of seamen. | | |
| Two guns. | | |
| or One watch of seamen. | | |
| Both watches of marines. | | |
| or All the marines. | | |
| Two guns. | | |
| or Both watches of seamen. | | |

Circumstances alone can determine the manner in which the men are to be distributed, but, on all occasions, the companies should be broken up as little as possible.

All boats should be loaded at the same time, those guns being placed under the yards for the purpose.

Guns, ammunition, &c., are to be first placed in the boats, and the oars then tossed up by the guns' crews, in gun boats, by a section, or half-company, in others.

When ready, the bugle will sound "The Advance," where the small arm men, marines, &c., will be marched into the boats with the left in front, those first in going forward.

Organisation of the Boats.—The boats will be organised and will assemble, as laid down in the Army and Navy Signal Book.

An officer should be detailed to take charge of each division of boats as soon as they are clear; an officer of experience being placed in charge of the whole flotilla.

Selection of Time and Place for Landing.—In selecting a place for disembarkation, the following points should be attended to:—

1. The depth of water should, if possible, be sufficient to enable the ships to approach near enough to cover the landing.

2. The nature of the bottom should be such as to afford good holding ground.

3. The landing place and anchorage should be protected from the prevailing winds and gales.

4. The beach should be such that firm footing is afforded to the men when disembarked, and also that the heaviest boats can, when loaded, run close in, the rise and fall of the tide being taken into consideration.

5. The country in the vicinity of the landing place should not afford cover from which an enemy could annoy the disembarkation.

The choice of time will be governed by the state of the tide, the nature of the service, &c.

Method of Landing Men from any Boat.—When at a convenient distance from the beach, the anchor should be let go from the stern, and as soon as the boat touches the beach the oars should be thrown overboard. The bowmen should jump out as soon as possible with the shore line, drive in the stake, then place gang boards, and keep the bow of the boat close into the beach.

The lieutenant and left marker are to be the first to land. The small arm men will disembark at the lieutenant's order "Form on the marker," and the gun's crew, if any, will get their derrick up, but will not land the gun without orders from the officer in command.

Great care must be taken that the men do not wet their feet in getting out of the boat.

As soon as the boat is clear she is to be hauled off into deep water, the shore line being left to haul her in again.

General Method of Proceeding.—The place of disembarkation having been determined, ships should be told off and placed for covering the landing, for the extra supply of reserve ammunition, for the reception of the wounded, and also as points round which the boats are to assemble.

Marks should be selected or placed as guides to the boats in pulling in.

The number of boats assembling round any one ship should for convenience of handling be limited.

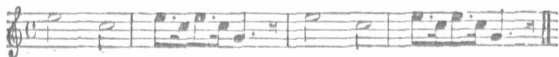
Although no enemy may be visible, the greatest precaution should invariably be exercised to prevent being taken unawares. To this end, it is desirable that the covering ships should be so placed as to command all positions favourable for field artillery up to a distance of about 4,000 yards from the landing place; and the landing party itself should move in in fighting formation, that is to say, the skirmishers at least $2\frac{1}{2}$ cables a head of the supports which should be at a still greater distance in advance of the reserves.

BUGLE SOUNDS.

One G sounded on the bugle will denote the right of the line. Two G's the centre. Three G's the left.

The G or G's preceding any sound will denote the part of the line to which it applies. For instance; two G's before the Extend, will signify, to extend from the centre. One G followed by the Close, to close on the right. One G followed by the Incline, to incline to the right. Three G's followed by the Wheel, to wheel to the left.

I. EXTEND.



II. CLOSE.



III. ADVANCE.



IV. RETIRE.



V. HALT.



The Halt annuls all previous Sounds except the Fir

VI. FIRE.



VII. CEASE FIRING.



VIII. ASSEMBLE.



IX. INCLINE.



A double incline will signify a direct turn to the direction indicated.

X. WHEEL.



The calls IX. and X. must be preceded by the distinguishing G's.

XI. THE ALERT.



XII. PREPARE FOR CAVALRY.



XIII. QUICK.



XIV. DOUBLE.



XV. LIE DOWN.



XVI. RISE.



XVII. INFANTRY CALL FOR CHARGE (FIELD BUGLE)



PART VI.

FIELD FORTIFICATION.

HASTY INTRENCHMENTS AND FIELD FORTIFICATION.

General Remarks.

Hasty intrenchments and field fortifications are constructed to place a defensive force in a position of advantage to resist attack.

The issue of an attack is, under modern conditions of warfare, mainly determined by fire-action, i.e., the fire of a stationary line of men armed with breech-loading rifles is so deadly that it will be impossible for an attacking force to close with a defensive force (unless the attack partakes of the nature of a surprise, or is made under most exceptionally favourable circumstances) until this latter has become demoralized by the assailants' fire, or has suffered such loss that the volume of its own fire is materially diminished.

Consequently, since an attack is repulsed by fire, and since success in an attack can only be gained by fire, every fortification should fulfil, to as great an extent as the time and means available for its construction will permit, the following three conditions:—

1. It should cover or protect the defenders from the fire of the enemy.
2. It should enable the defenders to see the enemy, and use their weapons with effect over the whole ground within range of fire, with the least possible exposure to themselves.

3. The assailant's access to the position should be obstructed and difficult, in order that the attackers may be kept as long as possible under the fire of the defenders.

To obtain the fulfilment of the *first* of these conditions existing cover (such as banks of earth, walls, houses, &c.) is utilised, or a bank of earth ("*parapet*") is thrown up, the earth being obtained either from an excavation in front of the parapet ("*ditch*") ; or from an excavation in rear of the parapet ("*trench*") ; or from both.

The *second* condition is fulfilled by clearing the ground in front of the firing line (*i.e.*, generally in front of the parapet) of everything that may obstruct the fire of the defenders, and the

Third, by arranging "*obstacles*" to the approach of the enemy.

WORKING PARTIES, AND TIME [REQUIRED FOR THE CONSTRUCTION OF EARTHWORKS.

General Conditions.

The time which it will take to construct a defensive work will vary greatly with the circumstances of each particular case, with, *e.g.*, the nature of the ground, the state of the weather, the condition of the men, &c. ; but in every case the following points should be attended to :—

- (1.) That the men should be distributed as thickly as possible without interfering with one another.
- (2.) That the maximum of work should be got out of them.

Interval between Diggers.

With regard to the first point,—

Diggers, as a rule, should not be placed closer together than 5 feet (2 paces)

Two rows of diggers can, however, be employed in one excavation when they can work back to back and throw the earth outwards, as in the case of forming a parapet and glacis from a ditch.

Shovellers sometimes required.

Further, when it is required that the earth dug out be deposited more than 12 feet from where it lay, there must be a row of shovellers to pass it on, the number varying with the nature of the soil. In average soil, which does not require much use of the pick, two shovellers to three diggers is a fair proportion.

If the soil is difficult to excavate, so that the diggers supply a less quantity of earth, the proportion may be reduced to one shoveller to two diggers.

Where a rear trench is formed as well as a ditch, a row of diggers can be employed in each excavation, and the work finished quicker.

Amount of Excavation in a given Time.

With regard to the second point,—

It may be assumed that in moderately easy soil, which does not require much picking, an untrained man can in four hours' actual work excavate 100 cubic feet of earth, or about 1 cubic yard an hour, throwing the earth a horizontal distance of 12 feet, and lifting it out of a trench of a maximum depth of 4 feet, and that the same man, if kept at work for six hours, would not do very much more. For this reason, four-hour reliefs, with tasks of 100 cubic feet, are recommended for all hasty defences.

Where, however, large works have to be constructed which require much time, it is usual to use six-hour reliefs, as by that means the men have more rest.

After some practice it may be assumed that a man under similar circumstances can excavate 1 cubic yard of earth an hour for six hours.

The following may therefore be taken as the average amount of excavation for four-hour reliefs by untrained men :—

In very easy soil, requiring no picking	-	120	cubic feet
In moderate soil	-	100	"
In difficult soil	-	60	"

Apportionment of Work.

In distributing a working party it is best to give each man a definite task, letting him know that when he has completed his portion and it has been passed by the superintending officer he may leave off work ; or, if working pay be given, it will be better to pay a man, not by the day, but by the amount of work he gets through. A little experience will enable an officer to determine how much may reasonably be expected from a man in a given time under given circumstances.

Foisonnement.

The dimensions of all the embanked earth having been settled, the contents of the excavation must be balanced to correspond. If the soil is very stiff (even though well rammed), or if there is not time to ram at all, the excavated earth will not occupy so small a space as before excavation ; and this should be borne in mind, although, as a rule, the difference need not be taken into account in the calculation, as the surplus will always come in for other purposes, such as "gun banks," &c. This increase termed "foisonnement," varies from $\frac{1}{4}$ to $\frac{1}{12}$ of the original volume, according to the nature of the soil.

Rammers.

In all cases, in order to reduce this increase to a minimum, it is desirable to have a certain number of rammers on the parapet to build it in the required shape, and make it more compact and of greater resisting power.

PROVIDING COVER.

SHELTER TRENCHES.

The most rapidly constructed cover is obtained by digging "*shelter trenches*" (shallow trenches in which cover is afforded to men kneeling or lying down, the excavated earth being formed into a bank or parapet in front, over which the defenders can fire).

English Shelter Trench.

Fig. 1, Plate I.* (the shelter trench given in the Army Field Exercise Book) is a trench $2\frac{1}{2}'$ wide, $1\frac{1}{2}'$ deep, the earth forming a parapet $1\frac{1}{2}'$ high; a "*berm*," or narrow space of ground $1\frac{1}{2}'$ wide, being left between the parapet and trench. This trench can be completed by a line of men at two paces (5') intervals in half an hour. Under favourable circumstances, when there is no long grass to be cleared away, or other obstacle to the immediate commencement of the work to be removed, the trench can be finished in much less time.

Figs. 2 and 3, Plate I., are improvements of Fig. 1. In Fig. 2 the trench is widened to 5', in Fig. 3 to 8'; the parapet remaining of the same height, $1\frac{1}{2}'$, but thickened by the additional earth obtained. Time for completing Fig. 2 one hour; for completing Fig. 3 two hours.

* "Notes for the Plates," giving an explanation of the symbols used, will be found on page 266.

Triangular Shelter Trench.

Fig. 4, Plate I., is a triangular shelter trench, which can be constructed by men 5 feet apart in 20 minutes. The cover afforded is small, but it presents no obstacle to the advance across it of cavalry or artillery.

MUSKETRY TRENCHES.

Definition of term Musketry Trench.

By deepening the trenches and increasing the height of the parapets shelter trenches may be converted into musketry trenches (trenches in which men stand to fire).

Advantages and Defects of Musketry Trenches.

These afford better cover, but would prove a great hindrance to the movement of troops over them, and captured by the enemy would afford him better cover against the fire of works or troops in a second line of defence, and would place him in a better position to repulse an attempt to retake them. It will therefore depend upon the circumstances of each particular case whether it will be advisable or not to substitute musketry for shelter trenches.

Fig. 5, Plate I., is a trench 5' wide at the top, 3' deep in front, $1\frac{1}{2}'$ deep in rear, with a parapet $1\frac{1}{2}'$ high. It gives $4\frac{1}{2}'$ of cover to a man standing in the deep part in front and firing over the parapet, and complete cover to a man sitting on the step in rear. Time for construction, men at 5' intervals, $1\frac{1}{2}$ to 2 hours.

Fig. 6, Plate I., is Fig. 5 improved by piling the ear of the rear part of the parapet on to the top of the front part, thus making the parapet 3' high, and by digging a step $2\frac{1}{2}'$ wide and $1\frac{1}{2}'$ deep in front of the deep part of Fig. 5. This trench gives $4\frac{1}{2}'$ of cover to a man standing on the front step and firing over the parapet, and 6' of

cover to a man standing in the deep part of the trench. If great depression of fire be required, as, for instance, when the trench is on the slope of a hill, the top of the parapet may be cut away, as shown by the dotted line in the figure. Time $1\frac{1}{2}$ to 2 hours.

Fig. 7, Plate I., is Fig. 6 improved by widening the deep part of the latter from $2\frac{1}{2}'$ to $4'$, and by increasing the mean thickness of the parapet from $4'$ to $6'$. This gives $4\frac{1}{2}'$ of cover to a man standing on the step and firing over the parapet, and $6'$ of cover to men standing in the deep part of the trench. Time $3\frac{1}{2}$ to 4 hours.

BREASTWORK.

Definition of term Breastwork.

If a sufficient number of men are available, a "breast-work" (where the men standing on the ground fire over a bank of earth breast high in front of them) may be completed in the time taken to construct the trench shown in Fig. 7 ($3\frac{1}{2}$ to 4 hours).

In Fig. 8, Plate I., the trench is the same as in Fig. 7, but the parapet is increased to a height of $4\frac{1}{2}'$, and is made $5'$ thick at the top; the additional earth being obtained from a ditch in front, which can be begun simultaneously with the trench, one row of diggers working in the trench, another row in the ditch. In this case the berm is left $3'$ wide, in order that the men firing may have convenient standing space.

Interior Slope revetted.

The "interior" or inner slopes of parapets breast high should be "revetted" whenever possible; *i.e.*, they should be faced with some material which will retain the earth at a steep slope. This should be done in order that the men may be able to stand nearer to the covering mass of earth;

when they will be able more conveniently to use it as a rest for their rifles, and will at the same time be better protected by it. In the construction of the breastwork described above the revetment might be arranged by the men digging the ditch, as they have a lighter task to accomplish than the diggers in the trench.

COVER FOR ARTILLERY.

Cover, similar to that provided for infantry by the shelter trench, may be constructed for guns by excavating "*gun-pits*" or by throwing up "*epaulments*."

Gun-pit.

In a "*gun-pit*" a shallow pit is dug, in which the gun is worked; the earth excavated being formed into a low bank in front.

Epaulment.

In an "*epaulment*" the gun is worked on the natural surface of the ground and is covered by a bank, the earth for which is mainly obtained from a ditch in front or on both sides of it.

When Gun-pit and when Epaulment should be used.

Where the nature of the soil gives a firm wheel base at the bottom of the pit, and where there is no prospect of rain rendering the latter impracticable for the gun detachment to work in, a gun-pit will be the quickest method of obtaining cover; but in all cases where there is any chance of the ground proving unsuitable for a pit an epaulment must be constructed.

English Gun-pit.

Fig. 1, Plate II., is a gun-pit which can be excavated by seven men in one hour. The pit is 2' deep and of the

shape and dimensions shown in the plan. The covering bank is 3' high, except at the part over which the gun fires, where it is only $1\frac{1}{2}$ ' high. At the sides are wings (for the better protection of the gun's crew when not actually serving the piece) consisting of trenches 4' wide, 2' wide and 2' deep in front, and sloping up to the ground level in rear. The Roman figures and dotted lines indicate the tasks of the several men of the working party. Should protection against very oblique fire be required, covering banks of earth must be placed across the ends of the wings.

Simple Forms of Epaulment.

Fig. 2, Plate II., is an epaulment for protection against front fire. The earth for the bank is obtained from a ditch in front (20' long, 5' wide, and 2' deep), and from two trenches, one on either side of the gun (5' long, 6' wide in front, and 4' in rear and 2' deep), in which those of the gun's crew not actually engaged in working the piece can find cover.

German Gun-pit.

Fig. 3, Plate II., is a gun-pit in use in the German service. The pit itself is 12' square and $1\frac{1}{2}$ ' deep, a ramp 6' long (slope $\frac{1}{4}$) leading into it from the rear. The excavated earth forms a covering bank $1\frac{1}{2}$ ' high and about 12' thick, which, if necessary, may be continued some way round the sides of the pit. Eight men can make the pit in one hour.

In this pit the gun fires *en barbette*, instead of as in the English pit through an opening or roughly-shaped embrasure in the bank. In most cases in the field the former arrangement is much to be preferred, as it gives full lateral range to the gun, instead of confining it to one direction of fire. The protection afforded, however, is not so complete

and for flanking a special line the English type seems preferable.

Gun Batteries.

Gun-pits or epaulments should, when possible, be placed from 25 to 30 yards apart; but, if the available space be limited, they may be made closer together, in which case it will often be found convenient to connect them into a battery.

Sunken Battery.

Fig. 1, Plate III., shows the plan and section of a "*sunken battery*," formed by connecting the wing trenches of gun-pits excavated at central intervals of 30'. Time, 1 hour.

Surface Battery.

Fig. 5, Plate III., shows the plan and section of a "*surface battery*," formed by a continuous epaulment with traverses between the guns. Time, 3-5 hours.

COVER FOR THE LIMBERS OF FIELD PIECES.

If no natural cover for the limbers of guns sheltered in pits or behind epaulments can be found at a convenient distance in rear, either—

1. The limber boxes may be taken off and placed in recesses made for them in the gun-pit or in the trench of the epaulment; or

2. Limber pits may be excavated.

Limber Pit.

Fig. 5, Plate VII., shows the plan and section of a limber pit, 6' square at the bottom and 4' deep, with a ramp 16' long (slope $\frac{1}{4}$) leading into it; the excavated earth being formed into a covering bank 3' high, 5' wide

and 10' long at the top. Five men can complete such a pit in from 2 to 3 hours.

Recess for Limber Box.

Fig. 1a, Plate III., shows the section of a recess made to receive a limber box.

PLATFORMS.

Reasons for laying down Platforms.

Whenever guns are likely to be worked on the same ground for any long periods, it is desirable that *platforms* should be laid down, both to facilitate the working of the piece and to render accurate firing possible. Unless some kind of platform be constructed, ground soon becomes cut up and rutted by the recoil of the gun, when the labour of running the gun up will be increased, and the nice training of the piece rendered very difficult.

The kind of platform to be constructed must depend in every case upon the description and amount of material at hand. If nothing else be procurable, three stout planks may be laid down; one for each wheel of the gun carriage and one for the trail to recoil along. If the necessary material be forthcoming, however, every gun platform should have:—

Conditions Platform should fulfil.

1. Sufficient length to allow of the gun recoiling without the wheels running off;
2. Sufficient width to permit of a moderate amount of traversing;
3. Sufficient strength to prevent it bending under the weight of the guns, and to allow for a considerable amount of wear and tear.

Construction of Platform.

A floor of stout planks placed transversely, and resting on five beams or *sleepers* placed longitudinally, will form a sufficiently strong platform for an ordinary field gun; and a surface 15' long and 10½' wide in the clear will afford sufficient space for the recoil and working of the piece. The planks may be kept in their places by being nailed to the sleepers; or by means of a ribband, or strip of wood, laid along the edges of the planks on each side of the platform, and fastened to the sleepers by means of rack lashings.

When it is intended to use the platform for a mortar, the former should be strengthened (to enable it to withstand the violent action of the piece when fired) by placing three transverse sleepers under the longitudinal beams.

PARAPETS WITH DITCHES, AND WITH DITCHES AND TRENCHES.*When Parapet with Ditch must be employed.*

The shelter and musketry trenches described in the preceding pages supply the most rapidly constructed cover that can be created, and afford very efficient protection against musketry fire. If circumstances, such as the presence of water immediately below the surface, or the general damp or marshy nature of the soil, render the employment of a trench inconvenient or impossible, a parapet must be formed with earth obtained from a *ditch* in front. Or when the parapet is to be made sufficiently substantial to afford protection against artillery fire, the earth for it will be obtained from a ditch in front; or, more frequently, partly from a ditch in front and partly from a trench in rear.

A parapet is generally bounded by the slopes described in the following sections:—

Superior Slope.

The top of a parapet is given a slope to the front to allow men firing over it to depress their fire. This slope is called the "*superior slope*" ($a-b$, Fig. 1, Plate IV.). This superior slope should be so regulated that fire directed along its surface may pass not more than 3' above the outer edge of the ditch. A slope of $\frac{1}{6}$ will usually fulfil this condition, but to avoid weakening the parapet it is better to make it more gentle ($\frac{1}{7}$ or $\frac{1}{8}$), and in no case should it be steeper than $\frac{1}{4}$.

Exterior Slope.

The "*exterior slope*" ($b-c$, Fig. 1, Plate IV.) is the slope extending from the outer end of the superior slope to the ground. As this is the slope most exposed to fire it should not be made steeper than what is called the *natural slope of the earth*. With the generality of soils this slope will be $\frac{1}{1}$; but with very loose earth or sand, or when it may have to resist a prolonged or heavy bombardment, the slope should be made more gentle ($\frac{3}{4}$ or $\frac{2}{3}$).

Banquette.

The "*banquette*" ($d-e$, Fig. 1, Plate IV.) is a raised pathway or terrace on the inside of the parapet to enable men to fire over the latter. It is usually made 4' 6" below the top of the parapet, and 3' wide if for a single rank, or 4' if for a double rank, of men.

Interior Slope.

The "*interior slope*" ($a-d$, Fig. 1, Plate IV.) is the slope extending from the inner end of the superior slope to the banquette. This slope is made as steep as possible ($\frac{3}{4}$ or $\frac{1}{2}$) to enable the men on the banquette to stand close to the covering mass of the parapet, and more conveniently use the top of the latter as a rest for their rifles.

Slope of the Banquette.

The *slope of the banquette* (*e—f*, Fig. 1, Plate IV.) extends from the banquette to the ground. To enable men to ascend and descend easily, it is usually not made steeper than $\frac{1}{2}$. Steps may be substituted for it, if they can be revetted to prevent them being trodden down.

Crest.

The *crest* (*a*, Fig. 1, Plate IV.) of a parapet is its highest line, i.e., the intersection of the superior and interior slopes. This crest is also sometimes called the "*interior crest*."

Exterior Crest.

The *exterior crest* (*b*, Fig. 1, Plate IV.) is the intersection of the superior and exterior slopes.

Thickness.

The "*thickness*" (*A—B*, Fig. 1, Plate IV.) of a parapet is measured horizontally between the crest and exterior crest. This thickness is usually made $1\frac{1}{2}$ times the greatest penetration of the projectiles it is intended to resist. Consequently, a parapet exposed to musketry fire should be at least 3' thick; to the fire of light guns (such as the English 9-pr.) from 6' to 9'; to the fire of heavier field guns (such as the English 16-pr.) 9' to 12'; and to the fire of guns of position, 12' to 18' thick. These thicknesses must of course be modified to meet exceptional circumstances.

Command.

The "*command*" (*a—H*, Fig. 1, Plate IV.) of a parapet is the vertical height of the crest above the ground.

which it is constructed. The greater the *command* of a parapet the better will evidently be the cover it will afford. Six feet is the least command which will screen the ground behind—when the plane of the site of the work is horizontal—during the close attack; but to allow for the parapet being reduced in height by artillery fire, it will generally be better to increase its height to $7\frac{1}{2}'$ or $8'$, and such is, therefore, the command usually given to parapets in the field when time permits. On the other hand, a command of $10'$, or at the very outside of $12'$, should never be exceeded; since, as the volume of the parapet increases rapidly with the height, the time and labour of execution would become too great for a field fortification.

Allowance to be made for the fall of Projectiles.

In determining the height of a parapet allowance must be made for the angle of descent of the enemy's projectiles. The angle of fall of the Enfield bullet at 500 yards is $\frac{1}{16}$; at 800 yards $\frac{1}{10}$; of the Martini-Henry bullet, at 300 yards $\frac{1}{12}$; at 500 yards $\frac{1}{10}$; of the 9-pr. M.L.R., at 3,000 yards about $\frac{1}{5}$. Assuming, therefore, the ground to be level, a parapet $8'$ command would only afford cover to a man $6'$ high, against a battery 3,000 yards away, to a distance of 10 feet behind the crest line. Complete protection against artillery fire can, in fact, only be obtained by providing blindages, or other form of bomb-proof accommodation (Fig. 3, Plate IV.).

Glacis.

A "*glacis*" (*h, g, i*, Fig. 1, Plate IV.) is a bank of earth thrown up at the top of the counterscarp to raise up the assailant into the line of fire of the defender, when the top of the counterscarp cannot otherwise be properly defended without making the superior slope of the parapet too steep.

Escarp.

The "*escarp*" ($k-l$, Fig. 1, Plate IV.) is the slope of the ditch nearer to the parapet.

Counterscarp.

The "*counterscarp*" ($m-i$, Fig. 1, Plate IV.) is the slope of the ditch more distant from the parapet.

The steeper the *escarp* and *counterscarp* are made the greater will be the obstacle the ditch will present to an assailant. If made too steep, however, the slopes will soon fall in under the influence of weather. They can, therefore, be rarely made more than $\frac{3}{4}$, and frequently they must be even more gentle than this.

Triangular Ditch.

Sometimes the *escarp* and *counterscarp* are prolonged until they meet, when a triangular ditch is formed.

Width and depth of Ditch.

The *width* of the ditch at the top should be at least 12', and its *depth* at least 6', in order that it may present something of an obstacle to the assailant.

For reasons before explained, it is desirable that the area of the ditch on any profile should be approximately the same as the area of the parapet on the same profile, and either the width or the depth may be altered, as circumstances may render advisable, to obtain the required area.

Fig. 4, Plate IV., is a sectional elevation of a blindage for a machine gun. Fig. 5, Plate IV., is the plan, and Fig. 6 is a longitudinal sectional elevation of same blindage.

Fig. 2, Plate IV., is a parapet affording defence against musketry fire.

Fig. 1, Plate IV., is a parapet with ditch and trench affording protection against artillery fire.

SPECIAL PROTECTION FOR THE HEADS OF MEN FIRING OVER A PARAPET OF ANY KIND.

Height of portions of Parapet increases.

The heads and shoulders of men firing over a parapet of any kind are necessarily exposed. It is not possible to protect them entirely from artillery fire, but they may be covered to some extent from musketry, case shot, or splinters of shell.

Logs used as Protection.

In the case of shelter trenches, a little extra height may be given to the portions of parapet between every two rifles, and in larger works a thin earth screen, with channels through it for rifles, may be built up on the top of the parapet; or

Loopholes, Brushwood, and Board.

Logs may be placed on the crest resting on sand bags or other materials (Fig. 6, Plate VII.), to raise them sufficiently high to leave a space for rifles to fire through; or

Brushwood loopholes (Fig. 7, Plate VII.) or broad troughs may be embedded in the crest of the parapet. These latter are made by nailing together, so as to form a frustrum of a square pyramid, four pieces of plank each $2\frac{1}{2}'$ long, 10" and 5" broad at the ends respectively. The apertures will be about 8" and 3" square. These brushwood and wooden loopholes will be sunk in the parapet of the trench, rifle pit, &c., near the top, where it is $2\frac{1}{2}'$ thick, with the smaller opening on the outside.

CLEARING THE GROUND.

Importance of clearing Ground.

The importance of providing a clear field of view and fire in front of a defensive line, whether the men be behind

cover or not, cannot be too strongly insisted upon. Unless such a clear zone of sufficient depth exists, or can be made within the time and with the means available, a position will rarely be tenable. It has been remarked with perfect truth that if the history of defensive actions be examined it will be found that for one place which has fallen because the men on the defensive had not sufficient cover a dozen have fallen because the obstacles to fire in front had not been cleared away. In arranging a position for defence therefore, the work of clearing the foreground must be undertaken systematically by special parties; and every effort should be made to thus clear the front up to the effective range of rifles, especially on those sections where there may be reason to anticipate that the assailants' most strenuous efforts to close will be made.

The following data will be useful in estimating the amount of labour, time, and tools necessary for clearing ground.

Clearing away Trees.

Felling Trees.—Two unskilled men with axes can cut down trees of 4, 6, 9, 12, and 18 inches in diameter in about 1, 3, 5, 9, and 15 minutes respectively. Soft wood trees of 2' or 3' in diameter can be felled in 20 to 30 minutes by 4 men; but if the trees are of hard wood they will take about three times as long to cut down.

To fell a tree with an axe, begin cutting on the side towards which the tree is intended to fall, and cut in about two thirds of the diameter; the lower part of the cut being nearly horizontal, the upper surface well sloped upwards so as to free the axe. A few cuts on the opposite side rather above the first cut will then bring the tree down.

Trees may be quickly felled by the use of gun cotton. One pound per foot in girth applied externally, or 2 oz. 3 oz. per foot in girth in a 1½-inch augur hole bored near the top through the trunk will be sufficient to bring the tree down.

Clearing away Hedges.

Hedges can be cut down by a line of men at 5 feet intervals in from 5 to 20 minutes; or 10 men will on an average clear 500 yards in 6 hours. They will require 10 billhooks, and will cut forked poles to use in forcing the cut through hedge over to the enemy's side.

Destruction of Walls.

Walls are most easily knocked down by means of a beam, trunk of a tree, or railway bar worked by 10 or 12 men as a battering ram; charges of 60 lbs. of gunpowder placed against the wall at not more than 6 feet apart and weighted with sandbags will breach a 14-inch wall. If gun cotton be used, charge in lbs. $= \frac{1}{2} T^2 L$ where T = thickness of the wall in feet, L = length to be blown down in feet, the charge being equally distributed along the foot of the wall and untamped. If tamping* equal to the thickness of the wall be added, charge $= \frac{1}{4} T^2 L$.

Destroying Houses.

Houses.—40 lbs. of gunpowder exploded in a central position will blow down a small dwelling-house. The task of removing the debris will however generally be a laborious one.

Throwing down Banks.

Earthen banks, averaging 5 feet high and 3 feet thick, can be thrown down, sufficiently to destroy cover, at the rate of 100 yards in 6 hours by a squad of 10 men, each man being provided with a shovel. If there be trees growing on the bank the roots will greatly increase the

* Tamping is covering the charge over with earth or other material to confine the gases at the commencement of the explosion, and more fully develop their force.

labour, and axes and pickaxes must be added, and the rate reduced.

Clearing away Brushwood.

Brushwood of five or six years' growth can be cleared away by men extended in line at 5 feet intervals at a rate of about 30 paces (or 25 yards) in 8 hours.

Filling up Ditches.

Ditches must be filled in; or the inner side must be sloped away to expose the bottom to fire from the rear.

Destroying standing Corn.

Standing corn, or other crops of high growth, may be destroyed by marching men in line over them.

DEFENSIBLE HEDGES.

Use of Hedges.

Hedges may break the force of a rifle bullet, but they cannot by themselves be considered as affording protection against musketry fire.

They may be utilised, however, according to their growth and position, either as :—

1. Obstacles to delay advance of enemy.
2. Screens from view.
3. Revetments, *i.e.*, supports to retain earth at a steep slope.

Hedge used as Obstacle.

If intended to serve as an obstacle, a hedge had better be left standing. Should it, however, impede the defence of fire or view it may be converted into an "entanglement" by cutting the stems half through about 3' above the ground, bringing the upper part down to the ground, and interlacing and securing the branches with pickets.

Ditch and Bank Hedges.

Ditch and bank hedges, with the ditch on the defender's side, can often be used as they stand; the ditch serving as a trench. If the ditch be small or shallow, it may be widened and deepened, the earth being used to thicken or increase the height of the bank; or if none exist, to form a parapet supported by the hedge.

Ditch on Enemy's side.

If the ditch be on the enemy's side of the hedge, it must be deepened and widened, and the earth thrown over the latter to form a parapet; the hedge serving as a revetment for the exterior slope. In this way the hedge will be useful by diminishing the amount of earth required for the parapet, whilst it will also present an obstacle to assault.

Fig. 1, Plate V., shows a ditch and bank hedge used as it stands, or with a very slight deepening of the ditch. In this case the hedge acts as a screen; the men firing between the stems.

Fig. 2, Plate V., shows a hedge, without ditch or bank, serving as a screen and partial support to a parapet formed of earth from a trench dug in rear.

Fig. 3, Plate V., shows a hedge used as an exterior revetment to a parapet; the earth for the latter being obtained from a shallow trench in rear.

Fig. 4, Plate V., shows a hedge with a ditch on the enemy's side widened and deepened, the earth being thrown over the hedge to form a parapet.

Fig. 5, Plate V., shows a deep cut lane, with a hedge on either side, prepared for defence; the one hedge serving as an obstacle, the other an exterior revetment.

Fig. 6, Plate V., shows a hedge utilised as a screen and revetment for a gun epaulment.

DEFENSIBLE WALLS.

Nature of Protection afforded by Walls.

Walls afford protection against musketry fire, or the balls of shrapnel; but they will not resist the common shell of field guns unless they are of exceptional thickness over 3'.

The principal work to be done in preparing walls for defence is to make either loopholes or notches from the top.

Loopholes.

It will rarely be worth while wasting time and trouble in attempting to make loopholes of any regular shape. They should, however, appear from the outside as narrow horizontal or vertical slits (generally about 3" wide); horizontal when a wide lateral range for grazing fire is desired, vertical when it may be necessary for the defenders to elevate or depress their fire to any considerable extent; while internally they should be made with a splay to allow of such lateral range or elevation and depression as may be required.

One man will make a loophole in a 14" brick wall in minutes, using a crowbar or pickaxe, the former being the most convenient implement.

A notch about 1' or $1\frac{1}{2}'$ can be cut down from the top of a wall in about 5 minutes.

Height of Loopholes above Ground.

Loopholes should be at such a height above the ground immediately in front of them that the enemy will not be able to fire through them should he succeed in reaching the wall; they should therefore be either close to the ground outside ($1'$ to $1\frac{1}{2}'$ above it), in which case a trench must be dug inside to accommodate the men firing through

them; or else the loopholes should be at least 6' above the ground outside. When it is necessary to make the loopholes 4' or $4\frac{1}{2}$ ' above the level of the ground outside, a ditch must be dug in front of the wall (Figs. 6 and 2, Plate VI.) to prevent the assailant making use of them.

Protection for Heads of Men.

If men are to fire over the top of a wall their heads should be protected by a log resting at intervals upon sand bags or bricks, or by sand bags only (Figs. 3, 6, 8, Plate VI.).

Figs. 1 and 2, Plate VI., show a wall with railings prepared for defence by fastening timber inside and outside the latter, and making sand bag loopholes below the timber. A ditch is dug in front to prevent the enemy closing, and a trench in rear to improve the cover.

Figs. 3 and 4, Plate VI., show a low wall with sand bags piled on the top, and a trench dug in rear, forming a low banquette, on which men kneel to fire.

Figs. 5 and 6, Plate VI., show a wall 10' high, arranged for two tiers of fire.

Figs. 7 and 8, Plate VI., show a wall 9' high, with another arrangement for giving two tiers of fire.

If a wall is to give complete protection against artillery fire it must be strengthened by a bank of earth 6' to 8' thick, piled up inside (Fig. 4, Plate VII.), or by a screen of the same thickness in front. (Figs. 2 and 3, Plate VII.)

When this latter plan is adopted it is very desirable that the excavations both in front of and behind the screen should be flanked. Figs. 1, 2, 3, and 4, Plate VII., show how an existing projecting wall may be utilised for this purpose. For flanking fire Gatling guns would be very serviceable, and in Figs. 1 and 3, Plate VII., the necessary arrangements for employing them to advantage are shown.

OBSTACLES.

"*Obstacles*" are placed in front of a defensive line order to impede and retard the advance of an assailant, so keep the latter exposed for as long a time as possible the fire of the defenders. It will most rarely happen that obstacles can be arranged so as to be insurmountable but any expedient which will delay the onward rush of the attacker, even though it be but for two or three minutes may prove of the greatest value. The assailant may have suffered severe loss before he reaches the obstacle, and the additional loss which may be inflicted upon him while he is endeavouring to force his way through, may turn the scale, and induce him to relinquish the assault. In a country especially, where a long range cannot be secured and an enemy advancing to the attack has consequently to traverse only a short distance under fire, and also during night attack *obstacles* will be particularly valuable.

Conditions Obstacles should fulfil.

The more obstacles fulfil the following conditions the more efficient they will be:—

- (1.) They should be under the close musketry fire of the defenders.
- (2.) They should not afford cover to the enemy. This is an obvious condition placed as they are within the most effective range of the defending line.
- (3.) They should, if possible, be protected from the enemy's artillery fire, so as to be intact when the infantry comes upon them, and they should be difficult to remove or surmount.
- (4.) They should be arranged so as not to interfere with a possible advance or counter stroke against the enemy. When such is contemplated, gaps in the line should be left sufficiently large for the purpose of view.

The obstacles which would be most frequently used in the field by a naval brigade are:—

- | | | | |
|--|---|---|------------------------------|
| 1. Abatis | - | - | } All constructed of timber. |
| 2. Entanglements | - | - | |
| 3. Pickets or pointed stakes | - | - | |
| 4. Palisades | - | - | |
| 5. Fraises | - | - | |
| 6. Military pits; deep and shallow. | | | |
| 7. Wire entanglements. | | | |
| 8. Fougasses; four kinds, namely, common, shell, stone, and self-acting. | | | |
| 9. Inundations. | | | |

Abatis.

1. An "*abatis*" is formed of stout limbs of trees, 12' to 15' long, laid as close together as possible, with the branches towards the enemy. The butts should be buried in the ground, and secured by stout stakes, or else by logs, laid across several butts. The large branches should be pointed, and the small branches and leaves removed.

Twenty men can make an abatis of two rows, 30 yards long, in 6 hours, when the trees are small and close at hand. Unless this latter is the case, the construction of an abatis should not be attempted, as the labour of dragging trees from a distance is very great. The party should be provided with 6 felling axes, 2 hand axes, 6 billhooks, 2 hand saws, 2 mallets, and drag ropes.

Wire twisted firmly round the branches of an abatis and left hanging loosely down between, will render it a much more formidable obstacle.

Entanglement.

2. An "*entanglement*" is a kind of abatis formed by cutting trees, brushwood, &c. half through, about 3' above the ground, bringing the upper parts down to the ground

and interlacing and securing them by pickets. The ends of large branches should be pointed, and weak places strengthened by ordinary abatis.

Pickets.

3. "*Pickets*" are stakes driven firmly into the ground close together, until 1' or 2' only project, the upper ends being pointed.

Palisades.

4. "*Palisades*" are a stout description of paling, made of large branches of trees, logs of timber, or young trees split or sawn into two or more pieces according to their size, pointed at the top, and secured to two horizontal bars or ribands, one nailed to the palisades below the surface of the ground, the other near their top.

Fraises.

5. "*Fraises*" are palisades placed in a horizontal or nearly horizontal position, either on the escarp or counter-scarp slope of a ditch.

Military Pits.

6. *Military Pits*, or *Trous-de-Loup*, are pits dug in the shape of an inverted cone or pyramid, with a pointed stake at the bottom. They are of two kinds, *deep* and *shallow*. The former are 6' in diameter and 6' deep, and are usually conical; the *shallow* ones are shaped like inverted pyramids, 3' square, and not more than 2½' deep. The larger pits should be in parallel rows, the central intervals of the pits in each row being 10'; and the holes in each row should be opposite the intervals between those in the adjacent rows. The earth obtained from the pits should be piled up on the ground in the intervals between the latter, so as practically to increase their depth.

An objection to the employment of the deep pits is that unless they can be flooded they may form convenient rifle pits for an enemy's skirmishers. The shallow pits, on the other hand, are of such slight depth that an incurrence of this risk is avoided. These latter are placed in rows touching one another, in a zig-zag arrangement. Five rows are usually made, the earth excavated being formed into a covering bank in front.

A combination of *shallow pits* with a *wire entanglement* (described in the following paragraph) forms one of the most formidable and easily constructed obstacles that can be improvised.

One man should dig a deep pit in from three to five hours, or 10 shallow pits in about 8 hours.

Wire Entanglement.

7. A "*wire entanglement*" is formed by driving stout stakes firmly into the ground, leaving from 1' to 2' above the surface, from 4' to 7' apart, in rows arranged chequer-wise, so as to form a series of equilateral triangles with sides of from 4' to 7'. Stout wire is twisted round the heads of the stakes so as to mark out the triangles. This obstacle is easily prepared; is little injured by artillery fire; is impassable by cavalry; and will throw attacking infantry into confusion, especially at night.

Fougasses.

8. "*Fougasses.*"—A common *fougass* is a small mine to be fired by fuze and hose, or by electricity, or by other means, when the assailant is advancing over it. The shaft or pit may be from 3 to 10' deep. The depth in feet cubed and divided by 10 will give a suitable charge of powder in pounds. Thus, the charge for a 6' fougass will be

$$\frac{6^3}{10} = \frac{216}{10} = 21.6 \text{ lbs.}$$

A *shell fougass* is formed by dividing a box into two parts by a horizontal partition. Loaded shells are placed in the upper part, with the fuzes pointing downwards through holes in the partition. In the lower part is placed the charge of powder.

A *stone fougass* is formed by making an excavation in the form of the frustrum of a cone or pyramid, the axis of which is inclined at an angle of about 40° with the horizon. The depth of this excavation is usually about 6'. At the bottom a charge of powder (about 50 lbs. usually) is placed, properly secured, and with means provided for igniting it at any desired moment. Above this a wooden shield, from 3" to 6" thick, is placed perpendicularly to the axis of the fougass, and over this 3 or 4 cubic yards (about 4 or 5 tons) of stones of not less than half a pound each in weight are piled up. Such a fougass can be made by 12 men in three to four hours, and will disperse the stones over a circle of 30 to 40 yards radius, the centre being about 60 yards from the mouth of the fougass.

Self-acting fougasses are boxes of powder or loaded shells buried in the ground, so that they are just concealed by the earth; and fitted with some arrangement which will cause them to explode when a man steps upon them.

DEFENCE OF A HOUSE.

Nature of Protection afforded by a House.

A house may be prepared so as to place the defenders in a position of decided advantage in a contest with infantry, and of absolute safety against cavalry; but it cannot be made tenable against a sustained artillery attack. It must be remembered, however, that a well directed musketry fire will prevent any battery remaining long in action within the effective range of rifles, and that consequently it will frequently be impossible for an assailant to maintain a

concentrated artillery fire against an adequately garrisoned house.

Steps to be taken to prepare House for Defence.

When a very short time only (one to three hours) is available for placing a house in a state of defence, the following are the successive steps* which should generally be taken :—

1. Remove the inhabitants, and all easily combustible material; and provide water.

2. Barricade the doors and accessible windows so as to resist ingress and musketry fire. One door with a movable barricade, or a window with a ladder, should be reserved for escape. Inaccessible windows should be masked so as to hide the defenders.

3. Make loopholes.

4. Clear away cover in the vicinity as far as time and means allow; and while so doing arrange obstacles where possible.

If opportunity permits, after these first steps have been taken :—

5. Provide flank defence.

6. Improve the communication within the building by breaking through partition walls, &c.

7. Improve ventilation, to allow egress for the smoke from the men's rifles.

8. Store provisions and ammunition in safe places.

9. Prepare latrines.

10. If the house is liable to be attacked by artillery, shore up the floors of the upper rooms to prevent the possibility of a breach endangering the stability of upper floor; and spread 3" of earth on the boards of the latter.

* Defence of Posts. Lient.-Col. Schaw.

11. If the house be very large, and is to be defended *à l'outrance*, arrange for step by step defence:—by loop-holing partition walls and upper floors; and by providing movable barricades to cover the retreat from one part of the building to another. It may occasionally also be advisable to remove the stairs and substitute ladders; but very frequently the imperfect communication entailed by taking such a step would outweigh the advantage gained.

12. In the case where a distant artillery attack is to be feared, provide shelter trenches, for the garrison to occupy outside the building during the preliminary bombardment of the attackers.

DETAILS OF DEFENCE.

Barricading Doors.

Boxes, barrels, or cupboards filled with earth, or with bricks or stones, may be used to barricade doors, &c. Walls closing the entrances may be built up of paving stones, &c. or a stockade work may be constructed in front of the door or window to be shut up. Bearing in mind that 6" or 8" of any hard wood, double the thickness of soft fir timber, $\frac{1}{2}$ " of iron, or a brick lengthways on, will keep out a rifle bullet, the materials at hand must be utilised as circumstances may suggest.

Providing Loopholes.

The loopholes will be made as described in the section on the defence of walls. Those on the lower floor should be horizontal, to allow as much lateral range as possible to the grazing fire from the lower floor; those on the upper stories should, on the other hand, be made vertical to allow of as much depression as possible.

Distance of Loopholes apart.

The minimum distance of the loopholes apart will depend on the thickness of the walls and their structural strength. The ordinary interval is about 4', but this must be increased to 6' in the case of thick walls loosely built; while it may be reduced to 2½' in good 9-inch brick walls. The height of the loopholes above the ground must be regulated as described in the sections on the defence of walls. A commanding line of fire for men in close order may often be obtained with very little labour by removing tiles or slates from just above the eaves of the roof, so that men may fire over the top of the wall.

Provision of Flank Defence.

Where the shape of the building is not such that its several parts mutually defend one another, flank defence may be supplied where necessary by building out "*tambours*," or constructing "*machicoulis galleries*."

Tambours are projections of stockade work, formed by planting firmly in the ground a row of contiguous bullet-proof timbers. A *machicoulis gallery* is a kind of balcony built outside a window, with musket-proof walls not more than 4' in height, which may be loopholed; while openings are left in the floor through which a fire of musketry can be directed downwards to defend the foot of the wall below the window.

Provision of Ventilation.

Ventilation and light must be secured by leaving openings at the tops of windows when barricading them; by smoke escape holes through the walls under the ceilings in top stories; or, in buildings with only one floor, by removing tiles or slates, and breaking the ceiling away, if there be one.

DEMOLITIONS.

BUILDINGS.

To blow down a house having moderately thick walls, the rule given on p. 244 for walls may be adopted, the portions of the walls attacked being those between the windows, and the charges being tamped and placed inside the house for choice. If the charges can be sunk a short distance into the wall the effect produced by them will be much greater. Where this method would involve too much time or labour, on account of the difficulty of obtaining material for tamping, the charges may be placed outside, or one or two large charges may be placed inside and fired.

DEMOLISHING BRIDGES.*

Bridges with single Arch.

The best mode of destroying a bridge of a single arch, or with short thick piers, is to explode a mine in the haunch.

Bridges with high Piers.

In a bridge with high piers mines should be made in their bases, as the fall of one pier will bring down two arches. A series of small charges, lodged in the piers as close as possible to their bases, and fired simultaneously, seems preferable to a single large charge, as any slight imperfection in the masonry might permit action in that direction when a breach might be made without actually bringing down the pier.

Bridges with short and thick Piers.

Where the piers are broad and thick, it will be better to attack the arches than the piers.

* Philipps on Demolition of Bridges.

Iron Girder Bridges.

A bridge formed of large iron girders supported on masonry piers will be most easily demolished by attacking the piers; and it is probable that the girders in falling would be so buckled as to prevent their being used again.

Small iron girders can be levered off their bearings and broken by falling on rails, masonry, &c.; or they may be destroyed by a gun shot.

Wrought-iron girder bridges may be destroyed by means of large piles of sleepers, &c. lighted against the girders, which if made red hot will sink of their own weight.

Suspension Bridges.

Suspension bridges can be destroyed by uncovering and loosening one anchorage, or by blowing up one of the supporting piers of the cable.

Destroying Bridges by exploding Charge on top.

When time and means will not permit of mines being made in the piers or arches, a large charge of powder may be exploded in a trench dug across the bridge over the keystone; or, if there be time and labour, two deeper trenches may be dug across the bridge a few feet on either side of the keystone.

The following formula* will give the charge necessary to destroy a bridge in this latter method :—

$$C = \frac{3}{2} (LLR)^2 \times B.$$

C = total charge of powder in lbs., placed either in a single charge or in a line of charges across the arch.

LLR (or line of least resistance) = distance in feet from charge to nearest point of inner surface of arch.

B = breadth of bridge in feet.

* Deduced by Captain Schaw, R.E., from experiments made in the demolitions at Corfu.

Wooden Bridges.

Wooden bridges were largely destroyed during the American war by burning. Kerosine oil was poured over the woodwork and set on fire.

To destroy wooden bridges with powder, the best method is to bore augur holes about 2" in diameter in the supporting timber, at right angles to one another; place charges in these, and fire them simultaneously by electricity or Bickford's fuze.

Gun-cotton compared with Gunpowder.

Compressed gun-cotton fired with a detonating fuze is very useful for hasty demolitions. The effect produced is extremely violent, though local. Tamping is not of so much importance with gun cotton, and this is a considerable advantage in hasty demolitions. To produce an equivalent effect on masonry or brickwork the charge of gun-cotton need only be in weight $\frac{2}{3}$ or $\frac{1}{2}$ that of gunpowder.

DESTRUCTION OF RAILWAYS.

By blowing in Tunnels, &c.

Bridges, tunnels, and deep cuttings are the most vulnerable points of railways. Bridges may be destroyed as described in preceding sections; tunnels or cuttings by blowing in the retaining walls. It is better to blow in one long tunnel in several places than several tunnels only in one place.

By removing Rails.

Where a line runs on the flat it is not so easily destroyed. The principal means will be tearing up the rails; curbs should be selected, as most difficult to repair. The usual tools for removing rails are heavy to carry, but a sub-

tute for a wrench may be made out of a screw bolt. The usual process is to pull up the rails, collect the sleepers, and make a fire, and when the rails are hot, bend or twist them; the twist is much more effectual, as bent rails are easily straightened. Rails are easily twisted, when hot, by inserting the point of a pick in one of the bolt holes at either end and bearing in opposite directions.

Removing Rails.

A method largely employed by the Americans, but which is applicable only to surface or lightly laid rails, was to draw up a detachment along a bit of line running along the top of an embankment. The ends, and if necessary the sleepers also, were loosened, and the detachment, standing close together outside, would lift all together, and turn rail, sleepers, and all over, when the line could not be relaid without detaching rails and sleepers.

A line may be temporarily obstructed in an endless number of ways, *e.g.*, by running an engine off the line; by breaking one down; by leaving the fire in, blowing off steam, and taking out the safety valve; by firing a projectile through the boiler, &c.

Rails may also be cut by exploding gun cotton against them; 8 ozs. will blow away a length of 1 foot of rails up to 70 lbs. to the yard in weight. For very heavy rails 10 to 12 ozs. would be required.

ENCAMPMENTS AND BIVOUACS.

CAMPS.

Tents to be Struck frequently.

Whenever men remain under canvas in the same place for more than three days tents should be struck every second day. All arms, straw, and blankets should be

removed, and the ground should be swept clean with a broom or branches of trees, and be left exposed to the sun and wind. The tents should be roughly pitched in the intervals of the camp, with slack ropes and the fly loose to allow it to be well blown about. When repitched for the night the tents should again occupy exactly their old positions, as men invariably urinate at night round the tent and consequently the ground in the intervals becomes polluted. The flaps of all tents should invariably be rolled up the first thing every morning.

Trenches to carry off Rain, &c.

Trenches should be dug round the tents and a drain should connect these trenches to prevent water lodging in them. After the first rain, when the natural run of the water can be seen, these drains should be completed.

BIVOUACS.

Arrangements for affording Shelter in Bivouacs.

Fig. 1, Plate VIII., and Figs. 1 and 2, Plate IX., show how branches of trees, canvas, or straw may be utilised to afford some degree of shelter to men bivouacing.

Fig. 2, Plate VIII., shows a form of shelter which may be constructed if time and space are available. A circular trench, about 15' in diameter, is dug, the turf being carefully cut and employed torevet the interior slope; the earth excavated should be thrown against it and a bank 2' or 3' high, formed. A fire may be lighted in the middle, and the men will lie down, like the spokes of a wheel, with their feet to the fire.

Fig. 3, Plate VIII., shows a similar circular bivouac, to be used when the ground is damp or marshy.

Figs. 4 and 5, Plate VIII., show a circular bivouac thatched with straw.

Huts used by the Russians before Plevna.

Figs. 3, 4, and 5, Plate IX., show the type of hut used by both Russians and Roumanians during the operations against Plevna. The conditions under which the huts were made were that wood was scarce, while the greatest warmth possible was desirable. For an officer's hut, Fig. 3, Plate IX., a square or oblong of ground is dug out to the depth of about 5', and of the size that the constructor wishes his hut to be. On one side of this square the earth is left of a suitable height for a bed, and on the other of a convenient height for a table and shelf. At one end the earth is cut away so as to form a ramp up to the level of the ground outside, or else steps are built. At each end are placed uprights, connected by a cross beam, which supports one end of the rafters, the other resting on the ground. Over the rafters are placed branches, then maize straw, and on the top of all the excavated earth.

The huts for the men, Fig. 5, Plate IX., were very similar to the officers. They were generally made to hold 20 men, a platform of earth being left on each side for the men to sleep on.

LATRINES.

*Latrines for one Night.**Latrines for a Longer Halt.*

Latrines should always be constructed immediately men arrive upon the ground where they are to encamp or bivouac. For one night a small, shallow trench, some 15' long and $1\frac{1}{2}$ ' deep, will suffice. This trench should be invariably filled in in the morning before the men march off. If the halt be for a longer period, a deeper and larger trench should be dug, the earth being used to form banks to serve as screens, and seats being arranged as shown in

Figs. 1 and 2, Plate X. The trench should be made as narrow as possible and from 3' to 4' deep. Every day, a couple of inches of earth should be thrown over the soil, and this, if carefully done, will prevent all smell. When the trench is filled up, a fresh one will be dug near it. Great care should be taken in selecting the site of the latrine so that no filtration from it may reach the water supply.

COOKING.

The most simple and rapidly constructed kitchen consists of a trench, about 10' long, 10" wide, and 12" deep, with a splay mouth pointing towards the wind.

Broad Arrow Kitchen.

The Broad Arrow kitchen, Figs. 3 and 4, Plate X, is constructed as follows. A picket is driven into the ground to mark the centre of the chimney; and circles respectively of 1' and 3' diameter, are traced to show the base of the chimney. The centre trench is then traced 10' long and 10" broad, with a splay mouth as shown in the plan; and the other two trenches are traced in a similar manner, one on either side, making an angle of about 45° with the central one.

One man excavates each trench, beginning from the bottom of the chimney, and making it, as far as the latter extends, only 6" wide and 12" deep. When beyond the base of the chimney, the width of each trench is increased to 10"; its depth also being gradually increased to 14" at the mouth. Another man cuts out the bottom of the chimney to connect the three trenches, and then begins to build the chimney, laying stones or sticks over the trenches at their ends to carry the base of the chimney, and gradually building up the latter with sods cut by a bill.

man. Great care must be taken in the construction of the chimney, all holes and interstices being plastered up with clay. The tops of the trenches are covered over with stones, hoop-iron, or sticks plastered with clay, holes being moulded in the covering to receive the kettles and all interstices being closed with sods, &c. Five men should construct such a kitchen in about 3 hours. If clay be plentiful, the inside of the trenches may be coated with it.

In bad weather, with high winds and rain, the broad arrow kitchen will not burn satisfactorily. Under such circumstances it will be better to construct each kitchen of a single deep trench, with a chimney; the trench being 10-15' long, 2' deep at the chimney end and 3' deep at the mouth; this latter being made with a wide splay. In excavating the trench the latter for half its depth should be made 2' wide, the lower half being only 1' wide. The deeper part of the trench will then be covered over, like the trenches of the broad arrow kitchen, holes moulded in the covering for the bottoms of the kettles, and the upper part of the trench round the kettles filled in again.

NOTES FOR THE PLATES.

R.F. above the scale stands for "Representative Fraction," and shows the proportion of the drawing to the natural size of the object.

Heights above the ground are indicated by a + sign.

Depths below the surface by a — sign.

The area of parapets in square feet is shown by figures in a square. Thus $\boxed{28}$ indicates that there are 28 sq. ft. in the section of the parapet shown.

The cubic content of a task is shown by figures in a circle. Thus $\textcircled{100}$ indicates that there are 100 cubic feet in each task. As a rule the men are assumed to be ten paces (5') apart.

The inclination of a slope is expressed by a fraction, in which the numerator shows the number of units in the perpendicular, the denominator the number of units in the base of a right angled triangle of which the slope is the hypotenuse.

III.
RIFLE PRACTICE
INSTRUCTION.

CONTENTS.

III.—RIFLE PRACTICE INSTRUCTION.

PART	PAGE
I. INSTRUCTION IN GUNNERY SHIPS -	- 263
II. ANNUAL COURSE IN SEA-GOING AND FIRST RESERVE SHIPS, AND IN FLAG OR RECEIVING SHIPS AT THE HOME PORTS - - - - -	- 273
III. PRELIMINARY DRILL - - - - -	- 277
1. Cleaning Arms - - - - -	- 277
2. Theoretical Principles in Four Lessons -	- 281
3. Aiming Drill - - - - -	- 284
4. Position Drill - - - - -	- 286
5. Preliminary Firing - - - - -	- 311
6. Judging Distance Drill - - - - -	- 312
IV. PRACTICE - - - - -	- 314
1. Ball Practice - - - - -	- 315
2. Judging Distance Practice - - - - -	- 337
V. INSTRUCTION FOR THE USE OF THE STA- DIOMETER - - - - -	- 341
VI. PRIZES FOR GOOD SHOOTING, &c. -	- 345
VII. RETURNS - - - - -	- 349

PART I.

INSTRUCTION IN GUNNERY SHIPS.

1. The Instruction in Rifle Practice is divided into **PRELIMINARY DRILL** and **PRACTICE**.

2. Under the head of *Preliminary Drill* are comprised the following subjects :—

1. Cleaning arms.
2. Theoretical principles.
3. Aiming drill.
4. Position drill.
5. Preliminary firing.
6. Judging distance drill.

The *Practice* consists of—

- | | | |
|-------------------------------|---|---|
| 1. Ball practice | { | <ol style="list-style-type: none"> a. Firing singly. b. Firing by volleys. c. Independent firing. d. Firing in skirmishing order. e. Firing at moving objects. |
| 2. Judging distance practice. | | |

3. The “Long” course of Rifle Practice Instruction is detailed in Tables A. and B.

TABLE A.—LONG COURSE OF PRELIMINARY DRILLS
IN GUNNERY SHIPS.

Day.	Nature of Instruction.	Time occupied in Hours.
First, A.M.	Lesson on cleaning arms and removing block Judging Distance Drill	1½ hours. 1 hour.
P.M.	Position Drill, 1st Practice Aiming Drill Position Drill, 1st Practice	½ hour. ½ hour. ½ hour.
Second, A.M.	Position Drill, 1st Practice Judging Distance Drill Position Drill, 1st Practice Aiming Drill	½ hour. ½ hour. ½ hour. ½ hour.
P.M.	Position Drill, 1st Practice Aiming Drill Position Drill, 1st Practice	½ hour. ½ hour. ½ hour.
Third, A.M.	As for Second Day A.M.	
P.M.	Position Drill, 1st and 2nd Practice Aiming Drill Position Drill, 2nd and 3rd Practice	½ hour. ½ hour. ½ hour.
Fourth, A.M.	As for Second Day A.M.	
P.M.	As for Third Day P.M.	
Fifth, A.M.	Judging Distance Drill Instructions relating to size of targets and points to be obtained in the practice Aiming Drill	½ hour. ½ hour. ½ hour.
P.M.	As for Third Day P.M.	

NOTE.—The fourth and fifth days are to be employed by the instructor in teaching each man individually how to use the rifle. 10 rounds of blank and 5 rounds of ball are to be utilized for this purpose. Only two or three men are to be taken from the class at a time, the remainder carrying on the drills as laid down.

In the preliminary firing, the utmost attention must be paid by the instructor to each man as he fires, and every endeavour made to check any error observed. If a man shows that he has a tendency to bob on firing, he should be made to snap at the target repeatedly until he can hold his rifle quite steady. This being accomplished, blank or ball may be tried again at the discretion of the instructor.

It is a good plan for the instructor occasionally to deceive the firer in a case of this description by giving him a rifle loaded with ball which he imagines only contains blank, and *vice versa*.

TABLE B.

LONG COURSE OF PRACTICE IN GUNNERY SHIPS.

Days.	Nature of the Practice.
Sixth, A.M.	Ball Practice, Firing Singly, First Period.
P.M.	Judging Distance Practice, First Period.
Seventh, A.M.	Ball Practice, Firing Singly, Second Period.
P.M.	Judging Distance Practice, Second Period.
Eighth, A.M.	Ball Practice, Firing Singly, Third Period.
P.M.	Judging Distance Practice, Third Period.
Ninth.	Ball Practice, Independent and Volley Firings.
Tenth.	Ball Practice, Skirmishing Firing.
Eleventh.	Ball Practice, Firing at Moving Object.

N.B.—Any spare time to be devoted to Position or Aiming Drill.

Should the weather be bad for shooting, the individual firing may be postponed one day, but the course should be finished on the eleventh day.

4. The "Short" course of Rifle Practice Instruction is detailed in Tables C. and D.

TABLE C.

SHORT COURSE OF PRELIMINARY DRILLS IN GUNNERY SHIPS.

Day.	Nature of Instruction.	Time occupied in Hours.
First, A.M.	Position Drill, 1st Practice	$\frac{1}{2}$ hour.
	Aiming Drill	1 hour.
	Position Drill, 1st Practice	$\frac{1}{2}$ hour.
P.M.	Position Drill, 1st Practice	$\frac{1}{2}$ hour.
	Aiming Drill	$\frac{1}{2}$ hour.
	Position Drill, 1st Practice	$\frac{1}{2}$ hour.
Second, A.M.	Position Drill, 1st and 2nd Practice	$\frac{1}{2}$ hour.
	Aiming Drill	1 hour.
	Position Drill, 2nd and 3rd Practice	$\frac{1}{2}$ hour.
P.M.	Position Drill, 1st and 2nd Practice	$\frac{1}{2}$ hour.
	Aiming Drill	$\frac{1}{2}$ hour.
	Position Drill, 2nd and 3rd Practice	$\frac{1}{2}$ hour.

TABLE D.

SHORT COURSE OF PRACTICE IN GUNNERY SHIPS.

Days.	Nature of the Practice.
Third, A.M.	Ball Practice, Firing Singly, First Period.
	Judging Distance Practice, First Period.
Fourth, A.M.	Ball Practice, Firing Singly, Second Period.
	Judging Distance Practice, Second Period.
Fifth, A.M.	Ball Practice, Firing Singly, Third Period.
	Judging Distance Practice, Third Period.
Sixth. A.M. P.M.	Ball Practice, Skirmishing Firing. Ball Practice, Firing at Moving Object.

N.B.—Any spare time to be devoted to Position or Aiming Drill.

PART II.

ANNUAL COURSE IN SEA-GOING AND FIRST RESERVE SHIPS, AND IN FLAG OR RECEIVING SHIPS AT THE HOME PORTS.

1. All working petty officers and seamen (boys armed with rifles included) in the Sea-going and First Reserve Ships are to be annually put through the course of rifle practice instruction herein laid down.

2. In the Flag or Receiving Ships at the Home Ports as many working petty officers and seamen as the exigencies of the Service will admit are to be put through the same rifle practice course, being selected for drill as they can be spared from the ordinary duties of the port.

3. To facilitate the instruction and target practice, the working petty officers and seamen (boys armed with rifles included) are to be formed into companies; each company is not to exceed 50, nor to be less than 40 men. (This division is not intended to interfere with the regular organisation of rifle companies laid down.)

5. Commanding officers are to make special arrangements that each man before firing shall have gone through the under-mentioned number of preliminary drills, which is to be considered the minimum. These drills should be carried out just before the firing takes place, and are to be conducted as follows:—

TABLE E.

PRELIMINARY DRILLS FOR MEN WHO HAVE NOT BEEN PREVIOUSLY INSTRUCTED.

Nature of Instruction.	Time occupied.
Position Drill, First Practice - - - -	$\frac{3}{4}$ hour.
Aiming Drill - - - -	1 "
Position Drill, First Practice - - - -	1 "
Do. do. - - - -	1 "
Aiming Drill - - - -	1 "
Position Drill, First Practice - - - -	1 "
Position Drill, First and Second Practice - - - -	1 "
Aiming Drill - - - -	1 "
Position Drill, Second and Third Practice - - - -	1 "
Position Drill, First and Second Practice - - - -	1 "
Aiming Drill - - - -	1 "
Position Drill, Second and Third Practice - - - -	1 "
Position Drill, First, Second, and Third Practice - - - -	1 "
Firing Blank, and Preliminary Five Rounds of Ball - - - -	See Note, p. 270.

TABLE F.

PRELIMINARY DRILLS FOR MEN WHO HAVE BEEN PREVIOUSLY INSTRUCTED.

Nature of Instruction.	Time occupied.
Position Drill, First Practice - - - -	$\frac{3}{4}$ hour.
Aiming Drill - - - -	1 "
Position Drill, First and Second Practice - - - -	1 "
Do. do. do. - - - -	1 "
Aiming Drill - - - -	1 "
Position Drill, First, Second, and Third Practice - - - -	1 "
Position Drill, Second and Third Practice - - - -	1 "
Aiming Drill - - - -	1 "
Position Drill, Third Practice - - - -	1 "
Firing Preliminary Ball, and Blank, if necessary - - - -	See Note, p. 270.

TABLE G.

Ball Practice, Firing Singly, First Period.
Ball Practice, Firing Singly, Second Period.
Ball Practice, Firing Singly, Third Period.
Ball Practice, Independent Firing.
Ball Practice, Skirmishing Firing.

Note.—When it is impossible to carry out skirmishing owing to the range not being suitable, volley firing may be substituted. On ranges where moving targets are available, another day will be devoted to firing at them.

6. In performing the target practice, attention is particularly directed to the following rules, which are to be strictly adhered to:—

No man is to be allowed to fire until he has completed the number of preliminary drills laid down (32, Part IV.).

The number of men in a firing party is never to exceed 20. (15, Part IV.), and no man is to be allowed to fire at more than two distances on the same day.

In all ships having a Gunnery Lieutenant, he should, if possible, take charge of the firing party. Where this is not possible, or where there is not a Gunnery Lieutenant, a commissioned officer is to perform this duty.

The marker for each company is to be a petty officer belonging to one of the other companies (14, Part IV.).

The register of firing is to be taken in ink on the spot by an instructor; the officer in command of the firing party is to read it over to the men before leaving the ground, and then sign (17, 18, and 23, Part IV.).

PART III.

PRELIMINARY DRILL.

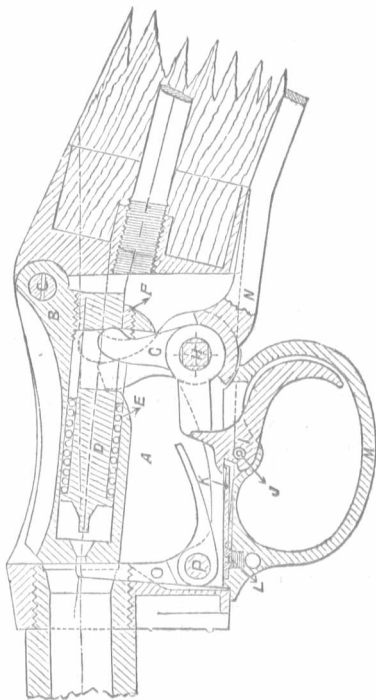
1. CLEANING ARMS.

Every man is to be taught how to clean and keep his rifle in proper order.

Instruction for cleaning the Rifle.

1. Open the breech.
2. Pass the cleaning rod through the hole in the top of the sight protector, screw the jag on to the cleaning rod, wrap a damp rag, flannel or tow, round the jag so as to cover it, pass it into the barrel, pressing the protector firmly on the muzzle, and rub the barrel carefully up and down so as to remove the fouling. No water is to be used. Should the rod stick fast in the barrel, no attempt is to be made by the man to drag it out by extreme force, but the armourer is to be called upon to remove it.
3. Replace the aforementioned rag by a dry one, and having dried the barrel, finally pass an oiled rag, woollen if possible, a few times up and down the barrel.
4. Wipe the inside of the body as far as practicable, and the block, with an oiled rag, to prevent rust and to remove dirt, also rub the exterior of the barrel and slightly oil the chamber.
5. Close the breech by easing springs. No hard substance, such as emery, sand paper, &c., is on any account to be used for cleaning either the inside or outside of the rifle, and care is to be taken to prevent the browning being

NAMES OF THE VARIOUS PARTS OF THE BREECH ACTION.



A. Body.
 B. Block.
 C. Block axis.
 D. Striker.
 E. Main spring.
 F. Stop nut.
 G. Tumbler.
 H. Extractor axis.
 I. Trigger.

J. Trigger screw.
 K. Trigger spring.
 L. Trigger spring screw.
 M. Trigger guard.
 N. Lever.
 O. Extractor axis.

Rifle.
 Back-sight { Leaf.
 Slide.
 Bed.
 Stock :
 Fore-end.
 Nose cap.
 Upper band.
 Lower band.

Butt.
 Butt plate.
 Body.
 Trigger.
 Trigger guard.
 Guard swivel.
 Band swivel.
 Lever.
 Sling.
 Clearing rod.

Sword
 Bayonet.

Blade.
 Scabbard.

rubbed off the barrel. No oil other than that issued to be used.

Every morning, and on all occasions before using the rifle, the barrel should be wiped out perfectly clean with a rag slightly oiled.

To prevent water soaking into the stock, and at the same time to give it a polished appearance, rub it well with oil. French polish or varnish is on no account to be used.

A little beeswax should also be applied between stock and barrel to prevent water from getting under the latter.

By the foregoing method of cleaning, the liability of the barrel to become rusty will be very much reduced, and the necessity for removing the fore-end from it obviated.

Directions for Removing and Replacing the Block.

1. Close the action.
2. Press out block axis pin.
3. Depress the lever and hold down front of block with left thumb, close the lever and the block will spring out.

To Replace the Block.

Place the block in body with the front end lowest; hold the lever with the right hand, the thumb pressing the indicator forward, the trigger being pressed back by the fore-finger; press hard on the knuckle of block with the heel of the left hand to force it into its seat; at the same time depress and work the lever to get the tumbler into the slot in the striker; replace the block axis pin.

N.B.—Officers, petty officers and seamen, going through a course of Rifle Practice in the Gunnery Ships, are to be taught the above directions and allowed to remove and replace the block when necessary; but the breech action is on no account to be tampered with, all necessary altera-

tions, &c., being performed by the armourer, who is provided with implements for that purpose.

Precautions to be taken with the Rifle.

1. Great care should be taken not to bend or dent the barrel.
2. Every possible care must be taken to prevent injury to the sights.
3. The bore should be kept perfectly dry.
4. The rifle must never be fired with any obstruction in the muzzle.
5. Except when the rifle is loaded, the spring should invariably be released on closing the breech.

2. THEORETICAL PRINCIPLES.

FIRST LESSON.

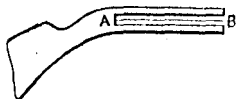
Construction of the Barrel.

1. The instructor will explain that, as the barrel is made of uniform diameter in the bore, but thicker at the breech than at the muzzle (in order that it may have strength to withstand the explosion of the charge), a straight line drawn along the centre of the barrel would not be parallel to a similar line drawn along the upper surface of the barrel, and, consequently, that if the upper surface were laid horizontal, the line along the centre produced would rise above the other,—thus showing that the direction of the barrel would be elevated above the horizontal line.

Axis of the Barrel.

2. That the straight line above described as drawn along the centre of the bore is called the "axis of the barrel," and is the line which the centre of the bullet (if it fits the barrel) must take in its passage through it.

Fig. 1.

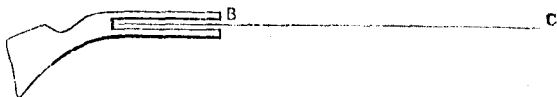


The instructor will here draw a straight line along the centre of the section of the barrel represented on the board, or of the card board or tin model, showing the upper surface laid horizontally.

Line of Fire.—Forces influencing the Flight of the Bullet.

3. That the straight line in continuation of the "axis" is called the "line of fire," and shows the direction in which the bullet is proceeding from the force of the explosion at the instant it leaves the muzzle, and which direction it would naturally continue to follow with uniform velocity, if it were not impeded by the resistance of the air, and drawn down from it by the force of gravity. Describe the line of fire, BC, fig. 2, in continuation of the axis.

Fig. 2.

*Resistance of the Air.*

4. The instructor will then explain that on account of the resistance of the air the bullet is retarded and

gradually moves with less and less speed,—that this resistance of the air is greater the higher the velocity of the bullet,—is greatest at the moment the bullet leaves the muzzle,—and hence continually becomes less and less.

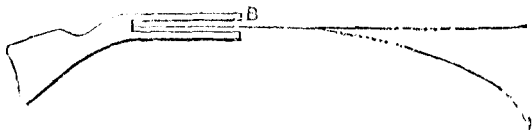
Force of Gravity.

5. That gravity, by which all unsupported bodies, near the earth, are drawn downwards to it, being constant, the longer the bullet is in the air the faster it falls.

Trajectory.

6. That the result of the three forces which act on the bullet, viz., that of the explosion driving it forward, that of gravity drawing it downwards from the moment it leaves the muzzle, and that of the resistance of the air which causes it to travel forward a shorter distance in each successive instant of time,—is, that it describes in its flight a curved line called the “trajectory;” that at first, in consequence of the bullet moving forward with great speed and of gravity having very little time to act on it, the curve does not deviate much from the straight “line of fire,” but that it increases and falls below the latter more quickly the longer the bullet is moving forward. *Here draw the “Trajectory.” B D, fig. 3.*

Fig. 3.

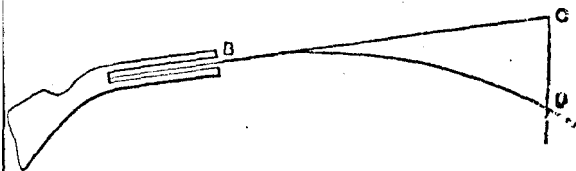


SECOND LESSON.

Initial Direction to be given to a Bullet to cause it to hit a Mark.

7. The instructor will now proceed to show how the knowledge of the principles explained in the preceding lesson can be applied in practice. He will cause the men to observe that if the axis of the barrel of the rifle be directed straight at any object, the bullet cannot hit it at any distance, but must, in consequence of the force of gravity, fall below it; that to counteract this fall the direction of the axis and line of fire must be raised to an equivalent degree; that it has been proved by experiment that the bullet fired from the Martini-Henry rifle with the regulated charge falls about ten inches in passing over the first 100 yards from the muzzle, and therefore that in order to hit the object at that distance, the "axis" must be elevated so that the "line of fire" will pass through a spot about ten inches above that which the "trajectory," or actual course of the bullet if raised correspondingly will pass through. *Change the direction of the axis and draw the new line of fire B C, and the new trajectory passing through D, fig. 4.*

Fig. 4.

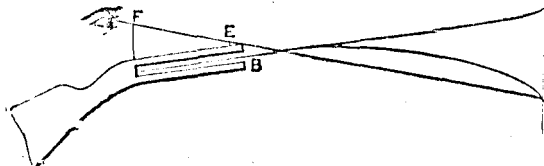


"Line of Sight," and arrangement of Sight for 100 Yards.

8. The instructor must next explain how the firer can direct the axis in the required line. He will show that as

it is only by means of the eye that this can be done, and that, in order to do it with accuracy, it is necessary to have two points along the upper surface of the barrel (since the firer cannot look through it) brought into a line between his eye and the spot desired; but that if the barrel were not thicker at the breech than at the muzzle, and if he took the line close along the upper surface, he would in aiming at this point bring the muzzle up between his eye and the object he wishes to hit,—and thus, losing sight of it, could not judge whether his barrel was directed at a spot ten inches above it or much more, nor whether it was to the right or left of the proper direction. It is evident therefore, that he must still keep the object to be hit in view, and in order to do so, that he must raise his eye so as to see it over the muzzle; further that, in order to guide his eye as to the exact elevation above the breech, as well as to keep it vertically above the axis, a piece of metal (the back-sight) is affixed to the barrel of such height that when he brings the tip of the fore-sight and the object in a line with his eye, through the centre of the notch, the barrel is elevated and the line of fire directed at the point about ten inches above the object at which he is aiming. *Draw the line of sight, DEF, fig. 5, from the mark D to the top of the fore-sight, and continue it through the bottom of the notch of the back-sight, the height of which will be arranged accordingly.*

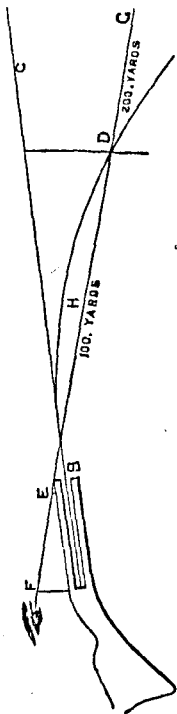
Fig. 5.



Arrangement of Sight for different Distances.

9. The instructor.—by taking a point on the prolongation of the “line of sight” to represent 200 yards, and pointing out that the “trajectory” (or the actual course of the bullet) crosses the “line of sight” twice, once a little in front of the muzzle, and again at the object,—will now show that the elevation thus obtained for 100 yards would not be sufficient for longer distances:—that thenceforward it falls below the “line of sight,” or that of aim, more and more for each distance;—that consequently additional elevation must be taken for each successive greater distance to allow for the increasing curve of the “trajectory,” the “line of fire” for such distance being raised as much above the object as the bullet would at that distance fall below it, if the “line of fire” were horizontal;—and that to guide the firer as to the height to which he must raise his eye to correspond, as has been shown him for the 100 yards, the back-sight is furnished with a hinged flap and sliding bar, on which the proper elevation for all distances from 100 yards to the utmost extent to which his rifle is constructed to carry with accuracy is marked by lines, so that if he knows the actual distance, he has

Fig. 6.



only to adjust the sight thereby. If it should happen that he has occasion to fire at objects more distant than his rifle is sighted for, he must judge for himself to what additional height he should raise his eye, taking care that it be kept *vertically* over the notch of the back-sight, and that the fore-sight be still aligned with the object. If he should wish to fire at an object nearer than 100 yards he must observe that the actual course of the bullet for the first 100 yards rises in a curve above the line of aim or sight for that distance, and he should consequently for any lesser distances aim a little low,—for fifty yards about three inches.

THIRD LESSON.

Show relative Position of "Line of Fire" and "Line of Sight."

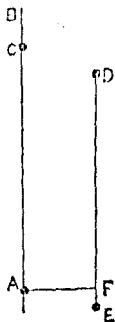
10. In order to impress more clearly on the seaman's mind the preceding lesson, and the relative position of the lines of fire and sight, which the instructor has hitherto represented by lines drawn with chalk on an exaggerated scale on the board, he will place the rifle barrel on a rest a few yards distance from the black board, taking care that the back-sight, which should be raised for 800 or 900 yards distance, be kept perfectly upright, and then will cause the men to take aim at a spot marked on the board, making them observe that they are now looking along the *actual* "line of sight." He will afterwards direct them without moving the barrel to look through the bore along the *actual* "line of fire," and will mark on the board the spot seen by the men through the bore, and point out that the "line of fire," which at the muzzle was below, has crossed the "line of sight" and passes through a point much above it on the board; and that from the place where these

lines cut each other, and form an angle, they become further apart the further they are prolonged; consequently, that the interval between them, which at the board may be only one or two feet, would at 800 or 900 yards be as much greater as these distances are than that of the muzzle from the black board.

Necessity of holding the Sights upright.—Error of Direction.

11. While the barrel is upon the rest, the instructor will point out to the men the importance of holding the back-sight upright, by explaining that if it is not so, the bullet, instead of hitting the mark aimed at, will always strike low, and on that side to which the sight is inclined, and that the greater the distance, the greater will be the error due to any inattention in this particular. To make this subject clear, draw a vertical line, A B, fig. 7, on the black board, with A a spot to aim at. Cause the men to aim at this spot with the 900 yards' sight which must be perfectly upright, and afterwards to look through the barrel, directing their attention to the fact that the "line of fire" cuts the vertical line at C above the spot aimed at. Then cause them to aim at the same spot with the same sight, *but inclined to one side*, and to look through the barrel again when they will see that the "line of fire," instead of being directed upon the same point on the vertical line A B as before, is directed low on that side to which the sight is inclined, as at D; consequently, as the "trajectory" always conforms to the movement of the "line of fire," the bullet, instead of hitting the mark, would strike as much below D as A is below C. Draw a

Fig. 7.



new vertical line below and from D, measure off on it a distance equal to C A; this will give the spot E. From E draw a horizontal line A F to the new vertical line D D; then A F will show the error of direction, and F E the loss of elevation due to the degree of inclination to the right given to the back-sight. A sufficiently accurate idea may be given of the actual errors in direction, and elevation as follows:—Supposing the black-board to be 5 yards from the muzzle of the rifle, and A F to be $\frac{1}{2}$ a foot, and F E $\frac{1}{6}$ th of a foot—

Then the error of direction will be as $5 : 900 :: \frac{1}{2} : 90$

And the error of elevation as $5 : 900 :: \frac{1}{6} : 30$

Error of Elevation.

12. In order further to show that elevation is lessened by the inclination of the back-sight, let a card, with lines drawn upon it (fig. 8), to represent the proper height of the back-sight for each distance, be placed vertically at the back of the sight, when the men will observe the amount of elevation lost by any degree of inclination.

Fig. 8.

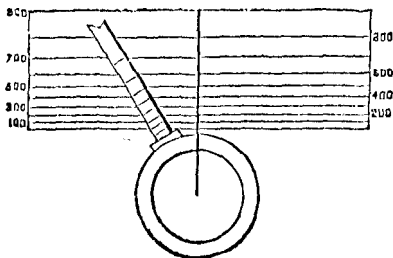
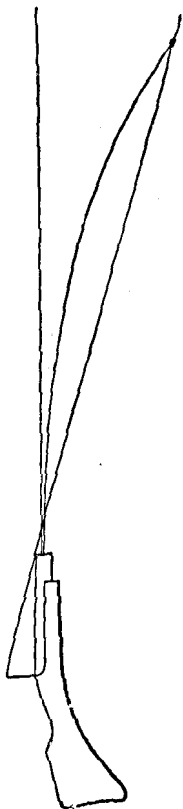


Fig. 9



How the Errors of Direction and Elevation caused by the Inclination of Back-sight may be shown.

13. Both the errors of direction and elevation, caused by the inclination of back-sight, may also be shown by a small model gun (fig. 9) with wires affixed to it to represent the "line of fire," the "trajectory," and "line of sight." The "trajectory" is made to hinge upon the "line of fire" to show the course the bullet will pursue at any degree of inclination of the back-sight; and that the "trajectory" always preserves the same relative position below the "line of fire."

FOURTH LESSON.

Height of Trajectory at the several Ranges.

14. The instructor will next explain the height of the trajectory at the several ranges, and the distances at which an enemy is under the power of the rifle when fired with the several elevations marked on the back-sight, in order to impress upon the men the great importance of training themselves to judge distance. It has already been shown that the back-sight of the rifle should be adjusted to the correct distance; but the seaman cannot do this if he is not thoroughly trained to judge distance by the eye. His being a good shot at a fixed mark is of no use if he cannot hit an enemy at a non-given distance; this is the object of all his training. As a general rule it will be sufficient to confine the lesson to one distance for each class.

THE TRAJECTORY OF THE MARTINI-HENRY RIFLE.

Distance.	Culminating Point, or the Greatest Height of the Trajectory, about	First Catch.	First Graze.	Margin for	Remarks.
		Men standing 6 Feet.			
Yards.	Ft. in.	Yards.	Yards.	Yards.	The rifle, 4½ feet above the ground at distances to 300 yards; beyond that distance 3 feet above the ground. The object hit, 3 feet above the ground at each distance. The culminating point is between ½ and ¾ of the distance.
100	4 6	Throughout	205	Throughout	
200	5 0	"	235	"	
300	6 9	205	360	155	
400	9 9	345	450	105	
500	12 3	455	510	85	
600	16 6	565	630	65	
700	20 9	670	725	55	
800	26 9	775	820	45	

N.B.—The first catch and first graze are given in divisions of 5 yards, and the height of trajectory in divisions of ½ feet, to assist the memory, hence are only approximation.

15. It will be seen from the above table that if the Martini-Henry rifle be fired from the shoulder, standing, at the centre of a bull's-eye three feet from the ground, with the elevation for 100 yards, its axis must be directed at a point 3 feet 10 inches from the bottom of the target, and the height of the firer's shoulder being taken at $4\frac{1}{2}$ feet, the bullet in its course does not anywhere rise above the latter height. It will also be observed that the bullet which in this distance falls only 10 inches would, after passing through the centre of the bull's-eye (if the target were made of cotton or paper), strike the ground at 105 yards beyond it, showing that in that distance it falls the height of 3 feet, and, consequently, in passing over the second hundred yards, it would, from the continually increasing curve, fall nearly 3 feet, thus proving what was shown in the Second Lesson, that the elevation for 100 yards would not be sufficient for 200 yards or any greater distance.

16. It will also be observed that if the rifle be fired at a target with the elevation for 300 yards, the bullet will fall from the height of 6 feet to the ground in the last 155 yards of its course, within which space a man of ordinary height on foot is liable to be hit by it; but that if fired with the elevation for 600 yards the bullet falls that height in the last 65 yards, reducing by so much the margin or space within which a man on foot is in danger from it, and that a mistake in judging the distance at this range of about 33 yards either way would probably cause the bullet merely to graze the top of the man's head or to strike the ground at his feet. At the longer ranges, such as 700 or 800 yards, it is seen that the fall of the bullet from 6 feet high to the ground takes place in the last 55 or 40 yards of its flight, reducing thereby the margin or dangerous space to a very small interval, consequently rendering it more important to estimate the distance accurately at the longest ranges,

where it is most difficult to do so. For this reason it is useless and a waste of ammunition for any men who are not first-class shots and well trained to judge distances accurately to fire at such long distances at an enemy unless it be at large objects. As it is difficult for the seaman, however well trained, to make certain of his distance it is judicious at long and unknown distances to fire the first shot with an elevation rather under than above that which is due to what he estimates it, since by watching where his bullet strikes he gains a better idea of the proper elevation, and may also hit an enemy by the "ricochet" or rebound of the bullet.

Wind.

17. Wind will by its pressure affect the progress of the bullet, driving it to the left if it blows from the right and if from the left to the right of the line of fire. If blowing from the front it will add to the resistance, and consequently decrease its range; if from the rear, diminishing the resistance, will enable the bullet to go further. As no fixed rule can be laid down to guide the seaman, he must acquire experience as to the amount of allowance he should make for wind in carrying his rifle to the side from which it is blowing, or in using the sights on the right, or in giving his rifle a little more or less elevation, but always taking into consideration two things, the strength of the wind and the distance of the object at which he is firing, since on the latter will depend the length of time the wind will have to act. He should also watch the effect of his shot, and make more or less allowance as he finds necessary; and he should bear in mind that the effect of a wind from the front or rear is much less than that of a side wind, which acts on a larger surface of the bullet.

Firing at a Moving Object.

18. If an object fired at be moving, whether it be a man walking or a boat pulling, it is obvious that it will pass over a certain distance between the moment of discharge and the time when the bullet reaches it. If the object be moving across from left to right, or from right to left, the seaman must therefore carry his aim a little to the front of it, but how much must depend, first, on the speed it is going, and, secondly, on the distance it is from the firer, and the consequent time the bullet will have to travel. The firer must exercise his own judgment in this matter, as no fixed rule can be laid down for his guidance.

19. When firing at an object moving, or during wind, in order to get the correct elevation, which would not be ensured if aim were not first taken on the object, the seaman must first align the sights on it in the usual way, and then, without pausing or dwelling on the aim, move the rifle sideways in the direction and to the extent required by turning the body on the hips, keeping the lower limbs firm and the arms and eye perfectly steady. Should the object be advancing towards or retiring from the firer, he should regulate his sliding bar for the distance he calculates it will have reached at the moment his bullet will arrive at it.

20. In the attack or defence of fortified posts or positions, it may often be required to keep up a fire upon a particular point after darkness has set in. In this case the object may be effected by planting during daylight two stout forked sticks firmly in the ground, so arranged as to relative height and direction (by the aid of the sights properly adjusted), that when the rifle is laid on them, it will have the necessary elevation, and command the desired point, or the same object may be attained by means of sand bags or large stones properly arranged.

21. During the day time by a somewhat similar expedient a continuous fire may be kept up on bodies of the

enemy's troops who may from time to time be temporarily obscured by clouds of dust or smoke drifting across front and concealing them. In this case, during a short interval, the firer, having marked his own position, shall plant a stick or his rod in the ground, a short distance in front of him, so that the top of it may be in line between his eye and the object at which he is firing; he can then, when the enemy becomes obscured, keep up an effective fire by aiming at the top of the stick.

N.B.—After dusk or darkness has set in a white rag round the barrel over the fore-sight and another over the back-sight will enable a man to make tolerably accurate shooting at distances up to which he can discern objects.

Sun.

22. When the sun is shining from the left it lightens the left side of the fore-sight and the right side of the rear of the back-sight; the firer in taking aim is apt to be guided by those brilliant spots instead of the real centres of the sights, and the result is that in taking aim the axis is directed to the right; when, on the other hand, the sun is on the right, he will be liable in aiming to direct the axis to the left. Blackening the sights will prevent the possibility of any error arising from this cause.

23. When the sun shines both on the sights and on the object, the fine point of the fore-sight is very distinctly seen, and consequently a little more elevation is required than on a dull day, when owing to the fore-sight being less clearly defined, a greater quantity of it is unconsciously taken up into the alignment.

3. AIMING DRILL.

1. In this exercise the seaman is to be instructed how to aim, and to adjust the back-sight of his rifle; and his progress is to be tested by making him aim at the different distances from a rest. A tripod formed of three stakes to

or looped near the top, or piled arms with swords fixed (sheathed), supporting a bag of sand about $4\frac{1}{2}$ feet from the ground, or some other convenient rest, will answer the purpose.

2. The squads, which are, if possible, never to exceed ten men each, are to be formed in single rank at each rest, every man having his own rifle; and the instructor is first to explain the principles of aligning the sights on an object, confining the attention of the men to the following simple rules:—

1st. That the sights should not incline to the right or left.*

2nd. That the line of sight should be taken along the centre of the notch or over the centre white line of the back-sight and the top of the fore-sight, which should cover the middle of the mark aimed at.

3rd. That the eye should be fixed steadfastly on the mark to be aimed at, and not on the barrel or fore-sight, which latter will be easily brought into the alignment if the eye be fixed as directed. Particular attention is to be paid to this rule, for beginners are apt to fix the eye on the fore-sight instead of the mark, in which case the latter can never be distinctly seen, and the difficulty of aiming is greatly increased.

4th. That in aiming the left eye should be closed. If any man be not able to do this at the outset, he will soon succeed by tying a handkerchief over the left eye.

3. After the foregoing rules have been clearly explained, the instructor is to cause each man to align his rifle with the sight for 100 yards, on a mark that distance from him; having done so, he will leave his rifle on the rest and step aside, in order that the instructor may take his place to see if the aim be correct; should he discover any error, he is to call another man, who is to look along the sights, and state the defects; when the instructor will explain what the consequence would be if actually firing at an object, and

cause the man to aim again. This method will have the effect of fixing the attention of the seaman and of inducing him to avoid, when aiming himself, the errors he may have witnessed in his comrade's aim.

4. The foregoing process is to be carried out, at every distance of 100 yards, from 100 yards to the extent which time permits at bull's-eyes six inches square for all distances to 200 yards inclusive, and eighteen inches square for all distances beyond 200 yards, in order that each man may acquire a knowledge of his sights, and become perfect in aiming; for it must be borne in mind that the difficulty of aligning the fore-sight, accurately, increases with the distance. The instructor is thus enabled to ascertain the progress of each man, and if he has any defect in his eye-sight. When the distance is limited, as on board the ship, the increase in the distance may be to some extent represented by aiming at bull's-eyes proportionately reduced in size.

5. This exercise is well calculated to strengthen the vision; and it cannot be too strongly impressed on the mind of the seaman that, to shoot well at long ranges, he must train and strengthen his eye, by looking at small objects at distances beyond those at which he will have to fire in practice.

6. During the course of aiming drill, the instructor will teach the men how to adjust their back-sights for intermediate distances, such as 360, 620 yards, &c.; he will also explain the use of the deflection scale, and cause the men to aim therewith.

INSTRUCTIONS FOR USING AUXILIARY SIGHTS AT AIMING DRILL.

Having first attached the sights to the rifle, see that the two "Lines of Sight" exactly agree—

WHICH MAY BE DONE—

(a.) From a tripod and sandbag, or other rest.

- (b.) From the shoulder of a steady shot, who should avail himself of any support at hand.

N.B.—Very slight alterations will be found necessary after first adjustment if positions are marked.

USE.

I. At Aiming Drill.

- (a.) To show the instructed how to aim:—
1st.—Let the instructor hold the rifle firmly in his shoulder, and resting it on a tripod, or other rest, take aim, the instructed observing what he does through the auxiliary sights.
2nd.—Let the instructed take aim as he observed the instructor do, the latter observing, and correcting him through the auxiliary sights.
(b.) To show how allowance is to be made for wind, and to ascertain that the sights are carried off to the right or left without loss of elevation.

II. At Position Drill.

- (a.) To observe in the 2nd and 3rd practices if the muzzle of the rifle is raised steadily, and that the aim is not lost when the spring is released.
(b.) To admit of the men of squads overlooking and checking each others aim when snapping.

III. At Blank Firing.

- (a.) To test the fitness of a man to proceed to target practice.
(b.) To see that the aim is correctly taken, and retained while the trigger is being pressed.
(c.) To enable the instructor to know if any attempt whatever was made to aim, or if the rifle was simply discharged.

4. POSITION DRILL.

1. In this exercise each man is to be put through all the motions of firing standing and kneeling, with the same accuracy as if actually firing ball, close attention being paid to each motion,—the object being to habituate him to the correct position, to give him a perfect command of his rifle, and to establish the connexion that should exist between the hand and the eye. The eye regulates every action of the hand; but constant practice is required to enable the latter readily to raise the rifle to an object on which the eye may be fixed, and the forefinger to act upon the trigger at the proper moment.

2. In the *Firing Exercise* the men are instructed in the positions of loading and firing in the ranks:—in the "*position drill*" the instructor is to confine his attention exclusively to the essentials of good individual firing.

3. Position drill is to be practised with unfixed swords. The squads, which are, if possible, not to consist of more than ten men to each instructor, are to be formed in single rank, the men to be one side-step apart, and placed at a convenient distance from the marks to be aimed at.

Open to one
side-step distance
from the Right
(Left, or No.—). } A caution.

Quick—March. } On the word "March" the named man will stand fast, the remainder will open out by the side step, each man in succession placing his disengaged hand on the hip, and halting as he feels the touch.

Right (or Left)
—Dress. } As usual.

Eyes—Front. } As usual, then dropping the disengaged hand to the side.

Should it be required at any time to dress the squad, the order *Right* (or *Left*)—*Dress* will be given, on which the disengaged hands will be placed on the hips and the squad will proceed as above described.

4. Before commencing this drill, the instructor is to point out to each man a mark to aim at; for this purpose small "bulls-eyes" are to be painted on strips of canvas which can be stretched along the ship's side. The bulls-eyes are to be black, the size of a sixpence, on a white centre the size of a crown piece. They are to be placed three feet from the deck and three feet from each other.

5. Each practice will be first performed standing and then on the knee.

First Practice.

This practice is intended to accustom the seaman to handle his rifle expertly,—to strengthen his left arm so as to give him a perfect command of the rifle with the left hand,—and to habituate him to raise it to the shoulder, in the direction of the object the eyes are fixed upon, without moving his body. It is therefore to be continued until these points are accomplished. No defect, however trivial, is to be overlooked, and the instructor is to explain the errors, and their bad effects, when the squad is standing at ease.

Words of Command.

Explanations.

Position Drill
by *Numbers,*
First Practice,
standing or kneeling,
as may be
ordered.

A caution.

At — yards,
Ready.

Bring the rifle to the "Ready" position, as detailed in the Firing Exercise compress the spring and adjust the sight.

Present.

Without in the slightest degree moving the body, head, or eye, raise the rifle smartly to the front of the right shoulder to the full extent of the left arm—the arms to move close to the body—the back-sight to be upright,—the toe of the heel-plate to be in a line with the top part of the shoulder,—the muzzle to point a few* inches below the mark the eyes are fixed upon,—the forefinger placed inside the trigger guard,—and both elbows inclined downwards.

N.B.—The squad is frequently to be brought back to the “Ready” by the command “As you were,” in order to establish the men in the position above detailed,—to point out errors,—and to explain the subsequent motions of the practice:—*e.g.*, “Present.” “As you were.” “Present.” “As you were.”—and so on, until the first motion is performed satisfactorily, when the second and third motions are to be similarly explained, afterwards the following commands to be given:—“Present”—“Two”—“Three.”

Two.

Bring the rifle smartly into the hollow of right shoulder (*which must not be allowed to give way*); pressing it there with the left hand, and at the same instant bring the left elbow under the rifle, and the right elbow nearly square with, and well to the front of the right shoulder, to form a bed for the butt without moving the body, head, or eye.

* When aiming at short distances about one or two inches will be sufficient.

- placing the forefinger round the trigger, but without pressing it. When kneeling, place the left elbow over the left knee.
- Three.* { Bring the rifle smartly to the ready position, without moving the body, head, or eye, placing the forefinger at the same time behind the trigger-guard.
- Ease—Springs.* { Release the spring, as detailed in the Firing Exercise, and then put down the sight.
- Order—Arms.*
Stand at—Ease } As detailed in Manual Exercise.
- When the men of the squad are established in the position enjoined by the foregoing instructions, they are to be exercised in the first practice, judging the time, after coming to the "Ready," the commands being,—
- First Practice,*
Judging the
Time. } A caution.
- Present.* { Proceed with the motion consecutively, observing a pause of the slow time between each.
- Steady.* { At this command, the squad will return to the ready position, and cease the practice.
- Ease—Springs.*
Order—Arms.
Stand at—Ease. } As before detailed.

Second Practice.

This practice is to habituate the men to combine the motions of the "Present" in the required order.

*Position Drill,
by Numbers,
Second Prac-
tice, standing
or kneeling, as
may be ordered.*

A caution.

*At — yards,
Ready.*

Bring the rifle to the "Ready" position, as detailed in the Firing Exercise, compress the spring, and adjust the sight.

The instructor is to direct his attention to the point alluded to under this head in the First Practice.

Present.

Combine the first and second motion of the First Practice (as in Firing Exercise), and look at the object through the notch of the back-sight.

Two.

Raise the muzzle steadily until the top of the fore-sight is brought in a line with the object through the notch over the centre white line of the back-sight, pressing the trigger at the same time, without the least motion of the hand, eye, or arm, until the spring is released, *still keeping the eye fixed on the object.* The breathing to be restrained in performing this motion.

Three.

Bring the rifle to the ready position and compress the spring.

Repeat this practice several times.

N.B.—The squad is to be brought back to the "Ready," by the command "As you were" after each motion, to explain that which follows next in order, care being taken that the men do not lose the erect position of the body, or move the eye from the object pointed out to them severally to aim at.

Ease—Springs.
Order—Arms.
Stand at—Ease.

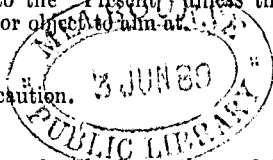
As detailed in the First Practice.

Third Practice.

The object of this practice is to establish union between the hand and the eye, which is indispensable to produce good shooting. Too much pains, therefore, cannot be taken, to see that it is carefully and minutely executed by the men, who are to be encouraged to engage in it at other times than when under instruction, but cautioned against ever bringing the rifle to the "Present" unless they have first selected some spot or object to aim at.

Position Drill,
Third Prac-
tice, standing
or kneeling, as
may be ordered.

A caution.



Independent
Firing at —
yards, Ready.

Proceed with the motions of loading, &c., in quick time. The instructor is to see that the position of each man is correct.

Commence.

Each man will come to the "Present" independently of his right or left hand man, and perform the motions (without hurry) in his own time; and, after snapping, will return to the ready position and continue the practice.

Cease Firing.

As detailed in the Firing Exercise.

Order—Arms.
Stand at—Ease.

As usual.

The squad having been well grounded in the foregoing three practices, standing and kneeling, will afterwards be exercised in the third practice, lying down.

Position Drill,
Third Practice,
lying down. } A caution.

Independent
Firing at —
yards, Ready. { Bring the rifle to the "Ready" position, as detailed in the Firing Exercise; compress the spring and adjust the sights.

Commence. { Each man will come to the "Present," bringing his rifle into the shoulder, the point of the collar-bone, both elbows to rest on the ground, and to be closed inward, but without constraint; the rifle to be grasped firmly in the palm of the right hand, the legs separated, or the right foot hooked over the left ankle at the option of the firer; after snapping, he will compress the spring, omitting the preparatory motions and continue the practice.

Cease Firing.
Order—Arms.
Stand at—Ease. } As detailed in the Firing Exercise.

N.B.—The most minute attention is to be given to each man's position when at the "Present," more especially: see that the sights are upright,—that the rifle is pressed firmly to the shoulder with the left hand,—that the trigger is pressed steadily without the slightest motion of the hand or arm while the muzzle of the rifle is being raised, and until the spring is released,—and that the eye is fixed

upon the mark during, and after snapping. The instructor is to scrutinize each man of his squad in succession, all the time it is practising, pointing out and correcting the errors he may discover in any man's position; and he is occasionally to place himself in front of each man, and cause him to aim at his eye, with a view to ascertain that he obtains the alignment quickly and readily, and that his aim is not lost by pressing the trigger. Whenever the instructor discovers a fault in any man's position when the rifle is at the shoulder he is to give the command "As you were," and cause him to come to the "Present" three or four times in succession, without loading, to correct the defect noticed.

5. PRACTICE WITH MORRIS'S AIMING TUBES.

Morris's aiming tubes, ammunition and targets, will be supplied in the following proportions:—

Tubes, 10 per cent. of the number of rifles on board.

Paper targets, 250 per tube per annum.

Box targets, 1 to every 2 tubes.

Ammunition allowed for practice, 100 rounds per annum for each man in complement.

A first supply of 1,000 cartridges per tube will be issued to ships.

2. The object of the issue of these tubes is to admit of a large amount of practice with rifles being carried out on board, and practice with them is accordingly to supplement the annual course of preliminary drills. They will also enable the non-executive part of the ship's company to receive some practical instruction in handling a rifle.

3. All men referred to at page 273, para. 1, should expend at least 15 rounds every quarter, as follows:—

5 standing, 5 kneeling, and 5 lying down.

All non-executives and stokers should, as they can best be spared, receive practical instruction in the use of a rifle,

and they are allowed the same quarterly expenditure of Morris's tube ammunition as the remainder of the ship's company.

4. With the view of rendering these practices as simple as possible, no registers are required to be kept or returns made.

The following notifications are to be made on the half-yearly Gunnery Return, viz.:—

(a.) Per-centage of working ship's company that have practised with Morris's tubes.

(b.) Per-centage of non-executives and stokers that have practised with Morris's tubes.

5. The following directions are to be observed in fixing the tube in the rifle.

(a.) Open the breech and place the cartridge chamber of the tube in the rifle, extractor downwards, holding it in position with the key supplied for the purpose.

(b.) Put the tube down the muzzle, and screw it into the cartridge chamber firmly, and then set taut the check nut.

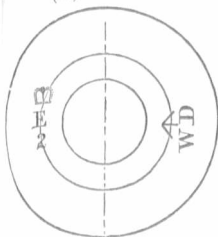
(c.) With the sliding bar of back sight close back, the Morris's tube foresight is adjusted for a range of from 10 to 15 yards.

6. The box targets should be placed in any convenient position, and to prevent injury to ship's fittings being caused by shots missing the target, a few sand bags made of old canvas should be built up round the box.

7. If any inconvenience is felt from the splashing of the lead, it may be entirely stopped by covering the front of the box with old canvas to which the paper target is pasted.

8. No tube is to be used in any Government rifle which does not bear either of the following Government view marks :—

(a.) Tubes which are Government property :—



On washer at end of tube—

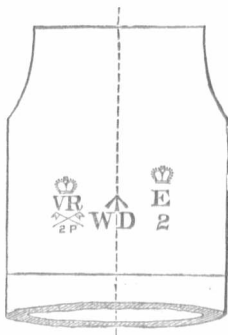
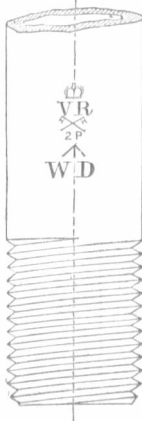
Crown, E, and a numeral
broad arrow and W.D.

On tube—

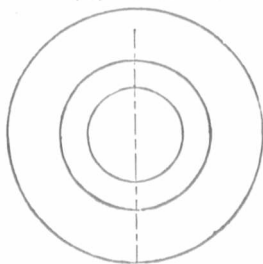
2nd proof mark, broad arrow,
and W.D.

On breech-piece—

2nd proof mark ; broad arrow
and W.D. ; also crown, E,
and a numeral.



(b.) Tubes which are private property :—



On washer—

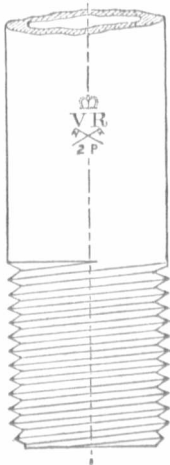
No mark.

On tube—

2nd proof mark only.

On breech-piece—

2nd proof mark, crown, &
M.



9. When so marked the tubes may be employed in any 1st class service rifle by men who have been instructed in their use, under such supervision as may appear to Commanding Officers sufficient to ensure the arms not being improperly treated.

10. As no injury to an arm can be effected by the proper use of tubes bearing the Government mark, any damage which may arise from this cause will be treated as a case of neglect, and charged accordingly.

11. Second class arms are to be used with the tubes where practicable.

12. Tubes which are private property will be examined at the Royal Small-Arms Factory, Enfield Lock, upon application to the Superintendent, and will, if found correct in dimensions, &c., receive the proper view marks. A charge of one shilling per tube examined will be made, and conveyance to and from the factory must be without expense to the public.

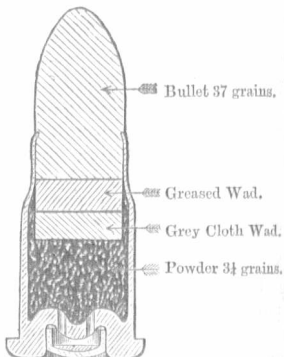
13. No cartridges are to be employed with the Morris's Aiming Tube, in any Government rifle, except cartridges of the pattern approved by the War Department, which is described in § 4458, List of Changes in War Matériel, &c. Commanding officers will be careful, therefore, in obtaining supplies of these cartridges to see that they are of proper pattern.

14. No other ammunition of any description, except that of regular service patterns, is to be fired from any Government arm without special authority.

Extract from List of Changes in War Matériel,
(Issued with Army Circulars, 1st April 1884.)

4458.—CARTRIDGE, AIMING TUBE, MORRIS'S,
(MARK I.) *Small Arms.*

Twice full size.



The case is made of solid drawn brass, with the chamber and anvil formed in the base, as shown in the woodcut.

The lead bullet weighs 37 grains $\pm$ 3 grains.

The charge is $3\frac{1}{4}$ grains of Curtis & Harvey's No. 1 diamond, or powder of equal strength and quality.

6. PRELIMINARY FIRING.

1. Before an untrained man is permitted to fire with ball, he is to be practised to fire blank cartridge, with a view to give steadiness, and to accustom him to the explosion of the powder,

10 rounds are to be thus fired.

After this 5 rounds of ball, interspersed, if necessary, with 10 rounds of blank are to be expended in the manner directed at page 270. This preliminary firing to be conducted with the greatest care and individual supervision.

2. The position of the body, arms and hands, and the manner of pressing the trigger, also the position of the head when taking aim, are to be duly watched in this exercise, in order to discover, and correct those errors which are fatal to good shooting, and which cannot be so successfully corrected when firing ball.

3. The instructor is to explain that the explosion of the powder, at the same time that it sends the bullet out of the barrel, communicates a force backwards, which is called recoil, and that by pressing the butt firmly into the hollow of the shoulder, he may control the kick of the rifle, which will otherwise take place. This is of great importance, as the more confidently a man stands up to his rifle, the less likelihood there is of random shooting, and the better will be the results of the firing.

4. With a view to make the seaman understand the reason for his being taught to press the centre of the heel-plate to the hollow of the shoulder, and not the toe of the butt, the instructor is to remind him, that the bullet quits the barrel in the direction of the line of fire (as already explained), and that the recoil takes place in the

opposite direction. He will likewise explain that the stock is bent downwards, in order to enable the firer to look along the barrel, and consequently, that the point of resistance, viz., the shoulder, is beneath the line of sight, the result of which is, that the explosion of the charge has a tendency to throw the muzzle up, and thereby send the bullet high. The seaman has only to imagine the line of fire or axis of the barrel prolonged backwards, when he will observe that it will pass far above the heel of the bar-

7. JUDGING DISTANCE DRILL.

(Gunnery Ships only.)

1. Officers, petty officers, and seamen going through the "long" course of rifle practice in the Gunnery Ships are to be instructed in judging distance, as herein-after detailed.

2. Men are to be placed as points for observation at distances of 50, 100, 150, and 200 yards, facing the squad or party, standing at ease, looking to their front, and remaining in an erect position, unless ordered to the contrary.

3. These fixed points may be placed in previous determined positions, as, for instance, at the successive firing points on the range; otherwise they are to be thrown out in the following manner:—

A petty officer is to march a squad of men straight to the front, halting a file at every 60 paces, the last file being halted at 240 paces. Each file will turn about and halted and stand easy or lie down as ordered.

4. The instructor should direct the men to notice the position of the sun, the state of the atmosphere, and the background, at the time they are making their observations, in order that they may be accustomed to the changes made in the appearance of the several objects under altered conditions. He is also to indicate the different parts of the figure, arms, accoutrements, and dress, which can be distinctly perceived at each distance, also those which cannot be perceived clearly.

5. When all the men of the squad, or party, have made their observations on the different points, they will proceed to estimate the distances of men within the limits of 200 yards in the following manner. After having marched the squad on to a different ground from that on which the drill on "Fixed points" has taken place, the instructor is to place several men in different attitudes, at any unknown distance opposite to, but, if possible, unobserved by the squad. He is then to order the men to notice the man facing them, and to estimate the distance, cautioning them at the same time to recollect the appearance of the men just seen at known distances.

6. The squad instructors are to call each man separately to the front and question him, noting down in a register his answer, which must be given in a division of five yards, and in a low tone of voice in order that those following him may not be influenced by his opinion. While the answers are being given in no talking is to be allowed, and another instructor is to ascertain the distance by means of the stadimeter, as directed on p. 342, Fig. 3. When all the men have given their answers, which are to be read over to them by the squad instructors in order to ascertain that they are correctly recorded, the instructor will make known the correct distance.

7. The party, after they have been drilled one day 200 yards, in the manner before detailed, are to be exercised for four days more up to 1,200 yards, first at known distances, in every respect as laid down for exercising to 200 yards; the points for observation being two or more men or other objects of known size.

8. The instructor, in repeating these exercises, is to take care that they are conducted, as much as possible, in different directions, and under different states of the atmosphere, in order that the men may become habituated to the diversity of circumstances in which they may be called to act.

9. Every judging distance drill is to consist of observations made on men placed at known distances, and three answers given on men placed at unknown distances in different situations, immediately afterwards.

PART IV.

PRACTICE.

1. BALL PRACTICE.

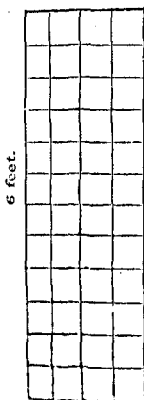
1. No firing is ever to take place, unless an officer is present on the range.

2. Target practice affords proof of the attention bestowed on the preliminary drills; the more carefully the latter have been performed, the better will be the results of the former.

2a. Under no circumstances whatever is aiming at the eye ever to be permitted during ball firing, nor is snapping at the target to be allowed while the danger flags are up.

Targets.

Fig. 1.
2 feet.



3. The targets are to be six feet in height and two in breadth, constructed of iron of sufficient thickness to be rifle-bullet proof, having squares of six inches cut on the face to facilitate the marking and to serve as guides in painting the bull's-eye and centre. *Vide Fig. 1.*

4. They are to be coloured *white* with a mixture of whiting, water, and size; and the bull's-eye, and lines describing the centre, *black* with lamp-black, water, and size. Pots of these mixtures are to be kept in rear of the targets.

5. They are to be rested on the platform provided for the purpose, and when in use are to be as perpendicular as possible.

6. The greatest care is to be taken when lowering or raising the targets, to prevent their being damaged; they are

on no account to be allowed to fall by removing the targets, but are, in every instance, to be carefully laid on the ground.

7. When the targets are laid down they should be placed at an incline, face upwards, to prevent the rain lodging on them; and, with a view to preserve them from the effects of exposure, they should be painted periodically.

Marking Slates.

7a. In order to ensure correct marking, one of these slates is always to be used in each marker's butt.

Two men will be required in the mantlet, one to mark the hits on the dummy target, and the other to keep the register on the slate.

The marking slate consists of an ordinary school slate on which is scratched with a knife an exact representation of the actual target, including the squares into which it is divided.

The marker having observed the exact spot where the first shot strikes is to record its corresponding position on the slate by a number, which for the first shot will be (1), for the second shot (2), and so on, until the target is re-coloured.

Working Party.

8. A working party of about six men will be required for the purpose of fixing and cleaning the targets,—as well as to signal shots,—as look-out men to warn persons crossing the range while firing is going on,—and for other duties that may be required during the practice.

Signals for and Value of Hits.

9. Hits on the target are to be indicated by discs placed on the dummy target, in positions corresponding to the actual hits on the real target. At stations where dummy targets are not available, then hits will be indicated

flags. These discs and flags, together with the number of points fixed as the value of the hits, are as follows:—

Shot.	Discs.	Flags.	Value in Points.
Outer - -	White*.	White or yellow - - -	2
Centre - -	White -	Dark blue - - -	3
Bull's-eye -	Black -	Red and white - - -	4
Ricochet - -	-	Red flag waved in front of target	R
Miss - -	The reverse end of disc or flag pole - -		0

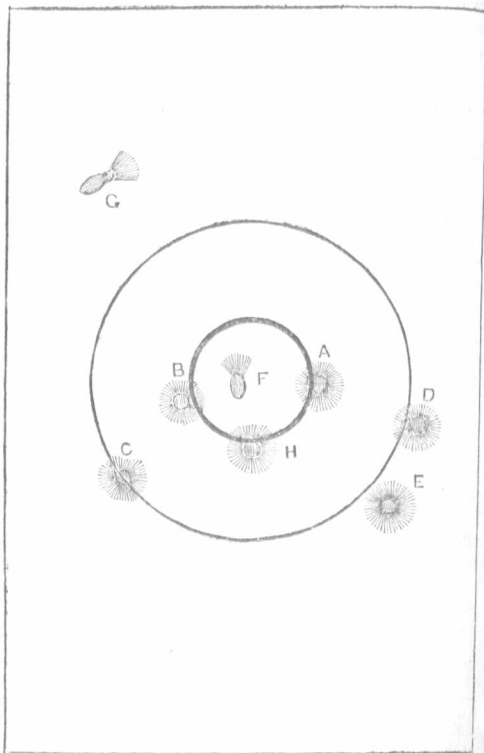
10. Ricochets, or shots which strike the ground before hitting the target, are to be signalled by waving the red flag twice, to and fro, in front of the target, and are to be counted as misses in individual firing, but noted in the register by the letter R.

11. The signal for danger, or cease firing, is in all cases to be a *red flag*. This will be hoisted whenever it is necessary to cease firing to re-colour the targets, or for any other purpose. No man is on any account to leave the marker's butt until the "Cease Firing" has been sounded, and the danger flag raised, at the firing point, in answer to the danger signal. The red flag is always to be kept up as long as the markers are out of the butt, or any person is in the line of range. Whenever the "Cease Firing" is sounded from the firing point, it is to be immediately answered from the marker's butt by raising the danger flag; and, in like manner, the "Fire" is to be answered by lowering it. *On no account is a shot to be fired when the danger signal is up at the marker's butt.*

12. Whenever a shot strikes to the right, the flag indicating its value is to be inclined to the right, and *vice versa*.

* In the case of an outer, the white disc is first to be shown at the side of the target, and afterwards placed in front of the shots. Theummy target is to be painted black, the ring and bull's eye being white.

Fig. 2.



A and H bull's-eye, B and C centre, D and E outer, F and G grasses

When the shot strikes high, the flag is to be raised as high as possible, and when low, it is only to be raised high enough to be easily visible above the butt.

13. The bullet will be found to make a very distinct mark, so that the correct position of each shot is easily seen at a short distance. Whenever a bullet strikes the target, so that the circumference of the mark cuts the outer edge of the bull's-eye or centre, such shot is to be counted in all practices as hitting the bull's-eye or centre, as the case may be (*vide* Fig. 2). No shot is to be counted in any practice where the mark of the bullet, part or whole, is not seen on the face of the target.

14. The marker in the butt is invariably to be a petty officer of a different company from that engaged in firing; the former is to be responsible that the correct signals are given to the several shots which strike the target, and is to keep a memorandum, under the head of bull's-eyes, centres, outers, ricochets, and misses, to facilitate the marking, and ensure each man's shot receiving the correct signal.

15. The number of men in a firing party is never to exceed 20, and only one squad at a time should be told off for each available range.

16. The men's names are to be entered in a 'Target Practice Register (Form A), or Summary (Form B), before the party goes to the practice ground. The men are to stand in the ranks for individual firing in the order in which their names are placed on the list.

17. The register of practice is to be kept by an instructor, if possible, who is to note therein opposite each man's name (which he is to call out before he fires) the number of points obtained by each shot, notifying also the result of the shot to the man.

18. All entries are to be made in *ink* on the practice ground; should any alteration become necessary, a fine line is to be drawn through the figure or letter, and the

correction made, the initials of the instructor keeping register being immediately attached to it (Thus : 2 3 : A to verify the circumstance.

19. When everything is ready, the bugler, who is to be placed on the right of the firing point, is to sound "Fire," and as soon as the danger flags are lowered, the officer is to order the practice to commence, when two in succession commencing from the top of the list, move to the front and fire five rounds, working alternately. Each man will load after the other has fired, but will not come to the "Present" until the preceding shot, if not, has been signalled. On completing the five rounds, a man will move, by the right flank and form three paces rear of the position he formerly occupied. No man is to load until all is clear for him to fire, and if it becomes necessary for any purpose to cease firing, any man who has loaded will unload at once, remaining unloaded until order is given to resume the practice. When firing, a man of the section may ground arms at the *firing point*, not more than about 20 yards and fall out, remaining there under the command of a petty officer until required.

20. The officer (or instructor) is to be cautious not to check a man for any error at the time he is firing, as this would have the effect of distracting his attention from the object he is aiming at; but he is to watch attentively the position of each man, and to correct him, if necessary, after he has fired.

21. Whenever the hits on the target become too numerous to distinguish quite easily the new ones as they strike, the target is to be re-coloured; before this takes place, however, the instructor and the marker, in the presence of the officer, are carefully to compare the register with the target to see that they agree, a fine line being drawn under the last shot in each column to mark when the practice ceased, and the officer is to satisfy himself

that the target is properly cleaned, and all the old shots obliterated, before the practice is resumed. If during the practice, a shot strikes the wrong target, the marker, having raised the danger flag and shown the position of the shot, will mark it on the target struck, to prevent mistakes when checking.

22. At the conclusion of the practice by the section at a distance,* the points obtained by each man are to be totalled and read out, after which the bugler is to sound the "Cease Firing" and "Advance," when the instructor is to proceed to the target, and with the marker, in the presence of the officer, compare the register therewith, adding or deducting from the total points any difference that may be discovered. Should any hits be found on the target which have not been noted in the register, they are on no account to be credited to any one of the squad. *Every correction in the score which a man may claim must be made before another shot is fired.*

23. At the conclusion of a day's practice, and before leaving the ground, the officer in command of the firing party is to read the register over to the men, and then sign it.

24. All persons watching the practice are to stand to the right of the firing point. They are to be kept clear of the section that is firing; and on no account is any noise or talking with the men to be allowed.

25. Every working petty officer and seaman in a Sea-going or First Reserve Ship, Flag or Receiving Ships at the Home Ports, is to expend in his annual course of practice 80 rounds of ball ammunition, in the following manner, viz. :—

60 in individual firing ;

10 in independent firing ;

10 in firing in skirmishing order.

* If there have not been many hits when the first class shots are firing, the register may be compared with the target after the conclusion of the practice at every two distances.

NOTE.—When it is impossible to carry out skirmishing owing to the range not being suitable, volley firing may be substituted.

26. Every officer, petty officer, or seaman going through a “long” course of Rifle Practice in the Gunnery Ships to expend 90 rounds of ball ammunition in the following manner, viz. :—

- 60 in individual firing ;
- 10 in volleys ;
- 10 in independent firing ; and
- 10 in firing in skirmishing order.

27. Every Seaman Gunner going through a “short” course of Rifle Practice in the Gunnery Ship, is to expend 60 rounds of ball ammunition in individual firing.

NOTE.—In addition to the rounds specified in the above sections (25, 26, and 27), marksmen and first class shots are on ranges where moving targets are available to expend 15 additional rounds firing at them ; five of these are to be fired at a known range in any position, and the remainder in skirmishing order.

Opportunities should be taken of giving working executives and stokers a few rounds of ball practice at short ranges when the target practice of the ship's complement is being carried out. Care should be taken that no man is allowed to fire as above—

(a.) Who has not fired with the Morris tube.

(b.) Who shows an awkwardness in handling the tube which might lead to accident.

28. Officers going through a short course of Gunnery and Sub-lieutenants, are, while in the Gunnery Ships, to fire at the shorter ranges of the first and second periods.

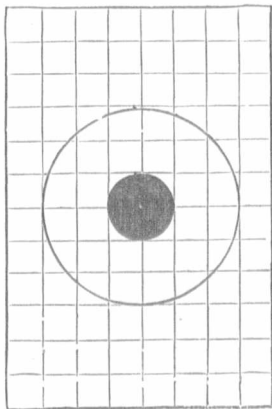
29. The number of rounds to be expended at each distance,—the distances,—the size of targets to be fired at.

at by the several classes in individual firing,--and the dimensions of the bull's-eye and centre for each class, are as follows :—

THIRD CLASS.

Two Targets.

Bull's-eye	-	- 1 foot diameter.
Centre	-	- 3 feet diameter.
Outer -	-	- Remainder of target.



Gunnery, Sea-going Ships, &c.

100 yards, standing	} 10 rounds at each distance.
200 „ kneeling	

SECOND CLASS.

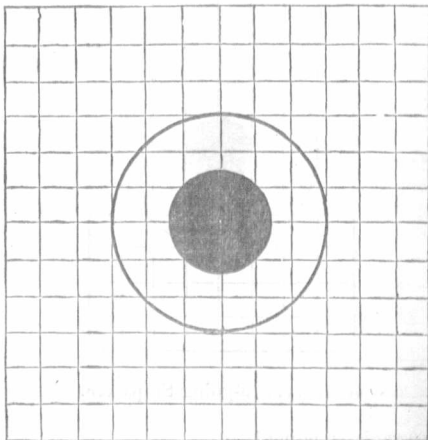
THREE TARGETS.

Bull's-eye, 18 in. diam. Centre, 3 ft. diam.
Outer, remainder of target.

Gunnery, Sea-going Ships, &c.

300 yards } kneeling or lying down.
400 „ }

10 rounds at each distance.



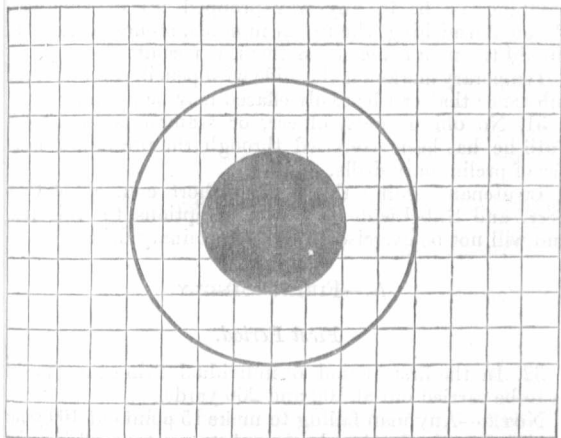
FIRST CLASS.

FOUR TARGETS.

Bull's-eye, 2 ft. diameter. Centre, 4 ft. diameter.
Outer, remainder of target.

Gunnery Ships, Sea-going Ships, &c.

500 yards } 10 rounds at each distance.
600 „ } Lying-down position.



30. Individual firing at 100 yards is to be performed standing; at 200 yards, kneeling; and beyond that distance, in any position, but no artificial rests are to be used. Men are not to be allowed to fire from the left shoulder unless certified by the medical officer to be suffering from defective vision of the right eye. This exception is not to extend to the volley and independent firings.

In individual firing no rests of any kind are allowed when firing in the lying down position, a great coat, sheet, or rug may be used to protect the uniform, but neither rifle nor left fore-arm, wrist, or hand is to rest against anything, or be in any way propped up or supported. When skirmishing, the use of mounds, stones, &c. as rests should the men come across them, is permitted.

Temporary marks on the slide with pencil, colours, or any substance that can be easily effaced may be permitted.

31. No officer, petty officer, or seaman is to fire until he has been exercised through the prescribed number of preliminary drills.

Lieutenants going through a "short course" of Gunnery, and Sub-Lieutenants are exceptions to this rule and will not be exercised in the preliminary drill.

A.—FIRING SINGLY.

First Period.

32. In the first period of individual firing the practice is to be carried out at 100 and 200 yards.

NOTE.—Any man failing to make 15 points at 100 yards is to be put back, (*i.e.*) he is not to continue firing with his company, but is to undergo certain further preliminary drill with blank and ball, firing at the discretion of the officer in charge.

Having completed this second course of preliminary instruction, these men will fire as ordered in A., and the scores made will be entered in Form C. (1), which is to be attached to Form C.

Men put back in this way are not to be allowed to benefit in any way by money prizes, nor are they to appear in the ordinary return (C.) of the company sent in.

Second Period.

33. In the second period of individual firing the party is to practice at 300 and 400 yards.

Third Period.

In the third period of individual firing the party is to practise at 500 and 600 yards.

At the conclusion of the practice the points obtained by each man are to be added together and the men classed as follows :—

Seamen obtaining 165 points and upwards, classed "Marksmen."

Seamen obtaining 140 to 164 points, to be classed "1st Class."

Seamen obtaining 100 to 139 points, to be classed "2nd Class."

Seamen obtaining below 100 points, to be classed "3rd Class."

34. At the conclusion of the practices in this period the points obtained by each man are to be added together, and the sum entered in the proper column of the Practice Return (Form C), from which a final classification is to be made,

B.—VOLLEY FIRING.*Gunnery Ships only.*

35. In this firing the practice is to be carried out 300 yards, front rank kneeling; after the fifth round front and rear-rank men will change places.

36. For this, and the independent firing practice, targets placed close together are to be used, across centre of which is to be coloured a black mark two feet deep; fair hits and ricochets (but not hits by fragment bullets) found on the targets are to be counted as follows: those on the black mark 4 points, others 2 points.

37. The strength of the squad or section, firing in and the following exercise, is to be as large as possible, is not to exceed twenty or to be less than five men.

38. In the volley firing, if a man's rifle misses fire, he is not to fire at the target singly. Every miss-fire in a volley is to be counted as a round expended. No man is to be withdrawn from the practice after having commenced, and whatever may be the result of the fire in each volley. The average to determine the merit of the practice is to be ascertained by dividing the number of points (obtained on the hits on the target) by the number of men in the squad.

C.—INDEPENDENT FIRING.

39. In this practice 10 rounds of ball ammunition are to be fired at 300 yards.

The target, the value of the hits, and the position, are to be the same as in Volley Firing.

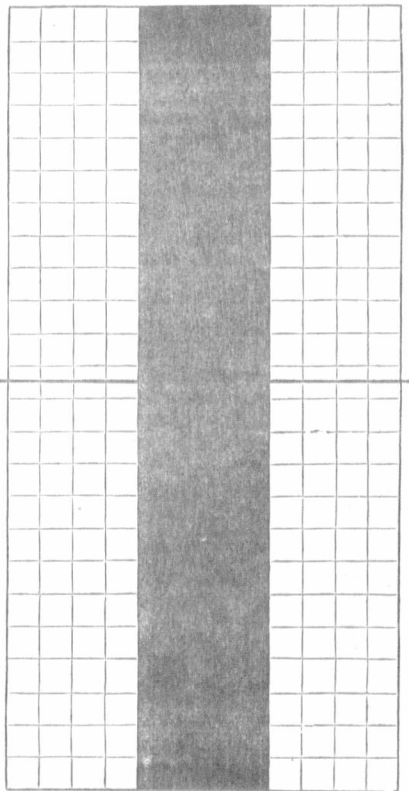
D.—SKIRMISHING FIRING.

40. In this practice 10 rounds of ball ammunition are to be fired in skirmishing order, as laid down in the First Exercise, advancing from 400 to 200 yards and retreating.

VOLLEY AND INDEPENDENT FIRING.

SIX TARGETS.

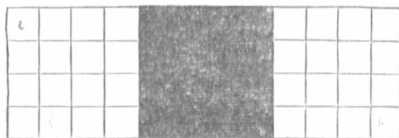
Two feet black line across centre of target.



SKIRMISHING.

ONE TARGET.

Black mark across the centre, 2 feet square.



Any Position.

10 rounds advancing and retiring between 400 and 200 yds
any service position.

from 200 to 400 yards until the ammunition is expended, each man judging his own distance, and arranging his sight accordingly.

41. Six or eight single targets are to be placed with intervals of six paces between them for this practice. Each target is to be two feet high and six feet broad, and to have a black mark in the centre two feet square; the value of the hits, &c., is to be the same as in volley firing. Every file is to have its own target.

42. The men may fire in any service position, taking advantage of such inequalities of ground as may offer in their line of advance, invariably halting to fire, but must not load until they are in position with their front clear, whether advancing or retiring.

43. One of the working party is to be placed on each flank of the extended targets, about forty or fifty yards off, to prevent any person approaching within that distance.

44. Before the commencement of the firing of each squad in this practice, and in the volley and independent firing, the instructor will ascertain that the names entered in the Summary are those of the men composing the squad, and at the conclusion of the firing the instructor is to go to the target and take off the hits on a Summary (Form B) in the presence of the officer. When completed the Summary is to be compared with the target and then signed by the officer. The average points obtained are to be inserted in the column set apart for the purpose in the Practice Return, Form F, in Gunnery Ships, and in a table of the Form C in Sea-going Ships.

45. The volley, and independent, and skirmishing practices, are not to be executed until after the completion of the individual firing; and in no case is a man to practise in the third period until he has fired in the first and second periods respectively.

ORDERS TO BE OBSERVED ON RIFLE RANGES.

To prevent the possibility of accidents, the following orders, subject to local changes and additions, are to be observed:—

Orders for the Senior Officer at the Firing Point.

1. Not to allow any practice to take place until the red flag is hoisted on the long signal staff in a conspicuous place, and the look-out men are posted to warn persons against crossing the range.

2. Not to allow a man to fire until the shot of the previous man has been signalled.

3. To order the "Cease Firing" to be sounded, and the "red" flag at firing point to be raised; also to see that any men that are loaded, *unload* immediately the red flag is raised from any of the marker's butts on that particular range, or any person or animal appears in front of the firing party; and on no account to allow any firing to proceed so long as the "red flag" is up at the marker's butt. When the said flag is lowered, to order the "Fire" to be sounded, and the "red" flag at the firing point to be lowered.

4. On the ranges situated in pairs, the parties are to be divided by classes, at the same distances, and not one class in front of another.

5. When the "Cease Firing" sounds, the firing at both ranges (occupied in pairs), is to be discontinued until the "red" flag at the marker's butt is lowered and the "Fire" is again sounded.

6. To see that all persons who desire to watch the practice stand to the right and clear of the party; and on no account to allow any noise or talking among the men whose attention is to be fixed on the practice.

7. To allow no irregularity, and to be most particular that the men keep their places in the ranks while the practice is proceeding, and to be alert to prevent accidents.
8. To see that *the red flag* is used in the marker's butt, to signal "danger."

Orders for the Petty Officer Marking in the Butt.

1. Not to allow any practice to take place until the large red flag is hoisted on the long signal-staff in a conspicuous place, and the look-out men are posted to warn persons against crossing the range.

2. To see that the following flags, or discs, are raised to signal the position of the shots which strike the target,—
"Ricochet," "Danger," and "Cease Firing."

	Disc, or flag-pole	-	-	Miss.
1st	{	White flag;—or white disc,		} Outer.
		which is to be first shown		
		at one side of the target be-		
		fore placing it in front of		
		the shot - - -		
	Dark blue and white flag;—or	-	-	Centre.
	white disc - - -	-	-	
	Red and White flag;—or black	-	-	Bull's-eye.
	disc - - -	-	-	
2nd	{	Red flag waved horizontally		} Ricochet.
		twice, to and fro, in front of		
		the target - - -		
3rd	Red flag	-	-	{ Danger and Cease Firing.

3. To see that the signal flags are invariably waved when the wind blows directly up or down the range; and when—

ever a shot strikes the target to the right of the centre, that the flag denoting its value is inclined to the right, and *vice versa*; also, when a shot strikes the target high, the flag is raised as high as possible, and upright; and when low, that it is only raised high enough to be easily visible above the butt; and, when using the disc, that it is placed immediately in front of the hit on the target, putting it first to one side in the case of an outer.

4. To see that the "red" flag is raised whenever it is necessary to cease firing to re-colour the target, or for any other purpose; and to allow no man, on any account whatever, to leave the marker's butt until the "Cease Firing" has been sounded, and the "red" flag has been raised at the firing point in answer to the "danger" signal; also to see that the red flag is kept up (and waved so as to attract attention) as long as the markers are out of the butt, or any person is in the line of range.

5. To see that the "red" flag is lowered directly the range is clear and all is ready at the butts.

6. To allow no person to enter the marker's butt, except on duty, without an order from the senior officer on the range, nor to allow anyone to enter or leave the butt except by the regular path.

7. To check all talking or noise in the marker's butt.

8. To see that the "red" flag is raised and shaken about immediately the look-out man, at either look-out station, either half-masts his flag or gives notice that persons or boats are within the line of fire, and that it is kept up until the range is clear and the flags at both look-out stations are hoisted.

9. When firing at 500 and 600 yards, to see that all persons in the marker's butt stand as close as possible to the interior slope, to avoid the chance of being struck by the bullets when falling.

10. To take care that every shot as it strikes the target is plotted and numbered on the marking slate, which should have an exact diagram of the target engraved on it. The shots are to be numbered in rotation as they strike the target, and whenever the latter is re-coloured the slates are to be cleaned.

Orders for the Look-out Man at *for*
No. *Pair of Ranges.*

1. To look out carefully, and the instant any person appears at going towards or along
the coast (when firing seaward) coming from
to half-mast his red flag and call out to the petty officers in the marker's butt, in a loud voice, "danger," and to keep his flag flying half-mast until the said person has passed the , according to the direction in which
he is proceeding. The same precaution is to be observed in respect to boats passing in shore in the line of range.

2. To give notice to all persons who may be about to pass the range that they are in danger while the firing is going on, and to signal them back.

3. To watch for the "red" flag at the firing point, if his position will admit of it without danger to himself, and immediately it is hoisted to call out to the petty officers in the butts, "Flag up."

4. In the performance of his duty (more particularly during the execution of the volley and independent and skirmishing practices), to keep well under cover.

Attendance of Medical Officers.

1. The attendance of medical officers at target practice under ordinary circumstances, or unless the range is out of signal distance from the ships, is unnecessary.

2. JUDGING DISTANCE PRACTICE.

Gunnery Ships only.

1. The correct distance in this exercise is to be ascertained by the stadiometer, on the method laid down page 341, paragraph 6, for finding the distance of object.

2. Several men in different positions are to be placed as objects to estimate from.

3. The men are to be cautioned to complete a distance of 5 yards in giving their answers.

4. The answers of each man are to be recorded in a register, Form G., which is to be kept by a petty officer leading seaman, under the superintendence of an instructor. The strictest silence is to be observed throughout the practice; the men are to be prevented from consulting together in judging their distance; and the answers are to be given in a low tone of voice, so as not to be heard by the others.

5. The instructor having marched his party, or detached to the place that he intends to judge from, is to halt and face it towards the object or "points," and then arrange the men who are to keep the registers in front of the several sections, to prevent the answers when given by those in the rear. These men, after recording their own answers, will call each man of their respective sections to the front to give his answer in yards as to the distance that separates him from the "points," and his answer is to be immediately noted in the register.

6. When the answers of every man of the section or detachment have been recorded, they are to be read to the men, so that any error, as regards entry, which may be discovered may at once be corrected. When this has been done the

structor is to state aloud to the men the correct distance, which is to be noted at once at the top of the column, and the number of points obtained by each man registered at the side of his answer and made known to him. No alteration of an answer is to be made after the correct distance has been declared.

7. In each period the men are to judge at eight different distances, the squad or observation points, or both, being moved as convenient.

8. At the conclusion of a practice, and before leaving the ground, the number of points obtained by each man is to be read over to the class and inserted in the column "Total Points;" the register is then to be signed by the instructor who superintended the exercise.

9. No erasure is to be made in the registers, and all corrections are to be initialed by the instructor superintending the practice. A neglect of this order will invalidate the entry.

10. The judging distance, like the target practice, is divided into three periods, each consisting of eight answers.

11. The third class is to practise as far as 500 yards, the second class to 1,000 yards, and the first class as far as 1,200 yards.

12. The value of the men's answers, by points, in the several classes is as follows:—

3rd class :

Or when judging distances between 100 and 500 yards	-	}	Within 25 yards	-	2 points.
			" 50 "	-	1 "

2nd class :

Or when judging distances between 505 and 1,000 yards	-	}	Within 25 yards	-	2 points.
			" 50 "	-	1 "

1st class :

Or when judging distances between 505 and 1,200 yards -	}	Within 25 yards -	2 points
		" 50 "	- 1 "

13. At the conclusion of the practice the points obtained by each man are to be added together and the men classed as follows:—

Seamen obtaining 36 points and over, 1st Class J.D.

"	28	"	2nd
"	20	"	3rd "

PART V.

INSTRUCTIONS FOR THE USE OF THE
STADIOMETER.

1. Set up the instrument by placing the head of the index bar on the pivot of the tripod, and the end on the support, as shown in fig. 1.

2. The principle on which this instrument is constructed is the well known mathematical proposition that in similar triangles similar sides are proportional.

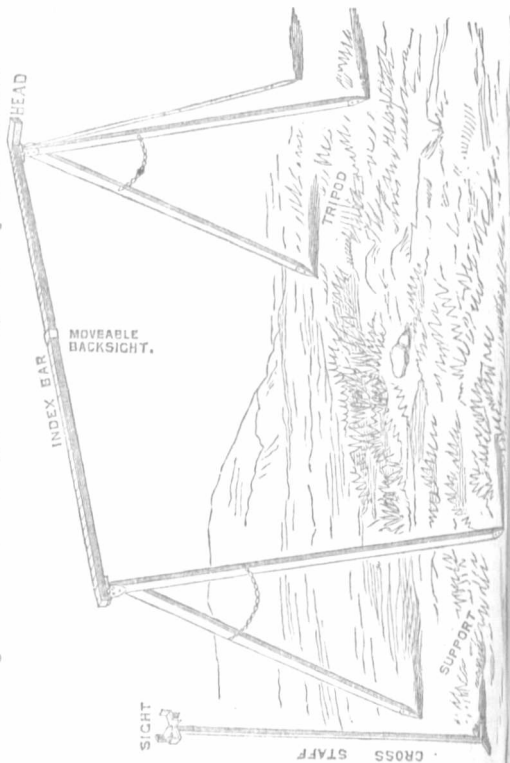
3. To ascertain the correct distance when *men* are employed as "points of observation," proceed as follows:—

1st. The instructor will fix a flag *a* (*vide* fig. 2) at the place at which the party or squad is to estimate the distance from the men standing as "points of observation."

2ndly. A petty officer (if practicable, an instructor) will fix the cross-staff *b* (fig. 2) in the ground (pressing it with the foot on the arm at the lower part until it is steady and upright) in any situation and at any distance that may be determined by the instructor, and align one pair of the sights attached thereto, *c* (fig. 2), on the flag *a* at the judging distance point.

3rdly. At 40 yards, measured by a chain, from the cross-staff, and to the left of it, align flag *d* (fig. 2) by means of the other pair of sights attached to the cross-staff *e*, and fix the said flag perpendicularly in the ground. Having thus established a right angle, give the cross-staff a few turns in the ground, and, into the hole so made, put another flag. These flags thus

Fig. 1.—STADIOMETER (PATTERN 1863).—Scale $\frac{1}{2}$ -inch to the foot.



arranged from the base, between which the men intended for "points of observation" are to stand.

4thly. Place the stadiometer so that the fore-sight on the index bar *f* (fig. 2) will be aligned on the flags *a* and *b*, looking through the bottom of the notch of the slider or moveable back-sight *g*.

5thly. Push the slider *g* backward or forward without in any way moving the index bar until the fore-sight on the head of index bar *h* (fig. 2) is aligned on the flag *d* to the right of the flag *b*.

6thly. Look at the index or scale on the shaft of the stadiometer for the distance, which will be shown by the number immediately in front of the moveable backsight *g* (fig. 2).

4. There are two fore-sights on the head of the index bar, one at two inches, the other at four inches from the fore-sight on the bar; as every four inches represents 40 yards, and as the scale on the index bar is only five feet, it can only measure 600 yards. When the distance is greater than this, the inner fore-sight is to be used, and the distance read off in front of the moveable back-sight doubled, to give the correct distance, as, in this case, every two inches represents 40 yards.

5. When a class is divided with a view to judge the distance from each other, the following method will be observed to signal the correct distance to the party or squad opposite to that with which the stadiometer is, viz., a flag lowered to the right, will signify *hundreds* of yards; to the left, *tens*; and to the front, *five*. Thus, for example, if the flag be lowered 4 times to the right, 5 times to the left, and once to the front, the distance signalled is 455 yards.

6. To ascertain the correct distance from an object, proceed as follows:—

1st. Fix the cross-staff *a* (*vide* fig. 3) in the ground (pressing it with the foot on the arm at the lower

part until it is steady and upright), and align it means of one pair of the sights attached thereto, on a given point *c* of the house, or other object, the distance of which from the said cross-staff is required.

2ndly. At 40 yards from the cross-staff, and to the left of it, place the stadiometer, the head of which is to be aligned by means of the other pair of sights attached to the cross-staff *e*.

3rdly. Push the slider or back-sight backward or forward until the foresight *g* is aligned on the same point *c* of the house, or other object, on which the cross-staff has already been aligned.

4thly. Look at the index bar, and read off the distance.

7. The stadiometer may be used on any ground, as there is no necessity for the men judging the distance being the same level with the object of observation.

8. The stadiometer is always to be kept in a dry place. In the event of its getting wet when in use, it is to be wiped thoroughly dry before being put away into the box provided for it. If these precautions are taken the instrument will last for many years.

PART VI.

PRIZES FOR GOOD SHOOTING, &c.

ALL SHIPS.

1. Each marksman to receive half a crown.
2. In addition, a further sum is to be paid according to the following scale:—

For each point obtained in excess of 165.

If the total falls short of 180 points - twopence.

“ “ “ 200 “ - fourpence.

“ “ exceeds 199 points - one shilling.

3. Badges for good shooting are to be worn in accordance with the following rules:

Each man whose score exceeds	{	164 points	Crossed rifles.
		179 “	{ One rifle surmounted by a crown.
		199 “	{ Crossed rifles surmounted by a crown.

4. “Gunnery” and “Rifle Practice” Instructors are not eligible for money prizes, but they are to wear the badge in accordance with their score.

5. The badges are to be worn for one year and are then to be given up unless the men are entitled to retain them by their subsequent good shooting.

6. No man who has been put back as described page 326, section 32, is eligible for any money prize badge for the annual firing in which he has been put back.

7. After the annual target practice has been completed the men who have gained prizes are to be paid by the master (on the Captain's order) as soon as convenient.

8. The pay voucher and Form D. are to be sent together to the Commander-in-Chief for transmission to the Admiralty.



PART VII.

RETURNS.

INSTRUCTIONS AS TO THE FORMS TO BE USED.

1. The following Forms are to be used, and will be supplied, on demand, in the usual manner from the Stationery offices in the Dockyards.

Register of Target Practice.—Form A.

2. This form is to be kept *in ink*, and is to be filled up on the ground.

Summary of Independent Practice.—Form B.

3. This form is also to be kept *in ink*, and is to be filled up on the ground.

Competitive Rifle Practice.—Forms C. and C (1).

4. These forms are to be filled up in each ship, and posted in some public place for the information of the ship's company.

Annual Return of Rifle Target Practice.—Form D.

This return is to be furnished from all Sea-going and First Reserve Ships, and from Flag Ships at the Home Ports, and to be forwarded by first opportunity after the practice, to the Commander-in-Chief or Senior Officer, who will transmit these tables from time to time, with as little delay as possible, so that none shall arrive at the Admiralty later than the year in which the firing took place.

NOTE.—Form C. (1) is always to accompany Form D.

Arrangements for carrying out the practice in time meet this are to be made.

This return is also to be furnished from H.M.S. "C. bridge" to the Admiralty, through the Commander-in-Chief, on 31st December.

This return is to contain a notation, stating whether prescribed number of preliminary drills have been carried out or not. In the latter case, reasons are to be given for the omission.

The average number of points in any firing, whether ship or company, will be obtained by dividing the total points by the number of men who competed.

Station Return.—Form E.

A return of this form is to be promulgated in each squadron as soon as the annual rifle target practice has been completed.

This return is to be prepared by the Officer Instructor of Rifle Practice or by the Gunnery Lieutenant (if none on board, by a Lieutenant) of the Senior Officer's Ship.

The original of this return is to be forwarded by the Commander-in-Chief or Senior Officer to the Admiralty at the conclusion of the Annual Practice.

Practice Return.—Form F.

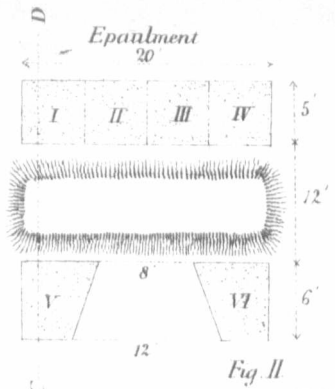
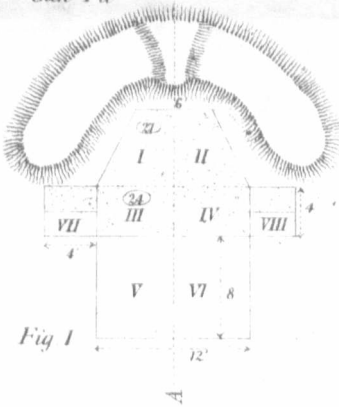
This form is for use in Gunnery Ships, and is to be prepared in duplicate; one copy is to be posted in a public place for the information of the ship's company; the other copy is to be filed for reference.

Register of Judging Distance Practice.—Form G.

This form is for use in Gunnery Ships; it is to be filled in ink, and is to be filled up on the ground.

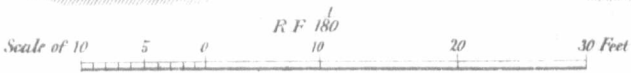
COVER FOR GUNS.

Gun Pit



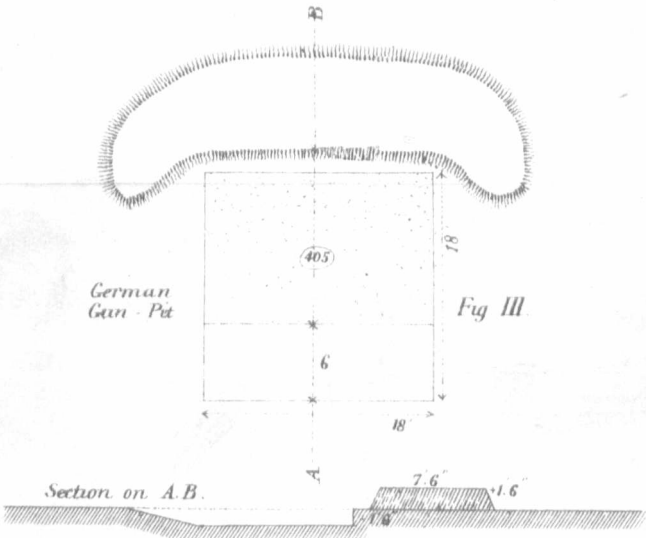
Section on A B

Section on C D



German Gun - Pit

Fig. III



Section on A. B.

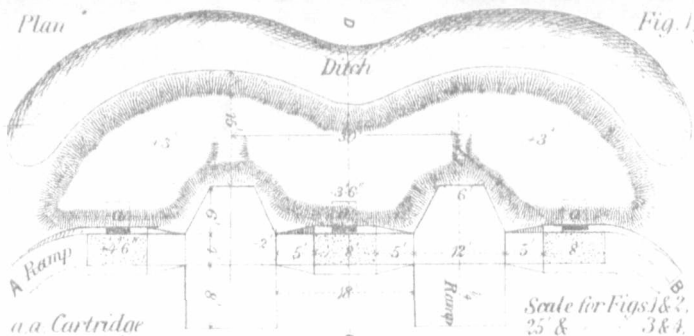


CUN PITS CLOSED INTO A BATTERY.

N.B. In the same manner 3 or more Gun Pits may be connected

Plan

Fig. 1.



*a. a. Cartridge
Recesses*

Fig. 2

Section A-B.

Scale for Figs 1 & 2,
25' & 3 & 4,
30'.



Section CD. Nodes

Blinded Communication

Ramp:

Fig. 3

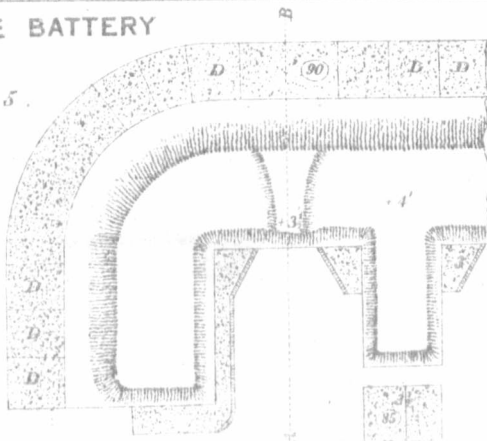
Fig. 4

Scale for Figs. 1 to 4 25 ft. to 1 inch.

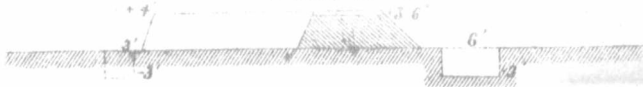
Scale of 10, 5, 0, 10, 20, 30, 40, 50 Feet.

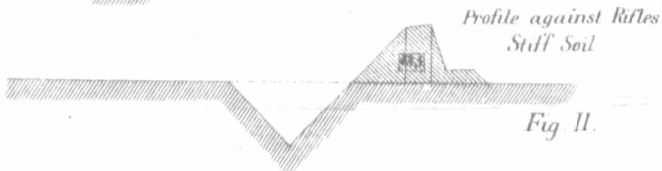
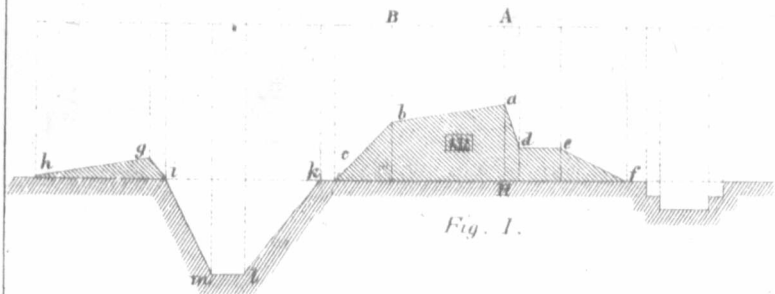
SURFACE BATTERY

Fig. 5.

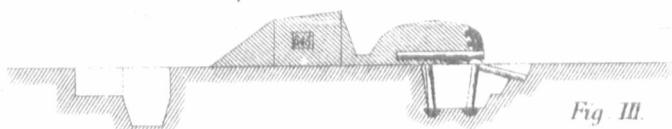


Section on A B



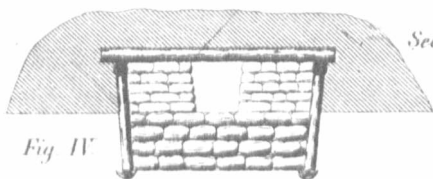


Parapet with Field Casemate.



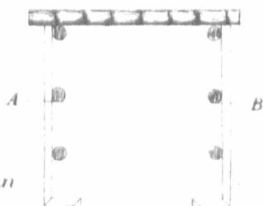
Scale for Figs I II III. $\frac{1}{40}$

Machine Gun Blindage



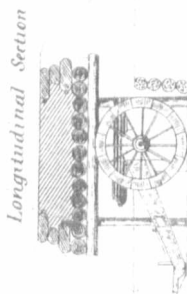
Section on A B

Fig. VI

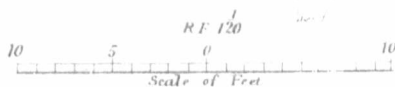


Ground Plan

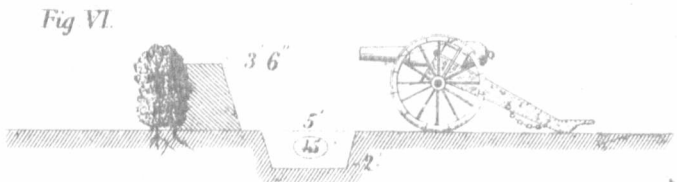
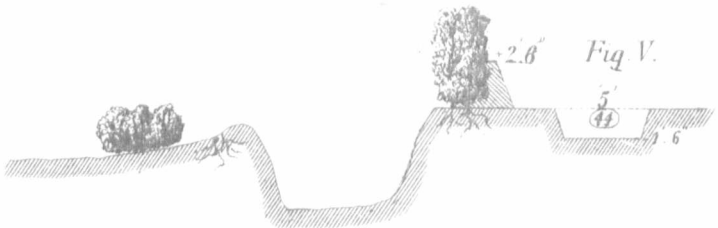
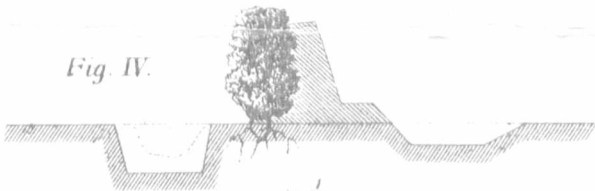
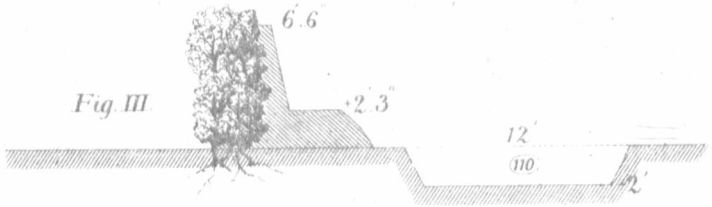
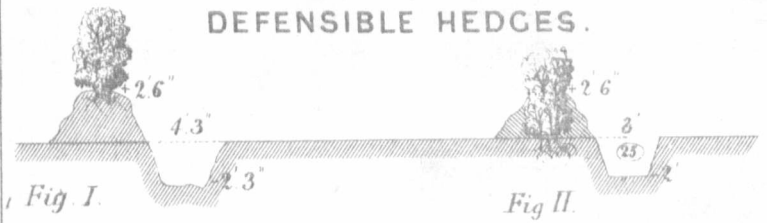
Fig. V.



Longitudinal Section



DEFENSIBLE HEDGES.



DEFENSIBLE WALLS.

Fig. I

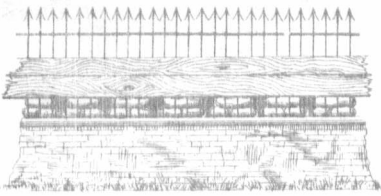


Fig. II

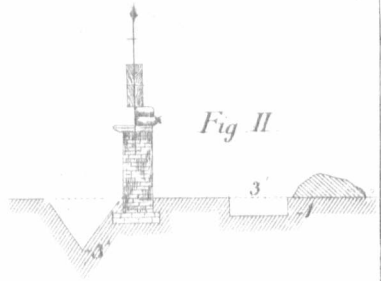


Fig. III

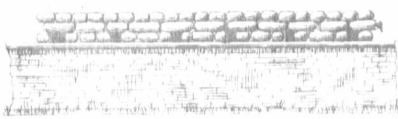


Fig. IV

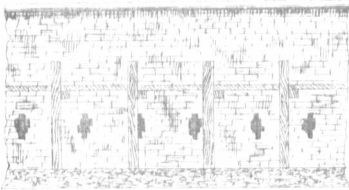
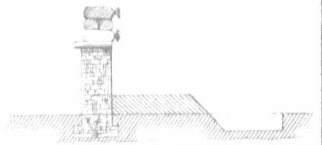


Fig. V

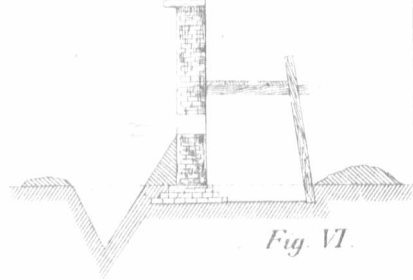


Fig. VI

Fig. VII

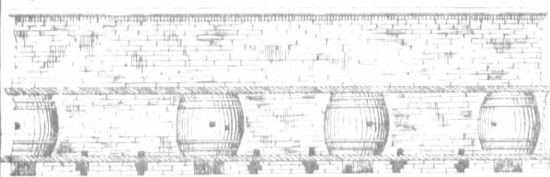


Fig. VIII



Scale of 10 5 0 R.F. 120 10 20 Feet

DEFENSIBLE WALLS.

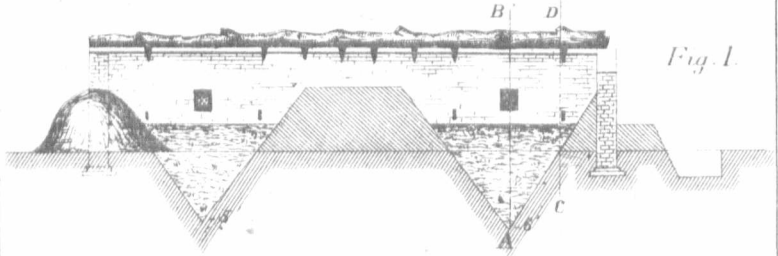


Fig. I.

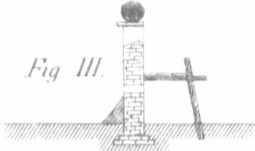


Fig. III.

Section on C. D.

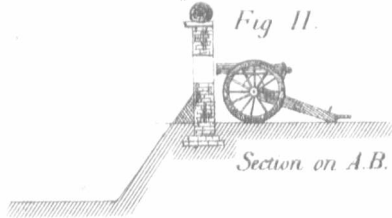


Fig. II.

Section on A. B.

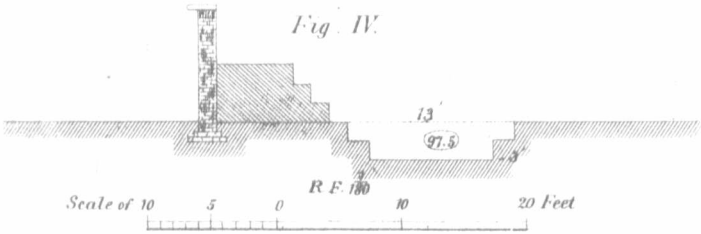
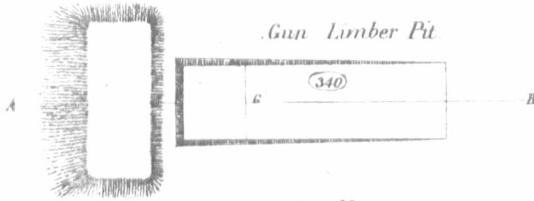


Fig. IV.

Scale of 10 5 0 R. F. 180 10 20 Feet



Gun Limber Pit

Fig. V
Section on A. B.

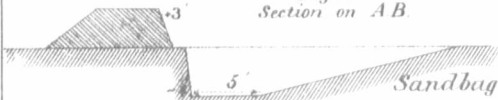


Fig. VII.

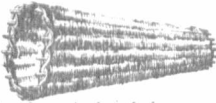
Fig. VIII.

Fig. IX.

Sag Loophole
Fig. VI.



Sandbag Loophole



Brushwood Loophole



ELEVATION



PLAN

44730

BIVOUAC OF BRANCHES OF TREES.

Scale of Figs

$\frac{1}{120}$

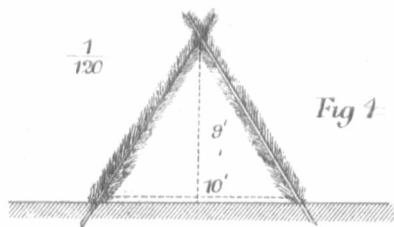


Fig 1.

Section of Bivouac



Fig 2.

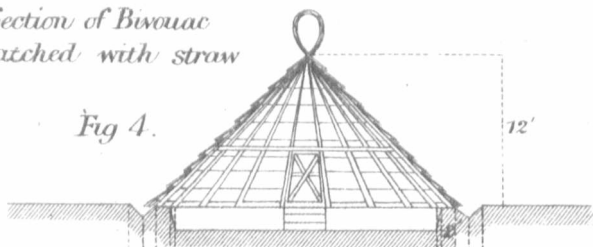
Section of a better form of Bivouac



Fig 3.

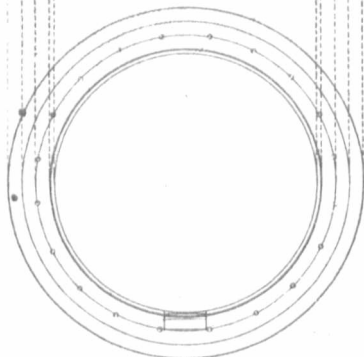
Section of Bivouac
thatched with straw

Fig 4.



Plan

Fig 5.



Scale $\frac{1}{180}$

4731

Straw Lean to Shelter

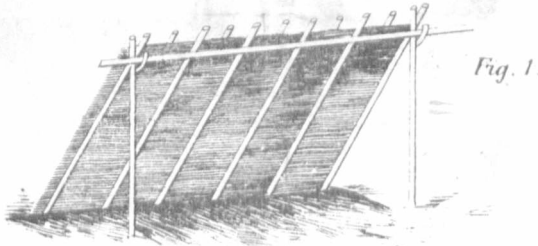


Fig. 1.

Canvass Lean to Shelter

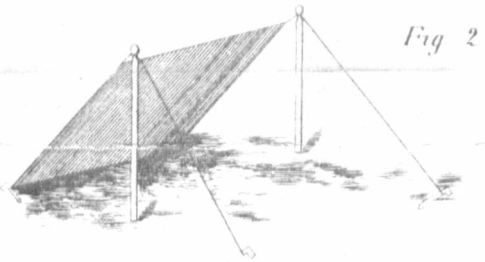


Fig. 2.

Officers Hut Plan.



Section.

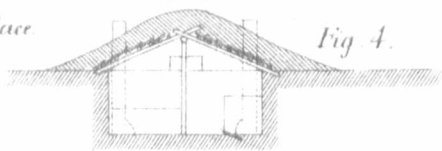


Fig. 4.

Plan of Hut for 20 Men

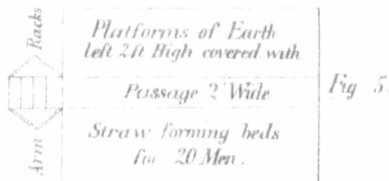
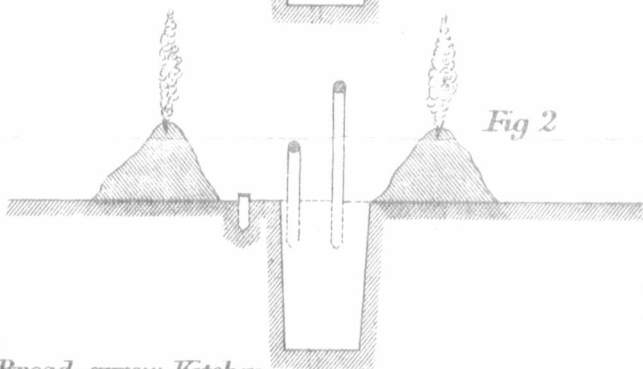
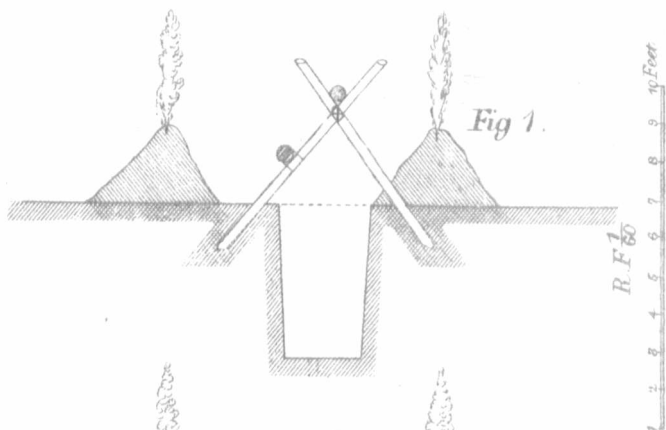


Fig. 5.

Scale of 10 5 0 10 20 30 Feet.

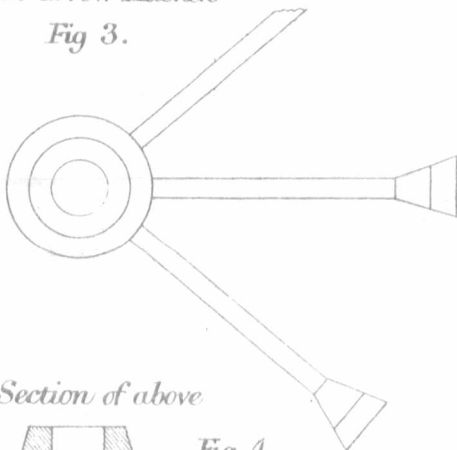
Latrines.



Broad-arrow Kitchen

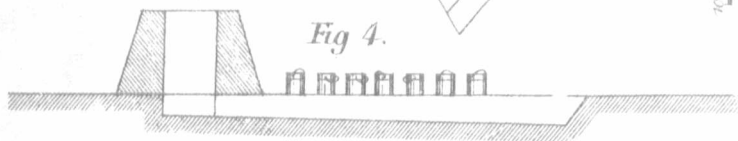
Fig 3.

Plan



Section of above

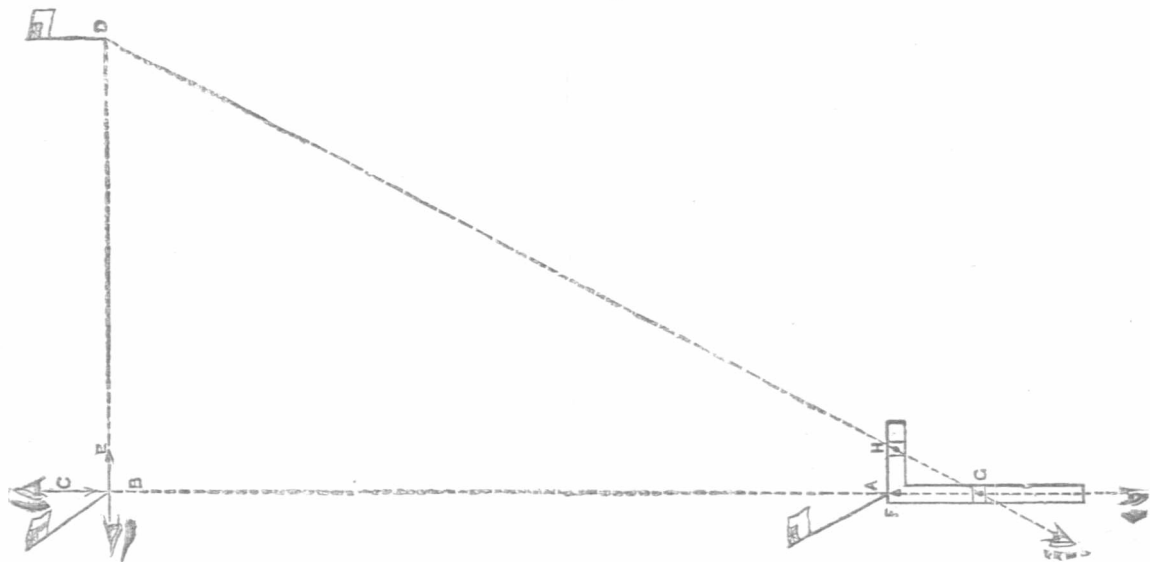
Fig 4.



9599

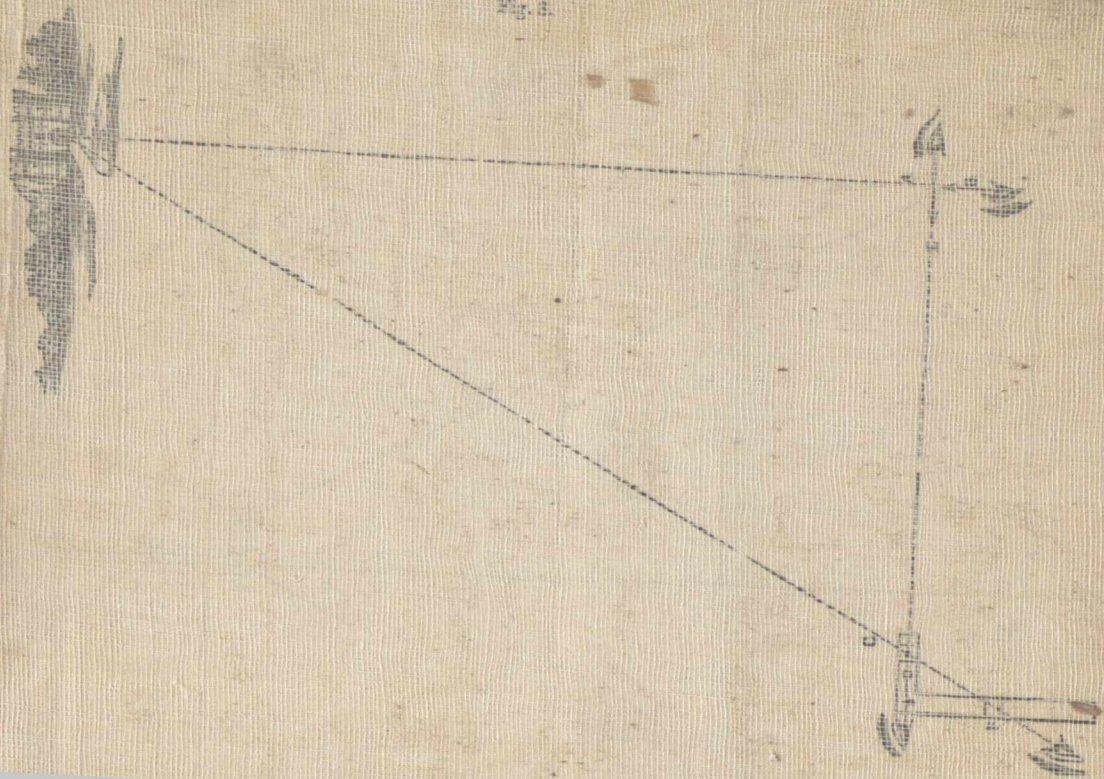
44
434

Fig. 2.



STADIOMETER.

N. 2.



RETURNS.

349 44 55

S.—400. (Revised—January 1882.)

FORM A.

H.M.S. _____, No. _____ Company _____ Section.

REGISTER OF TARGET PRACTICE.

[Pages 313 and 315, Rifle and Field Exercises, 1882.]

Dated at _____ 18 ____

No. on S. B.	Rating.	Name.	PERIOD.											PERIOD.											Total Points in the Period.							
			Yards.											Yards.																		
			Points per Shot.										Total Points.	Points per Shot.										Total Points.								
			1	2	3	4	5	1	2	3	4	5		1	2	3	4	5														
			TOTAL -												TOTAL -																	
			Points on Target in excess, or deficient -												Points on Target in excess, or deficient -																	
			Corrected Total -												Corrected Total -																	

{ Signature of Officer Superintending
the Practice.

No. _____ Company.

Dated at 18

A A 2

44
37

FORM D.

_SQUADRON. NUMBER OF COMPANIES

The prescribed number of Preliminary Drills have been carried out.

G 420/83.

Gunnery Officer.

Captain.

S.—44. (Revised—September 1885.)

THE UNIVERSITY OF CHICAGO PRESS

Station or Number.

ANNUAL INFANTRY PRACTICE PRIZE FIRING COMPETITION FOR THE YEAR 18

[illegible]

The original of this Return is to be forwarded by the Commander-in-Chief or Senior Officer to the Admiralty at the conclusion of the Annual Practice. The names of all ships on the station which did not compete, and the reasons for their not having competed, are to be shown on the back of this Return.

Dated at _____ 19____

Approved,

Commander-in-Chief
or Senior Officer.

FORM F.

PRACTICE RETURN.

Commenced _____ 18 . Concluded _____ 18

[illegible]

Musketry Gunner.

{ *Senior*
Lieutenant.

G.

Approved, _____ Captain.

A.M. Gunnery Ship

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