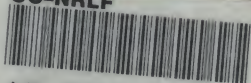


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FIELD SERVICE REGULATIONS

(FELD DIENST ORDNUNG, 1908)

OF THE

GERMAN ARMY.

1908.

Translated by the General Staff, War Office.

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CORRIGENDA.

Page 31. Line 7 from top.—*For* “11th Hussars”
read “11th Ulans.”

Page 47. Lines 5, 11 and 14 from bottom.—*For*
“main body” *read* “main guard.”

Page 48. Line 1 from top.—*For* “main body” *read*
“main guard.”

Page 51. Line 14 from top.—*For* “main body” *read*
“main guard.”

Page 62. Note.—*Delete* bracket after “third” and
insert before “General.”

PREFATORY NOTE.

In the original German text words or passages which it is desired to emphasize are set up in bolder type; this has been rendered in the translation by the use of *italics*.

338053

I SANCTION the following Field Service Regulations.

In applying the instructions contained therein to the training of the troops in time of peace, due regard must be had to the provisions of the Civil Law and to the restrictions imposed by peace conditions.

The latitude allowed for the performance of duties in the field is intended to give scope for original thought and initiative on the part of commanders. Superior officers are forbidden to issue orders restricting this latitude.

I hereby empower the Ministry of War to issue such explanations and amendments as may be necessary, provided that such amendments do not involve fundamental changes.

Berlin, *22nd March*, 1908.

WILLIAM REX.

VON EINEM.

To the Ministry of War.

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INTRODUCTION.

1. *The training of troops in peace time is regulated by what will be required of them in war.*

2. The efficiency of a soldier depends not only upon his physical and military training, but upon his discipline and morale. To develop these qualities is the object of military education.

3. The powers of the *soldier* will only be utilized to full advantage when they are applied as his commander directs. *To this end the troops must learn discipline, which is the backbone of the army, and without which no victory can be achieved. It must be firmly established and strenuously maintained under all circumstances. An outer semblance of discipline, not consolidated by long training in peace time, will vanish at critical moments or under the influence of unexpected events.*

4. It is the duty of *the officer* to lead his men and to train them in every branch of their duty. This requires not only knowledge and experience, but devotion to duty and force of character. *Every officer*

should exert the whole force of his character in every situation, even the most unusual, without fear of responsibility. It is the duty of superior officers to stimulate and to foster this spirit in their subordinates.

5. The personal bearing of the officer is of the greatest consequence to the troops, for his subordinates will follow the example set by coolness and resolution in the face of the enemy. It is not sufficient to give an order, nor even to give *the right order*; *the manner in which the order is given* has a great effect upon the men.

The officer's bearing and example inspire confidence, that ever firm support of discipline in danger and need, and rouse the troops to the performance of heroic deeds.

6. Untiring *solicitude* for the welfare of his men is the duty and the privilege of the officer. Commanders of every grade must do their utmost to ensure that their subordinates take *a pleasure in the performance of their duty*; this offers the best guarantee of success.

7. For the performance of his numerous and responsible duties the officer requires a thorough *training*. Although his superior is primarily responsible for this, yet every officer, in order to develop his education further, must *study on his own account*.

8. *Gymnastics, fencing and shooting* are special forms of training which should be cultivated by officers. Even bicycling and the use of motor cycles are profitable exercises.

Proficiency in *riding*, even hunting when off duty, is to be encouraged in every possible way by superior officers. Special importance is to be laid on riding across country. In dismounted corps the higher commanders will devote special attention to the instruction of the officers in riding.

9. It is important that officers, especially those of

the cavalry, should learn to find their way about in unfamiliar country by day and by night.

10. It is necessary that cavalry officers should be systematically trained in scouting. They must be instructed in crossing rivers, and in cutting and destroying railways and telegraph lines. They must also be conversant with the technical appliances for transmitting intelligence.

11. The *tactical training* of officers is a matter for which commanding officers are primarily responsible. There are many ways of carrying this out.

12. In *practice*, the best tactical training is afforded by exercises in which the officer is set a certain task to perform. These exercises perfect him in handling his command, cultivate his intelligence, and encourage him to think and act for himself.

13. War games, tactical problems, winter schemes, lectures and staff rides serve to develop tactical training and to cultivate intelligence.

War games and *tactical problems* afford opportunities to form decisions on given premises, and to express these decisions rapidly in the form of orders. They also encourage officers to study the regulations and the principles of tactics. Specially qualified individuals may be selected to set tactical problems and to direct war games, irrespective of their seniority.

The object of *winter schemes* is to encourage officers in the earnest and scientific study of their profession. The subjects chosen for an essay, which will be connected with military science or other professional matters, must be within the intellectual capacity of the writer. The subjects should not be of too general a nature, but should be such as to require the writer to form and to express an opinion upon certain definite points.

Lectures delivered to officers, or to military societies, serve both to instruct and to stimulate new ideas,

whether they illustrate past campaigns or military questions, or whether they arouse a deeper interest in the service text-books. They cultivate the power of clear and accurate expression, especially when they are delivered *extempore*. It is desirable that each lecture should be followed by a discussion, in order to give as many officers as possible an opportunity of expressing their opinions.

14. *Tactical rides*, or conferences, in which the commanding officer and his officers take part, should be carried out as far as possible over unfamiliar ground. They are invaluable for widening the experience of officers, and are calculated to develop an eye for country and skill in map reading.

Tactical tours in which officers of all arms take part afford valuable instruction in combined tactics.

General Staff tours and *cavalry tactical tours* are intended principally for instruction in warlike operations on a large scale.

15. The study of *military history* improves the judgment of officers, and affords a standard of comparison for what would be possible in war and for what would only be possible in peace.

16. The officer must be instructed in the organization of his own and of neighbouring armies, and in their marching and fighting formations. This is especially necessary for the cavalry officer, who, when reconnoitring, will have to judge of the strength and disposition of large forces.

A knowledge of foreign languages is of great use to every officer. Familiarity with the Morse alphabet is also useful.

Skill in the preparation of sketches may be attained by constant practice.

17. In the training of *reserve officers* stress should be laid upon the matters which will be most useful

to them in war. The officer commanding the regiment is responsible that everything possible is done to render them efficient commanders of their units.

18. Special tactical exercises are required for the instruction of *non-commissioned officers*. These exercises must be based on their duties in war. The same principles laid down for the training of officers apply in a modified sense.

It is essential to train as many reserve non-commissioned officers, capable of service in the field, as possible, and to render them efficient. These non-commissioned officers must be selected from the ranks at an early stage.

19. *In every branch of the service training must commence with the individual instruction of the man. The necessary co-operation of a body of men can only be attained by the thorough training of the individual.*

20. *Gymnastic exercises* of every kind, and practice in swimming, increase the bodily activity of the soldier and develop his determination and quickness. Skill in *the use of arms*, and, for the mounted soldier, the absolute control of his horse, are essentials for success in the combat and they increase self-reliance.

Theoretical instruction proceeds hand in hand with practical training, and a high degree of importance is to be attached to it. It should always be suited to the intellectual capacity of the soldier, always be to the point, and calculated to stimulate interest. In the process of instruction the superior gets to know the subordinate better; he gains his confidence, and so the possibility of also acquiring an influence upon his character and upon his mind.

22. Individual training leads up to training in *formed bodies*. Training in the company, squadron and battery forms the basis of all military efficiency. Step by step, training in larger bodies and with the

different arms is reached, culminating, in peace, in manœuvres. Even in war training must not be allowed to lapse, and must be carried on in the pauses between operations.

23. *A gradual increase of marching power* is to be aimed at in all exercises. The load of the man and the horse is gradually increased up to the full weight carried in war. Officers and non-commissioned officers must learn to judge of the performance that may be expected from a fully-loaded man or horse.

Unless the quarters of the troops are so situated as to necessitate a great deal of marching, special route marches are indispensable. Exercises of other kinds may be combined with these marches.

When the infantry soldier goes to the reserve he must be confident that he is capable of accomplishing any march that will be required of him in war.

24. *Drill* is the school in which troops acquire that assured order and firm cohesion which must become their second nature. The strict discipline acquired during training must not be relaxed either at manœuvres or on active service. *The bearing and appearance of the men after severe exertions are an infallible test by which to judge the efficiency of troops.*

25. It is no less important to educate the soldier *to think and to act for himself.* His self-reliance and sense of honour will then induce him to do his duty even when he is no longer under the eye of his commanding officer.

26. The peace training of the troops *for service in the field* will include all the duties that will be required of them in war. The guiding principles for the combat are embodied in the regulations for the several arms.

27. Exercises in reconnaissance and protection are specially adapted to stimulate and develop the intelligence of the soldier and of the subordinate leaders.

In the cavalry, exercises in the field are not to be limited to the work of the divisional cavalry, but will include the duties of the army cavalry.

28. Exercises with *formations raised to war strength* are of especial value. The more the peace strength of a unit differs from its mobilized strength, the more important it is for commanders of all ranks to learn to recognize and overcome the difficulties connected with handling troops at war strength. Exercises in which, at least, the lengths of the columns on the march are represented as they would be in war, offer partial substitutes for the above.

29. Exercises of *the three arms* combined must be carried out whenever the presence of large garrisons, or favourably situated adjacent garrisons, renders them possible.

30. *Night operations* are indispensable. Marching by night, both on and off the roads, is especially important.

31. *Field firing under service conditions* will also be carried out in the *open country*, away from ranges and training grounds. Field firing by the three arms combined may be of use when the ground is such as offers scope for real tactical situations and for a simultaneous co-operation of the several arms.

The supply of ammunition should occasionally be practised.

32. The execution of *technical engineering work*, necessary in war, forms an important branch of training for all arms.

This applies both to field entrenchments and to siege works.

33. The efficiency and health of the troops are to a great extent dependent upon the proper preparation of their food. The soldier should be instructed practically with this end in view.

34. During the systematic and progressive training in all branches of instruction from the simple to the difficult, and from that of the individual to that of the whole, the important principle, that *the main source of strength of the army lies in its constant readiness for war*, must never be forgotten.

In order to fulfil both these conditions, all exercises which most nearly approximate to service conditions, such as shooting and field training, must not be confined to any one season of the year.

35. Exercises on a larger scale are only to be held during the time allotted to individual instruction and the training of the smaller units, in so far as this can be done without sacrificing the completeness and thoroughness of such instruction and training. On the other hand, exercises for which the use of the open country is necessary, will often have to be deferred during the winter.

36. Training must not be rendered more difficult by the invention of forms which are foreign to the regulations or unknown in war. *Artificial methods disappear on the first day of mobilization.*

37. All peace exercises lack what in war is the principal factor, namely, the enemy, the will and offensive power of whom have to be reckoned with until both are broken down. It must never be forgotten that the situations encountered in war will differ in many respects from those met with in peace exercises, and will impose a far more unequal and a severer test on moral endurance.

Severe exertion and endurance of privations at peace exercises are, therefore, valuable factors in the training of the soldier. They promote self-reliance and strength of will.

Every soldier, from the youngest upwards, must put his whole heart and soul into his work. This, and this alone, enables a body of men to work together to the

best advantage. Only thus are men produced who are cool and undismayed in the face of danger and who will carry their weaker comrades with them to victory.

38. *Resolute action is consequently of first importance in war. Every individual, from the highest commander to the youngest soldier, must always remember that supine inaction and neglect of opportunities will entail severer censure than an error in conception of the choice of means.*

WAR ORGANIZATION—DISTRIBUTION OF TROOPS.

39. The *war organization* of the field army, or of any portion of it, ordered at the time of mobilization by His Majesty the Emperor and King, regulates the conditions of command and administration for the campaign. It can only be altered by an Imperial order.

40. In conformity with the war organization, the *field army* consists of armies, and *armies* of army corps, cavalry divisions, reserve troops and special formations.

41. *An army corps* consists, as a rule, of two infantry divisions, a corps telegraph detachment, a corps bridge train, ammunition columns, and train. Heavy artillery may be allotted to it.

42. *An infantry division* consists, as a rule, of two infantry brigades, to one of which a rifle battalion* may be attached; the divisional cavalry; one brigade of field artillery (12 batteries) with its light ammunition columns; one field company of pioneers*; the divisional bridge train; and one or two bearer companies.

43. *A cavalry division* consists, as a rule, of three cavalry brigades, one *Abteilung* (three batteries) of horse artillery with its light ammunition column, a pioneer detachment and a machine gun battery.

44. *A reserve division* is organized generally as an

* All regulations affecting the infantry apply also to rifle battalions, and to pioneers when acting as infantry.

infantry division. A reserve divisional telegraph detachment is usually allotted to it.

45. The *distribution of troops* determines their temporary disposition for any given operation or for any tactical purposes such as advanced, rear or flank guards. The normal organization for war is to be preserved as far as possible.

COMMUNICATION BETWEEN STAFFS AND TROOPS.

THE ISSUE OF ORDERS.

46. For the guidance of troops by the higher commanders the *written order* is the rule. Such an order is issued to the recipient, in writing, in print, by telegraph or telephone, or is frequently dictated. Occasionally orders are issued by heliograph or flag. In each case the best and safest method is to be chosen.

Short and simple orders, or instructions, may be given *verbally*. But even in such cases it is usually best to confirm the order in writing.

47. When orders are transmitted by telephone, flag, wireless telegraphy or similar means, confirmation is necessary as to the identity of the individual who issued the order. It may be desirable for the message to be repeated word for word.

Even when communication is supposed to be reliable, it will often be desirable to send important orders in writing as well by telegraph.

A too frequent use of technical means of communication, especially during an engagement, tends to impair the self-reliance of the junior commanders.

48. When communications are not reliable, for instance when there is a danger of the enemy tapping the telegraph wires, it is desirable to send the message wholly or partly in *cipher*. When important messages are sent by wireless telegraphy this will often be necessary.

49. *An order* should contain, and *only* contain, everything which the recipient requires to know to enable

him to carry out independently the task assigned to him. The order must, therefore, be clear and concise, definite and complete ; it must also be suited to the intellectual capacity of the recipient, and even, under certain circumstances, to his personal characteristics. When orders are sent by telegraph, lucidity must not be sacrificed to brevity.

50. In issuing orders, detailed instructions should be especially avoided in cases where circumstances may have changed before the order can be carried out. This point is especially important in field operations on a large scale, when orders may have to be issued extending over a period of several days. In such a case a commander's general intention should be emphasized, and special stress must be laid upon the object which he desires to attain. The general views of the commander for the conduct of the intended operations should be given, but the method of execution must be left open. An order thus issued assumes the nature of a *directive*.

51. Written orders, directing the action of several bodies of troops for a common purpose, should be in numbered paragraphs.

The most important matter will take precedence, and passages relating to one subject will be combined into one paragraph.

52. *Operation orders* regulate the tactical action of the troops, and contain such orders regarding transport, ammunition columns and train as it is necessary for the troops to know. They are styled army orders, army corps orders, divisional orders and so forth, advanced guard orders, outpost orders and the like, according to the formation or detachment from which they emanate.

Special orders are issued to regulate, as required, supply, replacement of ammunition, medical services, movements of ammunition columns and train, the use

of transmission troops and similar special matters. They supplement the operation orders and are issued only to those troops directly concerned.

It may be desirable, in the interests of brevity and celerity of issue, to embody instructions as regards supply, replacement of ammunition, medical services and so forth in the operation orders.

Routine orders for army corps, divisions and minor units relate to interior economy, returns, personal matters and such like.

53. Operation orders should be framed in the following sequence :—

Information concerning the enemy and the neighbouring troops, in so far as this is of importance to the recipient.

The intention of the officer issuing the orders, in so far as this is necessary for the immediate object in view.

Tasks assigned to separate formations as detailed in the order of battle.

Orders for the second line transport, for the ammunition échelon (if formed), and for the remaining ammunition columns and train, in so far as these are of importance to the troops.

Orders as to where reports are to be sent, and as to what arrangements have been made for forwarding information.

The position of the officer commanding.

Which of the above are to be included in the operation orders will depend on each particular case.

Information based on supposition or expectation will rarely be given in orders. Reasons for the measures adopted, and conditional orders, depending upon various possible contingencies, are never to be stated.

54. It is often advisable in the first instance to issue brief orders, or extracts from orders, and to allow the complete order to follow. The hour and place of start-

ing next morning may often be communicated by telegram or telephone before the operation orders are issued.

55. In the *distribution of troops*, which will usually be kept separate from the text of the order, the position of the troops will be given by arms, in the following sequence: Infantry, machine gun batteries, cavalry, field artillery, heavy artillery, pioneers, telegraph troops, balloon detachments and bearer companies. If the order of march is given in the text of the order, the troops will be detailed therein accordingly, and a note "in order of march" will be made against the several component parts of the column, such as main body, advanced guard or rear guard.

At the close of the orders a note is to be added showing how and to whom the order was issued.

56. Orders issued to small independent detachments may be in the same form as above. They will, however, only contain matters with which the troops are directly concerned.

57. It is seldom advisable to repeat the whole of the orders received from higher commanders, with their supplements. It will be clearer, and will serve the purpose of the commander better, merely to issue such orders as are necessary for his own command. In larger formations orders to the troops will usually be based on divisional orders. The subordinate commander merely issues the order for the assembly of his command, and gives any further orders that may be necessary by word of mouth.

58. Orders for a possible retreat will be issued confidentially and only to the officer next senior to the commander.

59. *Operation orders* must be free of any set form. It is sometimes desirable to include the distribution of the troops. The situation will decide whether these orders are to be issued in writing or verbally, or whether

they are to take the form of separate orders to individual units, or of one order to the whole. The manner in which the order is circulated must ensure the co-operation of all portions of the force.

60. In all orders clearness of expression, which can leave no room for doubt, is preferable to literary form.

INFORMATION, MESSAGES, REPORTS, SKETCHES, WAR DIARIES.

Information, Messages, Reports.

61. The basis for the appreciation of the situation is, as a rule, primarily afforded by *the information* communicated by the higher commanders. This is based upon their general knowledge of the conditions, upon information collected by the Intelligence Department, and occasionally upon information derived from the press. More definite information regarding the enemy is obtained by reconnaissance, by seeking him out and by constant observation of his movements. When numerous items of information are received from different sources, it will be possible to draw general conclusions therefrom.

62. All commanders must, therefore, communicate and transmit information within their sphere of action. It is also the duty of patrols, advanced detachments, commanders and staffs of commands to keep their superiors informed, as soon and as far as possible, as to the situation, and to send on all important reports.

63. Besides the information obtained by direct observation of the enemy, important information may be derived from the inhabitants, from newspapers, letters and telegrams seized at the post offices, from captured balloons and carrier pigeons, and from intercepted telegrams of every kind.

64. Other sources of information regarding the enemy may be obtained from the statements of prisoners and

of sick or wounded men left behind, and from papers found upon officers killed or captured.

If prisoners cannot be brought to head-quarters at once, they should be subjected separately, and without loss of time, to a skilful interrogation in order to get at the truth by comparing the answers received.

The main points of such examination should be:— Designation of the unit and formation to which the prisoner belongs; names of the commanding generals; where the prisoner was quartered the previous night, and what marches he last performed; general condition of the enemy's troops, and the spirit prevailing in their ranks.

If circumstances do not permit of immediate examination, the names and numbers of the prisoners' units must at least be ascertained, as these will assist in drawing conclusions as to the disposition of the enemy's forces.

65. In sending in *reports* a distinction must be drawn between—(a) what the sender has seen himself, (b) what another person has seen or heard, (c) what is mere supposition. The source of the information must be given, and the reasons for any supposition must be stated.

66. It is most important to give numbers, time and place with accuracy.

The knowledge that the enemy was *not* seen at a given place is often of value. Confirmation of reports already received is valuable; as also is the knowledge that the situation has remained unchanged during a given period.

Important information regarding the ground should always be added to reports concerning the enemy, even if such information was not ordered to be furnished.

67. The importance does not lie in the number of

reports sent in, but in such as which clear up the situation and give the commander the most reliable information possible upon which to base his plans. It must always, therefore, be a matter for consideration whether to report at once any occurrence observed in the enemy's lines, or whether to report it at all. Useless reports hamper the initiative of the commander.

68. The combat itself furnishes the most reliable data in appreciating the situation. It is therefore most important that, during the combat, communication should be interchanged between the commander and his troops.

At the conclusion of a combat the following should immediately *be reported*:—What the opposing troops consisted of, how the enemy is situated, in which direction he has retired, and any information of a similar nature.

69. In urgent cases reports should be sent to the higher commander direct, as well as to the immediate superior. If any troops are directly threatened by the enemy they must be informed at once, irrespective of any other reports that may be necessary. If several reports are sent to different places this fact should be noted in each report.

70. Neighbouring troops must keep each other informed as to any important facts observed as regards the enemy, and as to any changes in the situation. In the case of the higher staffs it is advisable to detail special *intelligence officers* for this duty.

71. Impressions and opinions, the result of personal observation, may be of value for reports, or, in some cases may be the object of the report.

72. A *report* often supplements short messages and should consequently be in greater detail. The object of the report must be clearly stated. The information which it is important for the commander to know at once should appear at the beginning.

73. The short report sent in immediately after a battle requires to be supplemented by fuller *reports on the engagement*. These should be framed as soon as possible after the events. The matter reported on will be arranged chronologically; it is therefore necessary to record the time at frequent intervals during the combat. When operations are on a large scale reports will be classified according to the places they deal with.

Orders and messages received during the operations which it is intended to describe, and which have affected the course of events, are either to be embodied in the report or attached to it as appendices.

Sketches and Sketch Maps.

74. The *sketch* serves to elucidate the text of the report, and may take the place of an elaborate description. It must show important detail clearly and distinctly, and in the simplest possible form.

Conventional signs which are not essential may be dispensed with, and it is not always necessary that the sketch should be drawn to scale. Important distances and dimensions, such as the breadth of a river at a given point, are to be inserted in figures. Notes made on the sketch itself will often make long explanations unnecessary. *Panorama sketches* are occasionally useful.

The *sketch map* partakes more of the nature of a map, and may be used to supplement the map, either to show information gained by reconnaissance, or in connection with a report upon a position to be entrenched.

War Diaries.

75. War diaries are kept as a record of everything which has been done by a unit in the field. They are subsequently used, together with the reports on engage-

ments, as the material for the history of the campaign. They must be entered up daily.

Instructions for keeping up the war diary are given in the official War Diary Book.

TRANSMISSION OF ORDERS AND MESSAGES.

76. Orders and messages, during an engagement, may be transmitted, according to distance and other circumstances, by single orderlies, relays of orderlies or by technical means.

77. In order to facilitate finding commanders, the head-quarters of an army, army corps or division, and of a cavalry division are provided with *distinctive flags*. These flags must be kept out of sight of the enemy, even on the march. When commanders change their positions they must arrange for messages to be forwarded as quickly as possible.

The position of His Majesty the Emperor is marked by the Imperial Standard.*

78. In operations on a large scale *reporting centres*† may be organized. If these are judiciously placed, much time and labour will be saved. They must be strong enough to protect themselves against small parties of the enemy. Each reporting centre will be under a specially selected officer, who will read each message sent in and decide, according to its importance, on the time and method of transmission to its destination. Under certain circumstances it may suffice to transmit the substance of several reports.

79. The higher commanders possess in their own

* See Plate I. The Royal Standards illustrated in Plate II are similarly used.

† *Meldesammelstellen*. Lit.—Places where messages are collected. (General Staff)

staffs, supplemented so far as is necessary by orderly officers, the means for the transmission of orders. In addition, mounted orderlies and cyclists may be permanently, or temporarily, attached to the headquarters of commands, infantry regiments and mixed detachments.

80. *Mounted orderlies* which are required on the march, during an engagement, with the outposts, or by formations organized according to the "distribution of troops," will be detailed from the attached cavalry under the orders of the commander of each formation. Field artillery will provide their own orderlies.

Food, forage and quarters will be provided by the staff to whom the orderly is attached.

81. *The number of orderly officers, mounted orderlies, and cyclists will be kept as small as possible, to avoid weakening the fighting troops.*

Mounted orderlies and cyclists, attached to staffs, will be sent back to their units as soon as they have completed their duty.

When the roads are good, and it is safe to use them, cyclists are to be preferred to mounted orderlies. In such cases motor cycles and motor cars may be used with advantage.

82. It is only permissible during the advance into action for the higher staffs to send for adjutants of subordinate commanders, in order to expedite the issue of orders. In action this procedure is forbidden.

83. When an order or message is given verbally, the orderly will repeat it word for word before starting. When an order or message is given in writing, the bearer should be informed of its purport, if the circumstances admit of this being done.

84. Important orders and messages should be taken by an officer, if possible.

If a message is specially important, or if the road by

which it has to be conveyed is unsafe, several copies may be made and sent by different roads, or by different means of communication. For similar reasons, especially when a message has to be sent a long distance, a number of mounted men or cyclists may be sent.

85. The sender of a message should consider where his communication is likely to reach the receiver, and should give directions to the bearer as to the route he is to take, and to whom he is to deliver the order or message. If necessary he will furnish the bearer with a sketch of his route; and will warn him concerning any parts of it which are especially dangerous to traverse. Under certain circumstances the latest time by which he is to reach his destination may be ordered. The orderly must invariably be informed where he is to go after the message is delivered.

86. Senior officers are empowered to read any messages in transit. They will note if they have done so on the message form.

87. A mounted orderly meeting an officer will not relax his pace. If some immediate danger is threatening, he will call out the purport of the message to commanders or to the troops. Orderlies must have no hesitation in making enquiries as to the whereabouts of the commander to whom the message or order is addressed. It is the duty of every officer to direct them.

Orderlies do not dismount to hand in messages or to deliver orders.

88. *It is the duty of every unit to assist in the transmission of a message or order without special request, to the extent, if necessary, of furnishing fresh horses.*

89. For distances up to 12 miles the rate at which a mounted orderly is to travel will be marked on the message form by means of crosses. One cross signifies a rate of 5 to $5\frac{1}{2}$ miles an hour; two crosses, $7\frac{1}{2}$ to 8

miles ; three crosses, as fast as possible, having due regard to what can be expected of the horse.

For long distances special orders will be given as to rate of travel.

The condition of the horse, the weather and the state of the roads may make it necessary to diverge considerably from the instructions given.

90. When a message is sent by motor car or motor cycle the degree of haste will be designated by crosses in a similar manner.

91. It may be necessary to arrange *relays* for the rapid transmission of orders and messages over portions of routes where telegraphic or telephonic communication is not sufficiently reliable.

Cavalry relays weaken the units and should only be used when neither motor cars nor cyclists are available.

92. The distance apart of the *relay posts* depends upon the total distance to be covered, the purpose to be served by the line of relays, and the state of the roads. The strength of each post will depend upon the time for which it is to be employed, the amount of the traffic, and the requirements of local security. Under ordinary circumstances, and over long distances, cavalry relays will be 10 to 15 miles apart, cyclist relays 18 to 24 miles.

If the relay service is continued for any length of time, the relay posts should be relieved from time to time.

93. The best positions for relay posts are farm buildings adjoining the road. When the temper of the inhabitants is doubtful, large villages are best avoided. Special precautionary measures may have to be adopted, such as threatening whole parishes with punishment, or taking hostages.

One man of the relay will be posted as a sentry on the road. The place where the relay is posted must be conspicuously marked by day and by night, and

its exact position must be known to the neighbouring posts.

If no letters pass through a post for any length of time, the men of that post must satisfy themselves that the post on either hand is still there.

In a district freely traversed by the enemy's patrols relays may be concealed at a short distance from the road.

94. The commander of a relay post will keep a book in which are to be recorded the address of each letter passing through (including directions as to rate of travel), time of arrival and departure, name of the man who brought the message and of the man who carried it on. The latter will be given a ticket on which the receipt of the letter will be noted by the next relay.

This bookwork must not delay the letters in transit.

95. *The transmission of messages, &c., by technical means of communication* is dealt with in paras. 552 to 564.

GENERAL PRINCIPLES FOR CORRESPONDENCE.

96. Correspondence should be as simple as possible as regards form.

97. Short sentences and the avoidance of unusual expressions are conducive to clearness. It is advisable to read over a written communication several times, and to try and imagine how it will appear from the recipient's point of view. This will usually enable the sender to word his message clearly and to avoid conveying wrong impressions.

98. Expressions such as "right," "left," "before," "behind," "this side," "on the far side," and the like should be used with caution. In any case, where doubt may arise, the points of the compass should be used instead.

In using the expressions "right flank," "left flank," ("wing," "flank guard") and the like, the direction facing the enemy is assumed. Columns on the march will be usually designated by the name of their commanders, unless they can be referred to by the simple designation in the order of battle. The front and rear of a column are named with reference to the direction in which it is marching.

99. The space between bodies of troops from front to rear is called "distance," that from flank to flank is called "interval."

100. The day, month and year will be designated by the usual abbreviations, as 20.6.08 or 20 June '08.

When a night is stated, if any doubt can arise, it will be designated by the days between which it intervenes, separated by a stroke, as the "night of 5/6.9.08" or "5/6 September."

Time will be designated by hours and minutes, as 9¹⁵, 12³⁰, and by the period of the day. From one minute past midnight to one minute before noon the figures will be followed by the word *morning** or *forenoon**; from one minute past noon to one minute before midnight the figures will be followed by the word *afternoon** or *evening** (without any more definite description).

The words *noon* and *midnight* should always be written in full. The expression *to-day* and *to-morrow*, when used, sometimes require to be further particularised.

101. The names of places should be very clearly written, and the spelling should be identical with that on the map. They should be written in Roman characters. If there are more places than one of the

* *Morg.* = morning. *Vorm.* = forenoon. *Nachm.* = afternoon. *Abds.* = evening. (General Staff.)

same name in the district, the place should be further defined, as "Neuhof (two miles S.E. of Ols.)"

The same applies to places which are difficult to find on the map. When places are designated on the map by a double or distinguishing name, as Han a. d. Nied, the name should be written in full (Han on the Nied).

If a place has no name it should be designated by its position, or by suitable landmarks, so that no mistake is possible.

102. Roads should, as a rule, be designated by the names of two places on them. When forks and cross-roads, or roads leading out of towns or villages, are mentioned, special care should be taken to define them clearly. It is frequently undesirable to designate the last named by the points of the compass.

103. Orders having reference to the ground will usually be worded in accordance with the map, even if the recipient has no map.

For this reason descriptions which cannot be understood without the map should be avoided, unless it is certain that the recipient has a copy of the same map. Where any doubt is possible it should be stated to which map the references apply.

When a point is designated merely by its height ("Point 542") a further description should always be given, since there may be several points on the map of the same height in the same neighbourhood ("Point 542, $1\frac{1}{4}$ m. N.W. of Erbenheim").

104. In describing sections or areas of ground, or positions, the writer will commence with *his own right*, or the enemy's left.

105. To designate commanders and troops any abbreviations may be employed, provided that there is no doubt as to their meaning. For example:—

- I. R. 130 = Infantry Regiment 130.
- St. I u. II/27 or I. R. 27 = Staff, and 1st and 2nd Battalions 27th Regiment or Infantry Regiment 27, Staff, 1st and 2nd Battalions.
- I. R. 67 (*ohne* 11) = Infantry Regiment 67 less the 11th Company.
- Jäg. 3 = 3rd Rifle Battalion.
- M. G. A. 1 = Machine Gun Battery No. 1.
- St. 1, 3, 4/Ul. 14; or Ul. 14 = Staff, 1st, 3rd, 4th Squadrons of 14th Ulans; or (*ohne* 2). 14th Ulans less the 2nd Squadron.
- St. u. R/F. A. 34; or F. A. = Staff and Horse Artillery *Abteilung* of the 34th Field Artillery Regiment; 34, St. u. R. or Field Artillery Regiment 34, Staff and Horse Artillery *Abteilung*.
- II (F.) F. A. 4 = 2nd *Abteilung* of Field Howitzers of Field Artillery Regiment 4.
- St. u. I. (S. F. H.) Fusz. = Staff and 1st (Heavy Field Howitzer Battalion) of A. 4. Foot Artillery Regiment 4.
- II (Mrs.)/Fusz. A. 5 = 2nd Battalion (mortars) of Foot Artillery Regiment 5.
- 1/Pi. 3 = 1st Company of 3rd Pioneers.
- S. K. 2 = 2nd Bearer Company.
- K. Tel. A. = Corps Telegraph Detachment.

106. All documents should be written so clearly that they can be read even by a bad light. Those kinds of ink and pencil which run when exposed to rain should not be used.

107. Documents in pencil, if they are to be preserved as records, should be fixed by the recipient at the earliest opportunity by dipping them in some liquid that will preserve the writing (milk or weak gum water).

108. The following form will be used by units for *field messages* :—

FIELD MESSAGE FORM.
(Outside.)

← - - - - 15 cm. (6 inches) - - - - →

Margin at least 1 centimetre wide.

This strip to be returned to the orderly.

Time of Departure

Time of Arrival

Page

Signature

To _____

Route _____

Remarks by transmitting station.

The space marked "sender" is not to be filled in with the sender's name, but with the staff or unit to which he belongs, or the capacity in which he is acting at the moment. (12 I.D.—Feldw. Nr. 1.9.97.—Off. Patr. 3/Ul. 11 = 12th Infantry Division—Piquet No. 1, 9th Company, 97th Regiment—Officers' Patrol, 3rd Squadron, 11th Hussars.)

The address is written briefly. For instance:—
 "To 12 Inf. Division" or "To the commander of the advanced guard."

The signature consists of the name and rank of the sender, which must be very clearly written. The place and time are filled in last, below the message. The recipient signs as having received the message and enters the time of receipt.

The left-hand margin is used for filing the message and *neither side* of it must be written on.

The field message form should be of strong, but not thick paper. Staff officers need not use this form; memorandum blocks and carbon paper are recommended.

When several successive messages are sent from the same person to the same recipient, as in the case of messages from a piquet, patrol or reconnoitring officer, they should be numbered consecutively.

The message form will only be gummed together when the contents are of a confidential or personal nature. In the latter case the word "personal" will be added to the address.

RECONNAISSANCE AND PROTECTION.

109. It is the duty of every commanding officer, of whatever rank, to keep himself informed as to all events in his vicinity which may affect his action.

110. The object of *reconnaissance* is to determine the dispositions, strength and movements of the enemy. Reconnoitring detachments will, in addition, frequently be required to obtain information as to the ground.

Protection may be intended to guard against a surprise attack or against reconnaissance by the enemy. Protection is required on the march when halted and, to a lesser degree, in action. When the arrangements for security are principally with a view to preventing the enemy from gaining an insight into our dispositions they constitute a *screen*.

111. Reconnaissance and protection may be carried out in many different ways. It is the duty of a commanding officer, in every case, to select the method most suitable to the circumstances, *free from any set form of procedure*. Only a few general principles can be given.

112. The services of reconnaissance and protection entail severe demands upon the powers of the troops. No larger force should, therefore, be employed for these duties than the occasion requires.

113. The duties of reconnaissance and protection are conducted on different principles. Protecting troops are tied down as regards locality by their duties to the troops they are protecting. Reconnoitring detachments must keep touch with the enemy, and have complete liberty of movement. When one detachment is intended to carry out both duties it will usually detail separate bodies of troops for these different objects.

114. Good reconnaissance in itself affords a certain measure of protection. On the other hand, a detachment in carrying out the duties of protection may render services in the nature of reconnaissance. The two duties are complementary, and it is not easy to say where one ends or the other begins.

115. Reconnaissance is carried out in the first place by patrols, who endeavour to gain an insight into the enemy's dispositions.

116. Speaking generally, protection is obtained by pushing forward small detachments which are kept in constant readiness to fight, in front of the troops which it is desired to protect. Disposition in depth of the detachments detailed for protection affords in itself a certain amount of security.

For the service of protection, patrols are also used in the outpost line.

117. When on the move, patrols will take measures for their own protection, and make skilful use of the ground.

118. *It is of great importance to drive the enemy's cavalry out of the field as early as possible, and to obtain a decisive moral superiority over them. All bodies of cavalry, even patrols, should therefore lose no opportunity of attacking the enemy's horsemen wherever they show themselves, provided that the circumstances and their own duties allow of this. This will expedite the process of reconnaissance, and will enable it to be carried out with the certainty of success for the remainder of the campaign, and will, moreover, much facilitate the service of protection.*

RECONNAISSANCE.

119. Reconnaissance is the special duty of *cavalry*, and affords a wide field of activity to that arm. Skill and cunning, tactical ability, quick powers of observation and bold riding all contribute to success. Com-

manders of all ranks and individual troopers will have ample opportunities of distinguishing themselves.

The conditions of the combat, or the nature of the ground, may limit the use of cavalry for reconnoitring or may render it impossible. In this case reconnaissance must frequently be carried out or supplemented by the *other arms*. As the combat develops the duty of reconnaissance towards the front falls more and more upon the other arms.

120. Each detachment sent on reconnaissance duty should have a *special task* assigned to it, but this must not involve detailed orders which might tie its hands. Any points upon which the commander specially requires information should be stated in such a way as to prevent the possibility of a mistake.

In allotting the tasks it must be borne in mind that the scope of reconnaissance of the individual patrols is limited as regards front.

121. The results of reconnaissances do not depend alone upon the action of the reconnoitring troops and patrols. It is consequently of great importance that the whole service of reconnaissance should be organized systematically. It is desirable, if only to economise troops, that this service should be directed in accordance with a *uniform plan*.

122. The reconnoitring patrols in the front line are usually followed by stronger detachments, to furnish reliefs for the patrols and to drive the enemy's reconnoitring troops from the field.

In certain circumstances full information can only be gained by an attack, for which it may even be necessary to employ a force of all arms.

123. Reconnoitring patrols are independent of their own units. They regulate their movements by those of the enemy, and by the task assigned to them.

Distant patrols are usually sent out by the higher

commanders for strategical purposes, whilst *close patrols* carry out the tactical reconnaissance.

124. The most important part of the work of reconnoitring is done by *cavalry officers' patrols*. The leaders of these patrols must be well mounted and able to find their way across country. They should be capable of forming correct conclusions from a brief glance at the enemy, and of judging of the strength of masses of his troops and the nature of their movements. In special cases officers of the staff, and of other arms, may be detailed to command these patrols.

It must, however, be borne in mind that it may be necessary to detail an officer for some duty at any moment, and that every officer despatched on reconnoitring duty affects the efficiency of the unit. Officers' patrols should, therefore, only be sent out to perform important tasks, such as those executed by distant patrols. Ordinary patrols may be commanded by non-commissioned officers or lance corporals.

125. Patrols keep to the available roads as far as possible. They proceed by successive advances from one point of observation to the next. In the enemy's country they should usually avoid inhabited places. When in the neighbourhood of the enemy's outpost line they should endeavour to slip through without being seen, and to reconnoitre his main body. Sometimes the commander may leave his patrol behind, safely concealed, and may advance by himself, or with one or two men on foot or mounted. It will often be possible to obtain the required information by boldly attacking a small detachment of the hostile troops.

When patrols halt to rest, they should select suitable places for concealment, but the observation of the enemy must not be interrupted. The commander will be personally responsible that his patrol is not surprised. If it is feared that any of the inhabitants may betray the

position of the patrol, they should be detained as prisoners. Frequent changes of position and night marches are also means of ensuring the safety of the patrol.

126. *The early transmission of reconnaissance reports is just as important as the reconnaissance itself. The best report is useless if it is brought in too late.* The time at which a report has been despatched is, therefore, of great importance.

127. When the enemy's line is reconnoitred from the front, it will rarely be possible to distinguish more than the heads of his columns. The strength of the columns can be better determined by a view from a flank. But, except under very favourable circumstances, it will not be advisable for patrols to venture in between the enemy's columns.

128. *All cavalry commanders are responsible that touch once established with the enemy is never lost by night or by day. This also applies to commanders of patrols, so far as it is consistent with the task assigned them.*

129. The *strength* of a patrol depends upon the task assigned to it, upon the strength of the unit which furnishes it, upon the attitude of the enemy and of the inhabitants, and upon the method which will probably have to be adopted in sending back reports. It must be remembered, that the success of the reconnaissance, so far as it depends on the patrol remaining unobserved by the enemy, will become more difficult in proportion as the strength of the patrol is increased. It is often advisable to detail a second-in-command for a patrol.

130. The better the reconnoitring detachments are instructed in the general situation, the better they will be able to distinguish between what is important and what is unimportant when executing their task.

131. The question as to what is to be reported upon will depend upon the strategical or tactical situation. Thus, in operations on a large scale, during the opening phases, the *distant patrols should send in information* of strategic importance, such as the roads by which the enemy's columns are moving; the direction of his advance; the points reached by him; the strength and general composition of each column (an indication of this is sometimes afforded by the strength and composition of the advanced guard); the extent of his outpost line; the traffic on his railways and similar matters.

The closer the opposing forces approach each other, the greater will become the importance of detailed information; for instance, the points on the road which the front or the rear of an enemy's column were ascertained to have passed at a given time; the strength and order of march of each column, or at least of the flank columns; the manner in which the service of protection is carried out and the disposition of the protecting troops, and so on. It is at this period that distant reconnaissance begins to merge into *close reconnaissance*.

When a collision between the two forces is imminent, it becomes important to determine the enemy's tactical dispositions in detail and as accurately as possible. Close reconnaissance then merges into *tactical reconnaissance*.

132. *Tactical reconnaissance is carried out by all arms.* The special duty of the cavalry is to discover what is taking place on the enemy's flanks and in his rear; the extent of his flanks, the disposition and movements of his reserves, and the arrival of any reinforcements. They must also watch for any considerable gaps in his line of battle. If any such gaps occur in their own line it is the duty of the cavalry to close them and maintain communication between the separated portions.

RECONNAISSANCE BY THE ARMY CAVALRY.*

133. In the strategical operations of armies, the duty of reconnaissance is entrusted to *cavalry divisions*, of which several may be combined under one commander when necessary. These cavalry divisions receive their orders from head-quarters. A large force of cavalry may also be attached to an army corps or other body of troops for a particular purpose.

The army cavalry must endeavour to obtain an insight into the enemy's dispositions as early as possible. It is their object not only to drive the enemy's cavalry from the field, but to repulse or break through his advanced detachments of all arms, and to penetrate to the neighbourhood of the columns of his main army. Reconnaissance must also be undertaken to provide for the case of a lost battle.

134. If the patrols have to be pushed so far forward towards the enemy that they cannot be reinforced or supported from the main body, then *reconnoitring squadrons* will be pushed forward. These squadrons will then furnish the required patrols, and, if necessary, clear the way for them by fighting. Reconnoitring squadrons should not be tied down to any particular spot, but only to the section of country assigned to them. Their position, however, must always be known to their patrols (for which they act as supports and reporting centres†) and to the senior cavalry commanders who may have to send them orders.

The commander of the reconnoitring squadron will read the reports and messages that pour in from different directions, and arrange for their safe and rapid trans-

* This name is applied to large bodies of cavalry acting directly under the Commander of the Army, or the Commander-in-Chief of the Forces.

† See para. 78.

mission. He will keep his squadron under arms at night. A change of quarters at night increases security, especially in the enemy's country. The commander will be personally responsible that his squadron is not surprised.

135. Reconnoitring squadrons will, as a rule, be reinforced by attaching officers' patrols to them. The higher commanders may, at their discretion, assign special tasks to some of these patrols.

The general scheme of reconnaissance may include the despatch of special officers' patrols to areas outside the sphere of operations of the reconnoitring squadrons.

136. The *sections of country* assigned to reconnoitring squadrons and distant patrols should be allotted with reference to the *road system*. If the cavalry commander wishes to ensure that the patrols shall be strongly supported by the squadrons, and the country thoroughly reconnoitred, he will assign to each squadron a front, as a rule, not exceeding 10 or at most 14 miles.

137. Reconnaissance should not be carried out merely in the direction where the enemy is known to be, but under certain circumstances in other directions, in which he might possibly appear.

138. It is absolutely necessary that the reconnoitring squadrons should be *in communication* with the main bodies. Technical means of communication should be used where possible.

Signalling stations within the sphere of the enemy's operations will require special protection by the main body. Detachments of cyclists will be specially useful for this purpose.

The army cavalry should, as a rule, be connected to the main body by technical means of communication. Wireless telegraphy is specially adapted for this purpose.

139. If it is impossible to place the reconnoitring

squadrons in direct communication with the main body of the cavalry, or if it is impracticable to bring the communications of several reconnoitring detachments into a common centre, it may then be advisable to establish special *reporting centres*. (See paras. 78 and 134.)

140. As the reconnaissance progresses the formed bodies of cavalry advance from section to section of the ground.

141. When the cavalry advance in several columns, unity of action should be aimed at by the order of march adopted and by the employment of intelligence officers. (See para. 70.)

142. When the troops advance so close to the enemy that the reconnoitring squadrons can no longer carry out their duties, they should either wait till the main body overtakes them or else endeavour to work round the enemy's flanks and so to continue the reconnaissance in accordance with the instructions originally given them.

RECONNAISSANCE BY THE DIVISIONAL CAVALRY.

143. The principal duty of the *divisional cavalry* is *close reconnaissance*. (See para. 131.) When there is no army cavalry in front of the division the divisional cavalry will have to carry out distant reconnaissance as well. The presence of army cavalry, however, will not relieve the divisional cavalry of the former duty.

144. The main body of the divisional cavalry will advance in front of the infantry, but not so far as to lose touch with the division. On the field of battle the presence of the divisional cavalry is indispensable. Its *rôle* during an engagement is to co-operate in the combat and, without any special orders, to assure the safety of the flanks, and push reconnaissances round those of the enemy.

145. In exceptional cases reconnoitring squadrons may even be sent out from the divisional cavalry.

146. The *commander-in-chief* states the objective or the general scheme of the reconnaissance. The execution of this scheme will be left to the *commander of the cavalry*. As a rule all patrols will be despatched by the cavalry commander, but if the commander of the troops sends out patrols on his own account, he will inform the cavalry commander of the fact and also of the tasks assigned to these patrols.

If the cavalry commander receives no instructions, or if he finds the situation unexpectedly changed so that his instructions do not apply, it is his duty to modify or to continue the reconnaissance on his own initiative in accordance with the intentions of the *commander-in-chief*.

147. In an army corps it may sometimes be advisable to combine the cavalry of the two divisions. But at least one squadron must be left to each division.

RECONNAISSANCE BY THE OTHER ARMS.

148. When the enemy's fire or the nature of the ground prevent the cavalry from reconnoitring, this duty will be carried out by *infantry patrols*.

The tasks which may be assigned to infantry patrols are of the following nature:—To discover the position and dispositions of the enemy; to discover paths by which his position may be approached under cover; to reconnoitre advanced positions; to protect higher commanders when reconnoitring personally; to drive off the enemy's patrols; and to reconnoitre fire-positions and points of support for the attack.

The special qualifications for the duty are enterprise, presence of mind and an eye for a strange country.

It will often be necessary to place officers in command

of infantry patrols. These are then known as *infantry officers' patrols*.

149. The *strength of infantry patrols* depends upon the task assigned to them. Regard must be had to the necessity of sending back men with messages. These messages may also be sent by flag or by cyclist orderly.

In many cases *simple* signals, previously agreed upon, are the best means of communication between an infantry patrol and their main body, and between the men of the patrol itself.

In exceptional cases infantry patrols may be sent long distances; the strength of such patrols should be proportionately increased.

150. Patrols must endeavour to reach points whence a good view can be obtained. They should be provided with field glasses.

151. Infantry patrols, even when marching without knapsacks, can only move slowly across country. When infantry patrols have, as an exceptional case, to carry out reconnaissance duties on the march, they must be given a sufficient start.

152. Even mounted officers of infantry must reconnoitre in the immediate neighbourhood of their units, so far as their other duties permit. It should never happen that infantry is taken by surprise by the enemy's fire.

153. Special engineering reconnaissances, which must be partly carried out at night, are necessary in front of a fortified position. The pioneers and infantry are chiefly responsible for these. In addition to this, all other engineering reconnaissances lie within the province of the pioneers who, owing to their special training, are able to execute them in the field and in siege warfare.

154. An important duty of *field artillery* is the reconnaissance of the enemy and of his artillery

positions. This is carried out by patrols, usually commanded by officers (*artillery officers' patrols*). It is often advisable to send these forward with the cavalry.

During the advance into action, and when in action, field artillery units carry out close reconnaissance for themselves. Care must be taken to reconnoitre on the exposed flank, especially in close country.

During the combat the higher artillery commanders must constantly supplement their own observation of the enemy, and of the movements of their own troops, by reconnaissance.

155. The reconnaissance of *heavy artillery* is carried out on the same principles.

156. Officers of the higher staffs may use the *tripod telescope* for reconnoitring with advantage.

157. *Any information obtained by one arm must be communicated to the other arms, so far as it is of use to them.* This applies especially to the artillery commander, who must communicate the result of his observation to the neighbouring troops and to the commander of the force, whilst the latter communicates to the artillery commander any available and important information for the artillery.

158. The special duty of the *balloon detachment* is to reconnoitre the enemy's advance, the disposition and deployment of his forces, especially of his artillery; to detect concealed artillery positions and reserves, and to discover engineering works (batteries and so forth) in course of construction.

It must keep the commander of the force constantly informed as to the situation, both as regards friend and foe.

To carry out this duty, the commander of the balloon detachment must be aware of the intentions of the commander of the force. Information received

as to the enemy must be communicated to him, and he must be informed which are the most important points to be kept under observation.

The distance to which reconnaissance from a captive balloon is possible depends upon the weather and the light. Observation can only be carried out beyond a limit of $4\frac{1}{2}$ miles under exceptionally favourable conditions.

The balloon detachment arranges its own means of communication (telephones, mounted orderlies, and cyclists) with the commander of the troops.

It will often be advisable for it to send information direct to the individual units, especially to the artillery.

Dirigible balloons are especially useful for strategical reconnaissance.

PROTECTION.

159. The strength and organization of the protecting troops depends upon the situation, their own strength, the distance from the enemy and the nature of the ground.

The tactical units of the troops detailed for the duties of protection are to be preserved as far as possible.

160. Large forces protect themselves during an advance by an *advanced guard*; by a *rear guard* when retiring; and by *outposts* when halted. The flanks of a force are protected, when necessary, by *flank guards*.

161. The most advanced *patrols* (protective patrols) entrusted with the duty of protection, regulate their movements by those of the protecting troops. They act at the same time as a screen, and must consequently prevent the enemy from discovering the dispositions of their own force.

During the combat the troops provide for their own safety by sending out combat patrols as required.

162. With mixed forces of all arms the *duty of protection* will be performed chiefly by *the infantry*, supported by the other arms.

PROTECTION ON THE MARCH.

MIXED FORCES OF ALL ARMS.

Advanced Guards.

163. During an advance, mixed forces of all arms send forward an *advanced guard* for their immediate protection, even when the front of the force is covered by cavalry, provided there is any possibility of contact with the enemy.

164. The advanced guard must prevent the main body from being checked, and must protect it from a sudden attack when on the march. When the advanced guard encounters the enemy, it must act so as to gain space and time for the main body to deploy, and if possible without committing itself to a battle which might hamper the freedom of action of the commander.

The commander of the force will, as a rule, consequently march with the advanced guard, in order to be able to assure unity of action from the outset.

The advanced guard will sometimes have to quickly break down unforeseen opposition, and may have to hold on obstinately to positions which it has occupied.

165. The commander of the force decides whether the divisional cavalry is to remain directly under his own orders, or whether it is to be detailed to the

advanced guard. In the latter case the general instructions for the reconnaissance will be given to the advanced guard commander, who will then issue his orders to the cavalry commander.

166. Sufficient cavalry to furnish orderlies, and to carry out immediate duties of protection, will be allotted to the advanced guard and to the main body, and the numbers must not be too weakly estimated. The protection of the flanks will necessitate, as a rule, the furnishing of flanking patrols, and mounted men must always be available with the advanced guard and main body in case the necessity for a further reconnaissance should arise unexpectedly.

167. It is advisable to let the bulk of the divisional cavalry precede the infantry, even when they have not been sent on to reconnoitre from the very first, as this procedure enables the advance of the main body to be conducted more quietly and with greater regularity. Special circumstances may make it necessary to withdraw the divisional cavalry temporarily behind the infantry of the advanced guard, or to use it in some other way, as for instance in the capacity of a flank guard.

168. It will sometimes be necessary to send on the divisional cavalry to occupy important points on the line of march, to block certain approaches to the enemy, or to keep defiles open. In such tasks the cavalry may be effectively supported by infantry cyclist detachments, by machine guns, and even by artillery.

169. The distance between the advanced guard and the main body depends upon the intentions of the commander and the strength of the force, upon the regard which must be paid to hostile fire effect, upon the state of the light, and upon the nature of the ground. The advanced guard must be far enough to the front to prevent the advance of the main body from being

checked; it must, however, on the other hand, only be sufficiently far forward to ensure the possibility of the main body being able to attack at the right moment.

When advancing into action the distance between the advanced guard and the main body may be reduced in order to expedite the deployment.

170. The *strength* and *composition* of the advanced guard are regulated by the situation and the intentions of the commander, the nature of the country, the strength of the main body, and, with a large force, by the strength of the leading portion. Thus the proportion of infantry in the advanced guard may vary from one third to one sixth, and even less, of the total strength of that arm. Sometimes it may consist almost entirely of cavalry.

Field artillery will be specially detailed to an advanced guard of a large force, and pioneers* will, as a rule, be included in any case. It may also be necessary to attach to it a balloon detachment, a bridge train and even hospital troops.

171. The advanced guard is divided into the main body, the vanguard and the advanced guard cavalry, if any.

The *main body* consists of the bulk of the infantry, the field artillery and the pioneers, unless the latter are with the vanguard.

The *vanguard* consists of a portion of the infantry the necessary cavalry and, when required, the pioneers.

172. The vanguard marches sufficiently far in advance of the main body to give the latter time to deploy when the vanguard comes into contact with the enemy. With a large force, and when the nature of the country admits, this distance may be from 1,100 to 1,650 yards (1 to 1½ km.); with a small vanguard the distance must

* Pioneer companies correspond to Engineer field companies in the British Army. (General Staff.)

be such that the main body will not be liable to surprise by effective rifle fire.

A strong vanguard will usually send forward a *point company* 440 to 550 yards (400 to 500m.) in advance.

173. At a similar, or a slightly greater distance in advance of the point company, marches the *infantry point*, which is again preceded either by the *cavalry point*, or by the cavalry of the vanguard with its point. When specially ordered, the protective cavalry in advance of the infantry point may be dispensed with.

174. The infantry point consists of one officer and at least a group (*Gruppe*),* which marches in close or open order.

The cavalry point consists of a commander and several troopers.

175. The smaller bodies of the advanced guard will conform to the movements of the larger. Connection is maintained by infantry connecting files, or by cyclists, which march between the different portions of the column. The distance at which connecting files march, and the formations they move in, must vary according to the extent to which it is possible to see along the road.

The commander of the strongest detachment is responsible for the *maintenance of touch*, but the commander of the weaker detachment must assist him by making his own arrangements for preserving touch whenever this becomes difficult.

Flank Guards.

176. On the march the flanks of the column are covered, as a general principle, by patrols. When these are insufficient for the purpose, *flank guards* are sent out.

* A *Gruppe* consists of 4 files. (General Staff.)

These are generally detailed in march orders, but it may be necessary to send them out during the march. In such a case, especially when composed of infantry, a flank guard must be given a start, since it has to cover a greater distance than the main column.

177. Flank guards may be sent out by the vanguard or main body of the advanced guard, or by the main body of the force. When the column of march is very long it may also be necessary for the troops near the rear of the column to send out flank guards.

178. Flank guards either conform to the movements of the column they are protecting, or else they halt in suitable positions to allow the column to pass them, and then fall in behind it.

Should the column change direction so that the advance becomes a flank march, it may then be advisable to use the old advanced guard as a flank guard, and to furnish a fresh advanced guard from the main body.

179. The *strength* and *composition* of a flank guard will depend upon the proximity of the enemy and upon the nature of the country. The necessity for rapid reconnoissance, and quick communication with the main body, renders it advisable to allot cavalry to a flank guard.

180. On the march, a flank guard assumes the same protective *formation*, to the front and outer flank, as the advanced guard. Sometimes it must form a rear guard of its own.

181. The use of flank guards tends to split up the force and to delay its movements. On the other hand their use may expedite deployment, may enable the commander to seize the required position opportunely, and sometimes to envelop the enemy's flanks. They often form the only possible means of protecting the column from coming unexpectedly under flanking fire.

Rear Guards.

182. The object of a *rear guard* is to protect retiring troops against annoyance and attack. It cannot reckon on support from the main body, consequently its *strength* and *composition* are regulated by these factors.

As a rule, a rear guard will include a strong force of field artillery, and cavalry will always be required, both for fighting and for reconnaissance. Whether, and in what strength, pioneers may have to be attached, circumstances alone will decide.

As far as the situation permits, a rear guard will, if possible, be composed of fresh troops.

183. If the force has been engaged, the rear guard must fight, and, if necessary, sacrifice itself in order to enable the main body to retreat in good order.

184. When the enemy ceases to press upon the rear guard, it will change from fighting to marching formation.

In determining the distance to be kept from the main body, checks in the march of the latter must be allowed for.

The rear guard retires by alternate portions. All necessary halts are also, if possible, to be so arranged that the cover and protection afforded by the ground may be taken advantage of.

185. It will often be possible to gain the necessary time by forcing the pursuer to deploy by the use of artillery and machine gun fire, without engaging the bulk of the infantry, thus enabling the retirement to be continued, possibly, unobserved. The infantry retires first, and the mounted troops rejoin it at an increased pace. When a favourable opportunity presents itself, an energetic rear guard commander will temporarily take the offensive, if only on account of the moral effect produced.

186. The cavalry of the rear guard will watch especially for any attempt of the enemy to envelop the flanks of the column.

A strong independent force of cavalry, with horse artillery, may do much to facilitate the retreat by attacking the flanks of the pursuing enemy, and so cover the flanks of its own rear guard.

187. In order to delay the pursuit, bridges may be destroyed and roads blocked, provided that such action is permissible and in accordance with orders. It will often be advisable to send the pioneers in advance of the rear guard to prepare such demolitions.

188. On the march, a rear guard is disposed similarly to an advanced guard, and is divided into the *main body*, the *rear party*, and the rear guard cavalry. The cavalry patrols keep touch with the enemy. Whether a (rearward) point company, infantry point and cavalry point are necessary, circumstances will decide.

PROTECTION OF CAVALRY ON THE MARCH.

189. Every independent force of cavalry is organized in the same manner as a mixed force. This also applies to the advanced or rear guards. With a large force, horse artillery and machine guns may be allotted to it. Pioneers, carried in vehicles, usually accompany the main body.

It is inadvisable to sub-divide small detachments to any great extent; thus for one or two squadrons a cavalry point will suffice.

190. The *point* consists of a commander and four to eight troopers. These move forward by successive advances, in the same manner as a patrol. The commander orders the manner in which the lance and carbine are to be carried. A few connecting files from the vanguard keep touch with the point.

191. The protection of cavalry on the march depends to a great extent upon the activity of the *patrols*, the number and strength of which depend upon the strength of the force, upon the ground, and upon the situation.

Flank patrols are sent along the most important side roads parallel to the line of advance, unless these are occupied by other troops, and regulate their pace by that of the main body. On long marches these patrols should be relieved from time to time. In carrying out these reliefs the relieving patrol is sent out before the old patrol comes in.

192. Protective detachments will act on the offensive whenever possible, and will frequently make use of dismounted fire action.

193. Connection on the march will be maintained, as a fundamental principle, from rear to front.

Any deviation from the original direction of the march must be communicated to the rear.

SCREENING.

194. It may be necessary to *screen* the movement of an army from the enemy either in front or to a flank, and this may be brought about by offensive or defensive action.

195. An *offensive screen* consists of strong bodies of cavalry, whose duty it is to keep the enemy at a distance from their own force. In addition, strong patrols, or sometimes cyclist detachments, are sent forward on all the roads, to attack and drive back the enemy's patrols.

196. A *defensive screen* is more effective, provided it can operate over a tract of country which must confine the enemy's reconnoitring parties to a few

roads. These roads will be blocked and held by dismounted cavalry, and by machine guns if available. Behind these posts strong detachments of cavalry will be stationed in favourable positions, prepared to repulse any attempt of the enemy to break through them. Steps must be taken to ensure rapid and reliable communication between the advanced posts and these detachments, and the cavalry commander. Reconnoitring patrols will be pushed well forward towards the enemy.

When this method of screening is adopted, the resisting power of the cavalry may be considerably increased by the support of cyclist companies and advanced infantry posts.

In cases where the employment of cavalry is difficult or impossible, infantry screens may be used.

197. It is especially necessary to prevent the enemy from sending back reports. Any hostile patrols and their despatch riders, who have succeeded in discovering the position of the army, must be pursued. The enemy's telegraphic communications must be interrupted whenever possible.

198. The divisional cavalry, in addition to their other duties, must constantly direct their efforts to screening the movements of their own divisions.

OUTPOSTS.

199. Troops when in a state of rest will be protected by *outposts*.

Their duty is to ward off minor hostile attacks, and, in case of a serious attack, to give time for the resting troops in rear to assume fighting or marching formations. They prevent the enemy from overlooking the dispositions of the main body.

The duty of reconnaissance is only so far incumbent upon the outposts as may be necessary for the protection of the resting troops. More extended reconnaissance will be performed by cavalry, unconnected with the outposts. When the outposts are in touch with the enemy, they are responsible that this touch is not lost, even should the enemy shift his quarters by a night march.

200. *It is impossible to lay down rules to meet all possible contingencies ; the action of the outposts must be governed by general principles and the object in view, and the instructions given to them must vary with each individual case.*

201. The first consideration governing the disposition of the outposts will arise from the commander's decision to rest his troops at a given place, or in a given locality. An important factor will be his intentions for the following day, and the probable period for which the outposts are required.

Their strength and composition will depend on the proximity and strength of the enemy, on the strength of the force itself, on the nature of the country, and on special circumstances.

202. When a body of troops, not seriously threatened by the enemy, halts after a march with the intention of continuing the march next day, the simplest measures of protection will suffice. These will consist of the immediate protection of the occupied locality and of pushing weak detachments to the front.

The more danger there is of an unexpected attack owing to the proximity of the enemy, the more complete must be the measures for protection. In such a case, either the troops holding the most advanced posts will be entrusted with the protection of the troops resting in rear, or regular outposts, organized according to the duties required of them, will be posted.

If the force is in such close touch with the enemy that the troops must be in readiness to fight, tactical considerations will then determine the dispositions and composition of the outposts. Should the combat be broken off at nightfall, for the purpose of being resumed on the following morning, the troops bivouac in their fighting positions, and it will then usually only be possible to adopt measures of protection by throwing out sentries and patrols from small detachments pushed a short distance to the front.

203. Except during the battle, the movements of troops are principally confined to the roads, especially by night. It is therefore important to occupy approaches leading from the direction of the enemy. In addition to this, however, all points from which the enemy can overlook the dispositions of the force must be held. Thus, should the flanks of the outpost line be in the air, or unprotected, they must be either thrown back, or secured by special detached posts.

204. After a battle the outposts will be furnished, if possible, by fresh troops, but after a march the advanced or rear guards, as the case may be, will take up this duty without further orders.

These will then, in this case, be divided into the *main body (Haupttrupp)* and the *outposts (Vorposten)*. Under exceptional circumstances, as with a small force, the entire advanced or rear guard will form the outposts.

205. The outposts are placed under the orders of *commander of the outposts*.

206. It may be necessary owing to tactical considerations, extension of the line, or the nature of country, to divide the outpost line into sections. In this case a commander will be detailed for each section.

207. The cavalry nearest to the enemy will cover the posting of the outposts.

208. All outpost detachments must, if possible, be hidden from the enemy's view at the time of posting.

It is important to secure rapid and reliable communication within the outpost line, and with the troops resting in rear.

Observation posts may be utilized to the rear from which to watch the foreground.

209. Piquets and sentries pay no compliments.

210. Outposts must not seek opportunities to fight. Useless skirmishes disturb the repose of the main body and may lead to engagements which may get beyond their control. When an outpost line remains in the face of an enemy for long periods, active measures on the part of the outposts may, however, result in the exhaustion and demoralization of the hostile troops.

211. *Outposts must always be ready to meet an attack. Commanders of all ranks must be prepared to make any sacrifice necessary, to accomplish their allotted task, namely, the protection of the troops in rear.*

OUTPOSTS OF ALL ARMS.

212. If the danger of attack by the enemy is so great as to require unusually complete protection, the outposts are then organized, as a rule, as *outpost companies* (which furnish their own piquets) and the *outpost reserve*. The *outpost cavalry* will only be pushed forward as an independent protective force in exceptional cases.

It is advisable only to detail field artillery to the outposts for a special object. Machine guns may often be usefully employed. Pioneers may be detailed to carry out entrenchments or to block roads.

213. If the duty of protecting the main body is entrusted to troops occupying those localities nearest to the enemy, circumstances will then decide whether these troops are to be organized as outpost companies with an outpost reserve. It will frequently suffice to maintain a portion of such troops under arms and in constant readiness, as an outpost reserve furnishing its own piquets.

A commander of the outposts responsible for the protection of each section must, however, always be appointed. He may also be the commandant of the locality.

214. The nature of the country, as for example in a mountainous region, may necessitate a connected line of outposts being dispensed with, and it may suffice merely to occupy particular points to block the enemy's lines of advance.

215. If a section of the outpost line is naturally or artificially strong, the strength of the outposts in occupation may be reduced, and an organization in depth may be dispensed with.

216. The *outpost reserve* will usually be posted in the vicinity of the most important road leading towards the enemy.

217. The *outpost companies* form the main protective line. They hold on to their positions if attacked, unless the commander of the outposts orders differently.

218. Local conditions may necessitate piquets being furnished by the outpost reserve, or even the main body, in addition to those furnished by the outpost companies.

219. *Cavalry* must be sparingly used on outpost duty. Such force as may be detailed must be sent to join the outposts as soon as possible.

220. When a force halts for the night, the *commander of the advanced guard* is informed, in any case not later than when the orders to halt are issued, where the main body of the force and the main body of the advanced guard will be; which roads or localities are to be held by the outposts; what steps have been taken, or are to be taken, for further reconnaissance; and of anything else there may be to communicate to him. It is sometimes desirable to fix the most forward limits of the position of the infantry outpost line.

221. The commander of the advanced guard then gives his orders, by the map, for his force to take up their quarters for the night. He details the troops for outpost duty and the commander of the outposts, and gives the latter the necessary *instructions for protection*. In addition to receiving information as to the enemy, the commander of the outposts must be informed as to where, and how, the troops he is covering are quartered for the night; what reconnaissance has been carried out by the independent cavalry; how far in advance the outpost cavalry is to patrol the country; what measures of protection have been taken by the troops in rear, apart from the outposts; and where touch is to be established with neighbouring forces.

Instructions will frequently have to be given as regards the approximate position of the outpost reserve.

The commander of the outposts will further be informed as to what action the main body will take in case of an attack, in order that he may know what amount of resistance he is required to offer. Further, it remains with the officer who details the outposts, to give his instructions as regards any other details, at his discretion.

222. When concentrated or deployed troops have to be protected by outposts, it is usual to detail certain units to carry out this duty. The commanders of these units will then receive their instructions and issue their outpost orders accordingly.

223. When the *outpost line has to be divided into several sections*, the limits of these sections are to be so assigned that important roads lie within the limits of a section, and not between two sections.

224. The relief of an outpost line must be accomplished without attracting the enemy's attention. All necessary information must be communicated to the new commander and he must be made acquainted with the *terrain*.

The Outpost Commander.

225. According to the instructions received, the commander of the outposts issues, as soon as possible, from the map, written or verbal *orders* as to the line to be taken up. It is important that the most necessary protective measures should be carried out at once, and, especially, that important roads should be occupied without delay. He fixes the position of the reserve (*see* para. 221), the sections into which the line is divided, and the approximate position of the outpost companies. He either attaches small detachments of cavalry to the outpost companies, or else he

leaves the commander of the outpost cavalry to make his own arrangements as regards the execution of the duties assigned to him.

Every subordinate commander must be made acquainted with the situation, and will be given the requisite instructions as to reconnoitring, and, if necessary, special ones as to his action if attacked (*see* para. 217). Orders are also to be issued as regards the allotment of mounted orderlies and cyclists to the infantry.

226. After the commander of the outposts has personally inspected the dispositions of the outpost line, he may probably have to supplement his original outpost orders by *more detailed ones*. These may include orders as to the extent to which the troops are to be kept in a state of constant readiness (*see* para. 239), as to the execution of entrenchments or demolitions, obstacles to be erected and similar matters. These supplementary orders will be communicated to all concerned in order that all the outpost troops may act in concert.

227. The commander of the outposts is responsible that *all* portions of his command are suitably posted, and it is his special duty to establish a system of communication (*see* para. 208), including communication with the adjoining sections (if any) of the outpost line.

228. He decides as to whether the outpost reserve is to occupy quarters or to bivouac, as to the extent of preparedness for immediate action, and what safety precautions are to be adopted. The procedure to be followed by the outpost cavalry is laid down in paras. 266 to 274.

229. In order to maintain a constant supervision over the outposts, the commander takes up his own *quarters* at some convenient centre to which reports can be sent and whence he can issue his orders. A

suitable position will, as a rule, be that occupied by the outpost reserve. His bivouac or quarters must be easy to find. He must have buglers, cyclists and mounted orderlies at hand. When in billets his quarters are to be plainly distinguishable at night, and a guard is to be mounted outside. The guards stationed at the exits of the place must know where the commander's quarters are situated. Should he be obliged to leave them temporarily, the next senior officer, detailed as second in command, takes over the command.

230. The commander of the outposts *informs* the commander of the advanced guard as to his dispositions as soon as possible.

Outpost Companies.

231. The duty of protection is fulfilled chiefly by the *outpost companies*. Their number and position depends on the attitude of the enemy and on the nature of the ground, with especial reference to the roads.

A company is, as a rule, the smallest body of troops in any one section of the outposts. The most important road should have a whole company allotted to its protection.

Each company is known by its number, as "Outpost Company 12/36."*

232. The commander of an outpost company proceeds rapidly in advance of his unit, reconnoitres the ground, and makes his dispositions for reconnaissance and for protection. He decides as to his action in the event of an attack, and as to any entrenchments, or obstacles, that may be required. The company's power of resisting an attack, especially at night, may

* 12th Company of the 36th Regiment. (General Staff.)

be materially increased by the use of natural and artificial obstacles.

233. *Piquets* are pushed forward for the protection of the company. The strength of a piquet varies from a section* to a group. Distant and important points and roads must often be held by strong piquets; points immediately in front of the company may be weakly held.

The piquets are numbered from right to left within the company.

234. The outpost company commander gives orders as to any reconnaissance to be carried out by the *cavalry* allotted to his company, especially as regards the patrols. (See paras. 266 to 269.)

235. If any important points in advance, or to a flank, of the outpost line are to be held, or if certain portions of the foreground have to be watched, *detached posts* are employed for the duty under orders of the company commander. Sure means of communication between these and the company must be established.

It will often be desirable for additional security to send forward detached posts at night, especially along the main roads.

236. A single sentry (styled a *sentry over arms*) will be posted for the immediate protection of the outpost company. Should the company be under shelter, a double sentry, or several single sentries, will be required. In very close country it may be necessary to post several double sentries.

237. The men of the outpost company take off their accoutrements, and no man is allowed to leave it without permission, except on duty.

* A German *Zug* (section) is one-third of a company of 250 men. General Staff.)

The rules to be observed by cavalry are laid down in para. 272.

Every endeavour must be made to cook, and to settle the men down to rest, as soon as possible, in order *to keep them fresh for any further work that may be required of them.*

238. The company commander *reports* his dispositions to the commander of the outposts as soon as possible. A sketch will often be sufficient. The strength of each piquet should be given. These dispositions will be communicated to the neighbouring companies, with which communication is to be maintained.

239. The company commander, subject to his instructions from the commander of the outposts, and according to circumstances, decides the state of readiness of the company and the piquets for action; whether they are to be in bivouac or quarters; whether tents are to be pitched; whether cooking is to take place; whether fires may be kept up; and such like matters.

He is personally responsible *that the company is always ready for action if attacked.*

Piquets.

240. The *strength* of a piquet depends on the duty assigned to it, the importance of the post and the proximity of the enemy. Important piquets will be commanded by officers. The commander must be capable of impressing his authority on the men, especially after strenuous marching and fighting.

241. The piquet sends out *sentries* and *patrols*. The sentries may be double sentries or non-commissioned officers' posts. (See para. 243.)

It is less important to establish a continuous chain

of sentries than to occupy the approaches from the enemy and similar important points, while the intervals are watched by patrols.

242. Double sentries should, as a rule, not be further from the piquet than from 440 to 550 yards (400 to 500 m).

243. Sentries are usually posted and relieved direct from the piquet. A non-commissioned officer marches the six men who form the reliefs of a double sentry post straight to that post by the shortest route. The commander of the piquet gives every sentry post and its reliefs their orders, and decides whether the non-commissioned officer in charge returns to the piquet with the second and third reliefs, or whether he remains with his whole command to form a *non-commissioned officer's post* (*Unteroffizierposten*).*

244. Sentry posts, whether ordinary or non-commissioned officers' posts, are numbered from right to left within the piquet.

245. Patrols are sent out for the protection of the piquet, while the sentries are being posted and the piquet piles arms. The piquet is guarded by placing one or more single sentries over the arms, unless this duty can be performed by one of the double sentry posts in the immediate vicinity.

The arms will be so piled that each relief and each patrol can take up their own rifles without disturbing the remainder.

246. When a superior officer approaches a piquet the commander reports to him. The men do not stand up.

247. The commander of the piquet may allow his men to remove their helmets and knapsacks. They will not take off their belts, pouches, havresacks, water bottles or entrenching tools.

* These correspond to our *Groups*. (General Staff.)

248. The rations of the piquet, and of any mounted orderlies attached to it, are supplied by the company. The piquet commander gives orders as regards the repose of the men, and he decides whether a portion of the piquet may sleep during the night. No man may leave the piquet without permission, except on duty.

249. In exceptional cases mounted orderlies may be attached to piquets. The rules to be observed by these are given in para. 272.

250. The commander of the piquet will establish communication as soon as possible with neighbouring piquets, and will report the disposition of his own piquet to the officer commanding the outpost company.

251. The commander of the piquet will reconnoitre the section assigned to him while daylight lasts, but he must be available when required. At night he will, as a fundamental principle, remain with the piquet, and he is personally responsible that it is *invariably ready for immediate action if attacked*.

Infantry Sentries.

252. All sentries who are to observe in the direction of the enemy must, if possible, *be so posted* as to have a clear field of view, and be themselves invisible to the enemy. To obtain a better view, one man of a double sentry post may climb a tree or haystack, or go to the top of a house or to any other point for this purpose. Elevated points for observation are also advantageous at night, both for hearing and for observing beacons and lights.

253. The two men of a *double sentry post* observe together, and must be sufficiently near each other, so that they can easily communicate.

254. The following *general rules* will be observed by double sentries :—

A sentry may not sit or lie down without orders, nor may he lay down his rifle. He may stand with arms ordered, secured or slung, but not at the slope. Unless orders have been given to the contrary, he may take off his knapsack and smoke. He will not allow the presence of a superior officer to interfere with his vigilance.

He will keep constantly on the look-out towards the enemy, and will note every suspicious movement. Should he notice any movement of the enemy worth reporting, one man of the double sentry will at once warn the piquet. In case of emergency, or if an attack is threatened, the sentry will give the alarm by firing. He will communicate the latest information to the patrol when it passes.

During the day a sentry will allow the following to pass:—Officers, formed bodies of troops, patrols, mounted orderlies and cyclists belonging to his own force. All other persons must be brought to the piquet, if necessary with the assistance of the nearest non-commissioned officers' post. Any person who disobeys the sentry's orders will be shot down.

At night, any person approaching the sentry's post will be challenged. The sentry calls out in a loud voice, "*Halt—who goes there?*" and brings his rifle to the "ready." If, at the third challenge, the person does not halt, he will be fired upon. Otherwise the procedure is the same as by day.

Individual officers of the enemy approaching with a small escort and indicating by waving a white flag or cloth, or by other signals, that they have come to parley, will not be treated as an enemy. This also applies to individual soldiers who, approaching without arms or with these reversed, or by calling out at a distance, show that they are deserters. Such men should first of all be ordered to lay down their arms. Flags of

truce and deserters are taken to the piquet. In the case of the former they are to be blindfolded and no communication is to be held with them by the sentries.

The piquet hands over any persons brought to it to the outpost company, the commander of which reports the occurrence to the commander of the outposts.

255. When a sentry is posted, he will receive, in addition to the standing orders for his post, the following *special instructions* :—

Information concerning the enemy and the *terrain*.

Number of his post.

Positions and numbers of neighbouring posts.

Positions of the piquet and the company, and the shortest way to them.

Positions of advanced detachments, if any.

Points to be kept under observation, such as visible portions of roads, defiles and bridges, which the enemy must use in his advance.

Whether a patrol (of one man) will be detailed to connect the post with the next post.

Any other necessary information.

When necessary, the sentry will be given a sketch of the foreground, with the important points clearly marked.

256. The commander of the piquet regulates the *reliefs*. When handing over his post, the old sentry faces his front and repeats his orders and special instructions to the new sentry, in the presence of the non-commissioned officer commanding the relief, and also reports any occurrences which he may have observed.

257. *A sentry over arms* receives special orders.

Infantry Patrols.

258. *Infantry patrols* will be used for close reconnaissance, even when touch with the enemy is main-

tained by cavalry patrols. If, on account of the proximity of the enemy's outposts, or of the nature of the ground, cavalry cannot be used, the whole service of patrolling will be performed by the infantry.

259. The duties and instructions of patrols differ according as they proceed beyond their own outpost line or keep within it, and whether the intention is to come in contact with the enemy or not.

It is more important to select good men, and especially a good commander, for a patrol, than to issue elaborate instructions.

260. *A patrol sent out towards the enemy* consists of at least two men under an experienced commander, who, in important cases, should be an officer.

261. Patrols will move cautiously and silently, and will often halt to listen. They will make themselves familiar with the ground, in order to report upon it, and to be able to act as guides if required. They will take precautions to avoid being cut off, and, if necessary, will return for this purpose by a different route. It is sometimes advisable to state beforehand the approximate time of their return.

262. It may be advisable, for increased security, especially at night, to send out patrols to suitable points in advance of the outpost line, to remain there till relieved. These are known as *standing patrols*.

263. Patrols turn out, as a rule, without knapsacks, and with forage caps. They should be supplied with field glasses.

264. When a patrol passes through the sentry line the commander will briefly report his errand to the nearest sentry, and on returning he will communicate similarly any information acquired.

265. *Patrols within the sentry line* serve to watch stretches of ground where no sentries are posted, and to keep up communication with neighbouring

detachments. They usually consist of two men, including the commander.

Outpost Cavalry.

266. The principal duty of outpost cavalry is to watch the ground beyond the infantry outpost line and to reconnoitre within prescribed limits. If these limits extend to the enemy's outpost line, then the outpost cavalry must maintain constant touch. It also provides the necessary mounted orderlies.

267. The commander of the outposts decides whether the duties of protection and reconnaissance, as affecting the cavalry, are to be vested in the officer commanding the outpost cavalry, or whether small detachments of mounted men are to be detailed to the outpost companies, and to be employed under the orders of their commanders within the sections allotted to them.

268. In the former case *the commander of the outpost cavalry* receives his instructions as regards the amount of protection and reconnaissance required, and the line he is to take up, from the outpost commander. This officer will also specify the number of mounted orderlies to be detailed to the outpost companies and, if necessary, to the outpost reserve, or to a detachment occupying a specific locality representing the reserve. In special cases mounted orderlies may be attached to each piquet.

The number of mounted orderlies must be reduced to a minimum. In each detachment one orderly, at least, must always be ready for duty. Supplies for man and horse will be furnished by the detachment to which the orderly is attached. The cavalry will be relieved of orderly work as far as possible by the use of cyclists and technical means of communication.

269. It will seldom be advisable to post the whole of the outpost cavalry in front of the infantry outpost line. It will usually be better to withdraw such cavalry behind the line of outpost companies, and to send out piquets or vedettes in front of the infantry outpost line to occupy good observation points and important roads, and patrols to search the foreground. If the outposts are in touch with the enemy, reconnaissance of his flanks is then of primary importance.

It is generally inadvisable to organize a regular patrol service, as this fatigues the horses unduly and interrupts temporarily the work of reconnaissance. It is usually better to send out standing patrols to suitable observation points and to relieve them periodically. This applies especially to night work.

270. The line of action of piquets, vedettes and patrols is regulated by the instructions laid down for the outposts of independent cavalry.

271. When small detachments of cavalry are detailed to the outpost companies, *the commander of each company* will regulate their duties within the section allotted to him in accordance with the above instructions.

In this case the remainder of the outpost cavalry will join the outpost reserve, with which the commander of the outpost cavalry will also remain.

272. *It is incumbent* on every commander in the outpost line, to whom cavalry is attached, *to see, with due regard to the duties required of them, that the horses are duly fed and watered, and that the saddles are shifted or temporarily removed.* When circumstances permit he arranges for any cavalry, not immediately required for duty, to be accommodated under shelter.

273. If the flanks of an outpost line are in the air, and it is necessary to protect them and the troops

resting in rear by cavalry, or if important points in advance of the line, such as fords and defiles, have to be held, this duty should not be performed by the outpost cavalry, but as a rule by other portions of the divisional cavalry. Such detachments will arrange for their own protection as is done by the independent cavalry.

274. The commander of the outposts decides when and where the cavalry are to assemble when the outposts are withdrawn.

The Outpost Reserve.

275. The *outpost reserve* is intended to support the outpost companies, or to protect them if they fall back upon it.

276. The commander of the outposts decides, according to the situation, in what degree of readiness for action the outpost reserve is to be maintained. Unless otherwise ordered, the men will take off their accoutrements, and shelter tents will be pitched. Should the conditions permit the infantry may be placed in alarm quarters ready to turn out. The commander arranges for supplies. For instructions for the cavalry, *see* para. 272.

277. The outpost reserve protects itself by outlying piquets, and a sentry will be posted in such a position (usually in the road) that he can direct all orderlies, with reports and messages, to the commander of the outposts. No trumpet or bugle calls, except the "*Alarm*," are to be sounded. If there is an alarm in the outpost line, the reserve prepares to turn out.

278. If the outpost reserve consists of a portion of the troops quartered in a particular locality, the commander of the outposts issues orders as regards the degree of readiness for action in which it is to be

maintained, and takes measures for its immediate protection.

OUTPOSTS OF INDEPENDENT CAVALRY.

279. Cavalry take longer to turn out ready for action than infantry, and have not the same power of delaying an advancing enemy. In order to save the horses, cavalry should be billeted whenever possible, and should not bivouac unless it is urgently necessary to do so. Outpost duty is very hard on the horses. These considerations must be borne in mind when cavalry are halted for the night at a distance from the infantry.

280. Cavalry should especially endeavour to protect themselves by careful reconnoissance, and will meet attacks chiefly by fire action.

Distant reconnoissance is carried out under orders issued by the higher cavalry commander.

281. Cavalry obtain the greatest amount of rest, combined with a comparatively small amount of protection duty, by keeping a wide area of ground between themselves and the enemy. On these grounds it is justifiable to make a short march to the rear for the purpose, unless the tactical situation obliges the cavalry to hold their ground or demands a further advance.

282. Cavalry will often be able to gain time for the formations in rear to turn out ready for action, through the resistance offered by the men in the billets nearest the enemy. In exceptional cases, security may be sought by disposing the outposts in greater depth. Special importance is to be attached to rapid communication of intelligence from the line of sentries. The flanks should be protected. The attitude of the inhabitants may necessitate special measures for protection being taken.

283. In order to defend a village obstinately, the line of the outer enclosures, or a line close to the houses, must be strengthened. Detachments of dismounted men with carbines will be held in readiness to occupy the line of resistance at a moment's notice. All entrances on the flanks of the village are to be barricaded.

Horses are to be kept under cover in the part of the village furthest from the enemy.

284. Villages on the flanks, and sometimes even those in the second line, will have to be strengthened to furnish security for the flanks in the same manner as in the front line.

285. Roads leading between the villages of the front line are to be watched and, if necessary, to be occupied.

286. Cavalry are most exposed to danger when in bivouac, and the danger increases as the units are packed more closely together. It is often advisable, therefore, on grounds of safety alone, to bivouac in detachments.

Bivouacs must also be protected in rear and on the flanks. A defence of the bivouac itself is to be avoided, if possible.

287. Outposts may be posted, mounted or dismounted. Protective detachments, intended for dismounted action, will do well to leave their horses with the detachments in rear, unless the ground is such that they can mount and retire without exposure to the enemy's fire.

288. Roads are to be barricaded and entrenchments constructed wherever necessary, gaps being left for patrols to pass through.

289. If the front to be protected is wide, it will be divided into several *outpost sections*, the limits of which will be defined. Each section will be under a separate *outpost commander*.

290. The duty of protection will be performed by *out-*

post squadrons or by weaker detachments. They will be supported by squadrons held in readiness in the villages near the front. In exceptional cases an outpost reserve of two or more squadrons will be formed.

291. The *commander of an outpost squadron* has, as a rule, a section of ground allotted to him to watch and protect. He is further informed how far to the front close reconnaissance is to be carried out.

292. He sends out mounted or dismounted piquets as required, but he may, if he pleases, send out vedettes or sentries instead of, or in addition to these (*see paras. 300 to 302*). These are numbered from right to left within the squadron. The squadron is directly protected by a single or double sentry over arms.

Vedettes will have their horses with them, single sentries will not.

293. Important points in front of the general outpost line or sections will be held by *advanced vedettes* or *piquets*.

294. The commander of an outpost squadron will establish communication with the detachments on either side, and will report his dispositions to the commander of the outposts.

295. He will decide, according to circumstances and the instructions he has received, the degree of readiness necessary, that is as to whether the horses should be off-saddled, whether fires may be lighted, and similar matters. He will make arrangements for rations and forage for the more advanced portions of the squadron.

296. The first duty of the commander of an outpost squadron is the timely observation of any hostile movements. He is personally responsible *that his squadron is at all times ready for action, if attacked*; and that the resistance offered by the squadron, and

the *timely warning* sent back by him, enables the main body to turn out in time to meet an attack.

297. The strength of a *cavalry piquet* varies according to the duties required of it, and will, as a rule, not exceed one troop. Important piquets are commanded by officers. The piquet sends out vedettes and sentries, as required, which are numbered from right to left. A sentry over arms may also be necessary.

298. Vedettes and sentries must, if possible, have an extended view over the country, and should be provided with field glasses. It is most important to watch the roads. The general instructions for vedettes and cavalry sentries are as given in para. 254.

299. Sentries and dismounted vedettes can use their discretion with regard to the manner of carrying the carbine; mounted vedettes must have the carbine ready for use.

300. A *vedette* consists of three men, who, as a rule, dismount. Two of them remain together in observation. They do not off-saddle and must always be ready to mount and ride with a message. When the ground is such that the vedette is liable to be taken by surprise, the men remain mounted.

301. A *non-commissioned officer's vedette* has its own relief with it, under a non-commissioned officer. It consists of a non-commissioned officer as commander and six men.

302. A *double sentry* consists of two men.

A *non-commissioned officer's post* is a double sentry, having its double relief with it under one commander.

303. When patrols ride forward through the outpost line, they will inform the nearest vedette of the direction they are taking, and again on returning they will communicate any information obtained.

Similarly, the vedettes will inform the patrols of anything of importance that they may have noticed.

304. If persons, who have no apparent right to do so, attempt to pass the outpost line, they will be dealt with as in para. 254.

305. The piquet commander gives special instructions to vedettes and sentries as in para. 255. He directs off-saddling, resting, watering, feeding and such matters, and keeps the piquet on the alert at night. He is personally responsible *that the piquet, if attacked, is ready for immediate action* and that *timely information* is sent to the unit in rear to enable it to meet the attack.

OUTPOSTS IN SIEGE WARFARE.

306. The combat around a fortress develops from field operations, and gradually passes into siege operations, which are conducted with the aid of the heaviest artillery and all kinds of engineering works.

The outpost service changes its character in a corresponding fashion.

As long as the besieger is endeavouring to invest the fortress and the besieged to hold the ground around it, the disposition and duties of the outposts are the same as in the field. The further the besieged are pressed back upon their main position, the more the outpost lines on both sides will become fighting lines and will eventually be so organized.

307. In the course of a long siege the commanders will take unceasing care that the vigilance of their outposts is not relaxed. This is absolutely necessary to prevent surprise attacks, which may have most serious consequences.

In the Attack.

308. The besieger endeavours to drive the troops of the besieged back into the fortress as early as possible,

and to *complete the investment*. He endeavours to push his investing line so far forward that it will protect the first positions of the siege artillery.

If his force is not sufficiently strong to invest the fortress in force on all sides, certain fronts must be invested or watched by mobile detachments of all arms, or by cavalry alone.

309. The *reconnaissance* of the fortress and of the projected line of investment begins at an early stage, and is carried out by officers of all arms. Balloons may be of great service in this connection.

310. When the investment is completed, the *outposts* must, in addition to the duty of observation, hold the ground which has been captured and protect the troops behind them against surprise.

311. The task of the outposts before those works which it is intended to carry, forms the groundwork for the *subsequent stages of the attack*. In many cases the further stages of the attack are commenced and made possible by the *initiative* of the outposts themselves. For these alone are often in a position to watch for and seize favourable opportunities for attack. In order that such action may also be in harmony with the general plan of the siege, subordinate officers must know the commander's immediate intentions.

312. The ground around the fortress will be divided into *sections*, the limits of which are determined by natural features and by the position of the enemy's works. These sections may again be further subdivided.

In each section, about one-third of the infantry allotted to it, together with machine guns, are detailed for outpost duty. In any case the outpost force must be strong enough to enable the attack to be constantly pushed forward, and, in the event of a sortie, to enable it to hold its ground till reinforcements arrive. Field artillery will be detailed either to the outpost

line, or will be held in readiness behind it. Pioneers, searchlight detachments, and tools from the siege train are allotted as required. The outposts of each section or sub-section will be placed under a *separate outpost commander*.

313. On the front that is being attacked, the infantry of the outposts will, as a fundamental principle, be so disposed that they can at once put their full strength into the firing line. The necessary reserves will, therefore, be usually posted in separate detachments close behind them.

314. Quick and reliable *communication* must be arranged for between all portions of the outpost force and their fighting position. Gaps should be made, where necessary, through walls and hedges. Signposts, visible also by night, should be erected, and covered communications constructed. Screens may also be useful. Detailed orders must be issued for the deployment of the outpost force in the dark, or the troops may go astray and be liable to fire on each other.

315. The *shelter* and comfort of the troops must be considered in so far as they do not interfere with immediate readiness for action. In case sufficient buildings are not available, shelters must be constructed. It is better to provide a number of small shelters than a few large ones, in order to avoid heavy loss from the enemy's shells.

316. A constant *watch* must be kept upon the enemy, and upon the foreground, in order to detect any hostile movement, and to enable the outpost position to be occupied before an attack can reach it. It will depend upon circumstances whether this watch is carried out from points in the position, or by advanced sentries or patrols.

Sentries in front of the line will often have to be entrenched, but this must not interfere with good observation.

317. When giving special instructions to sentries, it is necessary to have a good knowledge of the ground in the enemy's lines and of the chief points to be kept under observation, in order that reliable information may be obtained.

The commander of the force may order a *countersign** to be used at night, to enable sentries and patrols to distinguish any persons approaching. Anyone unable to give the countersign in answer to the challenge "*Halt—who goes there?*" will be conducted to the nearest piquet, or, if he attempts to escape, will be shot down.

Individual commanders of, and above the rank of, company commander, may order any distinguishing signs within their own commands.

318. The service of *issuing orders* and *transmission of reports* in each section is in the hands of the section commander, and a reporting centre will be established at his head-quarters (*see* para. 78).

Full use should be made of technical means of communication.

319. The sections of the outpost line adjoining those opposite to the portion of the fortress to be attacked, must be so posted as to protect the flanks of the attacking force.

On fronts which are only invested, the duty of the outposts is to confine the defenders to their own ground, and, in case of a sortie, to ensure that the prepared position is occupied in time to prevent the enemy from breaking through.

On fronts which are merely kept under observation, the outpost service is the same as in the field.

320. The same outposts are generally kept on duty for several days at a time. Those portions of the force which are in direct contact with the enemy will, as a rule, be relieved every 24 hours. The *relief* must not

* Any word may be selected as countersign.

take place every day at the same hour, and the relieved troops will only march off when the reliefs have been completely posted, and all instructions and necessary information have been communicated to them.

Detachments which cannot be relieved by day must be rationed for at least 24 hours.

321. The same companies and larger units should, as a general principle, always be re-employed in the same sections of the outposts. If possible, the quarters of troops which have gone on outpost duty should not be occupied by other troops.

In the Defence.

322. The defender endeavours to get into *touch with his adversary* as early as possible. He avails himself of every possible means of reconnoissance, in order to obtain information as to the enemy's strength and the direction of the hostile advance.

323. For the distant defence of the fortress, the defender may send out *outlying detachments* of all arms, which will retire gradually before the enemy.

324. For purposes of defence, the fortress and its immediate foreground are divided into *sections*, each with its own garrison. The troops employed furnish their own outposts, independently of the outlying detachments. The disposition of the outposts depends on the degree in which the section is threatened by the enemy, but must be such as to ensure the safety of the main line of defence.

325. The first duty of all outposts is to *keep the enemy at a distance from the works* for as long as possible.

At the point recognized as that of the main attack, the outposts will endeavour to hold out obstinately in front of the main line of defence, retreating only step by step. Even when the bulk of the outpost troops has been driven back within

the works, small detachments, skilfully taking advantage of any cover afforded by the ground, may still be able to hold out in the near foreground and may be of the greatest assistance, both by their fire and by making small local counter-attacks.

326. The next duty of the outposts is the constant observation and timely report of the enemy's movements. Particularly careful arrangements will be necessary for carrying on this work after dark.

327. *The strength and disposition* of the outposts depend upon the varying *tactical* duties which they may have to perform. If they are driven back on to the main line of defence they become part of the garrison of their sections, and the service of protection is then organized on purely tactical lines.

328. On the fronts of the fortress adjoining the front attacked, it is the special duty of the outposts to resist any flanking movements attempted by the besieger, and the outposts must be disposed and handled with special reference to this duty.

On the fronts which are not attacked, the outposts retire before the enemy step by step, in order to keep him from gaining any insight into the dispositions of the defence for as long as possible.

329. The general rules for the outpost service, including reliefs, communications, and transmission of orders and reports, are the same as those laid down for the attacking force in paras. 313-321.

330. Any works which have a special permanent garrison allotted to them, protect themselves by sentries and patrols independently of the main system of outposts.

MARCHES.

331. Marching constitutes the greater part of the work performed by troops in war. The success of every operation depends upon the *unfailing execution of marches*.

332. Even when a regiment is well trained in marching, the percentage of reservists who join on mobilization and who are no longer accustomed to such efforts, will reduce its powers in this respect. During and after mobilization, therefore, every opportunity must be taken of *accustoming the men to marching*. This applies particularly to infantry, who will certainly experience difficulty at first with their new foot gear.

333. The best means of maintaining and improving marching *efficiency* are: strict march discipline, care of the feet, attention to clothing and equipment, and, in mounted corps, to shoeing; and, further, attention to hygiene and good food for men and horses. The number of men who fall out, and of galled and lame horses, constitutes a test of the amount of care that has been devoted to efficiency in marching.

The commander of a company, battery or squadron must constantly watch his men or horses on the march, he must take care to spare weakly men and horses, and he must look after them during halts and in quarters. It is only incessant care of this nature that will enable him to reduce to a minimum the number of casualties which will occur on the march.

334. All arrangements for a march depend upon whether contact with the enemy is expected. If this

is not the case, the march becomes a *travelling march* (*Reisemarsch*), in which the health and comfort of the troops form the first consideration. It is then advisable to march in small bodies, or to march the different arms separately.

When contact with the enemy is expected, readiness for action will be the first consideration. This necessitates the organization of the troops into tactical formations, the selection of a suitable order of march, the shortening of the column, and the provision of measures for its protection. This constitutes a *tactical march* (*Kriegsmarsch*). It is for the commander to determine what precautions must be observed on tactical grounds, and what may be relaxed to save the troops.

335. The greater the force of troops marching together, the greater will be the difficulty and fatigue involved in covering a given distance. Each unit will not only have to cover the distance marched by the column, but also the distance to the place of assembly, and that to its billets from the main route.

336. The *manner in which the concentration*, previous to the march, *is carried out*, will depend upon the strength of the force, the available space for assembly, and tactical considerations.

As a general principle all units will move to the place of assembly in the direction of the line of march, avoiding circuitous routes; no unit must ever move off earlier than is necessary.

It is not usually advisable to assemble large forces at one place before marching off, although uncertainty as to the tactical situation and other causes may render this necessary.

If all the troops are to march off from the same spot they should arrive there successively, so that no unit has to wait unnecessarily.

In most cases it is best to form the column on the *route*

to be followed, so that each portion, namely, the advanced guard, parts of the main body according to the position of their billets, &c., moves directly into its proper place. Massing the whole of the troops before starting wastes time and compels them to cover unnecessary ground, and is, therefore, to be avoided as far as possible.

If the troops have been resting concentrated in large bodies, and it is desired to march off, each unit will only turn out in time to fall into its place in the column.

337. Transport, ammunition columns, and trains must not impede the movements of the troops, either during the assembly or on the line of march.

338. The *hour of starting* depends upon circumstances. The tactical situation, the state of the weather, or the length of the march may necessitate a very early start.

On the other hand it must be remembered that insufficient rest is prejudicial to the efficiency of the troops.

339. Soon after starting, the order "*March at Ease*" will be given. The men need no longer keep step or dressing, and, provided that it is permissible on tactical grounds, they may sing, smoke, and carry their rifles on either shoulder. If the company commander sees fit, they may sling their rifles or carry them secured. No compliments will be paid. The head of the column takes the side of the road most comfortable for the men; if both sides are alike, it takes the right of the road. All units in rear cover off and take care that the column does not spread out to an undue width. The annoyance of checks, and the fatigue occasioned by troops in rear stepping out to make up their distance, must be avoided by keeping up a uniform pace.

340. One *side* of the road must, in any case, be left sufficiently *clear*, in order to enable at least single horsemen to ride up or down the column at a rapid

pace. Mounted officers must not block this side of the road, particularly in the case of long columns.

When the roads are bad, or in very hot weather, the troops may march on both sides of the road, leaving the centre clear.

341. Individuals are not to be allowed to *unbutton their tunics, &c.*, on their own account. If it is necessary for collars, &c., to be opened, this will be ordered by an officer.

342. When marching through villages, and when the men are tired, the bands should play.

Unless there is any reason to the contrary, infantry will march through towns in step and dressing. Mounted troops will be called to attention. If collars, &c., have been ordered to be opened, they will remain so.

343. The greatest enemy of troops on the march is heat. In the infantry this causes a severe strain upon the men, and may thin their ranks in a short time unless carefully considered precautions are taken.

344. The best preventative against effects of heat consists in taking suitable measures for quenching the men's thirst during a march.

Mounted officers or cyclists should be sent forward to warn the inhabitants to have water ready on both sides of the road. With small forces, if these preparations are made, a short halt will be sufficient to enable all the men to drink. If it is not possible to halt without checking the troops in rear, water may be handed to the men and they may drink or fill their water-bottles *without halting*.

When necessary, men may be allowed to fall out to drink. They must subsequently regain their places without delay.

345. In *cold weather*, the ears, cheeks, hands, and chin require timely protection. Men should sling arms to enable them to move their hands and thus keep them

warm. Infantry usually march best without their great-coats on; these should be put on at a halt, should it extend beyond a few minutes.

Hot tea or coffee may be issued as laid down in para. 361.

346. *When the men's knapsacks can be carried for them*, this considerably improves their marching powers, but increases the transport to such an extent that it is only possible with small forces or under exceptional circumstances.

The regimental transport vehicles should be utilized to assist weakly men by carrying a portion of their equipment, if this can be done without overloading the wagons.

When the men's knapsacks are carried for them, the men must first remove their ammunition and emergency rations.

347. *Infantry* march in fours.

When the roads are bad or covered with snow, so that the leading files have to tread out a path for the remainder, they should be relieved from time to time. Similarly, when a keen wind is blowing from one flank, the men on the windward side should occasionally be changed over to the other.

The company commander rides where he can best supervise his company. Similarly, section commanders are not obliged to keep to any particular position with reference to their sections. An officer, or warrant officer and a bugler, march in rear of the company.

348. *Cavalry* in large bodies march in sections. It is more convenient to march in file, but this doubles the length of the column. Squadron and troop commanders ride where they can best supervise their commands. An officer and a trumpeter march in rear of the squadron.

349. *Field artillery* march in column of route. Neither the battery commander nor the section commanders are bound to keep to any particular place.

The No. 1 rides either in front of his sub-section or behind it, and the detachment, when dismounted, march either behind the gun or beside it. An officer and a trumpeter march in rear of the battery.

The above rules, with suitable modifications, apply also to machine guns.

350. *Heavy artillery* march in column of route, and generally as in para. 349.

351. The trumpet call "*Clear the Road*," may only be sounded by order of an officer. At this call the troops at once close in to the side of the road on which they are marching. If they are marching on both sides, they clear the centre of the road.

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

In rear of a—

Company or squadron	...	10 paces
Battalion, machine gun battery, or ammunition or supply column, &c.	...	15 „
Regiment, or <i>Abteilung</i> of field artillery	... ..	20 „
Battalion of heavy artillery	...	40 „
Brigade	... ..	40 „
Division	... ..	120 „

Mounted officers, bands, led horses, &c., are included in the road-space occupied by the unit, not in the intervals. The object of these distances is to prevent checks on the march, and they may therefore be temporarily reduced.

353. Large bodies of troops marching for long distances under favourable conditions and including halts, march at the average rate of 1 kilometre in 15 minutes (1 mile in 24 minutes).

Small bodies of troops marching independently can move faster than this, especially for short distances; but, with large forces and for long distances, it is seldom advisable to increase the *ordinary rate of marching*.

When it is desired to march unusually fast, the greatest care must be taken to see that no checks occur in the infantry columns.

354. Unless it is undesirable on other grounds, the cavalry will precede the infantry and will trot from time to time for considerable distances.

355. When the road is known to be of the same width throughout, it may be advisable, from the outset, to *shorten the column* in order to expedite deployment. For this purpose the infantry units may march in double column of fours, or two units may march side by side. Field artillery and machine guns may march in column of sub-sections, and horse artillery in battery column.

The distances laid down in para. 352 should seldom be permanently reduced. A further closing up of the column is to be avoided.

356. When the *artillery advance from column of route in order to deploy*, the side on which the artillery is to pass the infantry should be ordered so as to prevent the infantry being crossed and checked. Should such crossing be unavoidable, the artillery must, if possible, allow the infantry to pass through any available intervals. If the infantry is marching on both sides of the road, the artillery must not push into the space between the files and so split up the ranks. The infantry must therefore close to the side of the road ordered in sufficient time.

When artillery has pushed on, past the infantry, to the head of the column, it should not file on to the road immediately in front of the infantry, as this tends to check the infantry column.

357. In addition to a short halt soon after starting, to allow the men to adjust clothing and equipment, and for the purposes of nature, one or more *halts* will be made in every march, according to distance, weather, and nature of the road. If there is only one halt, it should be made when the greater part of the distance has been covered; if several, they should be at intervals of two hours. When the troops halt for any length of time it is desirable that they should be informed of the duration of the halt.

Even when time presses, halts are necessary on long marches, in order that the men may be fit for action when the enemy is encountered. *A commander incurs a grave responsibility if he neglects to give his troops timely and sufficient rest.*

It is only in cases when it is urgently necessary to reach the battlefield or threatened point, even with a fraction of the force, that the commander may push on without sparing his men.

358. It will depend on circumstances whether troops halt on the road to rest, or whether, in the case of long halts, they form up.

For the purpose of obtaining water it may be advisable to form up portions of the column in villages on, or close to, the line of march.

When the force halts in the vicinity of the enemy, increased vigilance must be exercised, and it will be advisable to shorten the column. The infantry will either form column on a narrow front, or, when a deployment is imminent, several infantry columns will form up side by side.

The road must, if possible, be cleared of infantry. If arms are piled on the road, they will be piled close to one side of it, leaving gaps at intervals. Transport will usually be left on the road. Artillery will, as a rule, keep to the road and close up to column of sub-sections.

Halting places should be selected according to the season of the year, with reference to water, shade, and cover from wind and rain.

At every halting place suitable precautions for protection must be taken.

359. The men do not stand up, even when senior officers pass them, unless addressed or called to.

360. When a large force marches, the leading troops may reach their destination before the last troops have started, or are still assembling. Under such conditions special care must be taken in arranging times of starting and periods of rest. This applies to the march of all long columns.

361. *Cooking on the march* usually costs more labour and trouble than in billets or in bivouac. Men may have to walk considerable distances to obtain fuel or water. It will generally be preferable to complete the march and to cook on arrival, even if the column does not reach its destination till late in the afternoon.

If, however, a long halt is necessary, or if the march has to be continued after a rest till the evening or into the night, then cooking on the march may be unavoidable. In such cases the best plan is to let the men carry their uncooked rations and firewood in their knapsacks.

When travelling kitchens are available, the problem of feeding men on the march is much simplified.

When these kitchens are available, it is advisable to keep tea or coffee hot and ready to issue.

362. The orders for a *halt for the night*, and for the necessary measures of protection, should be issued during the march or during one of the short halts. A timely issue of orders conduces to the comfort of the troops. Moreover all arrangements regarding billets or bivouacs should be completed as early as possible, in order that the troops may not be kept waiting.

363. When two large independent bodies of troops, such as two army corps, march by the same road, the march orders should be issued in consultation between the two commanders, in order to avoid the friction that would otherwise arise from the congestion.

364. The *order of march* of the advanced, flank, and rear guards will usually be decided by their commanders. It may, however, simplify the issue of orders if it is embodied in the orders for the march of the whole force.

The order of march of the main body is decided by the commander of the force. If he himself does not remain with it, he will appoint a *commander of the main body*. This officer sees that each unit leaves the starting point at the correct time, and that the distances on the march are maintained. He keeps up communication with the advanced and flank guards, and orders any additional flanking protection that may be necessary. If he leaves the main body, he appoints a representative to take his place. His powers as commander of the main body cease when the force deploys for action.

365. The order of march should be based primarily upon the manner in which the troops are to be employed. The head of the main body, therefore, consists, as a rule, of the remainder of the brigade, or regiment, which furnishes the infantry of the advanced guard. The field artillery will be as near to the head of the column as is consistent with safety and with due regard to its employment in action. Under certain circumstances, however, when the column of artillery is very long, it may be advisable, for purposes of protection, to interpolate in it companies or sections of infantry. Then follows the bulk of the infantry, &c. The light ammunition columns of the field artillery march, as a rule, behind the infantry of the division; but it may be

preferable to place them nearer the front. Light ammunition columns may have to be allotted to the advanced guard.

Heavy artillery follows the main body, after the light ammunition columns of the field artillery. If it is proposed, however, to bring the heavy guns into action on deployment, they will be placed further forward to enable them to be brought into position in time. Their observation wagons* usually march at the head of the heavy artillery battalions, but may be pushed further forward or may even be ordered to march with the advanced guard. The ammunition wagons of the heavy artillery march by battalions behind the last battery of their respective battalions. The light ammunition columns of heavy howitzer battalions follow their battalions, but when the latter advance they remain in rear of the light ammunition columns of the field artillery, or in rear of the fighting troops.

Telephone detachments march well forward, so that they can begin to lay their lines as soon as the column deploys for action or halts for rest.

366. If it is anticipated that the divisional bridge train will be required, it will march with the pioneers of the advanced guard. Otherwise it will, as a rule, march with the second line transport or train. Occasionally single vehicles of the divisional bridge train may accompany the pioneers.

The corps bridge train marches with the train, with the second line transport, or, if necessary, further to the front.

367. Bearer companies follow the troops to which they are allotted. They precede the light ammunition columns of the field artillery.

* The artillery observation wagon carries an observation ladder and signalling stores. There are five of these in a heavy field howitzer battalion—one for each battery and one for the battalion staff. (General Staff.)

368. *Night marches* subject the troops to additional fatigue, and impair their efficiency on the following day. They may, however, be necessary in view of the situation. They are sometimes justifiable, when the object is to conceal the movement of troops from the enemy, especially if he uses balloons. In very hot weather night marches are at times unavoidable.

Special precautions are necessary to prevent the troops from losing their way, and to preserve the cohesion of the columns. These precautions include the employment of guides, closing columns up to short distance, and leaving connecting files at doubtful points. When close to the enemy, absolute silence must be maintained.

369. There are no regular *rest days* in war. Even when operating at a long distance from the enemy it is impossible to rely upon pre-arranged rest days. It is, therefore, necessary to make the most of every opportunity of resting man and horse, and of seeing that arms, clothing, and equipment are complete and in good order.

370. When marching over *military bridges* the instructions of the pioneer officers in charge must be complied with.

If it is necessary to halt a column whilst crossing a bridge, the officer in charge of the bridge will give the necessary order, "*Halt*," himself. On emergency, any officer of pioneers who may be on duty may halt the column.

Troops must cross quietly and in good order. Checks on the bridge and on the further bank, causing a crowd on the bridge itself, must be avoided at all costs.

During a crossing no one is allowed to pass over a bridge in the opposite direction, except the pioneers in charge.

The troops are to assume the formation in which the

bridge is to be crossed at least 100 paces before reaching it, and are to preserve the formation till the rear of the column is at least 100 paces clear of the bridge.

371. Infantry will cross a *bridge for all arms* in fours, the men taking the full pace, but breaking step. Mounted officers dismount, and their horses are led over in rear of the battalion in pairs, as laid down for cavalry.

Cavalry cross in file, dismounted, the horses in the centre and the men outside. Distances must be rigidly adhered to. Each squadron after crossing will mount and ride on at a walk, to prevent the horses, which are still crossing, from becoming unsteady. Led horses follow in rear of the regiment.

Artillery and machine guns cross in column of route. The drivers remain mounted and keep their teams in the centre of the roadway. Officers, Nos. 1, and coverers dismount and lead their horses in front of the teams; detachments march on both sides of the bridge. Horse artillery gunners dismount and cross in file, as laid down for cavalry.

Telegraph detachments, transport, ammunition columns and train cross as laid down for artillery.

372. *Strengthened light bridges** (*Verstärkte Laufbrücken*) constructed by the cavalry bridge train, are crossed as follows:—Cavalry dismounted in single file, or, under exceptionally favourable conditions, in file, closed up. Infantry in fours at double distance, † the men breaking step. Field guns and other vehicles cross in column of route at 10 paces distance; guns and wagon bodies are unlimbered and manhandled across separately.

373. When troops are *ferried across* rivers, the instructions of the pioneer officers in charge must be com-

* "Two chess-table" bridge. (General Staff.)

† If the bridge is constructed with Berthon boats, in file.

plied with. The distribution of troops in boat-loads, wherein due regard must be had to the preservation of tactical units, will be arranged for, and the necessary instructions issued out of sight of the enemy, either at the halting place or, if time presses, on the march. The troops will move by previously indicated routes to the boats and embark quietly. If no gangways are available the men must wade. When single pontoons are used, the men take off their packs and sit on the bottom boards. When row boats are used for infantry, the thwarts will first be filled, and then the spaces between them. Ships' boats, towed by launches, will be loaded according to their capacity. Horses are embarked so as to stand with their heads up stream; unsteady horses are either placed in the centre or are temporarily left behind. Vehicles will be scotched up and the brakes will be applied. The place of disembarkation will be cleared as soon as possible.

BILLETTS AND BIVOUACS.

374. Billeting troops in villages affords them shelter from bad weather and the means of preparing and supplementing their rations ; it also gives them an opportunity of putting their weapons, equipment and clothing in order. Even bad billets secure greater comfort to the troops than a night in the open. In the case of mounted troops especially, any kind of shelter is preferable to none at all.

If, owing to the proximity of the enemy, to the concentration of the troops, or to the scarcity of villages, the arrangement of *ordinary billets* is no longer possible, a degree of readiness for action, almost equal to that afforded by a general bivouac, but admitting of greater comfort to the troops, may be obtained by ordering *close billets* (para. 405).

When, owing to the immediate proximity of the enemy, it is necessary, on tactical grounds, for the troops to remain in a definite position, they will usually have to bivouac. The absence of villages may also compel the adoption of a similar course.

ORDINARY BILLETTS.

376. When there is no prospect of contact with the enemy, the first considerations should be the comfort of the troops, good accommodation and good supplies. The extent of the area to be occupied will depend upon the number and size of the villages available, their situation as regards the line of march, the length of the column, the distance which the force

has marched and is going to march next day, and the time available until the troops are again required to concentrate. As a rule, the simplest and most convenient arrangement for the troops is to make the depth of the billeting *rayons* about equal to the length of the column.

The distribution of the troops in the various villages will depend upon the existing, or proposed, order of march. It will, however, be necessary to intermingle the different arms in order to make full use of all the available space and stabling accommodation.

When troops are billeted on the march, the villages nearest to the line of march should be the most strongly occupied.

377. In closer proximity to the enemy, tactical considerations are of the first importance. The troops will be billeted more closely; strong bodies of infantry should be quartered in the villages nearest to the enemy, and artillery should never be left without an escort. Trains should be quartered furthest from the enemy.

378. The situations of the head-quarters and other staffs should be selected so as to facilitate the rapid transmission of orders and reports. Regard must be had to telegraphic and telephonic communications, and to the position of the roads.

379. The preliminary measures for quartering the troops should be *made in advance* when possible; accommodation should be arranged for in co-operation with the civil authorities, and the billets should then be allotted by quarter-masters. The issue of billeting papers ensures an orderly occupation of the billets, they should therefore always be used if time allows. Even if the order regulating the distribution of the troops is not issued until they are on the march, they will settle into their quarters more quickly if billeting officers

(for the infantry, if necessary, mounted officers and cyclists) are sent on in advance, than if no warning has been given of the arrival of the troops.

380. *A more summary method* is to assign a section of the billeting area to each body of troops, and certain streets and houses to each of its units. If possible, officers should be sent on ahead to arrange the allotment of billets. The best plan is for the officer designated as commandant, or the senior officer of the troops concerned, to go himself, accompanied by officers of the various units.

381. The different sections of the billeting area must have clearly marked boundaries; if the circumstances require it, regard must also be had to their suitability for defence. Artillery and machine gun batteries should be billeted close to their gun parks, and on the side furthest from the enemy.

382. In each village the senior officer will be *ex officio cantonment commandant*, unless another officer has been specially detailed by superior authority. In such cases an officer of general rank should designate an officer commanding a regiment, or some other field officer; a regimental commander should designate a field officer. The cantonment commandant will allot the quarters to the different bodies of troops (if this has not already been done), and will give orders as regards administration, protection, and the state of readiness to be maintained. He must see that nothing takes place to interfere with the occupation of billets and stabling by troops arriving later than the remainder.

383. Each cantonment commandant will appoint an *officer for cantonment duty* (with large bodies of troops this officer should be of field rank). *Officers for rounds* will be detailed as required.

The officer for cantonment duty will report himself to the district commandant and take his instructions

as to the arrangements to be made for protection without, and administration within, the billeting area. He will be the direct superior of all guards, and will be responsible for their mounting, instruction, and inspection by day and by night.

384. Each battalion, regiment of cavalry, *Abteilung* of artillery or ammunition column will detail an officer; and each single company, or similar unit, or portion of such unit present in the locality, will detail a non-commissioned officer *of the day*. (Battalion officer of the day, *Abteilung* officer of the day, company non-commissioned officer of the day.) The above will report to the officer on cantonment duty for orders immediately upon arrival.

The officer, or non-commissioned officer, on duty for a unit will be responsible for quietness and order in the area allotted to his unit, and will supervise the execution of all orders given either by the commander of the unit, or by the cantonment commandant.

With small bodies of troops, when only one unit is occupying a place, cantonment and regimental duties may be combined.

385. It is frequently necessary to establish an *outlying piquet*—for the immediate protection of a billeting area—which may have to be posted outside the confines of the place. Under certain circumstances it may also be charged with preventing any person leaving the place.

The outlying piquet will furnish double sentries, or non-commissioned officer posts, at all exits from the village, and at important points on the confines of the place, or close round it.

When the billets are occupied by troops of all arms, the outlying piquet should, as a rule, be found by the infantry. There should be a bugler with every piquet.

Regard must be had to establishing communication with places in the neighbourhood.

The general rules for the duties of the outlying piquets are as laid down for piquets.

386. In the proximity of the enemy as many units as may be needed will be kept in a state of increased readiness, and will be concentrated for the purpose in suitable houses or farm buildings (*alarm quarters*). This procedure may also be advisable (especially in towns) for police purposes.

387. In every village an *inlying piquet* will be established for the interior service of the place. Its strength will depend upon the number of sentries to be furnished, but it must be kept at a minimum, especially in the case of quarters on the line of march. Thus, in each unit it will suffice to mount a sentry on the colours* (commanding officer's quarters) and a second on the vehicles. To save sentries, the colours belonging to the same regiment may be collected at the commanding officer's quarters, and the vehicles of several units may be parked together. Each unit will find men for the inlying piquet in proportion to the number of sentries which the unit requires. A bugler should always be detailed for this piquet.

Police requirements, the necessity of guarding a number of points, or the doubtful attitude of the inhabitants may make it advisable to increase the strength of the inlying piquet, or, if necessary, to establish several such piquets.

The conduct of the inlying piquet is guided by the regulations for duties in garrison.

When the place and the number of troops are small, the outlying piquet may also perform the duties of

* In the German Army each battalion takes a colour on service. (General Staff.)

the inlying piquet, but it will still retain its character as a piquet on outpost duty.

388. If the troops have to construct cooking places outside their quarters, regard must be had to the direction of the wind, so as to obviate the danger of fire. Great care should be exercised as regards fires and lights. If the troops remain stationary for any length of time, latrines must be constructed.

389. *Alarm posts* are always to be selected for each unit, and in such a way that the units can assemble quickly and can proceed to the stations assigned to them without interfering with each other.

For artillery and machine gun batteries the alarm post will be the gunpark.

390. Under certain circumstances it may be useful to fix an *alarm rendezvous* in larger billeting areas, where, in case of alarm, regiments, brigades, &c., will assemble without further orders.

391. The quarters of the cantonment commandant and of the senior commanding officers must be so situated that they can be easily found. They should be distinguished by flags or wisps of straw, and, at night, by lanterns.

The piquets and the sentries at the issues of the place must know the positions of these quarters, in order to be able to direct mounted orderlies, &c., to them without delay.

The quarters of trumpeters and buglers should be distinguished by straw-whipped hoops or by straw bugles.

Telegraph and telephone stations should be, if possible, in the immediate neighbourhood of the headquarters of the staff for the use of which they are intended. If necessary, telephonic communication will be established with them. These stations will be distinguished by a station notice board (a white T on

a red ground) and a wisp of straw. The notice board is to be lit up at night.

In each telegraph station a plan of the telegraphic communications should, if possible, be hung up, which should also contain information about the various staffs. The latter should, therefore, notify their arrival to the telegraph stations of their own cantonment areas, or to any station with which they are in permanent communication, for transmission to all concerned.

Other quarters are distinguished by the methods commonly in use in the various arms.

392. The principal staff offices should be conspicuously marked, and well lighted at night. Temporary accommodation should be provided close by for the use of adjutants, &c., coming in for orders, and for their horses.

393. If a place is occupied for some time all the arrangements should be made more complete, as when in garrison. The positions of staff offices, hospitals, magazines and so forth should be indicated by notice boards at the entrance to the place, and also at the railway station and town hall. If necessary, sign posts will be erected, and so on.

394. When it is considered especially important to keep the arrival of certain troops, or staffs, from the knowledge of the enemy's spies, it may be advisable not to post up the positions of all the quarters.

395. Transport can be parked within the billeting area, as the cantonment commandant may direct, so long as through communication is not interfered with. Guns, machine guns, vehicles of the ammunition columns, and trains should, if possible, be parked outside the place, on the side away from the enemy. Vehicles of telegraph units should be as near as possible to the telegraph station.

396. When the ground will not admit of the vehicles

of heavy artillery being drawn up to one side and clear of the road, they will remain on the road. They should, however, be kept, as far as possible, outside villages, the vehicles in column of route, closed up to the front, and to one side of the road. The front and rear of the columns, and other points, should, if necessary, be marked at night by lanterns.

397. *Very close crowding* may require the cantonment commandant to take special measures to preserve order, especially at night. Such measures include the employment of strong inlying piquets with frequent patrols, early closing of public houses, prohibition of the sale of spirits, an order to turn in early, the prompt discovery of wells and their allotment to the troops, proper regulation of wheeled traffic, &c.

When large villages are occupied by a number of troops without previous preparation, as in the case of places captured during an engagement, a commandant must be appointed immediately. A strong force, if possible of fresh troops, should be placed at his disposal to enable him to provide for external defence, and for keeping order within the place. One of the first steps to be taken is to establish a complete system of guards with strong patrols to search the houses for explosives.

398. If *surprise attacks* with the possible co-operation of the inhabitants are to be feared, special precautions must be adopted. The inhabitants should be threatened with punishment, and hostages taken. The streets should be lighted with torches or lights in the windows, house doors kept open, &c. The men will be kept in a state of greater readiness, and will usually be assembled in alarm quarters. The exits from the place will be blocked, provision being made for the necessary traffic. The place will be prepared for defence.

399. Under such circumstances special arrangements will be necessary with regard to the *horses*. In order

that they may not get shut up in courtyards or stables, interior communications and exits must be provided in such places; outer walls must be broken down, &c. The troops should be quartered by complete units (troops and so on), in large barns, warehouses, cattle sheds, and the like. The men should sleep fully dressed beside their horses, with their carbines and pouches ready to hand. Officers remain with their troops. Sentries should be mounted outside the buildings. If the situation is very threatening horses will remain saddled and bridled (or harnessed) all night, and will be kept outside their stables in courtyards, open places, &c., or even outside the village. This condition of affairs approximates to the bivouac, while it utilizes to a limited extent, the advantages which the proximity of the village affords.

400. In quarters occupied on the march, if danger is anticipated, the environs must be patrolled, communications must be maintained, bridges on the lines of approach must be guarded and observation posts must be established on towers, and so on. It is advisable that no one should be allowed to leave the place, and the use of private telephones should be restricted.

Posts on the lines of communication must, in addition to the above precautions, be placed in a thorough state of defence.

401. In places which are threatened with an attack, every man must have his weapons and equipment so close at hand that he can turn out at a moment's notice, even in the dark. All bugle and trumpet calls, except for the purpose of alarm, are forbidden. To give the alarm the "*Assembly*" is sounded, while the drums beat the "*Fall in.*" The order to turn out is given by the senior officer or the cantonment commandant. If the enemy appears

suddenly and danger is imminent, it is the duty of every piquet to give the alarm, and every officer must do so on his own responsibility.

402. In order that certain units, or the troops in certain places, may be quickly available, it must be possible to assemble the troops rapidly at any time without sound of bugle, and preparations with that end in view should be made (*the still alarm*).

403. Upon an alarm, all units of infantry will assemble fully equipped at their alarm posts, or will occupy the stations assigned to them. The men of the artillery and machine gun batteries, according to their detachment numbers, either hasten to their respective gun-parks, or help the drivers to harness up. The action to be taken by the mounted arms, and also by the transport and the vehicles, especially in night alarms, should be the subject of special orders by the commandant. When cavalry are quartered alone in a place, it is a matter for previous consideration whether they should vacate it after a slight resistance, or defend the place itself as vigorously as possible.

On the alarm being given piquets will act as ordered by the cantonment commandant.

404. If the enemy has effected a surprise entry into the place, all troops will remain in their quarters and defend themselves there.

CLOSE BILLETS.

If the troops cannot be completely accommodated in the villages to which they are assigned, the surplus will bivouac in the enclosures to the houses, in open spaces, courtyards, and gardens, or outside the village.

The regulations as regards ordinary billets apply,

generally, to troops quartered under cover, the regulations for bivouacs to the remainder.

The commandant must take steps in good time to see that the accommodation in the place is utilized judiciously, and to the fullest possible extent. The arrangements for drawing water must be regulated, and care must be taken to avoid danger to the place from the bivouac fires. It is often necessary to adopt special precautions to preserve order after dark, and to prevent irregularities, &c.

Mutual consideration by the troops for each other's convenience, and practical commonsense on the part of subordinate commanders, must go hand in hand with the commandant's dispositions.

BIVOUACS.

406. If portions of the force can be allotted separate bivouacs, it will be easier to select suitable bivouac grounds; and the readiness for action of the troops, especially of the larger formations, will be enhanced.

407. Generally speaking, the bivouacs will be arranged in accordance with the disposition of the troops, necessitated by the tactical situation. The front should be towards the enemy, but reasons connected with cover or communications may render it advisable to depart from this rule. The allotment of units to particular bivouacs will be determined by considerations of ground, supply, provision of adequate and conveniently situated supplies of water, fuel, and the special requirements of the various arms. The protection of the artillery must be considered.

408. If possible, the bivouac should be out of sight of the enemy. Good communications are important, and must be constructed if necessary.

409. The bivouac should be on a dry soil and should,

as far as possible, afford cover from wind and weather. Meadow land, even if it appears quite dry, gives off damp and mist at night. One night spent on damp ground may cause more casualties than a battle. Hard ground, or lightly wooded land, usually offers the most suitable kind of soil.

410. When it is necessary for large bodies of troops to be assembled in *one* bivouac, ample intervals must be allowed between the various units. The minimum interval will be 20 paces between the battalions of a regiment, between regiments of infantry, cavalry, and field artillery, between *Abteilungen* of artillery, batteries, and light ammunition columns, and between units of the different arms. If the bivouac has to be laid out with the troops in deep formation, the distances from front to rear should be liberally estimated, so as to allow for latrines, or else these must be dug to a flank.

411. The bivouac commandant should ride on ahead of the troops to examine the ground. He should be accompanied by mounted officers of the different units.

412. Each unit should commence settling into its bivouac immediately on its arrival. *Any subsequent change of ground involves a serious loss of rest and can only be justified by the most urgent necessity.*

413. In order to facilitate the discharge of their duties, the higher commanders and their staffs will usually be quartered in villages or houses.

414. The senior officer present in each bivouac is *ex officio* the *bivouac commandant*. The position of his bivouac should be easy to find, and should be known to all guards. The bivouac commandant is responsible for protection, and for blocking approaches if necessary. He allots the ground to the several units, and makes all special arrangements, such as allotment of wells and watering places, and of the hours at which they may be used, &c. He is especially responsible for the

prompt and orderly employment of every available means which may secure to the troops rest and shelter from the weather, at the earliest possible moment. (Provision of straw, fuel, &c.)

415. In order to assist the bivouac commandant, officers, &c., will be detailed for duty, as laid down for ordinary billets; they will be designated as *on bivouac duty* and as *on regimental duty*. (See paras. 383, 384.)

In large bivouacs, as in ordinary billets, the duties of the officer on bivouac duty will be discharged by a field officer.

416. In the proximity of the enemy special *outlying piquets* will be required for protection. Under certain circumstances they may also be necessary to prevent any man from leaving the bivouac. The principles laid down for outlying piquets in ordinary billets apply, generally speaking, to these piquets. (See para. 385.)

Protection by means of outlying piquets is especially important for cavalry when bivouacing alone. They must be sufficiently strong and numerous to prevent the bivouac from being disturbed by hostile patrols.

If cavalry are surprised in bivouac, the men must all use their carbines.

417. *Inlying piquets* are arranged for independently by each separate body of troops. Their strength depends on the number of sentries required. Sentries should be mounted over colours, standards, gunparks, and vehicles.

The duties of inlying piquets will be as laid down for garrison duty, except that they do not turn out when relieved, and that guards and sentries pay no compliments. The inlying piquets and their sentries are mounted, instructed in their duties, and visited by day and by night by the officers on regimental duty.

418. The men should not interrupt their work because of the presence of superior officers, unless the latter call to them or address them.

419. If the tactical situation permits, the commandant will fix an hour for the bands to play, and will order tattoo to be beaten or sounded by the buglers, &c., of all corps, generally massed by regiments, and commencing from the right flank.

Companies, squadrons, batteries, &c., will fall in for roll call, and hold evening prayers, after which everyone will retire to rest.

Réveille will only be sounded or played by the drummers or buglers on guard.

420. The diagrams given further on are only to be considered as general guides for the form of bivouacs.

BIVOUC ARRANGEMENTS.

Infantry.

421. Companies will pile arms as directed by their officers, either in column of sections or in company column, except when some other arrangement has been prescribed by the battalion commander for special reasons. Helmets and accoutrements will be laid down, either with the rifles or on the company parade grounds. The men will put on their forage caps, and may wear their haversacks and water-bottles, or not, as they please.

All other arrangements are the affair of the unit. There is no necessity for uniformity within the battalion.

At night, knapsacks, &c., may be taken inside the tents.

Horse lines should be laid out with picket posts and picket lines in rear of the vehicles.

The colours will be supported in a slanting position upon one of the piles of arms of the company, the lower end of the pole touching the ground.

Cavalry.

422. Cavalry will bivouac in column of squadrons, closed to half distance. Rear ranks will go sections left about and will ride 20 paces to the rear. Both ranks will extend from the centre to $1\frac{1}{4}$ times the front of a squadron.

423. When the men have dismounted, by word of command, they will plant their lances in the ground (or lay them down) three paces in front of the horses' heads. Head-dresses and the rest of the accoutrements will be laid down half a pace farther to the left. Picket posts will be driven in at equal intervals, as close as possible in front of the horses' heads, and the picket lines will be made fast to the posts.

A stand must be made to support the standard.

424. If the order to off saddle has been given the saddles will be laid on the ground with the pommels towards the horses and three paces in rear of them. Carbines will be left on the saddles. Saddle-blankets, folded ready for saddling up, will be laid down either over or under the saddles, according to the weather; or they may be used to blanket up the horses. Bridles will be laid on the saddles, bits towards the horses.

Field Artillery.

425. When the battery has formed up, the men will dismount, the inlying piquet will fall out, and the horse-lines will be laid out. For the latter purpose the poles of the limbers should be lowered to the ground, the wheels scotched, and the picket lines stretched between the wheels.

Wooden toggles should be knotted into the picket lines at a few paces from the points where the latter are made fast, to keep the horses clear of the carriages. If necessary, each picket line may be supported by one picket post in the centre.

426. Saddles will be laid down with the pommels towards the horses and three paces in rear of them. Girths, traces, surcingles, and all articles of equipment strapped on behind the saddle, will be laid on the seats of the saddles. Over these will be laid the saddle-blankets folded ready for saddling up, unless they are required to blanket up the horses. Bridles will be laid on the blankets with the bits towards the horses, and then helmets, bandoliers, and sword-belts with revolvers. Collars will be leant against the pommels. Swords will be left in the frogs and laid beside the saddles, with the whips hung over the hilts.

427. The accoutrements of the gunners will be laid down in two rows, by gun or wagon detachments. The men may wear their haversacks and water bottles, or not, as they please.

Heavy Artillery.

428. The regulations for field artillery hold good, so far as they are applicable.

The rifles of the detachments will be piled by carriages, and the accoutrements will be laid behind these in two rows.

Other Troops.

429. Machine gun batteries, telegraph and field balloon detachments will bivouac in the same way as field artillery. Ammunition columns and train bivouac as laid down in the regulations for transport, ammunition columns, and train.

ALARM.

430. When the "*Alarm*" is sounded, in the case of infantry, each man will put on his accoutrements and double to his place by the rifles. Teams will be hooked in.

In the cavalry, each man will quickly saddle his horse, get ready himself, and mount. Squadrons will assemble at the alarm post. Teams will be hooked in.

Machine gun units, artillery (ammunition columns and trains) will saddle up, harness up, put on their accoutrements, and hook in, by machine guns, by guns or by wagons, without further word of command.

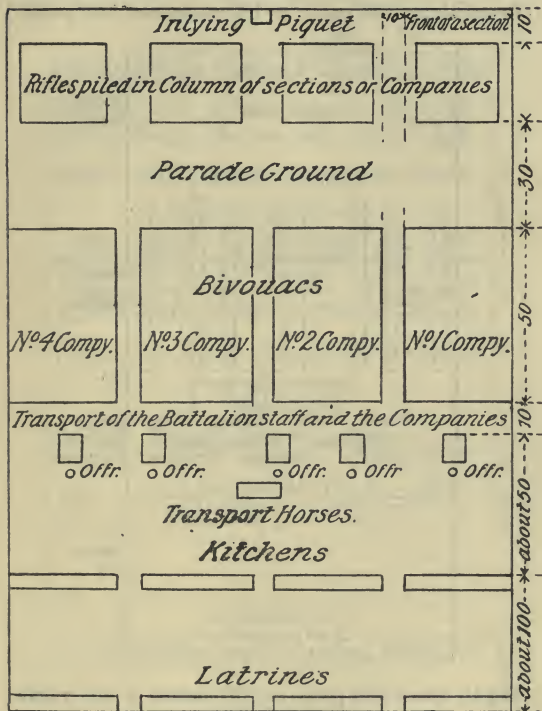
This should be done as quietly as possible.

431. The outlying piquets will remain at their posts till further orders, or, if the situation requires it, throw themselves upon the enemy.

432. The inlying piquets will assume charge of any gear left behind and, in case of a sudden march, they will not move off after the troops until everything has been loaded up and is ready to start.

BIVOUAC OF A BATTALION.

(Front about 250 paces or 200 metres = 220 yards.)



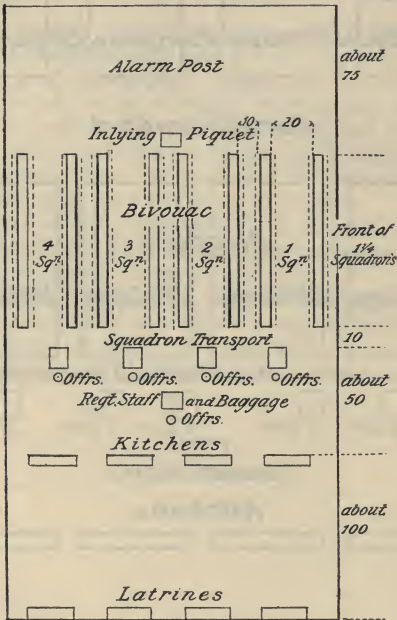
Depth about 280 paces or 225 metres = 250 yards.

(Intervals and distances in paces.)

(3694)

BIVOUAC OF A CAVALRY REGIMENT.

(Front about 150 paces or 120 metres = 130 yards.)



Depth about 235 paces or 190 metres = 209 yards.
 (Intervals and distances in paces.)

BIVOUAC OF A FIELD BATTERY.

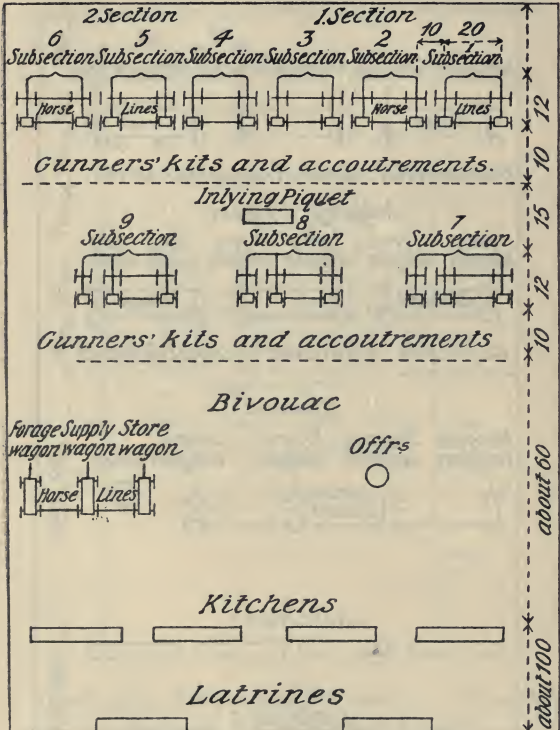
Front: Field Battery, about 90 paces or 75 metres = 83 yards; Horse Battery, about 135 paces or 110 metres = 120 yards.)



Depth about 235 paces or 190 metres = 210 yards.
(Intervals and distances in paces.)

BIVOUAC OF A LIGHT AMMUNITION COLUMN OF THE FIELD ARTILLERY.

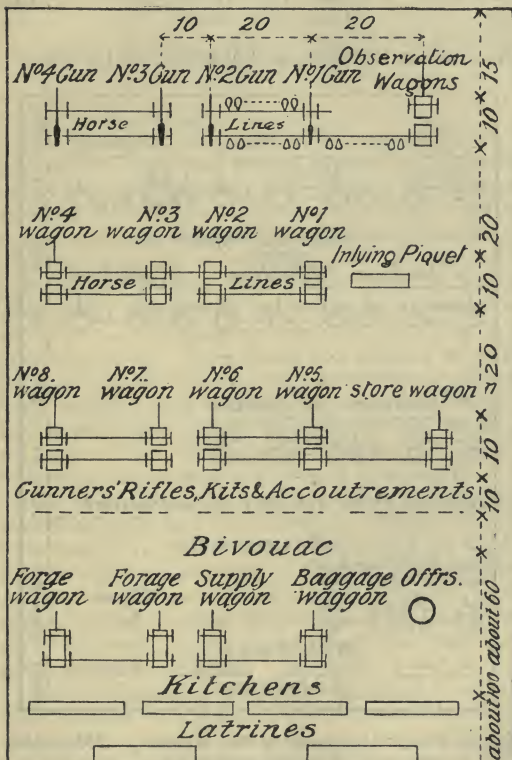
(Front about 180 paces or 145 metres = 160 yards.)



Depth about 235 paces or 190 metres = 210 yards.

(Intervals and distances in paces.)

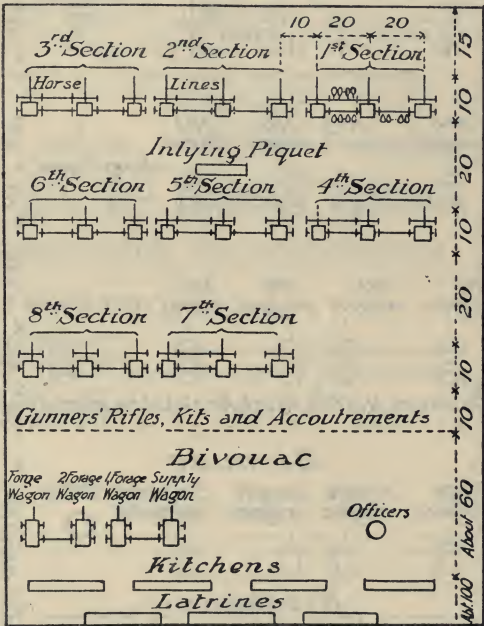
BIVOUAC OF A HEAVY FIELD HOWITZER BATTERY.
(Front about 80 paces or 65 metres = 72 yards.)



Depth about 255 paces or 200 metres = 220 yards.
(Intervals and distances in paces.)

BIVOUAC OF A LIGHT AMMUNITION COLUMN OF THE
HEAVY ARTILLERY.

(Front about 150 paces or 120 metres = 135 yards.)



Depth about 255 paces or 200 metres = 220 yards.

(Intervals and distances in paces.)

TRANSPORT, AMMUNITION COLUMNS AND TRAIN.

433. Transport, ammunition columns, and train are intended to keep the troops efficient for immediate action, without impeding their freedom of movement. To meet both of these requirements demands not only well-thought-out orders by the superior authority, but a strong sense of responsibility on the part of the commanders of these units. They must be ready to make every sacrifice in order that the columns may arrive at the destinations appointed for them at the prescribed time. They must not hesitate to subject their commands to the severest exertions, to undertake night marches, and double marches in order that the troops may receive their ammunition and supplies at the right time. Such achievements will only be possible if the strictest discipline is maintained.

434. If possible, the arrangements for the march should be such that the transport, columns, and train do not require a *special escort*. The men of the ammunition columns and train carry fire-arms for self-defence. Activity on the part of the enemy's cavalry, exposed flanks, and the hostile demeanour of the inhabitants may, however, render it necessary to take special measures for protection.

435. *On the march*, particular care must be taken to keep one side of the road clear. For a comparatively long halt, especially when the road is narrow and is being used by other troops, it may be necessary to form up the vehicles to one side and clear of the road. They

should not halt in villages or narrow parts of the road if this can be avoided.

Ammunition columns and train do not bivouac except in case of necessity.

436. During *the battle* vehicles should, if possible, be parked so that they can move off in any direction.

The commanders of the second line transport, and of the foremost échelons of ammunition columns and train, should endeavour to establish communication with the commander of the force.

TRANSPORT.

437. The led and spare horses, and the establishment vehicles of the staffs and units constitute their transport (*see Regulations for Transport, &c.*).

The vehicles of the **firing** batteries of field and heavy artillery and the ammunition wagons of the latter, the vehicles of the firing portions of machine gun units and of field telegraph, telephone, and field balloon detachments, are not reckoned as transport.

438. Transport is divided into *first line transport* (*Gefechtsbagage*), *i.e.*, the portion which the troops may require even during an engagement; and *second line transport* (*grosse Bagage*), *i.e.*, the portion which they may require in billets or bivouacs.

COMPOSITION OF THE TRANSPORT.

—	1st Line Transport.	2nd Line Transport.*
<i>Infantry.</i>		
A Regimental Staff	4 led horses.	1 2-horsed staff baggage wagon.
A Battalion ...	8 " " 4 2-horsed company S.A. ammunition wagons. 4 2-horsed company field kitchens. 1 2-horsed infantry medical store wagon	1 2-horsed baggage wagon. 4 2-horsed company baggage wagons. 5 2-horsed supply wagon† (includes 1 sutler's wagon).
A Company ...	1 led horse. 1 2-horsed company S.A. ammunition wagon. 1 2-horsed field-kitchen.	1 2-horsed company baggage wagon. 1 2-horsed company supply wagon.
Other transport with Regiment		1 4-horsed entrenching tool wagon.

Machine Gun Battery.

5 led horses. 6 spare horses.	1 4-horsed store wagon. 1 2-horsed baggage wagon. 1 2-horse supply wagon. 1 2-horsed forage wagon.
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* This list also represents the *order of march* of the vehicles of the 2nd line transport within the unit. The company, or squadron vehicles, will be kept together in the 2nd line transport of each battalion or cavalry regiment.

Transport in excess of the regulation amount will be attached to the regulation transport. Slaughter cattle should follow, as a rule, in rear of the whole column.

† Battalions not yet provided with field-kitchens will be allowed a sixth supply wagon, in their 2nd line transport, to carry an emergency ration.

COMPOSITION OF THE TRANSPORT—*continued.*

—	1st Line Transport.	2nd Line Transport.*
<i>Cavalry.</i>		
Regiment of 4 Squadrons	58 led horses. 2 riding horses for pack-horse leaders. 2 pack-horses for medical stores. 1 2-horsed cavalry medical store wagon† 2 4-horsed pontoon wagons.‡ 1 2-horsed telegraph wagon.‡	1 4-horsed staff baggage wagon. 4 2-horsed squadron baggage wagon. 5 2-horsed supply wagons (includes 1 sutler's wagon). 5 4-horsed forage wagons.
A Squadron ...	12 led horses.	1 2-horsed squadron baggage wagon. 1 2-horsed supply wagon. 1 4-horsed forage wagon.

In addition to the above there will be added for a *cavalry division* :—

1 4-horsed tool wagon for the pioneer detachment.	1 6-horsed medical store wagon. 1 led horse for the commander of the pioneer detachment.
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* This list also represents the *order of march* of the vehicles of the 2nd line transport within the unit. The company, or squadron vehicles, will be kept together in the 2nd line transport of each battalion or cavalry regiment.

Transport in excess of the regulation amount will be attached to the regulation transport. Slaughter cattle should follow, as a rule, in rear of the whole column.

† Only with regiments of a cavalry division.

‡ Regiments of reserve cavalry have no pontoon or telegraph wagons.

COMPOSITION OF THE TRANSPORT—*continued.*

—	1st Line Transport.	2nd Line Transport.*
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Field Artillery.

Regimental staff	5 led horses.	1 2-horsed baggage wagon.
Brigade staff...	5 „	1 2-horsed baggage wagon.
Field (including field howitzer) and horse artillery battery	5 or 10 led horses. 8 or 4 spare horses. 1 6-horsed store wagon.	1 6-horsed store wagon. 1 2-horsed supply wagon. 1 4-horsed forage wagon.
Light ammunition columns	4 led horses.	1 6-horsed store wagon. 1 2-horsed supply wagon. 1 4-horsed forage wagon.

Heavy Artillery.

Regimental staff	4 led horses.	1 2-horsed baggage wagon.
Battalion staff	4 „	1 2-horsed baggage wagon. 1 2-horsed supply wagon.
Battery ...	1 led horse. 1 2-horsed field-kitchen. 8 spare horses.	1 2-horsed baggage wagon. 1 2-horsed supply wagon, 1 4-horsed forge wagon. 1 „ forage wagon.
Light ammunition column	1 led horse. 8 spare horses.	1 2-horsed supply wagon 1 4-horsed forge wagon. 2 4-horsed forage wagons.

* This list also represents the *order of march* of the vehicles of the 2nd line transport within the unit. The company, or squadron vehicles, will be kept together in the 2nd line transport of each battalion or cavalry regiment.

Transport in excess of the regulation amount will be attached to the regulation transport. Slaughter cattle should follow, as a rule, in rear of the whole column.

COMPOSITION OF THE TRANSPORT—*continued.*

—	1st Line Transport.	2nd Line Transport.*
<i>Pioneers.</i>		
Complete pioneer battalion (3 companies)	7 led horses. 3 4-horsed entrenching and tool wagons. 3 4-horsed mining store wagons. 3 2-horsed field kitchens.	1 2-horsed staff baggage wagon. 3 2-horsed company baggage wagons. 4 2-horsed supply wagons.
Field pioneer company	1 led horse. 1 4-horsed entrenching and tool wagon 1 4-horsed mining store wagon. 1 2-horsed field kitchen.	1 2-horsed company baggage wagon. 1 2-horsed supply wagon.
<i>Telegraph Troops.</i>		
Army, or Army Corps telegraph detachments	1 led horse.	1 2-horsed baggage wagon.
<i>Field Balloon Detachment.</i>		
	1 led horse.	1 2-horsed baggage wagon. 1 2-horsed supply wagon. 1 2-horsed forage wagon.

* This list also represents the *order of march* of the vehicles of the 2nd line transport within the unit. The company, or squadron vehicles, will be kept together in the 2nd line transport of each battalion or cavalry regiment.

Transport in excess of the regulation amount will be attached to the regulation transport. Slaughter cattle should follow, as a rule, in rear of the whole column.

439. Commanding officers must take care that the transport is not increased beyond the regulation amount, except in cases of urgent necessity, and that even then the length of the column of the fighting troops is not increased if it can be avoided.

A *temporary increase* in the length of the transport column may occur under the following circumstances :—

In consequence of arrangements made by superior authority, causing an increase in the number of supply and forage wagons.

In consequence of arrangements made by individual commanding officers, who may requisition single conveyances for the transport of men unable to march, war stores, &c., *such action being taken on their own personal responsibility, and reported by them.*

If the traffic on the roads on the line of march is very heavy, it may be advisable to forbid, absolutely, any increase being made to the transport. It may even be necessary to leave certain portions of the transport behind, or to destroy them.

440. So long as contact with the enemy is not expected, the commander of the force may use his discretion in allowing the whole of the transport to march with the troops.

Transport of regimental staffs will be attached to battalions; transport of the higher staffs and of departmental staffs will then either march alone or with the transport of a unit.

441. When contact with the enemy is probable, the *first line transport* will remain under the orders of the unit to which it belongs, and will follow it into action. Detached companies, &c., take their first line transport with them.

In the infantry, the first line transport is commanded

by the non-commissioned officer of the train attached to the battalion, according to instructions given him by the battalion commander. When the troops go into action, this non-commissioned officer remains with the small arm ammunition wagons as wagon commander. Field kitchens, unless otherwise ordered, will remain with the medical store wagon. Led horses may follow immediately behind the unit, or may remain with the wagons at the option of their owners.

In the cavalry it may be advisable to temporarily separate the first line transport from the troops.

The *second line transport* will usually be assembled in groups, and will follow the fighting troops, generally in the same order of march as the divisions to which it belongs, and at the proper distance. In a retirement, the transport will precede the troops; in a flank march it will move on the flank furthest from the enemy.

The action of the second line transport of higher formations, during an engagement, must be regulated by the orders of the commander of the force.

442. The *assembling* of the second line transport is an operation which requires to be arranged with care and thoroughness. The movements of the troops must not be delayed or impeded by it. If the transport is marched off from billets and bivouacs too early, the repose of the troops is interfered with. When a force is advancing, the transport should not, as a rule, be collected together on the line of march until the troops have moved off.

If circumstances render it necessary to move the transport very much earlier than the troops, it may be preferable to do so on the preceding evening, or, at any rate, to load the vehicles before the troops settle down for the night.

443. A captain of cavalry or train is attached to the staff of each division, and a lieutenant to the staff of

each regiment to command and superintend the second line transport.

444. If possible, the troops should have access to their transport every day. If the second line transport is not marching with the troops it should join them when they are halted for the night. The commander of the whole force will usually order the second line transport to advance to given points, from which it can proceed direct to the various units. It is the business of the units to collect their own transport from these points. They should send mounted orderlies or cyclists to take over the vehicles from the officer in charge, who will see that they march off to their units in an orderly manner.

AMMUNITION COLUMNS AND TRAIN.

445. The regulations for ammunition columns and train apply to:—

Ammunition columns (infantry, artillery, and heavy artillery ammunition columns).

Columns carrying gas for balloons.

Corps bridge trains.

Supply parks and columns.

Field hospitals.

Bakery columns.

Remount depôts.

The light ammunition columns of field and heavy artillery belong to the fighting troops.

446. The following are usually allotted to each army corps:—

Two *Abteilungen** of ammunition columns, each

* The ammunition columns of a corps are divided into two *Abteilungen*, each under its own commander. (General Staff.)

consisting of a staff, and infantry and artillery ammunition columns.

Two battalions of train, each consisting of a staff, supply columns and parks, field hospitals, and a remount depôt.

Field bakery columns.

One corps bridge train.

Each battalion of heavy artillery has its own heavy artillery ammunition columns.

447. On the march ammunition columns and train will be divided into two échelons (*Staffeln*).

The first échelon will include, as a rule :—

One *Abteilung* of ammunition columns.

Part of the heavy artillery ammunition columns, if any.

Supply parks and columns, and field hospitals according to requirements.

The column carrying gas for the balloons should always be allotted to the first échelon. The corps bridge train will be allotted as may be ordered in each case.

When the army corps marches by several roads, either the whole of the columns and train, or only the first échelon, may be distributed to divisions.

When a fight is expected, whole or half ammunition columns, and single field hospitals, may be sent forward as a *fighting échelon*, in front of the second line transport, or right up to the rear of the troops. The senior officer with the fighting échelon takes command unless a special commander is appointed.

Considerations of supply may render it necessary to interpolate supply parks and columns in the columns of march of the fighting troops.

448. In each échelon, the ammunition columns are commanded by the commander of one of the ammunition column *Abteilungen*. The train is commanded

by the commander of one of the train battalions. The whole échelon is commanded by the senior of these two officers, if a special commander has not been detailed.

The commander of the échelon (or the commander of an independent column) will be responsible for the service of protection, both on the march and in quarters.

449. The movements of the échelons are regulated by orders sent direct to the commanders of échelons by the commander of the force. The ammunition columns and train belonging to divisions receive their orders from the divisional commanders.

SUPPLY.

450. The supply of provisions for man and horse are carried out either by the householders upon whom the troops are billeted, or from the supplies carried with the troops, or by purchase or requisition, or from supply depôts.

Which of these methods is to be employed from day to day will depend upon circumstances. The method of supply by householders is the most convenient for officers and men, but in operations on a large scale it can only be reckoned upon to a limited extent. The troops then have to be rationed principally from supply columns and depôts. It will be advantageous if this method of supply can be supplemented by such extra provisions as can be obtained locally and in billets.

Under certain circumstances, as when the troops are in poor districts or closely concentrated, supplies may be issued entirely from supply depôts and columns.

451. In the theatre of war, it is *incumbent upon all commanding officers to do their utmost to obtain good and sufficient supplies for their troops*, and if necessary to ensure this by personally taking independent measures. It is a fundamental principle that all supplies available in the theatre of war should be utilized to the utmost.

452. In the interests of the troops themselves, it is well, even when in the enemy's country, *to treat the inhabitants with the greatest consideration*. At the same time, when the gravity of the situation demands it, due severity must be exercised towards hostile in-

habitants. Leniency and negligence at the wrong time and place may lead to hardships for the troops.

453. From the day they leave barracks, all troops carry a permanent reserve of food known as an emergency ration (*eiserne Portion*).

The cavalry carry two and all other troops *three emergency rations*, as follows:—

In the *infantry*, two emergency rations in the knapsack, the third in the field kitchen. (Troops to whom these kitchens have not yet been issued carry the third ration in special vehicles.)

In the *cavalry*, one emergency ration in the wallet and one in the supply wagon.

Other troops and formations, according to their equipment, carry part of these rations in the knapsack, and the remainder upon the horses and vehicles.

Only oats will be carried as *forage emergency rations* as follows:—

Cavalry: 3 rations for draught horses only.

Field artillery and their light ammunition columns, foot artillery ammunition columns, and balloon detachments: 2 rations, both for riding and draught horses.

Horse artillery, machine gun batteries, infantry and artillery ammunition columns: $1\frac{1}{2}$ rations, both for riding and draught horses.

Heavy artillery and their light ammunition columns: 1 ration, both for riding and draught horses.

Other troops and formations: 1 ration for riding and 3 for draught horses.

The emergency forage rations are carried thus:—

In the *cavalry* (only for draught horses), on the vehicles.

In the *field and heavy artillery and machine guns*, as laid down in the load tables, partly on the horses and partly on the vehicles.

Other troops and formations carry the emergency rations for officers' horses and draught horses on the vehicles, and for the remaining riding horses on the horses themselves.

454. Emergency rations of food and forage are only to be consumed in case of dire necessity, when no other supplies are available. They are not to be consumed or renewed without an express order from the officer in command of the troops, who is responsible for the provision of supplies. This includes battalion commanders or commanders of independent detachments. The officer in question is only empowered to authorize the consumption of *one* emergency ration, and must at once report having done so through the proper channel. Only the necessity of keeping the troops fit for action can justify any further inroad on the emergency reserve.

It is the duty of every officer, within the limit of his command, to use all possible means to ensure the preservation of the emergency reserve. The men must be taught fully to understand the importance of preserving this reserve ration for their own sustenance. They should be reminded, from time to time, of the order forbidding them to touch this ration without permission.

If the emergency ration has been wholly or partially consumed, it must be renewed at the first possible opportunity. The most suitable provisions, next to tinned meats and biscuits, are such as contain a great deal of nourishment in a small compass. These are bacon, smoked meat, smoked sausage, rice, groats, flour, parched bread, sugar, and chocolate. Such provisions may be packed in the biscuit bags.

455. *The cavalry* carry on their horses, for daily use, one-third of a ration of oats, which must be replaced at once when it has been consumed. The cavalry will have, consequently, first claim on any oats available for distribution in the theatre of war.

General officers commanding, and the commander of the army cavalry, may order an increased forage ration to be carried on their own responsibility.

456. The supply and forage wagons carry a fixed amount of supplies for current use.

It is impossible to lay down a fixed scale of weights to suit all circumstances during the course of the operations.

The fundamental principle is that *the supply wagons* must contain at least one full ration per man. They should contain, besides, a three days' tea ration, a ration of oats for infantry riding horses, the second emergency ration for the cavalry, and butcher's implements.*

When the roads are good, it will be possible to carry

* The *field service ration* consists of :—

A bread ration of $26\frac{1}{2}$ ozs. (750 g.) bread, or 14 ozs. (400 g.) biscuit made with eggs, or $17\frac{1}{2}$ ozs. (500 g.) field biscuit, and,

A maintenance ration, which comprises :—

Meat.—13 ozs. (375 g.) fresh, salt or frozen meat, or 7 ozs. (200 g.) smoked beef, mutton or pork, smoked or salt sausage, smoked bacon or tinned meat ;

Vegetables.— $4\frac{1}{2}$ ozs. (125 g.) rice, groats, pearl barley or grits ; or 9 ozs. (250 g.) beans, peas or flour ; or 53 ozs. (1,500 g.) potatoes ; or $5\frac{1}{2}$ ozs. (150 g.), preserved vegetables ; or 2 ozs. (60 g.) dried vegetables ; or half of the ration in vegetables, with $26\frac{1}{2}$ ozs. (750 g.) potatoes ; or $3\frac{1}{2}$ ozs. (100 g.) preserved vegetables and $17\frac{1}{2}$ ozs. (500 g. potatoes) ;

$\frac{8}{10}$ oz. (25 g.) *roast coffee*, or $\frac{1}{10}$ oz. (3 g.) *tea*, and $\frac{8}{10}$ oz. (17 g.) *sugar* ;

$\frac{8}{10}$ oz. (25 g.) *salt* ;

When in the enemy's country, the field service ration will be increased if circumstances permit, or supplemented by an issue of liquor and cigars.

The *field service forage ration* will consist of 13 lbs. (6 kg.) oats, $5\frac{1}{2}$ lbs. (2.5 kg.) hay and $3\frac{1}{4}$ lbs. (1.5 kg.) straw. For heavy draught horses it will be 26 lbs. (12 kg.) oats, $16\frac{1}{2}$ lbs. (7.5 kg.) hay, and $6\frac{1}{2}$ lbs. (3 kg.) straw.

a second day's ration in the supply wagons, omitting the meat if necessary and substituting flour, salt and yeast for the bread. The second meat ration may be driven on the hoof with the column.

In cavalry divisions a special reserve of coffee and salt, sufficient for four days, is, if possible, to be carried on the supply wagons in addition.

Forage wagons are intended to carry about one ration of oats per horse. As a fundamental principle hay and straw will be obtained locally.

The regimental supply and forage wagons are under the orders of the officers commanding infantry battalions, artillery *Abteilungen* (three batteries) or cavalry regiments.

457. One supply wagon is set aside as a *sutler's wagon* for each of the following units: Battalion of infantry or rifles, regiment of cavalry, battalion of heavy artillery, and battalion of pioneers when kept intact.

Other troops use the sutlers' wagons of the units, with whom they march or are quartered.

Detailed instructions regarding canteens are contained in the War Supply Regulations (*Kriegsverpflegungsvorschrift*).

458. *The loads* for 2-horsed supply wagons will be limited to 10 cwts. (500 kg.), and for 4-horsed forage wagons to 1 ton (1,000 kg.).

Whether, and to what extent, heavier loads are admissible depends principally on the state of the roads and the rate of marching. Overloading should be avoided, since supply and forage wagons only serve the purpose for which they are intended when they are easily mobile. This applies especially to the transport of the army cavalry.

459. *The supply columns and parks*, augmented as required by columns from the lines of communication or by requisitioned transport, form the mobile store of

supplies in the hands of the higher commanders. The greater mobility of the supply columns render them specially suited for emergencies. They may, therefore, be advantageously loaded with durable provisions.

460. *Field depôts*, established by the army corps and divisions in the theatre of operations, and filled with supplies obtained locally or brought up from the base, form a further reserve of supplies.

If, owing to rapid operations, the establishment of field depôts is out of the question, *filling up places* (*Ausgabestellen*), as a rule one per division, will be established and will be filled up from the supply columns.

Lines of communication posts are established further to the rear. They are filled with supplies sent from home or collected along the lines of communication.

461. When troops are victualled by *the inhabitants on whom they are quartered*, officers and men should be content to share the meals of their hosts, provided that the scale of living, having regard to meagre local conditions, is equal to that sanctioned by the field service scale of rations. Even when troops reach their billets late in the day they are entitled to a full day's rations.

If the diet supplied is insufficient, and if the officer in immediate command is unable to ensure a sufficiency, the commander of the unit will then call upon the local authorities to make up the deficiency.

Unless billets are ordered to be paid for in cash, receipts will be given to the inhabitants for the victuals and accommodation supplied.

462. *Supply and forage wagons* form the link between the troops and the supply columns, filling up places and posts. They also serve to transport supplies collected by the troops in the theatre of war.

Even when the troops are supplied by purchase, or from the supply columns, filling up places, and posts, the

regimental supply and forage wagons will usually be the immediate means for delivery of supplies to the troops.

All supplies taken from the supply and forage wagons for current use should be immediately replaced, if possible, by purchase or requisition, or from supply columns, filling up places, or posts.

The detailed orders for replenishing the supply and forage wagons should be carefully thought out by the commander of the force in co-operation with the administrative authorities.

463. When the troops advance, part of *the supply columns* with one day's supplies will usually be pushed forward close behind the troops, or even into their billeting area, so that the supply and forage wagons may be able to replenish without marching too long a distance. During a retirement it may be advisable to deposit supplies from the columns along the probable lines of retreat.

Empty supply columns fill up as a rule from supply depôts or from the lines of communication columns.

The movements of the supply columns, their replenishment, and their maintenance in efficient condition, will be a special care of the commander of the force.

464. Supply direct from *depôts* will usually be restricted to periods when the troops are halted for a considerable time.

Troops are not allowed to enter the depôts except on duty, and the unauthorized removal of supplies from them is punishable as a military offence.

465. The commanders of supply columns are authorized, in cases of urgent necessity, to issue supplies to troops of other formations, provided that they have sufficient for their own troops. This also applies to depôts, unless expressly forbidden by superior authority.

466. Supply duties, within the several units, are

carried out by the *supply officers* and their assistants (attached non-commissioned officers and men), under the orders of commanding officers. Paymasters will also assist.

The duties of the supply officers include the receipt, and purchase or requisition of food and bivouac requisites for their units. They supervise the slaughter of cattle, superintend the traffic of supply and forage wagons between the unit and the filling up places, the unloading and distribution of rations, and the working of the field kitchens. They are responsible for the orderly conduct of the whole service of supply within the unit, for the work of the quartermaster-sergeant and of any other supply personnel.

467. Even soldiers who have the least aptitude for *cooking* usually make rapid improvement. Since, however, an over-tired man is apt to cook his rations imperfectly, it is better, when opportunity offers, to cook all the rations in bulk.*

Field kitchens relieve the troops from the labour of cooking.

It is the duty of superiors to supervise the suitable preparation of the food.

468. *Bread* constitutes the most important article of food. It is often difficult to procure, since the inhabitants have usually only sufficient for their own daily consumption.

As a rule, it is baked by the *field bakery columns*. In order to work these bakeries to their fullest capacity it is best to allow them to remain for several days in one place, and to move them by successive stages.

The troops will also bake for themselves, so far as

* This principle does not apply to manœuvres, at which it is necessary to instruct the men in individual cooking.

Hints on cooking at the camp fire are given in the Field Service Supply Regulations (*Kriegsverpflegungsvorschrift*), Appendix II.

they are able, and always carry a proportion of yeast with their supplies. It may also be advisable to employ civil bakers, assisted by the regimental bakers.

469. *Meat* is usually easier to provide for the troops than bread. Slaughter cattle should be obtained in the area of operations as long as the resources of the country permit. The troops usually do their own slaughtering.

Whenever possible, the cattle will be slaughtered 24 hours before the meat is required. Even freshly-slaughtered meat may be rendered eatable by pounding and mincing it, especially if it can be prepared while still warm.

Immediately after a battle, killed or badly wounded horses may be utilized for food. They must be cut up and prepared as soon as possible.

470. *Purchase* of provisions locally is permitted only under the authority of army head-quarters, by which the prices to be paid are usually fixed. Only within the area of concentration is higher authority unnecessary.

Purchase in the theatre of war, to any useful extent, is expensive. The offer of ready money will, however, bring even hidden stores to light, and it is often possible to purchase where requisitioning would fail.

471. *Requisitions* within the *German Empire* are only allowable subject to the provisions of the Law for Supply in War (*Kriegsleistungsgesetz*), and then only when supplies are not otherwise obtainable.*

* Contributions from a local community towards the supply for any portion of the armed forces, etc., on the march, are arranged for upon requisition of the military authorities by the local civil (administrative) authority, or a commissioner appointed by the same, charged with this duty. In large towns this is done by the mayor. (*Kriegsleistungsgesetz*, sections 3 and 4.)

In pressing cases only, the military authorities may make direct demands on the parish authorities, and when this cannot be

In the territory of an allied power the arrangements, specially agreed upon by treaty, will be in force.

472. *In the enemy's country* requisitions offer the most productive method of living upon the resources of the theatre of war. They are undertaken locally by the troops themselves for their immediate requirements, and further afield by the administrative authorities.

Requisitioning by the troops will be carried out, as a general principle, under the supervision of officers, except in cases of isolated detachments, such as patrols. Every endeavour will be made to enlist the co-operation of the local authorities, or of the leading inhabitants. Strict discipline must be maintained, and plundering, or similar excesses, must be prevented.*

The contact of individual soldiers with the inhabitants is to be avoided as long as possible.

Receipts must be duly tendered for all articles

effected in time, directly on those residents who are liable (under section 8 of the law) to contribute. (Section 4.)

Any material, &c., in the parish, even including the carriages and horses of strangers passing through, are, upon requisition, at the disposal of the military administrators for war purposes.

"Orders as well as requisitions must, as a rule, be given in writing, and must specify definitely (section 4) the contribution required, its character, the amount, and the place and time at which it is to be delivered: also the name, rank and regiment (or appointment) of the requisitioning officer." (Instructions for the Enforcement of the Law.)

When there is danger in delay, the military authorities are authorized to collect contributions by force.

* The Articles of War, Art. 17, lay down that—"In the field, the soldier must never forget that war is only waged against the armed forces of the enemy. The property of the inhabitants of the enemy's country, of sick, wounded and prisoners of war, is under the especial protection of the law, as is also the property of individuals of the German or allied forces who have been left behind.

"The following offences will be visited with the most severe punishments: pillage, plunder, malicious or wanton destruction of property and oppression of the inhabitants.

"If the appropriation extends only to food, medicines, clothing, fuel, forage or means of transport, and is not in excess of immediate requirements, it will not be regarded as plundering."

received, unless payments in cash have been specially ordered.

Supply officers should assist as laid down in para. 466.

The number and strength of requisitioning parties, and the area covered by their activity, must be kept within such limits as will not affect the fighting efficiency of the unit.

473. *Requisitioning by the military administrative authorities* affords a means of collecting supplies while utilizing to the utmost the resources of the theatre of war. Areas, the boundaries between which must be clearly defined, should be assigned to armies, army corps, divisions, &c. Endeavours should be made to secure the co-operation of the civil administrative authorities. In case of need, the officials to whom the work of requisitioning is entrusted, will be supported by bodies of troops under the command of officers. Their sudden appearance in the more remote districts is to be recommended.

474. The most advanced troops of the army, especially the cavalry, will often find that the supplies available are in excess of their own requirements. When they requisition supplies they must remember that the troops who follow them may have to depend upon these supplies to an even greater extent than themselves.

For this reason, it will sometimes be advisable to attach officials and military requisitioning detachments to the advanced troops, in order to collect and store such supplies.

As a general rule, all troops must remember that wasteful and premature consumption of the resources of a district may seriously interfere with subsequent operations. In difficult situations it may even be necessary to order all troops, even individual men, to report at

once to their immediate superiors the discovery of any supplies in excess of their own requirements, and also of water. Selfish disregard of this duty must be severely dealt with.

If a considerable quantity of supplies is discovered in any place, it should be placed under a guard and a report should be made to the intendance.

475. *The army cavalry*, when in front, or on the flanks, of the army, will, in most cases, have to depend upon the resources of the theatre of war. To utilize these supplies to the best advantage, it may be advisable to form supply columns with well-horsed requisitioned transport. The most suitable supplies with which to load these columns are oats, or substitutes for oats, and such provisions as are not of a perishable nature.

Supply columns of 4-horsed wagons are loaded chiefly with oats, and may be attached to the army cavalry under orders from army head-quarters.

476. Stores of provisions may only be destroyed by order of superior authority. This order is usually given by the officer responsible for the conduct of the operations.

In retirements, steps must be taken to prevent stores from falling into the hands of the enemy.

MEDICAL SERVICES.

477. It is the duty of every officer, medical officer, and official to see that due attention is paid to matters of hygiene in his own sphere of duty, and to promote the more complete understanding of this question.

The men's food, clothing, quarters, and their personal cleanliness require constant supervision.

PERSONNEL AND EQUIPMENT OF THE TROOPS.

478. Each unit has its own medical officers and orderlies.

A battalion of infantry (or rifles) has 16 stretcher bearers. In other corps a proportion of the men are trained as assistant stretcher bearers. In addition to these, the bandsmen of the infantry, rifles, foot artillery, and transmission troops should be employed for this duty. Assistant stretcher bearers will be employed as auxiliaries to the medical staff; in action they will do duty as stretcher bearers when ordered.

479. Every soldier carries two field dressings in the skirt of his tunic, in front and on the left side. Every medical non-commissioned officer and stretcher bearer carries a medical wallet and a bottle of cordial, and every medical officer, a case of instruments. The men should be repeatedly instructed in the method of applying the field dressing.

For purposes of identification all officers and men carry an identification card hung round the neck.

480. A battalion of infantry or rifles has an infantry medical store wagon, equipped with medical

stores and bandages, four or five stretchers, and two medical knapsacks.

A cavalry regiment carries medical stores and emergency stretchers on pack horses. Every regiment of a cavalry division has, in addition, a cavalry medical store wagon equipped with medical stores and bandages, and two stretchers.

Other troops carry medical chests and stretchers on their vehicles.

All troops carry blankets for the sick and wounded with their second line transport.

MEDICAL UNITS.

481. A *bearer company* is divisible into two sections. Each section has four ambulances and two medical store wagons. Each *ambulance* is intended to carry from two to four wounded men lying down and two sitting. The *medical store wagons* carry medical appliances, bandages, and medicines.

A cavalry division has no medical units, but when an engagement is expected, a *bearer detachment* with two-thirds of the medical personnel and the cavalry medical store wagons may be formed.

482. A *field hospital* is divisible into two sections, and is equipped for the accommodation of 200 patients.

MEDICAL SERVICES ON THE MARCH AND DURING LONG PERIODS IN ORDINARY BILLETTS.

483. When a large body of troops is on the march, *collecting stations* (which must be easily accessible) will be detailed for the sick before the troops settle down for the night. Before the march is resumed any men to be left behind will be brought to these collecting

stations. Any men who fall sick on the march will either be sent back to the collecting station of the last billeting area, or be taken on to the next one. Such a proportion of medical personnel and equipment, either of the medical units or of the troops, as may be necessary, will be posted at these collecting stations. The personnel, with their equipment, must rejoin their units as quickly as possible after treating the sick men, sending them to the rear, or handing them over to the authorities of the lines of communication.

The ambulances of the medical units may be used, with the concurrence of the officers in charge of them, to transport the sick of troops who are on the march. In the proximity of the enemy, however, the medical units must always be kept ready for use.

Slight cases of sickness should be transported with the troops, if possible. Men unfit to travel, and men not likely to be restored to health for a considerable time, should be handed over to the nearest post on the lines of communication, or to the nearest military or civil hospital, or, in urgent cases, to the local civil authorities.

If infectious disease makes its appearance, isolation hospitals are to be established on the lines of march at some distance from the roads.

484. *When the troops remain in the same billets for a considerable time*, units will arrange for medical inspection rooms and the staffs for local hospitals, making use as far as possible, in both cases, of local medical institutions, &c. The personnel will be detailed under the orders of the staff, either from the troops or from the medical units.

When the troops move on, the personnel of the local hospitals will be relieved, and the hospitals handed over to the incoming troops, or to the military authorities on the lines of communication.

In a retreat, the sanitary personnel (consisting, as a rule, only of subordinates) will remain with the patients unfit to be moved, under the protection of the Geneva Convention.

MEDICAL SERVICES DURING AND AFTER A BATTLE.

485. The medical personnel must use every available means to remove wounded men from the firing line.

486. In an engagement, when serious losses begin to be felt, each unit will bring up its medical store wagon, or medical chest, and establish a *regimental dressing station*, at which the medical officers and personnel (who must be detailed before hand) will be stationed. It may be advantageous to combine the regimental dressing stations of several units from the outset.

When fighting is imminent, the stretcher bearers of the infantry will be assembled at the medical store wagon. They lay down their packs at the regimental dressing station, and go forward with the stretchers and medical knapsacks. Assistant stretcher bearers (*see* para. 478) will wear a red band on the upper part of the left arm, and will then be employed in the same way as the stretcher bearers.

487. The regimental dressing station should be out of sight of the enemy, and, if possible, under cover from rifle fire at least. It must, however, be as near as possible to the fighting line, and must be conveniently accessible. It is very important that water should be available.

488. Orders as to the employment of the bearer company will be issued by the commander under whose orders it is placed. The principal medical officer of the division, or the senior medical officer, will report for orders as to the above.

The bearer company will establish the *principal dressing station*, at which the wounded receive more extensive surgical aid than is possible at the regimental dressing stations, and arranges for the conveyance of the wounded to the field hospital.

The principal dressing station will be selected with regard to the same considerations as in the case of the regimental dressing stations.

Endeavours should be made to unite the principal dressing station with the regimental dressing stations, in order that the regimental personnel may be at liberty to follow their units with their equipment, as early as possible.

The shelter tents of dead and wounded men should be used to afford temporary shelter to the wounded on the field of battle.

489. The principal dressing station is distinguished by day by the German flag and the Geneva red cross, and at night by red lanterns.

The commanding officer of the bearer company will arrange the distribution of the stretcher bearers, and will conduct the ambulances to the places where the casualties have occurred, or halt them close by. (Halting place for ambulances.)

At the principal dressing station, the principal medical officer takes charge of all arrangements, including the measures for supply, and for temporary accommodation and conveyance to the rear of the wounded. He sees that wagons, straw, blankets, and other requisites for the care of the wounded are requisitioned in good time. Vehicles transporting wounded must not interfere with the movements of the troops. Empty supply wagons may be used to evacuate the wounded, with the sanction of the commander of the force.

490. The dressing station of the cavalry division

will be selected, in accordance with the tactical situation, by the bearer detachment.

491. In order to clear the dressing stations of men able to march, a *collecting station for slightly wounded men* will be established at an early stage, and the troops informed of its position. It must be easy to find and easily accessible, but must not be so situated as to interfere with the movements of troops and transport. Places where field hospitals have been established should not be selected. Wounded men are either sent back to their units after treatment or are marched off to the nearest post on the lines of communication.

492. When fighting is expected, the *field hospitals* will be brought up. They are intended to accommodate men brought in from the dressing stations or direct from the battlefield. The personnel of field hospitals, which are not yet established, may be sent forward to assist at the dressing stations or at the stations where slightly-wounded men are collected. The principal medical officer of the army corps, or division, will arrange for this. The principal medical officers of field hospitals in the neighbourhood should, however, order this on their own responsibility.

Field hospitals should be established outside the immediate fighting area, in villages or their precincts, and should be extended by making use of tents and portable huts. They will be distinguished in the same way as the principal dressing station.

The orders as to the employment of the field hospital will be given by the commander of the force to which it is allotted.

493. The reduction of the fighting strength of the troops, on the pretence of looking after the wounded, must be strictly guarded against. Slightly-wounded men should, as a rule, make their way to the rear of the fighting line alone. They will leave their

ammunition (except a few cartridges) in the fighting line, and they will not give up their arms. *It is absolutely forbidden for men, other than stretcher bearers, to carry back wounded men without an order from an officer.* Men who have been ordered to take wounded to the rear must return to the fighting line without delay and report themselves.

494. When the fighting is over, it is the duty of each unit to search the battlefield in its neighbourhood, in order to collect any wounded men, and to protect, especially at night, the dead and wounded from plunderers. The troops must also arrange for the burial of the dead.

495. In order to make the field hospitals available for further use as soon as possible, the military authorities on the lines of communication will arrange to convert them into *stationary hospitals (Kriegslazarette)*. The personnel will be relieved, and any stores that have been used up, or are to be left behind, will be made good. The same authorities provide quarters for the wounded and arrange for their conveyance to the base.

VOLUNTEER MEDICAL SERVICES.

496. On mobilization the *voluntary associations for the care of the sick* will be incorporated in the public service. They will be utilized, in the first place, for the medical service in home territory and on the lines of communication. (This includes forwarding invalids to the home country, assisting the reserve hospitals, establishment of association hospitals and private convalescent homes, collection and distribution of gifts, and similar matters.)

BADGES OF NEUTRALITY.

497. The *Geneva Cross*, a red cross on a white ground, will be worn as a badge of neutrality by the whole personnel of the medical units of the field army and by all other medical personnel of the field army, including regimental stretcher bearers, leaders of pack horses, drivers of regimental medical store wagons, soldiers of the train serving with regimental medical officers, and the personnel of the volunteer medical services. The whole medical equipment of the field army, and the equipment of the voluntary medical associations will wear the same badge.

THE GENEVA CONVENTION OF THE 6TH JULY, 1906.

498. The Geneva Convention contains, among others, the following provisions:—

Wounded or sick men, belonging to the army, who fall into the hands of the enemy, will be attended to by the latter and may be handed over by agreement between the belligerent Powers.

Personnel *exclusively* employed in the medical service, and army chaplains, are neutral.

Medical units and medical institutions, including their military guards are neutral, so long as they are not employed to the detriment of the enemy. The personnel of these units and institutions will remain under the protection of the Geneva Convention, even if they use their weapons in self-defence, or in defence of their sick and wounded.

The neutral personnel with their private property, and also the equipment of bearer companies and field hospitals will, if they fall into the enemy's hands, be sent back to their own army as soon as the military

situation permits, and adequate arrangements have been made for the care of the wounded.

Buildings and equipment of stationary medical institutions are subject to the laws of war.

Inhabitants who receive sick or wounded of either army into their houses, and take charge of them, will receive special protection, and will be rewarded at a fixed rate.

VETERINARY SERVICES.

499. Veterinary surgeons will be attached to mounted troops, ammunition columns, and trains. Their duties will be to treat sick horses and to supervise the shoeing. They will also be required to inspect slaughter cattle and pass forage.

500. Veterinary surgeons must submit to the military authorities, in good time, such measures as they consider necessary for the prevention and suppression of epidemic disease.

501. Horses suffering from slight ailments will be treated with their units. Serious cases will be handed over to the remount depôts on the lines of communication ; incurable cases will be sold or destroyed.

AMMUNITION SUPPLY.

502. *It is the duty of commanders of all grades not only to see that due economy is exercised in the expenditure of ammunition, but also to provide for its timely replenishment.*

No means should remain untried for bringing up ammunition to the troops in action, and for keeping up the fire, on the maintenance or cessation of which the fate of the day may depend.

503. Within the army corps, the replenishment of ammunition is arranged generally by the general officer commanding.

When an engagement is impending, the infantry and artillery ammunition columns (para. 447) are moved further forward by the commander of the ammunition columns, under orders from army corps headquarters, and in part on to the actual battlefield itself. When the ammunition columns are allotted to divisions, the divisional commanders are responsible for this. The time and place at which the columns will probably arrive are communicated to the subordinate commanders.

If a great battle has commenced, the commanders of the ammunition columns must press forward to the field of battle without waiting for orders.

Ammunition columns will comply with demands for ammunition from troops of other formations, provided that their own troops are in a position to spare it. In the case of light ammunition columns, this will not be done without an order from the commander of the force.

504. After every engagement, a report will be made to the commander of the force whether ammunition has been replenished, and if not why it has not been possible to do so.

505. Ammunition is forwarded from the home country by rail, in special ammunition trains. It is forwarded to the troops by the authorities on the lines of communication.

INFANTRY AND RIFLES.

506. *Before going into action* the contents of the small arm ammunition wagons should be wholly, or partially, distributed among the men.

507. *During an action* the ammunition supply is carried out, as far as possible, by each successive reinforcement as it reaches the firing line. If, in exceptional cases, fresh ammunition has to be brought up by single men, these are to be sent up from the troops in rear, which have not yet been under fire. It is not permissible to send back men from the firing line to fetch ammunition.

If a prolonged occupation of a fire position is to be expected, it is advisable to deposit a supply of ammunition in the firing line.

Ammunition should be taken from dead and wounded men. The want of ammunition in the firing line is to be signalled to the troops in rear by waving signalling flags, arms, or caps.

Both commanders and men must take every opportunity of replenishing ammunition, without special orders. The men must not only be in possession of the authorized number of rounds, but of as much ammunition as they can possibly carry.

508. Full *small arm ammunition wagons* take up a covered position as close as possible to the firing line,

under orders of their leaders (train non-commissioned officers), and in urgent cases regardless of losses. They must, on demand, supply ammunition to all troops, even to those belonging to other formations.

The battalion commander arranges the speedy refilling of empty small arm ammunition wagons.

The higher commander must arrange for the timely replenishment of the ammunition of the troops engaged. On receiving reports from commanding officers, he will hand over single wagons of the infantry ammunition column to them, if he has not done this already on his own account.

Until the ammunition columns arrive, commanding officers will do well to secure to themselves early a reserve of ammunition from the small arm ammunition wagons of troops in rear.

CAVALRY, MACHINE GUNS, PIONEERS, TELEGRAPH TROOPS, AND BALLOONS.

509. The cavalry division has a few infantry small arm ammunition wagons attached to its light ammunition column.

If cavalry, pioneers, telegraph and balloon troops require additional ammunition during a battle, they will replenish from the nearest infantry small arm ammunition wagons, or, after the battle, from the nearest infantry ammunition columns.

In other respects, the instructions for the replenishment of small arm ammunition are applicable to these troops, with suitable modifications.

510. With machine gun batteries, full sleighs of ammunition are drawn forward into the fighting line; empty sleighs, boxes and belts are taken to the rear and refilled as soon as possible from the ammunition

wagons. The ammunition section is replenished from the infantry ammunition columns.

511. A reserve of revolver ammunition will be carried on the regimental small arm ammunition wagons and with the infantry ammunition columns.

512. The expenditure of *explosives* by the cavalry and pioneers will be covered from a wagon from the corps bridge train. The same wagon will be used for bringing up explosives from the ammunition depôts.

FIELD ARTILLERY.

513. It is the duty of every artillery commander, in his degree, to arrange for the constant replenishment of ammunition. Besides this, however, the officers and men to whom the supply of ammunition is specially entrusted must exert themselves to supply the firing line with ammunition, even when they receive no orders or prompting to do so.

514. The ammunition will be taken, in the first place, from the *wagon line*, then from the light ammunition columns. The limbers are, as a rule, sent back under cover. The ammunition will be previously partly or entirely removed from the gun limbers; the wagon limbers will always be emptied.

515. When the ground permits, the gun and wagon limbers will be formed up together. Cover, at least from view, is to be sought for; constant communication with the battery is indispensable.

The leader of the line of wagons immediately replenishes the gun limbers from the light ammunition column; the wagon limbers will not be refilled at first.

516. *The light ammunition columns* are under the orders of their *Abteilungen* (three batteries). The artillery commander, with the sanction of the com-

mander of the force, decides when, and by what route, they are to advance on to the battlefield. This order is usually to be given when the artillery is ordered to deploy from the column of march.

When the light ammunition columns advance, they establish communication as soon as possible with their *Abteilungen*. On the field of battle they take post behind these, availing themselves of any cover, but not more than 660 yards (600 m.) distant from the firing line.

517. As a fundamental principle, the horsed ammunition wagons are to be brought up as close to the firing line as the cover afforded by the ground and the enemy's fire will permit. Over favourable ground and when the distance is not too great, the men of the ammunition column, under cover afforded by the wagon bodies, can push them forward up to the guns. If this is not possible, the ammunition will be carried up to the guns.

On emergency, horsed ammunition wagons must be driven up into the battery, even under fire.

518. The higher commanders inform the artillery commanders as to when and where the *artillery ammunition columns* will arrive. The light ammunition columns will be replenished from these on the battlefield, if possible. When time is an object, artillery ammunition columns, or portions of them, may be brought up into the fighting line, and filled wagons may be temporarily handed over to the batteries.

519. After a battle the deficiencies of the batteries and light ammunition columns, as regards ammunition, men, horses, and equipment, are usually made good from the artillery ammunition columns.

HEAVY ARTILLERY.

520. The above instructions for field artillery apply generally to heavy artillery.

The ammunition will, as a rule, be laid down beside the guns; the limbers and wagons go back under cover. In heavy howitzer batteries the ammunition wagons, with the teams unhooked, may, in exceptional cases, be left in the firing line.

521. Small arm ammunition is replenished as laid down in para. 509.

RAILWAYS.

522. Railways exercise a decisive influence on the whole conduct of a war. They are of the greatest importance for mobilizing and concentrating the army, and for maintaining it in a state of efficiency, and they enable portions of it to be transported from one place to another during the operations.

523. The whole railway service, as applied to military purposes, is controlled by the *Director of Field Railways*. Under him are the *commandants of the various railway lines*, who regulate the fulfilment of military requirements and supervise the execution of the necessary measures at the head-quarters of the railway administration.

Similar duties as regards railways captured from the enemy and constructed in the enemy's country, are performed by the *military directors of railways*, under whom are railway troops for carrying on the traffic.

524. *The railway troops* undertake the construction and management of the *field railways* (usually narrow-gauge railways worked by locomotives) which are required to supplement the existing railway system.

525. In siege warfare *tramways* are used, usually worked by horses.

526. To relieve and to supplement the railways, navigable *waterways* are utilized for military transport.

In view of the great capacity of lighters, &c., and the slower speed attained, water transport is used chiefly for bringing up such material as can be transported in bulk, and for taking back sick, wounded, and prisoners.

TRANSPORT BY RAIL.

527. The important rôle which railways have to fulfil, renders it incumbent on every commander to do all in his power to prevent any interference with the traffic due to delay, &c., on the part of the troops. The railway staff officers and conducting officers are bound by the transport arrangements made by the railway authorities.

The conducting officer is responsible for the administration of the detachment of troops or consignment of stores under his charge. *It is his duty, as regards himself and his charge, to obey the instructions of the railway officials.*

Any interference with the service of the railways is forbidden.

At important stations, *railway staff officers* are appointed, who act as intermediaries between the conducting officers and the railway officials.

528. Railway carriages and trucks will be loaded to their full capacity, as inscribed upon them. Surplus rolling-stock will be disposed of by the railway authorities.

529. *A troop train* of 110 axles (the largest permissible number) is about 600 yards (550 m.) long; it can accommodate :--

One battalion of infantry, rifles, or pioneers, with regimental or brigade staff.

One squadron with staff, or one and a-half squadrons.

One horse or field battery with staff.

One howitzer battery, or two-thirds of a mortar battery of the heavy artillery.

One light ammunition column of field or heavy artillery.

One field company of pioneers and one divisional bridge train.

530. The despatch of every military consignment will be notified, as a rule in writing, by the despatching military authority, who will issue a consignment note (*military way bill*), showing the stations of departure and arrival, and the principal intermediate stations.

In the case of those consignments regulated by the military railway authorities, the conducting officer will receive in addition from the despatching authority, a *time table*, or extract therefrom, showing the duration of the journey, the stations at which the train stops for any considerable time, the points at which rations will be supplied, and similar matters.

531. Before a military consignment is despatched, if possible on the previous day, the conducting officer, or his representative, will report himself at the station of departure in order to make the necessary arrangements for entraining.

Arrangements will be specially made with the station-master (through the railway staff officer, if one exists) or with the railway official responsible for the entraining, as regards the following matters :—

Time of arrival of troops; forming up places; places where men, horses, vehicles, or stores are to entrain; approaches to be used to the station; times by which the several detachments of troops or consignments of stores must be loaded; and any special local arrangements. Any deviation from the strength or composition of the troops, or amount of stores, will be reported.

When several detachments of troops or consignments of stores are despatched by the same train, it will be sufficient for *one* official, empowered to make all arrangements, to accompany it.

532. The *time for entraining* should be liberally estimated, and it depends upon the composition and strength of the troops or amount of stores to be entrained, the nature and number of the available plat-

forms and entraining appliances, and the amount of shunting required.

Generally speaking, the time required to load a troop train is as follows :—

Infantry, within one hour.

Cavalry, field artillery, heavy artillery, and ammunition columns within two hours.

Train within two to three hours.

Vehicles are usually loaded from side-loading ramps, but, in exceptional cases, the loading will be done from end-loading ramps, especially with those vehicles which are difficult to turn.

Every train loaded with troops, or formations of the field army, is equipped by the railway authorities with materials for building temporary ramps.*

533. The conducting officer will report the arrival of his troops, &c., at the entraining station, to the railway staff officer or stationmaster. The troops will prepare to entrain. The working party, necessary to entrain the horses and vehicles, will be detailed, and a guard will be mounted. The necessary sentries will be posted from the latter to prevent unauthorized access to the loading platforms, and to maintain military discipline inside the station.

534. Machine guns, field guns, and vehicles will be loaded fully equipped as for field service. Generally speaking, field guns, vehicles and portions of vehicles (such as limbers and wagon bodies) will be *loaded together* on trucks of medium size; heavy field guns and longer vehicles will be loaded *singly* on small trucks; and the longest vehicles of all, and such guns which are specially difficult to load, will be loaded *singly* on the largest trucks.

By utilizing the full capacity of each truck, both as

* This is exceptional in peace time.

regards weight and floor space, the train may be reduced to its absolute minimum length. The method of loading must be such that surplus trucks can be easily shunted out of the way. Fully-equipped carriages must not, however, be so jammed together as to cause delay in unloading from the side. The space below or around fully-equipped guns and vehicles is not to be occupied by articles other than the component parts of the equipment, emergency ramps, and the kits of the men (if any) detailed to take charge.

The wheels of carriages are to be scotched up with stout and sufficiently wide scotches, in order to prevent any longitudinal or lateral movement. Non-folding trail spades are to be protected by skidding. Scotches and skids are to be nailed or clamped down, and the vehicles are to be secured with lashings to the truck and to each other. Unshipped poles and any removed spare wheels are also to be lashed to the truck or vehicles.

Only lashings will be provided by the despatching military authorities.

535. Thorough precautions against fire, due to sparks, must be taken. Forage and other combustible stores, if in open trucks, will be covered by tarpaulins, &c., and the buckets belonging to the vehicles will be filled with water, and wisps of straw or cloths will be placed in them.

536. In covered trucks, horses will stand parallel to the rails, with their heads towards the open space in the centre of the truck. Three horses stand in each bay; especially large horses may stand two in a bay. In open trucks, or owing to want of space, horses may, in exceptional cases, have to stand across the trucks.

As a rule, horses are entrained bridled, saddled or harnessed. Off-saddling will only be carried out in the trucks if ordered. When time and space permit,

horses may, in exceptional cases, be off-saddled before entraining.

If horses are to be transported off-saddled in open trucks, special harness vans will be provided. If these are open trucks the railway authorities will supply tarpaulins, &c., for the protection of the saddlery and harness.

Two men, or three when teams are entrained, remain in each horse truck as stablemen. When the horses have been entrained, the following are to be packed in the open space in the centre of the truck:—Oats to last till the end of the journey, one day's hay, kits and rifles of the stablemen, and saddlery or harness. If necessary, the oats and hay may be carried on the vehicle trucks, covered over with tarpaulins, &c. It is forbidden to carry straw on open trucks.

537. Loose articles of baggage and bicycles are loaded under supervision by the men into trucks designated by the railway officials. When these trucks are not in the charge of a military guard they will be sealed with leaden seals.

Musical instruments and drums will be placed in the luggage vans if necessary. The colours with their sentries will also be placed there, unless they are carried in the carriage of the commanding officer or with the guard.

The material for making emergency ramps, other than that belonging to the equipment of the vehicles (such as tailboards), should, if possible, be carried on the open trucks. If it is necessary to pack it in the luggage vans, it must be so packed that it can be taken out first. Lances will be similarly treated.

538. After the men have been told off to their carriages, have put their caps on and picked up their knapsacks, entraining will commence. This will be carried out quietly and rapidly on the order being given

or bugle call sounded (the call for this is the "Assembly"). If the railway officials consider it necessary, the entraining must be completed before the shunting of the component parts of the train is begun.

The guard with one bugler and, if necessary, some orderlies, will be in a compartment near the conducting officer. The remaining buglers are distributed throughout the train.

The equipment of the men will be deposited either on the kit boards provided for the purpose, or secured to the kit stancheons.* Rifles will be secured between or beside the men's knees and will be laid on the seats when the men get out at intermediate stations.

It is forbidden to carry spirits on the journey, or to purchase or to accept them from any person during the journey.

539. When travelling by rail in the vicinity of the enemy, the conducting officer will decide, in consultation with the stationmaster or the railway guard, whether it is necessary for an officer or soldier to travel on the engine.

540. The military authorities must not cause a delay in the departure of the train, nor may they require its departure to be postponed. The railway officials, not the conducting officer, are responsible for keeping to the time-table and for the safety of the train.

541. In order to regulate deviations from the time-table owing to overdue trains, the periods for stoppages for refreshments may be reduced by authorized railway officials. For meals to 45 minutes, and for drinking, or for relieving nature, to 15 minutes.

Except in case of danger, the time allowed for these purposes may not be further reduced without the consent of the conducting officer.

* This appears to refer to carriages specially fitted for troops.—
(General Staff.)

542. *During the journey* the troops are forbidden to climb upon the steps or upon the roofs of the carriages, to sit in door openings, to stand about on the end platforms, to open any side doors which open outwards, or to throw solid articles out of the windows. No fires or smoking are allowed in vans loaded with straw, forage or explosives.

In case of imminent danger, such as may arise from the breaking of an axle, fire, broken couplings, or derailment, endeavours should be made to attract the attention of the train officials or the men working on the line.

543. In very hot weather, the conducting officer will telegraph to the railway officials to have drinking water ready at suitable stations.

A general detrainment will only take place from a troop train at a station where the train stops for at least 10 minutes. If the stoppage is for a shorter period, the conducting officer, with the concurrence of the station officials, may allow individual men to get out.

The authorized railway official will inform the conducting officer whether the traffic arrangements will permit of men getting out in cases of urgency, unless the time-table does not admit of it.

Generally speaking, at intermediate stations, the men will get out at the places used by the public; when, however, the arrangements for supply and water, or other conditions, necessitate it, another special detrainment place will be indicated.

If the men have to cross lines used for traffic, the most thorough precautions for safety must be taken.

Officers and men may only get out on the side of the train indicated by the railway officials; the doors on the other side are not to be opened. Standing between the lines is forbidden.

The detraining place will, if possible, be shut off from the public by the railway officials and will be lighted at night. The conducting officer must support the railway officials in excluding the public and in maintaining order. If requested, he will post any sentries necessary for the railway traffic service. The railway refreshment bars, sutlers' establishments, and latrines will be placed under military supervision.

The troops will only detrain when ordered or by bugle call. (The call is, in the infantry "March," in mounted units "Walk.")

The conducting officer is responsible that order and cleanliness are maintained at the places where food and water are issued, and that crockery, and any vessels used for drinking or for watering horses are returned to the place from which they were obtained.

The conducting officer will cause the carriages which have been occupied to be inspected, to see that they are clean and tidy inside. He will direct the working parties to examine the lashings of the wagons, &c., and to refill the buckets.

As a rule, the troops will re-entrain five minutes before the time of departure, which will be determined by the conducting officer in consultation with the stationmaster.

544. At the last stoppage before the end of the journey, the conducting officer will give orders for the troops to prepare to detrain, and the horses to be bridled and saddled, or harnessed (*see* para. 536).

545. *On arrival* of the train, the conducting officer, in consultation with the railway staff officer or the stationmaster, will make the arrangements for detraining, forming up the men, horses, and vehicles, mounting guards and other necessary matters.

Horses and vehicles will usually be unloaded at side ramps.

The conducting officer must, in co-operation with the railway officials, use every endeavour *to expedite the detraining* and to avoid a block at the several unloading points.

When the officers and the guard have detrained, the working parties told off beforehand will at once proceed to the unloading points, and, if necessary, take with them the materials for emergency ramps. The troops then get out of the train by word of command or by trumpet call.

When unloading horses, the door towards the ramp will not be opened till the truck is opposite the unloading point. Gangways will be firmly secured by the sliding door on the detraining side; the sliding door on the other side will be locked, and the lamp pushed over towards that side. The crossbar in front of the horses, the head-ropes of which will, in the meantime, have been cast loose, will then be removed from one bay, and the horses led out. The horse in the centre will be led out first, then that standing on the far side of the truck. Each horse will be turned so that he passes straight through the door of the truck on to the gangway and not in a slanting direction. The horses are at once led to the forming up place and the ramp must be cleared as soon as possible.

546. *Should a troop train stop between stations*, the guard in charge of the train will inform the conducting officer of the reason for the stoppage and its probable duration, if the duration of the stoppage is expected to exceed five minutes.

The latter will take the necessary steps for maintaining order.

547. In cases of necessity (such as a breakdown of the traffic, accidents, or the interruption of the line in the vicinity of the enemy) it may be necessary to detrain on the permanent way.

The conducting officer, in consultation with the guard, decides whether to detrain on the spot, whether to move to a more suitable place, or whether to go on or return to the next station. He will also consult with the guard, as to where the emergency ramps are to be erected for unloading the horses and vehicles.

Suitable places for detraining are at level crossings, or where roads run parallel to and at about the same level as the railway. Detrainment should, when possible, be avoided on high embankments, deep cuttings, bridges, and steep inclines.

548. In cases of extreme necessity horses may be detrained without ramps on to the permanent way. This is done thus : One man stands on the line holding the horse by the head-rope or by the forage-cord passed through the throat-lash, two other men clasp their hands behind the horse's quarters and impel the horse forward at the moment it rises to jump. It will seldom be possible to avoid casualties to some of the horses when this procedure is adopted.

DEMOLITION AND REPAIR.

549. *The destruction* of a railway, in order to interrupt traffic for as long a period as possible (weeks or months), may only be carried out by order of the highest military authority, the commander of an army, or a general holding an independent command. Railway troops or pioneers are usually employed in this work, but it may sometimes have to be done by the army cavalry.

It is a matter for consideration whether the telegraph and telephone lines alongside the railway are to be destroyed, or whether it is better to preserve them.

550. *Blocking* a railway, in order to interrupt the

traffic for a shorter time (hours or days) may be ordered by subordinate commanders on their own initiative. They will be held responsible for the omission or execution of the work, and they issue express instructions on this matter to the troops. The time, place, and nature of the interruption must be reported to superior authority.

Temporary interruptions of this nature, in our own zone of operations, are to be avoided when advancing. They are permissible when halted, and compulsory when retreating. In the enemy's zone of operations, they should always be attempted, and will be carried out preferably by cavalry. Pioneers and railway troops may be employed for this purpose if time permits.

Other troops must endeavour to provide themselves with tools, explosives, and other means of obstruction. For this purpose, it is not sufficient to remove *a single* rail, but this course may suffice to secure the line against unexpected use by the enemy, provided the place is watched.

551. Blocks on the line and minor interruptions can often be removed or repaired by the pioneers, if the necessary material is available. Commanding officers and troops must co-operate in this in every possible way. If serious interruptions have to be made good, or if the line has to be rebuilt, railway troops must be employed.

MEANS OF COMMUNICATION.

552. *The various means of communication* must supplement one another, for any one of them may fail at uncertain times and places, owing to the action of the enemy, the nature of the ground, the weather, or other circumstances.

The qualities peculiar to the various means of communication must be borne in mind.

Ordinary telegraphy is reliable and is the least affected by weather ; on the other hand, building or dismantling an air-line takes time, and is dependent on the freedom of movement afforded by the ground.

Telephony, when appropriately employed, is especially valuable, as admitting of personal communication. This also requires careful construction.

Signalling admits of a high degree of mobility. It is unaffected by the inaccessibility of the intervening ground, and is less effected by the enemy's action. On the other hand, it is difficult or impossible to carry out in bad weather, such as rain, snow, fog or haze. The shape of the ground and the presence of trees, &c., may make it very difficult to find suitable stations.

Wireless telegraphy is independent of the above disturbing causes, and messages can be transmitted by this means over any distance for which it is likely to be utilized in the field. It is, however, liable to disturbance by electricity in the air, or by other wireless installations of our own or of the enemy. It is best suited to the transmission of short, important telegrams.

The use of *carrier pigeons* requires previous preparation, and is far from reliable. Their power of action

is affected by contrary winds, rain, and fog, and, to a greater extent, by thunderstorms, gun and rifle fire, and birds of prey, and their use is consequently precluded under certain circumstances. Pigeons will not fly at night.

Motor cars, from their high speed, form a most useful means of transmitting orders and reports, especially when a personal understanding with the recipient is desirable. They are, however, confined to good roads, and can only be used in the area protected by the presence of our own troops. Their speed can only be of value on a clear road, and they easily break down in the absence of careful management.

Motor bicycles are less reliable, but they can be used on narrow paths.

Ordinary bicycles are slower in action, but they are simple and comparatively reliable.

TELEGRAPHS AND TELEPHONES.

553. Only messages which are handed in in writing will be forwarded by telegraph. The rate of transmission is 400 words an hour.

554. The *army telegraph detachment* connects the head-quarters of the army with the lines of communication telegraph direction, and so with the State system of telegraphs and telephones. It consists of heavy 4-horsed vehicles, laying bare wire or cable at the rate of 1 mile in 45 minutes to an hour. It can lay a line 56 miles long, with 8 to 12 stations, using double transmission (that is, Morse code and telephone on the same line). Besides this it can work up to 18 telephone stations.

The *corps telegraph detachment* connects the army corps head-quarters with army head-quarters, both when the force is halted and during a battle. If its material suffices, it also connects the army corps head-quarters to

the divisional head-quarters. The corps telegraph detachment consists of light 2-horsed vehicles, carrying field cable. The line can be laid at the rate of 1 mile in 45 minutes. A line 50 miles long can be laid, with 8 to 12 stations working double transmission. Besides this, up to 12 telephone stations can be worked.

The telegraph detachment of a reserve division connects the independent reserve division with army head-quarters or with the nearest army corps head-quarters. The strength and equipment of the detachment corresponds to a quarter of a corps telegraph detachment.

555. *The telephone detachment* consists of three troops. It is used to connect head-quarters of commands with each other during a battle and with their outposts when halted. The vehicles and equipment are similar to those of the corps telegraph detachment. The line can be laid at the rate of 1 mile in 30 minutes. Each troop carries 4·35 miles of field cable, and can work four telegraph stations.

Infantry telephone detachments establish communication within the unit when in action.

556. *The cavalry telegraph*.—Each cavalry regiment finds a telegraph patrol, consisting of 4 under-officers and 4 men, and is divided into two groups. The patrol is commanded by an officer, and an orderly is attached to each group.

Each group is equipped with one telephone, and with a buzzer for transmission of messages by Morse code. It carries 2½ miles of wire, gear for connecting up to existing lines, and 385 yards of cable for crossing water-courses. Other stores are carried on the telegraph wagon and on the pioneer tool-wagons.

One patrol can lay 4·35 miles of line. By utilizing the existing telegraph lines, the cavalry can telegraph over long distances. With cavalry wire, the telephone

can be used up to a distance of 9 miles in dry weather. Transmission is by no means reliable.*

557. Telegraph lines, being easy to destroy, require to be constantly guarded. Lines near the front are best laid as concealed or underground lines. Troops, as well as civilians, must be forbidden to interfere with State and army telegraphs under pain of punishment.

Temporary interruptions of the telegraph lines may be ordered by any independent commanding officer, when the force is halting or advancing, in order to stop the use of the line by the enemy or by the inhabitants. When the force is retiring, it is the duty of the rearguard to cut the telegraph wires.

Complete demolition of telegraph lines may only be ordered by the commander-in-chief, the commander of an army, or a general holding an independent command.

Special attention should be directed to underground lines. In the enemy's country their position will frequently only be discovered by digging a trench, one metre (3·2 ft.) deep, across the road.

The time, place and nature of every interruption of the telegraph the troops propose to carry out must be reported to higher authority.

If the line to be cut is working, then a report of the order to cut it, and a subsequent report that this has been done, will be made to the nearest railway staff officer, railway station, or telegraph office.

SIGNALLING.

588. Each cavalry division has a *field signalling detachment* equipped with signalling lamps and heliographs. The Morse code of long and short flashes is

* The cavalry line consists of bare wire laid on the ground or hung on hedges, &c.—(General Staff.)

used, so that it is necessary for stations to be visible to each other.

The range of the (acetylene) signalling lamp is 12 miles by day and 25 miles by night; and of the heliograph (in bright sunshine only) 25 miles.

The rate of transmission is about 60 words in half-an-hour.

The field signalling detachment is provided with a motor car and motor bicycles.

559. *Signalling flags* serve for the transmission of short orders and messages, especially during a battle, and in the outpost line. Signalling lamps are used at night. The range of both, according to the clearness of the atmosphere, does not exceed three miles.

WIRELESS TELEGRAPHY.

560. *Wireless telegraphy* is used to connect the higher commanders of the army. A station is established for each command: the more important commands have double stations, of which one is always stationary and maintains communication, while the other follows the staff.

The range is effective from 60 to 120 miles. Each station can exchange messages with any other station within this distance, or, under certain circumstances, read the messages sent and received by an enemy's station, or it can disturb the working of an enemy's station. During a thunderstorm transmission is no longer possible.

The rate of transmission is about 400 words an hour. In order to ensure reliable transmission, the whole of the stations must be under one directing officer.

A station can be erected or dismantled in three-quarters of an hour.

CARRIER PIGEONS.

561. *Carrier pigeons* are used principally in fortresses and to send back messages from balloons. Over long distances their average speed of flight does not exceed 25 miles an hour.

MOTOR CARS, MOTOR CYCLES, AND BICYCLES.

562. *Motor cars* are provided for the higher staffs. Besides transporting the staff, they are used for carrying important messages and orders.

They are of little use except on the high road. It is better to go round by a good road than to take a short cut by a bad one. A staff officer should be placed in charge of each car.

The speed of a motor car is from 18 to 25 miles an hour. Petrol must be renewed in good time.

563. Men riding their own *motor bicycles* and attached to the staff are to be made use of solely for the rapid transmission of messages.

The speed of a motor bicycle is about the same as that of a motor car.

564. *Bicycles* are primarily the means for carrying orders and messages. In fine weather, and on good roads, cyclists can cover 18 to 25 miles in 2 hours. Strong head winds, long ascents, or slippery roads may entirely neutralize their power of action.

MILITARY POLICE.

565. *Detachments of military police* are attached to the Imperial head-quarters staff, and to the head-quarters of armies, and smaller detachments to the head-quarters of army corps and of the lines of communication.

566. The duty of the military police is to carry out the police service with the army and on the lines of communication. Their sphere of action lies principally in rear of the fighting army.

It is their duty to prevent all unlawful requisitions and plundering, and excesses of all kinds, to keep the roads clear, to supervise carters and wagon drivers, to arrest all soldiers and civilians found without passes, to arrest all marauders, &c., and to collect all stragglers and to hand them over to the nearest troops or authority. They must also supervise railway stations, public houses, dépôts, and public buildings, protect telegraphs and railways from damage, keep hostile inhabitants in order, carry out their disarmament, and prevent spying.

567. The dress of the military police is the same as that of the country police. Their badge of office is *a collar of white metal*, which is worn over the tunic or cloak.

568. Members of the military police, such as officers, sergeant-majors, senior constables, non-commissioned officers and lance-corporals, when in uniform and wearing the metal collar, will be regarded as on duty, and will be considered as military guards in the sense of the Military Criminal Code.

569. When members of the military police have to

deal with infractions of military police regulations on the part of officers or their representatives, medical officers, and senior military officials, they will confine themselves to calling their attention to the fact, and, if necessary, to taking steps to establish the identity of the officer or official by requesting him to state his name and rank.

570. The military police are not to interfere with any formed body of troops, they will confine themselves to making a report to the commander.

571. All officers, non-commissioned officers, and men, all members of the medical corps, and all military officials, are bound to support the military police in the exercise of their duties.

572. When a detachment of the military police is employed with other troops on the same duty, the senior officer, according to the date of his rank and commission, will take command. Non-commissioned officers of military police, including sergeant-majors, senior constables, and non-commissioned officers will, however, take precedence of non-commissioned officers of similar rank of other corps, without regard to seniority.

573. Besides their own superiors and the commanders of units to which they are attached, only officers of field rank and upwards are authorized to reprimand any military police on duty, who neglect their duty or exceed their authority. As a rule, military police on duty may not be placed in arrest except by the superiors under whose command they happen to be. In exceptional cases all general officers are authorized to order their arrest.

574. Members of the military police, when not on duty, that is, when not wearing the police uniform and metal collar, have no special privileges in addition to those conferred by their army rank.

FIRE EFFECT.

INFANTRY.

575. *The fire effect of infantry* will depend on the number of rifles and cartridges, on the duration of the fire, on the range and its correct determination, on the measures adopted by the commander (including control and distribution of fire and choice of sighting), on the fire discipline of the troops, on the nature and visibility of the target, and on the facility of observation. It will be materially impaired by the effect of the enemy's fire.

Enfilade fire is especially effective, at all ranges and against all targets. Unexpected concentrated fire, will demoralize, or even annihilate, a body of troops in a very short space of time.

Against high and deep targets, such as *troops in close formation* standing in the open, or on the march, good effect may be expected up to the highest elevation for which the rifle is sighted, provided that the fire control is good. At medium and short ranges, the effect against such targets may prove even annihilating. Against low and dense targets, good effect is to be expected at medium ranges, but to obtain this at longer ranges it will usually be necessary to use a large amount of ammunition.

576. *Lines of skirmishers* on the move in the open, will suffer severely from the fire of unshaken infantry at medium and even at long ranges. Their losses will increase with the density of the skirmishing lines. Long and uninterrupted advances of dense skirmishing lines are therefore impossible under effective hostile

fire, at short and medium ranges. A further advance can consequently only be effected by working forward gradually, supported by fire from alternate flanks.

At the closest ranges, the heavy losses which will ensue will rapidly decide the result of the combat.

577. *To repel cavalry*, every formation which admits of effective fire is suitable for infantry.

578. *Against artillery* in the open, in a frontal attack, decisive effect cannot be reckoned upon with certainty, even at close ranges. Infantry can, however, render artillery immoveable, and interfere with its fire discipline. Appreciable effect is, however, only possible, when infantry can succeed in bringing oblique fire to bear upon the guns.

Fire at artillery is especially effective when the guns are limbering up, unlimbering, and on the move.

579. *Against machine guns* limbered up, the fire effect is the same as that against artillery. Against machine guns on the move, without their carriages,* the effect is the same as against skirmishers. Machine guns in action form a difficult target, and their power of fire may continue unappreciably affected even after part of the detachments have been disabled.

580. The result of a *bayonet charge* depends upon the losses already inflicted on the enemy by infantry and artillery fire, and upon the vigour of the charge.

MACHINE GUNS.

581. The fire effect of *machine guns* is influenced principally by correct sighting, possibility of observation, size and density of the target, and methods of fire. It is further affected by the suddenness with

* The German machine-gun is, as a general rule, taken into action on a low sleigh, the wheeled carriage being left behind.—(General Staff.)

which fire is opened, by the number of machine guns firing at the same target, and by the enemy's fire.

The high rate of fire, concentration of the bullet-sheaf, and the possibility of bringing several machine guns into action on a narrow front, enable great effect to be produced in a short time, even at long ranges. When the front of the target is broken and irregular, the effect is reduced. A wrong sighting elevation, or imperfect observation of fire, may render the fire completely ineffective.

Dense lines of skirmishers standing, suffer heavy losses at ranges of 1,650 yards (1,500 m.) and under. At lines of skirmishers lying, good effect is to be expected at 1,100 yards (1,000 m.) and under, provided that the observation of fire is good.

582. Against *artillery in action*, the fire effect is similar to that of infantry. Owing to the mobility of machine gun batteries they are especially adapted for securing the increased fire effect due to oblique fire.

583. At short ranges under hostile fire, machine guns can only be brought up and withdrawn under cover.

584. Machine guns, even when on their wheeled carriages, are able to emit a large volume of well-aimed fire in a short space of time.

CAVALRY.

585. The result of a *cavalry charge* depends upon the boldness with which it is led, the selection of the opportune moment, the keenness of the men, the condition of the horses, and the strength and formation of the force employed.

586. Against cavalry, everything depends on the vigour and concentration of the shock. The chance

of success is much increased when it is possible to catch the enemy's cavalry in the act of deploying. Envelopment enhances the effect of the charge. Amid the swaying mass of horsemen, the last formed body of cavalry flung into the struggle may decide the result.

587. Against *unshaken infantry*, a cavalry charge has only a prospect of success if delivered completely by surprise. If the cavalry is obliged to charge, it must do so in deep formation and in unity of action, and the charge must be obstinately driven home. A simultaneous charge from different sides may result favourably.

Against *shaken infantry*, cavalry charges will often be successful. It is not then absolutely necessary to charge in deep formation.

588. The principles for charging infantry apply equally against *machine guns* in action.

589. *Artillery*, attacked on the move, and unable to bring its guns into action, is helpless, unless it can make use of carbine or rifle fire. Artillery in action is most vulnerable on the unsupported flank. A frontal attack against artillery will only succeed under exceptionally favourable circumstances; here, again, it is best to charge in deep formation. A charge against artillery will only be completely successful, when the guns and limbers have been carried off or rendered useless.

590. Under infantry fire at short and medium ranges, cavalry can only manœuvre with heavy loss. Heavy losses within the zone of fire effect of hostile artillery can only be avoided by rapidity of movement.

591. Almost as much attention is to be given to the fire effect of dismounted cavalry as to that of infantry.

FIELD ARTILLERY.

592. The fire effect of *field artillery* depends upon good reconnoissance of the target, approaching and taking up a position under cover, unexpected opening of fire, a clear field of fire, the number of guns, engaging the same target, and the rate and duration of fire. It is further affected by the distance, size, visibility, and nature of the target, and also by the effect of the enemy's fire.

Standing targets, and those moving straight towards or straight away from the battery, are easier to range on than those moving across the front or diagonally.

Covered positions render it more difficult for the enemy to observe, reduce our own losses, and facilitate ammunition supply. They necessitate, however, careful preparation and special arrangements for observation. Open and semi-covered positions, on the other hand, allow of direct laying, rapid opening of fire, and quick change of target.

593. The result of a *combat between two bodies of artillery*, approximately equal in numbers, depends principally upon the way in which they are handled and upon the tactical co-operation of the infantry. At long artillery ranges, even when observation is easy, an early decisive result of the combat is not to be anticipated. Even if a force of artillery be inferior in numbers, it can still engage in the fire combat with a good prospect of success, if it is skilfully handled.

Flanking fire is especially favourable to effect.

Even when artillery has suffered severely, individual guns are still capable of producing considerable effect at critical moments.

594. Under effective artillery fire, closed bodies of the strength of a company or squadron, or machine

guns on their carriages, cannot halt in the open at ranges under 4,400 yards (4,000 m.).

595. At medium infantry ranges, artillery cannot unlimber, except behind cover, without suffering heavy loss. When artillery advances, in support of the decisive infantry assault, over open ground, it must expect to suffer severely. Artillery under fire in the open, at short ranges will soon be rendered incapable of movement.

596. *Light field howitzer batteries* are, as regards shrapnel fire effect, of nearly equal value to field gun batteries. Against troops under overhead cover, or close behind cover, against shielded guns, villages, and troops in high woods, they are capable of producing considerably greater effect than field gun batteries.

HEAVY ARTILLERY.

597. The fire effect of *heavy artillery* depends upon timely reconnaissance of the target, concealed approach, and unexpected opening of fire from a covered position. The rapidity of ranging and the effect of the fire, depend upon good observation and efficient fire control.

The *heavy field howitzer* is especially adapted for engaging standing targets, such as batteries, trenches, and villages. Its common shell possesses very considerable explosive and splinter effect, and is capable of penetrating the stoutest overhead cover likely to be met with in the field. Against moving targets, the effect of heavy howitzers is limited. Their zone of fire extends to 7,700 yards (7,000 m.)

Their fire may be of the greatest value in the preparation of the attack, especially when directed against the supporting points of the enemy's position.

Mortar batteries are appreciably superior to field

howitzer batteries as regards their effect upon targets offering great resistance to fire. They are capable of penetrating blindages, unless constructed to be bomb-proof, and light armour plates.

598. To obtain the best results from the co-operation of field and heavy artillery, they should both be under the same fire control. The arrangements must be such as to secure, so far as possible, thoroughly reliable observation of fire.

APPENDIX.

USEFUL FIGURES AND MEMORANDA.

NORMAL ORGANIZATIONS AT WAR STRENGTH.

Orders of battle at war establishments for the higher formations of the army in the field, including armies, army corps, cavalry divisions, infantry divisions, reserve divisions, and mixed brigades, will be prepared in accordance with the following specimens.

Special orders of battle will be prepared for armies engaged in siege operations.

The total number of battalions, squadrons and batteries present will be entered in the right top corner of the order of battle.

ORGANIZATION OF A CAVALRY DIVISION.

1st. Cav. Div.

3rd. Cav. Bde.



1st. Hussars.



2nd. Hussars

Pioneer Detmt.



2nd. Cav. Bde.



1st. Ulans



2nd. Ulans

Horse Artillery Abtelling
of the 3rd. Fd. Art. Regt.



Light Ammn. Coln.



1st. Cav. Bde.



1st. Dragoons

2nd. Dragoons



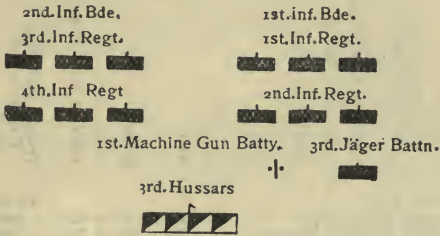
2nd. Mach. Gun Batty



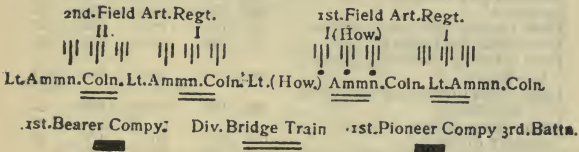
ORGANIZATION OF AN INFANTRY DIVISION

(With Ammunition Columns and Trains temporarily attached).

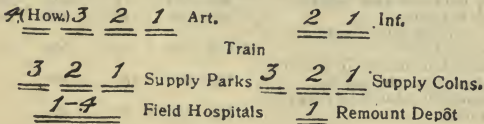
1st. Inf. Div.



1st. Field Art. Bde.



Temporarily Attached Ammunition Columns



WAR ESTABLISHMENTS AND LENGTHS OF COLUMNS IN ROUND NUMBERS.

UNITS.

Unit or Staff.	Strength in Round Numbers.		Vehicles, including Guns.	Lengths of Column.	
	Men.	Horses.		Troops, including First-line Transport.	Second-line Transport.
				Yards.	Yards.
Staff of an army corps	330	270	32	220	440
Staff of an infantry division ...	100	80	14	55	165
Company of infantry	270	10	4	110	22
Battalion of infantry or <i>Jügers</i> ...	1,080	60	19	440	110
Infantry regiment of 3 battalions	3,290	190	59	1,375	385
Machine gun battery	130	90	14	220	45
Squadron	180	180	4	130	45
Field battery (guns or howitzers)	150	130	14	285	55
Horse artillery battery	170	220	16	385	55
Field artillery <i>Abteilung</i> (guns or howitzers)	480	400	49	880	175
Light ammunition column (guns or howitzers)	190	180	24	440	55
Light ammunition column of a cavalry division	150	200	25	475	65
Infantry ammunition column ...	200	200	37	715	—
Artillery ammunition column ...	190	190	26	660	—
Heavy field howitzer battery ...	230	120	18	300*	55
Mortar battery	270	150	22	400	55
Heavy field howitzer battalion ...	960	520	76	1,210	275
Mortar battalion	570	320	48	825	130
Light ammunition column of heavy artillery	270	190	29	550	55
Ammunition column of a heavy field howitzer battalion ...	860	810	163	2,850	—
Ammunition column of a mortar battalion	440	410	83	1,450	—

* With first-line wagons.

WAR ESTABLISHMENTS AND LENGTHS OF
COLUMNS IN ROUND NUMBERS—*continued.*

UNITS—*continued.*

Unit or Staff.	Strength in Round Numbers.		Vehicles, including Guns.	Lengths of Column.	
	Men.	Horses.		Troops, including First-line Transport.	Second-line Transport.
Company of pioneers	270	20	4	Yards. 130	Yards. 20
Divisional bridge train	60	80	11	310	10
Corps bridge train	200	220	34	880	—
Corps telegraph detachment	165	70	23	375	10
Wireless telegraph detachment... ..	165	150	17	330	—
Balloon detachment	190	120	18	350	55
Gas column of a balloon detachment... ..	100	70	16	220	55
Supply column	130	180	38	580	—
Supply park	110	160	62	770	—
Remount dépôt	70	110	2	210	—
Field bakery column	190	100	25	440	—
Bearer company	310	50	13	275	10
Field hospital	60	30	9	165	—

HIGHER FORMATIONS.

Formation.	Strength in Round Numbers.		Vehicles, including Guns.	Lengths of Columns.		Remarks.	
	Men.	Horses.		Troops, including First-line Transport.	Second-line Transport.		
Infantry division— Fighting troops... 12.4.12.*	17,000	4,000	600	Miles. 8	Miles. 1·8	Distances for protection purposes estimated at 1·8 miles.	
Cavalry division— Fighting troops... 0.24.2.†	5,000	5,300	200	4	1		
Army Corps.	Fighting troops 25.8.24.‡	36,000	9,000	1,200	15·5	4·3	Including distances within the column of march.
	Ammunition columns and train	5,000	5,000	1,200	10·6	—	
	Total strength	41,000	14,000	2,400	—	—	

* That is, 12 battalions, 4 squadrons and 12 batteries.

† That is, 24 squadrons and 2 batteries.

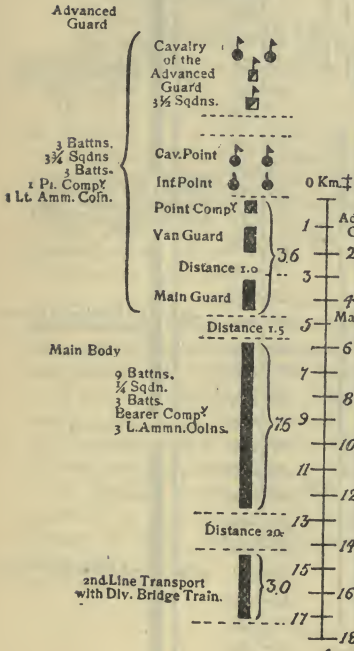
‡ That is, 25 battalions, 8 squadrons and 24 batteries.

GRAPHICS OF MARCH FORMATIONS.

(These organizations and intervals are given merely as a guide.)

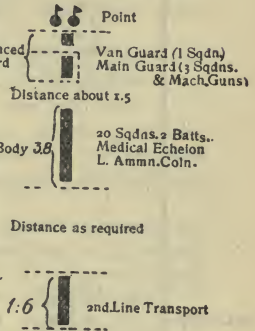
INFANTRY DIVISION

12.4.12.*



CAVALRY DIVISION

0.24.2 †

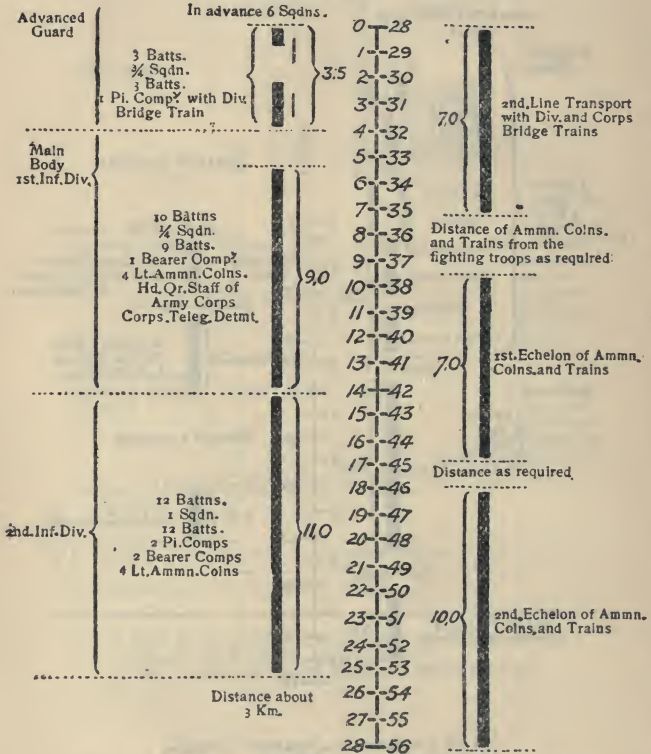


* 12.4.12 = 12 Battalions, 4 Squadrons, 12 Batteries
 † 0.24.2 = 24 Squadrons, 2 Batteries
 ‡ 1 Kilometre = ¾ mile (approximately)

GRAPHICS OF MARCH FORMATIONS—*continued.*

ARMY CORPS (25.8.24)*

(With 2nd line Transport, Ammunition Columns and Trains).



* 25.8.24 = 25 battalions, 8 squadrons, 24 batteries.

RATES OF MARCHING.

Under favourable circumstances one mile is covered:—

By infantry in	16 to 19 minutes
By mounted troops—	
Trot and walk in	11 ,, 13 ,,
Trot in	6½ ,, 8 ,,
By larger bodies of all arms, including the usual halts in...	24 minutes

Heavy field howitzers can march at the same rate as infantry when the condition of the roads is only fair. On favourable ground they can march considerable distances across country; on good roads they can trot for short distances.

Bad portions of road must be repaired for mortars. Special precautions must be taken when leaving a road for soft ground.

Ammunition columns and train march, generally speaking, at the same rate as infantry. Ammunition and supply columns, remount depôts, bridge trains, and *empty* supply parks can trot.

If the knapsacks of the infantry and pioneers are carried for them, their rate of marching is increased. A 2-horsed vehicle will take 60 to 80 knapsacks, and a company requires three to four of such vehicles.

In special cases, infantry and pioneers may be carried in vehicles. A 2-horsed vehicle will take about 10 men, and a company requires 25 of such vehicles.

TIMES FOR DEPLOYMENT.

When marching by a *single* road, the time taken by the fighting troops to deploy on a line with the advanced guard, is as follows :—

For an infantry division	...	...	...	2½ hours.
„ army corps	...	...	...	5 „
„ field artillery brigade (12 batteries)				} ¾ „
advancing from the main body at a trot				
with all its batteries	...	...	...

PASSAGE OF RIVERS.

See Pontoon Regulations (P.V.), Instructions for Building Improvised Bridges (B.V.), and Cavalry Pioneer Regulations (K.P.V.).*

FERRYING AND BRIDGING.

In selecting a crossing place the following points must be considered :—The tactical situation, nature of approaches on each bank, nature of the country, and the possibility of crossing at the point selected with the materials available.

In an advance a crossing is favoured by :—The possibility of concealing all preparations from the enemy, the command and re-entering formation of the near bank, and the existence of covering positions on the far bank for the occupation of the troops which cross first.

In a retirement a crossing is facilitated by :—Well

* P.V. = *Fontonnier-Vorschrift.*
 B.V. = *Behelfsbrücken-Vorschrift.*
 K.P.V. = *Kavalleriepionier-Vorschrift.*

situated positions on the near bank, from which the enemy may be held back from the site of the bridge, and the command and re-entering formation of the far bank.

The following are favourable from a technical point of view :—Narrow stretches of river, islands, moderate current, good anchorage, and vicinity of building material.

In the advance against the enemy, it is usual to throw covering troops across before commencing the construction of the bridge. This is effected silently and by surprise, often under cover of darkness, and, if possible, at several places. The order in which the troops are to embark in the ferry boats will be arranged beforehand. The process of transporting troops across will be continued, during the construction of the bridge, to the last possible moment.

Military bridges are constructed with the stores carried by the bridge trains, or with improvised material obtained on the spot.

Improvised bridges, that is to say those constructed with unprepared material collected on the spot, will, in simple cases, be constructed by the troops who have to use them; in cases offering greater difficulty they will be built by the pioneers.

Bridges are distinguished, according to the nature of the supporting structure, as suspension, trestle, pile, pontoon or floating bridges. According to their breadth and carrying capacity they are distinguished as *foot bridges* (*Brückenstege*), for infantry in single file; *light bridges* (*Laufbrücken*), for infantry in fours or dismounted cavalry in single file; *strengthened light bridges* (*verstärkte Laufbrücken*) (see para. 372); *bridges for all arms* (*Kolonnenbrücken*), to take all arms, except mortars; *heavy bridges for all arms* to take mortars.

STORES CARRIED WITH BRIDGE TRAINS.

The following stores are carried on trestle and pontoon wagons:—

	Bridging Material.				Ferrying Material.			
	Lengths of Bridge in Yards.				Number of Pioneer Companies Required.	Number of Rowing Boats.	Carrying Capacity.	
	Foot Bridge.	Light Bridge.	Bridge for all Arms.	Heavy Bridge for all Arms.			Men.	Horses and Riders.	Guns or Wagons with 4 Horses and 8 Men.
Bridge Train.								
Divisional bridge train...	—	66	38	22	1 to 1	3	108	3
Corps bridge train ...	—	187	143	82	1 " 1½	13	468	13
The three bridge trains of an army Corps ...	—	330	220	132	3	19	684	18
Bridging stores of a cavalry regiment ...	22	{ 13* 8†	—	—	{ 1† 10§	{ 1	30	4
...								
...								

* 2 metres (6·5 feet) wide. † 3 metres (9·8 feet) wide. ‡ Non-commissioned officer.
§ Troopers. || Without horses.

SWIMMING WITH IMPROVISED FLOATS.

Infantry use their *shelter tents* as improvised floats, or prepare *floats* of waterproof material, such as wagon tarpaulins, filled with straw, reeds, cord, or similar materials.

The shelter tents may also be used to construct *floating kitbags*. A tent section (wetted), covered on the inside with straw to a depth of one handsbreadth, and laced together, constitutes a *simple kitbag*, in which the clothing and equipment of one man can be packed. The rifle is secured on the top of the kitbag, the man swims, and tows the kitbag by the tent-rope or by his pull-through lanyard.

If several such kitbags are lashed together, to make a float, men who cannot swim may be floated across.

Double kitbags have a greater buoyancy. To make a double kitbag, a second tent section is laid over a single kitbag packed as described above and with its openside downwards, and is secured in this position.

The double kitbags are then connected together by poles, board., ladders, or lances. Small floats may also be made of trusses of long straw, lashed between wagon raves or planks.

Cavalry use floats made of barrels, or sacks and straw, for transporting men unable to swim, and equipment of men and horses. The horses either swim loose behind a leading horse or are towed behind boats.

BIVOUACS.

The amount of drinking and cooking water required daily for each man is about 0·88 gallon, and for each horse about 6·6 gallons.

The following amount of fuel for cooking and warmth (in equal proportion) is required :—

For one infantry battalion	... ..	500 cubic feet.
„ cavalry regiment	... ..	450 „
„ <i>Abteilung</i> (three batteries)		
field artillery	... ..	320 „
„ <i>Abteilung</i> (three batteries)		
field artillery, including one		
light ammunition column...	450	„

Pitching tents takes $\frac{1}{2}$ hour.

Cooking takes $1\frac{1}{2}$ to 2 hours with preserved meat, or 3 to 4 hours with fresh meat.

ENTRENCHING TOOL EQUIPMENT.

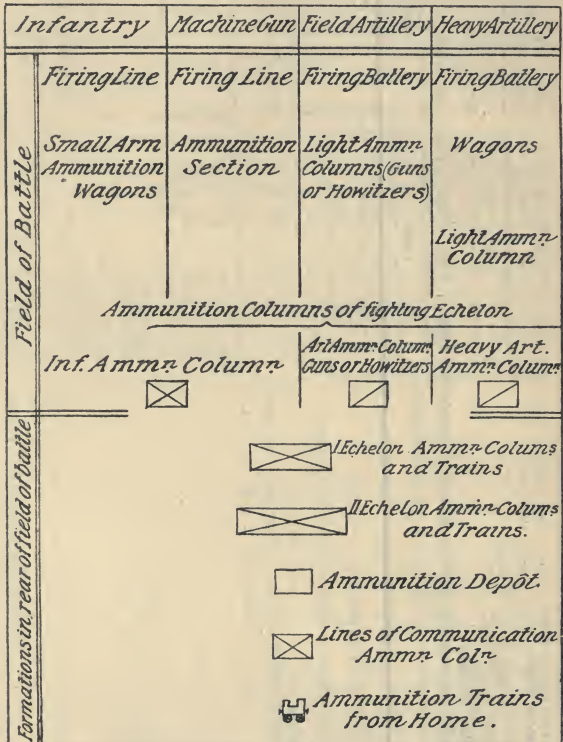
Troops.	For Earth Work.				For Timber Work.			
	Spades and Shovels.		Picks.	Pickaxes.	Hatchets.	Axes.	Saws.	
	Small.	Large.					Hand.	Cross-cut.
Infantry regiment—								
Carried on the men	1,200	—	—	120	60	—	—	—
With first-line transport	—	30	15	—	15	24	—	12
With second-line transport	—	230	65	—	30	30	6	2
Total ...	1,200	260	80	120	105	54	6	14
Machine gun battery ...	24	—	12	—	12	3	10	—
Cavalry regiment (4 squadrons)—								
Carried on the men	32	—	—	—	32	—	—	—
With first-line transport	—	4	1	—	4	—	—	1
With second-line transport	—	8	—	16	10	—	—	—
Total ...	32	12	1	16	46	—	—	1
Battery of field artillery ...	—	33	27	—	30	7	—	—

ENTRENCHING TOOL EQUIPMENT—continued.

Troops.	For Earth Work.				For Timber Work.			
	Spades and Shovels.		Picks.	Pickaxes.	Hatchets.	Axes.	Saws.	
	Small.	Large.					Hand.	Cross-cut.
Light ammunition column, field guns or field howitzers	—	43	43	—	46	22	—	—
Light ammunition column of a cavalry division ...	—	36	36	—	46	15	—	—
Heavy field howitzer battery	—	93	43	—	19	3	3	2
Mortar battery	—	168	68	—	27	5	4	5
Light ammunition column of a battalion of heavy field howitzers or mortars	—	221	77	—	29	3	3	1
Pioneer company—								
Carried on the men	—	110	55	—	22	58	—	—
In entrenching and tool wagon	—	60	20	—	—	20	6	6
Total	—	170	85	—	22	78	6	6

Pioneer detachment of a cavalry division—									
Carried on the men	...	...	...	...	...	...	...	...	...
In store wagon	...	...	...	...	...	...	...	...	...
Total	...	...	...	...	...	...	...	...	...
Infantry division—									
Carried on men and vehicles, in round numbers	4,832	1,501	765	492	928	395	26	61	
	7,590			1,410					

GRAPHIC OF AMMUNITION SUPPLY.

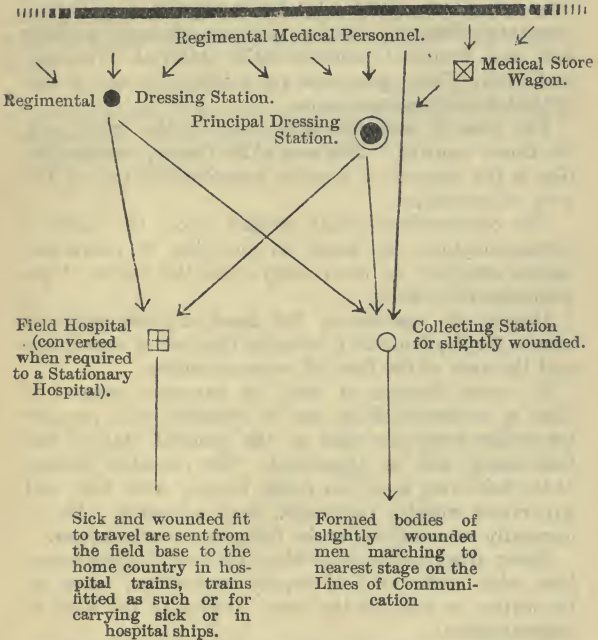


GRAPHIC OF MEDICAL SERVICES IN THE FIELD.

Field Medical Regulations (*Kriegs-Sanitätsordnung*)
(K.S.O.).

Stretcher Bearer Regulations (*Krankenträger-Ordnung*)
(Kt.O.).

Infantry Division in Action.



The regimental dressing stations are all, except one, merged into the principal dressing station

LINES OF COMMUNICATION.

REGULATIONS FOR LINES OF COMMUNICATION (*Kriegs-Etappenordnung*) (K.E.O.).

In order to maintain its *efficiency*, the field army requires a *constant supply of men and horses*, and *war material of every kind*. It also requires to *rid itself of everything that may interfere with its efficiency*, such as sick and wounded, unserviceable material, prisoners, and loot. These purposes are fulfilled by the *service of the lines of communication*.

The lines of communication connect the army with the home country. The *area of the lines of communication* is the stretch of country immediately behind the area of operations.

The commander-in-chief decides upon the lines of communication, the areas on the line of communication assigned to each army, and the limits of the administrative areas.

During the operations, the head-quarters staffs of armies fix the boundary between the area of operations and the area of the lines of communication.

In every theatre of war, an *inspector general of lines of communications and of railways*, who receives his orders from the chief of the general staff of the field army, will be appointed. *The intendant general of the field army* is on an equal footing with him, and supervises supply, payments, and accounts. He is generally responsible for the bringing up of supplies.

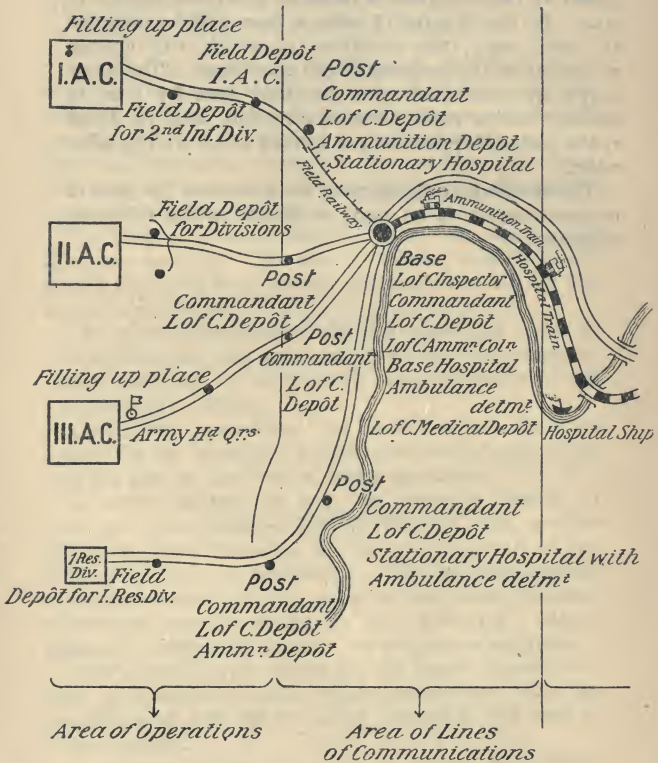
Every army has an *inspector of the lines of communication*, who, with the field supply authorities, takes up his duties as soon as the army arrives in the area of concentration.

A railway station, to serve as a *home base* (*Etappenanfängsort*), will be assigned to every army corps.

From these home bases, supplies are sent forward to collecting depôts (*Sammelstationen*), which will be established at not too great a distance from the theatre of war. In the theatre of war, a *base* will be assigned to each army, the situation of which will change according to the progress of the operations. The army corps are connected with the field base by *lines of communication roads* (*Etappenstrassen*), and on these roads *posts* (*Etappenorte*) are formed at about $13\frac{1}{2}$ miles apart.

The detailed arrangement of the system of the lines of communication of an army is shown in the following diagram :—

GRAPHIC OF THE LINES OF



COMMUNICATION OF AN ARMY.



At every collecting depôt there are depôts for ammunition, supply and war material, and at some there are also clothing depôts.

SUPPLY.

See Regulations for the Supply of the Field Army (V. d. F. H.), Field Supply Regulations (K.V.V.), Field Supply Tables (F.V.T).*

DAILY MEAT REQUIREMENTS.

1,000 men require daily 2 bullocks, 6 pigs, or 19 sheep or calves, taking the average weight of these animals at 10 cwts., 200 lbs., and 90 lbs. respectively. In a district where the cattle are poor, these numbers may have to be doubled. The deadweight is reckoned as half the live weight for bullocks and sheep, and three-quarters of the live weight for pigs.

MOBILE SUPPLIES.

Means of Transport.	Amount of supplies carried.	Days ^c
Supply wagon ...	1 company, machine gun battery, squadron or battery	1 to 2
Forage wagon ...	1 machine gun battery, squadron, battery or light ammunition column	1
Field kitchen† ...	1 company	1 hot meal and coffee
1 supply column ...	1 infantry division	1 ration per man $\frac{1}{2}$ ration per horse $\frac{1}{2}$
1 ditto for cavalry, ammunition columns or train	$\frac{3}{4}$ cavalry division of 18 squadrons and 2 guns, or one échelon of ammunition column and train	1

* V.d.F.H. = *Anleitung zur Verpflegung des Feldheeres.*
 K.V.V. = *Kriegs-Verpflegungs-Vorschrift.*
 F.V.T. = *Feld-Verpflegungs-Tabellen.*

† Carries the third emergency ration.

MOBILE SUPPLIES—*continued.*

Means of Transport.	Amount of supplies carried.	Days.
1 supply park ...	1 infantry division, or one échelon of ammunition column and train	1
1 ditto for cavalry, ammunition columns or train	1 cavalry division, or the ammunition columns and train of 1 army corps	1½
1 supply railway train	2 army corps and 1 cavalry division	1
1 train loaded with oats	3 army corps and 1 cavalry division	1
1 canal barge ...	1 army corps	1 to 1½

FIELD POST OFFICE.

See Regulations for the Field Post (Fp. D. O.) and Instructions for the Execution of the Regulations for the Field Post (A. B. zur Fp. D. O.).*

The whole postal service is under the postmaster-general in the field, who is stationed at army headquarters. Daily postal communication will be established if possible, and the hours of the service will be communicated to the head-quarters of commands. These and the head-quarters of units will inform the field post office authorities where they will be quartered, unless secrecy on this point has to be observed.

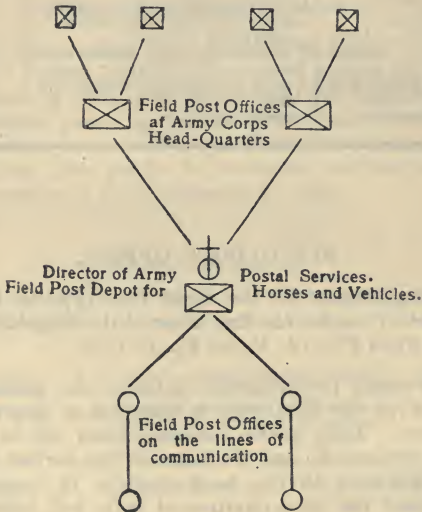
The collection of letters from the troops, after every battle, will be specially facilitated by arranging a

* Fp. D. O. = *Feldpost-Dienstordnung.*

A. B. zur Fp. D. O. = *Ausführungs-Bestimmungen zur Feldpost-Dienstordnung.*

service of *mounted and dismounted post orderlies*, stationed at specified points near the troops. It may sometimes be necessary to provide the field post office with an *escort*.

GRAPHIC OF THE FIELD POST SERVICE.



The field post office arranges for the forwarding of :—

1. Army correspondence, including letters, post cards, money and valuables, postal packets, and money orders up to £40.
2. Private correspondence, including ordinary letters up to $\frac{1}{2}$ lb. weight, postcards, letters containing money

up to £75 and of $\frac{1}{2}$ lb. weight, money orders for transmission from the army to the home country up to £40, and money orders for transmission from home to the army up to £5. No private registered letters or packets will be forwarded.

The field post office also receives orders for newspapers, and undertakes their delivery at special rates. Private letters must be marked "Field Post Letter" (*Feldpostbrief*), whether despatched to or from the army. Letters addressed to troops serving in the field must bear the number of the army corps, division, regiment, or company, to which the individual belongs, and his rank.

Private letters *for transmission home* must bear the name of the sender. If the sender is not of the rank of officer it must also be impressed with the "Soldier's Letter Stamp" (*Soldatenbriefstempel*).

It is advisable that letters despatched *from home* should also bear the sender's name.

The following are *delivered free*:—Letters up to $1\frac{1}{2}$ ozs., post cards, registered letters up to $1\frac{1}{2}$ ozs. and £7 10s. in value, and money orders transmitted home. Letters transmitted *from home*, which are chargeable, must be franked.

Private letters must contain no information which might betray the movements of the troops or their position.

FAMILY REMITTANCES.

See Regulations for Payment of Troops in the Field, Appendix 4 (K. Besold. V.).*

All officers and men belonging to mobilized formations may remit a portion of their pay for the support of their families.

* K. Besold. V = *Kriegsbesoldungs-Vorschrift*.
(3694)

The deduction from their pay on this account may not exceed $\frac{7}{10}$ of their service pay for officers, and $\frac{1}{3}$ for non-commissioned officers and men.

SOLDIERS' WILLS.

See Code of Civil Law (B.G.B.)* and State Military Law, para. 44.

Besides *holograph* wills, signed and bearing place and date, which are valid under para. 2,231 of the Civil Code, military persons in time of war may execute their last will and testament in legal form, from the moment when they leave their garrisons, or are attacked or besieged there, thus :—

1. By signing a will, written by another person, and witnessed by two witnesses, or an officer or a notary.
2. By making a verbal declaration, written down by an officer, notary, medical officer, senior hospital attendant, or military chaplain, read to the testator, and signed by the officer, notary, &c., and by two witnesses.

* B.G.B. = *Bürgerliches Gesetzbuch*.

THE MORSE CODE.

Alphabet.

a	• —	o	— — —
ä	• — — • —	ö	— — — •
b	— • • •	p	• — — — •
c	— • — — •	q	— — — • —
d	— • •	r	• — — •
e	•	s	• • •
f	• • — •	t	— —
g	— — — •	u	• • —
h	• • • •	ü	• • — — —
i	• •	v	• • • —
j	• — — — —	w	• — — — —
k	— • — —	x	— • • — —
l	• — — • •	y	— • — — — —
m	— — —	z	— — — • •
n	— •	ch	— — — — —

Numerals.

1	• — — — — —	6	— • • • •
2	• • — — — —	7	— — — • • •
3	• • • — — —	8	— — — — • •
4	• • • • —	9	— — — — — •
5	• • • • •	0	— — — — —

Wait	....	....	....	• — — • • •
Call up	....	....	....	• • — — • — —
Seen	....	....	....	— • — — —
Break	....	....	....	— — — • • — —
Understood	....	....	....	• • • — — •
Erase	....	....	....	• • • • • • • •
End	....	....	....	• — — • — — •
Acknowledged	....	....	....	• — — • • — — — • • — — •
Full stop (.)	....	....	....	• • • • •
Comma (,)	....	....	....	• — — • — — • — —
Note of interrogation (?)	....	....	....	• • — — — • •
Semicolon (;)	....	....	....	— — • — — • — — •
Colon (:)	....	....	....	— — — — • • •
Note of exclamation (!)	....	....	....	— — — — • • — — —

REGULATION FLAG SIGNALS.

a a a . ——— . ——— . ———

“Forward or Advance.”

g g g ——— ——— . ——— ——— . ——— ——— .

When sent from the firing line to troops in rear,
“Increase the range of the guns.”

h h h

“Halt.”

m m m ——— ——— ——— ——— ———

When sent from the firing line to troops in rear,
“Ammunition required.”

When sent from troops in rear to the firing line,
“Ammunition coming up.”

s s s

When sent from the firing line to troops in rear,
“We are about to advance to the assault.”

When sent from troops in rear to the firing line,
“Assault about to commence.”

PREPARATION OF SKETCHES, SKETCH MAPS,
AND PANORAMA SKETCHES.

The first essentials of every military sketch are reliability, clear drawing, legibility even by a bad light, and prominence given to important details.

SKETCHES.

When time is limited, a few strokes of the pencil must suffice to represent the ground and the position

of the troops. In the majority of cases the drawing can only be executed by eye.

If the draughtsman has time, and if he should not be able to take the main features of his sketch from the map, he fixes a few main lines of direction by sighting over his paper. This is best done from cross roads. Between these lines he sketches in the features of the ground. Distances will be judged, or if necessary paced on foot or horseback. Heights should be entered if possible. Hills may be shown by hachuring or shading.

SKETCH MAPS.

In making a *sketch map*, the skeleton of the sketch should be taken from the ordnance map, enlarged to a suitable scale. This is best done by the use of squared paper. The roads are first inserted, then the water-courses, villages, meadows and woods. These are represented as in Plates IV and V.

The horizontal plan being completed, the *shape of the ground can next be shown*. The highest and lowest contour lines are first inserted, and then *the hachures* (thin, medium, and thick strokes respectively for ground which can be crossed by wheeled carriages, or by infantry, and which can be climbed), or *form lines*. Relief may then be given to the last method by hill-shading, as in Plate VI.

Finally, the troops will be very plainly shown in their proper colours, and their abbreviated designations entered as in Plate VII.

PANORAMA SKETCHES.

To make a *panorama sketch*, the ground is first divided into sections, which are marked off on the-

paper, and the principal points and lines of the landscape are then inserted on this skeleton sketch with soft black pencil. The background is first drawn, then, with bolder strokes, the foreground, omitting all superfluous detail. The place from which the sketch is made, and the compass bearing will be inserted. Names of places will be entered above and below the drawing, troops will be indicated, and explanatory notes inserted.

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IMPERIAL STANDARD.

(1:10.)





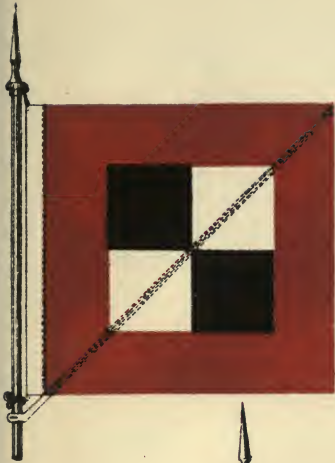
PRUSSIAN
ROYAL STANDARD
(1:20)



WÜRTTEMBERG
ROYAL STANDARD
(1:20)

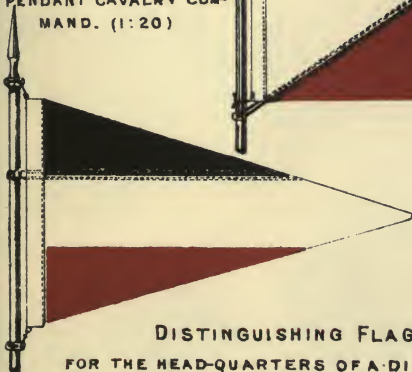
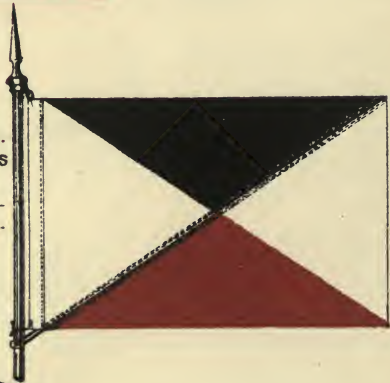


SAXON
ROYAL STANDARD
(1:20)



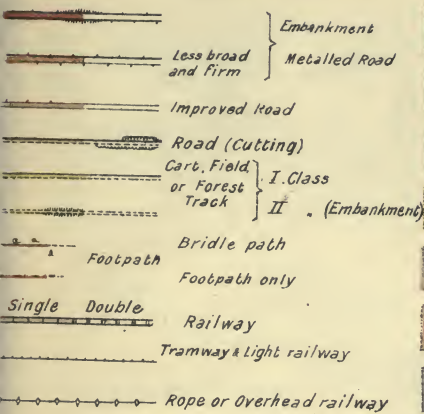
DISTINGUISHING FLAG
FOR THE HEAD-QUARTERS STAFF
OF AN ARMY
(1:20)

DISTINGUISHING FLAG.
FOR THE HEAD-QUARTERS STAFF OF AN ARMY
CORPS OR OF AN INDE-
PENDANT CAVALRY COM-
MAND. (1:20)

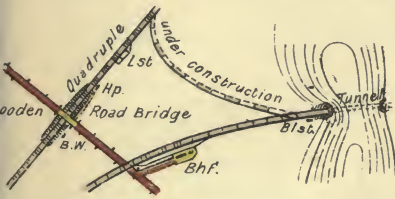


DISTINGUISHING FLAG.
FOR THE HEAD-QUARTERS OF A DIVISION.
(1:20)

ROADS AND RAILWAYS



GROUND AND WOOD



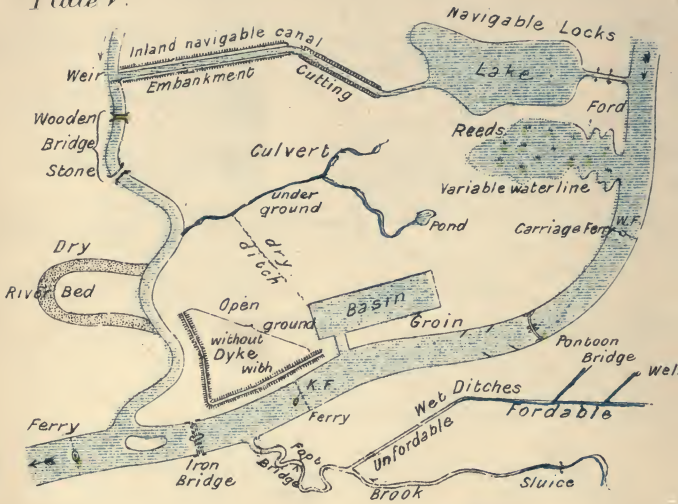
- Bhf. Bahnhof (Station)
 Hp. Haltepunkt (Stopping place)
 Blst. Blockstation (Block signal station)
 Lst. Ladestelle (Loading platform)
 B.W. Bahnwärter (Plate layers hut)



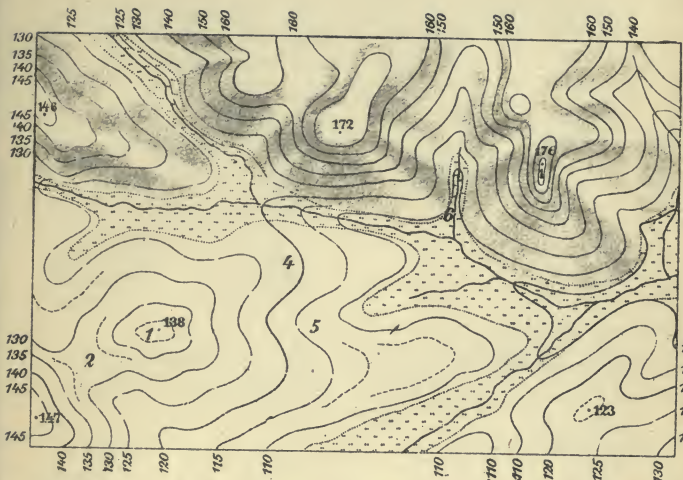
FARM AND VILLAGE



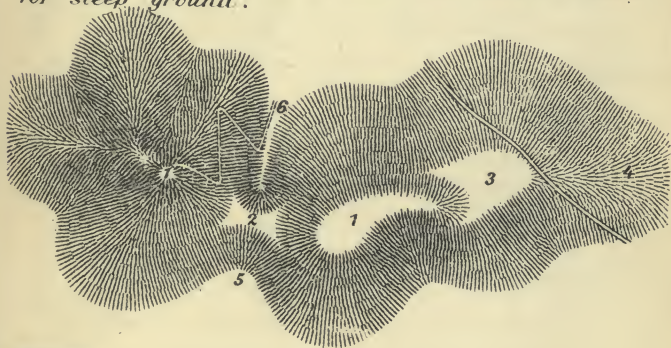
Plate V.



- | | | |
|---------------------|------------------------|------------------------------|
| Landguard Dyke | Church yard | Vineyards |
| Old entrenchment | Smithy | Hop gardens |
| Rifle pit | Bad ground with holes | Conspicuous trees |
| Ruins | Pit | Rangers lodge |
| Broken rocky ground | Church, Chapel, Statue | Foresters |
| Cliffs | Tower | Forest guard |
| Stone heaps | Chimney | Triangulation P ^o |
| Wall | Windmill | Cairn |
| Wire Fence | Watermill | Mill stone |
| Wooden Fence | Windmotor wheel | Ch. Hs. Turnpike |
| Hedge | Sign Post | Sch. Barn |
| Wall | Monument | Zgl. Brick-kiln |
| Low wall and hedge | | |

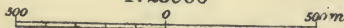


Lighter shades for flat ground, and darker shades for steep ground.



up to 15° passable for Vehicles 1 Summit 4 Chine.
 up to 25° passable on foot. 2 Saddle 5 Hollow.
 over 25° climbable. 3 Datum level 6 Gorge.

1:25000



INFANTRY

Battⁿ Free column Broad column



1st Brigade:



1 Battⁿ in bivouac



1 Company

Piquet

Double Sentry post

Machine Gun Battery

Line of skirmishes

Shelter trenches

Shelter trenches with blinded cover Approaches and covering trenches

Wire Entanglement

Abattis

Barricade

Military bridges

Destroyed Bridge

Road passable for all arms

Field telegraph

Clearing

Village enclosure prepared for defence

Chief dressing Station.

CAVALRY

1 Regt. in Line Sqdn. col. Mass Col. of Troops



1 Regt. in Bivouac



1 Squadron in Line Col. of Troops

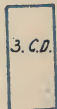
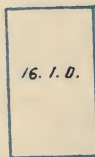


1 Brig. in Double Coln.



Piquet
 Vedette

Forming up Space for
1 Inf. Division 1 Cav. Division



ARTILLERY

Field Btty. Abt. (Brigade)

Horse " "

Field Howitzer

Heavy Field Howitzer Battⁿ Battⁿ

21cm Mortar Battⁿ Battⁿ

Entrenched batteries

Artillery in Column of Route

Ammunition Columns

in Bivouac Art. In

Guns. Handbooks for—*continued.*

- 12-pr. B.L. of 6 cwt. Marks I. to IV. and IVa. and Carriages Marks I.*, I.**, and II. Horse Artillery. 1905. 1s.
10-pr. Jointed B.L. Mule Equipment. 1904. 1s.
9'45-inch B.L. Howitzer. 1906. 9d.
9'2-inch B.L. Marks IX., X., X*. Land Service. 1906. 1s. 6d.
8-inch R.M.L. Howitzer of 70 cwt. Movable Armament and Armament of Works. Land Service. 1901. 2s.
6-inch B.L. and B.L.C. Guns, Mountings, &c. 1904. 1s. 6d.
6-inch Q.F. Land Service. 1903. 1s.
5'4-inch B.L. Howitzer. Mark I. 1902. 1s. 6d.
5-inch B.L. Marks I.—V. 1904. 9d.
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