

## Klettersteigs (Via Ferratas)

by Mel Owen

### Warnings and caveats

The [management of risk](#) in the mountains is covered in general terms in a separate article (qv). The principal klettersteig hazards are

- Falling,
- Being struck by falling objects and
- Electrical storms.

Neither the author nor the AAC(UK) can accept any responsibility for any accidents occurring to any person as a result of the guidance providing in this article, which is merely intended to serve as a brief introductory overview intended specifically for experienced scramblers with a climbing background. This article is not intended for mountaineering novices

### Definitions

**Klettersteig** (a German word; there is no commonly used English equivalent so we also use klettersteig. The German plural form is Klettersteige, but klettersteigs is the standard plural within the English-speaking community). A klettersteig is a mountaineering route protected by fixed cables, to which you attach yourself by means of running 'lanyards' attached to your harness. Because of the potentially high 'fall factor' (qv) if you slip, it is essential that the lanyards incorporate some form of kinetic energy absorber. The steel klettersteig cables are securely attached to the rock face by 'stanchions' (qv) placed at appropriate intervals.

**Via Ferrata** (Italian plural: vie ferrate, conventional British plural: via ferratas). This is the Italian word for klettersteig, literally translated as 'Iron Way'.

**Fall Factor.** In an ordinary climbing situation, if a fall is held by a rope or sling, the fall factor is the vertical distance you fall before the slack in the system is taken up, divided by the combined lengths of climbing ropes and slings absorbing the kinetic energy. A fall factor of more than 1 is potentially dangerous; more than 2 is often seriously dangerous, possibly fatal. A slip on a vertical section of klettersteig just before you reach the next stanchion can easily result in a potential fall factor of 10 or more. This would be enough to snap any lanyard made from just an ordinary sling that lacks a kinetic energy absorber. But fall factors, per se, do not in themselves kill; it is the shock loading that kills, and this is the product obtained by multiplying together the fall factor and the kinetic energy that is being absorbed, best illustrated by an example. If you fall 100m onto 50m of rope the fall factor is 2 and you will probably be lucky to escape alive due to the very high shock loading; but if you fall just one foot onto 6 inches of rope, you are unlikely to be concerned, even though the fall factor is still 2; this is because the kinetic energy being dissipated is low.

**Stanchion.** The term 'stanchion' is used in this article to refer to the stout steel pins secured to the rock face (originally by cement, these days by resin bonding), to which the multi-stranded steel klettersteig cables are securely attached at appropriate intervals.

### The Choice of Personal Protective Equipment

**Helmets.** A climbing helmet should always be worn on or near to Klettersteigs. It should be CE marked or UIAA approved for mountaineering purposes, it should be in good condition, well fitting and secured in place with the chinstrap fastened. It should be fitted before you reach the foot of the cliff, since others already on the route above, possibly out of sight, might dislodge rocks without warning.

**Lanyards (aka Cows' Tails)**. The pair of lanyards you use should have been designed specifically for use on Klettersteigs, they should be in sound condition and **used strictly in accordance with the manufacturer's instructions**. Nothing contained herein should be read as countermanding or supplanting the advice provided by the manufacturer of the equipment you use.

**Karabiners**. Special-purpose karabiners designed for use with lanyards on klettersteigs should always be used. The manufacturer's instructions must be followed.

**Gloves**. Special-purpose klettersteig gloves are available with free fingers and reinforced palms, the more expensive ones having kevlar palms, but they are rarely to be found in the UK. They can invariably be found in specialist sports shops in klettersteig areas in the Alps, although some people use weight-lifters' gloves.

**Harness**. The safest type of harness to use on klettersteigs is undoubtedly a full body harness and this is therefore the only type that can possibly be 'recommended'. However, many British parties on klettersteigs use their ordinary climbing (sit) harnesses, rather than go to the expense of buying anything else that they will very rarely use for probably only a marginal improvement in safety. Like everything else that is safety-related, it is up to the individual to make his or her own decision.

**Anything else?** Yes, the usual high mountain equipment. Although most users of klettersteigs do not carry one, a rock-climbers' 'quick-draw' (aka short extender) can be very useful for those occasions where one might wish to 'clip short' (i.e., clip a cable and hang very close to it), perhaps while taking a photograph, perhaps when belaying in order to top-rope someone.

### **To clip or not to clip?**

**Always?** Some argue that you should clip any klettersteig cable that you come across on your route, on the grounds that it would not have been placed there unless it was intended to be used.

**Not Always?** Some experienced rock climbers and advanced scramblers argue that the cables are occasionally to be found in situations that are no more dangerous than Grib Goch in Snowdonia or the Aonach Eagach in Glencoe, on neither of which they would feel the need for such protection. As a result they do not habitually clip on such easy sections of klettersteigs.

**Who is right?** Neither of these two disparate points of view is unequivocally either right or wrong. There is always a strong subjective element in what can only be a personal decision, since it depends very much on the strength, fitness and experience of the individual. It should always be made in the light of the prevailing weather and conditions as well as the potential risk of being knocked unconscious by falling objects.

**Warning**. Those experienced rock scramblers who are nevertheless new to klettersteigs should consider the wisdom of practicing the slick management of lanyards on easy klettersteigs, specifically re-clipping to pass stanchions, before needing to rely on them in earnest on steep really serious routes.

### **Klettersteig Techniques.**

**Crowding Together**. On vertical sections it is potentially unsafe for any climber to be attached to the same stretch of cable between any two stanchions, since if the upper climber falls he could seriously injure the climber below by landing on top of him. This consideration is not important on horizontal sections.

**Overtaking**. If you catch up with a slower party, be patient and do not overcrowd them, adding to their possible anxiety; they might be much less experienced than you are and near to their personal limits. If a faster party catches up with you, seek out an early safe opportunity to allow them to climb through, and then make a clear invitation to them to do so. At all times remember that safety overrides every other consideration.

**On which side of the Cable should you climb?** If the cable is heading straight up and down the 'fall

line', it does not matter on which side of the cable you climb. Once it strays from the vertical and climbs (or descends) diagonally across the rock face, it is generally safer to stay on whichever side keeps you below the cable. You should always be on the downhill side of horizontal cables.

**Klettersteig Integrity.** It is always up to Klettersteig users to satisfy themselves that the Klettersteig they are relying on is structurally sound and has not been damaged by stone-fall, lightning, or any other cause.

**Klettersteig Techniques.** There is no single klettersteig technique that is appropriate to all occasions. There is a lot to be said for experimenting with any technique that is safe. Here are some pointers based on extensive personal experience.

- The following is a safe and slick procedure that is highly recommended as a first choice for those new to klettersteigs. Climb with one hand on the rock and the other sliding up the cable. Keep the lanyard karabiners riding up on top of the hand moving up the cable. This has two advantages for the novice:
  - It eliminates the possibility of your climbing too far above a stanchion without remembering to re-clip, which might possibly require down-climbing.
  - It ensures that the lanyard karabiners are immediately to hand when you reach each stanchion.
- An advanced technique for the rock purists is to avoid ever touching the cables except when re-clipping to pass stanchions. All progress is made with both hands and feet on the rock.
- On vertical or overhanging sections lacking in rock holds, it might be necessary to pull up on the cable. The following technique permits this without taxing the arm muscles too much, but it needs practice to perfect:
  - Reach up and with straight arms grip the cable with both hands, one wrist directly above the other.
  - Lean back and move both feet as high as convenient, soles against the rock.
  - Extend both legs, thus raising the body, keeping the arms straight throughout. Let the leg muscles do all the work.
  - Move each hand up in turn to a higher position on the cable, and repeat.

## Improved Rescue Techniques

In an ideal world, improvised rescue techniques should only be taught by professionals, and only practiced under supervision. However, in the real world, bearing in mind that most British parties on klettersteigs are unguided and frequently include experienced rock climbers, there is every reason to share this knowledge. If a member of the group is either slightly injured with a mild sprain, or is getting tired, or is simply out-faced by a particularly steep section, then they can be top-roped. The following procedure ensures that this procedure can be carried out slickly and safely at the drop of a hat:

- The group member assuming the rescue responsibility needs to pre-prepare his rucksack. A full length of 11mm rope is unnecessary; all that is required is 20-30m of 9mm climbing rope. One end should be secured (preferably to the inside) of the rucksack; this is not a safety-critical connection, it is just to stop the end getting lost. Starting from this secured end, the rope is carefully flaked into a small rope bag which is carried inside the rucksack at the top of everything else; the rope bag's purpose is simply to ensure that the whole rope may be removed and replaced to get at anything else in the rucksack without it tangling. The other end of the rope is secured by a figure-of-eight knot to a screw-gate karabiner. This karabiner is clipped to somewhere convenient on the outside of the rucksack where it may easily be reached by the climber without removing his rucksack. He also has immediately to hand a short (2 ft) stitched sling and an HMS karabiner, usually clipped to a harness tackle loop.
- As soon as another member of the party needs the security of a top-rope, his harness strong point is swiftly attached to the end of the rescue rope and the rescuer climbs up to an appropriate higher stanchion. Since the rope has been flaked into the rope bag, it should automatically pay itself out without snagging.
- Once the rescuer has reached an appropriate stanchion he belays himself'; he might find a 'quick-draw' useful for attaching himself close to the klettersteig cable. He then winds his short sling securely round both the stanchion and the cable and fits the HMS karabiner. He

attaches the rescue rope to the HMS karabiner using an Italian Hitch (aka Munter Hitch or HalbMastwurf-Sicherung [from where we get 'HMS']) and instructs the 'rescued' to climb.

- Since the 'rescued' is now being top-roped he does not need to clip the klettersteig cable, so he has less hassle to contend with while climbing up to the rescuer
- As soon as the 'rescued' reaches the rescuer's stanchion he clips his own lanyards in the usual way and can come off belay.
- Repeat as necessary.
- The use of this system to assist in a vertical descent should be obvious.

## Lightning Risk

Since klettersteig cables make very effective lightning conductors, it is unwise to be anywhere near them in an electrical storm. In much of the Eastern Alps such as the Dolomites, summer heating causes local convection leading to the formation of cumulus-nimbus (cu-nim) clouds resulting in electrical storms, often occurring daily, mid to late afternoon. One obvious safeguard is to make an early start each day to ensure you are off the cables before the high-risk part of the day. There are several facts to bear in mind:

- The sound of thunder in the mountains can be heard at a distance of 20 miles or more. If you hear a distant rumble of thunder, it has therefore been heard over an area of over 1,200 square miles but has hit the ground in just one place. It is therefore not necessary to over-react to the first very distant rumble.
- Each and every such electrical storm starts with its first lightning strike. This first strike might be the one with your name on it.
- If the sky above you remains cloud-free there is no real chance of lightning. The problem is that clear skies in the mountains can cloud over surprisingly quickly, often creeping up on you without your noticing it.
- If you are in near-still air, in cloud or with overcast skies, and particularly (but not necessarily) in warm air conditions, and particularly in mid to late afternoon, then the risk of an impending local electrical storm is very real.

No attempt is made here to describe the actions to be taken in the event of encountering an electrical storm, since these actions are very well documented in the existing mountaineering literature

## OeAV Advice

In September 2011 the OeAV published the following advice on "Safety on Klettersteigs"

### **Klettersteig risks are compounded by inadequate preparation, faulty equipment or unsafe techniques**

- **Plan carefully!** Planning is critical to the safe and enjoyable use of Klettersteigs. Confirm in advance their difficulty, length and descent route before committing yourself, and check the expected weather.
- **Choose an appropriate objective!** If you attempt too difficult a Klettersteig, you will neither enjoy it nor be safe.
- **Check your safety equipment!** Ensure that you are correctly using a safe set of personal protection equipment, such as harness, helmet and lanyards. Carry emergency equipment such as First Aid Kits and mobile phones.
- **Avoid thunderstorms!** Lightning kills, and rain and cold increase the likelihood of accidents.
- **Check Klettersteig condition!** Stone-fall, snow pressure, frost and corrosion can all damage Klettersteigs, and such Klettersteigs should be avoided.
- **Buddy Check before starting!** Carry out a 'buddy check' of each other's personal safety equipment before starting.
- **Avoid bunching!** Limit each cable run between stanchions to just one climber.
- **Consider other parties!** Consideration for other parties prevents dangerous situations from evolving.

- **Avoid stone-fall!** Take care never to dislodge loose rocks.
- **Respect the environment!** Minimise private transport in the mountains, leave no rubbish and make no noise.

## Bibliography

### English Language Area Guidebooks in print.

- **Via Ferratas of the Italian Dolomites: Vol 1: North, Central and East**  
Authors: John Smith and Graham Fletcher. Published 2002.  
**Cicerone Press** ISBN 1 85284 362 4
- **Via Ferratas of the Italian Dolomites: Vol 2: Southern Dolomites, Brenta and Lake Garda.**  
Authors: Graham Fletcher and John Smith. Published 2003.  
**Cicerone Press** ISBN 1 85284 380 2
- **Klettersteig Scrambles in the Northern Limestone Alps.**  
Author: Paul Werner. Translated into English by Dieter Pevsner. Published in German 1983.  
English translation published 1987  
**Cicerone Press** ISBN 0 902363 46 8
- **Via Ferrata, a Complete Guide to France.**  
Authors: Jocelyn Chavy and Philippe Poulet  
English translation published 2004  
**Cordee** ISBN 1 871890 97 7

**Non-English Area Guidebooks.** As long as a klettersteig guidebook in a language unknown to the reader contains sketch maps to indicate where the klettersteigs start, and the grade can be decoded, and as long as you have and can follow a map, and as long as you have sufficient mountaineering experience, then you should manage. By their nature, route finding once on klettersteigs is usually obvious and most descent routes are well way-marked in the Alps, but no liability can be accepted for any untoward occurrence resulting from this advice. There is never any substitute for genuine mountaineering experience and common sense, and everyone must take responsibility for their own actions. If you know of any such guidebooks that you can particularly recommend for areas not covered by those listed above, please provide the AAC(UK) [Webmaster](#) with full details and they will be listed here. A good example is the following comprehensive German-language Klettersteig Guide to Austria, for which we have translated the [Key](#) into English as a downloadable pdf document

- **Klettersteig Atlas - Austria.**  
**Author** Kurt Schall Published 2006 & 7  
Schall-Verlag, Wien ISBN 3900533-47-4

The following links are worth perusal:

[\[Klettersteigs \(Via Ferratas\)\]](#) Route descriptions in German, covers the whole Alps  
[\[Klettersteigs \(Via Ferratas\)\]](#) In English, Dolomites only, limited selection, downloadable pdf files.

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