

Via Ferrata: A short introduction

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1. Introduction

In the last years, the number of persons climbing “vie ferrate” has rapidly increased, and this manner of approaching mountains is becoming more and more popular among mountaineers and hikers, in particular among young persons. The terms “*via ferrata*” and “*sentiero attrezzato*” (or *equipped path*) indicate that a set of fixed equipment (metallic ropes, ladders, chains, bridges, ...) is installed along an itinerary in order to facilitate its ascension, guaranteeing at the same time a good margin of security. In this manner, also non extremely expert persons may have the opportunity to approach mountains and vertical walls that would be climbable, without this equipment, only by means of standard climbing techniques and equipment (i.e. rope, pitons, and so on).



With this fixed equipment it is then possible to grant almost to everybody the emotion of altitudes and the excitement of vertical walls, without taking major risks and without being involved, possibly, in dangerous situations. Nevertheless, practicing “vie ferrate” should not be compared with the classical climbing activity. As a matter of fact, also considering the physical and psychological engagement necessary in any case to climb a “via ferrata” (some are very difficult from a technical and physical point of view), very different are the technical skills, the experience, the capabilities and the emotional control needed to face in a proper way any negative situation possibly occurring in a mountaineering activity.

Nowadays, the term “via ferrata” has been internationally adopted, although in some countries they are also known as *Klettersteig* (this word indicates the specific karabiners to be used in this activity). It is also important to specify the difference between an “equipped path” and a “via ferrata”: an “equipped path” is an *hiking itinerary* in which only some brief tracts are equipped in order to facilitate the transit or increase the security of the path; a “via ferrata” indicates an itinerary with (possibly long) vertical parts, in which a climbing capability is necessary, as well as specific personal equipment and tools.



Everybody should be in any case aware of the fact that in order to climb a via ferrata it is necessary to have a proper equipment (helmet, harness, karabiners, energy absorbing systems, gloves), to know how to use it, and to be aware of the technical and physical difficulties of the path.

We hope that everybody will be able appreciate the numerous and wonderful “vie ferrate” currently available in the Alps, from France to Slovenia, without forgetting, on the other hand, the importance of a proper competence and knowledge of the dangers and of the fundamental aspects of being in such a magnificent terrain.

2. A brief historical perspective

The origin

In 1843 a route on the Dachstein was constructed under the direction of Friedrich Simony, which included a range of climbing aids with iron pins, hand hooks, carved footholds and ropes.

In 1869 a rope was fixed between the summits of Grossglockner, and in 1873 a fixed protection was installed on the Zugspitze. The Heilbronner Way in the German Allgau Alps was constructed in 1899, shortly followed by the Eggersteig (1903) and Wildauersteig (1911) in the Wilder Kaiser, in Austria.

In the Dolomites, the climbing path up the West ridge of the Marmolada was built in 1903, and the Possnecker path up to Piz Selva in the Sella Group was completed before the First World War. During the Great War there was a large effort to install via ferrata to be used by soldiers to reach outposts on the peaks of the Alps, along a front of 380 km.

From First World War to 2000s: Dolomites

In 1914 the Dolomites were part of the Austro-Hungarian Empire. Until the end of 1917 the Austrians (supported by troops from Southern Germany) and the Italians fought a ferocious war in the Dolomites. To help troops to move at high altitude in very difficult conditions, permanent lines were fixed to rock faces and ladders were installed, so that troops could ascend steep faces. This wartime network of via ferrata has been restored, although not until well after the Second World War: steel cables have replaced ropes, and iron ladders and metal rungs anchored into the rock have taken the place of the flimsy wooden structures. The Club Alpino Italiano (CAI) now maintains these routes.

In the 1990s and 2000s, development became more commercial and involved more organizations: via ferrata started to be a way to encourage tourism and increase the range of activities available to visitors. New routes have been developed by local communities, outdoor activity centers, cable car companies, mountain hats and others, with the continuing involvement of Alpine clubs.



Fig. 1: First examples of Via Ferrata in the Dolomites, used for military purposes.

Current situation (2012)

Italy

There are more than 400 via ferrata in Italy, over half of them located in the Dolomites.

Austria

Austria, with over 550 "klettersteig", is arguably the country that has most enthusiastically embraced via ferrata. Together with the regional sections of the OAV (Austrian Alpine Club), the Austrian via ferrata are promoted as a way to experience "nature".

Germany

There are about 180 via ferrata in Germany. Most of them can be approached without special equipment. Many are located in the southern regions near to the Austrian border.

Switzerland

Although Switzerland is located in the central part of of Alps, the first Swiss via ferrata ‘Tälli Klettersteig’ was created only in 1993. The ‘Tälli Klettersteig’ was built on the sheer southern faces of Gadmer Flue in the Uner Alps, and it is considered one of the best via ferrata. Then, via ferrata have been developed rapidly in Switzerland. After 20 years, there are more than 150 equipped routes. According to the Rother guidebook, via ferrata in Switzerland are similar to those located in France: their main character is "sportive". However, they are usually not as generously engineered with artificial holds, so that often climbers have to “climb” rock rather than use artificial equipment in place.

France

The first via ferrata in France has been equipped in 1988: La Grande Falaise in Freissinière in the Ecrins. This was shortly followed by the via ferrata at les Vigneaux just to the north, and at the Aiguillette du Lauzet. Since then, about 200 via ferrata have been constructed in France. Most of them are located in the French Alps: only few routes are located in the Massif Central, the Pyrenees and Corsica.

3. What “is” a Via Ferrata?

"A via ferrata is the connection point between hiking and climbing" (Michele Dalla Palma)
As a matter of fact, there are different ways to approach a mountaineering excursion/climb:

Equipped path:

An hiking trail is equipped with some artificial device, usually placed only in specific -particularly exposed- points to increase safety; often no specific equipment is required to the hikers

Via ferrata:

A route is fully –and permanently- provided with facilities and equipment fixed to the rock in order to facilitate the climb and increase safety; this equipment consist in a metallic wire anchored to the rock through specific pitons, ladders, bridges, hooks, and more in general any necessary artificial mean. Specific equipment must be used by the climber (harness, helmet, ferrata kit)

Rock/Ice climbing:

While climbing a rock or ice route, the climbers either find some anchor points already fixed in place or have to put their own. Except for artificial climbing routes, this equipment is used only for protection purposes, and the climber must bring ropes, karabiners and other specific devices for protection. In artificial climbing routes, the equipment is used also as a help to climb, and not only for personal protection.



Fig. 2: Hiking, Via Ferrata, Sport Climbing.

The majority of via ferrata are located in Austria and Italy (mainly in the Dolomites, although several via ferrata are being constructed also in other areas). If we consider also Germany and

the German-speaking zone of Switzerland, we can observe that there is quite similar vision of the concept of "ferrata (klettersteig) in these 4 countries.

As a matter of fact, in these countries we have the oldest examples of via ferrata, and we can note that the original purpose of a via ferrata was to arrange a (relatively) simple way to reach the top of a mountain or some pass between valleys.

Nowadays, via ferrata offers an opportunity even to non very experienced mountaineers to climb mountains. The levels of difficulty (see the next section) and various other indications available in these countries help climbers to understand and identify their own capabilities according to the technical level of the climb.

In these countries, it may be noticed that:

- the safety metal wire is tightly anchored to the wall;
- a climber may use safety metal wires also as a help for progression (both on flat and vertical sections);
- a climber can always connect his/her security device to the safety metal wire for stairs, walkways or bridges not only for security but also as a support for climbing.

In France and French-speaking zone of Switzerland, via ferrata have been developed in the early 90s, with different perspectives and purposes with respect to "traditional" via ferrata. In France, for example, it is often more important the "style of the path" (that is the way a via ferrata is realized and the challenges/emotions that it can give to the climber) than the fact of reaching some specific point on the mountains (e.g. the summit).

The main features of the new via ferrata (classified as sport and adventure levels) are:

- short walking with uneven content
- near residential areas and open all year round
- entrance fee of via ferrata may be applicable.

Moreover, with respect to "traditional via ferrata, we may note that in the new ones often:

- the metallic wire is fixed in a loose manner: it is only for security function, NOT for supporting the climb;
- for supporting feet and hands while climbing, there are many brackets both in horizontal and vertical tracts;
- in case of a fall, the loose metallic wire and the loop surrounding the anchor allow the impact force to be transformed to traction instead of shearing force.

4. Scales of difficulties for Via ferrata

Mountaineering associations have defined different scales and grading systems. Among the most adopted ones, we can list:

- Italian Scale
- Austrian Scale (Kurt Scnall)
- German Scale (Eugen Hülser)
- German Scale (Paul Werner)
- France Scale

Italian Scale

In Italy, the Italian Alpine Club – CAI, has adopted a scale based on several parameters. The main criterion refers to the overall engagement, and is given in the scale F, PD, D, TD and ED. Then, there are other parameters (in grades from 1 to 3) related to the technical engagement, the physical engagement, the exposure, and the environment.

Italy	Definition of the Italian Scale
F	Equipped path, with low exposure and long walking tracts. Good fixed protections, consisting mainly in metallic ropes (or chains) used only to increase safety.
PD	Short Via Ferrata with low exposure. The itinerary usually presents couloirs, chimneys, short vertical tracts where chains, ropes, pegs and stairs help the progression.
D	Via Ferrata with a medium-long length, requiring a good physical condition and technical competency. Often, the itinerary is vertical and overhangs may be present. Equipped with metallic ropes, chains, pegs and stairs.
TD	The itinerary presents exposed and technical sequences; a very good physical condition and technical competence are required. The itinerary is vertical, and overhangs are climbed with few artificial aids. Equipment consists of metallic ropes, with pegs and stairs.
ED	The itinerary presents several exposed and technical sequences, possibly created on purpose; in order to increase the engagement, only few artificial pegs/stairs are in place. Therefore, a very good physical condition and some climbing technical competencies are required.

Additional descriptions and grades	
Technical Engagement	<ol style="list-style-type: none"> 1. Null or low technical difficulty, very good equipment 2. Equipped with pegs, stairs, bridges; sometimes it is required to climb using natural holds 3. Many vertical or overhanging segments; it is necessary to climb using natural holds; advisable a minimum knowledge of rope techniques
Physical Engagement	<ol style="list-style-type: none"> 1. It requires a physical effort equivalent to a moderate walking excursion 2. It requires a good physical condition (force and resistance) 3. It requires a very good physical condition (force and resistance)
Exposure	<ol style="list-style-type: none"> 1. Low exposure 2. Moderate exposure, some aerial steps 3. Very exposed, with many aerial sequences
Environment	<ol style="list-style-type: none"> 1. Low altitude, often warm and safe weather; easy escape 2. Mountain environment; altitude between 1000 and 2000 m; beware of thunderstorms, wind and cold weather 3. High mountain environment; altitude higher than 2000 m; possible presence of snow sections; beware of thunderstorms, wind and cold weather

Fig. 3: Italian scale.

Austrian Scale (Kurt Scnall)

The scale adopted in Austria refers to the overall engagement and is summarized in the following table.

Austria Kurt Scnall	Definition of the Austrian Scale
A	Easy access. Presence of many steps and footholds of good size. No physical passages. Itinerary fully equipped, presence of many pegs.
B	Easy access. Athletic passages alternate with comfortable rest. The route is well equipped, but the spacing of steps or rungs requires a good balance.
C	Access is in mountain terrain, and may require navigational skills. The itinerary is steep with many athletic passages, with small holds. The equipment is safe, but spaced. It requires good physical and mental conditions.
D	The access, comparable with level C, may require short climbing sequences. The itinerary offers many exposed vertical or overhanging sections. The equipment is good, but with sections equipped only with cables.
E	Difficulties of access are the same as in Level D. The itinerary may have more physical and continuous sections than Level D. The equipment is limited to cable and anchors. No escape.

Fig. 3: Austrian scale.

The French and the German Scales refer to the overall engagement and are shown in the following table, also with the Italian and Austrian scales for comparison.

Austria Kurt Scnall	Definition of the Austrian Scale	France	Germany Eugen Hüsler	Germany Paul Werner	Italy	Definition of the Italian Scale
A	Easy access. Presence of many steps and footholds of good size. No physical passages. Itinerary fully equipped, presence of many pegs.	F	K1	KS1	F	Equipped path, with low exposure and long walking tracts. Good fixed protections, consisting mainly in metallic ropes (or chains) used only to increase safety.
B	Easy access. Athletic passages alternate with comfortable rest. The route is well equipped, but the spacing of steps or rungs requires a good balance.	PD	K2	KS2	PD	Short Via Ferrata with low exposure. The itinerary usually presents couloirs, chimneys, short vertical tracts where chains, ropes, pegs and stairs help the progression.
		AD	K3	KS3		
C	Access is in mountain terrain, and may require navigational skills. The itinerary is steep with many athletic passages, with small holds. The equipment is safe, but spaced. It requires good physical and mental conditions.	D	K4	KS4	D	Via Ferrata with a medium-long length, requiring a good physical condition and technical competency. Often, the itinerary is vertical and overhangs may be present. Equipped with metallic ropes, chains, pegs and stairs.
		TD			TD	The itinerary presents exposed and technical sequences; a very good physical condition and technical competence are required. The itinerary is vertical, and overhangs are climbed with few artificial aids. Equipment consists of metallic ropes, with pegs and stairs.
D	The access, comparable with level C, may require short climbing sequences. The itinerary offers many exposed vertical or overhanging sections. The equipment is good, but with sections equipped only with cables.	ED	K5	KS5	ED	The itinerary presents several exposed and technical sequences, possibly created on purpose; in order to increase the engagement, only few artificial pegs/stairs are in place. Therefore, a very good physical condition and some climbing technical competencies are required.
E	Difficulties of access are the same as in Level D. The itinerary may have more physical and continuous sections than Level D. The equipment is limited to cable and anchors. No escape.	<i>Pas de cotation equivalent</i>	K6	KS6		

Fig. 4: German and French scales, with comparison with the Austrian and Italian ones.

There is also another scale, the “international scale”, shown in the table below.

A	path	easy, challenging parts secured, well marked
	terrain	adequate holds and steps, little steps, short outsettled spots, climbing is possible most of the time without securing.
	securing	Wire ropes, chains, ladders, bridges, iron clamps; steps that allow a secure but a little exhausting climb.
B	path	easy to alpine, exposed spots secured, well marked
	terrain	flat and steep terrain in interplay; exhausting and power robbing passages alternate with easy, relaxing ones. Good standing and resting spots.
	securing	Wire ropes, ladders, bridges, iron clamps; steps in a combination that asks for more body control than grade A
C	path	alpine, step security, orientation ability are a prerequisite.
	terrain	steep terrain, exposed passages and vertical parts. grips and steps are small. Exhausting and power robbing passages are common.
	securing	Wire rope, ladders, bridges, iron clamps and steps. In this combination one requires more power and courage
D	path	alpine, step security, orientation ability are a prerequisite. Short parts of easy grade free climbing without securing possibilities can occur.
	terrain	precipice extreme! exposed and overhanging spots. exhausting and power robbing passages are common. For experienced climbers only.
	securing	Wire rope, ladders, bridges, hardly any iron clamps and steps. Even the difficult parts are often only secured by wire ropes
E	path	alpine, step security, orientation ability are a prerequisite. Short parts of easy grade free climbing without securing possibilities can occur
	terrain	precipice extreme! exposed and overhanging spots. Spotted with exhausting and power robbing passages. For experienced and well trained climbers only. almost only a through passing wire rope; hardly any ladders and bridges.
	securing	Steps only in exceptional cases. There are seldom any emergency exits

Fig. 5: The “international” scale.