



FIELDCRAFT

BASIC

Australian
Air Force Cadets

Cadet / Instructor Notes

Rewrite Edition, 1st April 2007

FIELD CRAFT BASIC (FCB)
(11 Periods + Bivouac)

FCB 1 Personal Equipment AL: A Period(s): 1

- a. Demonstrate the assembly and packing of:
 - (1) Patrol Order Pack.
 - (2) Field Order Pack.

- b. State the purpose and general content of Bivouac Standing Orders.

FCB 2 Visual Training & Judging Distance AL: B Period(s): Req'd
(this lesson should not be conducted in the classroom)

- a. State what is meant by visual training.
- b. State the reasons for things being seen.
- c. Describe how to observe.
- d. Describe the method of judging distance by:
 - (1) Appearance.
 - (2) Unit of Measure.
- e. Practise sub paras c&d

FCB 3 Camouflage, Concealment and Movement AL: 2 Period(s): Req'd

Demonstrate:

- a. The application of camouflage on personnel and equipment for common conditions.
- b. The method of concealment of personnel and equipment.
- c. Movement by day or by night.
- d. Basic field signals.
- e. Section and Flight formations.

FCB4 Map Reading AL: 2 Period(s): 2

State:

- a. The definition of a map.
- b. Types of maps.
- c. Purpose of titles and marginal information.
- d. Topographical features.
- e. Methods of topographical representation.
- f. Definition of a Contour
- g. Purpose of scale and various representations of scales.
- h. System of grid reference.

FIELD CRAFT BASIC
FCB1 - Personal Equipment & Safety
1 PERIOD

Demonstrate the assembly and packing of:

1001. One of the first uniforms issued to an AAFC Cadet is the DCPU uniform. This is worn by Recruits in the field / working environment and must be worn on bivouacs or other specified activities. DCPU uniform consists of the following;

- a. Hat; utility, which is designed with a floppy brim to protect the face, ears and neck and to shade the eyes.
- b. Shirt; should be of a comfortable fit neither too tight nor too loose. For field work, the sleeves are worn down and buttoned at the cuff.
- c. Trousers; as for the shirt, should be a comfortable fit. They are worn with the cuff 'bloused' over the top of the boots using either an elastic garter or heavy duty rubber band.
- d. Socks; must be of sufficient thickness to fit snugly in the boots without restricting circulation to the feet. Woollen socks are best for field work and must be long enough to protrude above the boot tops so as to prevent them chafing the calves.
- e. Boots; GP, are designed for comfort and support in field use, provided that they fit properly. When brand new, boots should not be worn in the field, but need to be 'broken in', by wearing and polishing them. Boots and laces must be maintained in good condition for field work.

Wet Weather Protection

1002. Bivouacs and field activities often take place in winter months, some form of wet weather clothing is an essential part of a Cadet's kit. This will need to be obtained individually as it isn't normal issue. The ideal clothing for field use is either a Japara or military style waterproof smock, preferably camouflage in colour.

Personal Safety Equipment

1003. In the field, each Cadet should carry a personal first aid kit, packaged in a small zip-top plastic envelope. The suggested contents are as follows;

- a. A bandage or shell dressing.
- b. Several bandaids.
- c. A few aspirin.
- d. Safety pins.
- e. Anti-septic cream
- f. Tweezers.
- g. Water purification tablets.

General Safety Equipment

1004. When planning a bivouac, make sure that the following items are included in the stores list;

- a. Spade; to dig fire trenches.
- b. Rake; for clearing around fireplaces and to keep the camp generally tidy.
- c. Axe; for clearing the area if necessary and general use, but can only be used by staff.
- d. Knapsack spray or water bucket; to be within easy reach of each fireplace.

Webbing Equipment and Back Packs

1005. The selection of back packs suitable for AAFC field activities is far too numerous to mention in these notes, but the basic points to consider when choosing one are;

- a. It should be large enough to hold a sleeping bag, spare set of clothing, food and water and other personal items, but not so big that it becomes too heavy or awkward to carry.
- b. It must sit comfortably and squarely on the back without dragging the shoulders down.
- c. When trying out a pack in the store, it should be loaded up so that you get a true feel for the type you want.
- d. Make sure that the pack you select is waterproof.
- e. A good general design for a field back pack is one which has a separate compartment top and bottom, pockets for small items on each side and a map compartment in the back or top flap. See figure 1 below.

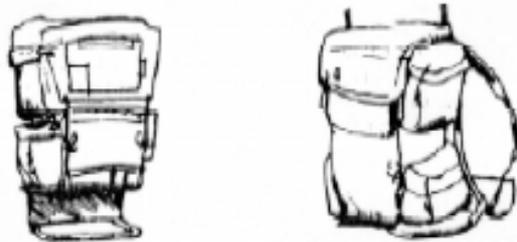


Figure 1 - Two Types of Field Back Pack

1006. Other lightweight webbing equipment which a Cadet will need in the field is available from disposal or camping stores and should be versatile in its use. Military style webbing is best suited to this and the minimum requirement would be a webbing belt, water bottle and carrier and a small pack or basic pouch. The water bottle carrier and pouch are, of course, attached to the belt.

Food Requirements

1007. The planning of bivouac rations is most important and should be done systematically. Start by working out the number of breakfasts, lunches and dinners required and then make up a menu for each. While planning out the menu, keep in mind the correct balance and select food which will include the five major food groups. These are as follows;

- a. Carbohydrates; (bread, cereals, flour, potatoes etc.) to assist the body in the utilisation of protein and fat.
- b. Proteins; (cheese, eggs, meat, fish, beans etc.) for growth and tissue repair.
- c. Fats; (cheese, butter, oil, fatty meats etc.) for muscular energy and heat.
- d. Minerals; (salt, potassium, calcium etc.) to maintain cellular function.
- e. Vitamins; (fruit, vegetables etc.) for growth and control of body activities.

1008. The final step is to calculate the quantities required and when doing this, keep in mind that when active, out in the fresh air and burning up plenty of energy, you are likely to need more food per head than would be normal from day to day. A good gauge as to what types and amounts would be needed is to match your calculations up with the menu from a military one-man, twenty four hour, ration pack.

Fluids

1009. Water is the most vital fluid required by the body and it is most important to plan so that plenty is available at all times. Again, you are likely to need more during field activities than normal. Sweet soft drinks are not suitable in the field as they tend to make the person feel thirsty again soon after drinking. Fruit juices, on the other hand, are very good and have a double purpose in that they provide fluid and vitamins at the same time.

Purpose of the Bivouac Standing Orders

1010. The Bivouac Standing Orders (BSO) incorporates the policy of AAFC on the subject of bivouacs and other field activities. All AAFC personnel who are involved with the management or implementation of any bivouac or field activity are to be fully conversant with the requirements of BSO.

1011. The contents of BSO are as follows;

- a. Introduction to the document
- b. Suitability of Activities
- c. Supervisory / Training Qualifications
- d. Staff / Cadet Ratios
- e. OA86 Activity Authorisations
- f. Governing Regulations
- g. Prohibited Activities
- h. Medical Aspects

- i. First Aid Requirements
- j. Safety - General
- k. Safety – Emergency Procedures
- l. Dangerous Articles
- m. Rubbish Disposal
- n. Display of Australian Flag
- o. Radio Communications
- p. Fire Picquet
- q. Appointment of an Anchor Person
- r. Female Participation
- s. Night Activities
- t. Alcohol/Drug/Tobacco Consumption
- u. Dress
- v. Unacceptable Sexual Behaviour
- w. Harassment
- x. Lost & Overdue Procedures

Lost Procedures

1012. Even with sound planning and preparation it is still possible to become lost or overdue during a bivouac or field activity. Knowing what to do if this situation arises is a vital part of planning an activity. Many combinations of factors contribute to a party becoming lost or overdue, some of these are;

- a. Becoming lost;
 - (i) Poor or inexperienced party leadership and planning.
 - (ii) Lack of knowledge of the terrain
 - (iii) Little or no knowledge of bushcraft.
 - (iv) Panic.
- b. Becoming overdue;
 - (i) Unexpected illness or injury within the party.
 - (ii) Malfunction loss or destruction of essential equipment.
 - (iii) Tackling a route which is beyond the capabilities of the party.
 - (iv) Delays caused by unexpected changes in weather conditions.
 - (v) Changing pre-planned routes or destinations without advising authorities.

Action if Lost or Overdue

1013. An overdue group is not lost, just late and every effort should be made by the group to reach the objective and / or contact the authorities as soon as possible so that an unnecessary search is not initiated. A lost party however, must take appropriate action to assist search and rescue organisations in locating the group quickly.

1014. In order to assist search parties, the lost group should move to a prominent feature such as a clearing or high point in the terrain and then remain stationary and together. At least one member of the group needs to be on watch at all times, day and night, so as to either call for help or alert the others to danger if necessary. Signals attract attention and should be used whenever it is thought that such might be seen by searchers. Some common forms of signalling are smoke, fires, flashing lights, torches, mirror flashes, shouting, whittling and waving flags or items of clothing. Standard signals for use with searching aircraft are in common use internationally and these are shown at Annex A.

FIELD CRAFT BASIC
FCB2 - Visual Training and Judging Distance
PERIODS As Req'd

Definition

2001. Visual training is the development of personal skills of detection and observation, which enable an individual to assess the terrain with an application to tactical appreciation.

2002. Detection is the discovery of the existence of an object and its location. This may be the result of a deliberate search or from the appearance of dust, flash, noise, light or movement.

2003. Observation involves a careful study of the terrain, vegetation, natural or manmade features and the deductions which can be made from them. Good observation will allow a composite picture of the situation to be built up and may require the use of a number of techniques.

Why Things Are Seen

2004. Sight is the primary means by which a person gathers and assimilates information. An understanding of why things are seen will not only help when searching for and detecting equipment and personnel but will also assist cadets when concealing themselves and equipment from detection.

2005. The following six factors will assist in determining how a person or object can be seen:

- a. **Shape.** All types of equipment in common use and the human body are familiar to everyone. They can be recognised instantly when placed in contrast to natural surroundings. Items such as a hat, rucksack or back pack radio and other personal equipment are easily detected unless their outlines are broken up;
- b. **Shadow.** Shadows are seen in two ways:
 - (i) cast shadow is when in sunlight or moonlight, an object casts a shadow which may cause detection. An object or person concealed in other shadows does not cast a shadow of its own, however, as the sun and moon move, so do the shadows and the object may be revealed as the shadow moves, or its own distinctive shadow reappears;
 - (ii) contained shadow is where the shadow is contained in the opening of a building or cave mouth, or under a personal tent or shelter. The contained shadow is usually darker than other natural shadows around it and can, therefore, attract attention.
- c. **Silhouette.** Any object will be conspicuous when it is silhouetted against contrasting backgrounds such as the sky, a flat surface, water, an open field, or a background of a different colour. Bushes, trees and broken ground provide the best concealment:

- d. **Surface.** If the texture or colour of an object contrasts with its surroundings it will be conspicuous. Shiny or flat objects and exposed human skin will stand out violently against most natural backgrounds and therefore need to be disguised to assist concealment;
- e. **Spacing.** Natural features, trees, rocks, bushes and so on are never spaced out at regular intervals. Regular spacing of objects or personnel will therefore draw attention to the fact that something other than an object natural to the area is present;
- f. **Movement.** The eye of an observer will always be attracted to sudden movement. Slow and deliberate movement is far less likely to disclose the location of a well concealed position.

How to Observe Ground

2006. In order to detect objects and persons who are skilled in the practices of camouflage and concealment, the observer must apply the factors of why objects are seen while scanning and searching the ground.

2007. Scanning is a general and systematic examination of an area so as to detect any unusual or significant object or movement.

2008. When scanning an area the following actions are undertaken;

- a. Divide the area into foreground, middle distance and distance, see Figure 1.
- b. Scan the area horizontally starting with the foreground and for maximum efficiency move the eyes or binoculars in short overlapping movements. The speed at which scanning is carried out will be determined by the country to be observed and the amount of cover for possible objects;
- c. When horizontal scanning is completed, scan along the line of any angled features such as ridges, gullies or creeklines. To reduce eye fatigue move the head while scanning.



Figure 1 - Scanning

2009. Searching involves a detailed look at an area which is a suspected location for the concealment of equipment and personnel.

2010. Searching may take place at any stage during scanning. Areas requiring special attention are any feature which dominates the observer's position, significant movement, suspected camouflage or any outstanding object. When searching, look for each of the factors which make an object visible and use the weather conditions to advantage. For example, frost may reveal tracks made during the night and on a hot day the leaves of foliage which has been cut for camouflage will wilt and change colour.

2011. Scanning and searching both require complete concentration, combined with a sound knowledge of why things are seen and the principles of camouflage and concealment.

JUDGING DISTANCES

Methods

2012. In order to pass useful information regarding a seen object, an accurate estimation of the distance from the observer to the object needs to be made. The two main methods used to estimate distance, without the aid of mechanical range finders, are by the unit of measure method and the appearance method.

The Unit of Measure Method

2013. To use this method, the observer visualises a distance which is familiar to that individual (such as a cricket pitch or basketball court) and then calculates how many of these units would fit in the ground between the observer and the object. This method will produce fairly rapid and accurate results provided that all of the ground between the observer and the object can be seen and the distance to be estimated does not exceed four hundred metres. A useful unit to become familiar with is 100 metres.

The Appearance Method

2014. The appearance method of judging distance is based on what an object looks like when compared to its surroundings. A great deal of practice under varying ground conditions is required to become proficient in this method.

2015. To give an indication of the distance of a person from an observer with good vision, the following detail should be distinguishable:

- a. at 100 metres; clear in all detail;
- b. at 200 metres; clear in all detail and the colour of skin and equipment can be identified;
- c. at 300 metres; clear body outline, colour of face remains good but other details blurred;
- d. at 400 metres; body outline clear, remaining detail blurred;
- e. at 500 metres; body begins to taper and the head becomes indistinct;
- f. at 600 metres; the body is wedge shaped and no head is apparent.

Conditions which alter the appearance of objects

2016. Objects seem closer when:

- a. the light is bright or the sun is shining from behind the observer;
- b. the object is larger than its surroundings;
- c. there is dead ground between the object and the observer;
- d. the object is higher up than the observer.

2017. Objects seem further away when:

- a. the light is bad or the sun is shining in the observers eyes;
- b. the object is smaller than its surroundings;
- c. the observer is looking across a valley or down a road or track;
- d. the observer is lying down.

Aid to Judging Distances

2018. Halving – Choose a point that appears half way to the target, estimate the distance to the point, and double it.

2019. Bracketing – Say “the target could not be more than X metres nor less than Y metres away” add X to Y and halve

Conclusion

2020. Visual training and the judging of distances is one of the most important skills required as these have a direct bearing on the effectiveness of the individual in other aspects of Field Craft. These skills must be learnt through practice and will only be maintained through constant reinforcement.

FIELD CRAFT BASIC
FCB 3 - Camouflage, Concealment and Movement
PERIODS As req'd

General

3001. 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. The background is the controlling element in personal camouflage and clothing must blend with its predominant colour. Light coloured equipment and any bare skin must also be toned to blend in for the same reason.

3002. Personal camouflage techniques are designed to deceive observers both on the ground and in the air. When applying any type of camouflage, cadets must be able to visualise how things would look from the observer's vantage point and learn to guard against both kinds of observation.

Skin

3003. Exposed skin reflects light and contrasts with the surrounding background. The face, neck, hands and lower arms, which may be exposed below the shirt, should be toned by painting them in a disruptive pattern or by wearing additional accessories such as scarfs or gloves. When using disruptive painting on the face the lines should cut across the nose lines, cheek bones, eye sockets and chin lines. A darker treatment of the skin will be necessary for night work, see Figure 1.

3004. Camouflage cream, burnt charcoal and dirt can all help to tone down skin colours. Individual camouflage require planning, thought and imaginative use of materials at hand

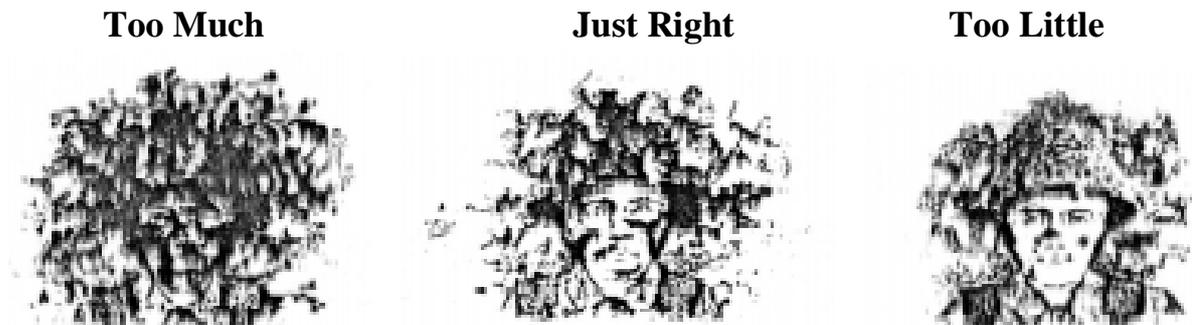


Figure 1 - Face Camouflage

Clothing

3005. In the absence of issued camouflage clothing cadets can make their own clothes adapt in 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. The camouflage of clothing is an essential part of good concealment.

Boots

6006. Shiny boots look good on the parade ground but are out of place in the field. Ideally a cadet should have a pair of boots for both occasions. Polish should be applied to field boots to preserve the water proofing of the boots but they must not be shiny.

Headwear

3007. The floppy cloth bush hat has a distinctive shaped crown which must be broken up by the use of garnishing or a small amount of vegetation.

Webbing Equipment

3008. The solid green colour of the webbing equipment can be modified by irregular pattern painting using colours such as brown, black, ochre, grey and light green. 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

3009. All shiny objects must be concealed. This includes such items as watches, belt buckles and messing utensils.

Use of Cut Foliage

3010. Cut foliage will wilt and change colour particularly on a hot day. When it is used for camouflage it should be replenished before this occurs. If a person is moving through the country, it is also necessary to change cut foliage camouflage as the vegetation in the background terrain changes.

Concealment of Personnel and Equipment

Definition

3011. Concealment simply means hiding either personnel or equipment behind something so that it can't be seen. Concealment is often safer and easier to achieve than applying camouflage but has the disadvantage that usually a person's view is restricted for observation purposes.

Concealment

3012. Effective camouflage is an aid to concealment. The best camouflage will however be wasted unless the cadet remains aware of why and how objects are seen. Effective concealment can be achieved by using the following guidelines, also see Figures 2 to 5.

- a. look around or through concealment rather than over it. If there is no alternative but to look over it, try to avoid breaking natural straight lines;
- b. the skyline is the worst background. If observing over cover and against the skyline, make use of something to break up the silhouette. Avoid large bodies of water as they have the same effect as a skyline;
- c. use available shadow and remember that positions in the open may be disclosed by a moving shadow. Shadows move with the sun and moon and therefore a position may need to be adjusted;
- d. choose a background which blends with your appearance;

- e. avoid isolated cover, it is usually conspicuous and kept under observation;
- f. where possible use several routes particularly when entering and leaving a concealed position such as an observation post;
- g. when movement is essential move slowly, quietly and carefully;
- h. avoid breaking natural lines

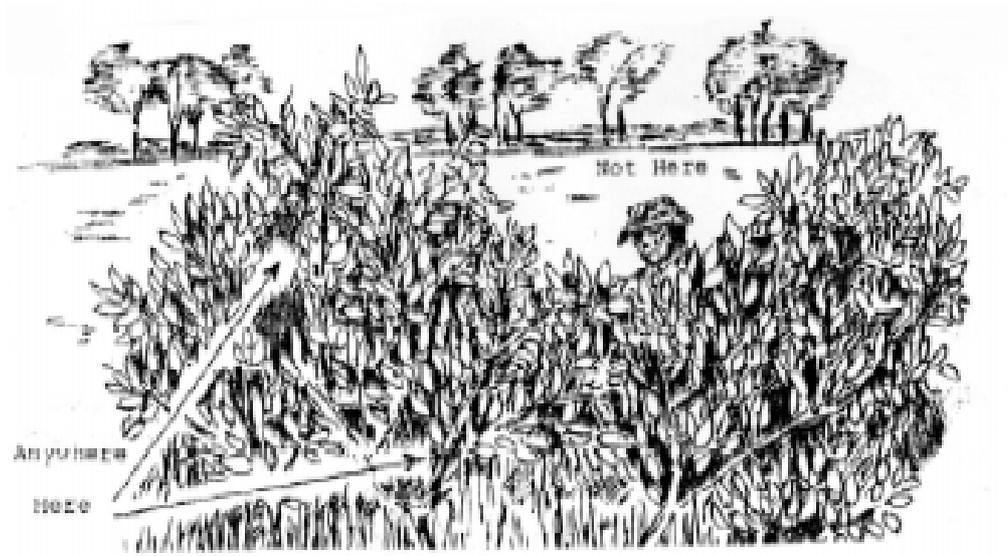


Figure 2 - Look Through Concealment



Figure 3 - Avoid Skylines



Figure 4 - Avoid Breaking Natural Lines



Figure 5 - Use Shadow

Additional Hints

3013. Listed below are a number of additional hints which will assist with concealment of personnel and equipment:

- a. use all available cover whether it is natural or artificial;
- b. avoid unnecessary movement and remember that quick movement attracts attention;
- c. when movement is necessary, plan the move and then take it carefully, making full use of other concealment and the weather, such as rain, fog, haze and if the situation allows, wait for darkness;
- d. when taking up an observation position try to do so lying down;
- e. enter and leave concealed positions without being seen and without showing movement;
- f. avoid moving across open areas;
- g. don't show anything that will shine such as a signal mirror, plastic map case, compass face, mess tins or ration tins and binoculars;
- h. remember that individual shelters and tents shine in moonlight, artificial light or when they are wet;
- i. don't drop litter, this will attract attention, particularly from the air;
- j. always keep your equipment packed and concealed when not in use;
- k. when observation aircraft are in the area, don't move about, stay concealed and don't look up at the aircraft unless ordered to as air sentry;
- l. any spoil from diggings such as pits, latrines and so on, must be concealed as must the diggings themselves;
- m. smoke and smell from cooking fires will give your position away so these must suit the tactical situation and are often not allowed;
- n. always remember the reasons why things are seen and try to visualise yourself and your position as an observer would.

Conclusion

3014. Camouflage is one of the basic fieldcraft skills which, when applied correctly and used in conjunction with the guide-lines for good concealment, enables us to deceive and confuse other observers while maintaining our own security.

Individual Movement by Day and Night

Introduction

3015. Each cadet needs to be able to combine the art of concealment with tactical movement. Different methods of movement provide concealment for different types of cover. When moving between concealed positions the following points are important:

- a. before leaving one place of concealment, the next concealed position and the route to it should be selected;
- b. the movement of low foliage could attract attention either by moving branches and leaves higher up or by creating noise;
- c. tall grass provides good concealment, but when moving through it, care must be taken as it may wave unnaturally and attract attention;
- d. if any animals or birds are disturbed, the individual or group should stop, remain concealed and observe for any other reaction;
- e. take advantage of any natural or artificial distractions to cover movement.

Movement by Day

3016. A knowledge of how to move correctly enables an individual or a group to cover ground or occupy and leave a position without being observed. To assist in this, the following methods of individual daylight movement have been devised:

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

The Walk

3017. When moving in an area which is known to be in close proximity to possible observation, movement needs to be made with silence and stealth. The essential elements to be remembered when using the walk are:

- a. move slowly and deliberately;
- a. maintain the body in a balanced position at all times;
- b. keep the head up and observe in all directions, remembering that peripheral vision is sensitive to movement;
- c. always observe and note good cover while on the move;
- d. be continually alert and ready to get into cover instantly;
- e. move very quietly on hard ground, by placing the edge of the sole of the boot on the ground first;
- f. take extra care when stepping over small obstacles so that the body is properly balanced before taking the next step.

The Monkey Run

3018. The monkey run is simply crawling on the hands and knees and is useful when moving behind low cover see Figure 6. 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 that may make a noise, and then move the knees forward to the position of the hands;
- b. keep the buttocks and head low but continue to observe while advancing;
- c. movement can be quite fast but remember, the faster the movement the greater the noise factor;
- d. keep the length of pace short to reduce noise and discomfort.



Figure 6 - The Monkey Run

The Leopard Crawl

3019. This is crawling on the elbows and inside of the knees and is used when moving behind very low cover see Figure 7. The essential elements are;

- a. move alternate elbows and knees while lying on the stomach. The body is rolled slightly as each knee is bent, but the same effect can also be achieved by trailing one leg and bending only one knee;
- b. keep the heels, head, body and elbows low but maintain observation while advancing;
- c. take care that any equipment does not become fouled with mud or dirt.

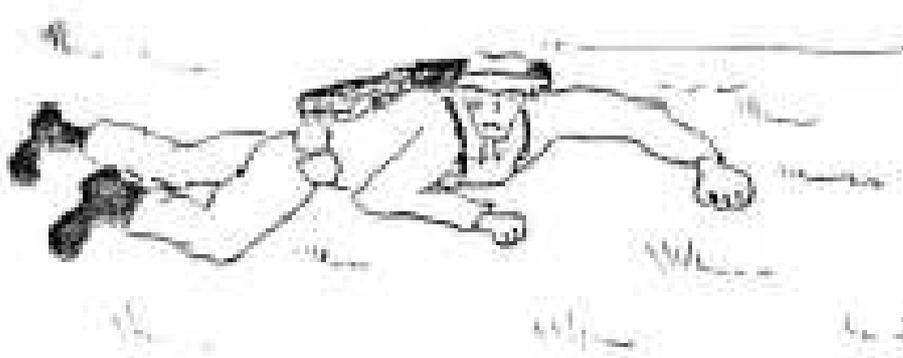


Figure 7 - The Leopard Crawl

The Roll

3020. The roll is a very quick method of moving away from a position when it is known that the location has been observed; for example, when forced to take cover. The essential element is that the arms remain close to the body, either at the sides or clasped in front so that the body is almost circular and will roll quickly. It is good practice to roll away from the position every time when forced to go to ground, 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. burst quickly from cover, preferably when some other distraction is taking place and move as fast as possible, by the shortest route, to the new location;
- c. drop quickly to the ground;
- d. crawl or roll away to a concealed location and take up a position of observation as quickly as possible.

Rushing

3021. The rush is the fastest means of moving from one position to another and is usually done when crossing a piece of open ground which offers 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. burst quickly from cover, preferably when some other distraction is taking place and move as fast as possible, by the shortest route, to the new location;
- c. drop quickly to the ground;
- d. crawl or roll away to a concealed location and take up a position of observation as quickly as possible.

Movement by Night

3022. Night movement demands more care to be taken than day as detection by noise is most prevalent and the individual must know how to react to unexpected light or flares. At night, people hear more than they see, so even when moving, silence is vital. The general rules for night movement are as follows;

- a. to move silently at night, move slowly;
- b. move by bounds (short distances at a time), halt, look, listen and then move again. Halt in cover or in shadow if there is any and if there is not, 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. utilise sounds such as wind, rain, vehicle and aircraft noise and the like, to cover movement;
- e. running at night increases noise and also the risk of injury by falling over obstacles. Running should therefore be avoided unless absolutely necessary.

Methods of Night Movement

3023. It will be apparent from the methods described here that movement by night can be very slow and tiring;

- a. the walk at night is described as follows:
 - (i) balance the weight squarely on one foot then move the other forward, raising it high enough to clear any scrub or tufts of grass;
 - (ii) place the side of the boot on the ground first and feel gently for a firm foothold free of obstructions;
 - (iii) transfer the weight to the forward foot and then repeat the process;
- b. the crawl, by night is described as follows:
 - (i) the monkey run is carried out the same as for daylight but the free hand must be used to carefully feel the ground ahead for any obstacles, brush or dry twigs;
 - (ii) the leopard crawl as done, in daylight is far too noisy for night movement and needs to be modified by:
 - (a) lie on the stomach with the legs together and the arms extended about half way forward then,
 - (b) reaching forward with the toes, raise the body clear of the ground on the forearms and toes, carry it forward and then gently lower the stomach to the ground again.

Reaction to Unexpected Lights

3024. Lights and flares frequently appear unexpectedly, particularly during tactical situations. Reaction to lights and flares is determined by the cover available and/or the terrain:

- a. in open country, where there is cover move quickly into it, but if caught in the open, drop to the ground and lie motionless;
- b. when illuminated in close country it is best to "freeze" as any observers are likely to be close at hand and noise and movement will be much more easily recognised than a still object against a shadowy background. If spotted, take cover and get away from the source of light as quickly as possible.

Basic Field Signals

3025. When moving tactically on foot, a section is controlled by the use of field signals. They are used whilst in formation and enable commanders to pass orders or change formations silently.

3026. The following illustrations explain how the basic field signals are used:

a. Advance or follow me

Arm swung from rear to front hanging down your side with open hand, palm facing the front.



b. Halt

Arm raised until the hand is level with the shoulder, hand open, palm facing the front.



c. Close in or Join Me

Hand placed on top of head. Pat hand several times.



d. Double or increase speed

Clenched hand moved up and down, out to the side between thigh and shoulder.



e. Adjust Spacing

With hand held between waist and should, and palm pointing outwards, motion outwards from the centre of the body.



f. Go back/turn around

Hand clenched with forefinger pointing down, horizontal circle made with the hand.



g. House or Hut

<p>Both hands placed above the head to form an inverted V shape to represent a roof.</p>	
--	--

h. Lie Down

<p>Several downward movements with the hand, palm downwards towards the ground.</p>	
---	---

i. Move Up

<p>With an open palm, arm swung slowly in the general direction of the movement required.</p>	
---	--

j. Slow Down

Arm extended to the side below the shoulder, moving slowly up and down.



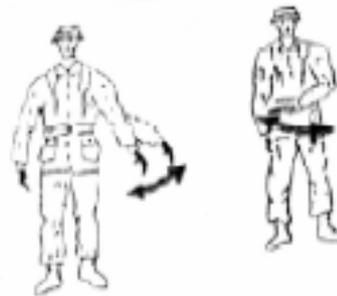
k. Reconnaissance

Hand cupped around eye.



l. Deploy

Sweeping movement made with arm to the side of the body.



m. No Enemy/All Clear

<p>Clenched fist with thumb pointing upwards.</p>	
---	--

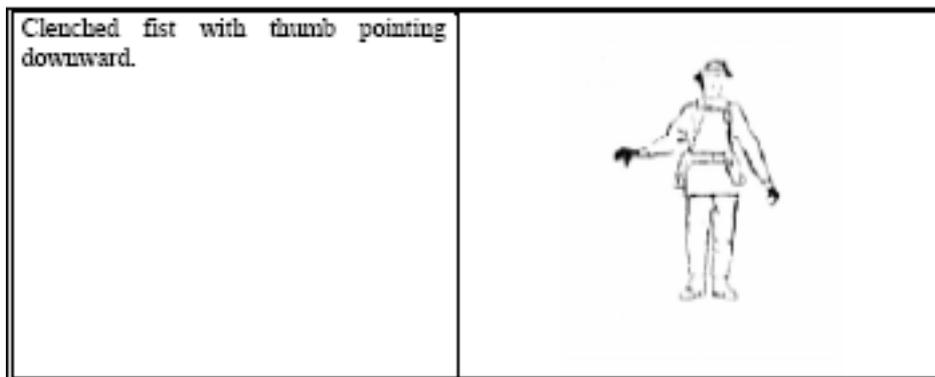
n. Freeze and Listen

<p>Hand cupped around rear of ear facing forward.</p>	
---	---

o. Obstacles

<p>Arms crossed in front of body with hands clenched.</p>	
---	--

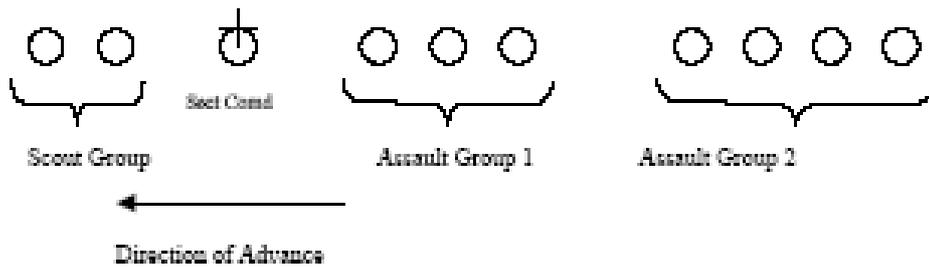
p. Enemy seen or suspected



Section & Flight Formations

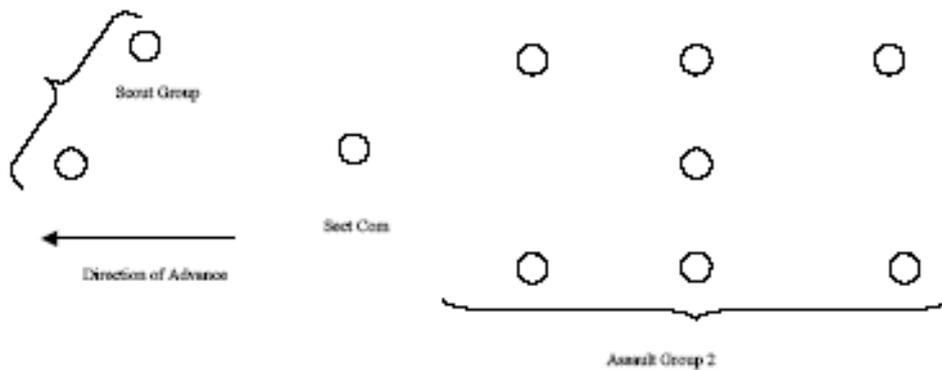
Single File

3027. This formation is useful for following narrow features, such as walls, creeks, and narrow tracks in close country, or by night.



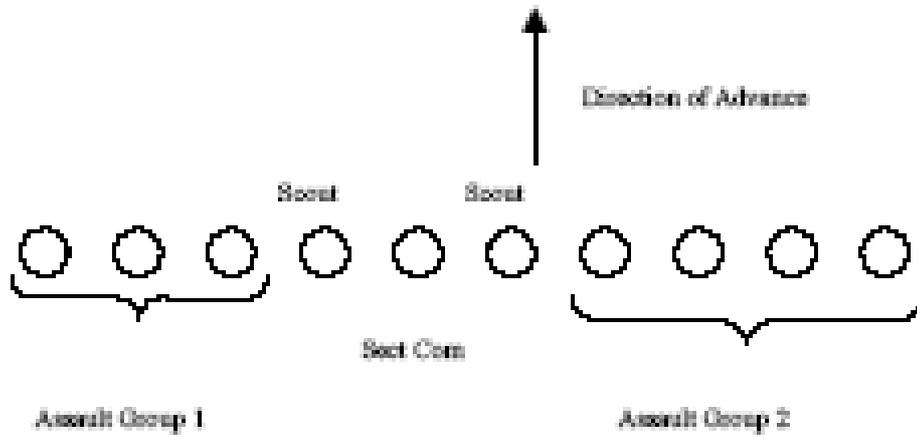
Open File

3028. This compact formation is easy to control. It is used at night, and is suitable for movement through close country.



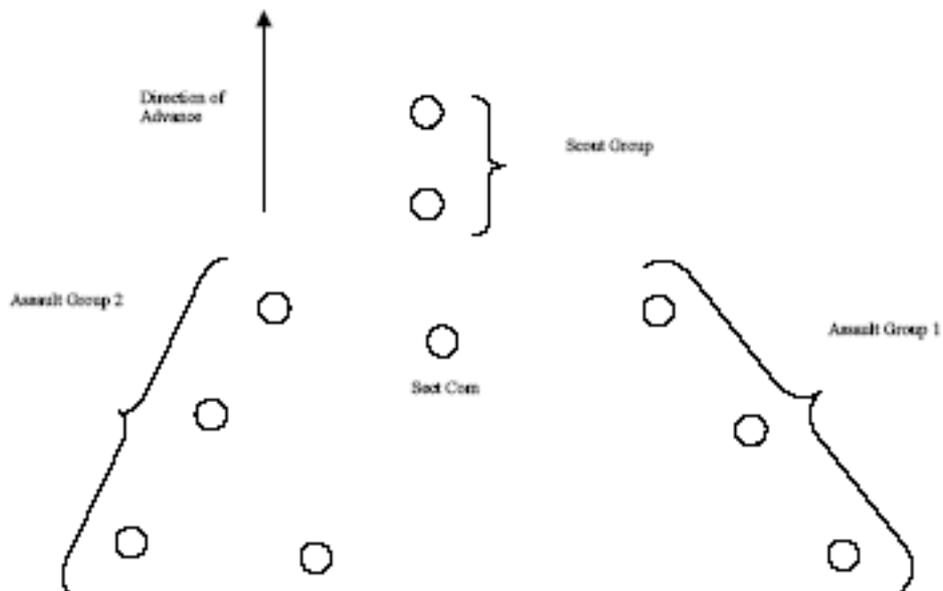
Extended Line

3029. Extended Line is used by cadets for emu parades.



Arrowhead

8030. This formation is best for moving on a broad front in open country.



FIELD CRAFT BASIC
FCB 4 – Map Reading
2 PERIODS

Introduction

4001. Map reading is the extraction of the information shown on the map; knowing the relationship of the ground to the map and the map to the ground and knowing what the map means. However to make full use of a map it is necessary to be able to give and to read grid references, to take bearings and to measure distances.

4002. The purpose in instructing cadets in map reading is to enable them to find their way about the countryside and to recognise features on the ground and on the map, to enable them to understand the information given on the map so that they can picture the ground even though they have not seen it, and to enable them to transmit and receive quickly and accurately, information concerning positions, directions and movement of personnel.

4003. The map contains a wealth of information that is not apparent to the untrained user. For example, a cadet trained and experienced in map reading can, by studying the map:

- a. visualise the shape of the ground;
- b. determine the height of hills and mountains;
- c. select points of observation and estimate those that will be able to be seen from that point;
- d. calculate the gradient of any particular slope;
- e. determine roughly the density of timber or scrub in any area;
- f. identify by type and relate roads and tracks, bridges, houses, post offices, schools, churches and factories to the ground.

Definition of a Map

4004. A map is a representation of part of the earth's surface drawn to scale on a flat surface showing natural and artificial features.

Type

4005. A map is a simplified picture of the ground. Simplified because a map is much smaller than the actual area it covers on the ground and also a large amount of detail on the ground is not necessary on the map. The type of maps used by the cadets of the AAFC will most frequently be Military Maps. These are topographical maps that show a variety of natural features such as hills, valleys, lakes, rivers, buildings, transmission lines, etc. A map shows the ground as seen from above, and so features on the ground look more like a map if they are viewed from an elevated position, such as a hilltop or from an aircraft.

Map Titles and Marginal Information

4006. On the margin around the map is given information that will be needed when the map is being used. Neither the layout, nor the items of information will necessarily always be the same, as they vary with different editions and different scales of maps. The

information includes the title, edition and map number that are necessary when ordering the map and passing grid references. Also essential for effective use are the scale, contour, interval, legend of topographical features, magnetic variation, date of survey and titles and numbers of adjoining maps.

Topographical Features

4007. The natural features of the landscape such as hills, mountains, valleys, plains, rivers, etc, are known collectively as its topography, whilst each one is known individually as a topographical feature.

4008. The more commonly encountered features which the student should know both on the ground and on the map are as at Annex A together with a contour plan of each feature.

Methods of Topographical Representation

4009. A map is drawn on a flat surface whereas the ground it represents is a three dimensional object. Some method must be found to represent this third dimension, the relief of the ground. To be a proficient map reader you must first and foremost be capable of visualising the shape of the ground from the information supplied on the map.

4010. The ways of representing relief on a map are:

- a. hill shading,
- b. layer tinting,
- c. hachures,
- d. contours,
- e. form lines, and
- f. spot heights.

The method usually employed in Australian Military Survey maps is a combination of contours and spot heights with hill shading.

4011. Hachures They are short lines drawn in the down direction of the slope. Fine hachures far apart indicate gentle slope, and heavy and close together indicate steep slope. This method is not used within Australia.

4012. Hill Shading This shows by depths of shading (using a pattern of dots) the pattern of physical features. This is produced by assuming a bright light is shining across the map from one direction, usually from north-west or north-east, so that one side of the hill is in the shade while the other side is in the light., This gives a vigorous idea of relief. Hill shading obscures other detail to a certain extent. Contours are often used with hill shading to provide a means of measuring accurately height with slope.

4013. Layer Tinting Layer tinting is the colouring of the map between certain contour layers, and as a method of showing relief is not used on Australian Military Maps.

4014. Spot Heights They are definite points shown on a map with the exact height above mean sea level printed against them. On hachured and shaded maps they give the only exact information as to height contained on the maps. For showing exact heights of

features that lie between contour lines they are invaluable. Usually spot heights are marked by a dot, but where the point was very accurately surveyed and used for survey is called a major control point (formerly a trig point) and marked by a triangle, while the circle is a minor control point. Vertical height is measured from a datum which is mean sea level at Sydney. A Bench Mark is a permanent mark usually cut in a wall or metal plate attached to a wall, these marks are heights which have been specially fixed by levelling and even more accurate than a major control point. When marked on a map it means the height of the mark and not the ground on which it stands.

4015. Contours The use of Contour lines is the most usual way of showing the shape of the ground on modern maps. This is done extremely well when the contour lines are used in conjunction with hill shading. Contours make an attempt to give visual illusion of relief. They are entirely conventional but once the convention is understood a general idea of the country can be got very quickly without detailed study of the map, and heights and slopes at any point can be read or calculated from the map.

4016. A contour is an imaginary line on the surface of the ground at the same height above mean sea-level throughout its length. If a person were to walk round a hill at a certain level, going neither up hill or down, that person would be following a contour for that level. His path drawn on a map would be a contour. If this would be repeated a number of times, each time the person moving to a point 20 metres vertically higher than the previous circuit, then these paths when drawn on a map would give a contoured plan of the hill with vertical interval of 20 metres.

4017. The shape of the contour line indicates the shape of the ground. Imagine again a person walking around a hill at successive levels. Where the slope of the hill is gentle the path will be a considerable distance horizontally from the previous path below. Where the slope is steep, the paths will be much closer together. If that person comes to a spur and keeps straight on, would have to climb to go over it. To remain on the same level as the rest of the path that person would have to turn away from the hill. When coming to the end of the spur must then turn inwards towards the hill. In the same way, where there is a spur the bend in the contours points out away from the top of the hill, and where there is a re-entrant the contour bends will point towards the hill.

4018. Each topographical form, such as a col, cliff or knoll produces its own particular pattern of contour lines, except for a re-entrant (valley) and a ridge, where the pattern is similar. Annex A shows examples of typical forms of topographical patterns together with the type most likely to be encountered. A knowledge of these patterns is an essential part of map reading, and cadets must be able to find and identify contour lines and features. The patterns formed by a re-entrant and a spur are the same. It is necessary to determine the slope of the land to distinguish between them. A spur points away from the high point, while a re-entrant points towards it. A re-entrant usually has a watercourse marked across its contours at the point of greatest curvature, a spur never does.

4019. These are the most important things to remember about contour patterns:

- a. contour lines spaced close together mean steep slopes;
- b. contour lines spaced far apart mean gentle slopes;

- c. when contours are evenly spaced the slope is uniform. No natural slope is perfectly uniform, and such slopes will always have small undulations;
- d. when the spacing of the contours is closer together on the lower slopes than on the higher slopes the slope is convex;
- e. when the contours are further apart on the lower slopes than the higher, the slope is concave;
- f. meandering contours at varying distances apart, but never very close, mean undulating ground;
- g. gently curving contours indicate a country of rounded slopes. As the country becomes steeper the contours come closer together, as it becomes more rugged the curves become less regular.

Contour Interval

4020. On a map each contour is drawn at a specific height above sea level and every contour is the same vertical distance above the one below. The difference in vertical height between contours is called the Vertical Interval (VI).

4021. The heights of the contours are written into the contour lines at intervals along their length. Depending on the density of the lines, the height is usually written on every second contour lines. For example, with contours 20 metres apart the height will be written on 400, 440, 480 and omitted on 420 and 460. The contour lines for the even hundreds e.g. 400, 500, 600 are printed as heavier lines. The figures are printed in such a way that they read correctly when the reader is looking up hill. This helps to determine the direction of the slope in flattish country and provides a quick way of distinguishing between contour patterns of a spur and that of a re-entrant.

Scales

4022. When used in connection with a map, a scale is the ratio that the distance between two points on a map bears to the horizontal distance between the same two objects on the ground. The reliability of maps depends partly on their scale. Even more the amount of detail that can be shown depends on the scale. A 1:250000 map shows details of towns and major roads whereas a 1:25000 would show details of house, roads, tracks, river and creeks and most all fine detail. Annex B shows the differences between scales.

4023. Generally speaking maps with a scale of 1:50000 give all the detail that is ordinarily needed for map reading and cover a fairly wide area.

4024. Scales may be expressed in three ways:

- a. by a statement in words, eg. 1cm to 1km; 2cm to 1km;
- b. by a representative fraction (RF) written either as a fraction or expressed as ratio eg. 1:50000 means that one millimetre of length or one centimetre or one inch or one unit of length on the map corresponds to 50,000 of the same units on the ground;
- c. by linear scale. This is a line or several lines, usually at the bottom of the sheet suitably divided so that a distance on the map can be converted quickly and

accurately to miles, kilometres or nautical miles depending on the graduation of the scale.

4025. The scales used on the more modern Australian Military Maps are: 1:25000; 1:50000; 1:100000 and 1:250000.

4026. Distance between two points on the ground can be calculated by measuring the distance between the same two points on the map, multiplying by the denominator of the RF and dividing by the appropriate conversion figure as shown below:

- a. the distance between two points on a 1:50000 map is 5.81cm, what is the corresponding distance on the ground?

Distance on Ground = $5.81 \times 50000/100 = 2905$ metres.

4027. To measure the distance in a straight line between two points on a map, lay the straight edge of a piece of paper against the two points and at each point mark with a tick.

Then lay the piece of paper along the appropriate line with the right hand mark against one of the primary divisions and left hand opposite the secondary divisions. The distance is then the distance to right of zero plus the fraction left of zero.

4028. To measure a distance that is not straight, such as along a winding road, two methods may be used. A piece of cotton may be laid (not stretched) along the road and then the cotton transferred to the scale line. The second method uses a piece of paper in a similar way to that previously described in para 4027. The road is considered to be made up of a number of straight sections. Lay a piece of paper along the first section, put a tick at the commencing point and at the point where the road swings away from the edge of the paper. Taking care not to move the position of the second tick on the road, pivot the paper about the second tick, until the next section of road is along the edge of the paper. Keep repeating this process until the finishing point is reached. The total distance then is recorded as a straight line between the first and last tick, and can be measured on the linear scale.

System of Grid Reference

4029. One of the essential requirements of a map is that the user must be able to give a quick and accurate reference to the position of any point on that map. The method of doing this employed on the Australian Military Map series is called the Australian Grid System. The position of a point on the map is indicated by a six figure number which is called the Grid Reference. On any one map sheet every point has a grid reference that is difference from the grid reference of all other points.

4030. This requirement is met on Military maps by the use of a series of lines drawn on the map running both north-south and east-west, and being parallel to one another. These lines are numbered from 00 to 99 for each 100km square and are at a fixed distance apart - namely 1000 metres.

4031. Those lines that run north-south are numbered from west to east, and called EASTINGS. Those lines that run east and west are numbered from south to north and are called NORTHINGS.

4032. The four figure grid reference will indicate one grid square, that is, a square 1000 metres by 1000 metres and is achieved by the following steps:

- a. follow the vertical line (Easting) which forms the left hand edge of the square, either up or down to the margin of the map or until you find a two figure number (grid number) on the map and write the number down;
- b. next, follow the horizontal line (Northing) which forms the bottom of the square and write those two grid numbers after the first two.

4033. In order to locate a specific point on a map more accuracy is required and the six figure grid reference is achieved as follows:

- a. locate the grid square which contains the object or feature to be indicated and divide the square into tenths vertically and horizontally;
- b. follow the steps as for the four figure grid reference but this time add the extra numbers first after the two numbers for the easting and then after the two for the northing.

4034. In the example shown at Annex C the reference at the square containing the object marked "P" would be written down G.S.2909. The "G.S." denotes, that it is the grid square being indicated. The object marked "P" would be written as G.R.297095. The "G.R." stands for grid reference and means that a specific feature is to be located.

4035. Remember, the eastings are always measured by moving from left to right across the map and are always the first three figures of the grid reference. The northings are always measured from the bottom upwards and are always the last three figures of the grid reference.

Use of the Romer

4036. To read or plot a six figure grid reference accurately a romer may be used. This is simply a piece of cardboard graduated in divisions of 100M appropriate to map scale. This is then employed to measure the third figure of the eastings and northings.

4037. To use the romer, place the point of the corner on the position to which the reference is being given, making sure that the edge of the scale is parallel to the sides of the square. Read the easting first on the map cuts, the scale on the top edge of the romer. Read the northings next where the northing on the map, cuts the scale on the right edge of the romer.

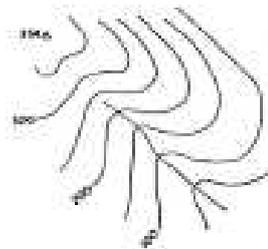
Annexes

- A. Typical Forms of Topographical Patterns
- B. Map Scales
- C. Example of Grid Reference

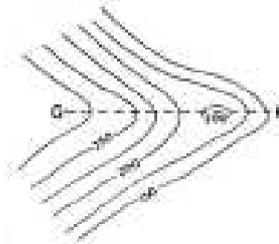
TYPICAL FORMS OF TOPOGRAPHICAL PATTERNS



Rugged country



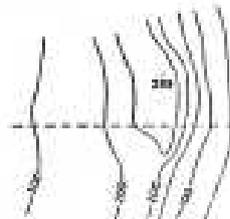
Rolling country



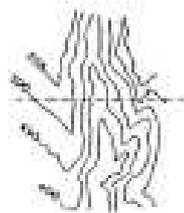
Spur and re-entrant



Spur with knob



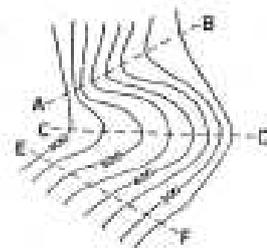
Escarpment



Ravine



Ridge with a col



Section AB - Concave slope

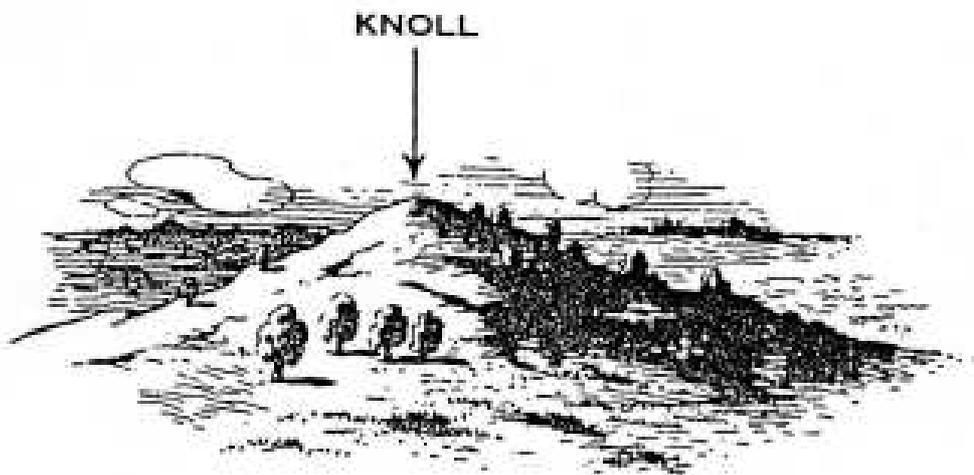
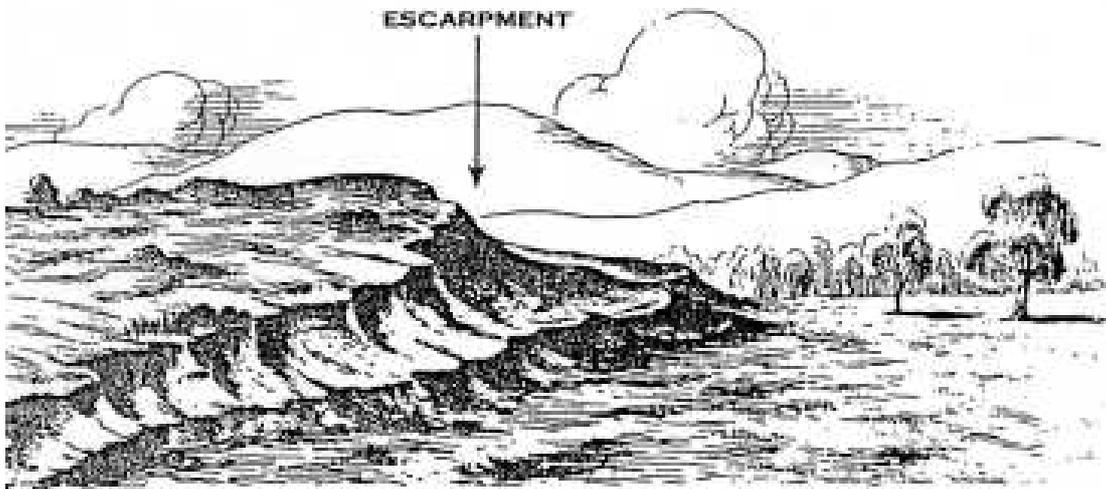


Section CD - Convex slope

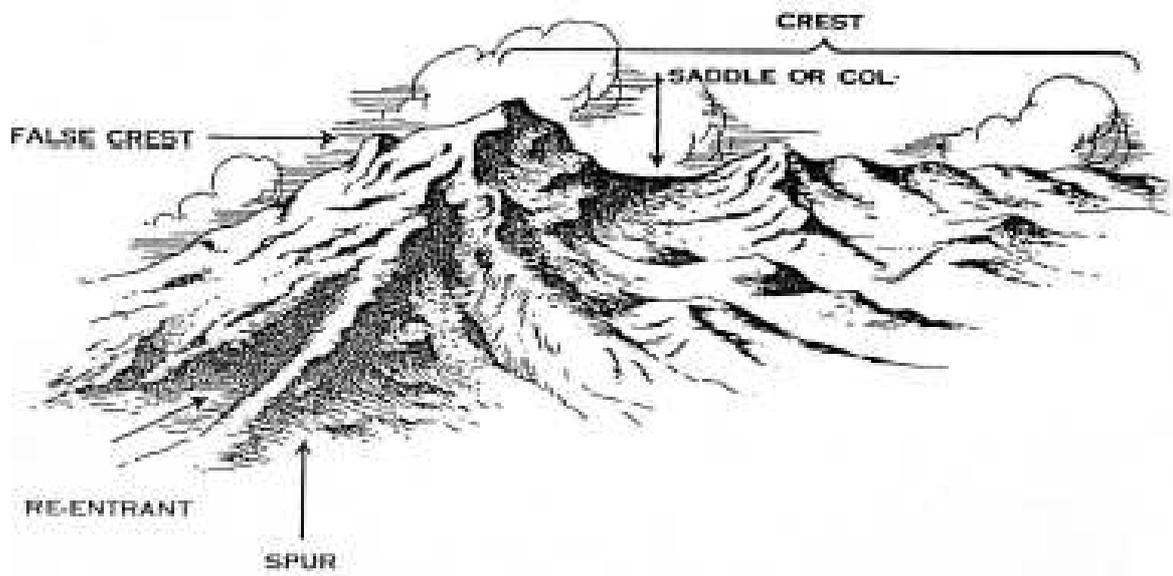
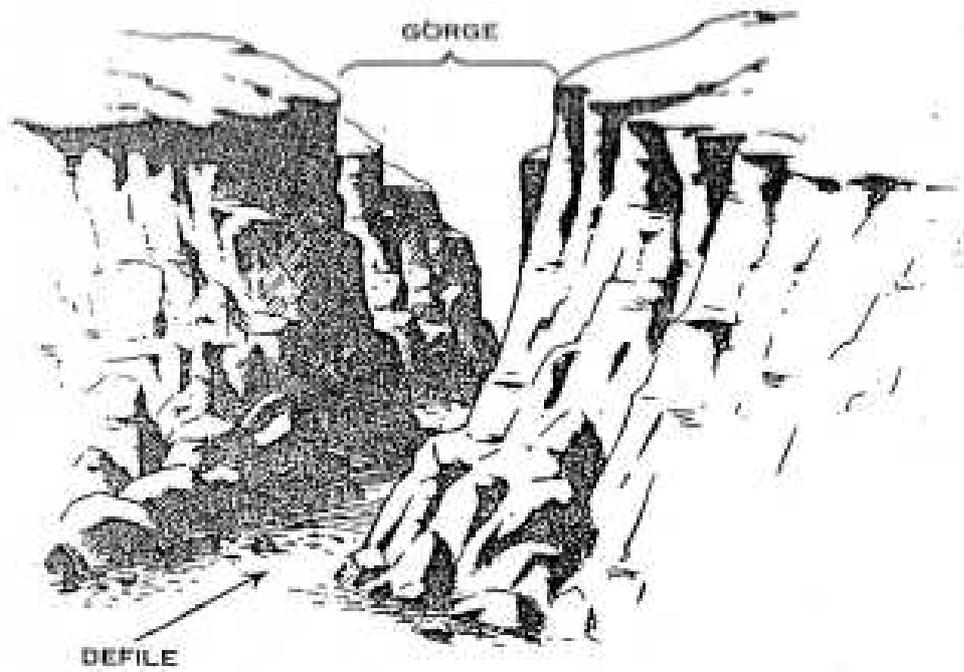


Section EF - Uniform slope

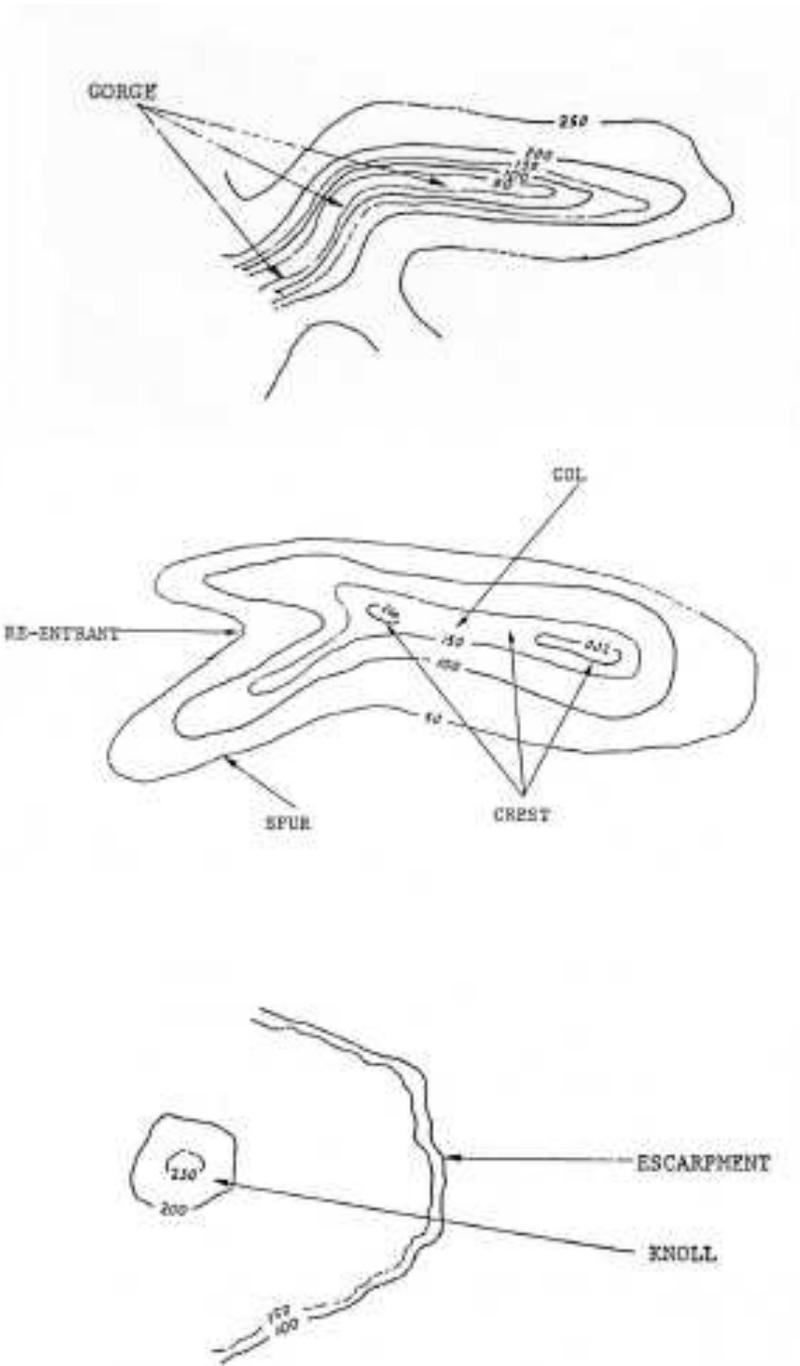
TOPOGRAPHICAL FORMS



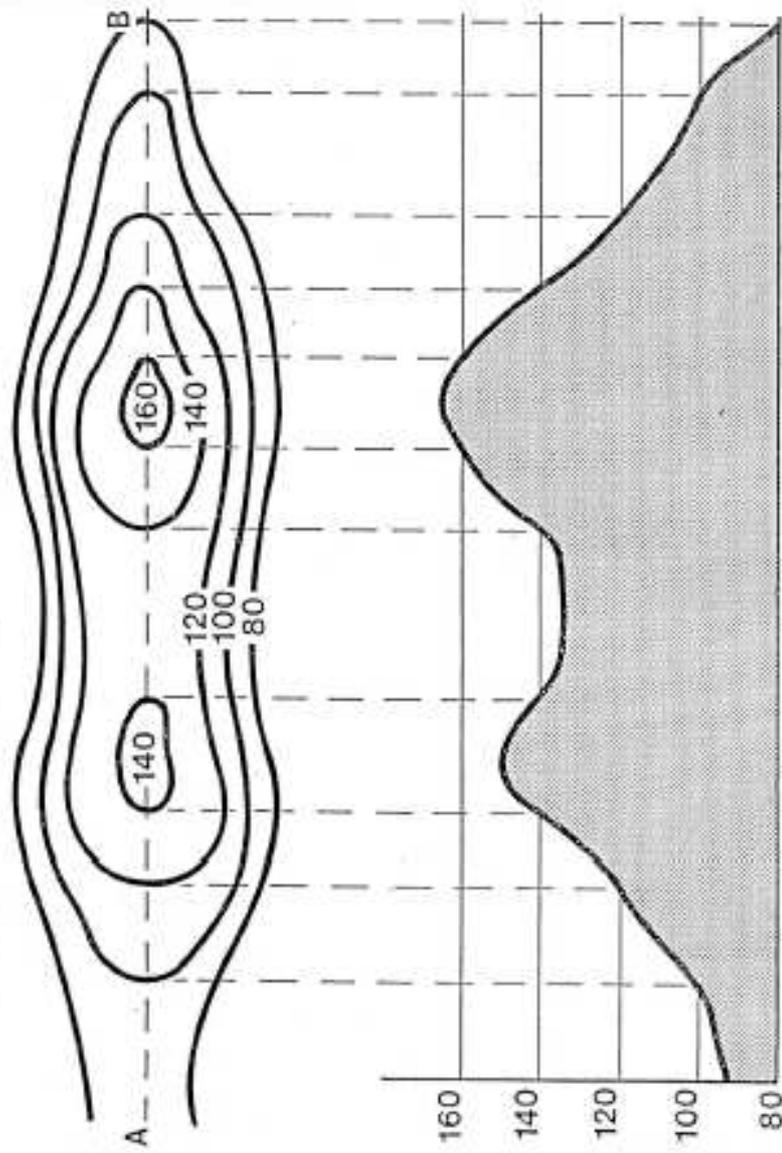
TOPOGRAPHICAL FORMS



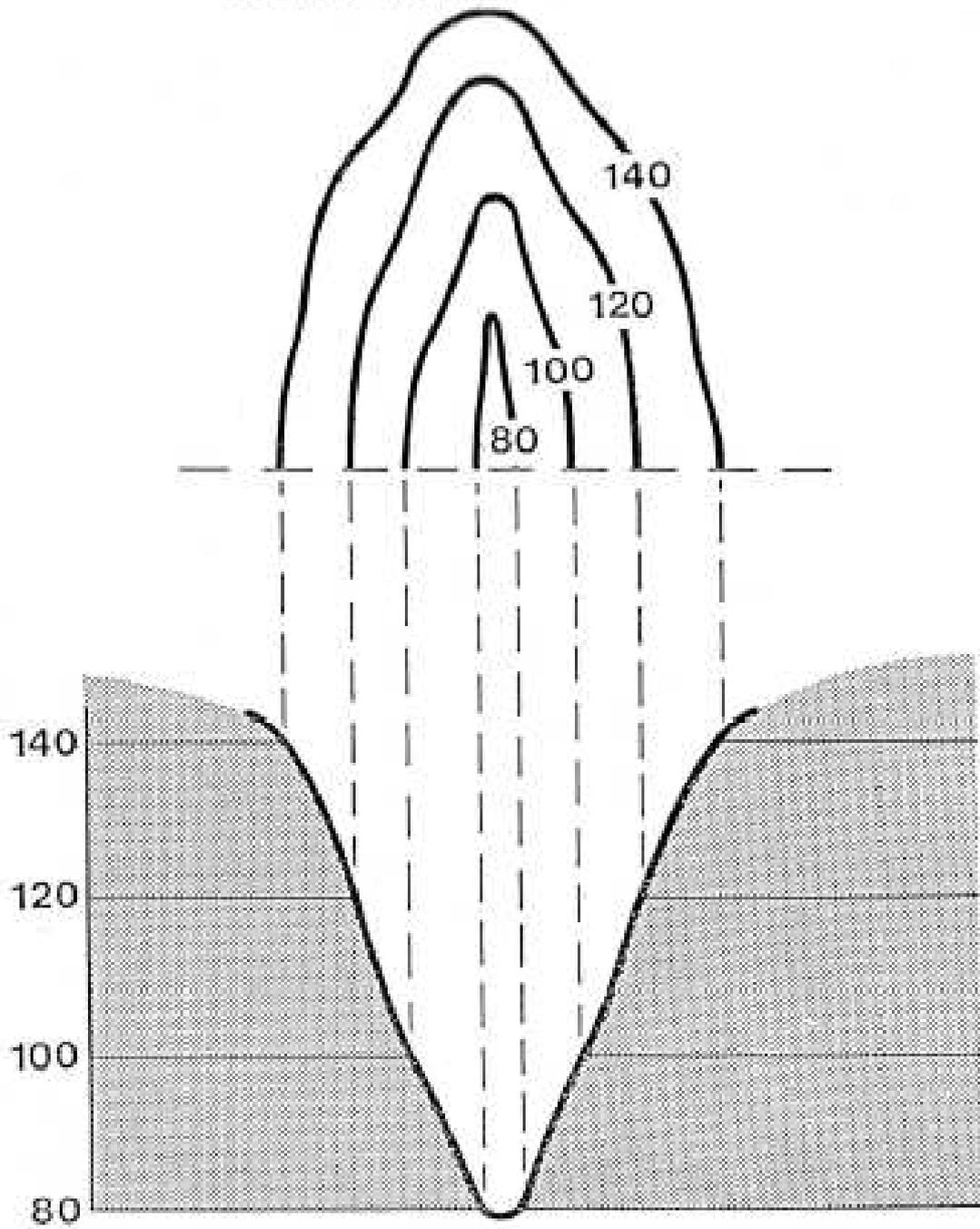
TOPOGRAPHICAL FORMS IN PLAN



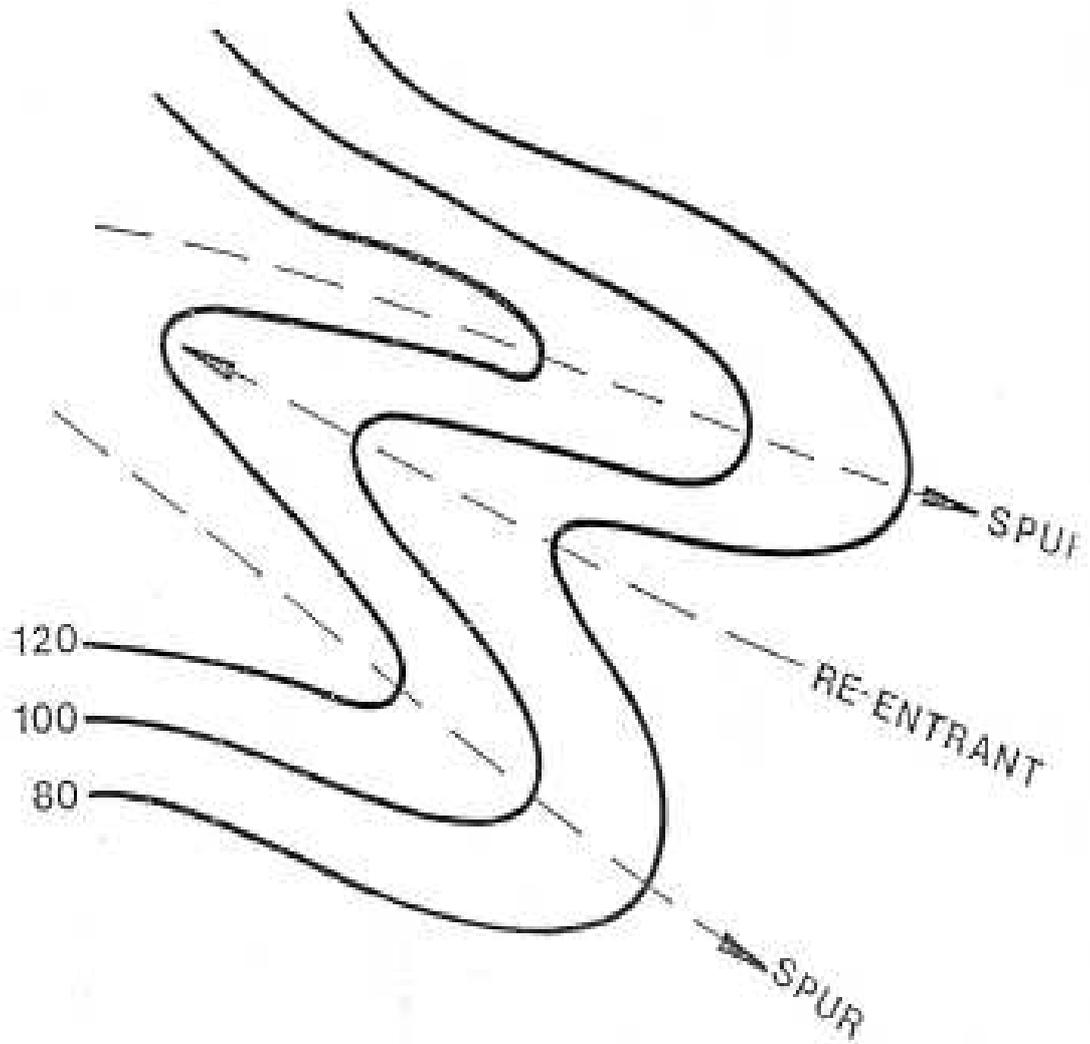
RIDGE WITH A SADDLE (COL)



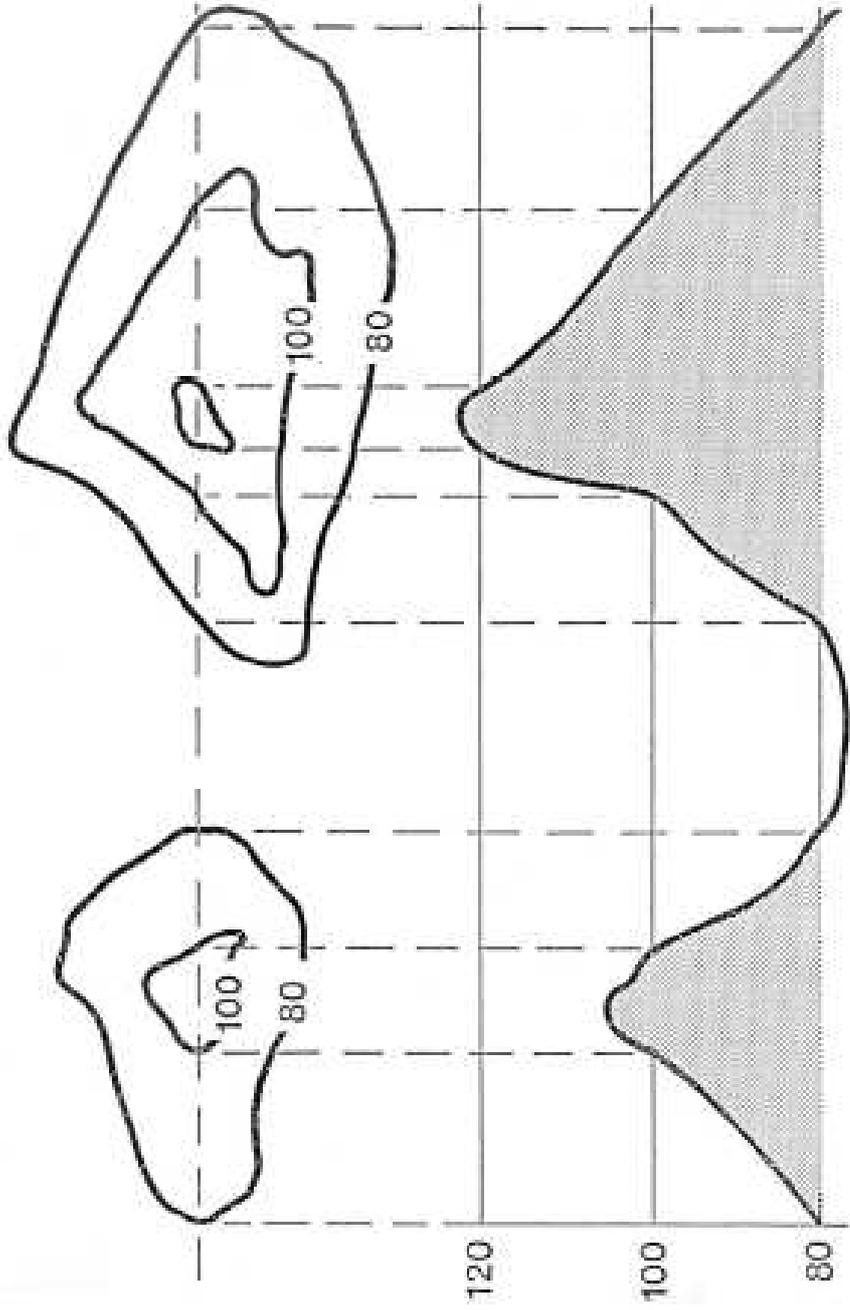
STEEP VALLEY



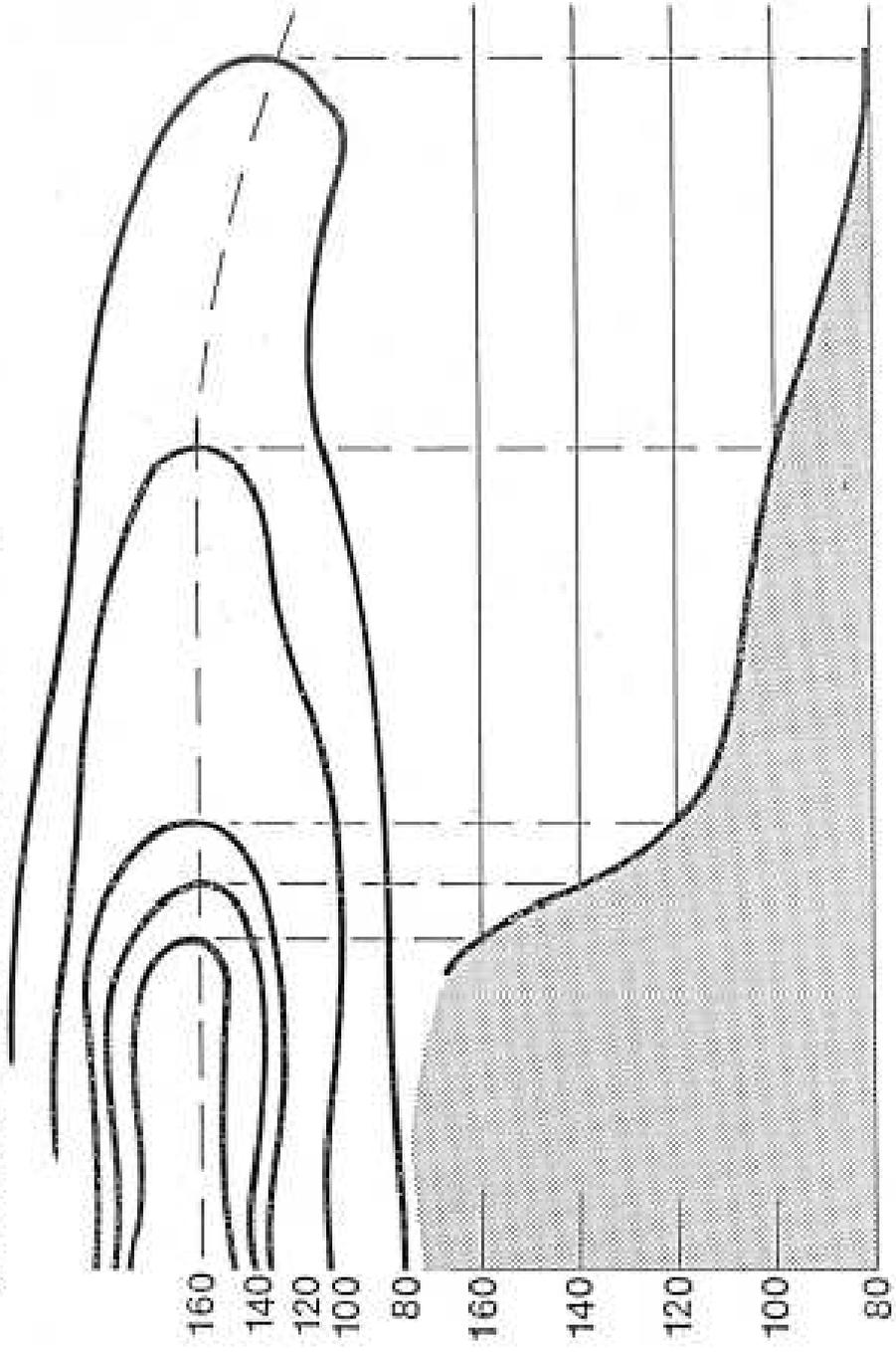
SPURS WITH RE-ENTRANT



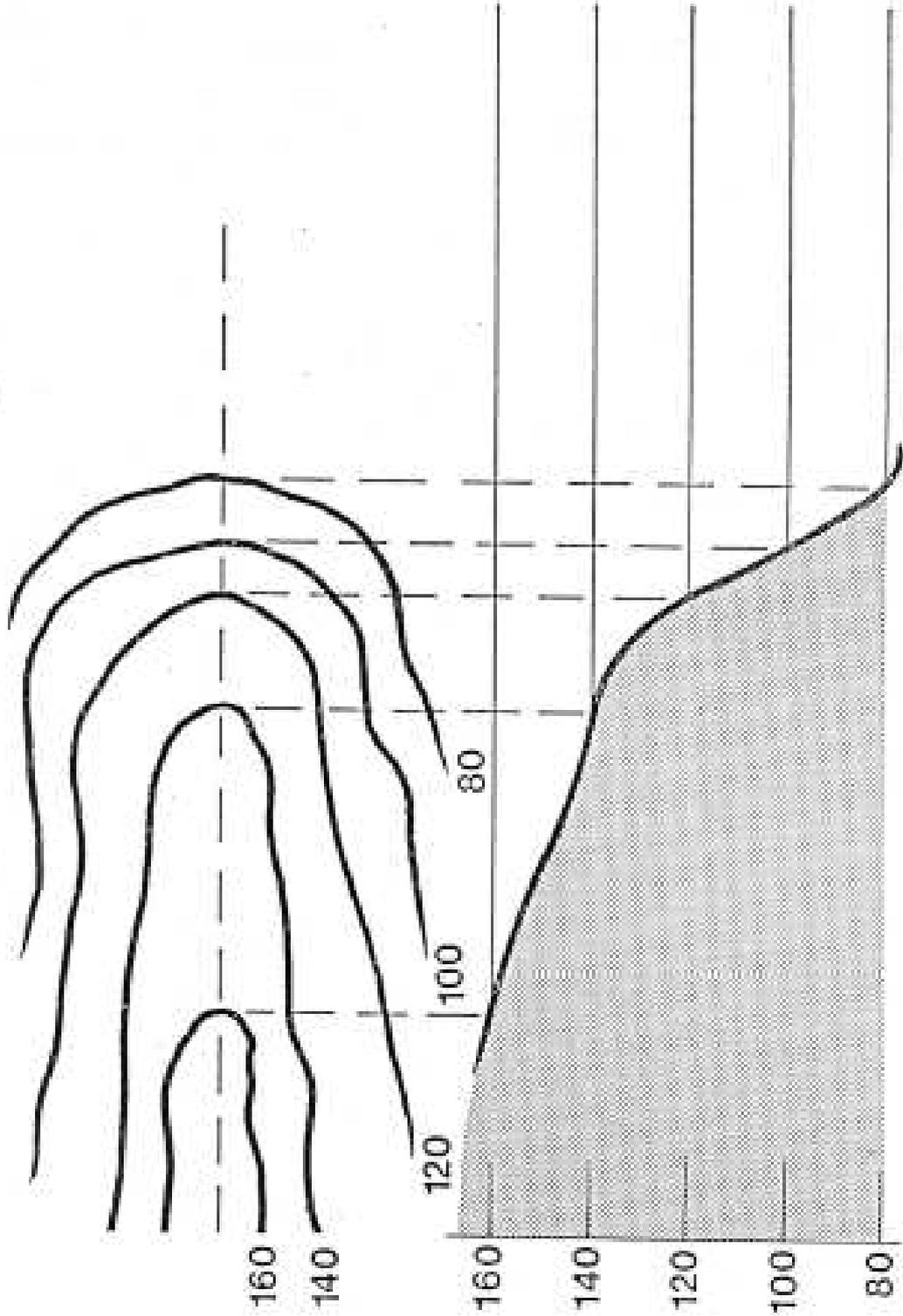
SEPARATE HILLS



CONCAVE SLOPE
(STEEPER) AT TOP THAN LOWER DOWN)



CONVEX SLOPE (STEEPER AT LOWER END)

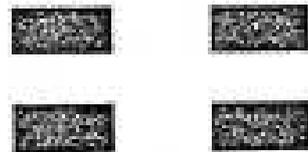
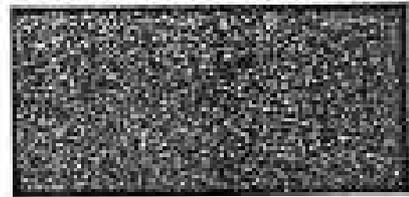


MAP SCALES

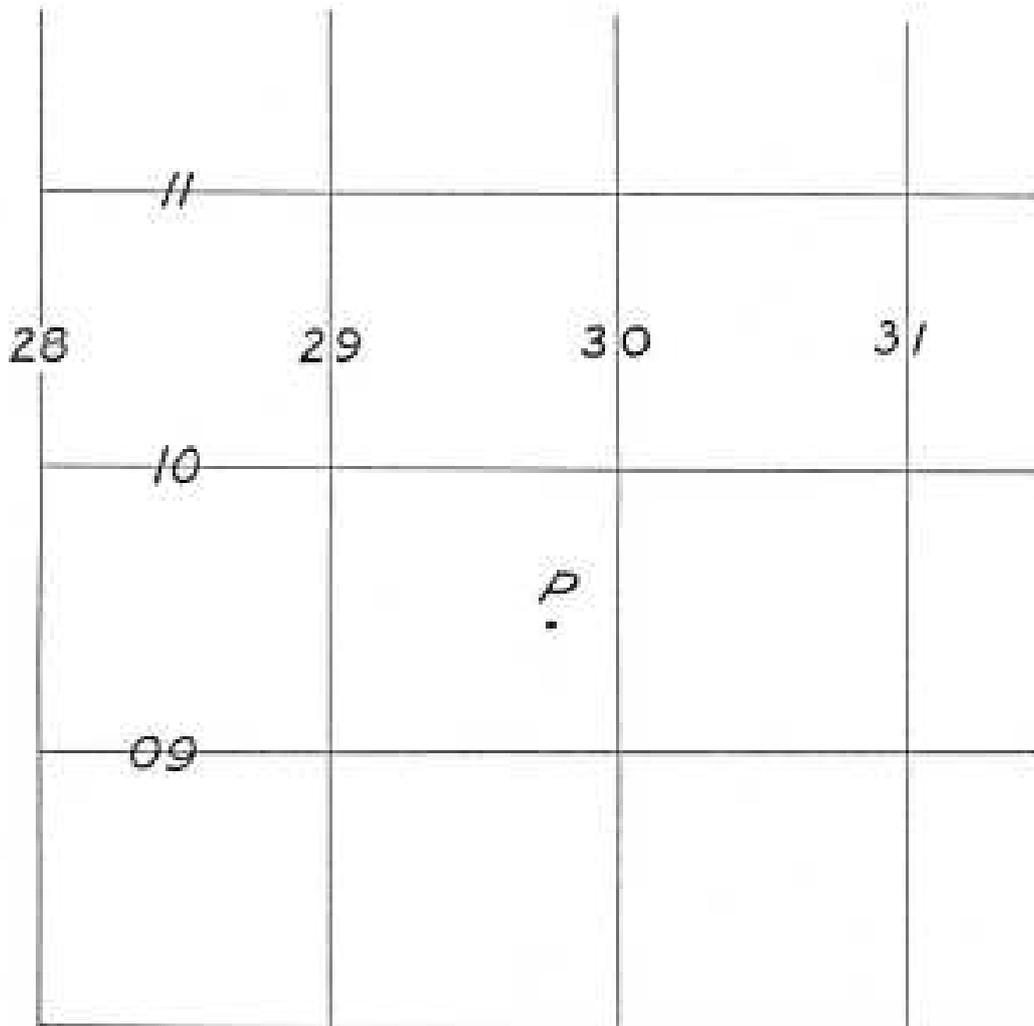
SCALE 1/100,000



SCALE 1/50,000

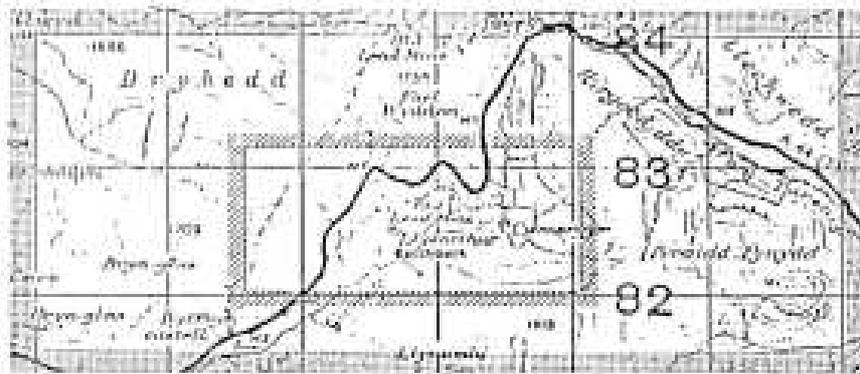


EXAMPLE OF GRID REFERENCE





(a) Quarter inch to one mile



(b) One inch to one mile



(c) 1:25,000 (About 2½ inches to one mile)

**COMPULSORY SERVICE TRAINING BASIC
FIELD CRAFT (FCB)
FCB 5 – Basic Compass
1 PERIOD**

Types of Compasses

5001. Hand held magnetic compasses are available in a variety of styles, all quite suitable for land navigation. The most common, and versatile, is the ‘Silva’ orienteering compass. When selecting a compass, choose one that has a dampening fluid in the compass housing. This has the effect of slowing down the movement of the needle, making the compass steadier and easier to use.

Parts of a Silva Compass

5002. The parts of the Silva compass are shown in Figure 1

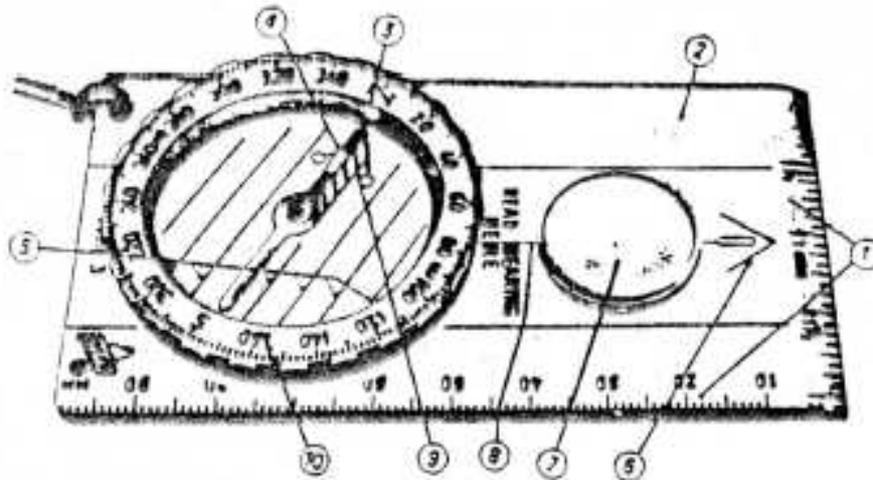


Figure 1 – The ‘Silva’ Orienteering Compass

Legend:

1. Scale: 2. Base Plate: 3. North of Dial: 4. Magnetic Needle (north end red): 5. Compass Housing: 6. Direction of Travel Arrow: 7. Magnifying Lens: 8. Index Pointer: 9. Orienteering Arrow: 10. Bearing Ring.

Markings on the Compass

5003. The compass card is marked using two methods, the points method and the numeral method:

- a. The points method shows the ‘Cardinal’ points north, south, east and west which are 90 degrees apart. Midway between these are the ‘Inter-cardinal’ points and in turn. Between these are the ‘Intermediate’ points, see Figure 2.

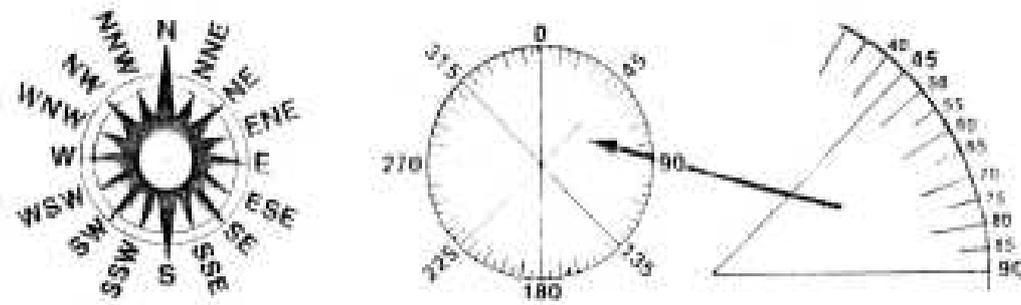


Figure 2 – The points of the Compass

Finding Direction Using a Compass

5004. To set a bearing on your compass, turn the dial until the bearing you require (either a degree number or a compass point) is in line with the index pointer. In Figure 4, the bearing is set at 60 degrees.

5005. In order to face the bearing that is now set, hold the compass level and allow the needle to swing freely, with the direction arrow pointing ahead. Holding the compass in front of you, turn your body until the red north end of the magnetic needle points to the letter 'N' on the dial. The compass is now oriented and you are facing your set bearing. This is illustrated in Figure 3.

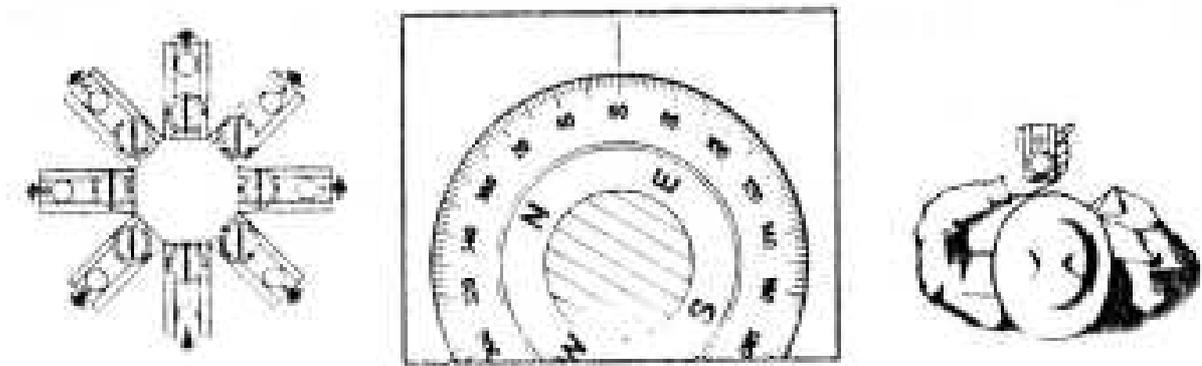


Figure 3 – Facing a Bearing

COMPULSORY SERVICE TRAINING BASIC
FIELD CRAFT (FCB)
FCB 6 – Direction and Bearing
2 PERIODS

Introduction

6001. The ability to read a map is not sufficient on its own to enable a cadet to participate effectively in fieldcraft exercises. Being able to move in a pre-determined direction, to arrive accurately at a pre-determined point and to find the direction of one point from another in the field is also very important. The Silva Compass has been designed and constructed to assist the user in achieving these desired ends. However, the results given by using the compass will be in direct relation to the skill of the user. Therefore, for good results to be achieved it is necessary for cadets to be skilled in the use of the compass and this will come with practice in the field.

6002. The Silva Compass was developed in Sweden during the 1930's by Kjellstrom Brothers. Although initially designed for the sport of orienteering, these compasses are now used widely throughout the world by the armed forces and by many other organisations as a general purpose compass.

6003. There are many different types of Silva Compasses available, however the basic construction for all types remain the same. The compass enables the user to plot and calculate bearings rapidly and accurately on the map without the use of a protractor by combining, on a common base plate both a compass and protractor.

6004. The main parts of the most common type of Silva Compass are shown at Annex A. These consist of the:

- a. Base Plate, which contains:
 1. Romer Scales (for grid references);
 2. Direction Arrow;
 3. Magnifying glass;
 4. Index Line;
 5. Compass housing;
 6. Luminous points.
- b. The Compass Housing contains:
 1. Meridian or orienting lines;
 2. Compass needle
 3. Orienting Arrow.

How to take a Bearing

6005. To take a Magnetic Bearing with the Silva Compass:

- a. first face the object that is intended taking a bearing;

- b. hold the compass with the direction arrow pointing to the actual landmark and level the compass enough to permit the needle to swing freely;
- c. turn the dial of the compass housing without changing the position of the whole compass until the orienting arrow in the housing is parallel with the
- d. magnetic needle and the red end is pointing to the letter 'N';
- e. now read bearing on the dial at the index pointer this is the magnetic bearing.
- f. It is seldom that a bearing accurate to less than 20 mils is needed. An error of 20 mils would mean an error of 1km in 60km (or 100m in 6km).

Precautions

6006. At all times when using a compass it is essential to ensure that the compass is not affected by steel or iron objects in the vicinity. Such objects as a motor vehicle, an overhead power lines, iron pipes under the ground, a wire fence or a bunch of keys in the pocket if close enough can cause the compass to read incorrectly. Safe distances are:

- a. Motor Vehicle 25m
- b. Wire fence 10m
- c. Steel helmet 3m
- d. Keys, whistle, etc 0.5m

Grid Bearing

6007. The method of taking a Grid Bearing from a map is:

- a. place the compass on the map with the long edge along the desired line of travel, making sure that the direction arrow on the compass plate points in the direction you wish to travel;
- b. turn the dial until the compass meridian/orienting lines on the transparent bottom are parallel with meridian lines of the map and the 'N' points North on the map;
- c. read the grid bearing on the housing where the index line intersects it.

CAUTION

The bearing that has been calculated is a **GRID** bearing. This must be converted to a **MAGNETIC** bearing if it is intended to be set as a heading for a march.

Magnetic Variation

6008. When the compass is used with a grid bearing on a map, an adjustment should be made to allow for the Magnetic Variation. This is especially true if there is considerable variation, or if accuracy is important. With one turn of the dial proper allowance can be made for variations.

Grid to Magnetic

6009. To convert from a Grid Bearing to Magnetic Bearing:

- a. find out the amount of variation;

b. turn the dial as per the following rule:

1. Variation East --- turn dial East
2. Variation West --- turn dial West

6010. To convert from Magnetic Bearings to Grid bearings the reverse would apply:

1. Variation East --- turn dial West
2. Variation West --- turn dial East.

6011. In applying these rules the basic method used is:

a. GRID to MAGNETIC

1. Variation East --- SUBTRACT
2. Variation West --- ADD

b. MAGNETIC to GRID

1. Variation East --- ADD
2. Variation West --- SUBTRACT

Back Bearings

6012. Unlike most other compasses, there is no requirement to calculate back bearings with the Silva Compass. If the user is marching on a given bearing and wishes to return to his original starting point, simply turn around to face roughly in the direction from which he came and reverse the compass so that the direction arrow points towards the user.

This is shown at Annex B.

6013. Orientate the compass by turning the whole body until the red end of the compass needle points to the North point on the compass housing and march in the direction in which the back of the compass plate faces.

Maintaining Direction by Day

6014. To find the direction of a given bearing, turn the dial until the desired bearing is shown at the index pointer. Hold the compass in a level position enough to allow the magnet needle to swing freely, and also have the direction arrow pointing straight ahead. Orientate the compass and yourself by turning yourself around until the red North end of the magnetic needle points to the 'N' on the dial. The travel or direction arrow is now pointing to the desired direction of travel.

6015. Take note of some distant object that is in line with the arrow. This object will be on the required bearing. If in very dense low scrub the method used to maintain a bearing is to have reference to the compass held in the hand and set on the desired heading.

Maintaining a Bearing by Night

6016. Having been given a bearing for a night march this needs to be set on the compass. With reasonable light set the bearing as for day time. Using the two luminous points on the meridian housing and the single luminous patch on the compass needle kept between

these two to form a direction arrow will point the desired line of travel. This can be used by reference to the compass held in the hand as for day time.

Orientating a Map

6017. A map is much easier to compare with the ground if north on a map corresponds (points in the same direction) with North on the ground. When this is done the map is said to be set or orientated and objects on the ground are in the same direction from the observer as they are on the map from the observer's position on the map.

6018. A map is readily, accurately and quickly set or orientated by using a compass.

This is done by placing the compass on the map with the edge along the line of Grid North. Turn the dial of the compass until the 'N' and the meridian lines are pointing to the direction of the travel or direction arrow. Turn both the map and compass until the magnetic needle points to 'N' on the compass. The map is now orientated.

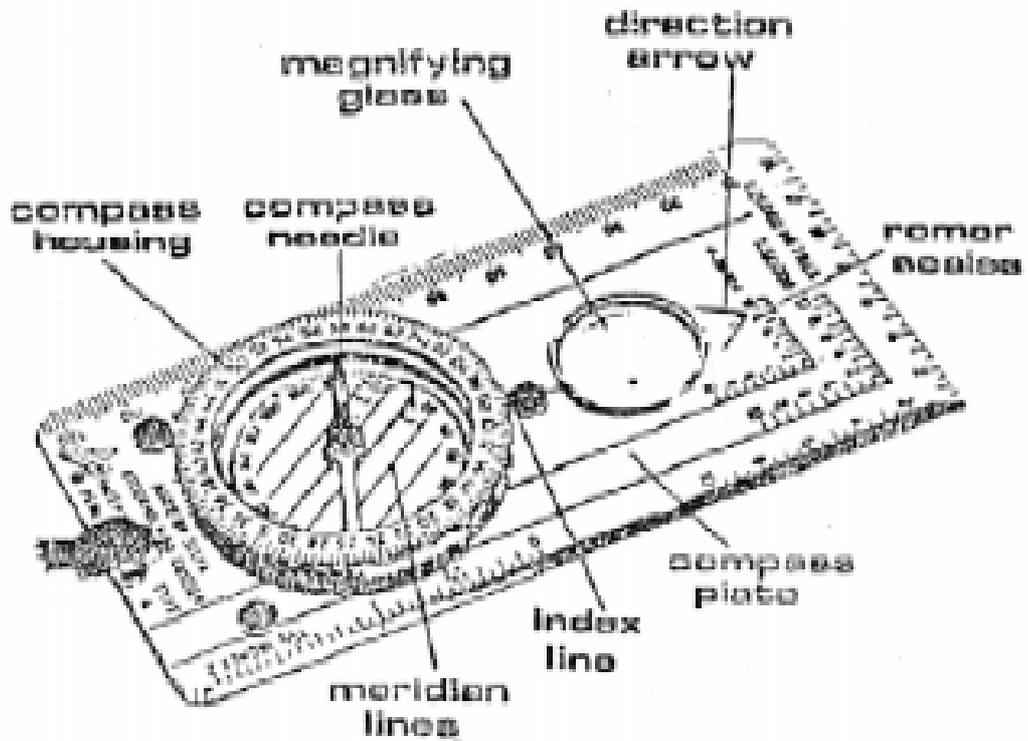
Finding Position Compass

6019. The first step in finding one's position is to orientate the map. The next step is to search the area in which he thinks he is for features on the map that can be located on the ground and vice versa. To find the position on a map by resection, at least two prominent features are used. The features should be able to be identified on the map. Taking an accurate as possible bearing of one of the features and converting this bearing to a Grid bearing, place the compass on the map so that the side of the base plate intersects the feature, and while keeping the edge of the compass base plate on the feature, turn the entire compass on the map until the compass orientating lines are parallel with the meridian lines on the map, and so the orientating arrow points to North on the map. Draw a line on the map along the edge of the compass intersecting the feature.

6020. This procedure is repeated using another feature well spaced from the first one. Where the lines from the two features intersect should be the position of the observer. It is advisable to take a third feature to confirm the position indicated by the first two. Features should be well spaced apart if possible in the order of 120 deg to give the best possible results.

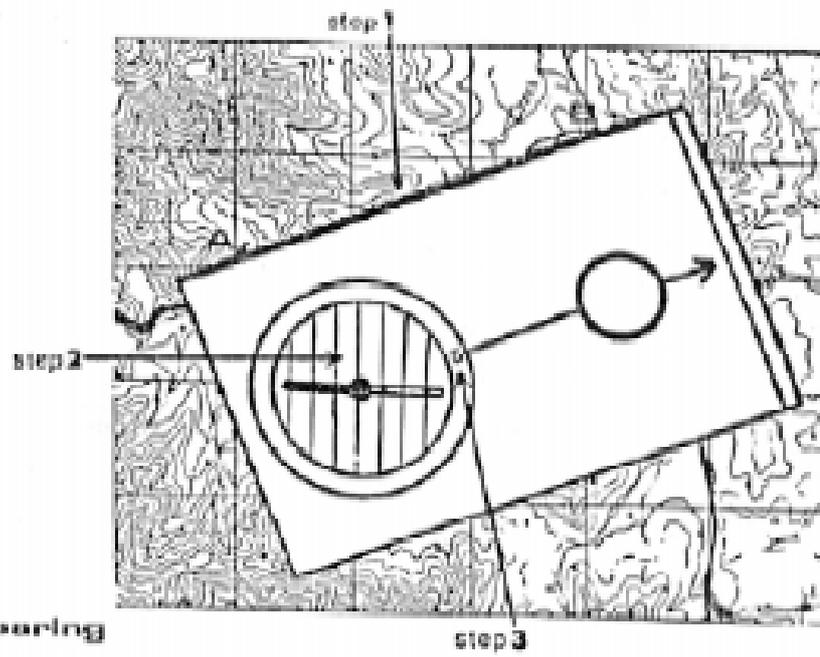
Annexes:

- A. Silva Compass
- B. Back Bearing

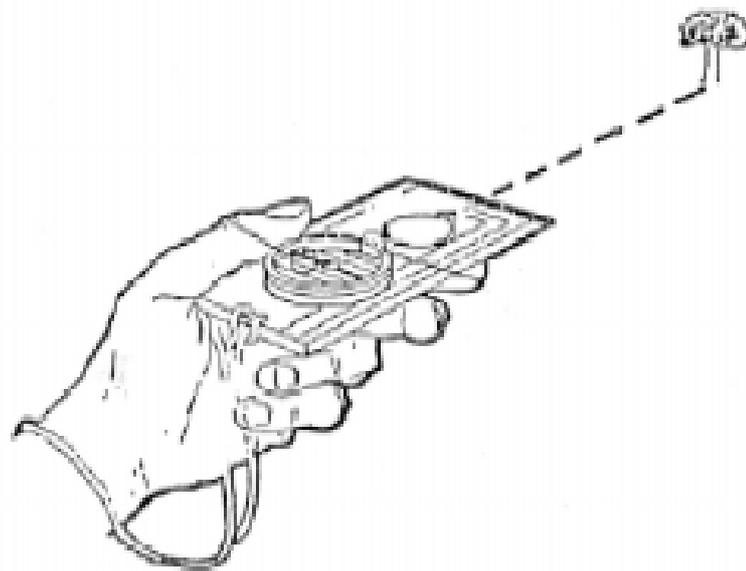


The type 4 SILVA compass

SILVA COMPASS

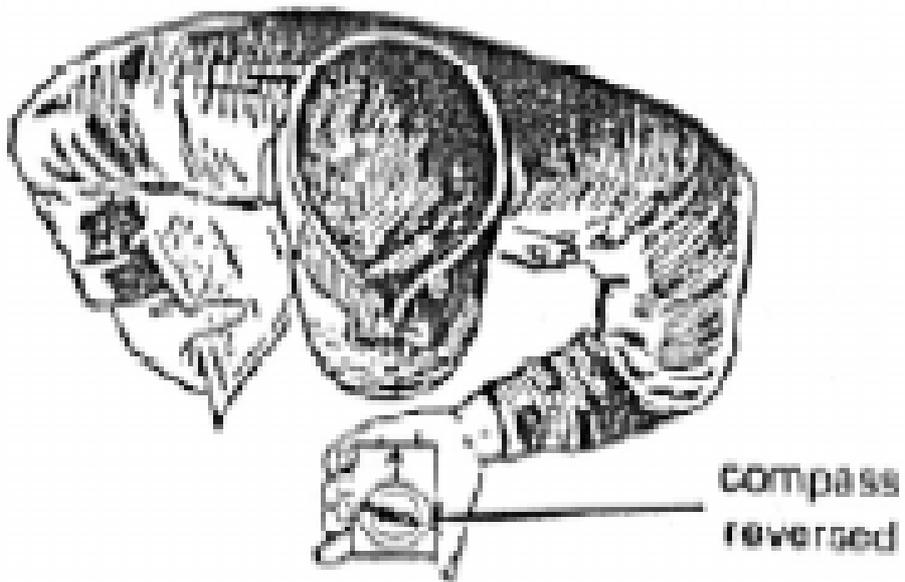


Grid bearing



Magnetic bearing

BACK BEARING



Back bearing

FIELD CRAFT BASIC
FCB 7/8 – Practical Exercise (Classroom)
3 PERIODS

- a) Practice map reading in classroom exercises using skill acquired in FCB4, FCB5 and FCB6.
- b) Practice how to take bearings as in FCB6.
- c) Practice how to orientate a map with a compass.
- d) Practice how to keep direction on a bearing.

