



AAC INSTRUCTOR HANDBOOK (FIELD CRAFT)

Adapted from MLW 2.1.2 Rifle Platoon

PREFACE

Aim

1. The aim of this publication is to provide Cadet Instructors current and accessible doctrine.

Level

2. This publication is not the source document, however, it is to be used as the reference for Cadet Field Training.

Scope

3. This publication is a guide and was correct at the time of publication. The source for this was ADEL issued in January 99. Any questions or suggestions should be directed to the Training and Development Wing ARTC (Kapooka).

AMENDMENTS

1. The following promulgated amendments have been made to this publication.

[illegible]

CONTENTS

Lesson	Page
Explain The Principles Of Fieldcraft	5-6
Interpret Orders	6-8
Assemble Field Equipment	8-10
Health And Hygiene In The Field	10-12
Live In The Field	13-15
Prepare Sleeping Areas	16-18
Prepare and Consume Rations	19-20
Camouflage And Concealment	25-27
Observation By Day	28-37
Individual Movement By Day	29-31
Judging Distance	32-34
Field Signals	34-36
Observation By Night	37-39
Individual Movement By Night	39-41
Casualty Evacuation	42-43

PRINCIPLES OF FIELD CRAFT

Introduction

The Purpose of Field craft

1. Field craft is the use of natural and artificial cover to provide a measure of protection whilst operating in a field environment. Field craft training enables a cadet by day or by night to:

- a. use their senses;
- b. always make the best use of ground;
- c. move silently, with stores and equipment;
- d. judge distances accurately;
- e. recognise and indicate common objects; and
- g. be alert, confident in whatever situation may arise.

The Relevance of Fieldcraft

2. Training in field craft will develop the qualities of self-reliance, mental toughness and will impart the confidence to exploit fully the terrain to survive in a field environment. It will also educate cadets to use nature to their advantage.

Terminology

3. To avoid misunderstanding it is important that the meanings of the terms commonly used in field craft are understood. They are as follows:

- a. **Cover.** Cover may be natural or artificial. Natural cover can be provided by ditches, hollows, trees, rocks or caves. Artificial cover may be obtained by brick or stonewalls, buildings or by digging a pit. The degree of protection provided by both natural and artificial objects depends solely upon the thickness of the cover. Any object or feature, which provides cover for a cadet, will also provide protection against observation.
- b. **Concealment.** Concealment is protection from observation and surveillance. It may also be achieved naturally or artificially. Natural concealment may be provided by the surrounding vegetation such as trees, bushes and grass. Artificial concealment consists of camouflage nets, camouflage cream and other similar materials. Whether natural or artificial, concealment hides or disguises a cadet, a position, a vehicle or a route. Concealment is aided by an absence of light, noise, movement and strange

smells. Concealment from ground observation may not prevent observation from the air.

- c. **Detection.** Detection is the discovery of the existence of an object and its location. It may be the result of a deliberate search or come from the appearance of dust, flash, noise or movement.
- d. **Observation.** Observation involves a careful study of the terrain and vegetation. Good observation will allow a composite picture of a situation to build up. It may occur over a long time or require the employment of a number of techniques before the full situation is revealed.

Qualities of the Soldier

4. Fieldcraft training should make the cadet feel at home in the field and help develop a sense of confidence in their natural qualities. To be good at fieldcraft a cadet must refine these qualities as follows:

- a. **Power of Observation.** Fieldcraft requires a study of, and an awareness of, the natural surrounding and the ground.
- b. **Self-discipline.** Even if he has developed the power of observation, the cadet must remain concealed while he or she is observing. This will require self-discipline and will be assisted as follows:
 - (1) **Alertness.** Mistakes caused through lack of foresight and awareness are difficult to rectify. The cadet must be alert to changes around them and should be encourage planning ahead. Alertness to preserve concealment at all times must be a habit.
 - (2) **Adaptability.** Concealment adequate in one place or time may be unsuitable either in another place or at a different time of day. The cadet must be trained to adapt to change and adopt new or better concealment methods as conditions dictate.

5. The effectiveness to operate both as an individual and as a member of a team will be enhanced when the above field craft skills are combined with other elements of cadet training.

INTERPRET ORDERS

General

6. Orders are given before any activity and must be passed on down to section level. Normally, these orders will be verbal.

7. Before giving orders, the parts of the troop/platoon commander's orders relevant to the section will be extracted and the detail on how the section is to carry out its task will be added. When the section's orders have been given, each person should know:

- a. what the platoon is doing;
- A. WHAT THE MISSION OF THE SECTION IS; AND
- B. THE PART EACH MEMBER HAS TO PLAY.

SEQUENCE OF ORDERS

8. THE SEQUENCE OF ORDERS COMPLIES WITH THE TERM SMEAC AS FOLLOWS:

- A. SITUATION;
- B. MISSION;
- C. EXECUTION;
- D. ADMINISTRATION AND LOGISTICS; AND
- E. COMMAND AND SIGNAL.

AN EXAMPLE OF DETAILED ORDERS CAN BE SEEN AT TABLE 1.

TABLE 1.
SITUATION

TOPOGRAPHY	USE OF MAPS, AIR PHOTOGRAPHS, VISUAL RECONNAISSANCE
VISITORS	ANY THAT MAY BE EXPECTED IN THE AREA
ATTACHMENTS AND DETACHMENTS	ANYONE ADDED OR TAKEN AWAY FROM THE SECTION FOR THE TASK

MISSION

	‘MISSION: SECTION IS TO IN ORDER TO (SAY TWICE).
--	---

EXECUTION

GENERAL OUTLINE	(1) BRIEF OUTLINE ON HOW THE MISSION IS TO BE CARRIED OUT INCLUDING THE COMMANDER’S OVERALL PLAN AND INTENTIONS (2) SECTION COMDS INTENT: TO BE PRESENTED AS:’ THE PURPOSE IS TO ... THE METHOD IS...(CAN BE DOT POINT BRIEF). LASTLY THE END STATE IS....’.
GROUPINGS AND TASKS	GROUPINGS AND DETAILED TASKS (INCLUDING REORGANISATION) OF EACH INDIVIDUAL OF EACH GROUP.

Coordinating Instructions	(1) Timings (rehearsals, equipment preparation, rest, meals). (2) Method of movement. (3) Routes. (4) Boundaries. (5) Probable bounds and RVs. (6) Locations. (7) Navigation. (8) Actions on.
----------------------------------	--

Administration and Logistics

	(1) Rations. (2) Dress and equipment. (3) Medical. (4) Special equipment. (5) Inspections.
--	---

Command and Signals

Location of headquarters of: (HQ) and PLCOMD	
Radio	(1) Net call signs. (2) Time Net open. (3) Frequencies (primary and alternate). (4) Radio equipment test. (5) Radio checks.
Improvised communications	Whistles, lights and/or hand
Codes words, nicknames and passwords	Include when used and meaning.
Seniority	
Synchronisation of watches	
Questions	

ASSEMBLE FIELD EQUIPMENT

General

9. The following items listed below are a guide to the equipment that may be issued to cadets undergoing field training:

Orders of dress and equipment

10. Basic webbing which is to hold and consist of the following:
- Belt pistol;
 - canteen water plastic plus canteen cover and mug on left hand side;
 - canteen water plastic plus canteen cover on right hand side;
 - suspender field pack;
 - minimi pouch worn on the right hand side;

- f. cam kit;
- g. two steyr pouches to be worn on the left side (non master side);
- h. field pack combat (small) containing the following:
 - (1) pullover DCPU or Japara;
 - (2) KFS, knife pocket clasp with lanyard;
 - (3) mattress cover; and
 - (4) toggle rope.
- i. Case FAD, placed on the left hand side, unless fitted to water bottle holders; and
- j. Field pack large containing the following:
 - (1) sleeping bag;
 - (2) shelter individual;
 - (3) hand towel mil green;
 - (4) shirt DCPU;
 - (5) trouser DCPU;
 - (6) change of underwear;
 - (7) socks khaki (two pair);
 - (8) 10m nylon cord;
 - (9) pan set messing;
 - (10) japara liner;
 - (11) entrenching tool and cover;
 - (12) mosquito net;
 - (13) 2lt water bottle attached to outside;
 - (14) toilet gear; and
 - (15) boot cleaning gear.

Location of Equipment

11. The location and layout of all equipment is detailed in annex A. This layout is to be adhered to if the cadets have been issued the appropriate equipment.

Fitting

12. Webbing should sit comfortably on the hip region to aid in the distribution and control of weight. The yoke of the harness (suspender FD pack) should be positioned centrally and as high as possible on the back.

Uniformity

13. All items are packed in a specific uniform place, for ready available access of essential equipment, reducing noise emission and time spent looking aimlessly. Specialist equipment is to be placed IAW unit SOP's.

Conclusion

14. Although the above procedures may not suit all cadet environments, it is the basis on which individuals can work from.



HEALTH AND HYGIENE IN THE FIELD

Ablutions

15. Regular washing is essential for good health. Twenty-five litres of water per

day per person for all purposes is considered minimum. Often it is not possible to issue this amount during field camps, so very strict individual and collective water discipline may be necessary. Cadets should wash whenever the opportunity arises.

Water

16. Other methods in which water can be obtained whilst in the field are as follows:

- a. Collection of water may be by platoons at an approved local water source. Such water must be filtered and sterilised using the Millbank filter and water sterilising tablets, carried by each soldier. (Explain the use of the Millbank filter and the sterilisation tablets ratio as per Field Precis 4)
- b. Cadets may be required to collect rainwater falling directly onto individual shelters or into suitable containers.
- c. Water may be delivered from unconfirmed water sources. Such water must be purified by filtration and disinfecting.
- d. Delivery from an engineer water point. Such water will already have been purified.

17. Coupled with the conservation of water, water discipline includes the necessity for every person to drink water to keep him/her fit. This is particularly important in the heat where dehydration can cause collapse. It has been estimated that as much as 20 litres per day per man could be needed in certain conditions of climate and activity.

18. Infected and unclean water is a carrier of disease and Millbank filter bags and water sterilising tablets must be used if there is any doubt about the cleanliness of the water supply. It is important however not to waste water, but to use it as required.

Latrines

19. Must be sited and dug as soon as possible. The hole should be no more than 30cm wide, at least 1metre long and not less than 1metre deep. Earth from the hole is piled behind and a tin provided as a scoop so that each person may cover his or her or her motion with earth after using the latrine. Latrines should be:

- a. sited 20-30 metres down wind;
- b. located in the shade, especially in the tropics;
- c. in cover, such as reverse slopes, or in hollows, or scrub;
- d. within the platoon perimeter;
- e. at least 50 metres from water points and in such a position that they cannot drain towards the water point; and
- f. filled in when no longer in required.

Urinals

20. Require equally careful siting to ensure that they will be used in preference to the ground around the position. The pit should be at least 30 centimetres deep and the bottom should be covered with leaves and twigs to assist in drainage. Urinals should not be sited within 50 metres of a water point and should be filled in when no longer required.

Refuse

21. Visible refuse advertises human presence from the air and the ground, and is bad for hygiene as it encourages flies and rats, which are both carriers of disease. All refuse is to be burnt including tins, which must then be flattened. All refuse is to be carried out, an empty ration pack bag or if possible a sandbag is a good way to carry refuse. In certain circumstances, eg. back loading may be a way in which to dispose of refuse.

Personal Hygiene

22. Cleanliness helps to protect the body against disease, but cleanliness alone is not enough. By failing to take precautions against disease, or by drinking non-sterilised water, a person who is scrupulously clean bodily, may yet endanger their health and life. Strict compliance with all rules and instructions for the protection of health is the only way to avoid diseases. The following points must be kept in mind:

- a. **Skin**: A daily bath is ideal, but is not always possible. However, the opportunity to have a bath should never be neglected. Where possible all parts of the body should be washed daily, paying particular attention to the parts where sweat collects: the armpits, around the waist, crutch and feet, and parts exposed to dirt - the face and hands. The hair should be kept short, and clean.
- b. **Mouth and teeth**: Teeth should be cleaned at least once a day, using a brush and toothpaste.
- c. **Ears**: Ear trouble can be very painful and is particularly common in hot and humid climates. It can be contracted from swimming in dirty water, but the collection of sweat and dirt in the ears is also a cause. Ears should never be cleaned with such things as matches, which are likely to cause damage. Ear trouble needs medical attention.
- d. **Hands and Feet**: Hands are continually coming into contact with dirty and infected materials and may transfer to food or parts of the body. Diseases and germs in particular, collect under the nails and cause infections of the skin by scratching. Sweat and dirt collect on the feet, which render them particularly liable to infection through blisters and abrasions caused by ill fitting boots and shrunken, badly darned socks. Points to take note are:
 - (1) Keep nails short and clean;
 - (2) wash hands before and after eating and every visit to the toilet;
 - (3) wash, dry and if possible powder feet daily;
 - (4) change socks daily and keep well darned; and

(5) foot inspections should be done on a regular basis.

- e. **Clothing and Footwear:** Cleanliness of clothing is as important as cleanliness of the body. Dirty clothing contains germs, which are rubbed on the skin and can find a way through abrasions and the pores of sweat glands causing boils, carbuncles and other skin infections. Clothes should be changed and washed as often as possible. Sleeping bags and their liners should be washed and aired regularly and inspected for bugs and infestations. Boots should be kept pliable and in good repair. It is important to remember especially when fitting new boots that the wearing of a full pack and equipment will cause the foot to spread.
- f. **Equipment:** It is important to ensure that you properly clean your personal equipment. Especially such items as mess tins, knife, fork, spoon and canteen. If left dirty they will only attract flies carrying diseases and germs, which can be passed on the next time you, use them.

Fitness

23. Living in the field at times may require endurance and mental toughness. It is the individual's responsibility to keep their physical fitness up to a high standard.

Fatigue

24. Fatigue will be an ever-present factor affecting a person's performance, regardless of their degree of fitness, morale and training. Platoon and section commanders must continually be aware of this problem, particularly in themselves. Although the effects of fatigue are lessened by physical fitness, the ability to perform mental tasks (make an appreciation or a decision, or prepare navigation data) will be affected.

Conclusion

25. Addressing hygiene particularly in the field environment is of extreme importance in ensuring the team or unit's performance. The downfall of any member due to health and hygiene reasons will not only detract from the cadet's own performance, but from other members of the team required to support his/her absence.

LIVE IN THE FIELD

Introduction

26. There will be many occasions during training when the section must live in the field. To live and work successfully in the field the section must follow a daily routine. This routine must provide security and as much comfort as possible.

Daily routine

27. The daily routine to be followed in the field becomes a drill and should not be relaxed even if all aspects of the routine do not apply. The routine should not be considered as something, which happens at a particular time, eg. first thing in the morning or last thing at night. It is a continuous process throughout the day and night.

Morning:

- a. Reveille.
- b. Strike Shelters.
 - (1) each member packs away all equipment, and
 - (2) each member puts on equipment,
- c. Stand-down on order:
 - (1) change to day routine, and
 - (2) track discipline maintained.
- d. Personal Hygiene:
 - (1) washing,
 - (2) cleaning boots,
 - (3) clean teeth,
 - (4) skin and foot inspections,
 - (5) comb hair, and
 - (6) visit latrine.
- e. Water Discipline:
 - (1) fill water bottles with filtered water,
 - (2) sterilise all water, and
 - (3) drink at least one litre of water.
- i. Breakfast:
 - (1) may be cooked centrally and delivered to positions,
 - (2) may be cooked under section arrangements,
 - (3) may be cooked by the individual, and
 - (4) utensils cleaned and stored.
- j. Clean Up Section Area. All equipment laid out for immediate use.
- k. Check Clothing and Equipment:
 - (1) clothes mended, boots inspected; and

(2) defects reported.

1. Orders:

- (1) briefing and conduct of day activities, and
- (2) Midday Meal.

Afternoon:

- a. Continue with the day's activities.
- b. Check Equipment:
 - (1) personal equipment,
 - (2) radio equipment, and
 - (3) batteries.
- d. Periodic Hygiene Checks:
 - (1) insect repellent, and
 - (2) foot and skin inspections.
- e. Night Preparations:
 - (1) shelters erected and dropped, and
 - (2) resupply as required.
- f. Evening Meal.
- g. Night Orders Issued:
 - (1) issue piquet roster, and
 - (2) repack surplus equipment.
- h. Change From Day to Night Routine.

Night:

- a. Stand-down on order;
- b. Double staggered pickets posted;
- c. Minimal movement within Perimeter except routine piquet changes;
- d. Work Tasks; and
- e. When sleeping is Possible:
 - (1) Cadets should be fully clothed, and
 - (2) equipment should be handy.

28. All activities should be conducted in pairs with the emphasis being placed on concurrent activities.

29. It will not be possible to do all the things required at the same time, but they

must be completed daily whenever possible. The time at which they are carried is not important, but it is important that they are completed.

Conclusion

30. It is important that these routines are followed to ensure that all tasks are completed, allowing adequate time for other tasks. All members of the section/platoon are to have an understanding of the various routines that they must follow.

PREPARE SLEEPING AREAS

Introduction

31. A shelter is issued and carried by all cadets. When constructed correctly it is an effective means of protection from the elements for a cadet living in the field.

Suitable sites

32. Look for relatively flat ground with good trees. Look for trees with no loose or dead branches. Remember to look up and live. Do not set up in water courses or catchments areas. Keep away from insect nests.

Prepare sites

33. Clear any large rocks or sticks. Dig small drainage ditches just under the outside of the shelter. Avoid clearing too much of the ground fall as this will disturb insects.

Maintenance of area

34. Avoid cooking and eating in the sleeping area, as this will attract animals and insects. Keep the area clean of rubbish. All equipment not in use is to be packed away. Utilise the shelter to store your pack and other equipment. Roll up your sleeping bag when leaving for piquet, so snakes or insects do not find a new home.

Shelter construction

35. There are three basic types:

- a. Lean-To;
- b. Inverted V; and
- c. Double Inverted V.

Lean To

36. The Lean-To is ideal for hot climates as it provides a greater area for shade and cooling breeze. The drawback lies when heavy rain and wind combine as the rain can be easily swept into the sleeping area.



Front view



Side view

Inverted V

37. The Inverted V is far sturdier in a variety of climatic conditions; being erected closer to the ground to counter the effects of wind and rain. It does not, however, allow the maximum cooling effect of any breeze.



Front view



Side view

Double Inverted V

38. The Double V is useful for two or even three people. It is constructed by simply joining long sides of two hootchies together, using the male and female studs. The construction is similar then to the single inverted V. Make sure that the bottom hootchie is tied off through its loop to a tree at the apex, as this will stop a gap occurring between the press-studs. Keep the shelter sides as straight and as tight as possible. This will aid in water run off and prevent pools of water forming. Any object touching the underside of the hootchie when it is raining will cause a leak. To collect water when it is raining places a cup's canteen or water bottle under a run off area.



Front view



Side view

Security and Tactical requirements

39. Ensure the shelter is far enough off the ground to allow for observation. Keep the shelter as low as possible. The apex should be no higher than waist height. The new DPCU design shelters are longer and provide better camouflage than the green hootchie. To cam the green shelter use leaves, grass and paint to reduce the surface reflection.

Knots and ocky straps

40. The only knot to use when tying off a shelter is the quick release knot. It has a single bow and is similar to tying a shoelace. This allows the shelter to be dropped quickly to the ground if you have to leave quickly. Ocky straps are very useful, as they are quick and can produce a tight pull. Care must be taken not to over stretch as the strap may give way or snap and cause serious injury. Tent pegs are useful aids. They are not essential but make life a lot easier. They need to be light and durable. If you are not using tent pegs, secure the ends to large rocks, logs or trees. Take care not to disturb the area too much.

Mosquito nets

41. Erect when required, although in most areas of Northern Australia it is a requirement to use mosquito nets. Mosquito nets can be put up quite effectively under a hootchie by tying the four corners with the string attached, to the holes provided in the short side of the shelter. To prevent water from running down the tie off strings, place a small stick roughly half way down. Any water running down the cord will strike the stick and will fall directly underneath it.



Front view

Refurbishment of area

43. Ensure the sleeping area is refurbished before leaving. Cover in any drainage ditches and pick up rubbish before leaving the position.

Conclusion

44. Working in the field can be very tiring; the amount of rest that you may receive will be considerably less than what you would expect in the barracks environment. Therefore, the time spent on preparing a sleeping area could well be the difference between comfort and discomfort.

PREPARE AND CONSUME RATIONS

Introduction

45. It is not feasible for a mobile army to maintain its effectiveness in a tactical situation if it has to rely on daily resupply of rations and water. Therefore, units and soldiers need to carry enough supplies to last them an extended period of time.

Reasons for use/nutritional requirements.

46. There are four different types of Combat Ration Packs (CRP) available:

Emergency:

- a. consists of a high energy chocolate bar, carried by soldiers to use only in an emergency.

Combat Ration One Man (CR1M):

- a. CR1M are relatively light, and within a 24 hour period are designed to supply all your daily food and vitamin requirements.
- b. If the pack contains too much food, the following information may help you decide which items you should retain:
 - (1) The chocolate, coffee and biscuits in the pack provide most of the vitamin B1 in the pack;

- (2) Chocolate, coffee, fruit powder and jam all have vitamin C; These two vitamins cannot be stored in the body so regular intake is needed. If you do not eat enough of these vitamins then you may lose concentration, become easily tired and wounds will heal more slowly.
- (3) Condensed milk goes thick and brown. It has turned to caramel and is safe to eat; and
- (4) Chocolate may develop a light coloured film on the surface. It is still safe to eat. By dissolving the chocolate in sterilised hot water a chocolate drink can be made.

Patrol Ration 1 Man (PR1M):

47. The PR1M consists of two dehydrated main meals, a midday snack and a number of sundry items. It is suggested that the two main components be used for breakfast and evening meals, and that the muesli bar and sweet biscuits be used for the midday snack.
48. The PR1M has been designed to ensure that you receive enough food and vitamins each day, therefore it is desirable that all food be eaten.
49. No mess gear is required to prepare and eat this ration. Meals may be prepared, heated and eaten from the pouches in which they are packed.
50. If very short of water, do not consume the main meals. Your need for water will be less if you consume only the muesli bars, biscuits, sweets and sugar.
51. The vegetable extract may be used as a spread on biscuits, as flavouring to some of the meat dishes or added to noodles.
52. After a few months in a tropical climate the condensed milk may become thicker and brownish in appearance. But it is safe to eat and may be consumed without fear of any ill effects.

Combat Ration Five man (CR5M):

53. The CR5M consists of three main meals and a number of sundry items, capable of feeding five people for one day. Most items are in Portion Control Packs (PCP) to enable individual feeding if required.
54. The contents of the retort pouch may be consumed hot or cold, although it would be more appetising if heated. This may be done by placing it in a mess tin/container of water so that it is three quarters submerged and heated for 10 minutes, or by tipping the contents of the pouch into a tin/container and heating.
55. The 50-gram soup powder can be made by adding the contents of the pouch to one litre of boiling water and stirring until dissolved.
56. After a few months in a tropical climate the condensed milk may become thicker and brownish in appearance, but it is safe to eat and may be consumed without

fear of any ill effects. Jam sauce can be made by mixing together equal parts of jam and boiling water, it may be added to the fruit pudding.

57. The vegetable extract may be used as a spread on biscuits, as flavouring to some of the meat dishes or added to soup/vegetable water.

Can Opener

58. One end of the can opener is fitted with a small depression that may be used to remove the contents from cans. The can opener should be cleaned and sterilised after each meal. To sterilise, thread a piece of string through the hole provided and suspend the opener in boiling water for a few minutes.

Water sterilisation

59. All water supplies must be regarded as contaminated unless medically cleared. If the water is dirty or cloudy, first filter using the Millbank individual Filter. Once filtered, add the water sterilisation tablets and follow the directions on the tablet package. Wait 5 minutes and shake well, wait an additional 30 minutes so bacteria is killed before drinking or using to prepare food or beverage. Water may also be sterilised by boiling for a minimum of 5 minutes.

60. The beverage base powders has water sterilisation properties but should only be relied upon in the case of emergency. If used allow 90 minutes after addition before drinking.

Avoid food poisoning

61. Do not open more containers of perishable food than are necessary for a meal. Any uneaten opened perishable food must be discarded or chilled immediately to avoid food poisoning.

Avoid dehydration

62. It is essential that you drink plenty of water. Heat and exercise cause dehydration and loss of thirst. You should drink plenty of water if you are sweating heavily, even if you don't feel thirsty. Drink enough water to keep your urine clear.

Salt intake

63. Extra salt may be needed if working hard in hot environments or during periods of heat acclimatisation when your salt losses are much greater. When required, the extra salt should be taken dissolved in drinking water (no more than one sachet for 7 litres of water), or sprinkled on food.

64. Do not take extra salt unless you drink plenty of water. It is harmful to take extra salt without water.

Coloured tags

65. Different coloured paper tags are contained in all ration packs. The coloured paper tags have been included as a quality control measure during packaging. The tags are useful in the field as markers and model items.

Disposal of litter

66. Dispose all litter in a thoughtful manner with consideration to the

environment. In most occasions you will be required to carry all rubbish with you, therefore (depending on the situation) you may burn any flammable rubbish in the cooking fire and also burn out excess food from cans preventing the likelihood of vermin entering your equipment.

67. Place the crushed cans and rubbish in a sealable plastic bag (such as the plastic bag the rations come in) and seal with the rubber band. **Do not bury rubbish**

Hexamine

68. To heat up meals a solid fuel called hexamine is issued. Before using, clear an area of approximately 1metre by 1metre. This should ensure that no inadvertent fires are started. Take care not to use hexamine in a confined area, as the fumes are toxic. If a small flame is required break the block into pieces. For a larger, slower burning flames use a single whole block.

69. A purpose built stove is provided to cook on. It can be used in two configurations. One with the teeth pulled out straight and stuck into the ground, providing the base as a flat cooking piece. The other method requires the base to sit on the ground, fold the teeth to an angle of 35/45 degrees, and use the teeth as a cooking piece. It is advisable to fold some of the teeth in so whatever is being heated has a flat surface to rest on.

Cooking

70. Cooking of meals can be done by either:

- a. Placing contents into pan set messing or cups canteen; and/or
- b. in the can by, opening the top of the can, placing it in a mess tin of water so that it is three-quarters submerged and heating. This allows you to monitor the food and there is no chance the can will explode.

Under no circumstances is pressure-cooking to be done

Utensils

71. If any utensils are used ensure that they are cleaned thoroughly. To assist in the cleaning a scouring pad is provided in the CRP.

Conclusion

72. Combat Ration Packs have been designed to deliver you with the food and vitamins required within the field environment within a light and compact package. It is important you manage your daily intake and eat the entire pack.

CAMOUFLAGE AND CONCEALMENT

Introduction

Why Things are Seen

73. The use of sight is the primary means by which man gathers and assimilates information. An understanding of why things are seen will also assist cadets in searching for and detecting personnel and equipment. It is therefore important that cadets understand how best to use their sight to their advantage.

74. The following factors will assist in determining how easily an object can be seen:

- a. **Shape**. Common equipment and the human body are familiar outlines. They can be recognised instantly particularly when they are in contrast with their surroundings. Distinctive shapes, which are easily detected, unless concealed, are:
 - (1) the pack;
 - (2) the web equipment; and
 - (3) vehicles.
- b. **Shadow**. Shadows are seen as follows:
 - (1) **Cast Shadow**. In sunlight/moonlight an object casts a shadow which may give away its presence. An object, which is concealed in other shadows, is harder to detect and does not cast a shadow of its own. As the sun/moon moves so do the shadows. Objects, which were concealed by shadow, may be revealed as that shadow moves. They may also be revealed by their own distinctive shadow, which reappears.
 - (2) **Contained Shadow**. Contained shadow is contained within a space, for example, in a room, a cave mouth or under an individual shelter. It is normally darker than other shadows and can, therefore, attract attention.
- c. **Silhouette**. Any object silhouetted, against a contrasting background is conspicuous. Smooth, flat backgrounds such as water, a field, or worst of all the sky, should be avoided. An object may also be silhouetted if it is against the background of another colour. An uneven background such as a hedge, bush, trees or broken ground will provide the best concealment.
- d. **Surface**. If the colour and texture of the surface of an object contrasts with its surroundings it will be conspicuous. Shiny objects and white skin contrast violently with most backgrounds and need to be disguised to assist concealment.
- e. **Spacing**. Natural objects are rarely, if ever, regularly spaced. Regular spacing draws attention to the fact that something other than a natural object is present. It is conspicuous and should be avoided.

- f. **Movement.** Sudden movement attracts the eye. Slow and careful movement is much less likely to disclose the location of a well-concealed position than quick and short movement.

75. The reasons why things are seen can be easily demonstrated to cadets. It is important to continually practice the skills of observation. With practice comes not only quicker recognition of human presence but also increased attention to detail in concealing their own position and activities.

The Use of the Other Senses

Detection by Sound.

76. The use of sight is not the only means by which human presence and activities can be detected. An individual can gather valuable information by using their sense of hearing. Cadets need to be trained to actively listen for sounds that are not natural to the field environment. The sound of metal against metal, vehicle movement, human movement, talking and other such sounds should be instantly recognisable to the trained cadet. Unlike the use of sight where information is directly presented to the observer, the use of hearing requires deduction on the part of the hearer.

77. As well as making cadets aware of different types of sound they need to be shown how to make the best use of them. If a vehicle convoy is heard the sounds of different types of vehicles, must be distinguished from each other. The sounds made by humans moving with heavy loads will be different from unobstructed human movement. Only through practice and imaginative training will the most accurate information be gathered through the sense of hearing.

The Detection of Enemy by Smell

78. Although hearing and sight will provide most information the sense of smell can also prove useful. The odours of cooking, sanitation areas, campfires and tobacco are all strong and will be carried some distance by any wind before being dispersed.

79. Odours will settle in low-lying areas and will hang for some time in still air. Distinct human odours are dependent on the staple diet. Humans whose primary food is meat will smell differently to soldiers whose diet is made up mainly of rice and vegetables.

The Use of Touch

80. Although information will be gained primarily through the use of the other senses cadets also need to be practised in using touch to recognise signs of human presence. An individual will rarely have to rely solely on the sense of touch to tell him of human presence. However at night when concealment is essential it may be important to identify an item without the use of lights. The shape of common pieces of our equipment should be familiar to all trained cadets. Detection exercises based on the use of touch not only leads to familiarity with the shape and feel of pieces of

equipment but also encourage cadets to use their deductive powers to gather information.

Practice

81. The skills used to detect human presence are many. It is important that they are mastered and this is only done through practice and imaginative training.

Guidelines for Good Concealment

General

82. Camouflage is a continuing process. Camouflage on skin and clothing will need to be reapplied during strenuous activities. Camouflage that suits one kind of terrain may be inappropriate for another. Commanders at all levels need to be aware of these factors but primarily it is the individual who must always be conscious of the requirements of good camouflage.

Concealment

83. Good camouflage is an aid to concealment, however even the best camouflage will be wasted unless the individuals remains conscious of why objects are seen and acts accordingly. Good concealment includes the rigid application of the following guidelines.

- a. Look around or through concealment not over it. If there is no choice but to look over it, try to avoid breaking natural, straight lines;
- b. The skyline is the worst background of all. If observing over cover and against the skyline, make use of something to break up the silhouette. Avoid large bodies of water as they can have the same effect as skylines;
- c. Use available shadow and remember that positions in the open may be disclosed by a shadow moving. Shadows move with the sun/moon and so positions may have to be moved during the day/night. When observing from inside a building keep well back making the best use of shadows;
- d. Choose a background, which blends in with an overall appearance;
- e. Avoid isolated cover, it is usually conspicuous;
- f. Where possible use covered routes particularly when entering or leaving a concealed position such as an observation post; and
- g. When movement is essential, move slowly and carefully.

Listed below are a number of additional hints, which will assist in concealment of the individual and the group:

- a. Use all available cover and concealment no matter whether it is natural or artificial. The use of vegetation, terrain and man made structures requires nothing except commonsense;
- b. Avoid unnecessary movement and remember that quick movement attracts attention. When movement is necessary, plan the move taking advantage of any noise from aircraft or the weather including concealment by rain, smoke, fog and haze;
- c. Enter and leave concealed positions and areas of concealment without being seen and without leaving a trace of movement;
- d. Maintain the established track discipline, do not take short cuts and if new tracks have been made, ensure that they blend with the terrain pattern;
- e. Avoid having to move across open areas;
- g. When halted do not sit in the open, use available concealment;
- i. Do not openly expose anything that will shine such as a mirror, plastic map case, binoculars, compass, or mess tins as the reflected shine may be seen from a long distance;
- j. Be aware that shelters and tents shine in moonlight and artificial light at night;
- k. Use litter discipline, as litter will attract attention, particularly from the air;
- l. Always keep equipment packed up and concealed when not in use;
- n. Do not use torches or naked lights, or strike matches at night, as light discipline must be adhered to; and
- q. Remember to treat night as day.

Personal Camouflage

General

84. Effective camouflage of the individual depends primarily on the choice of background and its correct use. The term "background" is used to describe the area surrounding an object when seen from the ground or the air. It is the controlling element in personal camouflage. The clothes that are worn must blend with the predominant colour of the background. Skin and light coloured equipment is toned down for the same purpose.

Skin

85. Exposed skin reflects light and contrasts with the surrounding background. Face, neck, hands and lower arms exposed below the shirt should be toned down through the application of a disruptive pattern or additional accessories (including scarves and gloves). Disruptive painting and patterns should be cut across the nose lines, cheekbones, eye sockets and chin lines. A darker treatment of the skin will be necessary for night work. Camouflage cream, burnt charcoal and dirt can all help to tone down skin colours.

86. Individual camouflage requires planning, thought and the imaginative use of materials at hand. This applies to the camouflage of clothing also. In the absence of issued camouflage uniforms a person can make their own camouflage suit, adapting its colour and pattern to the terrain background. The important thing is to make the clothing look like the terrain in which it is to be worn. It must be remembered that the uses of camouflage clothing and camouflage equipment are only the basis for good concealment.

87. Other particular points of note when wearing clothing includes:

- a. **Boots.** Shiny boots look good on the parade ground but are out of place on a soldier in the field. Polish or dubbin should be applied to preserve the waterproofing of boots but they should not be shined.
- b. **Bush Hat.** The floppy cloth bush hat has a distinctive shaped crown, which can be broken up by the use of garnishing or a small amount of vegetation.

Camouflage of Personal Equipment.

The Helmet

88. The helmet has a distinctive shape, deflects light and casts a strong shadow. The helmet must be covered with burlap (coarse canvas), cloth or hessian in order to prevent shine. The shape can be altered by using either disruptive pattern material, with rubber bands used to assist in attaching natural vegetation and/or scrimmage, or a helmet camouflage net with natural vegetation and/or scrimmage.

89. Irrespective of the method used, if the strong shadow cast by the helmet persists, the camouflage will not work. When disruptive pattern is used, dark areas of the pattern must appear to carry on over the helmet rim.

Webbing Equipment

90. The shape of webbing equipment such as packs, pouches, and water bottles can be broken up by the use of hessian garnishing and foliage.

Shiny Objects

91. All shiny objects must be concealed. This includes such items as watches, belt buckles and messing items.

OBSERVATION BY DAY

Scanning and Searching

92. Scanning is a general and systematic examination of an area to detect any unusual or significant object or movement. Searching, on the other hand, involves a detailed look at an area where personnel is suspected to be. Both require complete concentrating combined with knowledge of why things are seen and the principles of camouflage and concealment.

Scanning

93. To scan an area the following actions are undertaken:
- a. Divide the area into foreground, middle distance and distance;
 - b. Scan each area horizontally starting with the foreground. To obtain maximum efficiency, move the eyes in short overlapping movements. Moving the head will minimise eye fatigue. The speed at which scanning is carried out will depend on the type of country being observed, and the amount of cover it affords to possible targets; and
 - c. When horizontal scanning is completed, scan along the line of any features, which are angled away from the observation position.

Searching

94. Searching may take place at any stage during scanning. If the individual's position is dominated by a piece of ground, he or she should search that area thoroughly before continuing with scanning. Any significant movements or objects, spotted during a scan should warrant an immediate search of that area. Binoculars are a useful aid when searching ground in detail.

95. The weather may assist when searching an area. For example, frost will reveal tracks made during the night or a hot sun will alter the tone and colour of cut foliage used for camouflage by ageing the leaves more quickly.

DETECTION OF OBJECTS

Detection of Single Moving Targets

96. Moving objects are generally much easier to detect than stationary objects especially, if they are moving over open ground. Important points to note are:
- a. an object moving across the front is the easiest to detect;
 - b. an object moving straight towards or away from the observer is more difficult to detect; and

- c. a well trained individual can keep their opponent constantly off balance by varying the length and direction of their rushes, varying the time between rushes, crawling away from the place where he went to ground and reappearing at a different points.

Detection of Multiple Moving Objects

97. Multiple moving objects are comparatively easy to detect, but remembering their location is usually difficult due to the following factors:

- a. **Co-ordinated Movement**. When all objects appear and disappear at the same time, it is difficult to remember the location of more than one or two so remember the objects one at a time.
- b. **Length of Exposure**. Moving objects are fleeting and are rarely exposed for more than a few seconds. Objects exposed for a short period of time should be located within a designated area and targeted individually. Objects exposed for longer periods will usually disappear at differing intervals, allowing for their locations to be individually noted.

INDIVIDUAL DAYLIGHT MOVEMENT

Introduction

98. Each Cadet should know how to combine the art of concealment with movement. Different methods of movement provide concealment for different types of cover and these can be used by the Cadet whilst moving. The following points are important:

- a. before leaving a place of concealment, the next position and route to which it is intended to move should be selected;
- b. the movement of low foliage could attract attention by moving higher branches and leaves or by creating noise;
- c. tall grass provides concealment, but movement through it may make it wave with an unnatural motion, thus attracting the enemy's attention;
- d. after disturbing any animals or birds remain still for a few minutes and observe;
- e. take advantage of any distractions, such as loud noise, low flying and aircraft to cover any movement; and
- f. take advantage of fog, smoke or haze to assist in concealing movement.

Methods of Individual Daylight Movement

99. A knowledge of how to move correctly and how to use ground for movement is important because:

- a. a knowledge of how to best move over ground assists a group to accomplish its task without detection; and
- b. it enables an individual to occupy and leave a position without being observed.

100. To assist in moving over ground the following methods of individual daylight movement has been devised:

- a. the walk,
- b. the monkey run,
- c. the leopard crawl,
- d. the roll, and
- e. rushing.

The Walk

101. When moving in an area which is known to be close to areas of human presence and it is essential to walk silently and with stealth. The essential elements to be remembered when using the walk are to:

- a. move slowly and deliberately;
- b. lift the foot carefully and place it slowly and quietly in the next position;
- c. maintain the body in a balanced position at all times;
- d. keep the head up and observe in all directions, remembering that peripheral vision is sensitive to movement;
- f. always observe places of cover while on the move;
- g. be continually alert and ready to get into cover instantly;
- h. move very quietly on hard ground, by placing the edge of the sole of the boot on the ground first; and
- i. take great care when crossing small obstacles.

Monkey Run

102. The monkey run is crawling on hands and knees and is useful when moving behind low cover, the essential elements are:

- a. to reduce noise to a minimum put the hands down in a place that is free of twigs or anything which might crack. Knees should be placed in a position where the hands have been;
- b. keep the buttocks and head low but observe while advancing;
- c. movement can be quite fast – but can create a lot of noise; and
- e. keep the length of pace short to reduce noise and discomfort.

The Leopard Crawl

103. The leopard crawl is crawling on the elbows and the inside of the knees. It is useful when moving behind very low cover. The essential elements of the leopard crawl are:

- a. movement is achieved by moving alternative elbows and knees. The body is rolled slightly as each knee is bent. (The same effect can be achieved by trailing one leg and using only one knee); and
- b. keep the heels, head, body and elbows low down but observe while advancing.

The Roll

104. The roll is a very quick method of moving away from a position when your position has been compromised. The essential element is that the arms remain close to your side so that your body is almost circular and will roll quickly.

Rushing

105. The rush is the fastest means of moving from one position to another and is usually used when crossing ground which provides no concealment whatsoever. Where possible it is desirable only to make short rushes so that exposure is kept to a minimum. Rushing is achieved by:

- a. carefully selecting the position it is intended to rush to;
- b. bursting quickly from cover and moving as fast as possible, by the shortest route, to the new position;
- c. dropping quickly to the ground, breaking the fall on the knees and one hand; and
- d. crawling away to a concealed location and taking up a position of observation.

Lines of Advance

Choosing a Line of Advance

106. The skill of concealment and movement are combined when an individual is required to move from one point to another. To choose a route on which to advance, look at the ground and decide on the following:

- a. where to make for;
- b. the best route to get there; and
- c. whether to walk, crawl, or make a rush.

107. An ideal line of advance is one, which has along the route:

- a. places from which to observe without being observed;
- b. cover from view; and
- d. no obstacles.

108. Unfortunately all of these things seldom go together. While low ground is generally best for cover, high ground is usually best for observation. Choose the best route according to the circumstances, plan the move and execute it according to plan. Plan each in advance.

JUDGING DISTANCES

Methods of Judging Distance

109. There are two main methods of judging distance without aids. They are:

- a. by the unit of measure; and
- b. the appearance method

The Unit of Measure Method

110. To use the unit of measure method, visualise a known distance on the ground and calculate how many of the units would fit between the observer and the object. An easy figure to use is a unit of 100m. This method gives acceptable results when:

- a. the observer can see all the intervening ground; and
- b. the distance to be estimated is not greater than 400 m.

The Appearance Method

111. The appearance method of judging distance is based on what an object looks like compared to its surroundings. To become proficient in judging distances by this method a great deal of practice is required, under varying conditions of ground and

observation. The amount of visible detail of a person at various ranges gives a good indication of the distance he is away. An observer with good vision should be able to distinguish the following detail:

- a. At 100 m: clear in all detail;
- b. At 200 m: clear in all detail, colour of skin and equipment identifiable;
- c. At 300 m: clear body outline, face colour good remaining detail blurred;
- d. At 400 m: body outline clear, remaining detail blurred;
- e. At 500 m: body begins to taper, head becomes indistinct; and
- f. At 600 m: body now wedge shape, no head apparent.

112. Conditions that effect the appearance of objects are as follows:

- a. Objects seem closer than they are, when:
 - (1) the light is bright, or the sun is shining from behind the observer;
 - (2) they are large in comparison with the surroundings;
 - (3) there is dead ground between the object and the observer; or
 - (4) they are higher up than the observer.
- b. Objects seem farther than they are, when:
 - (1) the light is bad or the sun is shining in the observer's eyes;
 - (2) they are small in comparison with the surroundings;
 - (3) looking across a valley or down a road or track; or
 - (4) the observer is lying down.

Aids to Judging Distance

113. Aids to judging distances are:

- a. **Bracketing** -Bracketing is the method most likely to prove the best under all conditions. The observer should decide on the furthestmost possible distance and the nearest possible distance to the object. The average of these is taken as the range. For example, if the furthest

estimated distance is 1000 m and the nearest distance is 600 m then the range is therefore 800 m.

- b. **Halving** - The halving method is useful for judging distance up to 1000 m. The observer estimates the distance to a point half-way and in a direct line to the object he then doubles it. The main disadvantage of this method is that any error made in judging the distance to the halfway point is doubled for the full distance.
- c. **Key Ranges** - When the range to any point within the arc of observation is known, the distance to another object can be estimated from it. This method is successful provided that the object is reasonably near the key range object.
- d. **Unit Average** - Provided that there is sufficient time available, the observer should get several cadets to estimate the distance to the object. He should then take the average of their answers. If all the cadets are practised in the skills of judging distance this method can be particularly accurate.
- e. **Binoculars** - Binoculars can be used to estimate distance, particularly at long range. Using the subtension rule provided the height of an object is known. If an object is known to be 4 m high and it is exactly covered by the smallest graticule it will be about 1000 m away. If the object is 8 m high then it will be 2000 m away if it is exactly covered by the small graticule.
- g. **Laser Range Finder** - Portable / Hand held laser range finders are now in service. The range finders can have a maximum theoretical range of 10 km however; atmospheric conditions will often limit the maximum range to 6 to 7 km. A ranging accuracy of 5 mm is possible, regardless of the distance measured. The range finders operate on batteries and are capable of taking more than 500 measurements between charges.

Conclusion

114. The ability to judge distance accurately is one of the most important skills a cadet should master. It is a skill that must be learnt through practice and it is one that can only be maintained through constant reinforcement.

FIELD SIGNALS

General







115. When moving tactically a section is controlled by the use of field signals. On many occasions the use of silent field signals will be the best method of control. These signals may be used singularly or in various combinations to create sign talk. Accuracy is vital. Ensure that signals are passed clearly and accurately. Ensure the man behind you has understood your signal by observing that he passes the same one on.

116. It is the responsibility of every person to watch for field signals being passed forward or back. The following points defeat the purpose of silent field signals, therefore are not to be used:

- a. snapping of fingers; and
- b. whistling.

117. Field signals should be definite but not vigorous. Vigorous movement may often give away your position. Field signals should be used realistically. Do not become a slave to them.

BASIC FIELD SIGNALS

	<p><u>ADVANCE OR FOLLOWS ME.</u></p> <p>ARM SWUNG FROM REAR TO FRONT BELOW THE SHOULDER. (DIRECTION GIVEN BY POINTING)</p>			<p><u>FREEZE AND LISTEN.</u></p> <p>HAND CUPPED TO EAR</p>
	<p><u>HALT LIE DOWN.</u></p> <p>ARM RAISED UNTIL HAND IS LEVEL WITH THE SHOULDER, OPEN PALM FACING FORWARD. USED WHEN TROOPS ARE REQUIRED TO TAKE UP FIRE POSITIONS AND OBSERVE ARCS OF FIRE. NOT NECESSARY FOR SHORT HALTS SUCH AS NAV CHECKS WHEN ALL HALT TO CONFORM TO THE MAN IN FRONT.</p>			<p><u>COMPANY COMMANDER</u></p> <p>CLENCHED HAND HELD ON SHOULDER TO INDICATE A MAJORS CROWN.</p>
	<p><u>GO BACK OR TURN ROUND.</u></p> <p>HAND CIRCLED AT HIP.</p>			<p><u>PLATOON COMMANDER.</u></p> <p>TWO OPENED FINGERS HELD ON SHOULDER TO</p>

INDICATE A
LIEUTENANTS
STARS.



CLOSE OR JOINS ME.

HAND PLACED ON TOP HEAD, ELBOW SQUARE TO THE RIGHT OR LEFT, ACCORDING TO WHICH HAND IS USED.



GROUP.

FINGERS TOGETHER, MOVED IN CONJUNCTION WITH THUMB TO INDICATE PERSON TALKING.

SLOW DOWN.



ARM EXTENDED TO THE SIDE BELOW THE SHOULDER, PALM DOWNWARDS, MOVED SLOWLY UP AND DOWN, WRIST LOOSE.



SECTION COMMANDER.

TWO OPENED FINGERS HELD AGAINST ARM TO INDICATE CORPORAL'S STRIPES



SECTION 2IC

ONE OPENED FINGER HELD AGAINST ARM TO INDICATE LANCE CORPORAL STRIPES



INCREASE SPEED.

CLENCHED HAND MOVED UP AND DOWN BETWEEN THIGH AND SHOULDER

Additional Field Signal

118. The above field signals cover only the basic individual field signals. If a sub-unit makes up any additional signals, everyone within that sub-unit, or attached to it, must be aware of them.

OBSERVATION BY NIGHT

Introduction

119. Devices, which are designed to either locate or detect objects at night. Whether in the field of infra-red, image intensifiers or radar, these devices are available. However, even the simplest of these has electronic components. They are therefore, normally expensive, often heavy or bulky, and in most cases require specially trained operators. It is for these reasons that the individual will often find themselves with nothing but their own two eyes to detect objects at night. He or she soon learns that the darkness can be their friend or their enemy, the former if he or she is properly trained, the latter if they are not.

The Human Eye

120. The eye does not work in the same way at night as it does during the day and it is important to understand why. Light enters the eye through the pupil and is regulated by the iris. The light passes through the lens and is focused on a sensitive area called the retina. From here the optic nerve transmits electrical impulses to the brain. In fact it is the brain which sees rather than the eyes. The retina is composed of two sets of cells, named for their shape. They are rod cells and cone cells. The cone cells are used in daylight and identify colour, sharp contrast and shape. The cone cells are found predominantly behind the pupil in an area called the cone region. There are approximately seven million cone cells in the human eye.

121. The rod cells are the night eyes. These cells are located around the cone region on the outer portion of the retina. There are a few rod cells in the cone region, but they are of an insufficient number to allow night vision for any period of time. There are 130 million rod cells in the eye. They only see black and white and shades of grey. In order to see effectively at night, the rod area of the eye must be used.

Dark Adaptation

122. Dark adaptation is allowing the eyes to become capable of seeing under low illumination conditions. Most people have wondered what happened to their ability to see when they have gone into a matinee movie on a bright sunny day. They probably not only had difficulty trying to find a seat, but also were completely unsure of themselves. The following causes these few minutes of blindness:

- a. all of the cone cells are blind in the darkness;
- b. a chemical compound called visual purple is being manufactured in the eye to sensitise the rod cells, enabling them to see; and
- c. the pupil of the eye must expand to allow more light to enter the eye.

123. The amount of time it takes to become dark-adapted depends upon the individual's physical make up. Some people become partially dark-adapted in six to ten minutes, while others take much longer. However, to become 98 percent dark adapted, it takes the average individual approximately 30 minutes.

124. There are several different ways of becoming dark-adapted. An individual may become dark adapted by simply sitting in a completely darkened area for 30 minutes. You can also become dark adapted by the use of red goggles or red lights. Red lights or light filtered through red goggles does not destroy the visual purple that is built up in the eye. However, even where such devices are used an individual should spend 10 minutes in a completely darkened area before going out into the dark in order to allow the pupils of the eyes to completely dilate.

Off Centre Vision

125. If at night an observer looks directly at a small or dim object it may not be seen at all as only the cone region of the eye is being used. Off centre vision is used to put the rod region of the eyes into play instead of using the blind cone cell area directly behind the lens.

126. To achieve 'off centre' vision the eye should be 'aimed away' from the object about a fist width at arms length (100 to 130 mils). Only by experiment can the soldier find out which direction is most suitable for their 'aim off', ie, above, below or to one side of the object. It is important that the soldier resists the temptation of a direct look 'just to make sure'.

Scanning

127. Scanning is the short, abrupt movement of the eye over or around an area of observation or an object that is being kept in view. The reason that an observer must apply scanning is that the visual purple, which sensitises the rod cells, will bleach out after being exposed for 4 to 10 seconds. When the one group of rod cells are no longer sensitive to night lighted objects, another group of rod cells must be brought into use by shifting the visual axis. Therefore, every four to ten seconds an observer must shift their visual axis. Another reason for scanning is that the rod cells can see something that is moving, but are not capable of seeing while they themselves are in motion. Therefore an observer must move their eyes quickly so that a new group of rod cells is stimulated to allow detection of movement. Scanning is used in conjunction with off-centre vision in order to gain the maximum use of the eyes at night.

128. It is important to note that this technique differs from daytime scanning. In daylight an observer searches by moving their eyes from left to right in overlapping parallel bands from near to far. If this method was used at night then the same set of rod cells would be fatigued and nothing would be seen.

Staring

129. It is important to realise that when staring at a stationary light or prominent object in an otherwise black scene the object may start moving. This happens because the eye has no bearings on which to check the exact position. This can be prevented by 'placing' the object against something else such as a finger at arm's length or along a rifle barrel.

Confidence

130. In order to gain confidence in the ability to see under low light levels, the correct use must be made of the eyes. The observer must believe what their eyes tell him they see. Because the rod cells do not work in the same manner as the cone cells, objects seen at night tend to be fuzzy and hazy around their extremities. Through practice an observer must learn to recognise objects at night and know how they differ from their daytime appearance.

Protection of Night Vision

131. Any bright light will spoil night vision. It is important that the individual instinctively closes, or covers one eye when faced with any light at night. In addition they should:

- a. avoid looking at any bright light unnecessarily;
- b. shield their eyes from parachute flares, spotlights or headlights (this makes it possible to see objects moving beyond the lights whilst protecting your night vision);
- c. avoid waving torches about as not everybody will be quick enough to close their eyes and avoid being dazzled;
- d. put one hand over the glass when using torches to map read, and use the fingers to limit both the area illuminated and the brightness of the light (keep one eye shut and the time spent on reading the map to a minimum);
- e. use of coloured filters on torches will assist in maintaining night vision although similar coloured markings on maps cannot be seen; and
- f. use only one eye when using passive night viewing aids as the aid will diminish night vision in the eye being used.

Aids to Night Vision

132. The following are aids to night vision equipment:

- a. Image intensifiers (Ninnox)
- b. Infra Red (ANTAS 6A)
- c. Illumination (flares etc)

INDIVIDUAL NIGHT MOVEMENT

Dress and Equipment.

133. To assist in remaining concealed in the dark, all equipment must be camouflaged and anything that might gleam in the moonlight covered.

134. To minimise the risk of making noise:

- a. tie string around the trousers at the ankles, knees and thighs, to prevent the legs from swishing together; and
- b. wear a soft hat or go bareheaded.

Routes

135. At night more is heard than is seen, so silence is vital. To move silently at night, the individual has to move slowly. The correct selection of routes across country is vital so that the best use is made of available concealment and cover. When selecting routes the following aids can be used either individually or combined.

- a. **Landmarks.** Ideally two prominent objects to the front at night are selected and are kept lined up in view. When one object alone is used, its position related to the objective is checked (that is left of, in line with or right of). It is useful to have a landmark on the back view particularly if a return is necessary.
- b. **Pacing.** Individuals should memorise the number of paces they require to cover a known distance (commonly 100m over varying terrains). Pace counters can then be used to keep check on distance covered. If they are not available then small pebbles or knots in a string can be used as a counter.
- c. **Compass.** The compass is the most reliable aid and should be used in conjunction with a map and air photograph. Bearings should be worked out by day.
- e. **Stars.** Stars are useful when there are no suitable landmarks available. When selecting a star as an aid to direction, choose one that whilst within view of the ground, is as far away as possible. Because stars move due to the earth's rotation, it is advisable to select a new one every 15 minutes.
- f. **Sketches.** Sketches should be copies from maps or air photographs during the day and should show all-conspicuous features which may be visible at night, including roads, fences and creeks.

Movement at Night

136. The following general rules should be applied when moving by night:

- a. At night, people hear more than they see, so silence is vital. To move silently at night, move slowly. Rubber soled shoes are a help on hard ground;
- b. Move by bounds (or a short distance) at a time. Halt, look, listen, and then move again. Halt in cover or a shadow, or lie down if there is none. By lying down an observer is unlikely to be silhouetted against the sky. He/she will also hear better with their ear nearer the ground or on it. If a suspicious noise is heard when moving, it is usually best to freeze for a moment to look and listen, and then slowly and silently take cover or lie down;

- c. Move in cleared areas as much as possible to avoid making unnecessary noise and to allow a better view of the terrain for navigation;
- d. Take advantage of sounds such as planes and wind to cover any movement; and
- e. Avoid running at night except when absolutely essential. Running increases noise, and there is a risk of injury through falling over obstacles.

Methods of Night Movement

137. Night movement can be very slow and tiring. The following methods are used:

- a. **The Walk.** The walk at night is described as follows:
 - (1) Balance the weight on the rear foot. Raise the other leg high to clear any scrub or grass;
 - (2) Place the side of the boot down first and feel gently for a firm foothold free of twigs; and
 - (3) Transfer the weight carefully onto the forward foot.
- b. **Crawling.** Night crawling is described as follows:
 - (1) The monkey run on the hands and knees is carried out the same way at night as during daylight. The free hand must carefully clear dry bush from the ground ahead.
 - (2) Leopard crawling flat on the ground, as taught for daytime is far too noisy to use at night. To crawl quietly at night:
 - (a) Lie on the stomach, legs together, arms extended about halfway forward.
 - (b) Reach forward with the toes, raise the body clear of the ground of the forearms and toes, and carry it forward and gently to the ground again.

PERFORM CASUALTY EVACUATION

Improvised Stretchers.

148. Improvised stretchers can be made with any material as long as it is strong enough to do the job. All it needs is a little imagination. Some of the ideas that can be used to improvise a stretcher are as follows:

- a. Make holes in sacks (for example, sleeping bags) and pass poles through them;
- b. Turn the sleeves of two or more coats inside out - pass the poles through them and button up the coats;
- c. The slings from rifles may be used in the same way as the plastic gliders of the Jordon lifting frame; and
- d. A door or similar suitable material may be used as a stretcher.

149. The best method of making an improvised stretcher is by using a mattress cover and feeding two poles through the side seams. If the casualty has to be carried a long distance then two shorter poles, one at either end can be securely lashed to the longer poles to add extra support.

Methods of Transport

150. Selection of the correct method of transport will depend upon:

- a. the nature and severity of the injury, including the conscious state of the casualty;
- b. the physical capabilities of the first aid personnel;
- c. the number of personnel available;
- d. the equipment available; and
- e. the route to be covered.

Basic Principles

151. The basic principles to be observed when transporting a casualty are:

- a. explain what is happening to the conscious casualty;
- b. ensure that the airway is open and that breathing is maintained;
- c. ensure haemorrhage (bleeding) is controlled;
- d. confirm that the casualty is safely maintained in the correct position;
- e. ensure the casualty is safely secured to the stretcher;
- f. conduct regular checks of the casualty's condition;
- g. ensure supporting bandages and dressings remain effectively applied;
- h. make sure the mode of transport is safe and comfortable; and
- i. guarantee that transport is accomplished without delay.

152. The following are the rules for carrying stretchers:

- a. **Testing a Stretcher.** When testing a stretcher to ensure that it is capable of taking the weight of a casualty, one person should lie on the stretcher and each end of the stretcher should be lifted in turn. Then both ends should be lifted at the same time.
- b. **Stretcher Carriage** The number one stretcher-bearer is the person who carries the stretcher at the rear end, and to the right of the stretcher. The number one bearer is in charge of the stretcher team. Once all members are in position, the number one gives the orders 'Prepare to lift' – 'lift' (to the carry position) and 'Prepare to lower to the ground – 'lower'. All bearers should move off carrying the stretcher under control of the number one. The stretcher is not to be carried on the shoulder to avoid nerve entrapment of the neck/trapezius. All bearers stay in step using the inside and outside feet. The number one is to ensure that the stretcher team stays in step for the comfort of the casualty. The method of relief is that bearers change from the rear and on their next rotation change into a different position and side. Members are to miss a rotation to enhance recovery. The maximum carry for each individual is not to exceed 50m at a time.

Loading a Casualty onto a Stretcher.

153. Loading a casualty onto a stretcher should be done by means of a blanket or spinal lift.

- (a) **Blanket Lift.** A blanket lift is carried out as follows:
 - (1). Place a blanket (mattress cover) on the ground in line with and against the casualty. Roll the blanket lengthwise for half its width. Roll the casualty onto their uninjured side. Place the rolled portion of the blanket close to the casualty's back.
 - (2). Roll the casualty over the rolled edge onto their back. Unroll the blanket.
 - (3). For lifting, the edges of the blanket are rolled up close to the casualty and the casualty is lifted on to the stretcher.
 - (4). Insert two poles into the spaces provided at the sides of the mattress cover. Lift the casualty onto the stretcher, and remove the poles.