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5. The Initial Tactical Distribution.

The underlying principle of all tactical distributions is "To obtain a maximum fighting power with a minimum loss of organisation".

There are two main tactical formations

(a) Column.

(b) Line.

The first is essentially a formation of movement for it enables the maximum number of men or units to get over the maximum depth of ground in the shortest time.

The second is essentially a fighting formation for it enables the maximum number of men or units to fight on the maximum frontage in the shortest time.

The first is used tactically in order to build up a strong attack, the second is the attack formation proper.

Every attack is limited by human endurance and the resistance offered to it, consequently whatever the objective may be, it must be split up into a series of stages. Each of these stages being limited by the utmost effort of a definite body of men consequently requires a fresh body of troops. To pour fresh troops into decimated units is to organise disorder; to pour used up troops into fresh ones is the act of a fool.

The distribution of Tanks to objectives varies from that of infantry in that the endurance of the crews is more constant on account of the greater power the Tank possesses in overcoming the enemy's resistance, consequently, when normal conditions prevail, the use of Tanks in depth against any one object is not only unnecessary but wrong. By normal conditions is understood that the ground is traversable and that the enemy's guns are under control. When these normal conditions do not exist it will be necessary either to multiply the number of attacking Tanks or to reinforce them by means of a local reserve. The choice of these two means is governed by the number of approaches. If numerous, then multiply the

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attackers; if few, then hold back a local reserve. In both cases the same unit should supply the additional Tanks, for all these Tanks are to be directed on one objective.

Taking now the normal case, and bearing in mind that the Company is the tactical unit, the question arises should the sections of this company be distributed in width to attack one objective or in depth to attack two or more. In principle the former is the correct method, because a maximum fighting power with a minimum loss of organisation will result; because

- (a) Each unit will have but one main objective, consequently its Commander and staff have but one thing to think about.
- (b) Each unit will be operating for a minimum time consequently the least loss of human endurance will take place, and more time will be gained to recuperate in.
- (c) Disorganisation will be localized and casualties will occur on or within a fixed circumference and not without it.
- (d) The Salvage of Tanks will be facilitated on account of the protection afforded by the following waves passing through.
- (e) Multiplicity of leaders is reduced consequently the higher Commanders will have less to think about.
- (f) Liaison work with flanking units is reduced on account of the minimum number of units being employed on any one objective.
- (g) Supply is facilitated on account of the reduction in depth of the advance, and so is Wireless signalling.
- (h) Reassembly of Tanks is simplified by an inward concentration behind the centre of the objective.
- (i) If the initial attack fails, the minimum number of units are shattered consequently Moral and Organisation suffer less.

This system undoubtedly saves time, facilitates reorganisation and economizes endurance human and mechanical without detriment to fighting power. Principles, however, are governed by conditions and if the conditions are unfavourable it may sometimes be necessary to resort to a column formation. The chief condition to consider is the formation of the attacking infantry's which, on account of the obsession of rifle tactics springing from the South African war, is more often than not a faulty one. If individual infantry units are formed in

/depth 192

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depth with a view to building up a strong firing line of riflemen (cui bono) it may be necessary to form Tanks in depth also. In principle this should, however, be guarded against.

Given an objective limited or unlimited the first thing to do is to split it up into Zones of attack the depth of each Zone being such that the maximum fighting power can be obtained from a certain number of units before rest is required.

The second, to allot Echelons of Tanks to each Zone, cutting down the frontage so that sufficient depth may be obtained to render continuity of action possible.

The third, to divide each Zone into a series of subsidiary lines of hostile resistance.

The fourth, to allot each Echelon Waves of Tanks in accordance with these lines of resistance.

If local reserves are necessary they must be drawn from the attacking units themselves so that various units do not get intermingled. Exhausted troops hurriedly reassembled are of no use for this purpose.

6. Human Endurance.

The greater the loss of human endurance the longer will it take for a unit to recuperate and reorganise for further action. If single objectives are allotted to a company and not more than two to the 3 Companies of a Battalion, the time at present taken to withdraw these and to rest and refit them may be taken at approximately the following :-

Single crews.	24 to 36 hours from Rallying.
Companies	48 to 72 " " " " reorganise
Battalions.	5 to 7 days " " "

This being so if only 2 Echelons are employed each Echelon must be prepared to fight for between 5 and 7 days at a time. This factor demands the most careful adjustment of frontages to units so that sufficient staying power through depth may be gained. The more rapid the reorganisation the less depth will be required and the shorter will be the

/periods

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periods of actual battle. If, however, 3 Echelons are employed, the maximum period they need be in battle will on the above figures be $2\frac{1}{2}$ days.

The loss of endurance in the man himself is the product of 3 main causes

- (a) Insufficient rest before an engagement.
- (b) The wearing effect of the engagement itself.
- (c) The loss of rest due to disorganisation after engagement.

The second may be put down at about 8 hours continuous advancing and fighting. If this period is not exceeded and the man goes into battle fresh, 24 hours rest should be sufficient for him and a further 12 or 24 hours to re-equip and to rest after re-equipment.

7. Supply of Personnel and Material.

To reorganise it is not only sufficient to rest but to make good the losses and expenditure caused by action. It, therefore, is necessary to prepare a careful system of re-fitment before an action begins, for this reorganisation is as important as the action itself as continuity depends on it. It is not sufficient to establish forward dumps of supplies only, but forward Tankodromes as well where re-inforcing. Tanks may be assembled. The whole question hinges on demand and supply in a given time and no Battalion or Brigade Commander will be in a position to meet the demand unless accuracy of requirement reaches him in as short a period as possible after the Fighting Tanks rally.

8. Reorganisation on the Battlefield.

The following skeleton of Battle organisation and reorganisation is suggested as a working basis:

- (a) No single ^{battalion} to work outside one Zone of Attack.
- (b) No single Company to be employed on two objectives.
- (c) Section to be kept intact.
- (d) Each Section to have a Rallying Point.
- (e) Each Company to have a Refilling Point.

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(f) Each Battalion to have an Advanced Tankodrome.

(g) Each Brigade to have a Railhead, Tankodrome, Workshops and Salvage Company.

The main duty of the Section Commander is to collect all data, between the time his Tanks leave the Starting Point until they reassemble at the Refilling Point, which will enable the Company Commander to resupply and refit his Tanks in the shortest possible time.

The main duty of the Company Commander once his Tanks have reassembled at the Refilling Point is to get his Company into fighting condition in the shortest time possible compatible with resting his men.

The Battalion Commanders duty is to make good deficiencies in personnel and material and to keep the forward dumps supplied.

The Brigade Commanders duty is to keep the Advanced Tankodromes supplied with reinforcements, men and Tanks and to salve casualties with the utmost rapidity.

The following is the procedure suggested :-

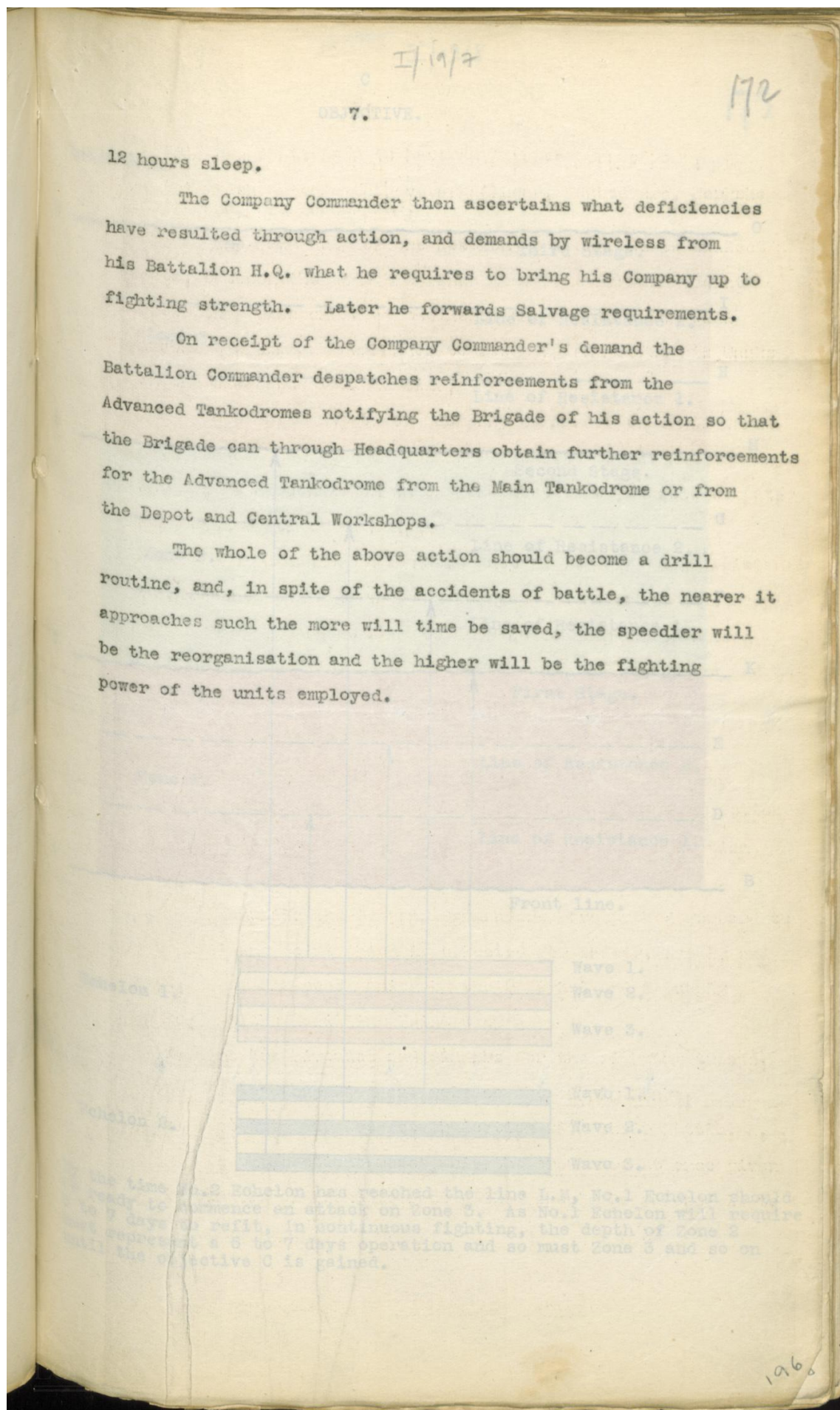
The Sections go into action; they are followed by their Section Commanders who meet their Tanks returning from action at the ^{Railway} Refilling Points. Here they collect reorganisation data.

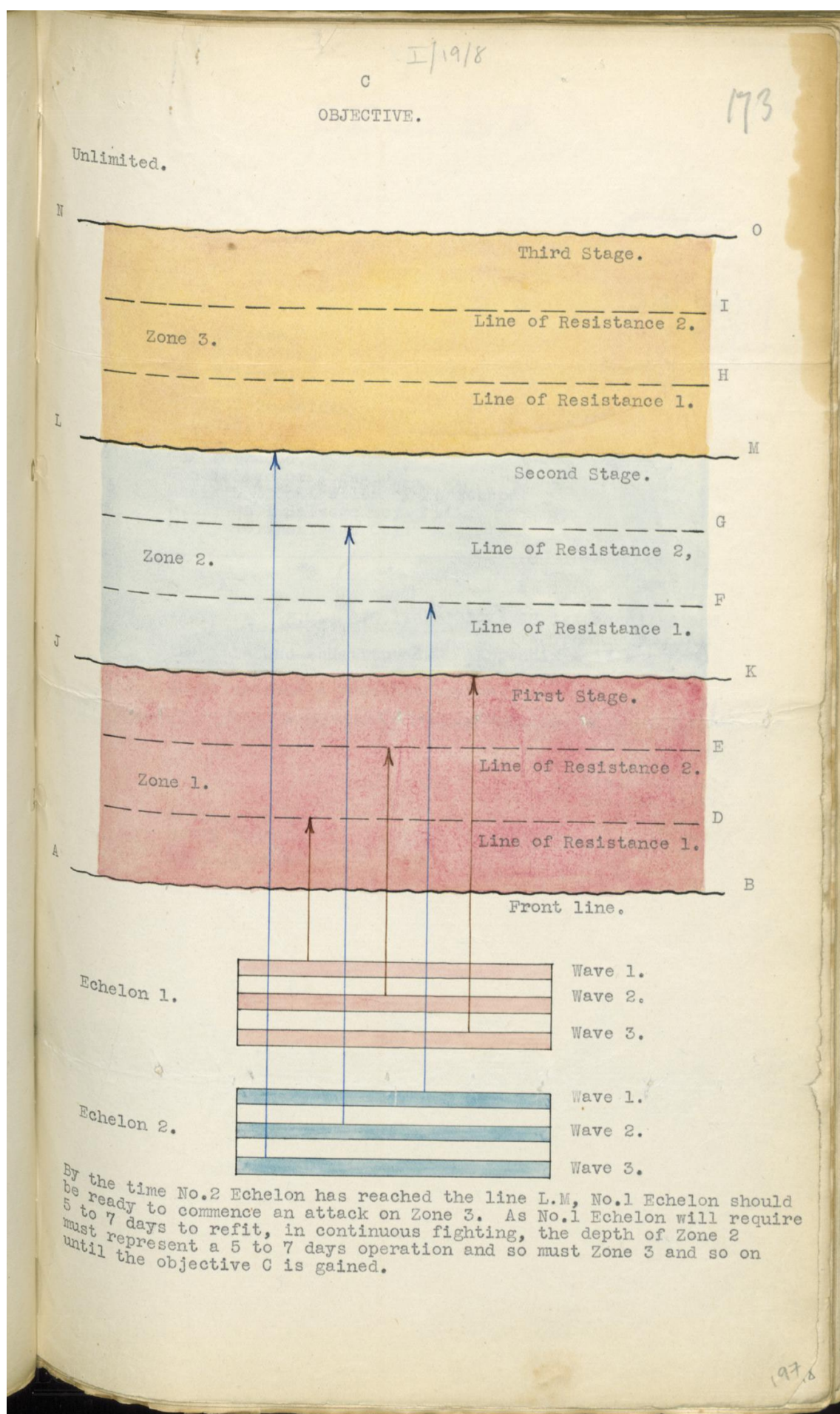
Meanwhile the Company Commanders have pushed forward to the Refilling Point which is selected for safety, supply and rest. They are accompanied by their Signal and 2 Supply Tanks. At the Refilling Point they -

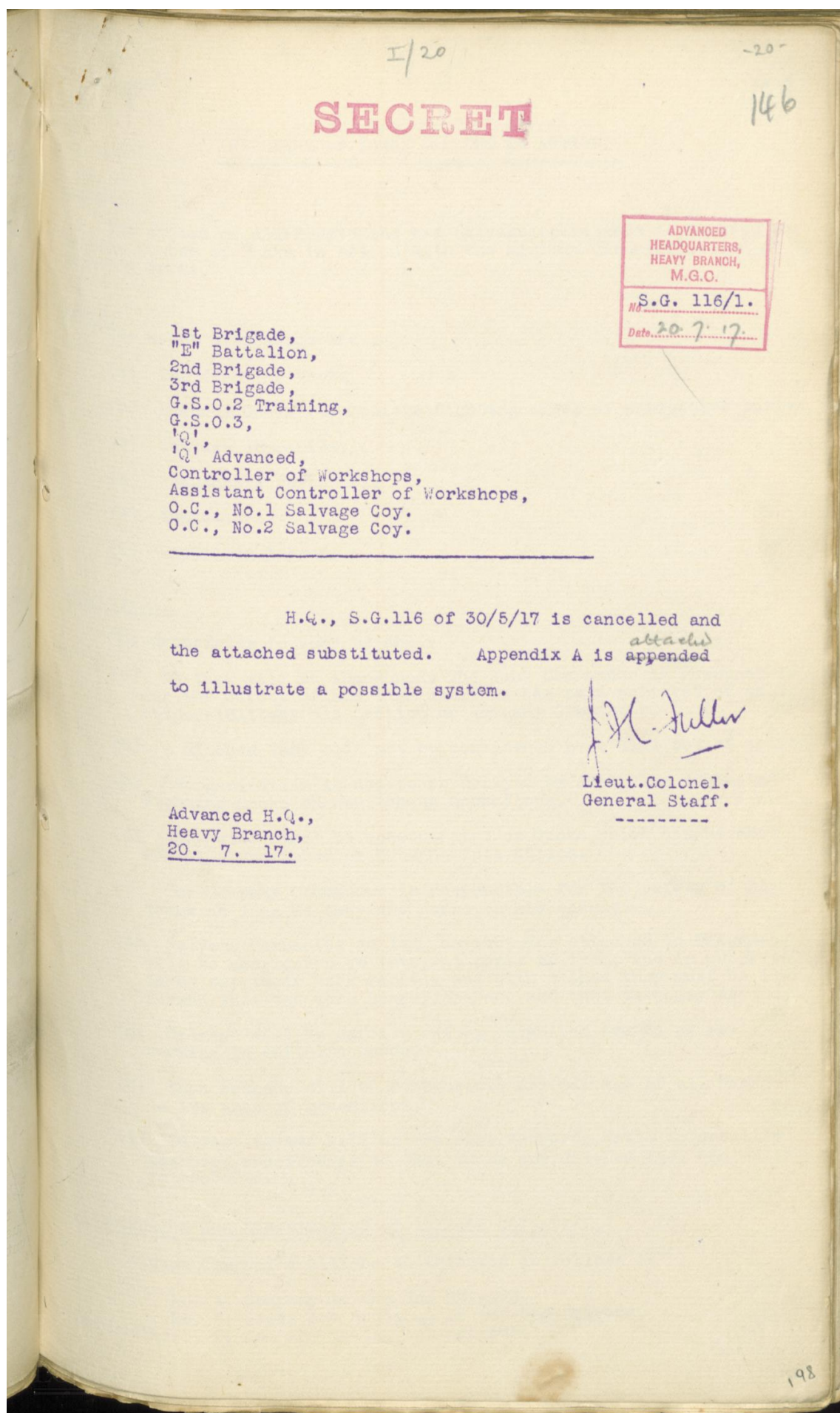
- (a) Prepare bivouacs and dinners for the fighting troops.
- (b) Offload supplies and release the supply Tanks.
- (c) Get into Wireless communication with their Battln. H.Q.

As the sections reassemble the crews are at once given their dinners and sent to rest - they should be allowed 10 to

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RECOVERY of TANKS DAMAGED in ACTION.

(1) OBJECT.

The object of all Unditching and Salvage operations is to keep the maximum number of Tanks in action with the minimum disorganization of the fighting crews.

(2) MEANS.

The means disposable are :

- (a) The fighting Crews.
- (b) Reserve Crews (to relieve fighting crews of protective duties.
- (c) Salvage Companies.
- (d) Workshop's Personnel.
- (e) Tunnellers.
- (f) Unskilled labour.

(3) PRINCIPLES.

The principles to work by are :

- (a) No Tank will be abandoned. The Tank Commander is responsible for the safety of his Tank until he has been relieved of this responsibility by his Section or Company Commander.
- (b) A ditched Tank will not be considered as a Tank out of action.
- (c) Reorganization is not to be delayed by employing exhausted Fighting Crews on unditching operations.
- (d) Work will first be concentrated on Tanks which can be most speedily unditched or brought into action.
- (e) The Company Commander is responsible for the safety of his Tanks as long as they are borne on his charge.
- (f) Salvage Companies as long as they are attached to Brigades, will be considered as integral parts of them, and in order to carry out their work rapidly and with method they must be informed what the Tank Operations are and what they may demand.
- (g) Salvage will be carried out by organized squads of men working in definite areas.
- (h) Each Brigade will be responsible for Salvage of all Tanks in its area of operations.
- (i) Salvage Squads will not be sent forwards until information has been received as to what Tanks are ditched etc. and their whereabouts.

(4) DISTRIBUTION and ORGANIZATION of SALVAGE COMPANIES.

Salvage Companies will be distributed as follows :-

- No. 1. Company to the 2nd Brigade.
 - No. 2. (less one Section) to the 3rd Brigade.
 - One Sectn. No. 2. Company to the 1st Brigade.
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Tunnellers will be attached to Salvage Companies as follows:-

No.1. Salvage Company, 60 Tunnellers from those allotted to 2nd Brigade.

No.2. Salvage Company (less 1 section), 60 Tunnellers from those allotted to 3rd Brigade.

One Section No. 2. Company, 40 Tunnellers from those allotted to 1st Brigade.

Salvage Companies will be organized for operations so as to permit of rapid salving of Tanks with maintenance of the endurance of the Salvage personnel which will require to be reassembled and rested at stated times.

Salvage sections will be organized in two or more Salvage Squads (preferably 3 so that when occasion arises for a Section to be attached to a Tank Battalion, one squad may work with each Tank Company) and will be attached a number of Tunnellers.

When possible each squad will be placed under a competent leader who understands Salvage. (A Suggested Organization is given in Appendix A.) The length of time the Tunnellers should remain attached to Salvage Companies must be left to the decision of the Brigade Commander. On occasion, if much carrying work is likely, it may be necessary to supplement the Tunnellers allotted to Salvage Companies by unskilled labour.

When considered necessary a small workshop's detachment should be attached to each Company to work in connection with the Salvage operations.

(5) DUTIES.

Fighting Crews.

(a) If circumstances render the work possible Crews will at once be set to work to unditch a ditched Tank or bring a disabled Tank into action again, a sentry having first been posted to watch in the direction of the enemy.

(b) If in the opinion of the Tank Commander this work is impossible and that it is unnecessary for the whole of the crew to wait by the Tank, a sentry and his relief will be posted over or in the vicinity of the Tank and the remainder of the Crew withdrawn. A message being sent forthwith to the Section Commander giving the number of the Tank, map location and extent of damage.

Reserve Crews.

Normally Reserve Crews will be employed in relieving the Fighting Crews of protective duties on the completion of a specific operation. This will enable the Fighting Crews to assemble, rest and reorganize.

Workshop's Personnel.

(a) The duty of the Battalion Workshops is to maintain the maximum number of Tanks in fighting condition by work in the workshops.

(b) The duty of the Company Workshop Detachments is to see their Company's Tanks over their own front line and to carry out light mechanical repairs in the field. They should never be employed on unditching operations.

(3)

Salvage Companies.

(a) The duty of the Salvage Company is to relieve the Battalions of work which would prevent them fighting the maximum number of Tanks. This duty will be subdivided as follows :-

(i) During an action to assist crews to unditch their Tanks.

(ii) After the action to bring back to railhead Tanks which are so disabled that the Battalion workshops are unable to make them ready for action again in useful time.

(iii) To recover material from Tanks which are total wrecks.

(b) The O.C. Salvage Company will render a weekly statement up to and including Saturday, showing the result of salvage operations during the week. This return will reach Advanced H.Q. Heavy Branch each Monday.

SPECIAL SALVAGE MEASURES.

(a) Tanks which are handed over to the Salvage Company will be struck off the strength of the Battalion concerned, the O.C. Salvage Company being advised by wire, and the wire repeated to Adv. H.Q. Heavy Branch. Such wires must state - Manufacturer's and Battalion's Numbers, detail of injury and exact map location of Tank.

(b) No receipts will be given by Salvage Units for derelict Tanks lying in the Battle area, or for the equipment which they contain; but Salvage Companies will safeguard them as far as it lies in their power.

(c) All salvaged Tanks received by the Central Workshops will be taken on their strength and will be shown as received from the Salvage Companies on the "position of Tanks at Central Workshops" statement sent to H.Q. Heavy Branch daily. They will continue to appear on this statement day by day together with remarks as to their repair until transferred to some other category.

(d) In all cases where Tanks are dealt with by a Salvage Coy, Tank log books will be sent by the Battalion which has struck the Tank off its charge direct to the Central Workshops, which will issue them to the Battalion taking over the Tanks after repair.

(e) If the Tank is ditched but otherwise mechanically sound, the Company Comdr. will issue instructions as to what equipment will be removed, generally this will consist of:-
Lewis Guns, Lewis Gun spare parts, Clock, compass and Periscopes.
No tools or Tank parts which are essential to the salving of the Tank will be taken away.

(f) When a Tank has been handed over to a Salvage Company and time does not permit of immediate Salvage taking place, the Tank will be locked up and camouflaged, and a notice bearing G.R.O.2294 hung on the lock.

Advanced H.Q.
Heavy Branch.
20th July 17.
s.

J. C. Fuller.
Lieut. Colonel.
General Staff.

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APPENDIX A.

Example of Organization of a Salvage Company during an Attack.

- (1) A.B. is a Corps Frontage divided into two Divisional frontages A I and I B. Two divisions of this Corps will attack the Green line with one Infantry Brigade each and the Red line with an Infantry Brigade each. The two remaining Infantry Brigades may or may not be used to exploit any success gained. One Tank Brigade is allotted to the Corps, One Battalion working with each Division and one Company with each Brigade. Salvage is organized as follows :-

- (a) Define the Tank Brigades area of operations A B C D, this will be the area of Salvage work.
- (b) Divide this area into two Tank Battalion areas A I J D and B I J C.
- (c) Divide each Battalion area into Company areas E, F, G. & H. (in this case Reserve Companies are not being considered).
- (d) Divide the four Salvage Sections of the Company into two relief of two Sections each. Allot one Section to each Battn. and two, in reserve, to the Brigade.
- (e) Divide each Battalion Section into 3 squads and allot one squad to each of Nos. 1, 2, 4 & 5 Companies, the remaining two squads may either be allotted to Nos. 3 & 6 Companies or held in local reserve under the Salvage Section Comdr. at Battalion H.Q.
- (f) Allot Salvage working areas to Squads. E to No. 1, G to No. 2, F to No. 4 and H to No. 5.

- (2) The attack is launched. Directly the Company Comdr. of No. 1 Company receives information of Tank Casualties in E area he will notify the Commander of No. 1 Salvage Squad so that work (on an organized system) may be started.

Later on No. 2 Company does the same with reference to Tank Casualties in G, area.

Any Tanks of No. 2 Company becoming casualties in E area will be dealt with by No. 1 Salvage Squad and Not by No. 2, but only after No. 1 Company's easily salvable Tanks are got into action. The extra work then thrown on No. 1 Salvage Squad will be partially compensated for by the extra distance No. 2 Squad will have to work from its base.

If in the opinion of the Left Battalion Commander there is too much work for No. 1. Squad to carry out in E area, he will order his salvage Section Comdr. to reinforce No. 1 Section by No. 3 Section. If this is not desirable he will direct No. 2 Section to work in E area directly No. 2 Section has cleared G area of light casualties.

When Nos. 1, 2 & 3 Squads require rest the O.C. Salvage Company will advise the Tank Brigade Commander to relieve them by one of the Sections in reserve, thus keeping up a roulement of Sections.

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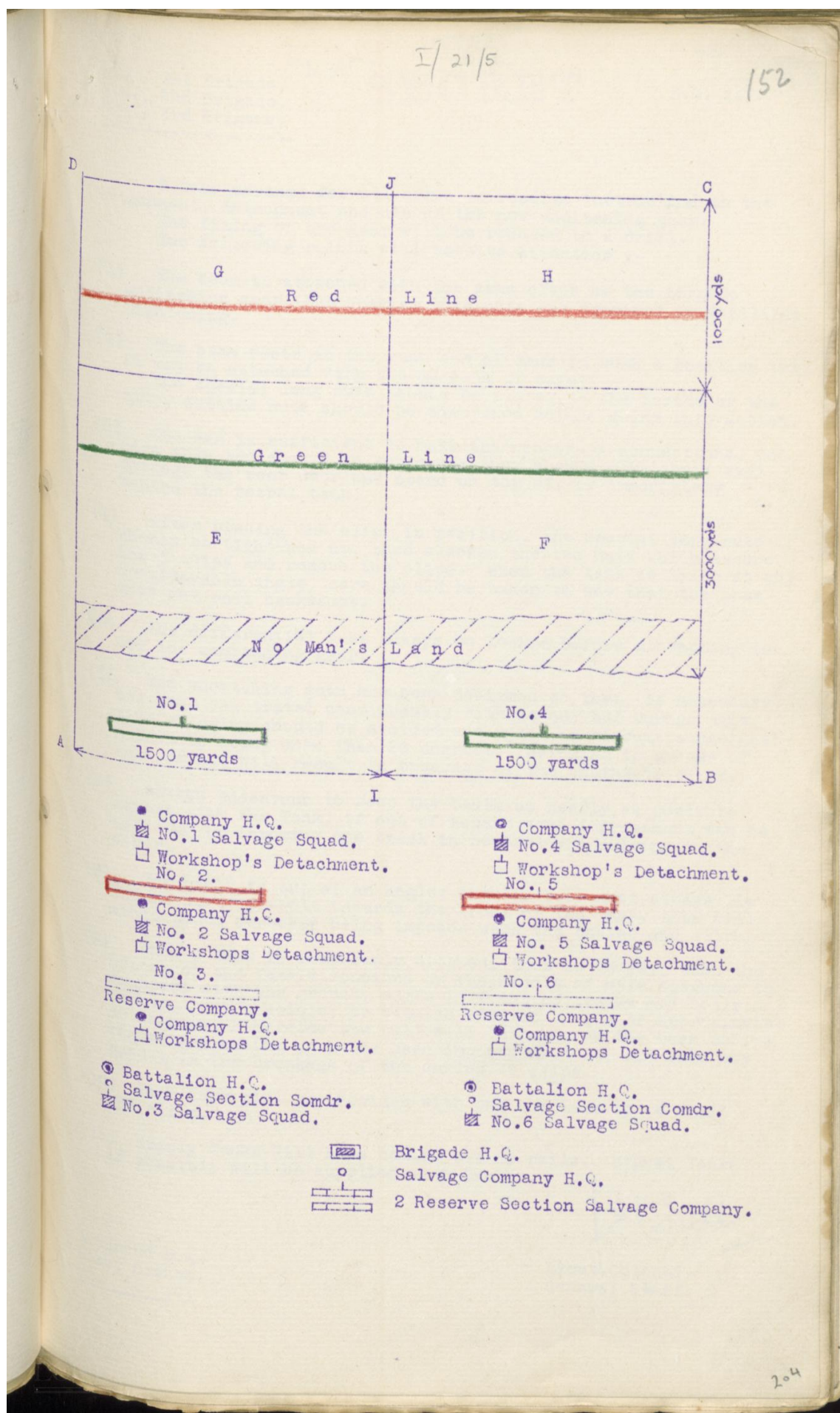
If a lengthy pause takes place on the Red line and all easily salvable Tanks have been salvaged, the entire salvage operations in the area A B C D will be handed over to the O.C. Salvage Company to recover the serious casualties, a proportion of his Tunnellers being probably withdrawn.

Throughout the attack and the period immediately following it the O.C. Salvage Company will act as Salvage Adviser to the Tank Brigade and his Section Comdr. as Supervisor of the salvage work to be carried out in the Battalion areas. After this period the O.C. Salvage Company will take executive Command of the entire Salvage operations within the Brigade area until the next advance takes place

(3)

The rapidity with which Tanks can be unditched and again brought into action and the fighting crews released from unditching and protective duties will chiefly depend on the celerity with which Section Commanders will be able to report the position and condition of their Tanks to Company H.Q. during and at the end of each specification. If these reports are inaccurate not only will reorganization be delayed but the Salvage gangs exhausted by purposeless walking.

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H.Q., 1st Brigade,
H.Q., 2nd Brigade,
H.Q., 3rd Brigade,

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Please arrange for all crews to receive instruction in the attachment, detachment and use of the new unditching gear.

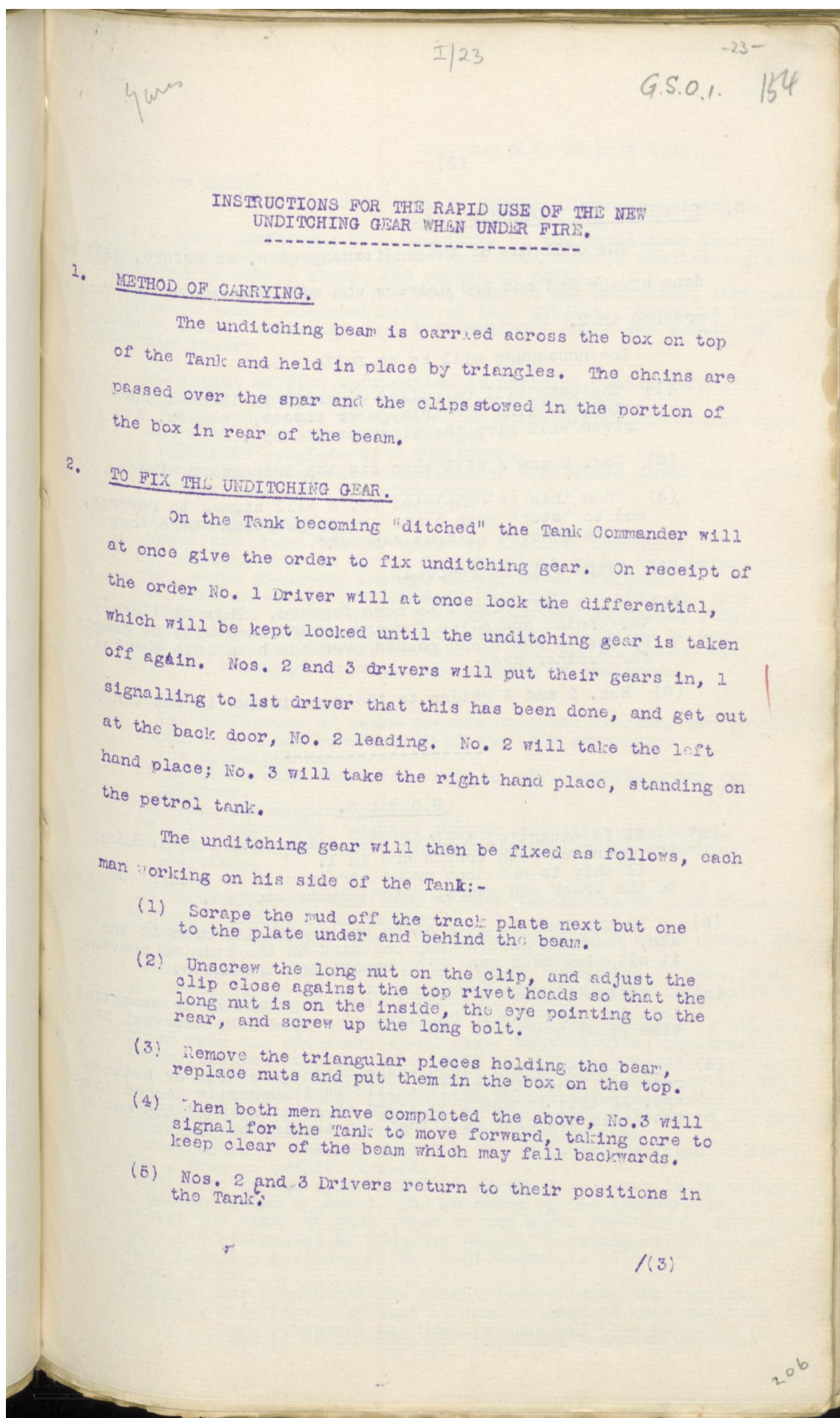
The fixing of the gear will be reduced to a drill.

The following points will receive attention :-

- (1) The beam is attached with the same clips as the torpedo unditching gear, but special long nuts are provided to facilitate tightening.
- (2) The beam rests at the rear end of Tank in such a position that it may be attached with the maximum of safety. The special long nuts should be placed at the inside of the clip, outside nuts should be tightened before going into action.
- (3) One man is sufficient to make the necessary connections, not more than two should be employed; they should make their exit through the rear door and stand on top of, or immediately behind the petrol tank.
- (4) After placing the clips in position, the special long nuts should be tightened up, then slacken the two nuts which secure the U clips and remove the clips. When the tank is lying at any considerable angle, care should be taken to see that the beam does not roll backwards.
- (5) The differential must always be locked before attempting to use the unditching gear.
- (6) The unditching gear has been designed so that, if necessary, the Tank can travel continuously with it on, but during this time swinging should be avoided and under no circumstances must a Tank be swung more than 20 degrees. Swinging in excess of this amount will result in breakage of the chains or clips.
- (7) Always endeavour to keep the baulk as nearly as possible square with the Tank, if out of square some improvement can be effected by throwing one track in neutral and driving on the other.
- (8) The baulk is cut at an angle; angular face must always lie underneath, eye-bolt towards the front of the Tank, this will avoid undue stresses being imposed upon the chains and clips.
- (9) When a Tank is very badly ditched, that is to say, when the bottom of the female sponsons or the middle of male sponsons is on level with the ground, earth in front of tracks and belly should, when possible, be cleared away at an angle of approximately 30 degrees, otherwise the pull will be taken on the beam before the weight of the Tank has been imposed upon it, and this may result in the breakage of the chains or clips.
- (10) Each Tank will be provided with one complete spare chain and clips.
- (11) Supply Tanks will have baulks but no rails. Signal Tanks if possible will be supplied with baulks.

Advanced H.Q.
Heavy Branch,
20. 7. 17.

J.H. Fuller
Lieut. Colonel.
General Staff.



(2)

3. TO UNFIX THE UNDITCHING GEAR.

The unfixing of the unditching gear, as before, will be done by the 2nd and 3rd drivers who will get out of the Tank as ordered in 2.

The procedure will be as follows :-

- (1) The beam will be pulled up until it is past the holes, holding the triangular pieces, when No. 3 Driver will give the signal to "Stop".
- (2) Nos. 2 and 3 will then fix the triangular pieces.
- (3) When this is completed No. 3 will signal to reverse, and to "stop" when clips are in position where they can be removed without exposure.
- (4) Clips will be removed.
- (5) No. 3 will signal to move forward. This will carry the chains and clips forward, where they will be caught by Nos. 2 and 3 and passed over the beam into the box for further use.
- (6) Nos. 2 and 3 return to their positions in the Tank.

NOTES.

- (a) It is essential that (1) The differential is locked;
(2) Gears on both tracks are in 1.
If this is not done undue strain will be brought on to the track and gears, which may be stopped.
- (b) If the Tank is at a steep angle with its nose in the air, gearsman should keep one hand on the beam to prevent it slipping back when they remove the triangles.
- (c) If the Tank is ditched in swampy ground it is essential that the gear should be fixed at once before the Tank has time to sink in.
- (d) If the approach march passes through a wood or between rows of trees, the baulk should be temporarily lashed long ways. If this is not done there is great risk of the end of the baulk catching on a tree and tearing away.

Op. Sc. G.S. 18 July 1917.

Memo in re TANKS,

by Lt. Col. JOHN H. PARKER, Infantry, attached.

At a joint conference of a Committee of the Operations Section with the Infantry Committee of Colonel C.B. Baker's Commission, I was designated to make a study and report on TANKS.

The joint committee did not feel that it has sufficient information on which to base a recommendation on that subject. Pursuant to that action, I have collected what information I could and submit the following report.

1. The latest BRITISH information is official, dated JUNE 1917.
 1. The TANK ORGANIZATION consists of 3 brigades.
 - A brigade consists of either 2 or 3 battalions, depending upon the number of ARMY CORPS served.
 - A BATTALION consists of 3 COMPANIES.
 - A Company consists of 4 SECTIONS of 4 FIGHTING TANKS each, plus 4 other tanks for different uses.
 2. Tactical Direction.
 1. Tanks are under the direction of the Army Commander. He assigns one or more tank battalions to an army corps, and the corps commander assigns companies to divisions. The station of the TANK BRIGADE COMMANDER is with the ARMY COMMANDER, or as directed; that of the TANK BATTALION COMMANDER is with the CORPS COMMANDER to which the battalion is assigned; that of the TANK COMPANY is with or near and in liason with the division commander to which his company is assigned.
 3. Tactical Employment.
 1. The usefulness of tanks depends upon the terrain, the artillery support, and the personality of the tank commander. The principal uses are :
 - To break through obstacles, such as wire, making a way for infantry.
 - To clean out machine gun nests.
 - To place protected machine guns in effective positions.
 - To place protected small pieces of artillery in effective positions.
 11. The FRENCH INFORMATION down to date (exclusive of that obtained by Major Parker) is as follows:-
 - Limit of weight two kinds: light tanks, 5 to 6 tons; heavy, 16 to 17.
 - Armor; double walls 8mm to 9mm thick, separated by 5cm., and not parallel, so as to avoid normal impact against both walls by same projectile.
 - Armament. Cannon of rapid fire pattern, one-pounder or bigger, fired from the shoulder; 85mm. gives best results; penetration 100mm., weight of projectile, 4.17 Kg. Three classes of ammunition; canister for infantry; demi-rupture for hostile artillery; and an explosive shell filled with melinite for moral effect.
 - ORGANIZATION. Group formation, 16 per group, 4 tanks in sub-group; conforms practically to the British organization.
 - Construction. The French insist on an all-round field of fire, 360°, from an armored turret.
 - They also assign A BATTALION OF INFANTRY to every 16 batteries, a battery being 4 tanks. The function of the infantry is to assist the tanks to pass trenches and other obstacles. They hold that the assignment of infantry should be permanent. They say that infantry assigned at the last moment is of no use to the tanks at all.
 - WEIGHT. The French say the weight depends upon the terrain.
 - LENGTH. The French say that it does no good to make the tank longer because the Boche widens his trenches.

(I think if we can make him widen his trenches we shall

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TANKS. 2.

shall have accomplished a big thing: greater labour for the Boche; greater vulnerability of his trenches to machine guns and bombs; and greater visibility to avions. J.H.P.)

MOVEMENT. French say that movement is essential, as it is the only protection of the tank against artillery.

They also say the front must be yacht-shaped as to sheer, to avoid blunt line of contact crossing ditches.

They prefer electric drive to gasoline.

LIMIT OF WEIGHT. Weight must not exceed 500 grms. to the sq. cm. in total weight resting on the tread. At 1200 grms. the tank is unwieldy.

Major Parker's personal observation on July 9 was that a 24-ton made at St. Chamond and driven by electricity was very superior to a 18-ton gasoline driven tank made at Snider works: both by French Government.

Major Parker reports that the tests he saw on that day were very successful. Tanks crossed wire and ditches with ease.

FRENCH EXPERIMENTS. It is known that further experiments by the French are in progress, but not known when the results will be made known.

CONCLUSIONS. It is thought that the following conclusions are warranted:

1. Great power--100 H.P. is desirable.
2. Armor protection against rifle and against shrapnel at 1000 yds. Exterior should present curved surfaces, and skin should be double, not parallel surfaces, staggered to avoid normal impact.
3. Turret fire, 360° view and fire.
4. Should be able to bridge a 10-foot ditch and to climb out of a hole with loose dirt side sloped at 50°.
5. At least one rapid fire light artillery 3-inch, and one machine gun, with reasonable ammunition supply.
6. Speed as great as practicable. 10 miles per hour desirable.
7. Double ender; handy in turning.
8. Light as possible; 5-ton is better than 6-ton.
9. Mechanism as simple and accessible as possible; tread protected.
10. Prompt delivery of large numbers - at least 2000, if desired.
11. An organization that will not require special infantry.

The organization will necessarily depend to some extent upon the machinery and armament; which, in turn, will depend upon the tactical concept and manufacturing facilities.

TACTICAL CONCEPT OF EMPLOYMENT OF TANKS.

(John H. Parker, Lt. Col. Inf.
Att. Op. Sc. G.S.)

1. A hole 30 K wide punched through the whole German formation, deep enough to uncover a line of communications to flank attack. This hole must be wide enough to assure the passage of lighter equipment - the divisional machine gun companies can follow the tanks because the tanks will make a road for them. The wave of machine guns - divisional companies - must turn out to right and left, supported by a second line of tanks, to widen the breach. The wave of machine guns must be followed by cavalry - "Hell for leather" - if the hole is once punched through, and this cavalry must strike lines of communication at all hazards. Possibly motor cycle machine guns may be better adapted to this use than cavalry; but I am a believer in the cavalry. Support it with jitney carried infantry and machine guns as quickly as possible.

2. The problem is that of passing a defile. Nothing more. It is like trying to force a mountain pass, where the sides are occupied by

TANKS 3.

by enemy who can fire down into the pass. The "pass" is some 30 K. in length, and we must have something that can drive through. Then turn to the sides and widen the breach. Assault 100 K. to cover assault. It is the old "flying wedge" of football, with interference coming through the hole in the line. The TANKS take the place of the line buckers who open the hole; the DIVISIONAL JITNEY MACHINE GUNS are the interference; the CAVALRY will carry the ball as soon as the hole is opened i.e. ride through and hit the line of com.

3. The operation works out this way:-

- (a) A cloud of fighting avions at high altitude, to clear the air.
- (b) A cloud of observation avions at low altitude, just in front of the lines of tanks, dropping bombs and using machine guns on the trenches.
- (c) Our long range artillery blocking the German artillery.
- (d) Our lighter artillery barraging the front to prevent escape of the Germans in their front lines.
- (e) Our mobile machine guns following up the tanks at about 500 yards, covering them with canopy fire, step by step.
- (f) Our DIVISIONAL JITNEY COMPANIES OF MACHINE GUNS driving in "Hell-Bent" after the tanks and widening the breach.
- (g) Our cavalry riding through this breach as soon as it is opened for them and swinging out a la Jeb. Stuart around McCLELLAN'S Army. Sacrificed? Of course; but winning results worth the sacrifice.
- (h) Jitney or truck transported infantry following as fast as gasoline can carry it to support the success and make our foothold sure.
- (i) Truck transported - or tank transported - artillery following as fast as possible.

I BELIEVE SUCH A PLAN WILL WIN. FRITZ HAS NOT THE RESOURCES TO ADOPT SUCH A PLAN. WE HAVE. WE SHOULD DO IT AND DO-IT-NOW as far as preparation goes in material. It will take time to get ready.

RECOMMENDATIONS.

1. That the French and British figures on organization, which are practically identical as to numbers, be accepted as a basis for the present estimates.
2. That a board of officers be convened to consider the possible tactical employment of Tanks, and to formulate a policy in regard to it on which estimates as to numbers wanted can be based. It is clear to me that some new element must be introduced into this war to win in any decisive way if the decision is to be made on the Western Front; and it is believed that the tactical concept herewith expressed is more promising, so far as this front is concerned, than any other. Such a board should be one composed of officers known to be discreet, in order that whatever be decided may be kept quiet until it can be applied, and the best military talent we have is not too good to be devoted to this subject.
3. That the tank component of ONE ARMY be organized in any case, in order to try it out on the Boche. After all, TRIAL IS THE SUPREME TEST. All theories give way to results. It is hardly worth while to go in for thousands of these things until we try out a few of them and see how they work, unless we were very much more certain of results than we now are; but if after full consideration we feel sure, then "plunge" on the idea. It is no use to "hedge" in the betting in this event.
4. The table of tank organization herewith would afford a basis for the experimental equipment of one army for a trial, tanks are cheaper

TANKS 4.

cheaper than men. What is the use of throwing away men when we know that results will not be commensurate with the expenditure?

PLATOON..... TANK ORGANIZATION..... MATERIAL

	Tanks.	Other Vehicles.	Drivers.	3" Guns.	Machine Guns.
Platoon;					
Tanks.	4		8	4	8
Truck, Kitchen,		1	1		1
Service Truck.		1	1		1
Pass & Ammun.					
Automobile.		1	1		1
Summary.	4	3	11	4	11

	Lieut.	Sergt.	Corp.	Mechan.	Cook.	Privates.
PLATOON.						
Command.	1	1	1			2
Service of guns,)						
Incls. drivers.)		4	4	4		12
Supply.			1		1	8
Summary.	1	5	6	4	1	22

No Infantry necessary . Platoon a complete combat. unit.

COMPANY TANK ORGANIZATION..... MATERIAL.

	Tanks.	Other Vehicles.	Drivers.	3" Guns.	Machine Guns.
4 Platoons.					
In Platoons.	16	12	44	16	44
Auto, Captain's.		1	1		1
Truck, Baggage.		1	1		1
Truck, Signal.		1	1		1
Truck, repair.		1	1		1
Truck, supply.		1	1		1
Summary.	16	17	49	16	49

	Capt.	Lieut.	1" Sgt.	Sgt.	Corp.	Mech.	Cook.	Privates.
4 Platoons.								
In Platoons.		4	20	24	16		4	88
Command.	1	1	1	1	2			4
Repair.						2		4
Signal				1	2			4
Supply.				1			1	4
Summary.	1	5	1	23	28	18	5	104

4 Companies. CORPS ORGANIZATION OF TANKS. 4 Fighting Divisions.

	Officers.	Tanks.	Vehicles.	Men.	3" Guns.	Machine Guns.
	24	64	68	716	64	196

Should be commanded by a Field Officer with staff and suitable transportation, Not provided for by Statute, but can be done under the discretionary authority of the President Act of Congress approved 18 May. It is recommended to keep the 4 companies in battalion formation for instruction and administration.

8 Companies. ARMY ORGANIZATION OF TANKS. 2 Fighting Army Corps,

	Officers.	Tanks.	Vehicles.	Men.	3" Guns.	Machine Guns.
	48	128	136	1432	128	392

Should be supervised by a TANK OFFICER who may be also MACHINE GUN OFFICER & ON STAFF OF ARMY COMMANDER

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COMPANY ORGANIZATION.

1. OBJECT.

To obtain the highest fighting efficiency from the present establishments.

2. MEANS.

Twenty complete crews, i.e. 20 Officers and 140 other ranks.

3. REQUIREMENTS.

To produce an organization which will enable Fighting and Training to be carried out simultaneously or separately with the minimum change or interchange of personnel, and to supply extra Administrative personnel not provided for in the existing establishments.

4. SOLUTION.

Four sections of 4 Fighting Tanks and one Administrative Tank each

Fighting Tank Personnel.	16 Offrs. & 112 O.R.
Administrative Tank Personnel.	4 Offrs. & 16 O.R.
Balance for extra Administrative Personnel.	0 Offrs. & 12 O.R.
	<hr/> 20 Offrs. & 140 O.R.

(Administrative Tanks consist of 3 Supply Tanks and 1 Wireless Tank or Company Commanders Tank.

If necessary 1 Officer can control the 3 Supply Tanks and the Company Commander his own, this will release 3 Officers.).

/ 5. DETAIL.

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(2)

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5. DETAIL.

(i) FIGHTING ORGANIZATION.

(3 Fighting Sections and 1 Training Section)

<u>Fighting.</u> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 4 Offrs 28 O.R. <u>Supply.</u> <input type="checkbox"/> 1 Offr 4 O.R.	<u>Fighting.</u> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 4 Offrs 28 O.R. <u>Supply.</u> <input type="checkbox"/> 1 Offr 4 O.R.	<u>Fighting.</u> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 4 Offrs 28 O.R. <u>Supply.</u> <input type="checkbox"/> 1 Offr 4 O.R.
---	---	---

Training Section.

<u>Fighting.</u> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 4 Offrs 28 O.R. <u>Company Commanders Tank.</u> <input type="checkbox"/> 1 Offr 4 O.R.
--

(ii) Training Organization. (4 Training Sect.)

<u>Fighting.</u> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5 Offrs 32 O.R.	<u>Fighting.</u> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5 Offrs 32 O.R.	<u>Fighting.</u> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5 Offrs 32 O.R.	<u>Fighting.</u> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 5 Offrs 32 O.R.
---	---	---	---

Administrative Tank.
☐ ☐ ☐ ☐

(Not used unless required.)

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(3)

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6.

FUNCTION OF TRAINING SECTION.

To act as an immediate reserve of efficient Tanks and efficient men to the 3 Fighting Sections.

As casualties occur in the Fighting Sections these to be made good from the Training Section, the Training Section being replenished by the Depot.

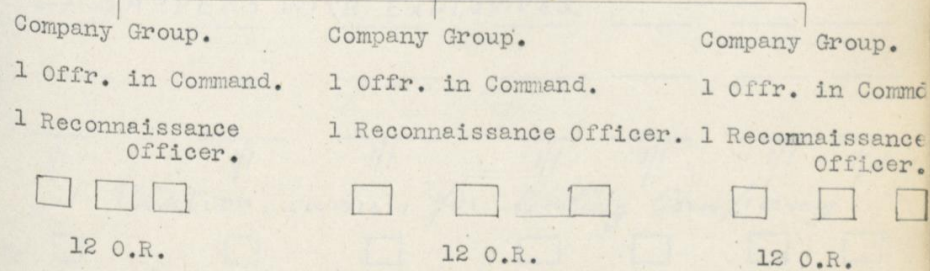
The Training Section should consist of the most efficient men not the least. During the preparatory period before operations as many men as possible should be sent from this Section to WAILLY etc. for Refresher Courses. After action as many men as possible should be released from the Fighting Sections to go to WAILLY etc. their places being filled from the Training Section.

7.

SUPPLY TANKS.

Though Supply Tanks are part of each section, normally, during operations, they would be Brigaded under Battalion arrangements. This would necessitate an improvised organization.

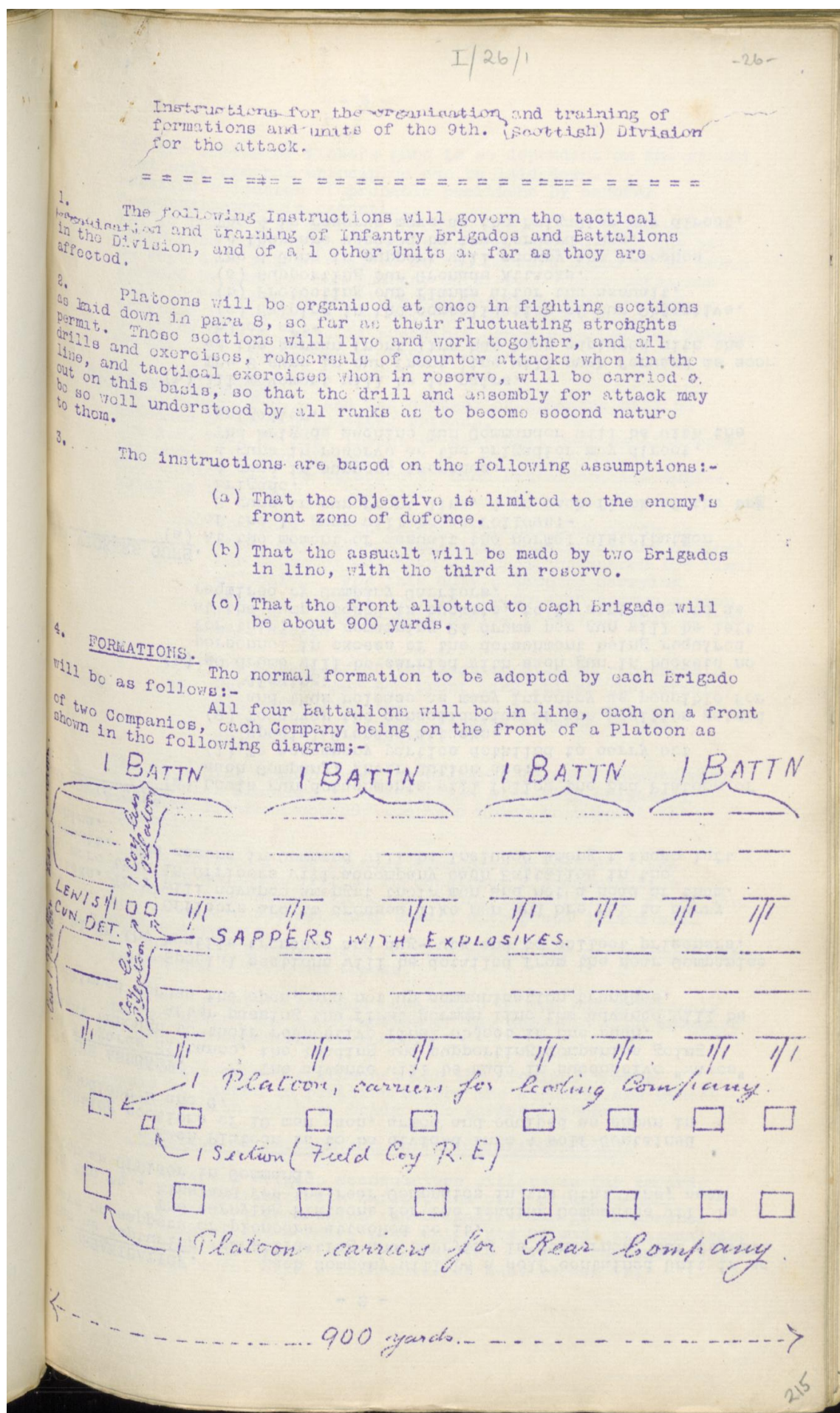
1 Supply Officer in Command.
1 Second in Command.



One Officer remaining surplus.

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[illegible]

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12. (a) The action of Vickers guns is so dependent on the ground that only general principles can be laid down. Previous selection of probable positions by careful reconnaissance is essential.

(b) 18 belts will be carried for each gun. Four belts will be taken from each of the supporting and Reserve guns and will be kept as a mobile reserve at the forward dumps to be taken forward by Machine Gun Company Carriers. Three extra men will be required as carriers for each gun, and will be provided by the Battalion detailed by the Division for carrying duties, and, if possible, should be Machine Gunners or have some knowledge of Machine Guns.

13. R. E. AND PIONEERS.

One Company of R.E. and one company of pioneers will be attached to each assaulting Brigade.

The R.E. will be kept intact by sections, each section working under its own Officers.

One section will be attached to each Battalion, its duties being as follows:-

(a) To block communication trenches down which the enemy may make an immediate counter attack against our Infantry who have captured and manned the final objective. For this duty 6 Sappers carrying explosives will be told off to each communication trench. These parties will follow in rear of the 3rd. Wave.

(b) The remainder of the section will be responsible for wiring our new front line whilst the Infantry dig themselves in. This party will move forward as soon as the objective is reached.

14. The 3rd. R.E. Company will be prepared to move forward with 2 Companies Pioneers in rear of the attacking Brigades, and consolidate a second line from which to support the objective.

The duties of the pioneer Companies attached to the Infantry Brigades will be to construct 2 communication trenches connecting the German front line with our front line and to mark our 4 overland tracks with posts joined with a wire handrail.

Each Half Company will be responsible for one communication trench and 2 overland tracks.

Where possible blind daps would be run out previously to facilitate the construction of the communication trenches of the communication trenches.

Bridges over the trenches for the overland tracks would be placed in position before the assault, and others prepared with which to bridge the German trenches.

POSITION OF BRIGADE AND BATTALION HEADQUARTERS.

(a) Advanced Brigade Headquarters will be as far towards as compatible with safety, and will be situated near some O.P. from which the Brigadier can get a general view of the country over which his Brigade is assaulting. Once this position is fixed, The Brigade Commander will not move. All telephone wires must be dug in.

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- (b) Battalion Commanders will be in some suitable dug-out or concrete Machine Gun emplacement in or near the front line.
A suitable position in the German front line will be selected from aeroplane photographs, consideration being given to the proposed C.T. from our own lines to the German lines. This position will be reconnoitred by an Officer of the Battalion Staff and when found, and not before, The Battalion Commander will move forward to the new position after informing the Brigadier.
17. DRESS AND EQUIPMENT.
(a) The normal fighting outfit of each man is shown in Appendix B.
Extras to be carried by each man in a fighting or carrying Platoon are shown in Appendices C. & D.
(b) Packs will not be carried, but each man will wear a haversack on his back and will carry a waterproof sheet and cardigan jacket.
The unexpended portion of the day's ration and one day's Iron Ration will be carried.
18. The leader of each fighting section will carry a yellow and red flag.
These are to be used to indicate the position reached by our troops, but on no circumstances are they to be stuck in the ground.
19. ARMS AND AMMUNITION
In each fighting section of the 3 fighting Platoons 3 men will not be armed with Rifles. They will each carry a knobkerrie and 50 rounds of ammunition.
The remainder, including all the men of the carrying Platoons, will carry 170 rounds of ammunition each.
20. Every Company Officer, N.C.O. and Private will be trained as a Grenadier as well as a Rifeman. At least 16 in each Platoon should have passed the Grenadier test at the Divisional School.

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APPENDIX-"A".

SCALE OF WEIGHTS.

S.A.A. bandoliers of 50 rounds		lbs.	ozs.
		3	-
Grenade, Mills,	each	1	-
" Newton Pippen,	each		12
Sandbags, bundle of five.		1	-
Roll French Wire.		15	-
Very Pistol.		1	8
" " package of cartridges		1	-
Smoke Bombs	each	1	8
" Candles.	each		4
Pick. each		8	-
Shovel, each		3	8
Wire cutters each		1	3½
Sticks and Cartridge, per five.		1	-
Flag.		1	8
Periscope			8
Map			3
Oil Tin			3.

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APPENDIX- "B".

NORMAL FIGHTING OUTFIT PER MAN.

	lbs.	ozs.
Clothing.	14	11
Belt.		13
Straps and Braces.		11
Pouches.	1	13
Entrenching tool head.	1	5 $\frac{3}{4}$
" " carrier	1	9 $\frac{1}{2}$
" " Halve		8 $\frac{1}{4}$
" " " carrier		1 $\frac{3}{4}$
Rifle, Oil bottle, pullthrough, and sling.	8	15 $\frac{3}{4}$
Haversack	1	2 $\frac{3}{4}$
Personal extras		9
Jack Knife (included in clothing)		-
Iron Rations for 1 day.	2	8
Spare Oil tin.		3
Cap Comforter		4
Mess tin and Cover	1	6 $\frac{1}{2}$
Water canteen Bottle and carrier.	1	6
Water	2	8
Bayonet and Scabbard.	1	8 $\frac{3}{4}$
" Frog		3
Shrapnel Helmét.	2	3
2 Tube Helmets	1	8
Water proof sheet	2	8
Field Dressing and Iodine (included in clothing)	-	-
A.A.A. (170 round)	10	4
Sandbags 2		8
TOTAL.	58	3

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Extras carried by every section of First three (fighting platoons). APPENDIX-"C".

	X Grenades	Smoke Bombs	Wire Cutters	Empty milt. & with red streamers & Partridge	Shovels	Yellow?	Red Flag	Binoculars	Diagnosing Objective	Total lbs	Weight per man.
1 Leader	1	2	1	4	1	1	1	1	1	11	5½
2 Lt. Corp.	1	3	1	4	1	1	1	1	1	9	6½
3 Bayonet	5	1	1	1	1	1	1	1	1	6	-
4 do.	5	1	1	1	1	1	1	1	1	6	-
5 Thrower	5	1	1	1	1	1	1	1	1	6	-
6 Carrier	10	1	1	1	1	1	1	1	1	6	-
7 Carrier	10	1	1	1	1	1	1	1	1	11	-
8 Blocker	10	1	1	1	1	1	1	1	1	11	-
9 Spare	10	2	1	1	2	1	1	1	1	8	-
10 Spare	10	2	1	1	1	1	1	1	1	14	-
TOTAL	55	9	2	8	2	1	1	1	1	14	-
Total for Platoon	220	36	8	32	8	4	4			96	12
Total for Company	660	108	24	96	24	12	12				
Total for Battalion	2640	432	96	384	96	48	48				

* It may be desirable to send forward more Grenades with certain fighting sections told off for special Grenade attacks.
 X For Sending Messages.

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APPENDIX-"D"

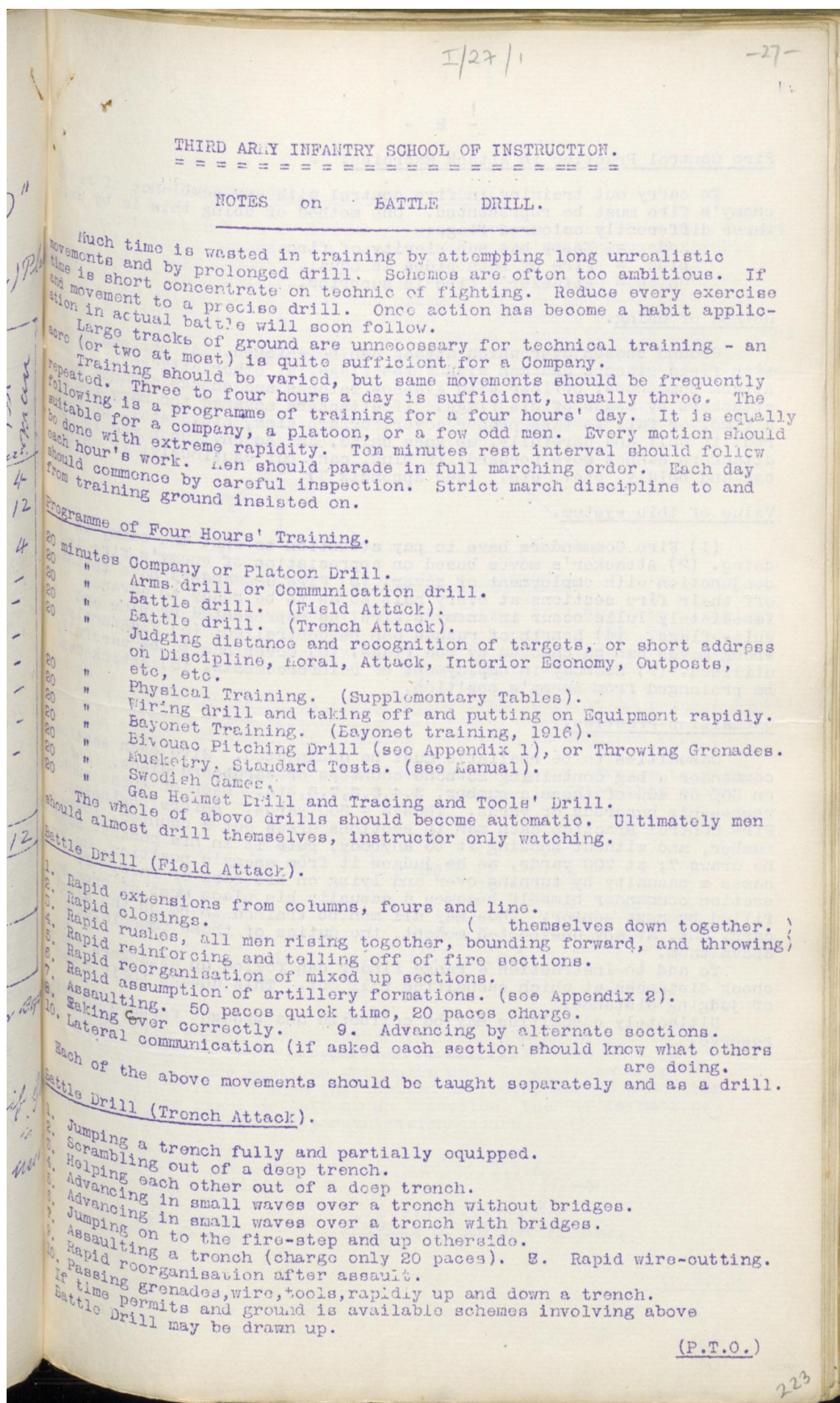
Extras carried by every section of rear (Carrying) Platoon

	Picks	Shovels	Sand-bags	Rolls - French wire	Benacles (Packets)	very fine wire or Plectra	very light packets	sniper cameras	Apple & orange Carbide lamps	new 100 ft. tape	French Stakes	Trench	Signaller	man
1 Leader	-	-	5	-	5	-	1	1	-	-	6	-	4	
2 1/2 Cpl	-	-	5	-	5	1	1	1	-	-	8	-	12	
3	1	-	5	-	5	-	1	1	-	-	14	-	4	
4	-	1	5	-	5	-	1	1	3	-	12	-	-	
5	-	1	5	-	5	-	1	1	3	-	12	-	-	
6	-	-	-	1	2	-	-	-	-	-	17	-	-	
7	1	-	5	-	5	-	-	-	-	-	14	-	-	
8	-	1	5	-	5	-	-	-	3	-	11	-	-	
9	-	1	5	-	5	-	-	-	3	-	11	-	-	
10	-	-	5	-	5	-	-	-	-	1	14	-	-	
Total	2	14	45	1	47	1	1	5	12	1	121	12		
Total per Platoon	8	16	180	4	188	4	4	20	48	4				
Total per Company	32	64	720	16	752	16	16	80	192	16				
Total per Battalion														

Following to be carried by Snipers & 7 signallers

Two "Sniper scopes per Company.
One " Vermoral sprayer per Company
One " - do - - do - per Battalion
H.Q.Rs.

Signalling Stores.



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Fire Control Practice in Attack Exercise.

To carry out training in fire control with any semblance of reality enemy's fire must be represented. One method of doing this is by using three differently coloured flags:-

Red = Enemy has superiority of fire.
Blue = Fire of both sides is equal.
White = Attacker's fire is superior.

Method of using.

Ground chosen over which attack can be watched. At one end Officer with field glasses and man with three flags, at other attackers. Attack commences; officer with glasses watches and checks advance of attackers by means of his flags. If attackers advance too many men at a time, or fail to take proper cover, or are slow, etc., etc., up goes red; if well and carefully, up goes white, and so on. When red is up attackers cannot move forward; if blue, can, but cautiously; if white, can and boldly, etc., etc. (see Appendix 3).

Value of this system.

(1) Fire Commanders have to pay attention to what the enemy is doing. (2) Attacker's moves based on appreciation of enemy's fire in conjunction with employment of cover. (3) Fire Commanders have to tell off their fire sections at every halt so as to be ready to advance immediately lulls occur in enemy's fire, as represented by blue and white flags. (4) Length of rushes can be controlled. (5) Flagrantly wrong moves can be checked by red flags. (6) Cover has to be carefully utilised. (7) Economy in employment of reinforcements. (8) Attack can be prolonged from enemy's position.

Casualties Practice.

Casualties to be realistic must be unexpected. Give each section commander a bag containing 25 bone counters or cardboard discs. Mark on 30% or 40% of these a number, 3,4,5,6,7,8, etc. Each of these numbers represents hundreds of yards. Thus 3 = 300 yards. Before beginning Fire Control Practice each man in sections draws out a counter, looks at number, and without showing it to anybody, puts it in his pocket. Suppose he draws 7; at 700 yards, as he judges it from enemy's position, he becomes a casualty by turning over and lying on his back or face. If section commander himself becomes a casualty his place must at once be filled by next senior. Thus may all men be trained to be on the alert to carry out, at any unexpected moment, the duties of those immediately above them.

To add to instruction a range finder can follow up attackers and check distances at which casualties fall out. This checks their power of judging distance.

Ultimately casualties may be collected and brought forward as lost reserve.

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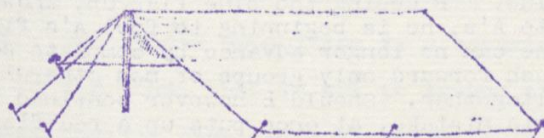
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APPENDIX I. BIVOUAC DRILL.

Each four men form a bivouac group. Carry between them four Ground Sheets, two small sticks or bamboo canes about 2'6" long each, tackle and ten wire pegs (skewers). Men formed up two deep.

(1) "Tear off in double files". (2) "From the right in double files to -- paces extend". (3) "Out the polemen" (front and rear pole men double out in front). (4) "Right dress". Meanwhile remaining two men lace three sheets together. (5) "Spread sheet" (fourth sheet spread down). (6) "Fix tackle" (tackle looped over poles and pegged down). (7) "Pitch tent" (three laced sheets placed over tackle and pegged down, one slope of tent twice as long as other). (8) "Stand clear".

With such a bivouac men are independent of all hutments, etc., on the line of march. Whole Battalion can be bivouacked in exact order in five minutes. Extra weight carried negligible.

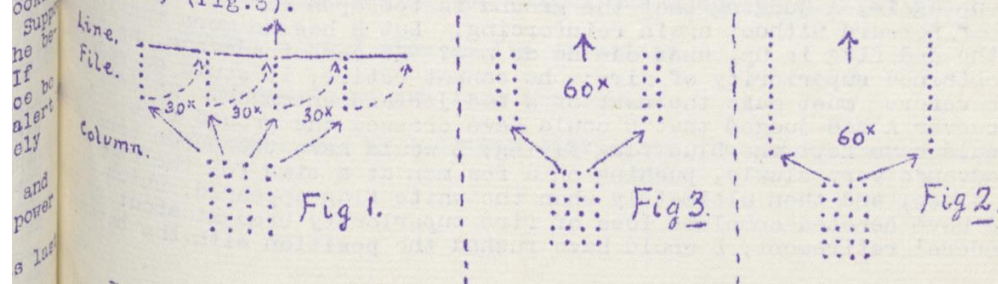
APPENDIX 2. ARTILLERY FORMATIONS.

Formations should aim at (i) Invisibility, (ii) Rapidity, (iii) Irregularity of front, (iv) Unfavourableness to enemy's cone of fire.

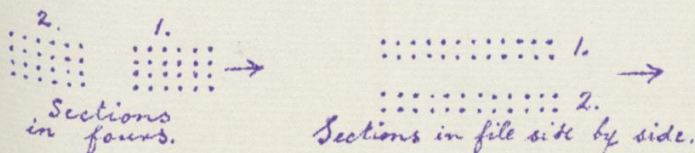
The chief principle is movement, for if men halt under gun fire they will either be exterminated or will have to dig in, and advance ceases.

A suitable formation is Indian files from fours at 30 paces interval (fig.1). Indian files very mobile, men cannot fire, therefore formation does not impede advance. If fighting formation is required form to right or left.

Other formations from fours: "Form two deep and advance in single file at 60 paces interval", (fig.2) or "Advance in file at 60 paces interval", (fig.3).



Each file should have a leader in front and a whipper in behind. The advantage of this system of forward file movements is that from column of fours sections get split up. To overcome this: "Two deep" should be formed when in: column of route, and No 2 Section moved up on the right or left of No 1 section, then if formations figs 2 and 3 are used no disorganisation occurs.



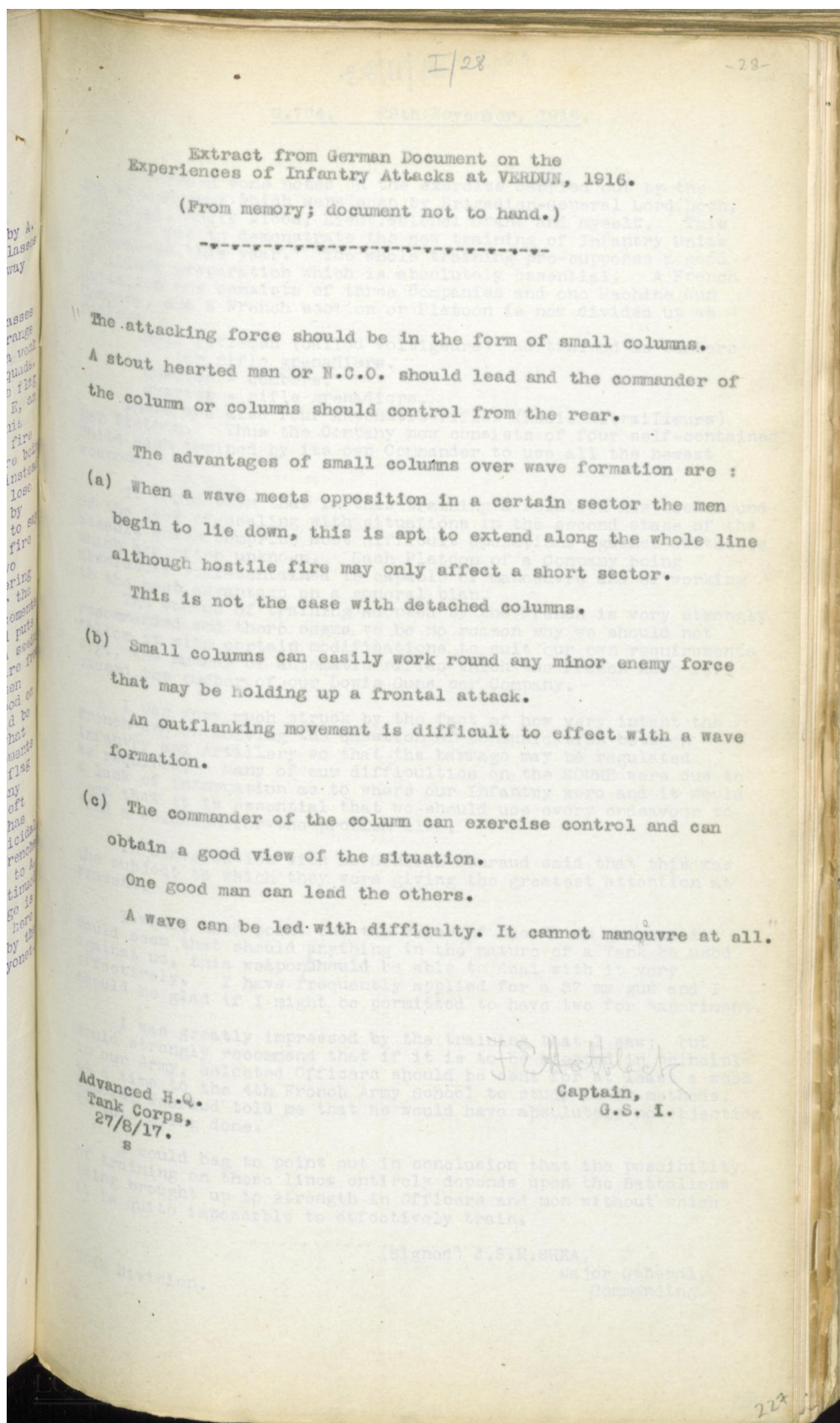
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APPENDIX 3. EMPLOYMENT OF THREE FLAGS.

The attackers are represented by the letter B, the defenders by A. A consists of an Officer lying down on the ground with his field glasses and a man with the three flags. B is a company about 2000 yards away from A. B's object is to destroy A.

B begins to advance. On reaching C, A notices through his glasses that B's section columns give a very fair target to his fire, the range however is long, up goes the white flag, to denote, in this case, a weak fire. B now noticing that A has opened fire extends his leading squad. At D, B commences to open fire to facilitate his advance, the white flag is still up. The extended squads advance alternately, on reaching E, an exposed piece of ground with a good ranging mark on it, A changes his white flag for a blue. B seeing the blue flag up, knows that his fire is now only equal to A's, he is beginning to feel A's fire, his fire being only equal to A's he can no longer advance by complete squads, so instead he now begins to push forward only groups of men otherwise he will lose fire superiority altogether. Should B however continue to advance by squads, A, seeing his mistake, at once puts up a red flag, that is to say opens a heavy fire. B is now brought to a standstill through his fire being inferior to that of the defenders: what shall he now do? Two possibilities are open to him, he may reinforce or he may open covering fire. He reinforces. A sees this and so changes the red flag for the blue. At G, B reinforces again, and through an error more reinforcements come up than were intended. A seeing B's line heavily strengthened puts up the white flag. At H the blue flag goes up again, and at I. A sees that B's reserves have taken up a very good covering position to fire from changes the blue flag for the white. At this moment some of B's men attempt moving at the double across A's front to take cover in a wood on their right. A knowing that such a flank movement under fire would be impossible at once puts up the red flag, and B's men have to take what cover they can where they are. B now brings up his last reinforcements and the red flag is once again changed for the blue. At J the red flag goes up again, A judging that the ground is too open for B to get any further forward without again reinforcing. But B has no more men left and the red flag is up, what can he do now? He cannot advance, he has not obtained superiority of fire; he cannot retire, it would be suicidal. He therefore must make the best of a bad job and entrench. He entrenches. If however A had judged that B could have crossed the ground from J to K he would have kept the blue flag flying, B would have thereupon continued his advance very slowly, pushing on a few men at a time for the range is very close, and then ultimately when the white flag appeared, which here would have denoted complete loss of fire superiority brought about by the defenders' retirement, B would have rushed the position with the bayonet.



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G.794. 28th November, 1916.

I forward some notes on the exercise carried out by the 4th French Army which were seen by Brigadier-General Lord Loch, Brig. Genl. Solly Flood, Lieut. Colonel Grant and myself. This exercise was to demonstrate the new training of Infantry Units introduced this year. The whole training pre-supposes a good Artillery preparation which is absolutely essential. A French Battalion now consists of three Companies and one Machine Gun Company, and a French section or Platoon is now divided up as follows

Half riflemen (called Voltigeurs) and trained as bombers or rifle grenadiers.

Quarter - bombers.

Quarter - rifle grenadiers.

There are also four Automatic rifles (Fusil Mitrailleurs) per Platoon. Thus the Company now consists of four self-contained Units each trained by its own Commander to use all the newest weapons.

It would seem that in this training a solution has been found of the task of dealing with situations in the second stage of the assault which comprise most difficult operations against obstacles which are often unknown. Each Platoon of a Company being absolutely self-contained is capable of manoeuvre and of working to the best advantage on a general plan.

The scheme of training adopted by the French is very strongly recommended and there seems to be no reason why we should not follow it with certain modifications to suit our own requirements e.g., the number of automatic rifles which the French have far exceed the number of our Lewis Guns per Company.

I was very much struck by the fact of how very intent the French are on solving the question of communication between Infantry and Artillery so that the barrage may be regulated as required. Many of our difficulties on the SOMME were due to a lack of information as to where our Infantry were and it would seem that it is essential that we should use every endeavour to find a solution for the problem also.

In conversation with me General Gouraud said that this was the subject to which they were giving the greatest attention at present.

I would also point out the value of the 37 mm gun, as it would seem that should anything in the nature of a Tank be used against us, this weapon should be able to deal with it very effectively. I have frequently applied for a 37 mm gun and I should be glad if I might be permitted to have two for experiment.

I was greatly impressed by the training that I saw; but would strongly recommend that if it is to be adopted in principle in our Army, selected Officers should be sent for at least a week at a time to the 4th French Army School to study their methods. General Gouraud told me that he would have absolutely no objection to this being done.

I would beg to point out in conclusion that the possibility of training on these lines entirely depends upon the Battalions being brought up to strength in Officers and men without which it is quite impossible to effectively train.

(Signed) J.S.M. SHEA,

Major General,
Commanding.

30th Division.

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Notes on an exercise carried out near CHALONS
in the 4th French Army to demonstrate the new
training of Infantry Units introduced in 1916.

A small book called "Note annexe provisoire a l'instruction du 8 Janvier 1916 sur le combat offensif des petites unites" has been published recently by the French General Staff. The principles of training described in this book had been developed gradually in the 4th French Army: their object has been to increase by a proper use of the newest weapons the offensive power of the Infantry and at the same time to reduce the losses as much as possible.

The men so trained during the Summer months have proved the value of those principles on the Field and the experience of the SCHME has justified them completely. General Gouraud of the 4th French Army told me in conversation yesterday that he had had many letters of appreciation from the G.O's C. Commanding the 8th and 10th French Armies which showed how successful the Units organised in the new way had been.

The exercise carried out on the 25th consisted of a demonstration by a Battalion trained and organised under the conditions already mentioned.

It took place on a training ground some little distance from CHALONS at 1 p.m. and was witnessed by a very large number of Officers of the Army who had evidently been sent there to study the whole question.

Before, however, describing the attack, a few words are necessary to explain the system of training in the 4th French Army. Commandant FERY, a p.s.c. Officer, who has already commanded a Battalion of Chasseurs at the front for 14 months has been made responsible for the training in all the Infantry Schools in the Army.

An Officer of strong character, great experience, and good training, it is by his teaching that the new system has been made successful. He has always insisted upon the absolute necessity of good instructors, and he has taken away from their Units the best Officers for this purpose.

The Army is responsible for the supervision of all the Infantry Schools, the Army School itself is used to train instructors and the best of these instructors are selected to carry on this training in Divisional Depots, which are commanded by Battalion Commanders, who have themselves been trained at the Army School.

Every three months the Army School holds an eight day's course for the Commanders of these Divisional Depots so as to keep them up-to-date, and Commandant Fery himself visits, or receives reports from, the battle-fronts continually for the same reason.

Each Divisional Depot has one or more Companies, usually one per Battalion, withdrawn from the Regiments in the Division to provide for the training of Officers, N.C.O's., and young soldiers in that Division.

The details vary naturally but the principle of training good officers to become in their turn instructors is insisted on, untrained troops are looked upon as almost useless, and only the very best Regimental Officers are considered fit to train others.

Before the exercise took place, Commandant Fery gave an exceedingly clear and interesting address on the training he was carrying out.

The substance of his remarks was as follows -

The object of the training is to do two things - increase the

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the value of the Unit in attack and in defence and at the same time reduce the losses suffered as much as possible. To carry this out, the fullest use must be made of the latest Infantry weapons, bombs, rifle grenades, automatic rifles, light Field Guns, and the Units must be disposed in depth rather than in breadth or crowded together. To make these two things possible, every man in a Platoon must be trained as a specialist, and also a suitable formation must be adopted both in attack and in defence.

Certain points were insisted on -

- Firstly. That every group of men, specialists or not, must have a definite Commander.
- Secondly. That every man in the ranks not armed as a specialist must be trained to replace casualties amongst specialists.
- Thirdly. That the training of all the men in a Platoon must be carried out by the leader of that platoon.
- Fourthly. That the Commanders of Platoons in the front lines of an attack must not go forward at the head of their Platoons but with the second wave, as it had been found too expensive to allow them to lead the first wave.
- Fifthly. That every man must be given a definite task, the casualties being replaced by the ordinary soldiers in the Platoon who had already been trained as specialists in one thing or the other.

(N.B. In trenches everyone shares in the ordinary routine work)

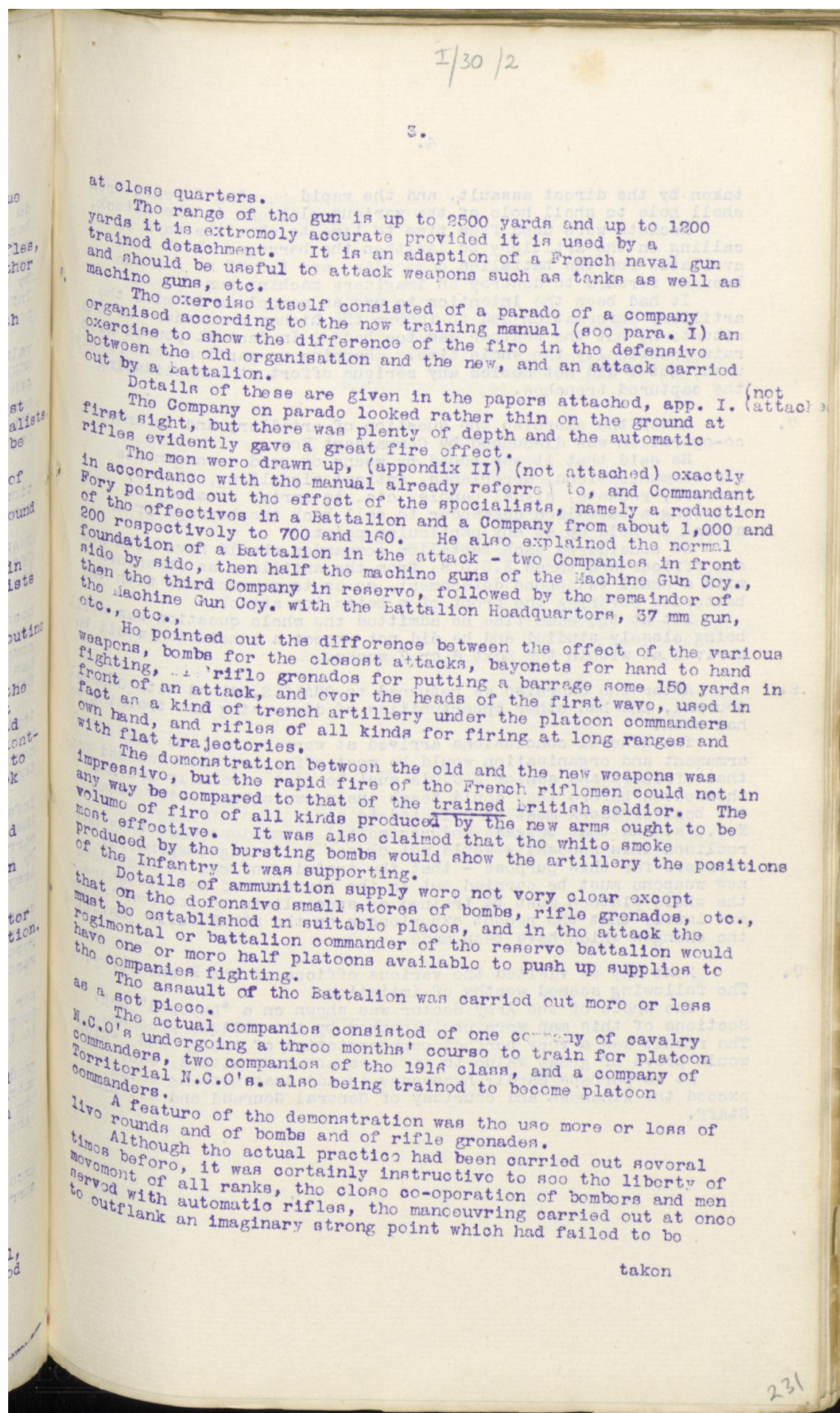
4. As regards training of Platoon Commanders in the use of the new weapons, it has been found that Platoon Commanders (and it must be remembered that many of these are not officers) who had already commanded their Platoons on the front could be sufficiently trained in the use of the new weapons in 3 weeks to be fit to instruct their own men. Inexperienced Officers of course took much longer.

No difficulties had been experienced in getting Platoon Commanders to instruct their men, once they had been instructed themselves. In fact the men were taught in their platoons easily and quickly and Platoon Commanders took a great pride in their work.

Commandant Fory insisted on the Training Manual being adhered to and not varied according to the will of the instructor and he said the experiences on the SOMME had proved his contention.

5. The specialists consisted of the bombers, formed exactly on our own methods, and in fact copied from us, the automatic rifle men - the rifle grenade men.
The automatic rifle was carried by one man, with two ammunition carriers, 3 men in all and 1,000 rounds per rifle. The rifle was fairly light, fired with a naturally low trajectory. The rifle grenade (Fusil tremblon V.B.) was used from a form of cup fastened on to the end of an ordinary rifle. A bomb was fired by the gasses produced from the explosion of an ordinary round, the bullet of that round penetrating the bomb through a hole and igniting the fuze of the bomb which burst 9 seconds after it has been discharged.
The Battalion is also provided with a 57 mm small field gun with a crew of 1 Officer, 1 N.C.O. and 6 men which is primarily intended to destroy machine guns, loop-holes etc. The gun weighed about 42 kilos, carriage about the same, and it was provided with percussion shell, armour piercing shell, and a form of grape shot shell for defensive purposes if attacked

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taken

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taken by the direct assault, and the rapid moving forward from shell hole to shell hole of the various platoons in the attack. Rockets were used from time to time to show the ways of calling on the artillery to lengthen the barrage, which were available for the battalion commander, and the 37 mm gun was brought forward to destroy an imaginary machine gun.

It had been the intention to use an aeroplane to give the artillery information and to inform the higher commanders of the situation, but the weather was too bad. In fact it poured with rain practically the whole time. Mopping up parties were freely used, but I did not notice any serious effort at consolidating the captured trenches.

7. After the exercise the question of artillery and infantry co-operation was discussed by Commandant Fory.

He said that it was hoped by means of good arrangements for communications, aeroplanes, optical signalling, flares, runners, rockets, signal panels, etc. to arrive at a way of allowing a battalion commander to call back the barrage if an attack is held up at any particular point.

He considered each battalion commander should have with him one officer and three N.C.O.'s from the artillery as observers with a small telephone detachment, so as to communicate with the batteries covering the front of a battalion attack.

But at the same time he admitted the whole question was still being closely studied and he did not expect a conclusion would be arrived at within the next 6 or 7 weeks.

8. After the exercise we returned to CHALONS, dined with General Gouraud, and had other opportunities of discussing the training we had seen.

The general conclusions arrived at were - that the new armament and organisation would be most effective with trained men; that officers and senior N.C.O.'s must be most carefully trained themselves before they could teach their own subordinates, that the best officers must be selected to train such officers and N.C.O.'s, and that brigade and regimental commanders once they had realised this necessity would not object to losing temporarily officers for this purpose - that the training of men to use these new weapons must be carried out in the platoon and not elsewhere - the whole platoon must be trained as specialists by its own leader and lastly that the recent experiences on the SOMME fully justified the changes which have been made.

9. Next day we visited the various offices of the French Army. The following seemed worthy of imitation.

The whole of the Army Sector was shown on a "Layered" map. Sections of this map were photographed by the oblique process. The result was a very perfect representation of the ground, which would prove of great value to officers about to attack, etc.

It is perhaps hardly necessary to add that nothing could exceed the kindness and courtesy of General Gouraud and all his Staff.

I/30/3

FRENCH ORGANISATION.

Battalion = 3 Companies.
 1 Machine Gun Company. (8 guns).
 1 37 mm. gun.
 1 Depot Company for training Officers,
 N.C.Os. and young soldiers at the
 Divisional Depot.

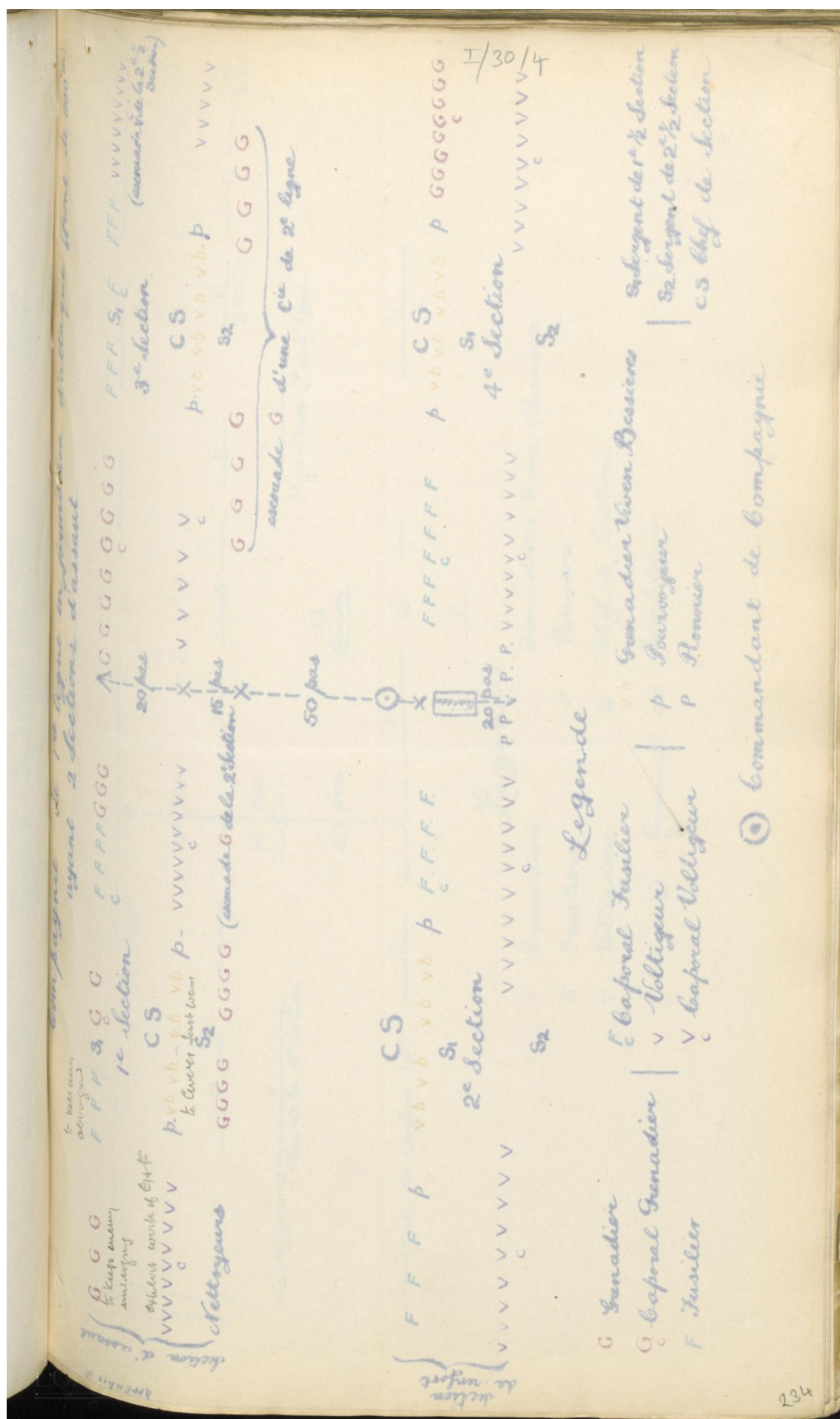
Company = 4 sections. {Grenadiers.
 {Fusiliers.
 {Voltigeurs.

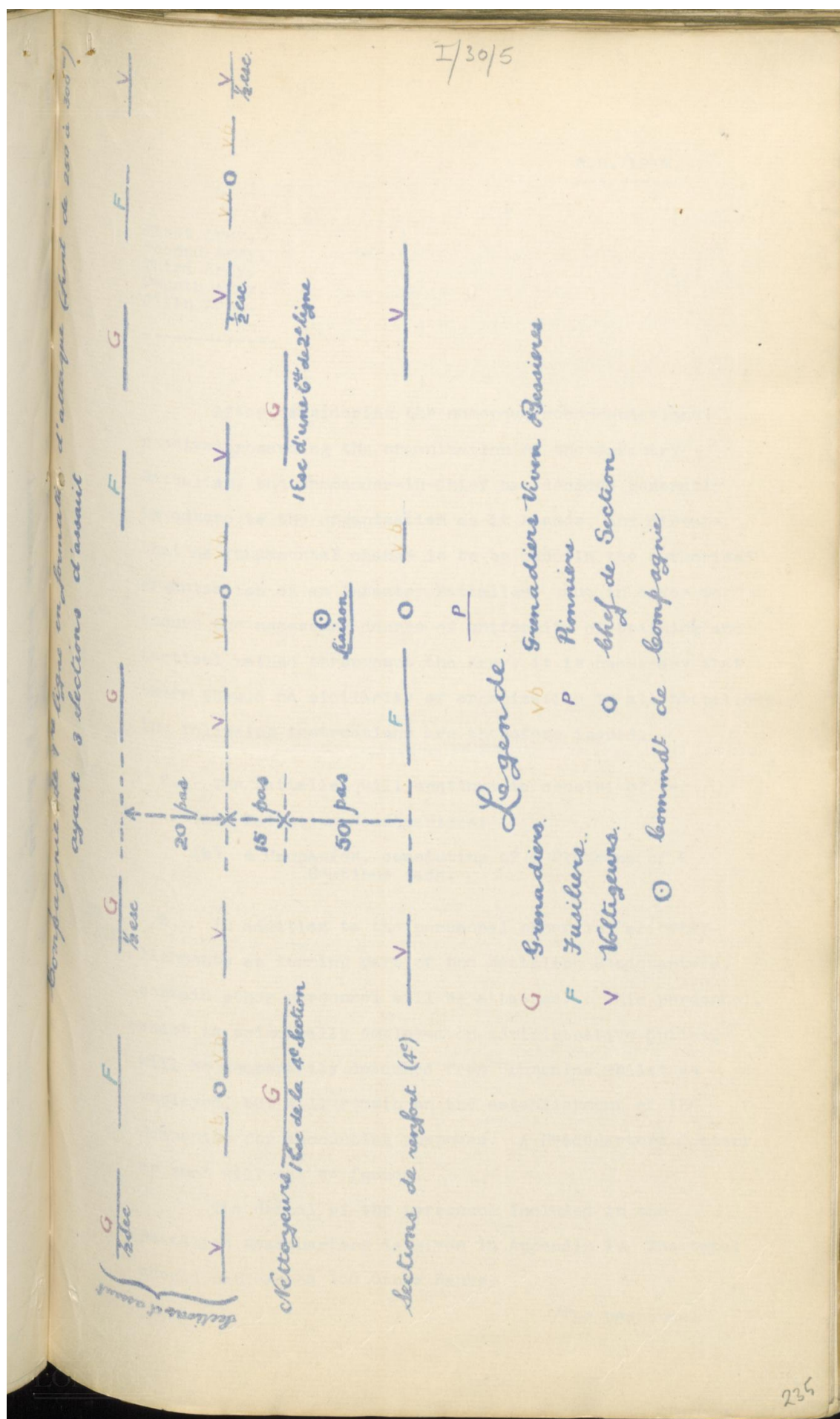
Section = 1st half section. {1st. squad.
 {1 Corporal 7 Grenadiers.
 {2nd. squad.
 {1 Corporal 6 Fusiliers.

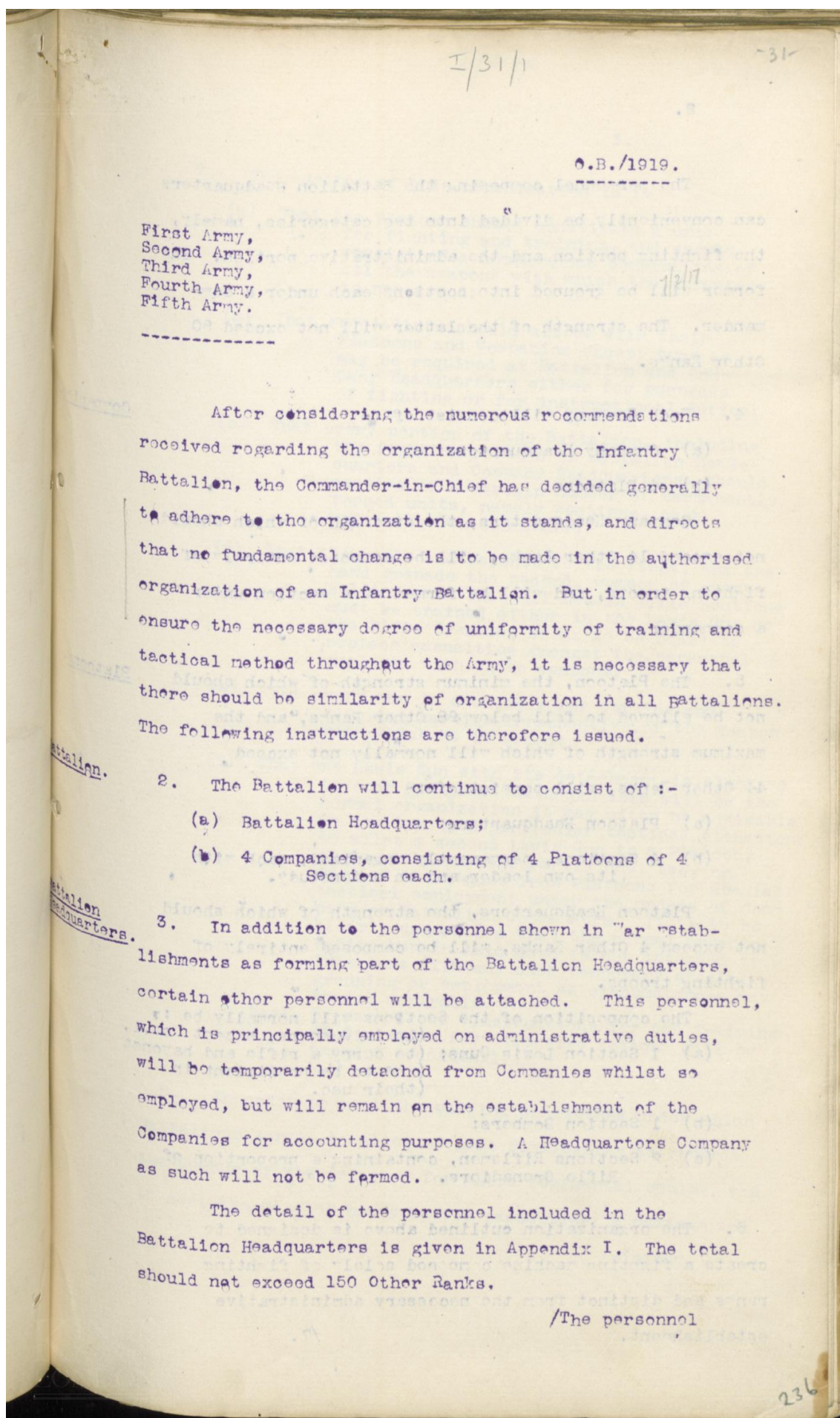
2nd. Half Section. {3rd. squad.
 {1 Corporal, 8 Voltigeurs
 {2 Rifle Grenadiers,
 {1 Carrier.
 {4th. squad.
 {1 Corporal, 9 Voltigeurs
 {2 Rifle Grenadiers,
 {1 Carrier.

8 Fusil Mitrailleurs (Automatic Rifles) per Company.

Drummers, Buglers, Runners, Pioneers, Stretcher-Bearers,
 Signallers do not fight in the ranks but are distributed
 amongst the squads so as to equalise the number of
 effectives.







2.

The personnel composing the Battalion Headquarters can conveniently be divided into two categories, namely, the fighting portion and the administrative portion. The former will be grouped into sections each under a commander. The strength of the latter will not exceed 80 Other Ranks.

4. Each Company will consist of:

- (a) Company Headquarters
- (b) 4 Platoons.

Company Headquarters, the strength of which should not exceed 14 Other Ranks, will be composed entirely of fighting troops, and will be formed as a section under a commander.

5. The Platoon, the minimum strength of which should not be allowed to fall below 28 Other Ranks, and the maximum strength of which will normally not exceed 44 Other Ranks, will consist of:

- (a) Platoon Headquarters
- (b) 4 Sections, permanently organized, each with its own leader and an understudy.

Platoon Headquarters, the strength of which should not exceed 4 Other Ranks, will be composed entirely of fighting troops.

The composition of the Sections will normally be:

- (a) 1 Section Lewis Guns; (to carry a rifle and bayonet)
- (b) 1 Section Bombers;
- (c) 2 Sections Riflemen, containing a proportion of Rifle Grenadiers.

6. The organization outlined above is designed to create a fighting machine composed solely of fighting ranks and distinct from the necessary administrative establishment.

/7.

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7. The essence of this organization is :-

- (a) That the Platoon should constitute a unit for fighting and training, and should consist of a homogeneous combination of all the weapons with which the Infantry is now armed;
- (b) That specialists should all be with their Platoons and Companies except such as may be required at Battalion and Company Headquarters either for purposes of fighting or for instructional duties;
- (c) That every portion of the Battalion, including the fighting portion of Battalion Headquarters and Company Headquarters, should consist of a certain number of permanently formed units, namely Sections, each under its own commander;
- (d) That the rifle and bayonet is the first, and the hand grenade the second, weapon of every soldier, and that all men in Rifle Sections must be trained either in the Lewis Gun or the Rifle Grenade, so as to be ready to replace casualties amongst the personnel employed with these weapons;
- (e) That every man is available for working and carrying parties irrespective of the weapon with which he is armed;
- (f) That one Lewis Gun with its detachment is allotted to each Platoon. Although this will be the normal organization it may often be advisable, in dealing with particular tactical situations, to allot a second Lewis Gun to a Platoon, or to withdraw temporarily one, two, or more of these guns from Platoons for special tactical employment under the orders of Company or Battalion Commanders. It is to be clearly understood that the normal organization herein laid down is not intended to interfere with any such temporary special grouping or employment as circumstances may render desirable.

Para. 5, page 17 of "Instructions for the Training of Divisions for Offensive Action" will be amended accordingly.

8. In order to meet the varying conditions under which Battalions serve, to allow of more flexibility as regards the number of men detached for extra regimental employ, and to meet the case of heavy battle casualties, a maximum and /minimum

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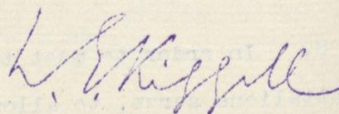
4.

minimum strength has been laid down for the Platoon.

During active operations, should casualties be such as to reduce the strength of Platoons below the minimum figure given, the necessary numbers will be obtained by the temporary amalgamation of Companies in the Battalion, or Platoons or Sections in the Company, as best meets the exigencies of the case.

Under normal circumstances, during periods of trench warfare, Platoons must not be allowed to fall below the minimum strength laid down, but must be kept at that strength by the recall of men from extra regimental employ, when necessary. Every effort must be made to increase the strength of Platoons by reducing the number of employed men.

The Commander-in-Chief wishes Army Commanders to give their special attention to this matter. The number of men employed extra regimentally is at present very great, and involves a loss in fighting power of approximately 3,500 men per Division throughout the Army. By a careful application of the regulations under which reinforcements may be demanded to replace non-effectives, by pooling, and by rigorous combing-out, it should be possible to reduce this number so that it does not exceed an average of 150 men per Battalion.



General Headquarters,
17th February, 1917.

Lieutenant-General,
C. G. S.

I/31/3

A P P E N D I X I.Battalion Headquarters.Other Ranks.FIGHTING PORTION.

Serjeant Major.
Clerks.
Gas personnel.
Signallers.
Runners.
Pioneers.
Stretcher bearers.
Cooks.
Batmen.

ADMINISTRATIVE PORTION.

Quartermaster Serjeant.
Company Quartermaster Serjeants.
Storemen.
Transport Establishment.
Shoemakers.
Tailors.
Butchers.
Cooks.
Grooms.
Batmen.
Instructional Establishment.

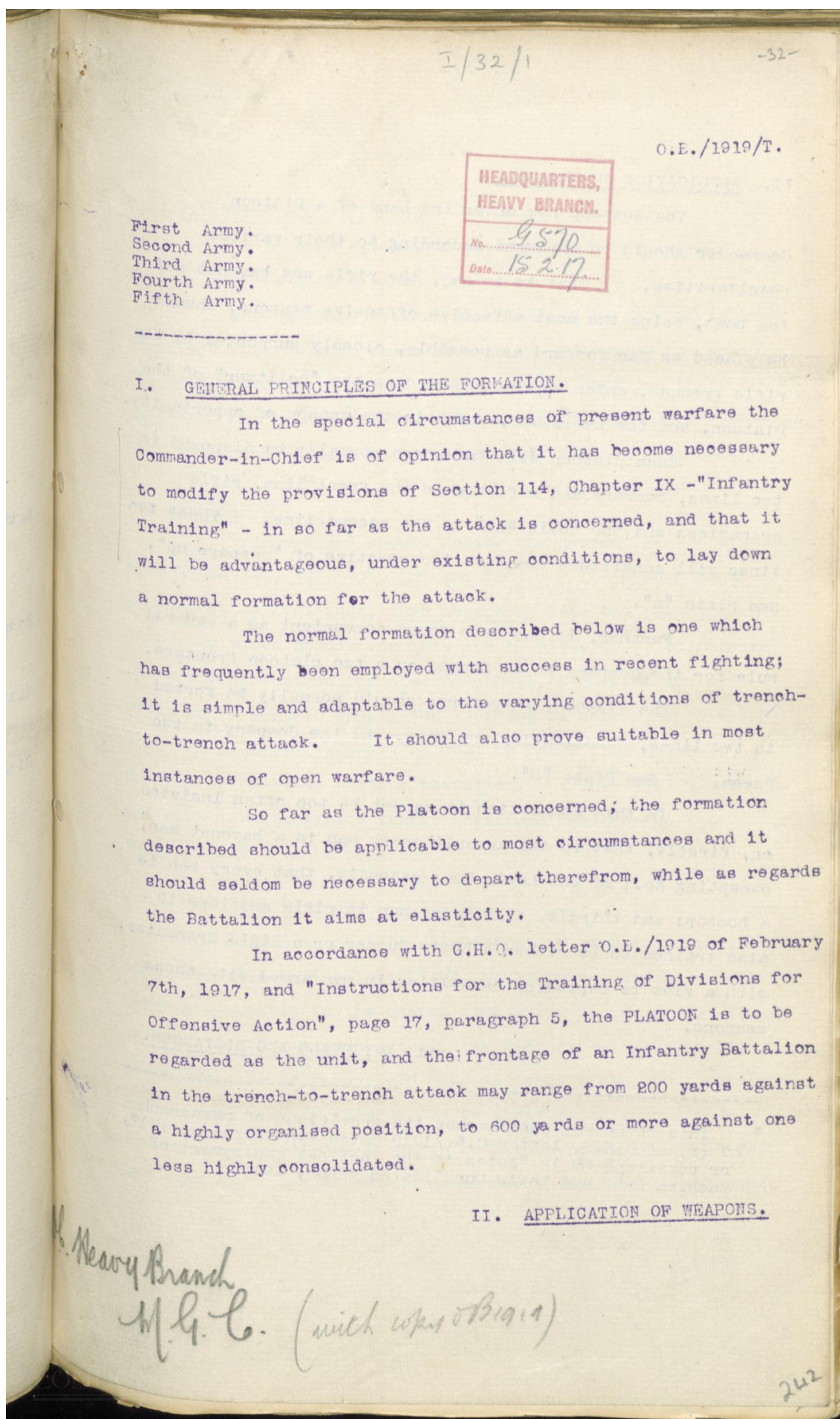
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APPENDIX II.Other ranks.

Establishment of a Battalion including attached ... 971

	Fighting.	Administrative and employed.		Fighting.	Administrative and employed.
Battalion Headquarters -					
Fighting portion.	70			70	
Administrative portion.		80		80
Four Company Headquarters -					
@ 14	56			56	
Sixteen Platoons -					
@ 44	704		@ 28	448	
Sick and extra regimental					
employ and other					
non-effectives		61		317
	830	141		574	397
	971			971	

The above figures include those who must be left behind
when the Battalion takes part in an attack, see
O.B./1635 (S.S.135), page 58.



2.

II. APPLICATION OF WEAPONS.

The weapons now under the hand of a Platoon Commander should be arranged according to their various peculiarities. That is to say, the rifle and bayonet and the bomb, being the most effective offensive weapons, should be placed as far forward as possible, closely supported by the rifle grenade, which may be regarded as the "howitzer" of the Platoon, and the Lewis Gun, which is the 'weapon of opportunity'.

Each platoon will therefore normally be disposed in two lines, bombers and riflemen in the front line, rifle grenadiers and the Lewis Gun* in the second line. These two lines will constitute one Wave irrespective of "Moppers up". See Plate "A".

Further, it has been found convenient as a general rule for the Company to be formed on a two platoon frontage.

The Platoon, therefore, should normally be formed in two lines, constituting one Wave, and the Company in two Waves. See Plate "B".

In this connection it cannot be too often insisted on, firstly, that in the assault every man is a bayonet man, excepting No. 1 of the Lewis Gun; secondly, that every man is a bomber; and thirdly, that every man in rifle sections is also trained to be either a Lewis Gunner or a Rifle Grenadier, with a view to replacing casualties in men armed with those weapons.

III. INTERVALS AND DISTANCES.

* This in no way contravenes the provisions of paragraph 7 (f) of G.H.Q. letter O.E./1919 dated 7th February, 1917, or paragraph 29 in "Notes on the Tactical Employment of Machine Guns and Lewis Guns" dated March, 1916.

3.

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III. INTERVALS AND DISTANCES.

As regards extensions between men, these should usually be from 4 to 5 yards.

The distance between lines should be from 15 to 25 yards and that between waves from 50 to 100 yards; to avoid the rear waves being caught in the enemy's barrage, these intervals may be reduced to meet the requirements of the moment. Rear waves should move in Artillery formation of sections.

IV. MOPPERS UP.

"Moppers up" should follow the second line of a wave. See Plates "A", "B", "C", "D" and "E". It is considered preferable to find them, when possible, from the platoons and companies whose objectives they are to clear up. If, however, the numbers required for clearing these objectives are so great as to deplete unduly the platoons or companies to which they are allotted, moppers up must be found from another company or possibly another battalion. This will usually be the case in attacking a highly organised position at the commencement of an offensive.

V. ALLOTMENT OF OBJECTIVES.

Each wave must be allotted a definite objective, and each component part of each line should have a definite duty to perform according to the weapon with which it is armed. Thus, in the trench-to-trench attack, the Platoon being given one objective, the Company would have two objectives, the Battalion two or more. In this way it is possible to ensure that troops are distributed in depth on attaining their objective, and that the frontage of any commander is not unduly extended.

VI. THE ASSAULT.

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VII. THE ASSAULT.

The Assault may be carried out either by,

- (i) The leading wave going straight to the furthest objective, rear waves following it to nearer objectives in succession. See Plate "C".

or by,

- (ii) The leading wave being directed to a near objective, rear waves passing through it to those further away, i.e. "leap frog". See Plate "D".

In cases where there are only two objectives, the first mentioned method is usually preferable. See Plate "E".

In cases, however, where there are more than two objectives, either method may be employed.

In deciding which method to adopt, a guiding factor is the distance between the various objectives.

If there is sufficient room for our Artillery barrage to halt on or short of the further objective, so as to afford time for the rear waves to close up under it by passing through the leading waves, the second method above mentioned will be preferable. This method simplifies the organisation of "Moppers up". See Plate "D".

If there is not sufficient room for our Artillery barrage to halt as above indicated, it will usually be necessary to adopt the first method mentioned above. See Plate "C".

It is not necessary to dilate upon the undesirability of the barrage crossing an objective before the waves told off for its capture have closed up under the barrage.

VII. PLATES AND NOTES.

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VII. PLATES AND NOTES.

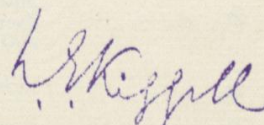
Five Plates are attached with explanatory Notes, shewing :-

- (a) A Platoon in one wave of two lines.
- (b) A Company in two waves of two lines each.
- (c) A Battalion with four objectives, the first wave being directed to the furthest.
- (d) A Battalion with four objectives, the first wave being directed to a near objective, rear waves passing through, that is to say - "leap frog".
- (e) The Battalion on a broader front, with two objectives, the first wave being directed on the furthest objective.

VIII. CARRIERS.

Immediate requirements in grenades and ammunition are provided for in each Section of Platoons; over and above these they must be met by parties from other platoons, companies or battalions as best suits the case.

IX. The Commander-in-Chief directs that the principles outlined in this letter be adopted throughout all Armies in France.



General Headquarters,
14th February, 1917.

Lieutenant General,
C. G. S.

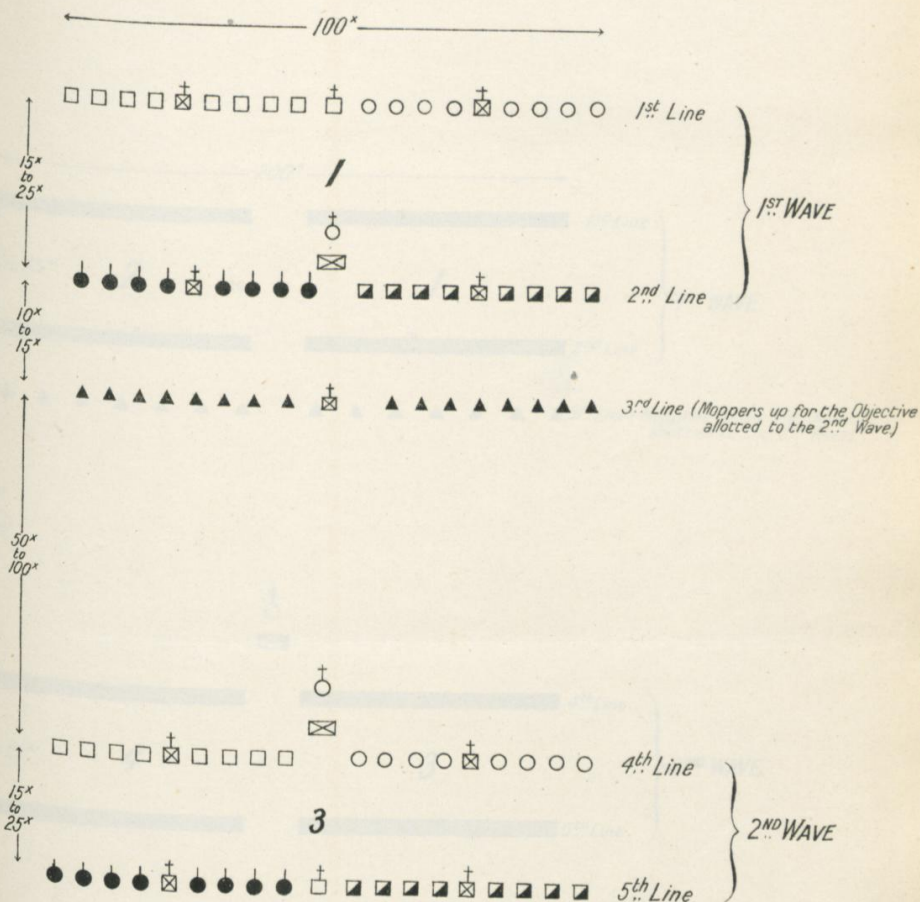
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PLATE "A."

THE PLATOON

Taking an average strength of 36 and H.Q. 4.

(Showing 2 Platoons in 2 Waves, with the right the outer flank).



NOTES.

Two Platoons are depicted showing the different positions of leaders in first and second waves.

The Platoon is the unit in the assault, moves in One Wave of two lines and has one definite objective.

Every man is a rifleman and a bomber, and in the assault, with the exception of the No. 1 of Lewis Gun, fixes his bayonet. Men in rifle sections must be trained either to the Lewis Gun or Rifle Grenade.

Bombing and Lewis Gun Sections are on the outer flank of Platoons.

In assembly the distance between lines and waves may conveniently be reduced to lessen the danger of rear waves being caught in enemy barrage, the distance being increased when the advance takes place.

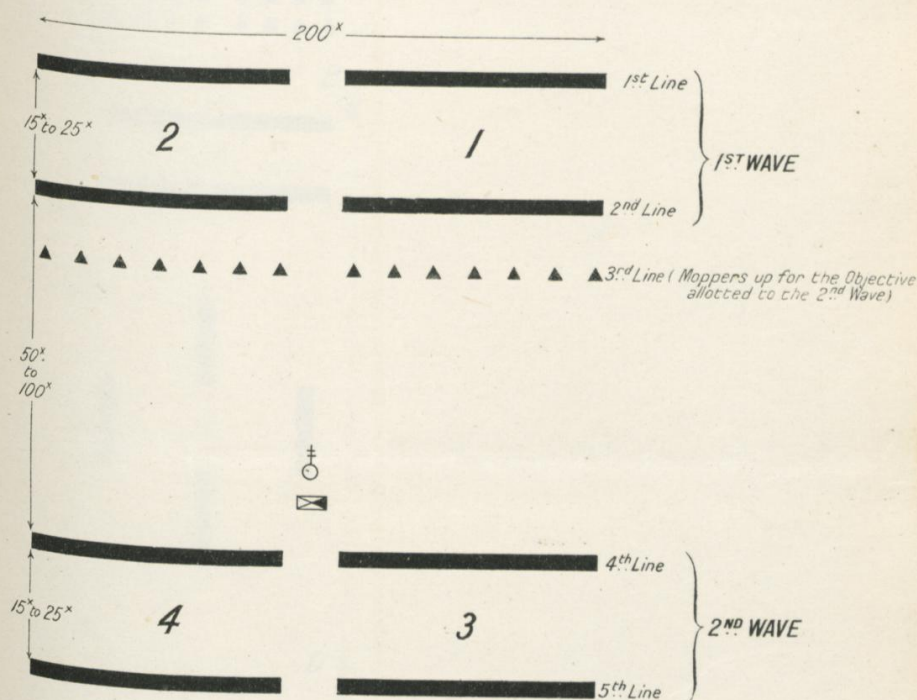
"Moppers up" follow the second line of a wave and precede the unit for which they are to mop up. See plates "C" and "D." If the numbers are large they must be found from a different Company or Battalion. Small numbers are preferably found from the unit for which they are to mop up. They must carry a distinctive badge and have their own Commander.

Key:—

- ⊕ Platoon Commander.
- ⊞ Platoon Sergeant.
- ⊞ Section Commander.
- Rifleman.
- ▣ Lewis Gunner.
- Bomber.
- Rifle Bomber.
- ▲ Mopper Up.
- ⊞ Platoon H.Q.

I/32/5

PLATE "B."

THE COMPANYTaking 4 average strength Platoons of 36 O.R. and Coys. H.Q. 14.**KEY:-**

- ⊕ Coy. Commander
- ⊠ Coy. H.Q.
- ▬ } Platoon (in 2 lines)
- ▲ Moppers up

NOTES.

The Company moves in two waves, has two objectives and is distributed in depth.

"Moppers up" follow the second line of a wave and precede the unit for which they are to mop up. See plates "C" and "D." If the numbers are large they must be found from a different Company or Battalion. Small numbers are preferably found from the unit for which they are to mop up. They must carry a distinctive badge and have their own Commander.

G.S.
O.B. No. 1919/T.

1st Printing Co., R.E. G.H.Q. 3977-B.

