

Rock Climbing

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Table of Contents

Introduction.....	2
Methods of Climbing.....	2
Following.....	2
Lead Climbing.....	2
Solo Climbing.....	2
Ice Climbing.....	2
Belaying.....	2
Abseiling.....	3
Artificial Climbing Walls.....	3
Grading and Naming.....	3
Why Rock Climb?.....	3
Terminology.....	5
Rocks.....	5
Rock Angle and Size.....	5
Rock Formations.....	6
Climbing Techniques.....	7
Equipment.....	8
Climbing Practice.....	9
Climbing Calls.....	10

Introduction

Rock climbing is a method of crossing mountain ranges used by people who are too impatient to walk around them. Instead, they use all four limbs to project themselves up rock faces, no matter how steep. Climbing these cliffs can be achieved by several methods, each reaching different levels of difficulty and danger.

Methods of Climbing

Following

The most common method of climbing up a cliff. You are attached to a harness, which is in turn attached to one or more ropes. The rope passes through a carabina (metal loop) attached to the top of the cliff being climbed. On the other end of the rope is another person, belaying. If you fall off, you are stopped from completely falling by the weight of the person on the other end. This method of climbing is the safest, but can only be achieved if somebody has been up the cliff first to attach the rope securely to the top.

Lead Climbing

Another method of climbing is lead climbing. You are still attached to the rope, but for some reason - usually because nobody has been up the rock face yet - the rope is not attached to the top of the cliff. Instead, you carry a variety of implements with you, which you jam into cracks in the rock, and pass the rope through a carabina attached to them. This is slightly more dangerous than following because you can never be sure that your connections are secure. If you do fall, some of them may come out before one holds properly, but at least they'll slow you down.

Solo Climbing

The most dangerous method of climbing - and the most exciting - is solo climbing. This is rock climbing in its purest form; without the use of any safety equipment at all. You are not attached to a rope and no extra person is needed to belay. This can be a lot more fun than conventional methods, because you have enormous freedom of movement - you are not limited to a pre-set route. To be able to solo climb, however, you must be confident that you can climb the route you have selected, because if you fall off, you might encounter problems. It is recommended that you never solo climb without people around to call mountain rescue teams, phone for ambulances, or notify next of kin.

Ice Climbing

This is a related but very different sport. It is obviously an awful lot harder to gain a grip on ice than on rock, and you are not so worried about damaging the face. So extra equipment is used: on your feet you wear crampons, a kind of climbing shoe with mean looking spikes. You use an ice axe to gain grip with your hands. Ice climbing is considerably more dangerous than rock climbing.

Belaying

This is not a method of climbing, but a method of helping somebody who is lead or follow climbing. You are there to pull in the rope when they climb up (following) or pass it out (if they are

leading). You have to be fairly precise; you shouldn't pull excessively on the rope, because it is annoying to the climber. It can help them climb up, but this might ruin the challenge. Do not let excessive slack out in the rope either, because that means they have further to fall if they fall off.

For a right-handed person, this is the most common method of belaying:

A belay loop is attached, via a carabina, to the front of your harness. The rope passes from the climber's harness through the carabina at the top of the cliff down to you, through the belay loop, round your carabina, up through the belay loop again, and down onto the pile of slack rope beside you.

Your left hand stays on the taut rope above the belay rope. Your right hand is very important: it must be holding the slack rope, below the belay loop. When you need to draw in slack, you pull it through the loop with both hands where they are, then bring your left hand down to hold the slack rope while you bring your right hand up nearer the belay loop again. This is so you never take your hand off the slack rope. This is important, because if the climber falls off, the jerk in the rope would pull the rope through the belay loop without a hand on the slack rope. You hold the slack rope tight down next to your hip, and that compresses the belay loop against the rope, creating enough friction to stop them falling further. If you are light you might bounce up into the air, but usually there's enough friction with the carabina at the top of the cliff to stop you shooting up too far.

This all probably only makes sense if you try it.

The belay loop is only one method of belaying; a metal 'figure of eight' loop can also be used.

Abseiling

Abseiling is the art of going down a cliff without falling. You are still attached to a rope, but you have control over how fast you go down it. It can be a very enjoyable experience, and is very relaxing compared to struggling up the cliff in the first place. You can also go very fast, nearly falling speed, because you can slow down again nearer the bottom. However, it's worth remembering not to go too fast because you can burn your hands trying to stop again.

Artificial Climbing Walls

These are boring compared to real rock, and you will probably have to pay to use them, but they do have a few advantages. You can be assured of safety; the wall won't crumble or be slippery and there's a good range of difficulties to practice on. At most climbing centres you can hire equipment, which is useful if you don't have your own. They can also be a great place to meet other people to go on organised climbing expeditions.

Grading and Naming

Rock faces that have been climbed in the past have often been graded in difficulty. There are several methods of grading, and they are all confusing.

Should you climb a face which has never been climbed before, you have the right to officially name it. This has produced some very obscure and obscene names.

Why Rock Climb?

Rock and ice climbing can be seen purely as a part of climbing a mountain or travelling, but they are also exciting and enjoyable sports in themselves. Most people are overly worried about the

dangers of climbing. Admittedly, it is more dangerous than say, bowling, but it is statistically safer than crossing a road. You just have to remember to obey the obvious safety rules, and be sensible. If you are not experienced, always climb with an experienced person. Also, if you are climbing on real rock, respect the natural habitat: do not damage the rock face, do not climb near nesting birds, do not leave litter. If you follow all these common sense rules then you can't help but enjoy yourself immensely.

If you only occasionally go climbing, you can practice on indoor climbing walls, often found in leisure centres, and you can practice pull-ups on door frames.

Terminology

As in all sports, terminology has developed in rock climbing in order for us to more easily convey our ideas and stories to other climbers. It is easier to tell a climbing partner to 'pull on the arete, and then rock-over on the sharp crimp' than to say, 'pull on the edge there that resembles a sort of ridge, and then place your foot on that small protuberance of rock, transfer your weight over that foot, and now try and stand up'. Especially if they are halfway up the climb, and rapidly running out of strength! It is also vital for safety reasons to have a standard set of calls, so that climbers know when it is safe to climb, and know when to pay out rope and take in slack to minimise the risk involved.

This glossary is an attempt to gather the most commonly used terminology, and also to try and point out where this differs between the UK and the US (UK terminology is the default).

Rocks

You are about to start climbing, so it's probably a good idea to choose something to climb. Here are a selection of climbing locations and rock angles - factors that will determine the style of climbing you will attempt.

Rock Angle and Size

- ❑ Big Wall - Huge cliffs, found in places such as Yosemite and Norway's Troll Wall. These often take days to climb, with sleeping taking place on portable ledges.
- ❑ Boulder - A small freestanding lump of rock. Often used as training for rock climbing, or for attempting hard climbs on without the fear of doing so many feet above the ground. Bouldering (climbing on boulders) has in fact become a sport in its own right.
- ❑ Bulge - A protruding section of the climb, steeper than the main section. These can be awkward li'l devils.
- ❑ Crag - An outcrop of rock. Found as small inland cliffs (eg the gritstone edges of the Peak District, or the limestone monstrosities of Yorkshire), sea cliffs (Wales, Dorset and Cornwall have some great examples of these) or as parts of larger mountain ranges (eg outcrops in Scotland, Wales and the Lake District).
- ❑ Mountain Cliff - Altogether more serious, a mountain cliff will often resemble a few crags stacked one on top of the other. Usually more remote than crags, you'd better know what you are doing if something goes wrong.
- ❑ Overhang - Anything steeper than vertical (though usually used in the same manner as 'roof').
- ❑ Overlap - A small roof, usually between 9" and 2ft in depth.
- ❑ Slab - A section of climbing which is less than vertical. Less strenuous than other angles, but often tenuous and scary.
- ❑ Roof - Pretty self explanatory; a horizontal or near horizontal section of a climb, capping a gentler section. Strenuous.
- ❑ Wall - A near vertical rock face.

Rock Formations

Since your life may depend on it, it pays to look closely at the formation of the rock. Which features can the hands and feet actually use? Here is a fairly comprehensive list of rock formations:

- Arete - An outside corner, resembling the edges of a brick on a grander scale (US - 'Corner').
- Break - A horizontal crack.
- Chimney - A fissure wide enough to fit the body in.
- Chockstone - A rock or boulder wedged into a crack or chimney.
- Corner - the opposite of an arete. Like the corner of a room (US - 'dihedral').
- Crack - Usually refers to vertical fissures in the rock.
- Crimp - Any very small hold which requires good finger strength to hold.
- Flake - A layer of rock that appears to be on top of, but separate from, the base rock.
- Groove - A shallow vertical opening, like an open crack without the fault in the rock.
- Jug - A large hold. Americans call these 'buckets'. Think big...
- Offwidth - A crack too wider than a fist, but narrower than your body...
- Pinch - A protrusion of rock which is best used by pinching (qv).
- Pocket - A hole or depression in the rock.
- Pod - A short shallow break or crack.
- Ramp - A diagonal ledge of any width.
- Sidepull - A vertical hold, used by pulling from the side.
- Sloper - Any hold which is made harder to hold by it being angled the wrong way. Imagine half a tennis ball being glued to the rock, and you'll have a fair idea of what a sloper may be.
- Thread - A 'hole' through the rock. It can be used by wiggling the fingers into it, and is also often used for protection.
- Undercling - An 'upside down' hold. May sound useless, but can be invaluable in making a high reach.

Note that combinations of these holds are possible, so we might have slopey crimps, a sidepull jug, or even a slopey, crimpy undercling.

Climbing Techniques

Now that you know what the rock formations are, you need to know how to use them. There is a large array of techniques used in climbing, and many of these are aimed at specific types of hold or rock angle:

- ❑ Bridging - Spanning between holds in a corner or chimney, usually with arms and legs akimbo (US - Stemming).
- ❑ Dyno - Short for 'dynamic move', a dyno is literally a leap for a hold which is out of reach! Typically, both feet and at least one hand leave the rock, and the hold you are going for is generally large. Not used very often in climbing, due to its committing nature, though Johnny Dawes (probably the top climber of the 1980s) seemed to use it on nearly all his routes - including one where the dyno was in order to get a heel hook!
- ❑ Edging - This is simply using the edge of the rock boot on small sharp edges.
- ❑ Flagging - In order to get balanced in certain positions, particularly when the hand and foot holds are vertically in-line, or if you are having to stretch for a hold quite far away horizontally, then you may need to flag or stretch a leg out to act as either a counter balance, or as a third point of contact to create a balanced triangle.
- ❑ Heelhook - Generally used on steep rock, and particularly when turning the lip of an overhang. This utilises a very high foot hold, which you place your heel on (often above your head), and then use the power in that leg to assist in hauling your mass up the rock. Turning the lip of an overhang, this is often used to get into a mantling position to get into a standing position on the lip.
- ❑ Jamming - Using your hands as a camming device to use a (typically) vertical crack as a hand hold. The hand is inserted into the crack, and then either twisted to cam the fingers into the crack (finger locks), flexed to fit the crack (hand jams) or formed into a fist (fist jams). In the latter two cases, these can be very painful, as you are using the frictional properties of the back of the hand and front of the fingers to pull up on! If done properly, these can be very secure.
- ❑ Layback - Using one side of a wide vertical crack for the hands, and the other side of the same crack for the feet, you can generate enough friction to stay on the rock. Laybacking is using this position to move up a crack (or other feature allowing the same sort of position). Strenuous, but less painful than jamming.
- ❑ Mantle - Imagine you're getting out of a swimming pool, and you push down with your hands to lift yourself out of the water. That's essentially a mantle. Anything with this sort of pressing action is called a mantle.
- ❑ Pinching - The opposite of spragging - literally pinch a hold between thumb and fingers.
- ❑ Popping - A small dyno. Generally a semi-dynamic move where the hold is just too far to reach statically.
- ❑ Rockover - A technique often used on slab climbs, a rockover is a way of making a high step to one side easier. Place your foot on the high hold, and then use any available hand holds to move your weight over and across that high foot hold.
- ❑ Smearing - When there are no holds for the feet, but the texture of the rock is quite coarse, you can use the sole of your sticky rubber rock boots to make use of the available friction to

stand on. Called smearing.

- ❑ Splitting - This is a strenuous alternative to laybacking or jamming - the hands are used to try and pull the crack apart. Hard to keep moving on, as once you release one hand, the other loses the friction necessary to stay on the rock! It can be done though, in small dynamic bursts, or if the rock allows a sort of brief layback to alternate sides.
- ❑ Spragging - A technique that can be used on cracks too small to get the fingers into, this is like splitting the crack with the thumb and fingers.
- ❑ Undercutting - A technique using underclings. The undercling needs to be fairly low - preferably waist height or below - and is held in tension using the strength in the biceps. Think trying to pick a car up by the sill. As this works with one arm pointing toward the ground, holds a full arm span apart can often be linked.

Equipment

Apart from the equipment mentioned above (rope, carabina, harness, etc) there are a few climber's aids and important pieces of safety equipment. The most obvious is a climbing helmet, which most climbers wear. This is to protect you from things falling on your head; don't expect it to save you if you fall off yourself. It is not very substantial, usually just sufficient to bounce stray stones and carabinas off.

Most climbers also wear climbing shoes, though some prefer bare feet. Climbing shoes are very tight, with pointed toes, and are made of a kind of rubber. They are in fact usually made out of old aircraft tyres, because of the excellent grip which results.

In addition, a lot of climbers use hand chalk on difficult routes. This is a powdered chalk you rub onto your hands to give you extra grip.

Climbing equipment is expensive and has to be replaced every few years, for safety reasons. A cheaper way of climbing is to join a proper climbing centre or club, which will provide equipment.

OK. Now you know what the rock looks like, and how to use it. What's next? Well, unless you're into a spot of 'bare-naked bouldering', you'll want some equipment:

- ❑ Belay Device - One of many devices used to control the rope. It is attached to the harness, and is used to lock off a rope in the event of a fall. Equivalent to holding the rope really, really hard, but better and less painful. Many shapes and sizes are available, from plain screw-gate krabs with an Italian hitch (special braking knot) to specially designed mechanical contraptions and even the climbers own body can be used as a belay device if one of a number of archaic and outdated methods are employed.
- ❑ Chalk - Magnesium carbonate, in powder or block form, stolen from gymnasts to reduce sweat on the hands, and so increase chances of staying on the rock.
- ❑ Harness - A nylon contraption which sits around the hips and thighs, that you can theoretically hang from a rope on indefinitely.
- ❑ Karabiner - A C-shaped piece of aluminium, with a gate across the opening of the 'C'. Used as a link between protection, slings and ropes. These come in various styles, but all can be classified as either a snap-gate krab, where the gate is held shut with a spring, or locking-gate krab, where the sprung gate is additionally locked off with a screw, or some other safety device.

- ❑ Protection - Bits and pieces of ironmongery designed to be placed in cracks and faults in the rock. These take the shape of different sized wedges of aluminium on wire or nylon cord (known as rocks/nuts/wires/wedges for the smaller sizes, and hexes for larger sizes), nylon slings, friends (devices which can fit a range of sized cracks by using pairs of opposing cams), and other more esoteric devices.
- ❑ Quickdraw - Nothing to do with the Wild West, these devices are a length of nylon sling, with a karabiner at each end. Used as a link between the rope and protection.
- ❑ Rock Boots - Tightly fitting shoes, with sticky rubber soles. Designed with discomfort in mind. The idea being that you are so desperate to get the damned things off, that you will find hidden reserves of strength in order to reach the top!
- ❑ Runner - The generic name for the combination of a quickdraw linking a piece of protection in the rock with the rope. Short for 'running belay'.

Climbing Practice

Now you have all of the ingredients to start climbing - some rock, some techniques and some equipment, it's time to put it all together and learn how to stop yourself and your partner from having too bad an accident.

- ❑ Belay (noun) - A setup of a climber and at least one, but preferably three, pieces of protection in the rock, linked together with a bird's nest of rope and slings, from which the climber (usually standing on a good ledge, but occasionally dangling from the nest by the harness aka hanging belay).
- ❑ Belay (verb) - Belaying is the act of controlling the rope using a belay device. Typically, the belayer pays rope out and takes rope in when required, and brakes the rope in the event of a fall.
- ❑ Belayer - The person doing the belaying.
- ❑ Climb - A route up the rock, often following an obvious line (eg. a crack or a corner), but often just following a series of good holds up an otherwise blank piece of rock.
- ❑ Leader - The person on the 'sharp' end of the rope, climbing first, and placing and clipping into protection along the way.
- ❑ Pitch - A section of a climb, chosen to be less than a rope's length in height (a typical rope is 50m), and preferably starting and finishing at good belays.
- ❑ Second - The 'second' person up the climb, who removes any protection the leader has placed.

Climbing Calls

Communicating between the leader and belayer is vital if accidents are to be avoided. After all, although climbers are social animals having a laugh and enjoying the adrenalin buzz, the fun is built on a solid foundation of trust and teamwork, where belayers hold the life of the leaders in their hands. These standard climbing calls make life considerably safer.

- Climb when ready! (Belayer to leader when they are set up with the rope through their belay plate).
- Climbing! (Leader replies to belayer when he or she is tied into the rope and ready to ascend).
- Take! (Leader to belayer when he/she is worried about falling and needs the rope pulled in tight).
- Slack! (Leader to belayer when asking for rope to be paid out).
- Safe! (Leader to belayer letting them know he/she has safely attached the rope to the top and is ready to be lowered).
- Watch Me! (Leader to belayer, asking for him/her to be alert during series of tough moves or the crux of the climb).
- Below! (Warning everyone else on the rock-face below you that you've just accidentally kicked a rock off the mountain or dropped your kendal mint cake!)

This article was written in memory of one of the Researcher's uncles, Antony Lodge, a fellow climbing addict, who died in a climbing accident in Africa.