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Scouting and Patrolling

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BY ORDER OF THE SECRETARY OF WAR:

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Major General, Actin Chief of Staff.

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H. P. McCAIN,
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CHAPTER I.

ORGANIZATION, DUTIES AND TRAINING.

1. *General Principles and Organization.*

1. The present circumstances do not allow of sufficient time to enable all soldiers to be trained in reconnoitering, observing and reporting the result of their observations, but the principles laid down in "Infantry Training, 1914," Sec. 110, hold good, and as many men as possible should receive instruction in these important duties. Every unit is responsible for its own protection, and is not relieved of this responsibility by the selection of the men most fitted by physique and previous experience for further special training as scouts or snipers.

The object of this publication is to assist Scout Officers and N. C. O.'s as well as Platoon Commanders in this further training.

2. At the Army Scouting, Observation and Sniping Schools it is not possible in the time available to give a complete training. Only an outline of what to teach and how to teach it can be given, and the general principles of a uniform system laid down. The training should be continued in the unit both in and out of the line.

Conditions and requirements will always vary. Originality, inventiveness, and adaptability are essential to success in scouting and sniping. It is, therefore, not desirable to lay down any hard and fast lines on which scouting should be carried out, and the manual is intended to act as a guide and enable all concerned to adapt its principles to any given situation.

3. The distinction between Scouting and Sniping is clear: the primary object of a Scout is to obtain information; of a Sniper, to kill.

Sniping is essentially the outcome of stationary trench warfare, and its importance has been increased by the introduction of the telescopic-sighted rifle. But during offensive operations Snipers can be employed usefully only in the intervals between the actual infantry assaults, and then only if they are skilled in the use of ground. A Sniper is in practice no other than an expert rifleman, who makes use of ground in order to bring him into a position from which he can fire his rifle effectively; and the use of ground is one of the principal qualifications of a Scout.

Men employed as Snipers in these circumstances, therefore, should be drawn from the Scouts, who should receive instruction in the use of telescopic-sighted rifles so that they may also be qualified to carry out the duties of Snipers in trench warfare.

In addition, in trench warfare the Scouts should carry out the duties of Observers for which their training makes them specially fitted.

Section Scouts.

4. Every Section of the Platoon should, if possible, maintain a pair of men who have received further training in Scouting, Observing and Sniping.

Company Scouts.

Each Company of the Battalion should maintain four specially trained Scouts, who will normally be grouped with Company Headquarters, but may temporarily be employed collectively under the Scout Officer for special tasks as the Battalion Commander may direct. (Infantry Training, Sec. 110, para. 2.)

When the Battalion is out of the line, these 16 Company Scouts after receiving such training as the instructions of the Battalion Commander demand and time allows, should be allotted to their Companies and Platoons to assist in training as many men as possible. Their employment in action will depend on the nature of the fighting.

The Battalion Scout Officer.

Each Battalion should have a Scout Officer who is responsible to the Battalion Commander for scouting, sniping, and intelligence duties. He is responsible for the training of the 16 Company Scouts, and should assist Company and Platoon Commanders in the training of Platoon Scouts. When necessary, he should hold, or assist at, the Brigade Classes laid down in S. S. 152 (revised edition), Sec. 5, para. 9.

The duties of the Battalion Scout Officer are important and arduous, and he should devote the whole of his time to them. He should be one of the additional officers of a Battalion, not an officer from a Company. He should live at Battalion Headquarters and attend all Battalion conferences.

The Scout Sergeant and Corporal.

These N.C.O.'s are appointed to assist the Scout Officer. Scout Officers and N.C.O.'s should have attended an instructor's course at an Army Scouting, Observation and Sniping School.

5. Scouts should be picked men, selected for their character, physique, intelligence, and education. They should have good sight and hearing, and be expert shots.

Scouts should be men who volunteer for the work, which is often hard and dangerous. They should, therefore, receive encouragement, being excused from other duties when possible, and helped in the matter of changing clothes, and obtaining hot coffee or rum or something extra on return from a hard night's work. The fact of a man being a Scout should never stand in the way of his promotion; rather, it should help him towards promotion.

2. *The Duties of Scouts and Patrols.*

1. In trench warfare the uses of the Company Scouts are chiefly limited to special reconnaissance at night, observation, and employment as Snipers with telescopic-sighted rifles. It is with the advent of more open warfare that their sphere of usefulness increases, until it becomes of vital importance.

Between Patrols sent out principally for protection and Scouts reconnoitering for information there is a distinction which it is important to bear in mind, but it is a distinction mainly of degree. The more scout-craft a man acquires, the more useful he will be on patrol, and good patrol work, always of the utmost value, becomes increasingly essential as the fighting becomes more open.

2. Protection is the work of outpost patrols or skirmishers, and should be part of the training of all the officers, N.C.O.'s and men of the Company. A man on patrol may work by himself, or belong to a pair, or even a group. He may be part of a skirmishing line or part of a system of groups spread out to cover the front, flanks, or rear of some larger body. His position depends on his keeping touch with the force he protects, according to the nature of the ground and degree of visibility.

3. The Scout reconnoitering for information, on the other hand, is a man requiring special qualifications and training. The more delicate the mission on which he is sent, the greater the need for a high degree of training and experience.

It is not possible, however, to differentiate sharply between Scouting and Patrolling, and Section Scouts and other riflemen may often be required to carry out special missions. All the training possible should, therefore, be given them. As a rule, however, it should be reserved for picked Company Scouts or some selected officer to perform exceptional feats of scouting. Men suitable for such tasks are few and should never be wasted.

Scouts must invariably be ready to fight, if forced to do so, or to co-operate with parties fighting, in order to gain information. (Infantry Training, Sec. 111, para. 5.)

In a war of masses such as now exists, it will frequently be impossible to gain information except by resolute offensive action. Scouts should, therefore, be trained to show not only cunning in scout-craft, but also skill in marksmanship, combined with method and dash in fighting.

5. The principal duties of Scouts and Patrols are briefly as follows:—

(i.) *Scouts.*

(*a*) *Before the assault,* to reconnoitre the enemy's wire and to locate enemy Snipers, Machine Guns and, generally, to observe and report all changes, movements and incidents in and about the enemy's position.

(*b*) *After the assault,* to locate the enemy's new position and to obtain information as to the ground between that position and our most advanced line, and as to the enemy's intentions and dispositions; to act as guides for carrying parties, reconnoitering officers, troops coming up to relieve, or pass through, their own unit.

(ii.) *Patrols.*

(*a*) *Before the assault,* to secure complete mastery in "No Man's Land."

(*b*) *After the assault,* to follow up the retreating enemy and seize tactical features, temporarily unoccupied by the enemy, beyond the line already gained by our Infantry.

3. *The Training of Scouts and Patrols.*

1. The following notes on training Scouts and Patrols may be looked upon as a groundwork:

The object in view should be the production of men who are able to combine good shooting with movement and the use of ground. There is so much to teach that it is necessary to eliminate all but the most essential points. Subsequent advanced training along these lines in scout-craft, observation, marksmanship and reporting will be required to produce the 16 expert Company Scouts, who should, in addition, be practised in map reading, simple sketching, and the study of aeroplane photographs.

2. At the outset each man should test his rifle and have it adjusted so that he has confidence in his weapon.

When practicable, suitable ground should be found, or prepared with shell-holes or cover, where field firing can be carried out with safety. For details of exercises *see* Appendix III.

3. *The Training of the Eye.*

The Scout should be trained to have a quick eye (i.) for an enemy, (ii.) for ground, (iii.) for estimating distances, size or numbers.

(i.) *Eye for Enemy.*

What to look for.—The Scout should be on the watch for movement, changes and contrasts, curious or unnatural objects, signs of the enemy in dust, smoke, tracks, the glint on or clear outline of such objects as the barrel of a rifle or a helmet. He should try particularly to locate Snipers or Machine Guns, and he should keep a watch on any object, when once seen.

Where to look.—He should learn the habits of the enemy at various times and seasons, and constantly put himself in the enemy's place. He should search likely points such as skylines, trees, points with good views, defiles, ridges, exposed points, shadows and cover.

How to look.—He should always act as if he were watched, and try to see quickly without being seen; in so doing he should be careful not to disclose his position. Approaching a skyline should be practised; the outline must be broken, likely places avoided, and the hands and face hidden. Protective coloring, mimicry and deception should be studied. In all searching, method should be employed.

(ii.) *Eye for Ground.*

Where to go.—The Scout should choose some good point of view having a covered approach and a second line of escape: the danger of trees, towers and easily marked points should be borne in mind.

How to go.—The object of the mission must be kept in view, and a definite plan made. Vantage points should be selected as stepping stones to the ultimate point chosen, and careful observation made before each advance. The route selected should, as far as possible, lie along dead ground, hollows, bushes, rocks, hedges, woods and shadows.

The skyline or a bad background should be avoided, and care taken not to alarm birds *en route*. If held up, the Scout should try elsewhere; boldness may be necessary to deceive the enemy. If exposed, he should either move quickly or hide by keeping per-

fectly flat and still; if under cover he should go steadily. Training in stalking and crawling is essential.

How to return.—The good Scout, on his way out, will note the direction, the wind, and appearance of landmarks from both sides to help his return. He will be prepared to return by a different route.

He should do the unexpected. He should cover up his tracks. If seen, he should keep cool, pretend not to know he is seen, and instantly form some plan of offense or escape. The advantage of night, darkness, dawn or evening light, fog or mist, for approach or return, should be remembered. Practice in silence and listening are essential by day and night. *See* Sec. 7, Observation, and Chapter II, Night Work.

(iii.) *Eye for Distances, Size, and Numbers.*

Practice should be introduced into all scouting exercises. Various methods of ranging by eye are:—

(*a*) *Unit of Measure.*—Measuring by some familiar unit, such as 100 yards. This is accurate up to 400 yards when the intervening ground is visible.

(*b*) *Key Range.*—The range to one object having been ascertained, it is compared with other ranges.

(*c*) *Bracketing.*—The possible maximum and minimum ranges are estimated and the mean taken.

(*d*) *Appearance.*—Judging by apparent size and visibility of a man, or other object of known size.

(*e*) *Averaging.*—Adding together a number of estimates (excluding any obviously wrong), and dividing the total by the number of estimates.

(*f*) *Doubling.*—Judging the distance half way and doubling it.

During training a range-finder should be used to correct or confirm estimates; this gives the men confidence, and they learn their tendency either to over or under-estimate distances. Practices should be carried out as competitions.

4. *Finding the Way.*

The Scout should be constantly practised in finding his way and in committing his observation of ground to memory.

(i.) *Before starting.*—He should study the map and any available photographs for information. He should make notes, and endeavor to visualize the country. He should note direction by compass, sun, moon, stars, weather-cocks, and churches. He

should note the time of starting and the direction of the wind, and get the general lie of the land into his head (*e. g.*, prominent features, direction of rivers, etc.).

(ii.) *On the way.*—He should compare the map with the ground, note and memorize hills, trees, rocks, towers, and any prominent or curious features.

He should ask himself occasionally, "Could I direct anyone back by giving him a series of landmarks?" He should note the distance by time. If necessary, localities or roads can be marked by signs. He should avoid suggesting the answer when interrogating inhabitants.

5. The Scout should also be practiced in passing on information and orders, and in some simple means of visual communication.

(i.) *Verbal Messages.* (F. S. R., Part I, Sec. 20, and Infantry Training, Sec. 96.)

These should be sent only when it is not possible to send a written message. Verbal messages should be subsequently confirmed in writing when possible.

The sender must be clear in his own mind what he wants to say, and state it as clearly and simply as possible. He should be sure that he is understood, and make the messenger repeat it to ensure accuracy.

The messenger must be sure in his own mind that he understands, and should not hesitate to question the sender on any point which is not clear. He must know where to go.

As he goes he should think over the message and any questions he is likely to be asked. If he passes troops who should be informed of his message, he will give them his message in passing and report that he has done so on arrival.

On arrival he will call out, "Message for ——." It is the duty of anyone who can to direct him. He should not get excited or arrive out of breath. He should deliver his message shortly, clearly, and smartly.

The recipient should clearly understand the message; if not, he should ask, but without confusing the messenger. He should write down any verbal message received.

(ii.) *Written Messages.*

It is useful to give Scouts a printed form with headings to be filled in as in official telegraph forms. Sometimes a map or sketch can be attached on which to indicate positions.

Messages must be (*a*) *clear* and in good, bold handwriting. Numbers, size, and time should be estimated. Nothing vague should be stated: *e. g.*, "A lot of Germans," "A wide river," "A steep hill," "At dawn," "Moonrise," "In front," etc. Names should be in block letters. Time should show "A. M.," "P. M.," noon, midnight (4—5 June). Where a map reference is necessary, the name of the map should be stated invariably. Numbers should be written in words. The word "Not" should be underlined or in block letters.

(*b*) *Concise, i. e.,* not a word more than is necessary for clearness. Only recognized abbreviations should be used.

(*c*) *Complete, i. e.,* addressed, numbered, reference map, sig[illegible] rank, appointment, place, time, and how sent.

The message should be read over carefully by the sender [illegible] shown to another Scout to see if it is clear. If it is very im[illegible] tant, two or more messages should be sent by different ro[illegible] It may be better to send interim reports than to wait until whole report is ready.

The source of information should be stated.
Negative information may be valuable.
A copy should be retained by the sender.
A single sketch is often of assistance.

(iii.) *Signals.*

Scouts should possess a knowledge of semaphore, and in addition to the recognized Infantry signals (Infantry Training, Secs. 94–95), they should have a few simple private signals by which they can make plans and co-operate, *e. g.*:

To open fire. Scout strikes from the shoulder.

To observe. Scout looks through imaginary binoculars.

To report. Scout writes an imaginary message.

I will advance, observe, open fire, etc. Scout pats himself on chest before making required signal.

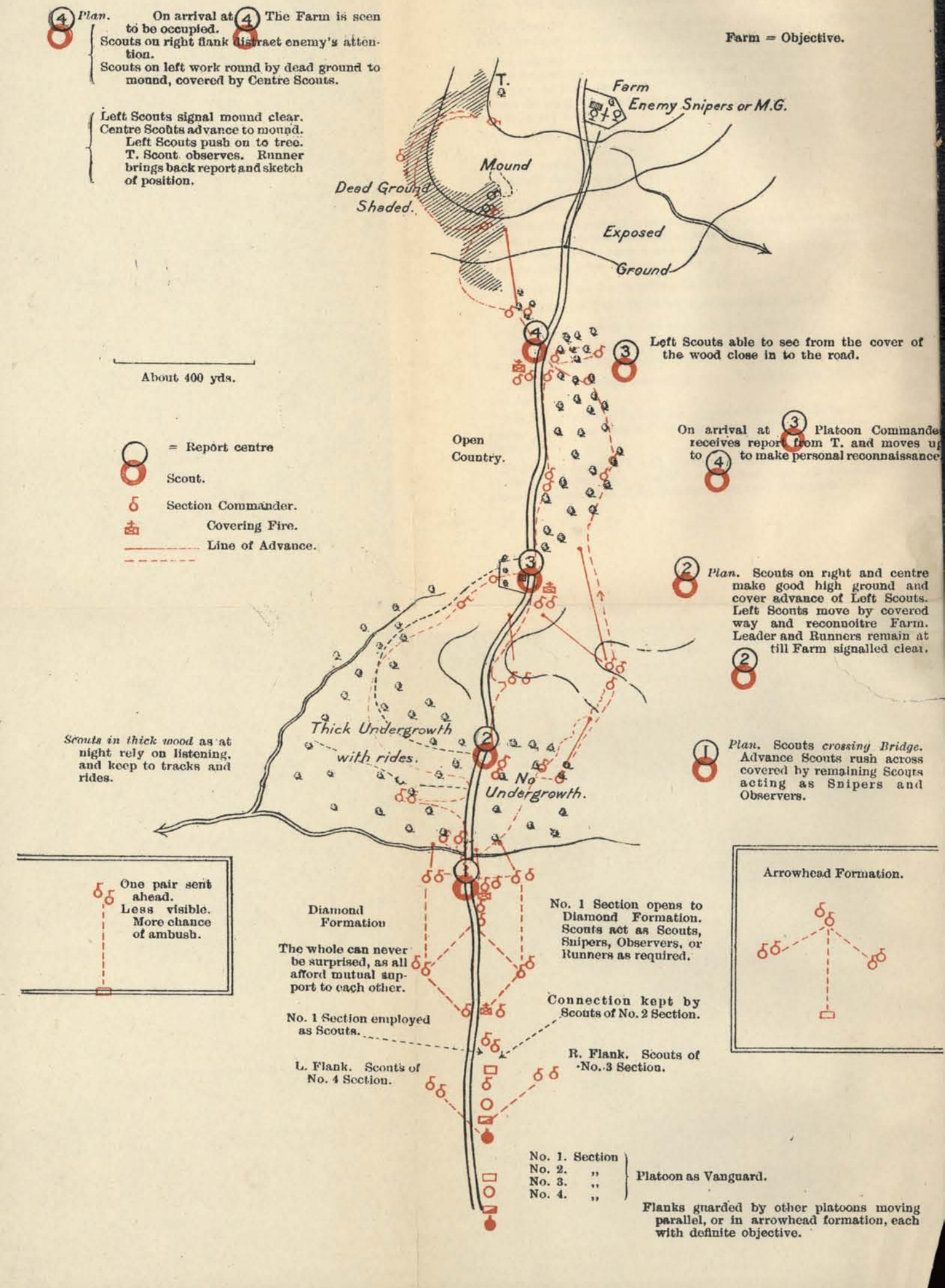
Enemy is retiring, advancing, etc. Visual signals with cap in hand.

The Scout will first inform his comrade what he is going to do, pause, and then instruct his comrade how to co-operate. Example:

Sniper to Scout.—"I will cover your advance; you go and observe." Sniper taps himself on the chest, hits out from the shoulder, pause, then looks through imaginary binoculars.

SKETCH SHOWING HOW FORMATIONS VARY WITH THE GROUND.

EXAMPLE.—No. 1 Section, detailed as Scouts, advances on definite objective and front. It makes good certain points on the road to its objective. After careful observation, plans are made according to ground for each new advance. The Platoon, kept in touch by means of runners and report centres, advances by bounds in support of the Scouts, at the same time keeping in touch with the Company coming on in support.



Scout to Runner.—"No enemy in sight. I will observe; you go back and report." Rifle perpendicularly above head. Scout pats himself on chest, then looks through glasses, acts writing a report and signals to runner to retire.

Such signals, whistles or private signs between Scouts may be of great value on occasions, but they require to be few in number, simple and clearly made, frequently practiced, and only used when necessary, and when out of sight of the enemy.

6. It is not advisable to lay down rules as to formations, distances, intervals, or composition of Patrols. These must depend on the object in hand, the ground, the men available, and the enemy; certain principles can, however, be stated:

As a rule, the diamond formation is the most suitable, but Patrols may do better to move in arrow-head formation, in pairs, or even in a group with a single Scout sent ahead. The main principle is that men should be trained to make a plan quickly, and adapt the formation best suited to attaining the object in view, working together like trained players in a team.

Other points to remember in open warfare are:

To observe and consider well before each advance.

To advance by bounds to suitable points by the best line of approach.

To remember the importance of mutual support and keeping in touch with each other. Each advance of the Scout should be covered by a rifleman.

The Scout must get where he can see and observe. He must get word back.

A system of runners and report centers must be organized.

If held up, the Patrol must get round; if scattered, it must have a fixed rendezvous.

Secrecy, cunning, the misleading of the enemy, quickness and determination are all important.

The accompanying sketch shows how formations vary with the ground.

The use of a model made with sand on a scale of about 1:400 is of great assistance. War games illustrating various situations and formations interest the men and hasten their training.

4. *The Employment of Snipers.*

1. Sniping, as stated in Sec. 1, para. 3, is essentially the outcome of stationary trench warfare, but by a skillful use of expert riflemen continual losses in all classes of warfare may be inflicted on the enemy.

The duties of men acting as Snipers are, briefly:

2. *In Open Warfare.*

The German methods of covering their retirement with Snipers and machine guns call for the special attention of Snipers. The system of delaying the advance by expert riflemen was well understood by the Boers in South Africa, but the German Sniper's method differs from theirs in that, being dismounted, he seldom escapes. Taking up his position at some commanding point in houses, haystacks, trees, etc., he holds out to the last, and inflicts all the damage he can until he is disposed of. Scouts and Snipers should be prepared to compete with such tactics. A quick eye and straight shooting are the safest replies to such methods.

3. *In Defense.*

In the preparation of any scheme of defense, "battle positions" should be established for Snipers. These should be at such points that, should the hostile attack meet with success, the Snipers will be able to bring fire to bear on the captured lines.

Suitable posts may be found at mounds of earth, piles of brick, improvised shell-holes, trees, long grass, etc. It is essential that these posts should afford concealment from view and have a wide field of fire.

The "battle position" should be visited from time to time, and each Sniper should know the "battle position" allotted to him in case of attack. The Sniper must be prepared to hold on to the last, according to the scheme of defense, for by so doing he may be able to hold up considerable numbers, and so gain time for the defense.

4. *In Attack.*

In attack, Snipers can be advantageously used when amongst the *débris* of shell-holes and ruined trenches. Snipers' posts and sniperscopes, camouflage or other trench aids are absent, and even loophole plates are rare. On the other hand, targets are more numerous, and often at easier ranges. It is the Sniper's chance, and he must adapt himself to the conditions. He must look for good vantage points, and improvise posts at once.

The work of consolidation after a successful attack has been frequently interfered with by hostile Snipers working their way forward. A covering party of good Snipers is the best reply to these tactics. Precautions should be taken as to the covering barrage.

It is probable that after a successful assault the enemy will, under cover of his Snipers, first reconnoiter the position and then deliver a counter-attack. If the Snipers covering the consolidation are prompt in getting into position, they have the advantage of being able to keep hidden and still, whereas the enemy Snipers, reconnoitering officers and the leader of the party making the counter-attack all have this disadvantage, that they must expose themselves by movement. Snipers should take full advantage of these openings, and remember that a few well-aimed shots may alter the whole tide of the battle.

5. *In Trench Warfare.*

With a good system of Snipers' posts and allotment of duties, the entire enemy front is kept under telescopic observation. With each observer is working a picked shot who, with a telescopic-sighted rifle, is capable of hitting any head that shows itself up to a distance of 300 yards. It should be impossible for the enemy to look over the parapet with impunity.

The direction from which any hostile sniping takes place is ascertained by various means. Any casualty from rifle fire should be at once reported and investigated. Snipers should be specially detailed to cope with the enemy sniper responsible.

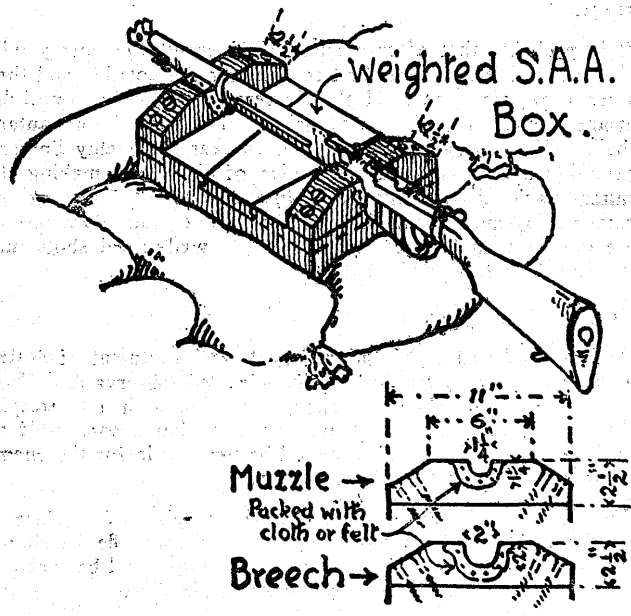
To prevent observation on the part of the enemy, and also to gain moral superiority, Snipers may smash any periscopes visible, and test their rifles on any loophole plates which are used for observation. They should especially be on the lookout for officers observing with glasses and telescopes, the outline of which will, even when disguised, quickly catch the trained epe.

The use of sniperscopes is also suitable for such work.

6. The value of some simple form of rifle-rest for firing at night is not always realized. By some such means as shown in the accompanying figure, it is possible for bad shots to make accurate shooting, and that with a minimum of exposure.

The rifle can be laid on gaps in the enemy's wire, breaches in his wire or trenches, which he will probably be repairing at night, sapheads, sentry and lookout posts, loopholes, plates, dugouts, latrines, water, exposed points in communication trenches, etc.

It can be sighted on machine guns spotted by their flashes, or used to co-operate with a patrol, by distracting the attention of the enemy's lookout at the point to be reconnoitered. Fixed rifles are usually set up and sighted in the evening light, or at



dawn, and handed over to some sentry, who should be instructed in their use. A damp screen should be placed in front to hide the flash. By day the position should be concealed by covering up the rest.

7. In constructing the various sniping posts in trench warfare, the danger of observation from above must be guarded against, as well as from the front. Loopholes, as a rule, are placed at an angle, to make them less visible. Various tricks for disguising loopholes from the front, and otherwise misleading the enemy, can be seen at the Army Scouting, Observation and Sniping Schools. Light must be excluded from all loopholes by a hanging curtain weighted at the bottom, and the shutter should always be opened gradually; it may also be well to allow time before looking through, in case any movement has been spotted. Too many shots should never be fired from one loophole. It is a good rule to reserve Snipers' posts for firing at living targets only, and only

to employ minor posts and loopholes for smashing periscopes, or piercing loophole plates with A. P. bullets. No smoking or cooking should be permitted in the post; smoke will find its way through the aperture of the plate and betray the post.

If a post is discovered by the enemy, a notice should at once be posted to the effect that it is dangerous, and the post should not be used again for at least seven days. It may be better to discontinue its use altogether, and build some alternative post, keeping the old loophole to act as a decoy, and encouraging the enemy Sniper to concentrate his observation on it.

8. The most favorable times for shooting and observation vary with the conditions of light and sun. In the early morning or at dusk targets are usually more numerous, and Snipers should be particularly alert at these times.

When the Sniper is facing the sun he is at a disadvantage. He should, if possible, select times when the light is full on the ground where targets are expected, and when he himself is in a comparatively bad light.

9. The Sniper should make use of veils, sniper suits, camouflage, etc., when available, and Scout Officers should keep themselves up to date with the latest ideas. The study of protective coloring is interesting and of value; but it must be impressed on the Sniper that, however well his disguise may conform with his surroundings, if he does not at the same time learn to keep still or move only with stealth and cunning, he is likely to disclose his position. Great patience and constant practice in moving very slowly are required. Disguises may be improvised by using grass, leaves, etc., and by smearing hands and face and kit to harmonize with the surroundings. A regular outline of any shape attracts attention.

10. Many opportunities occur for sniping at night, as most movement takes place after dark. The value of the telescopic-sighted rifle in this direction has not yet been fully realized. An Aldis sight with a large object glass is most suitable. Night sights are useful for laying rifles on enemy rifle flashes. An enemy machine gun or Sniper may sometimes be dealt with by carefully laying a few rifles so sighted and firing a volley.

A good night sight can be improvised by winding white cotton or cloth round the front and rear sight lugs of the service rifle, taking care to keep the white material all the same height. This does not interfere with the open sights for day shooting, and good work can be done at night on any visible target.

For seeing at night, ordinary low-power binoculars are better than prismatic glasses. The glasses should be carried in the breast of the tunic, well up near the throat.

Snipers should be practiced in loading quietly, holding back the trigger while unloading, loading and cocking. To avoid flashes, the barrel and bolthead must be absolutely dry, and the most suitable ammunition used. It is best to keep the magazine charged, but to reload from the pocket.

To draw targets some decoy should be put out the previous night, or the Sniper may lie to the flank of some gap in the enemy wire, or wait for patrols and working parties.

Decoys should, however, be used sparingly, and then always with cunning and with a definite purpose (*e. g.*, to locate the position of a Sniper). Many devices have been found successful, and often the simplest are the best.

CHAPTER II.

NIGHT WORK.

Practice in night work is an important part of training, both for Scouts and for Patrols. It is night which gives a trained man his opportunity. With practice he gains confidence. Once he has confidence in the dark he has a great advantage over untrained men who imagine danger in every shadow or noise.

There is no better training for any form of night work than experience gained in "No Man's Land." As many men as possible should be given this experience, but it is work which requires careful organizing if failures are to be avoided. Men should be trained in night work before they go "over the top," and should be in charge of some experienced leader. There must be some regular system organized in each Battalion and supervised by the Scout Officer.

5. *Night Patrols.*

1. Night Patrols may be divided into three classes:

(*a*) Patrols sent out to gain information.
(*b*) Patrols sent to kill, capture or harass the enemy.
(*c*) Patrols for protection.

2. The following points are applicable to all patrols:

(i.) Each man must know the object of the Patrol and his own individual duty. He should also know the pass-word or any pre-arranged signals.

(ii.) The ground should be carefully studied by day.

(iii.) Patrols should not go out until they have their "night eyes."

(iv.) While the value of cover and of the need for caution should be fully understood, men should also realize what liberties can be safely taken and avoid unnecessary crawling and delay.

(v.) The whole Patrol should not be moving at the same time; at least one man should always be listening.

(vi.) Movement should be on a pre-arranged programme, men keeping touch with their neighbors.

(vii.) A man is most conspicuous when about 20 yards from the enemy's wire; when he gets nearer, the hostile entanglements afford him cover from view.

(viii.) The Patrol should be motionless the moment a flare goes up. The best time to move is when it has just gone out.

(ix.) A Patrol is as easily seen and ambushed when returning as when going out. The return journey, therefore, should be made with caution and by a different route.

(x.) All concerned must be notified of the place and time of the departure and return of the Patrol.

(xi.) Men on patrol should be lightly equipped. A cap-comforter is least visible; the face and hands should be darkened and gloves may be worn. Each man should carry two bombs, a bayonet or knobkerrie, and a revolver or rifle. A revolver is more convenient, but men so armed must be expert in its use. The rifle is the best weapon for purposes of protection.

(xii.) Scouts going out on patrol should have nothing on them which would assist the enemy if they were captured. They should be instructed how to act if captured, and informed that prisoners of war are only bound to give their rank, name and number.

3. *Patrols sent out to gain information* should not fight unless it is necessary to do so to accomplish their mission. Small numbers are less likely to be detected, but it may be necessary to support them with more men.

4. *Patrols sent out to fight* should not, as a rule, be sent out until previous reconnaissance has discovered the habits and movements of the enemy.

If a Patrol is sent out to bomb sentry posts, it should be as small as the circumstances allow: five men may be regarded as a normal Patrol for this purpose.

For engaging the enemy in the open larger numbers (from 8 to 20) may be required. It is difficult for a larger patrol to move undetected. The best method, therefore, is to take up a good position and lie up for the enemy in some suitable formation. Precautions should always be taken against the enemy working round the flanks. A Lewis gun is often useful.

5. *Patrols for protection* of working parties, etc., should select a good covering position and avoid unnecessary movement.

6. *Formations.*—The advantage of adopting definite formations is that it enables men to keep touch and know where to look for each other. It gives them confidence, and is a precaution against mistaking friend and foe.

The following diagrams are given as suggestions:

Diagrams for Night Patrols.



Fig. 1—Two men.

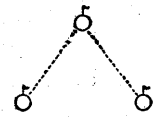


Fig. 2—Three men.

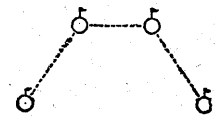


Fig. 3—Four men or diamond formation.

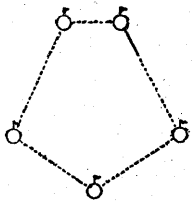


Fig. 4—Shows the rear well protected.

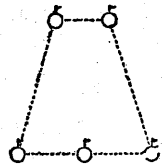


Fig. 5.

Shows suitable formation for five men bombing a sentry. Two front men act as bombers, and after throwing their bombs retire through three men acting as covering parties.

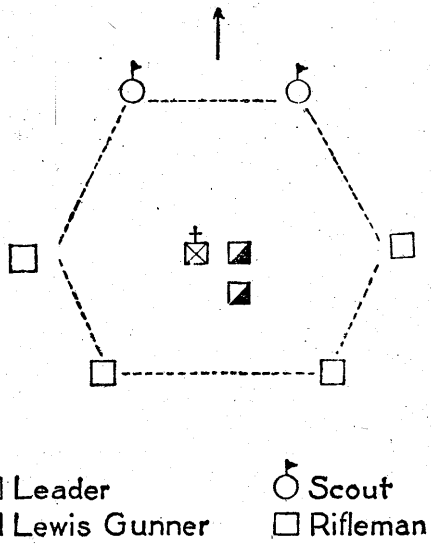


Fig. 6.

Suitable formation for taking out a Lewis gun.

Intervals and distances must depend on the nature of the ground and visibility. Patrols should never lose sight of each other. As a rule, the leader is in front and gives the direction.

7. *Signals.*—Patrols should have some private sign or signal known to all the party; on meeting, as a rule, the first part of the signal should be to crouch down low, thus getting the stranger against the skyline, offering a small target or getting ready for action.

6. *The Training of Scouts in Night Work.*

1. *Hearing Without Being Heard.*

(*a*) *Hearing.*—The Scout must learn how to listen and concentrate his mind on hearing. He should be practiced in every kind of light, on dark or stormy nights, or when all is quiet with bright moonlight.

He should be trained to listen to every kind of sound which may be heard when on duty, and to think out the meaning of such sounds, to estimate the distance and direction, and to send in reports.

On the training ground Scouts should be taught to listen to men digging with picks and shovels, wiring or cutting wire, marching past or creeping up, stamping their feet, talking or whispering, snoring or laughing. He should be instructed how sounds travel, how wagons, trains, trams, dogs barking, birds alarmed or birds undisturbed, calling to each other, and even a cough or a sneeze—how all may be heard at great distances, and that each has its tale to tell.

He should contrast the effect produced by men with rattling equipment, and by those who have taken steps to prevent all noises.

When the meaning of sounds has been realized, the Scout should learn how to listen for long periods in perfect silence, noting the wind and the ground, and placing his ear in the best position for hearing.

The use of the megaphone for listening should be demonstrated.

(*b*) *Not being heard.*—Men who know how to listen will quickly learn the art of silence and the danger of unaccustomed sounds. To them the tricks that can be played to distract attention, and the advantages afforded for approach by wind or rain or running water, will become self-evident.

Scouts must learn to balance and feel their way, to raise their feet and to avoid the crackling of leaves and twigs. They must be taught, if they fall, to fall silently.

They must learn how to whisper and restrain their breath. In short, the Scout must learn what it means to "have ears to hear."

2. *Seeing Without Being Seen.*—Scouts should be practiced in seeing at night, and the use of glasses should be demonstrated. With an ordinary binocular glass objects are visible at double the distance.

The effect of Very lights and the visibility of various dresses should be tested.

Many a casualty has occurred from want of thought. A luminous wrist watch, striking a match, a lantern torch or cigarette exposed are often causes of fatal results. Men must be trained to think.

3. *Employment as Guides.*—The duty of acting as guides at night falls to the Scouts. They should, therefore, be trained in marching on compass bearings. They should learn to make use of the stars and moon.

A clear starlight night with no moon is favorable; any star may be selected to march on which happens to have the required bearing. A star which has an altitude of from 15 degrees to 30 degrees is convenient, as at these altitudes stars rarely move more than 5 degrees to a flank in twenty minutes.

The use of a rough sketch specially drawn so as to show in bad light or the use of luminous paper may help Scouts on night work. They should practice making rough sketches, with reports of ground they have covered at night.

4. *Keeping Touch.*—Practice in keeping touch by means of signals, string, luminous marks, white badges, should be carried out.

The duty of keeping touch on the march often falls on the Scouts, and they should be trained to act as connecting files, opening and closing like an elastic string, and thus saving the column from the fatigues of rushes and sudden checks.

5. *Crawling.*—When quickness of movement is more important than concealment, Scouts should crawl on their hands and knees, placing the knees where the hands were. When nearer the enemy, they should crawl, using their elbows and knees.

When quite close, the use of hands and toes becomes necessary. The hands should be kept well in front of the face, and the heels well down. In moving to a flank, a smaller outline is

exposed to the enemy if the Scout crawls or rolls sideways. Scouts should also be taught to crawl backwards and to turn round carefully.

6. *Hand-to-Hand Fighting.*—Hand-to-hand fighting and various *jiu-jitsu* methods of offense and self-defense are taught at Army Scouting Schools. They are of great value in giving a Scout confidence, and also act as a recreation. The value of physical training and recreational games should not be overlooked.

7. *The Use of Black Goggles.*—Black goggles when used to practice night conditions by day are of great value in training. While the Scout has the impression of being in the dark, and is working almost under night conditions, the instructor and the class can see any mistakes. It is, too, a more considerate way of treating men who are out for a rest and need their nights in bed.

The best training, however, is the real thing, and any practice carried out with goggles should be repeated at night.

CHAPTER III.

OBSERVATION, INTELLIGENCE AND REPORT.

7. *Observation.*

1. The employment of men specially trained in observation is less common with Battalions than with Brigades or higher formations.

The Battalion is primarily only responsible for the observation of its immediate front; the back area observation is, as a rule, carried out by Divisions and Corps.

When, however, conditions are favorable, Battalions and Brigades should regulate this matter for themselves, working in co-operation with the Divisional General Staff (Intelligence) on some system which ensures continuity and economy in personnel, and which prevents the overlapping of duties.

2. It should be possible for a Battalion in the trenches to find one or more good vantage points from which the whole of the battalion front can be kept constantly under observation. In cases where better observation of a battalion front can be obtained from points within a neighboring battalion's front, arrangements should be made to carry out the observation from those points.

Intelligent observation by men specially trained for the duty is of the utmost value, not only in trench warfare, but also in battle.

3. *What to Look For.*

(i.) In trench warfare.

Enemy sentries. Snipers, working parties and any points where he indicates his position by periscopes, weather-cocks, screens, etc.

Enemy trenches. Saps, lookout posts, breaches in the trench, loopholes, Sniper's posts, M.G.'s, O.P.'s, Trench Mortars, how the trenches are held, signs of relief, new work done, dugouts, H. Q. stores and latrines.

Wire. Gaps in the wire, new wire, tracks of patrols through wire, and telephone wires.

Smoke.

Dumps.

Mining. Signs of soil excavated and materials carried.

Gas or liquid fire. Indications, such as the escape of gas after shelling, suspicious emplacements, etc.

Batteries. Activity, nature of guns, shells and direction.

Lights. Signals, rockets, flares and searchlights.

Weather. Wind, visibility.

Aeroplanes and balloons.

(ii.) In open warfare.

All that the observer learns in trench warfare is of use to him in open warfare. In addition he should note:

The nature of clouds of dust made by the various arms and the times they take passing a given point.

The attitude of stock in the fields should be noticed.

If woods are occupied, smoke may be seen.

Trees should be examined for possible Snipers or O.P.'s.

The importance of noticing small things should be impressed on the observer. A gas attack has been forestalled owing to the rats being seen escaping across "No Man's Land," and a retirement detected through a hawk being observed perched on a trench. As "small straws show the way the wind blows," so trivial incidents may be the missing links in a chain of important evidence.

4. *The Use of Telescopes.*

(i.) The telescope should be carried slung on the body, and not left to be knocked about, as this may ruin it.

(ii.) The focus should be marked by scratching a circular ring on the final drawn to assist in quick focussing.

(iii.) The draws of the telescope should be kept slightly lubricated, and opened or closed with a slow, circular motion.

(iv.) The telescope should always be disguised with some wrapping, but care must be taken that this does not dirty the glass.

(v.) The sunshade must be pulled out to prevent detection and save the glass. When looking towards the sun an additional sunshade may be improvised, 9 inches or 1 foot long, to fit over the small sunshade.

(vi.) The observer should get a comfortable, steady position, and rest the telescope.

(vii.) When searching a given sector of ground, he should divide it into fields of view, work slowly, allowing each field to overlap, and never leave any suspicious looking object without having considered what it is and why it is there.

(viii.) Slight movement is more easily detected if the object is not looked at straight. The observer should look a little to the left or right, high or low. The keenest vision is at the edges of the eye. This fact is of special value at dusk and dawn.

(ix.) When an object is found the observer should consider distance, shape, color, size, and position. He should use each detail to check other details; for instance, if the cockade on a German cap is distinguishable, the distance is not over 200 yards.

(x.) The conditions of visibility constantly vary. At 11 a. m. an object may be indistinct; at 11.05 a. m. it may become quite clear. After rain the air is clearer. In autumn, when leaves are fallen and grass is withered, concealment is removed. In snow, wire and gaps in wire, paths and tracks, as well as dugouts, are shown up.

The observer must be ready to avail himself of favorable weather conditions.

(xi.) When there is heat or haze, better results may be obtained with a low than with a high magnification. In France, a magnification of under 25 is preferable, and excellent front-line work can be done with a magnification of 10.

(xii.) At night, good results can be obtained. To speak generally, the bigger the object-glass the better the result.

In trench warfare a good observer working from the front line by day can make a reconnaissance of wire often more valuable than that of patrols sent out at night.

5. *Care of Telescopes.*—The lenses of telescopes are made of soft and highly polished glass, and great care must be taken not to scratch the glass.

Any dust should be flicked off the object glass, and if polishing is necessary it should only be done with soft and clean material. The lenses should never be touched with the finger or thumb. If the glass gets damped and misty, the object-glass and eye-piece may be removed and the telescope laid out in the sun or in a warm room. The metal work should not be allowed to become hotter than the temperature of the hand, otherwise the Canada balsam (used to join the lenses in the object-glass) will melt.

If the telescope gets wet, the draws and sunshades should be dried and slightly lubricated. In screwing cells or tubes into place care must be taken not to damage the threads; turn them anti-clockwise until the threads engage with a click, and then screw up.

Observers should not interfere with telescopes unless qualified to do so, and with the permission of the officer responsible.

The Scout Officer should inspect all glasses, examining the cases as well as the telescopes.

6. *Identification.*—(*a*) *German uniforms.*—Only Jaeger wear grey-green.

All other combatant troops wear field-grey.

(*b*) *Regimental identification.*—This is established by the number or the monogram shown on the shoulder-strap of the tunic. This, in some cases, is partly or wholly concealed by a strip of colored cloth, worn on the outside of the shoulder-strap.

Regimental numbers stencilled on tunic lining, on the inside of the cap, on ammunition pouches, or on the bayonet near the hilt, are not very reliable in practice, the bayonet being usually the most reliable. Regimental numbers on greatcoats, whether of officers or men, are usually unreliable.

Identification is established also by examination of identity discs. This is, in fact, the surest method of identifying a man's unit. The usual pattern of identity disc is divided by perforations into two halves. Each half bears identical markings; the man's name, address and depot are marked on one side and his unit in the field is shown on the reverse side. In the case of a dead man, the lower half should be broken off and sent in to the Divisional Staff, the upper half being left attached to the body.

Search should always be made for paybook, letters and documents, which are generally to be found in one of his coat-tail pockets.

(*c*) *Head-dress and accoutrement.*—Caps are field-grey with colored band.

JAEGER—Grey-green, with green band.

ARTILLERY—Field-grey, with black band.

PIONEERS—Field-grey, with black band.

INFANTRY—Field-grey, with red band.

CAVALRY—Field-grey, with band of various colors, according to the unit.

(i.) The colored band is often covered by a strip of grey cloth.

(ii.) Cavalry, in the trenches, are armed with a carbine, which at night shows a greater flash than a rifle.

(iii.) It is important to note that officers and sergeant-majors always wear a black peak to their caps, often junior N.C.O.'s also, but they purchase them privately.

(iv.) If in the enemy's trench men are seen to wear the so-called assault kit, it must mean one of two things, namely, either a relief is in progress or an attack is in preparation.

The assault kit can be easily identified by the fact that the men wear their greatcoats (at a distance seemingly darker than field-grey) rolled and slung over the left shoulder in such a way that the ends meet at the right hip.

The corresponding accouterment for machine gunners is to wear packs; these are often of a greenish hue or of black leather.

7. It should be impressed on all concerned that all papers, letters, photographs, etc., should be handed to the Scout Officer, and that valuable information may be lost through documents, etc., being kept as "souvenirs."

8. *Map Reference.*—Instruction in map-reading must be given to all Scouts, but for the observer the special requirement is that he should be able to locate quickly and accurately on the map, and give the map reference for any object he observes in the field.

In giving a map reference it is safe to state it in more than one way:

(*a*) By Co-ordinate, *e. g.*, A.17 c.1.5.

(*b*) Pond 400 yards. True bearing 127 deg. (grid bearing 128) from Comines Church.

(*c*) Cross roads 550 yards E.S.E. of Canadian Farm.

9. *Bearings.*—All bearings must be quoted true and so stated. (*See* F.S.R., 9, vii.)

On squared maps the grid line is used for plotting angles, and the grid bearing should always be given. A simple and safe method is to measure the angular distance right or left of one or more well-defined points which are shown on the map.

8. *Intelligence and Reports.*

1. The Battalion Scout Officer is responsible for Intelligence in his Battalion as well as for the supervision of Scouts and Snipers. The collection and circulation of intelligence is of such importance that close liaison is necessary between the Battalion Scout Officer and the Brigade Intelligence Officer.

The duties of the Battalion Scout Officer are:

(*a*) *In Trench Warfare.*

(i.) To keep in touch with the Brigade Intelligence Officer and with Battalions on the flanks.

(ii.) He should live at Battalion Headquarters and attend Battalion Conferences.

(iii.) He should be in close touch with Company Commanders and should meet Artillery, Machine Gun and Trench Mortar Officers and co-operate with them.

(iv.) On taking over new trenches he should go up in advance with Scouts, and obtain all available information of his own and the enemy lines, visiting O.P.'s, Sniping posts, etc.

(v.) He is responsible for the system of observation and sniping; arranges the duties and decides on the siting and construction of O.P.'s and Sniping posts.

(vi.) He collects the daily reports from Companies, from observers, and from special Patrols sent out; he sifts the intelligence and forwards the Battalion Report at the time appointed by the Brigade, reporting at once to the Battalion Commander anything of importance.

(vii.) He sends out all information of interest to the Companies and keeps the Battalion generally informed and interested.

(viii.) He assists the Battalion Commander with the Log Book A. B. 419.

(ix.) He is responsible for maps and aeroplane photographs; and keeps plans of trenches, "No Man's Land," etc., up to date.

(x.) He is responsible for handing over to the Scout Officer of the incoming Battalion.

(*b*) *In Billets.*

In addition to assisting in the training of Company Scouts, he should assist Platoon Officers in the training of Section Scouts. He may be able to promote an interest generally with lectures to Companies on Intelligence subjects, showing aeroplane photographs and explaining events.

(*c*) *In Battle.*

(i.) He should study on the ground, and with maps and photographs, the objective and line of advance. He may be able from the map to select in advance good O.P.'s for special observers.

(ii.) With the help of Scouts he acts as a liaison between the Battalion Commander and the front line.

(iii.) He may also act as liaison with Battalions on the flanks.

(iv.) He is available for special reconnaissance.

It is not possible for the Battalion Scout Officer to undertake outside duties.

3. In Battle, information is obtained rather from Scouts and Patrols and from reports sent in by Companies than from Stationary Observers, but the use of specially intelligent Observers is of the greatest value.

The position of the Scout Officer in battle during the assault will probably be near Battalion Headquarters, where he would have some of his Scouts, Observers, and Snipers assembled, ready to go forward as required. On the first objective being taken, Scouts, sent out as may be best for the purpose, establish a forward O. P. and a report centre. The report centre may

later become the Scout Officer's Headquarters. With the situation constantly changing, any information received must arrive quickly to be of value, so that much will depend on arrangements made by the Scout Officer.

4. *Maps, Sketches, Compass.*—The Scout Officer should take every opportunity of improving himself and his Scouts in map reading, sketching, and the use of the compass. A short course of training is given at the Army Scouting, Observation, and Sniping Schools; the assistance of expert officers in Battalions should be secured, and also any help from the Intelligence Corps or Brigade Classes.

5. *Aeroplane Photographs.*—Though a good deal of information can be obtained from a single print, the best results are obtained by careful comparison of several prints of the same area, preferably taken at different times.

The photograph is supplementary to the map, and the two should be studied in conjunction.

Vertical and oblique photographs should be carefully compared, the one often supplementing information on the other.

A lens or reading glass should be used.

On the back of the print, or, sometimes, on the face, will be found certain essential information, such as the scale, map reference, date on which taken, and the serial number of the print.

An arrow will be found showing the North, or a diagram giving the exact position when laid on the map.

A photograph is a record of light and shade, and the highlights and shadows are seen from an unfamiliar position, namely, from vertically above; therefore, before trying to identify objects, the direction from which the light was falling when the photograph was taken should be ascertained; this is shown by the shadows of trees, houses, craters, shell-holes, etc.

Works, while under construction, are more easily distinguished than at later dates; early photographs of the area under consideration are therefore often of value for clearing up doubtful points, *e. g.,* dug-outs, cable trenches, wire, etc.. The tracks of the working parties are also often distinguishable.

Photographs taken with snow on the ground often clear up obscure points and give much information.

The comparison of photographs taken at different times of the day is also useful; a shadow thrown in a different direction may clear up a doubtful point.

Vertical photographs give more detail and are easier to compare with the map.

Oblique photographs give a good idea of the lie of the land, and are a great assistance to observers in identifying on the map the points under observation.

In annotating prints care must be taken not to obscure the detail. Any remarks made should be alongside, and not on top, of the features to which attention is drawn.

The authorized conventional signs should be used.

It is better to transcribe the information on to a map, which should be attached to the photograph.

Another method is to attach a piece of tracing paper, the annotation being done on the tracing paper and the print left clear.

6. (*a*) *Battalion Scout Officer's Report.*—Intelligence reports are framed under certain headings, and given in some recognized sequence. Any definite form of report, however, should be treated as an aid, a "reminder list," and not as a reason for restricting the report.

The following headings may act as a guide:—

(i.) *Operations.* (Enemy.)
- (*a*) Artillery.
- (*b*) Trench Mortar.
- (*c*) Bombs.
- (*d*) Machine Guns.
- (*e*) Rifle fire.

(ii.) *Movement.*
- (*a*) Enemy seen.
- (*b*) Indications of movement.
- (*c*) Smoke.
- (*d*) Transport.
- (*e*) Aircraft.

(iii.) *Work.*
- (*a*) General activity as shown by working parties, pumping, baling, etc.
- (*b*) Changes.
- (*c*) Wires.

(iv.) *Signals.*—Rockets, searchlights, etc.

(v.) *Patrols.*—Digest of reports sent in by our Patrols.

(vi.) *Sniping.*—Hits claimed by our Snipers.

(vii.) *General Intelligence.*—Information of uncertain nature, deductions and general impressions.

(viii.) *Weather.*
(*a*) General conditions.
(*b*) Light and visibility.
(*c*) Wind.

In addition to the above it is customary in some cases to include information as to the results of our artillery and trench mortar fire, as observed by front line units.

(b) *Observers' Reports.*—The time, position and nature of each observation should be given with accuracy, and it should be a point of honor with the observer that any definite statement he makes is reliable.

If doubt exists, he should use such qualifying terms as "apparently," "Possibly," "Probably," "Approximately."

When the observer has recorded his observations as clearly, definitely and tersely as possible, he may give his conclusions, but only as deductions, not as facts.

Entries should be made in chronological order, the time being noted in the margin on the left, and they should be under distinct headings of a simple nature.

Observers working for artillery should receive special instructions as to what points to observe, at what time, and what special information is required.

(c) *Patrol Reports.*—The information required by the reader of the report is the important part, and should come first. The report should begin by stating whether the object of the patrol was accomplished or not, and then give details; statements should be numbered and definite.

The following should also always be given:—

(i.) Map reference sheet.

(ii.) Personnel of patrol, number, rank and name in full.

(iii.) Place of going out; map reference and descriptive point.

(iv.) Time of going out.

(v.) Place of coming in; map reference and descriptive point.

(vi.) Time of coming in; if uncertain, this should be stated.

(vii.) Casualties, number, rank and name in full, and details—and at the end—place and time of writing, and signature.

7. *Filing Intelligence.*—A useful method of filing information is to take an ordinary note-book and a copy of the trench map of the sector. Cut up the map of the enemy's lines into its 500 yard squares. Mount one map square on each page. Write the designation of each square at the top of the page. Divide the remainder of the page into three columns, showing Date, Information and Map Reference; *e. g., a* hostile machine gun is located on 1st Aug., 1917, at W.18.b.5.6—turn up page containing square W.18.b., and enter as under:—

MAP. W.18.b.

Date.	Information.	Map. Reference.
1-8-17	M.G. located 9 p.m. by flash.	5-6

APPENDICES.

Appendix I.

SUGGESTED COURSES OF TRAINING.

1. The syllabus for training must vary with the time available, the facilities (ground, ranges, instructors) and the special needs of the Battalion. The Battalion Commander should explain to his Scout Officer what he specially wishes his Scouts to do on return to the line, and arrange with him some suitable course of training.

The scheme will be drawn up in accordance with S.S. 152, revised edition, Appendix XXI.

For the first week, during the first three days of individual training, the Scouts and Snipers (para. 5) should receive all the training possible from the Scout Officer and N.C.O.'s. The Scout Officer should give a special lecture each evening, at which as many Section Commanders as possible should attend. Physical training should take the form of crawling and *Jiu-Jitzu* as taught at Army Scouting Schools. On the fourth and fifth days the Scouts might be used to assist in the training of Companies, the Scout Officer giving lectures and demonstrations.

On the sixth day, which is at the disposal of the Brigadiers, it may be well to bring the Scouts of the Brigade together to work under the Senior Scout Officer as required.

If the Battalion is out of the line for a long period, it will be best to give the Scouts a longer period of training before calling on them to assist in the training of platoons.

The 16 Company Scouts should all be trained together in shooting, scoutcraft, observing, map-reading, and reporting, special training being given as required to special men in night patrolling or shooting.

(*a*) *Suggested Programme for three days.*

1st DAY.

9.30 a. m. to 12.30 p. m.—*Lecture* on duties of Scouts. *Practice:* Shooting. Use of ground. The quick eye.

2.30 p. m. to 3.00 p. m.—Shooting.

3.00 p. m. Recreation. *Jiu-Jitzu* wrestling, boxing, crawling.

6.30 p. m.—Lecture. Duties of Scouts.

2nd DAY.

9.30 a. m. to 12.30 p. m.—Stalking. Shooting combined with stalking and movement. Finding the way. Maps. Crawling and patrolling.

6.30 p. m.—Lecture. Night work.

3rd DAY.

9.30 a. m. to 12.30 p. m.—Messages, reports. Night work.

6.30 p. m.—Lecture as required, or night work.

4th and 5th DAYS.

Lectures, demonstrations, and simple schemes illustrating the duties of Scouts with Platoons.

(*b*) *Suggested Course for Brigade or Divisional Class* (10 *to* 12 *working days*).

The syllabus must depend on the special duties for which the men are required, whether for trench or open warfare; or as Scouts at night, or as expert Snipers. The principle is that having been given an all-round training in the first eight days, the next two days should be spent as required in special training.

1ST DAY.—*Shooting. Lectures.* Care of Arms. Preliminary shooting, *i. e.*, Grouping, Positions, Hold Aiming, and Trigger pressing.
Practice. Grouping at 100 yards. Testing of rifles. Triangle of error. Aiming disc. Aiming drill.

2D DAY.—*Shooting.* Grouping, adjustment of sights, triangle of error. Aiming disc and aiming drill.
Scouting. Lecture on Scouting. The quick eye. Stalking and use of ground.

3D DAY.—*Observation, Lecture, and Practice.* What to look for. Use and care of glasses and telescope. Maps.
Shooting. Grouping and adjustment of sights. Application at 100 yards and 200 yards bull's eye target or miniature targets and shorter ranges.

4TH DAY.—*Reports and Maps.* Lecture and Practice.
Scout and Runner working in combination.
Shooting. Snapshooting at 100 yards, 4 seconds exposure.

5TH DAY.—*Shooting.* Moving target at 100 yards.
Fire combined with movement and use of ground.
Sniper and Observer working together.

APPENDIX I.—*continued.*

6TH DAY.—Men working as a group.
Schemes to illustrate duties of Scouts with a Platoon.

7TH DAY.—*Night work.*

8TH DAY.—*Open Warfare. Lecture and Practice.* Various duties, protection, and reconnaissance, formations, and keeping direction and touch.

9TH DAY.—Reconnaissance. Reports. Maps.
System of sniping in trenches. Loopholes. Disguises.

10TH DAY.—Night work and patrols.
Telescopic sighted rifles. Night firing.

11TH DAY.—Recapitulation and practice as Instructors, with the help of note books if required.
Demonstrations. Competitions.

12TH DAY.—Examination and Display.

Instruction in crawling and self-defense, as taught at Army Scouting Schools, throughout the course.

APPENDIX II.

SUGGESTED PRACTICES AND COMPETITIONS.

1. *Firing combined with movement and the use of ground.*

A group of men, covering each other's advance, rush from cover to cover, a distance of from 200 to 300 yards, to shell holes within fifty yards of the butts. Targets, stationary, representing Machine Guns or loopholes at longer ranges, moving figures at closer ranges. Dummy figures just in front of the butts. Scouts in the butts watch the advancing men with periscopes, noting the mistakes and learning how difficult a mark a good Scout presents.

Bayonets are fixed at 50 yards, and the charge delivered at the dummy figures. On reaching the position, Scouts are at once detailed to act as Scouts on the look-out, and as Snipers, to pick off enemy leaders or fugitives from good vantage points.

The practice should first be rehearsed snapping, and then carried out with ammunition as a competition, points being given for marksmanship, use of ground, time taken, and enthusiasm. The points to be remembered are:

Each man must know his object and mean to get there and kill his enemy. In getting there he himself must present the most difficult target for the shortest possible time.

His advance must come as a surprise. He must know where to go to before he starts each rush. There must be no hestitation; he must be up quickly, run hard, throw himself down. Rushes should be timed with covering fire; the fire must not be masked. Cunning in reappearing away from the point where he was last seen, and skilful use of cover, hollows, banks, shell holes should be borne in mind. In firing, movements must be stealthy and quick, the rifle loaded and sights adjusted under cover. The rifle should be in position before the head is exposed, and the position as comfortable as possible. The background color breaking of the outline, effect of lying still must be studied. If under cover he should steady himself and remember the object always—every shot a hit or somewhere near. The idea of getting home with the bayonet must be carried out with spirit; and then when it comes to sniping, each man must steady himself to quite a different mood and concentrate his mind on good shooting.

2. *The training of a quick eye.*

(i.) Stationary Observation.

Scouts sit at some good point of view. Men in different uniforms (German, if available) expose themselves at various points in various positions or move at the signal of the instructor.

By this means, too, Scouts should be exercised in observing smoke, dust, glint of a bayonet, outline of a glass or periscope, shifting of earth, camouflage figures, etc.

Competitions should be encouraged in seeing first, in deduction from what is seen, in estimating the range, indicating the object seen, and giving its map reference. The best line of approach should be selected.

(ii.) Observation on the move.

(*a*) Men or painted German figures are placed in likely positions along the road to and from the training ground.

Each Scout moves alone as an advanced Scout, his eyes alert to see his enemy first, and his brain quick to make some plan according to whether he sees first or is first seen.

(*b*) Advancing Scouts follow up retiring Scouts, and they keep them under observation. The retiring Scouts occasionally look round, and the advancing Scouts must endeavor to avoid detection.

3. *Finding the way.*

Take the Scouts by train or in a closed lorry, or take them into a thick wood. Give them their positions on the map and send them home in pairs. Arrange a "treasure hunt."

4. *Messengers.*

Extend the men at intervals. Instructor gives a message to the first runner; they both join the second runner where the first runner repeats his message to the second. They all three join the third runner; second runner repeats message to third runner, and so on.

Instructor and runners each note where and how the message went wrong. Instructor points out any faults. This can be done as a competition, *e. g.*, four groups extended at four cross roads.

5. *Observation and memory.*

After marching to any point, ask questions on the route taken, landmarks, distances, time taken, points of the compass, wind, animals, etc. Observation of animals and birds should be encouraged. "Kim's game" provides an excellent training of memory; this can also be carried out with a telescope at a distance.

6. *The Scout, Sniper, Observer, and Runner combined.*

Four men are sent to work forward and get information. The Section Commander details one pair to act as Scout and Runner, the other pair as Sniper and Observer, to cover the Scouts' advance. He arranges for reports to be sent to a named point, the point to be reconnoitered being the butt. Other Scouts are placed in the butts with periscopes and watch for the competing Scout and Runner. Whenever these expose themselves, a marker in the butt exposes a figure target, showing a corresponding amount of target for a corresponding time. Scouts observing in the butt name quickly the position of the Scout or Runner seen. The Scout works his way round up to some good vantage point, and reports on the position and the best line of approach to it, and on any smoke, glint, figures shown by the marker.

The Runner takes back the report, while the Scout remains in observation. The Sniper fires at the target, assisted by his Observer. In this manner men can be trained to cooperate towards the common end of getting information. Real practice is given in each duty while the men observing from the butt learn from each other's mistakes.

These exercises should be simple and practical, and illustrate the duties outlined in S.S. 135, and in open warfare. (Infantry Training, Sec. 110.)

7. *Open warfare.*

(*a*) Protection.—Move along a road or across country with a flag to represent any sized party to be covered. Give the Scouts the direction and practice them in formations, use of ground, keeping touch and direction, signals, messages, and reporting. This practice can be done with or without an enemy.

(*b*) Reconnaissance.—Occupy some position so lightly that it is possible for a good man to get through. Mark the flanks with flags and place a flag or lamp at night to represent the support.

Send Scouts—

(i.) To locate and report on the position.

(ii.) To engage the party holding the position with Snipers, whilst Scouts endeavor to get through and bring back the flag (or lamp).

A whole day may be spent on this practice. It should not be hurried. All-day schemes should be encouraged; with proper arrangements, the men enjoy the outing and get more practical training.

(*c*) Reconnaissance of positions, villages, woods, etc., and reports should be practiced in own country first, then in supposed enemy country.

8. *Night work.*

(*a*) Prepare a difficult bit of ground with tins, bricks, twigs, trip wires, etc., and teach the Scouts to pick their way by day or by night and to whisper some message to you.

(*b*) Stand a man blindfolded, to represent a German sentry listening, place him in wood, or on difficult ground. Extend the Scouts in a wide circle round him. At a given signal they close in on him. He points in any direction from which he hears a noise. The man who gets closest without being heard wins.

(*c*) 1. Take the men out at night and practice hearing sounds.

2. Extend the men and tell them that the N.C.O. is trying to get through; do not send him, and see how many men imagine they have seen him.

(*d*) Example of Practice to teach Night-patrolling:—
Points illustrated.

(i.) Reconnaissance for information.

(ii.) The gaining of superiority of morale and confidence in the dark.

(iii.) The teaching of formations and adaptability in unexpected situations.

(iv.) To prove the value of instruction in crawling and self-defense.

(v.) The value of black goggles.

Scheme.—Mark out a German and a British trench. The German trench has been shelled by the British during the day.

A British patrol of five is sent to reconnoiter and report on damage done to wire and trench. Germans have post out to cover repair of wire and trenches.

Practice.—(i.) Patrol leader and Scouts study the ground with maps, photos, periscopes or telescopes during the daylight.

(ii.) Patrol go out with black goggles. Leader encounters German post. He makes a plan, details two Scouts to get information while he attracts the enemy's attention.

(iii.) German post attacks British leader and his two Scouts (hand-to-hand fighting).

(iv.) The remainder of class look on and learn by mistakes.

The practice is carried out with black goggles by day and repeated at night with Very lights. The remainder of the class should watch at night from the German trench and note how difficult it is to see men crawling or men walking.

APPENDIX III.

EDUCATION BY DEMONSTRATION.

(*a*) *Good Scouting and Bad.*

(i.) Old hand, working with young soldier, makes plan for advance from cover to cover, bringing in all the points mentioned in Appendix II. New hand, full of confidence at first, starts off making mistakes which draw fire. This alarms him and checks the offensive spirit. Old hand criticizes, encourages, and threatens in his own language. Mistakes made by new hand end in his being shot.

(ii.) German soldier stands up near his post, searches for enemy, and seeing nothing, takes up good position for observation. British Scout, by good stalking, works up and round and deals with German sentry.

(iii.) German soldier stands up and at once hears and sees bad Scout who is making every kind of mistake. British soldier is wounded, captured, and searched, and found to have many papers on him, important and otherwise. The reading of these letters may be made instructive and amusing. The Instructor points out mistakes as they occur, and supervises generally.

(*b*) *Good Observer and Bad.*—Two Scouts coming on duty, bring in all points in connection with O.P.'s, use of telescopes, map reference, reporting, etc. They locate a Trench Mortar and successfully turn the guns on to it. They are relieved by two bad Scouts who approach noisily and smoking. They are cautioned by good Scouts, and take over the O.P. They proceed to do everything wrong. A working party is seen, but after long conversation on telephone they are rung off by the battery. They see a German and open fire from the O.P., which brings retaliation, ending with hurried withdrawal of observers.

(*c*) *Good Runner and Bad.*—Excited messenger, without helmet or equipment, gives incoherent account of how all his Company are blown up; while he is doing so, a good messenger arrives and explains the serious situation confidently and clearly, reporting the casualties, steps taken and requirements, and informs the Officer that he has reported to the Bombing Officer on the way, and that the required bombs have already been sent up.

(*d*) *Good Night Patrol and Bad.*—With black goggles.

(*e*) *Good Sentry and Bad.*—With black goggles.

(i.) Scout gives Sentry a talk about listening and noise, reproducing the points referred to in Chapter II in his own language. A German patrol approaches the post. The Sentry being alert, distinguishes himself, and is duly brought up before the officer and commended.

(ii.) Bad Sentry unable to hear, owing first to talking, then to snoring of his comrades, relaxes vigilance, and is rushed by German patrol.

(*f*) *Sniper and Sentry.*—Sniper visiting a bay in the trench talks to Sentry who is looking up at vigilant glass. He disguises and adjusts periscope, and interests Sentry in trenches opposite, giving him tips as to cunning, use of sniperscope, etc., and passing on the latest good news with any other information of topical interest.

(*g*) *Casualties.*—Sentries see a German, and rush to loophole, where they make every kind of mistake and get hit.

NOTE.—Scenes should be made as realistic as possible; the addition of blank bombs, explosions, German uniform, etc., improve the effect.

APPENDIX IV.

STORES AUTHORIZED FOR ARMY SCOUTING, OBSERVATION, AND SNIPING SCHOOLS.

Overalls for night patrols. 60 per School.		43/6 (Q.A.3), 25/5/17.
Telescopes, Signalling	10	G.R.O. 2538.
Protractors, semi-circular, celluloid	24	
Compasses, prismatic	6	
Range-finders. 1 man	1	
Binoculars, prismatic	10	
Boots, gum thigh	20 prs.	43/6 (Q.A.3) 28/8/17.
Pleyan Stereoscope	2	G.R.O. 2670.
Protractors for air photographs ...	2	

Stores authorized for Battalions:—
5 Telescopic-sighted Rifles.
10 Crawling Suits per Battalion in the line.

Eyepieces, rubber, T.S.S.A. (one per Telescopic-sighted Rifle)		G.R.O. 2415, 30/6/17.

APPENDIX V.

APERTURE, MAGNIFYING AND TELESCOPIC SIGHTS.

Besides the ordinary open sights, there are other varieties:—

I. Aperture.
II. Magnifying.
III. Telescopic.

I. APERTURE SIGHTS.

The aperture sight is also called the pin hole or peephole sight. This sight is used in substitution for the ordinary backsight, with a foresight of ordinary shape, but it requires to be within four or five inches from the eye.

The size of the hole is an important point. In aiming at a well-defined mark in a good light, a small aperture can be used. But such an aperture cuts off much of the light which comes to the eye, and makes it difficult to see a target which is badly illuminated, or any mark when the light is not bright. It is found in practice that an aperture 1/10th inch in diameter gives excellent results.

The aperture sight has three very great advantages over the ordinary service sights:—

(i.) There is no focussing of the backsight, *i. e.*, there is no attempt to adjust the eye so as to see it clearly, which is what causes the principal strain on the eye. The eye merely looks through an aperture, and only the position of the foresight in relation to the mark has to be thought of, both foresight and mark being seen in the centre of the field of view without the centering being thought of.

(ii.) The foresight appears more clearly defined and more free from blur than if looked at over an open backsight.

(iii.) Since the aperture sight has to be placed near the eye, a much longer sight radius (*i. e.*, the distance between backsight and foresight) is possible than with the ordinary backsight, which is a great advantage in accurate aiming. An aperture sight placed four inches from the eye on the short .303 rifle would give a sight radius of 29 inches instead of 19, *i. e.*, more than 50% increase. The open backsight is placed so far from the eye to reduce the blur and the strain caused in the endeavor to focus it.

II. MAGNIFYING SIGHTS.

Various patterns of magnifying sights were issued during the earlier stages of the war. The chief varieties were the Barnett or Ulster, Martin, Gibbs and Lattey Sights. These have now been superseded by the telescopic sight.

III. TELESCOPIC SIGHTS.

The telescopic sight proper is an actual telescope of short length, in a rigid tube without slides, attachable by special fittings to the rifle. It is carried in a sling case of leather, and only put on the rifle when likely to be needed for use.

It is generally fitted so as to project to one side of the rifle, in order not to interfere with the charger loading. Some telescopes have two projecting fittings, which fit into corresponding recesses in fittings on the action of the rifle; others are attached by a single fitting which takes the form of a dovetail slide. The fittings on the rifle should be, and usually are, on the body and not on the barrel, as one telescopic sight should outlast many barrels.

Each telescopic sight is fitted to a particular rifle, and they bear special numbers to correspond. On no account must any attempt be made to fit a telesope to a rifle that does not bear the same number.

The telescope has its largest lens at the end towards the eye. This is to enable the eye to see the full field when at a distance of 2 to 3 inches from the end of the tube, and so to escape the risk of damage from the kick of the rifle. The full field of view is only obtained when the eye is exactly the right distance away.

The arrangement of the lenses (as in other telescopes of the ordinary kind) admits of cross hairs or some other form of aiming mark or pointer being inserted in a focus between the lenses, and seen as distinctly as the view. In most telescopic sights, this takes the form of a pointer with a horizontal line across it.

Telescopic sights have usually a magnification of 3 or 4 and a field of 6° to 8°, *i. e.*, 30 ft. to 40 ft. at 100 yards, and 300 to 400 at 1,000 yards. This enables a difficult mark to be located and recognized easily and rapidly. It is perfectly easy to pick up and fire at, a moving object with a well-defined telescopic sight.

If, when the telescope is fixed and directed on any mark at a distance, it is found that when the eye is carried from one side to the other of the eye-piece, the pointer appears to shift its position in relation to the object, the condition known as parallax is present, and accurate shooting cannot be made. This is because the aiming mark is not correctly in the focus between the lenses, and the telescope requires skilled correction. This condition may arise if one of the lenses concerned, or the pointer, is displaced in a small degree, as by a fall or a blow.

Aiming.—There is no need in aiming to try to look precisely through the centre of the lens. It is wrong to assume that the telescopic sight will improve the shooting of a medium, or bad

shot. A man who scatters his shots when using the service sights will do the same when shooting with telescopic sights. Only men who prove themselves expert with open sights should be allowed to use the telescopic sight.

Owing to the clear definition with a telescopic sight it is possible to aim directly at the point which it is required to hit, in place of taking the usual 6 o'clock regulation aim.

The rubber eye-piece should be obtained and always used. It prevents reflection on the eye lens, and protects the glass in wet weather.

Night sight.—One of the greatest advantages obtained by using a low power telescope as a rifle sight, is its value as a night sight. Objects can be seen and aimed at in the dusk, or even in semi-darkness, when accurate aiming with the service sights would be quite impossible.

The following points should be noted;—

(i.) When the teles ope is fitted to one side of the rifle, the cheek is away from the stock while aiming: it is advantageous to provide a rest for the cheek by tying a pad on the stock, or, as an alternative, the left eye may be used.

(ii.) The obje t glass must be absolutely rigid in its cell. If movement is possible, the sight is useless for shooting and must be repaired by an expert.

(iii.) There must be no slackness between the sight and the rifle. The sight base (*i. e.*, the distance between the forward and rear fittings on the rifle), is very short, and a movement of one hundredth of an inch, on a four inch base, gives an alteration on the target of nine inches per 100 yards. All screws must be kept tight.

(iv.) Before firing, make certain the sight is firmly secured and locked on the rifle.

(v.) Final movement of the elevating drum must be clockwise.

(vi.) The eye must be kept at a definite distance from the eye-piece (about two inches), or the field of view will be reduced.

(vii.) If an expert has to take the sights to pieces for repairs, the sight will require readjustment on the range, therefore send both rifle and sight, and, if possible, the man who uses the rifle.

(viii.) All adjustments should be left to an optician armourer, except the corrections necessary for changes in elevation and focus.

To obviate the firing of unnecessary shots, when zeroing for elevation or deflection, a rough adjustment of the telescopic sight should be made by a comparison with the open sights. The final adjustment can then be made by the shooting of the rifle.

All telescopic sighted rifles should also have their service sights zeroed, and every sniper must know how his rifle shoots, without the telescopic sight. After zeroing the service sights, a telescopic sighted rifle should not be used for practice in service shooting. It is advisable for practice to use an ordinary service rifle. Rapid fire should not be attempted with the telescopic sight.

Care and Cleaning.

Every rifle to which a telescope has been fitted has first been carefully selected from among many others, and thoroughly tested; so that the special value of these weapons should be brought home to each sniper who has the privilege of being armed with one. The following should be borne in mind:

(i.) When the sight is not in use it must be kept in the case with the caps and rubber eye-piece on. Great care should be exposed to the sun, or kept in a warm room till

(ii.) Dust should be removed carefully from the lenses; these must never be touched with the fingers; chamois leather or soft materials only should be used for cleaning.

(iii.) If moisture has condensed on the lens, the sight should be exposed to the sun, or kept in a warm room till the moisture evaporates. It should not be heated at a fire. The case must also be kept dry.

(iv.) The sight and fittings must be kept scrupulously clean and the fittings slightly oiled.

(v.) Only those qualified should be allowed to adjust and zero telescopic sights.

Zeroing.—Owing to changes in the shooting of the rifle, and to changes which take place in the sight itself, it is necessary to re-zero a telescopic sighted rifle frequently for elevation and deflection.

Offset.—With the telescopic sight fitted to the left side of the rifle, it is necessary to allow for "offset" when zeroing deflection. The sight should be adjusted so that at 100 yards range the shots strike 1½ inches to the right of the point of aim. A rifle so zeroed may be taken as shooting straight for all sniping ranges. Only when shooting at a small mark, such as a loop-hole at 100 yards should this 1½ inches be allowed in aiming.

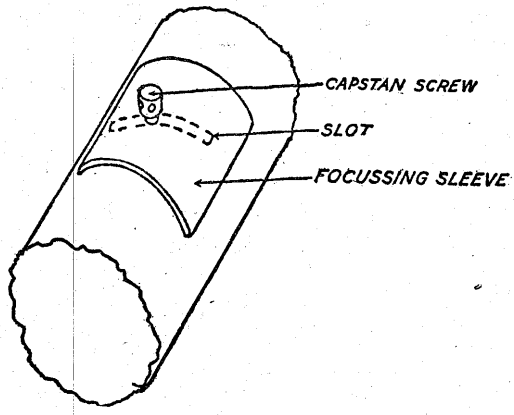
With the telescopic sight fitted on the top of the rifle, the rifle should be zeroed to hit the point of aim.

Zeroing for deflection should be carried out at short ranges up to 100 yards. At ranges beyond 100 yards, atmospheric influences affect the path of the bullet and make correct adjustment more difficult.

Focus.—The sight is focussed by moving the focussing sleeve (see Fig. 1) across the telescope. This sleeve is held in position by a capstan screw, which is connected to the erecting system of lenses. It slides backwards and forwards in a diagonal slot in the telescope.

FIGURE 1.

Focussing Adjustment.



If the telescope is focussed on an object about 200 yards distant, it will then be in focus for practically all ranges. The capstan screw should be tightened up, otherwise the focus is sometimes disturbed by the shock of discharge in firing. Care should be taken that the focus is in perfect adjustment to obtain the best results.

Elevation.—Elevation is obtained by rotating the graduated elevation drum on the top of the telescope. This drum is fixed to an even threaded screw which moves the pointer vertically in the telescope. Rotating the drum to a greater or less extent gives the difference of elevation. (*See* Figs. 2 and 4.)

The elevation drum is graduated from 100 yards to 600 yards, and the drum is rotated till the range required is opposite the reading line.

In the rear of the drum is a clamping screw, which must be slackened before the drum is set, and tightened when adjustment of the drum is complete.

Lateral Adjustment.—There are two methods of altering the shooting of the rifle laterally, (*a*) Optical, (*b*) Mechanical.

In method (*a*) a lens, or prism, inside the telescope, or in front of the object glass (O.G.) is moved, the telescope remaining fixed.

In method (*b*) adjustment is made on the fitting of the telescopic sight on the rifle, the telescope being moved.

In all adjustments which are made by opposing screws (one screw on either side of the 'scope or fitting), care must be taken to slacken the screw opposite the one which is to be tightened. The adjustment should be made and the screw, previously slackened; should then be retightened. All adjusting screws should be uniformly tightened up.

Types.—Many types of telescopic sights have been issued in the past, these are now restricted to three, "The Aldis," "The Periscopic Prism Co.," and "The Winchester."

Aldis Sight Adjustments.

Elevation.—In this sight the elevation drum is split laterally, the top portion being movable and held on the drum proper by three small set screws. (*See* Fig. 2.)

Method of Adiustment.—Shoot at any known range and adjust the drum till shots are hitting at correct elevation.

(i.) Clamp the drum with the clamping screw.

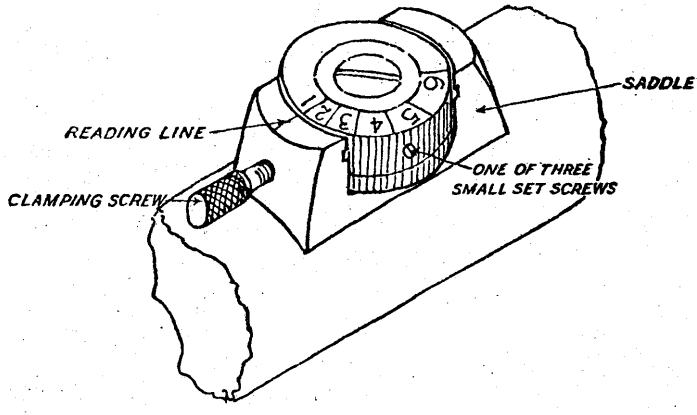
(ii.) Slacken the three set screws.

(iii.) Turn the scale till the range fired at is opposite the reading line.

(iv.) Tighten the set screws.

FIGURE 2.

Aldis Elevation Drum.

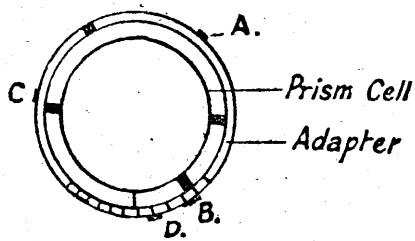


NOTE.—As there are three set screws, one screw will always be hidden by the saddle. Before clamping the drum, previous to moving the scale, slacken the screw which will be hidden, clamp the drum in correct position and slacken the other screws. When the scale is adjusted, tighten up the last two screws slackened. The scale will then be firmly enough held so that the drum can be turned and the hidden screw tightened up.

Aldis No. 4—Lateral adjustments is effected by means of a glass wedge or prism, in the form of a circular disc, mounted in front of the O.G. Fig. 3.

FIGURE 3.

Aldis No. 4. Lateral Prism Adjustment.



The prism cell (*i. e.*, the inner ring in front of the O.G.), has a reading line marked on it, and the prism cell adapter is marked with a number of divisions.

If the prism cell is rotated through one of these small divisions, it will make a lateral alteration in the shooting of the rifle of approximately five inches per 100 yards.

To Adjust.—Remove the protecting cap, slacken the three small set screws A, B and C—(there is a fourth screw, D, which must not be tampered with) fit the adjusting key into the slots of the prism cell, and rotate to the right or left as necessary.

If the rifle shoots to the right, turn the cell clockwise, as you face the O.G. If shooting to the left, turn counter-clockwise.

When adjustment is completed, tighten the set screws and replace the cap.

As a slight alteration in elevation is made when adjusting lateral zero in this sight, always adjust for elevation *after* lateral correction.

A coin or metal disc of one inch diameter can be used for adjusting if a key is not obtainable.

Aldis Purdey Sight.—In this sight lateral adjustment is effected by moving the forward fitting. This fitting is a dovetailed slide and slot, the slide is moved in the slot by opposing-flush screws, one on either side of the fitting.

APPENDIX V.—*continued.*

The same rule applies to this sight as for the Periscopic Prism Sight, *i. e.*—to tighten the screw towards the error when the rifle is shooting off. One complete turn of the screw gives about 20 inches per 100 yards.

At the back of the fitting there is a small clamping screw, which holds the slide firmly in position.

This screw must be slackened before adjustment, and re-tightened when adjustment is complete.

In older forms of this fitting there is no screw adjustment, and the dovetailed bed has to be tapped over.

The clamping screw should be slackened before adjusting and tightened afterwards.

On a 6-inch base (*i. e.*, distance between the forward and rear fittings,) 1/100th of an inch of movement of the slide gives an alteration of 6 inches on the target per 100 yards.

Aldis Holland and Holland—In the Aldis sight fitted by Holland and Holland (new fitting) adjustment takes place in the rear fitting of the telescope. There are two opposing screws and no clamping screw. These screws are pushing screws, that is, when the right screw is tightened it pushes the telescope over to the left.

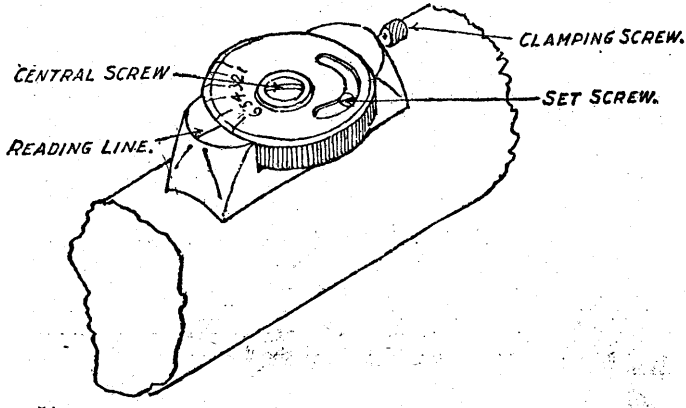
Tighten the screw on the same side as the error. One complete turn of the screw gives about 20 inches of alteration at 100 yards.

Periscope Prism Co. Sight Adjustments.

Elevation.—In the Periscopic Prism Co. Sight this scale is held in position on the top of the drum proper, by a small set screw and by the main central screw of the drum. (*See* Fig. 4.)

FIGURE 4.

Periscopic Sight Co. Elevation Drum.



Method of Adjustment.—Shoot at any known range, and adjust the drum till shots are hitting at correct elevation.

(i.) Clamp the drum with the clamping screw.

(ii.) Slacken the central screw and small set screw, care being taken that the drum does not move.

(iii.) Turn the scale only till the correct range figure is opposite the reading line.

(iv.) Tighten the set screw and main central screw.

Example.—If shooting at 100 yards and the elevation on the sight reads 200 yards, proceed as above, the scale being adjusted till the 100 yards mark is opposite the reading line. Tighten up the screws, and thereafter read all ranges as correct.

Lateral.—Lateral adjustment is made by means of the optical method. A thin lens between the O.G. and the pointer is moved laterally by two capstan screws, one on either side of the sight.

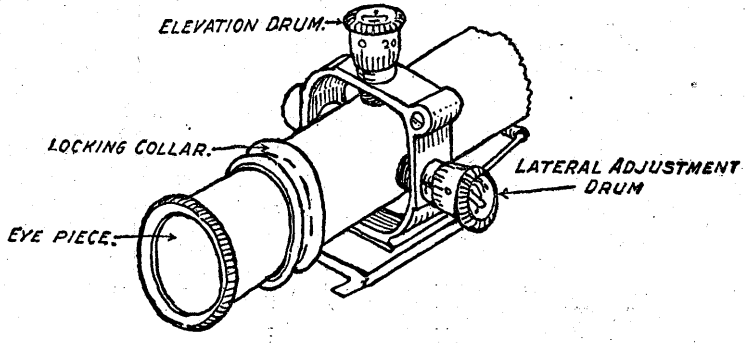
Tighten the screw towards the error, *i. e.*, if the rifle is shooting too much to the right, the right screw must be tightened. One complete turn of the screw gives a lateral correction of about 8 inches per 100 yards. Always see that both screws are quite tight.

Winchester Sights.

System of adjustments.—A micrometer screw in the rear fitting of the telescope raises or lowers the sight, and a micrometer screw on the right gives alteration laterally.

FIGURE 5.

Winchester Adjustment.



Rule of adjustment.—Move the rear of the telescope by means of the micrometer screws in the direction the shots are required to go (the same as with the service sights).

To adjust focus.—Loosen the locking collar holding the object glass, turn the graduated sleeve till the edge coincides with the line on the telescope marked "200 yards or over," and screw up the locking cap tightly.

If the cross-hairs appear blurred and indistinct, they can be focussed by adjusting the eye-piece in the same manner as above.

Position of Sight.—When firing the rifle, the telescope jumps forward in its fittings, the sight should therefore be pulled back to its original position after each shot.

Between the object glass and the front fitting is a stop collar, which can be adjusted so that the telescope may be brought back to the same position each time. The eye-piece should be about two inches from the eye, and the stop collar should be adjusted accordingly.

Fittings.—The sniper should see that all springs work freely, and that the telescope is held by the springs firmly against the elevation and deflection screws.

It is most important that the two clamping screws which secure the sight to the dovetail fittings are screwed up firmly, and always to the same degree of tightness.

If shots are going low, raise the rear of the telescope by unscrewing the elevating screw, and *vice versa* if the shots are going high.

If going to the right, move the telescope to the left by tightening the later adjustment screw, and *vice versa* if shots are going to the left.

Both screws are graduated in half minutes, one complete turn giving 12½ minutes. The standards on which these drums operate are marked off with divisions; each division equals 12½ minutes, or one complete turn of the screw.

Test the rifle carefully at 100 yards range, find out the correct elevation and lateral adjustments, then make a note of the scale readings and use them as a zero for the longer ranges, in accordance with the following range table.

Table of Elevation for Winchester Sight.

Elevation Table—

From	100	yds.	to	200	yds.	unscrew	5	(half minutes.)
"	200	"		300	"	"	7	"
"	300	"		400	"	"	8	"
"	400	"		500	"	"	10	"
"	500	"		600	"	"	12	and so on progressively.