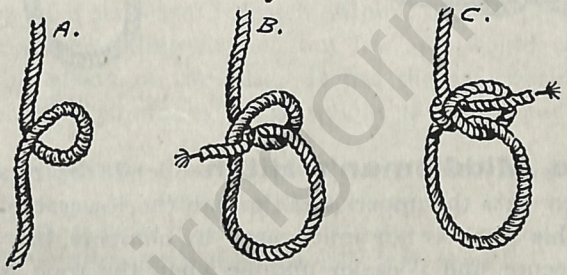
CLIMBING NOTES.

By James McCoss.

It is necessary that the ever-increasing band of young climbers should be familiar with a few of the points which ensure safe and successful ascents and excursions, and the notes that follow are written in the hope that they may prove of use towards that end.

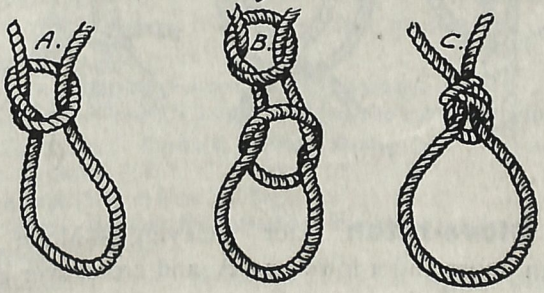
In the first place, the knots used in climbing are of the utmost importance.

Fig. I.



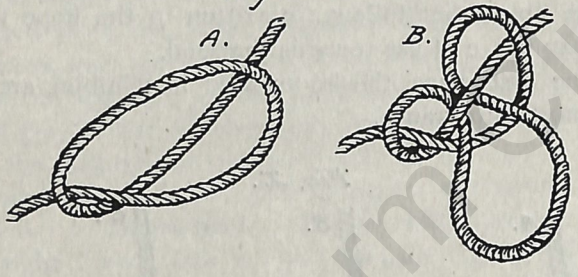
The Bowline or Endman's Knot—Make a turn in the rope as A, and pass the end through the turn as B. Then, to complete, bend the end back again, and pass it through the turn once more as C.

Fig. II.



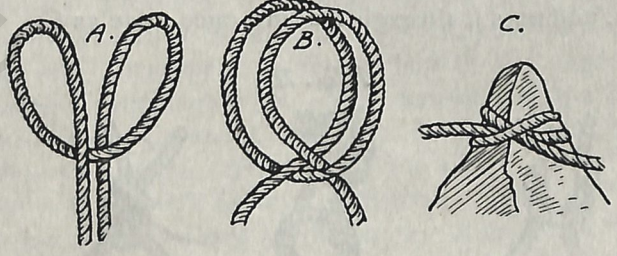
The Middleman's Noose—Make a simple slip noose as A, (Fig. II.), and upon the side of the rope that will slip through the turn make another slip noose as B, and pull the slack through as C.

Fig. III.



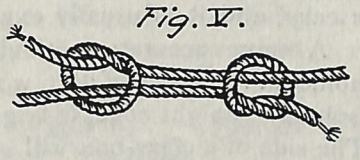
The Middleman's Hitch—Bend the rope as A, then pass the upper part through the lower bight as B. This hitch is not much used by climbers, but it is very secure, and is easier undone when the rope is wet or frozen.

Fig. IV.



The Clove-hitch (for belaying)—Make two turns, an upper and a lower, as A, and cross over as B; then slip over anchorage as C.

Fig. V.



The Fisherman's Bend (for joining two ropes)—Make two simple knots as illustrated, and pull tight.

The Rope—The ends of a new rope should be stoutly whipped to make sure they do not become unwound. If a new rope becomes wet, it will kink; this can be obviated by moderately stretching it on the balusters of a staircase. Beale's Alpine Club rope will bear 12 stones falling 10 feet, but few men would care to try this strain on the ribs. It has the safe working strain of fully 30 stones. The weight is $3\frac{1}{4}$ lb. per 60 feet.

The Ice-axe—The following are laid down as being the best proportions for the ice-axe:—

(1) Length, 44 ins. or 45 ins.; quite sufficient for a 6-foot man.
(2) Circumference, just below the iron of the head, $4\frac{3}{8}$ ins.
(3) Do., 6 or 7 ins. from the top of the axe, 4 ins.
(4) Do., above the iron of the spike, $3\frac{3}{8}$ ins.
(5) Do., across the top, $11\frac{1}{2}$ ins.
(6) Pick to centre, 7 ins.
(7) Blade to centre, $4\frac{1}{2}$ ins.

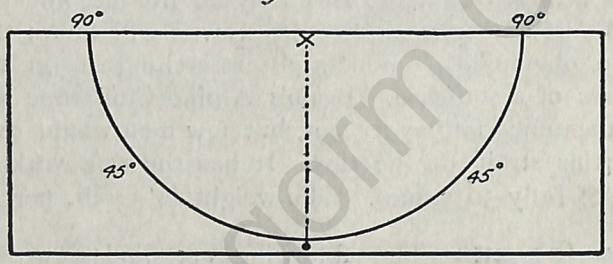
The axe should balance about 12 ins. to 14 ins. from the top. The weight is 3 lb.

A great deal of local practice in step-cutting may be had during February and March in the snow-gullies of the Cairngorms. A few of the best gullies may be mentioned here.

(1) Lochnagar.—**Sandy Spout, Black Spout.**
(2) Beinn a Bhuird.—**Dubh Loch Corrie, Coire nan Clach.**
(3) Ben Muich Dhui.—**Castle Gates Gully**, and **Pinnacle Gully** (above Shelter Stone).
Sput Dearg (head of Glen Lui Beg).
4 **Braeriach, Coire Brochain, West, Central,** and **East Gullies.**
5 Sgor an Lochan Uaine. (Gharbhchoire Side).—**Sput Clach.** Not yet climbed in winter.

Clinometer—Guessing the angle of a snow-slope is by no means easy, and it is usually exaggerated by 10 to 20 degs. A more accurate method is to use a home-made clinometer. A piece of thin wood, $2\frac{1}{2}$ by $6\frac{1}{2}$ ins., with an absolutely straight edge, is large enough for the purpose. The side of a cigar-box will suit, as it can be slipped in the pocket.

Fig. VI.



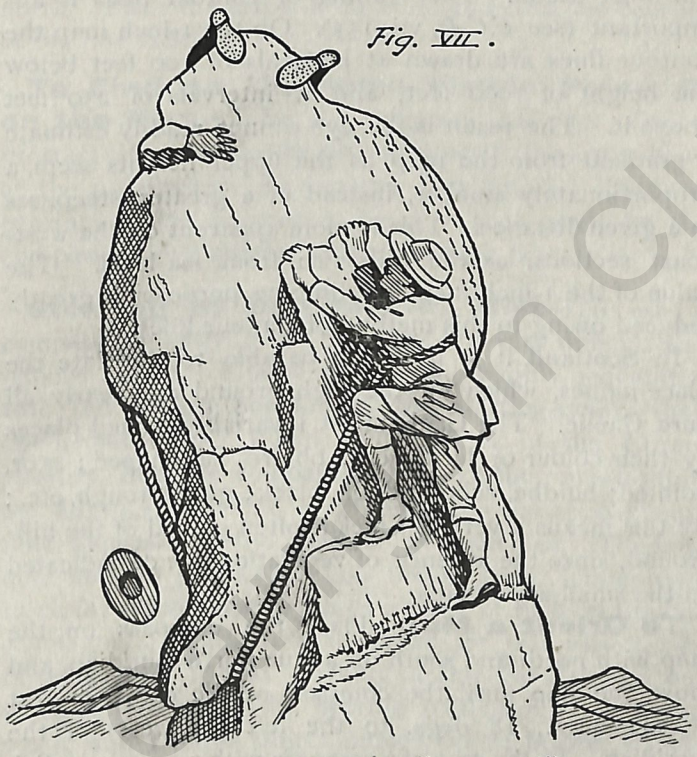
Mark off the degrees 0 to 90, and from X (Fig. VI.) fix a double piece of strong sewing cotton, which is very sensitive. At its end fix a small weight the length of the arc. A small ball-button does very well.

Place an ice-axe parallel to the snow-slope and put the clinometer on top to get a larger bearing. The weighted string will register the degrees. This gives a fairly correct measurement of the slope and is preferable to guessing.

Rock Climbing—Those who favour this fascinating branch of the sport may have all the practice desired close at hand. In the gullies and pinnacles along the coast cliffs south of the Bay of Nigg there is a lot of good climbing (see *C. C. J.*, vi, 250; vii, 107). This climbing ground is being well explored. To my knowledge, a hundred climbs have been listed by some climbers.

When you are leading on rock see that the rope running down to the man below you is quite free, or his upward movements may not be quite to your advantage.

Fig. VII.



"STAY WHERE YOU ARE—I'M COMING!"

Map Reading—The expert study of a map ought to enable one to visualize in imagination the country portrayed. Notwithstanding their great uses, maps have their limitations, and can never be considered a complete substitute for a visit to the country itself. Generally speaking, maps are more lacking in complete information as regards form than as to detail. The labyrinth of moraine heaps at the junction of Coire Etchachan and Glen Derry is not even hinted at on the 1 inch map, as the contours are 250 feet vertical interval.

On taking up a map, look at once for the scale: this is the key to distances. Then examine the method of showing the form of the ground. Contoured maps are the most useful. The reading of contour lines is all-important (see *C.C.J.*, vii, 155). On the 1-inch map the contour lines are drawn at intervals of 100 feet below the height of 1000 feet, and at intervals of 250 feet above it. The result is the eye cannot readily estimate a gradient from the map, as the upper heights seem a proportionately smaller, instead of a greater, steepness in a given distance. This is more apparent on the west-coast sections, as the hills rise from sea-level. The value of the 1-inch map for climbing purposes is greatly reduced owing to this method of contour lines.

In Scotland it is useful to be able to translate the place-names, which on the high ground are nearly all pure Gaelic. The Gael almost invariably named places by their colour or form; e.g., bhuird, flat-shaped; sgor, pointed; buidhe, yellow; dubh, black; garbh, rough, etc.; By this means a very fair idea is often gained of the hill-ground, since the absence of vegetation is not indicated on the small-scale maps.

To Orient a Map—Place the compass on the map with north and south on a true north meridian, and move the map until the compass needle comes to rest at 342 degs., 18 degs. to the left (or west) of the meridian. In the case of a compass with a magnetic dial, place the compass with its centre on a true meridian, and turn the map until this line is 18 degs. to the right (or east) of the needle of the compass. The map is now set at true north. (The magnetic variation we will take as 18 degs. west of true north at present.)

To Find Your Position on a Map—Set the map to true north. Then if A and B be two convenient points in the country, which can be identified as *a* and *b* on the map, align a ruler through *a* on A and draw a line towards yourself; then align the ruler through *b* on B and draw a line towards yourself. The intersection of these lines is your position.

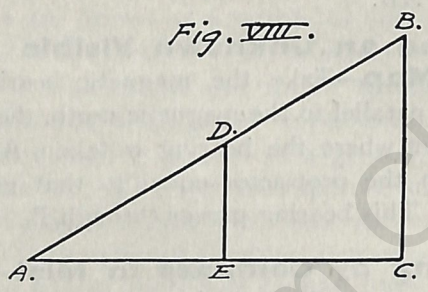
To Find the True Bearing from a Known Point, A, to a Known Point, B—Lay a protractor on the map (the semicircular type made of celluloid is best) with the straight edge parallel to true north. Place the arrow-head at A, and read the bearing of the line AB.

To Find an Unknown Visible Point, B, on the Map—Take the magnetic bearing. Lay a protractor parallel to the magnetic north, the arrow-head at the point where the bearing is taken, A. Read the bearing on the protractor equal to that given by the compass. This bearing passes through B.

Steering by Compass in Mist—To use a compass correctly in a thick mist is a very difficult and tedious matter. One should be thoroughly acquainted with the correct position of the starting-point; then orient the map. When the map is in the correct position, find the compass bearing of the route from it, the distance, the kind of ground, and the approximate time required for the route to be traversed. The map may now be put away, and the steering commenced. Look for some object, such as a piece of rock, in the line of magnetic bearing; then make for this object. In thick weather it may be only a few yards away, but when it is reached the bearing will have to be taken again, and another object picked up as before, till the required point is reached. If a new course has to be taken, the map will be referred to again. This method is often necessary on the high uplands of the Cairngorms, and will save much time and trouble.

Mutual Visibility of Points—A method of determining from the map whether any point B is visible from any point A. (Curvature and refraction need not be taken into account for short distances.) Draw a line on the map joining A and B. Note any point on the line which is likely to obstruct the line of sight, and carefully estimate its position and height.

Thus, suppose there should be such a point D, where the height is 200 feet, and suppose the height of A is 90 feet, and that of B 300 feet. Scale off the map the horizontal distance, i.e., AE and AC. Suppose AE = 1000 yards and AC = 2000 yards.



Formula

$$\frac{AE}{AC} \times BC = \text{Line of sight to B at D.}$$

	D	B
	feet	feet
	200	300
Less height of A.	90	90
	110	210

The reduced level of D is 110; therefore 5 feet of D will obstruct the view of B.

To Find by How Much B Is Not Visible--The reduced level of the line of sight from A over D to B is—

$$\frac{AC}{AE} \times DE\frac{2000}{1000} \times 110 = 220$$

The reduced level of B is 210 feet; therefore B is not visible by 10 feet.

The above may be simply applied to any point where doubt exists regarding its visibility.

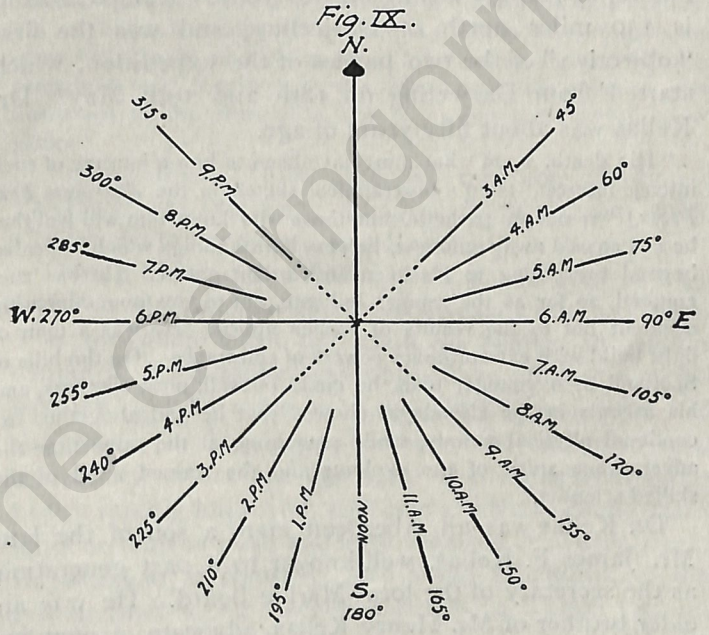
To Find the Height of a Visible Point at a Known Distance—Measure the distance on the map from the point of observation A, to the point to be measured, B = AC. Then place an axe in the ground in line with AB = DE, so that, lying on the stomach at A, you can see D and B in alignment. (This must be done as carefully as possible.)

Formula as above

$$\frac{AC}{AE} \times DE = \text{Height of B above A.}$$

The above may be useful in measuring the height of a rock climb.

To Find the Time from the Sun by Compass—As will be seen in Fig. IX., the sun at 6 a.m. is at a true bearing of 90 degs., and at 180 degs. at noon, and at 270 degs. at 6 p.m., moving at the rate of 1 deg. in 4 minutes. A simple way of finding the time is to take the true bearing of the sun, i.e., subtract 18 degs. from the magnetic bearing.



Thus, if the true bearing of the sun is 150 degs. =30 degs. from 180 degs., representing 120 minutes or two hours before noon, the time is 10 a.m.