

# ***SCALES OF DIFFICULTY IN CLIMBING***

*G. Mandelli, A. Angriman,  
Central School of Mountaineering – CAI, Italy  
(translation by G. Coppadoro – CAI)*

## ***INTRODUCTION***

In this article, we analyze the main systems used to classify the difficulty of climbing on different terrains such as rock, ice, and mixed terrain, trying to offer a starting point to create a minimum of historical and critical knowledge of those that are commonly known as "Scale of Difficulty." Too often, the gradations of the difficulties are used in a very confused way, and this may create confusion to climbers going to undertake an ascension of any kind. Therefore, it is necessary to know and distinguish the numerous evaluation systems that are used in order to really understand and be able to compare different climbing relations. In addition to reviewing strengths and weaknesses of various scales used in climbing and mountaineering activities, we try to understand why it is appropriate to indicate the difficulty of a climb.

## ***A DIFFICULTY: WHO WILL EVALUATE IT AND HOW IT WILL BE EVALUATED***

While climbing, it is not always easy to determine the difficulty of the last passage, or of an entire length of rope. In most cases, the "*law of comparison*", or sampling, is applied, that in the mind of a climber compares the current situation with other situations already experienced (difficulty). It can therefore safely be said that the more situations (experiences) the climber has experienced, the more a correct evaluation of the difficulty is given, although, as in any human activity, there is a risk of subjectivity. Obviously, for classifying a passage it cannot be objectively possible to quantify the magnitude of footings and supports, the fragility of the ice, or the instability of snow masses. As a consequence, the subjective factor in some situations and in some cases heavily enters into play. One situation that can distort a proper evaluation is the habits of the local climbers and mountaineers that in some cases contribute significantly to the judgments. People used to move in a certain environment can give an assessment of the difficulties that differs a lot from reality. This can create problems for those approaching for the first time that environment. Another non-marginal problem is the language in use among insiders. The most obvious example may be the definition of "easy" or "difficult": if for someone the "difficult" begins at a certain level, it is equally true that below that threshold there are many "shades", in which large numbers of persons can play. Last, but very complex problem that arises in difficulties evaluation (especially in mountains), are the environmental conditions, which are obviously to be cataloged as objective factors. Particular environmental situations often heavily influence the evaluation of the difficulty of some climbs, around which usually halos of legend are created! An example would be the ascension of a classic route on an icy wall, that with spring snow conditions can be traveled with a certain calm, while on the same wall in autumn, with ice outcropping, definitely difficulties are increased. Also typical is the situation on rock, where a passage, wet or icy, can even jeopardize the success of an ascent. Therefore, it is good to keep these factors in mind before expressing an opinion about difficulties, especially if the environmental conditions encountered were not ideal. Of course, there are also situations where "bad" environmental conditions are crucial to make some climbing. Ice falls so-called ephemeral, or winter conditions of some mountains, are the ideal terrain to achieve extreme ice or mixed climbing. However, these are playgrounds that climbers research. It should be stated that the difficulty expressed in the evaluation should always be referred to the optimal conditions of the wall or passage. Finally, you should ask yourself why you have to classify the difficulties. A first response might be that the overcome difficulties may act as points of comparison with oneself and with others, and thus the definition of the difficulty can be a clear reference in its own level of performance, as well as in the same climb evolution. A second response, however, could be the one that *Gino Buscaini* used to state before disserting on the Scale of Difficulty: "*The difficulties have to be defined both to facilitate the choice of a climb and to*

prevent the climber could be faced with technical passages or environmental situations beyond his capacity." Buscaini wrote this thought in the preface to the volumes of the "Guide of Italian Mountains", a series of CAI-TCI guides that he oversaw for 34 years and under his direction published 46 volumes. It follows that to classify the difficulty of a climb or a single passage it is not only an exercise to sanction high performance in climbing or high mountaineering exploits, but it becomes an instrument to transmit correct information to create a certain type of mountaineering culture.

<b>DETAILS OF UIAA GRADES OF DIFFICULTY IN ROCK FREE CLIMBING</b>			
<b>GRADE UIAA</b>	<b>LOWER LEVEL (-) UPPER (+)</b>	<b>GRADE UIAA READING</b>	<b>DESCRIPTION OF UIAA GRADES</b>
<b>I</b>	- +	<b>First Grade</b>	It is the easiest kind of scramble. Frequent use of hands is required to support balance and hand and foot-holds must be trusted
<b>II</b>	- +	<b>Second Grade</b>	Here real climbing begins, that requires the movement of a limb at a time and a proper setting of the movements. Holds and supports are still abundant
<b>III</b>	- +	<b>Third Grade</b>	The rock structure, already more steep or even vertical, offers holds and supports the rarest and can already require the use of force. Typically the passages are not solved yet in an obliged manner
<b>IV</b>	- +	<b>Fourth Grade</b>	Holds and supports become more rare and / or small. It requires a good climbing technique applied to the various rock structures (chimneys, crevices, corners, etc.) as well as a certain degree of specific training
<b>V</b>	- +	<b>Fifth Grade</b>	Holds and supports are very rare and small. The climbing becomes delicate (slabs, etc..) or hard (by opposition or interlocking in slits and chimneys). Usually requires the prior examination of the passage
<b>VI</b>	- +	<b>Sixth Grade</b>	Handholds and/or supports are small and arranged so as to require a particular combination of movements well studied. The rocky structure may force you to climb very delicate or very hard where overhanging. Requires special training and considerable strength in the arms and hands
<b>VII</b>	- +	<b>Seventh Grade</b>	There are handholds and / or supports very small and widely spaced. It requires a sophisticated training with particular development of finger strength, skill in balancing and grip techniques
<b>VIII, IX, X, XI .....</b>	- +	<b>Eighth, ninth, tenth eleventh, etc. ...</b>	From VIII the difficulties increase to the current extreme level (XI c / a)
<b>(The scale is open) .....</b>	- +	<b>(The scale is open) .....</b>	.....

*Table 0: Details of UIAA grade of difficulty on rock climbing*

## **1. DIFFICULTIES ON ROCK**

### **1.1 A bit of history.**

In 1967, the already famous *Welzenbach Scale* officially became the "*UIAA Scale*" (*International Union of Alpine Associations*): it was composed of Roman symbols from I to VI followed by the sign "+" (plus) or "-" (minus). On that occasion UIAA inserted in its protocols also the evaluations proposed in 1943 by *Lucien Devies* and *GHM (Groupe Haute Montagne)*, about the "*Scale of Global Assessment*" by the letters: **F, PD,**

**AD, D, TD and ED** and the "*Scale of Difficulty in Aided Climbing*" with the symbols **A1, A2, A3 and A4**. From that time until the present day the UIAA Scale of Difficulty has become a point of reference, but the continuous evolution of performance has forced the association to change their positions over time, recognizing a posteriori the evidence of occurred events. This is what happened in 1978 with the introduction of the **seventh grade**, which occurred late, after many mountaineers and climbers had widely surpassed it. This recognition paved the way for an upward opening of the scale, which took place in 1985: since then the UIAA scale was started to be parameterized with the other scales that had introduced evaluations over the old sixth grade. The official opening of the scale was the belated recognition of an evolution that had already taken place in climbing not only in the Alps, but especially in the U.S. and on valley walls. Another important step the UIAA did after a few years was introducing the abbreviation **EX** to the top step of global evaluations, certifying in this way the raise of the level of performance even in alpine-style routes. Around the early eighties of last century, in some French guides, appeared scales of difficulties that were using the Roman numbering, similar to UIAA, up to V + and then continue with the progression of numbers followed by a letter (e.g. **VIa, VIb**), while in other cases they were used Arabic numbers coming with 5+ and continuing with 6a, 6b, etc.. At that time, effervescent and confused, it was born in a café in Chamonix also the **ABO** overall evaluation (**abominable**, not recognized by UIAA): an acronym that should mean the maximum reachable level. The introduction of these scales was a clear response to the non-recognition by UIAA of the evolution that took place in rock climbing. Towards the end of the 80's *Francois Labande*, compiler of numerous guides including those of the Dauphiné, presented the *French Scale*, parameterized with the UIAA scale, replacing permanently Roman numerals with Arabic numerals and placing the value **6a** instead of the **VI +**. But a few years later it was the same Labande in the guide "Dauphiné vol. II", to revive the French scale with Roman numerals (**V+, VIa, VIb**, etc..), but still leaving open the parameterization between **VIa** and **6a**. Currently, in almost all cases, the French scale is used in its version with Arabic numerals and is parameterized by UIAA even in low grades, which until recently was not the case. This scale, whose use gradually established itself among groups of Swiss, French and Italian climbers, was also used to evaluate the famous "*plaisir*" grades (Table 1) in place of the UIAA scale. So much for the small Alps crown. Other well-known realities, such as the United States, Australia and South Africa, have lived their evolutions with always local and difficult to export benchmarks. But even if we extend the look to Europe only, we find that in every area, where alpine and/or climbing activities are deployed, there are different difficulty scales, such as in UK or on the sandstone towers along the Elbe and in Bohemia. To say nothing of the former Communist countries, where there have always been different scales.

TABLE " PLAISIR GRADES "					
UIAA GRADES	FRENCH SCALE GRADE	UIAA GRADES	FRENCH SCALE GRADE	UIAA GRADES	FRENCH SCALE GRADE
I	1	IV +	4b	VI +	6a/6a +
II	2	V-	4c	VII-	6a +
III	3a	V	4c/5a	VII	6b/6b +
III +	3b	V +	5b	VII +	6b + / 6c
IV-	3c	VI-	5c	VIII-	6c +
IV	4a	VI	5c/6a	VIII	7a

Table 1: Table "Plaisir grades " (Buscaini archive)

### 1.2 The evaluation of rock climbing difficulties in the Alps.

In the Alpine range, the rock climbing difficulty evaluations are expressed by the two scales more represented, the *UIAA Scale* and the *French Scale*. Sometimes the authors of the reports have created some new scales blending and blurring the symbols of the UIAA scale up to V+, and then introducing the 6a, 6b, etc. of the French scale. In other situations, however, is intentionally used the UIAA scale with Arabic numerals, but reading grades as Roman numerals. For clarity, it must be stated that the Arabic numerals are read as cardinal numbers ("5" read "five"), and the Roman numerals are read as ordinal numbers ("V" reads "fifth"). Then, writing and reading Arabic numerals as ordinal numbers is inherently wrong and this is a

mistake that can confuse those who must use that information, that then are repeated in the multitude of rewritten relations of famous climbing routes, where you can meet often not only inconsistencies and inaccuracies, but real contradictions. Arabic numerals **DO NOT belong to the UIAA scale** and choosing to use a scale to assess the difficulties it is better to do it properly. Already in the Thirties and then again in the Seventies of the last century, up to the present day, in reports of Dolomitic routes often Arabic numerals appear to assess UIAA difficulty. However, this way of expressing the evaluation, also called "*Scala Veneta*", cannot be the rule, as it is confusing. The young generations often use the French scale, but it is not always the right tool to classify all the difficulties. As we have seen in the short historical summary, the current French Scale was designed to assess the difficulties of modern style routes, as it has introduced evaluations above the old VI grade. The key feature of this scale was, and is, to express the evaluation of the difficulty over each entire length of rope and not of individual steps. In cliff climbing and in general on the routes so-called "*modern*" its application has found a positive response and the climbing lines that over time have been equipped have always sought a grade of homogeneity of the difficulties along the entire rope length. In situations in which in a section of the wall there were portions of discontinuous difficulties, albeit logical, these were cleverly avoided. One of the most obvious examples is represented by the "*plaisir*" routes (Table 1) that, following lines with homogeneous difficulties, in some cases, just to guarantee these characteristics, deviate on plaques or overhangs. Lately, however, the lines morphologically suited to this type of climbing are running low, but the French Scale is also used on routes which do not guarantee a continuous climbing difficulty and accordingly, in some cases, on the same length it is encountered more than one evaluation. This way of doing has now been codified in numerous guides, but we should ask why the today's use of French Scale is so popular, when originally the difficulties of the individual steps were evaluated with the UIAA scale. The UIAA scale, created to classify the classic routes, use the evaluation to quantify the individual steps inside a length of rope because, on classic routes, the logic was (and is): "*the search for the easy in the difficult*", as Bruno Detassis liked to say of his climbs. Therefore, inevitably, in the case of classic climbs that follow the natural lines of ascent and that present levels of traditional equipment, the evaluation system more "realistic", which is the UIAA scale, should be used; it classifies individual steps with different evaluations inside the same length of rope. The term "*alpinistic*" and the proper use of the UIAA scale can be used to differentiate, not only the type of terrain, but the same approach that a climber must have when it intends to climb a wall with those features. The "*modern*" climbing, or better perhaps "*sport*", beyond the level of difficulty, usually also provides the opportunity to retreat to any stopping point; another feature, the latter, which should help to identify some climbs as "*modern*" or "*sport*" better than "*alpine*". The solution could be considered as an instant identification of the type of route; the French Scale identifies a "*sport*" or "*plaisir*" route, while the UIAA Scale identifies a "*classic*" or "*alpine*" route. And this should also mean that the classic routes can also be badly protected, inadequately or have rotten rock steps, a characteristic that in the "*sports*" or "*plaisir*" routes should never happen. Another crucial issue of the two scales is their parameterization. To give a practical example, initially the level "**6a**" was parameterized with the "**VI+**" UIAA. Now, by UIAA admission, the same level is compared to the "**VI**", but much depends on the place of climbing and those who are the most frequent riggers and/or visitors. These adjustments to the parameter setting suggest that climbing is constantly evolving, but is likely to deceive those that from '*sport*' climbing will move to the "*alpinistic*" and vice versa. The two activities, although very similar, have different approaches and mentalities, and it would be good to use parameterizations not as absolute values but as references to a personal experience. A clarification is also needed on the common indications of mandatory difficulty. In recent years it has become fashionable in the descriptions of sport and classic routes to indicate the highest rating, and then the obligatory difficulty, for example "*7a, (6b obl.)*", or "*VII (V+ obl.)*". This is not a proper way to give an indication when the route was opened from the bottom (i.e. when the opener has initially overcome the obligatory difficulty and only after he has climbed in free climbing the route), or when a classic itinerary has been overcome in free climbing. One should put before the obligatory difficulty to the one in free climbing, and perhaps add the steps made in aided climbing: e.g. "*6b obl. and A1*" or "*7a*", or "*V+ obl. and A0*" or "*VII*". The same goes for the classic routes "*freed*", which should

maintain their nailing condition, leaving repeaters to climb completely or partially in free climbing. A different approach instead deserve the single pitches and all the routes traced from the top. The obvious purpose of these ways is the sport climbing. Therefore, it is a duty to give an indication of only one difficulty level: that of progression without resting or repositioning (i.e. rest stops) obtained with the help of fixes.

### *1.2 "Country you'll go, scale you'll find..."*

Whereas a scale of difficulty is nothing more than the "measure" of a performance, it is only normal that any alpinists and/or climbers circle tends to create one for themselves, following local champions suggestions or "performances". If you exclude the UIAA and French Scales of Difficulty, which are the most known and used in continental Europe, it can be seen that in every nation located outside of the Alps, where were developed climbing activities that had little to do with alpinism, different scales for the classification of difficulty were created. Just staying in Europe, the *English Scale* and the Scale born to classify climbs on the sandstone towers (*Dresden Scale or D*) in the basin of the Elba River, on the border between Germany and the Czech Republic, are the best-known examples. Both have a common characteristic, that is, strict rules that affect climbing. These rules are condensed in a few clear words: the fixed placements (pitons, fixes or bolts) do not exist, or rather exist only in specific situations, such as belay points and the points of greatest danger. Even the United States has an ethics quite severe, so that fixed anchors (pitons, bolts or fixes) where there are cracks are banned and in these wall sections only removable means are used by climbers. Of course, even in this reality is was created and developed a native Scale of Difficulty (*YDS scale*) and not a few Europeans have experienced the thrill of the local **"5.10"** in the early seventies, when that level was compared to the European **"VII grade"**. The UIAA, over the years, has always produced new parameterization tables between the various scales of difficulty (Table 2), although currently few report compilers make a reference to that. So it happened that in each geographical area, from Australia to Brazil, to South Africa, and wherever climbing activities are developed, they felt the need to classify the overcome difficulties. In some cases were used "imported" Scales already known and adopted elsewhere, other times, through the definition of their own *"Difficulty Scales in climbing"*, thoughts, vision and practices of climbing philosophy of the frequenters of those vertical spaces were collected. In recent years, the increased specialization of climbing has seen the emergence of new Scale of difficulty, some of them used sometimes improperly. In some cases it would be necessary to define the action range and then try to interpret and translate the various acronyms that normally summarize the difficulty of a climb. An example of this are the specialized Scales in the United Kingdom, established by the Anglo-Saxon climbers to classify performance within the global (mental and physical) effort required by the itinerary.

UIAA	USA	Australia	UK	France	South Africa
1	5.2			1	
2	5.3	11		2	
III	5.4			3	9
III+	5.5	12	Diff.	3+	10
IV	5.6		V. Diff	4	11
IV+		13		4a	12
IV+	5.7	14	Severe	4b	13
V-	5.8	15		4c	14
V		16		5a	15
V +				5a	15
VI-	5.9	17	HVS	5a	16
VI		18	E1	5b	16
	5.10a	19		5c	17
VI+			E2	6a	18
VII-	5.10b	20		6a+	19
	5.10c		E3	6b	20
VII	5.10d	21		6b+	21
VII+	5.11a	22		6c	22
	5.11b	23		6c+	23
VIII-	5.11c	24		7a	24
VIII	5.11d	25		7a+	25
VIII+	5.12a	26	E5	7b	26
IX-	5.12b/c	27		7b+/7c	27
IX	5.12c/d		E6	7c+	28
	5.13a	28		8a	29
I+	5.13b	29		8a+	30
X-	5.13c/d	30		8b	31
	5.14a	31		8b+	32
X+	5.14b	32		8c	33
XI-	5.14c	33		8c+	34
	5.14d		E9+		35
XI	5.14d			9a	36
XI+	5.15a			9a+	
	5.15b		E9	9b	

Table 1a. Difficulties comparison UIAA Table (2008)

### 1.3 The Difficulty English Scale and the Adjectival English Scale

United Kingdom is a land where historically free climbing was developed. On the cliffs of Wales or in other parts of England and Scotland, has long been in use the so-called *English Scale*, which is configured with Arabic numerals accompanied by the letters "a, b, c," as the French scale. Numbers are accompanied by progressive adjectival evaluations (*Easy, Moderate, etc...*), which serve to give a qualitative assessment of the route. The "*Adjectival English Scale*" or the "overall assessment scale", improperly known as "**E Scale**", with the time and the pressure of evolution in climbing, proved, as the other closed scales, to be inadequate. The Adjectival Scale was composed of ten letters: **E (Easy)**, **M (Moderate)**, **D (Difficult)**, **VD (Very Difficult)**, **HVD (Hard Very Difficult)**, **MS (Mild Severe)**, **S (Severe)**, **HS (Hard Severe)**, **VS (Very Severe)**, **HVS (Hard Very Severe)**. Subsequently, given the reached technical levels, to these evaluations was added the adjective "**E**" (**Extremely Severe**) which in turn was divided at the beginning in 5 grades, from **E1** to **E5**, then soared from current performance up to **E11**. It can be said that the "**E**" Grade is a kind of estimation of the level of "*mental and physical stress*" required to pass the route. Ethics, in the UK, still has a decisive weight in rock climbing and the unwritten rules are always respected at all levels of difficulty. In fact, for British climbers, well known purists and advocates of a "*very severe climbing ethics*", it was "natural" to differentiate the technical grade (*English Scale*) from the "physical and psychological difficulty" (*Adjectival Scale*). The "**E**" classification level is not easy to understand for those who are not familiar, as the evaluations (Tables 1a, 1b and 1d) are related to the grade of difficulty of the route hardest move, without reporting the lower grades of the other moves up to level "5".

The combined use of the two Scales (*English and English Adjectival Scale*) provides to climbers the real difficulties of a climb, which might present a modest technical grade with respect to an adjectival evaluation at high level, that may reflect the impossibility of placing solid placements. To give an example, a "6c" route evaluated as commitment at "E2" level, is less demanding on the psychophysical aspect (and often risk) of a "6a" route evaluated at level "E4". It must be considered that the English scale of difficulties is valid in free climbing routes on cliffs of modest deployment such as those of Wales, England and Scotland, which reflect the Anglo-Saxon climbing "philosophy". The technical grade of the passage, as indicated above, is expressed by numeric values followed by a letter, while the adjectival scale takes into account factors such as the quality of the rock, the quality of the placements and their distance, the length of the route and obviously the level of danger of the same route.

In addition, on the Wales "gritstone", in United Kingdom, has been developed a method of climbing called "headpointing" which literally means "all in your head," that is the practice of climbing with rope routes (usually no more than one pitch), using some (a few!) quick placements, or placing some pitons in cracks using only the hands. The performance in "headpointing" occurs after working the pitch for a certain time, usually with the rope from above. In "headpointing" is not accepted nor the use of the hammer to plant pitons, which in fact are fixed by hands pressure ("*hand placed pegs*"), nor to drill holes for bolts. Headpointing is the kingdom of "E" Scale, although this was originally designed for the "commitment evaluation" of "on sight" climbs. But of course, one thing is to climb "on sight" a level easily affordable for the climber ability, another very different is to climb "on sight" a route to the limits of our technical skills requiring a huge psychophysics and psychological commitment, given that in this activity placements are almost always aleatory. The mentality that pushed this type of climbing was the need that some British climbers felt in the mid-80s to go beyond the technical difficulties acquiring an additional difficulty as the psychological one. Obviously, the level of difficulty is in constant evolution and current challenges are the climb of extreme routes "on sight" i.e. without prior study or work.

ENGLISH ADJECTIVAL SCALE AND "E GRADE" (GLOBAL COMMITMENT)
Easy; E
Moderate; M
Difficult; D
Very Difficult; VD
Hard Very Difficult; HVD
Mild Severe; MS
Severe; S
Hard Severe; HS
Very Severe; VS
Hard Very Severe; HVS
Extremely Severe 1; E1
Extremely Severe 2; E2
Extremely Severe 3; E3
Extremely Severe 4; E4
Extremely Severe 5; E5
Extremely Severe 6; E6
Extremely Severe 7; E7
Extremely Severe 8; E8
Extremely Severe 9; E9
Extremely Severe 10; E10
Extremely Severe 11; E11
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Tab. 1b : English Adjectival Scale

### ***1.5 The Elbsandsteingebirge Scale (Dresden Scale or former "D.D.R.")***

Even the Elbsandsteingebirge (also known as "Scale of Dresden") Rating Scale is one of those scales (Tables 1a and 1d) specific to a climbing area. The name of this scale comes from the large hilly plateau crossed by the Elbe (which here cut a sort of canyon about 120 m deep) in the southeast of Dresden, in the southern Saxony and northern part of Bohemia. The erosion of ancient masses of sandstone gave rise to the formation of towers and spires very characteristic, with a rock of good quality despite the outward appearance. The dominant ethical rule here, codified since 1913 by Rudolf Fehrman, has always been that the large nails (now there are often rings cemented or at expansion, placed during the first ascent) are used only for belaying, that is as a stop point. Generally, these rings are positioned about every 25 m., while for any intermediate placements using nodes (properly constructed) on rope rings stuck in the cracks. The rules, over time, have been subsequently changed and evolved and in recent decades it has appeared also sport climbing, with all its consequences. Despite this, the approach to climbing by local enthusiasts continues to keep alive the traditions and the ethic proposed by "vertical pioneers" of these lands. The Scale of Difficulty developed once in these areas was, and still is, quite different from the one used in the Alps, even if with the UIAA scale it has in common Roman numerals. Since its birth the Dresden scale has always been open upwards and currently it starts at "I" grade and arrives at "XIb" (perhaps even more), and from level VII onward it provides for three adjectival classifications (a, b, c) for each grade. As the English Scale, it is not easily comparable with other scales, as many variables are included in the evaluation, such as the route length, the total psychological commitment, the placements distance, the risk, the random stops, the technical difficulties, etc. ...

### ***1.6 The Scandinavian Scales***

The Scandinavian countries (Norway and Finland) have difficulty scales numerically different but very similar. They are based on Arabic numerals followed by the "+" or "-" and have evolved in parallel with the difficulty of climbing on the main mountain ranges in Europe. While in Norway the scale starts from number "3" which corresponds approximately to the "III" UIAA, in Finland the lowest grade is "5 -", which corresponds to "IV+" UIAA. The highest levels achieved instead by the two scales are respectively the grade "11" for Finland and the "10 +" for Norway, which correspond roughly to the XI grade UIAA. Although similar in the representation, these two scales differ in the use and probably both writers and users should have definitely found quite a few differences.

### ***1.7 The American Scale (YDS Decimal System)***

The American Scale of Difficulty (Tables 1, 1c and 1d) is a decimal system based on the "Sierra Club System", a system introduced in 1937 that was once a variant of the *Welzenbach* method. In the 50's, this system was modified in order to give a more precise description of rock climbing, practiced on Tahquitz Rock, California, adding a decimal to the "class 5" of the system and creating what is now known as the *Yosemite Decimal System (YDS)*. Effectively the system has been improved in the Yosemite Valley. It divides the "terrain" in "categories" or "classes", based on the techniques that should be applied to make an ascension. There are configured initially "5 classes" that divide the difficulties from a "difficult excursion" (it starts from this level) up to the beginning of climbing with rope, which corresponds to "class 5" (Table 1c), beyond which you start to add a decimal.

The YDS Scale is therefore, in principle, based on five theoretical grades (classes) of difficulties, but, beyond the "class 5" (5.0), we start to use the decimal point. The "class 5" initially was limited to a range that went from "5.0" to "5.9", but in the 60's the technical climbing level increased to such an extent that it became necessary to introduce a scale structured in an open way. It was so broken down the wall of the decimal "9", introducing the decimal "10" and continuing thereafter until the "15" decimal grade (Dec. 2012). Above the "5.10", the degrees are further divided into **a, b, c, d** (with the possibility to use the sign

"+" (plus) and "-" (minus) to represent the difficulty of individual steps, or indicate with a "+" (plus) an entire pitch that presents a difficulty uniform to indicated class, while the sign "-" (minus) is used to indicate that in the pitch there is only one step of the indicated difficulty. Given that the level **5.0** corresponds to a **III<sup>^</sup> UIAA grade**, classes ranging from "**5.0**" to "**5.7**" can be interpreted as an average climbing level, while on the difficulties between "**5.8**" and "**5.9**" specific climbing techniques and preparation are requested to face climbing of high commitment that can reach up to "**5.10**". In classes ranging from the "**5.11**" and the current "**5.15**" it is identified a climbing terrain for extremes climbers, which requires training and objective and subjective technical skills, and where free climbing can be the result of study and preparation of the itinerary: the so-called "working." Usually, the YDS scale evaluates only the most demanding passage of the route and does not provide guidance on the overall difficulty, the existing placements, its exposure and the effort required by the climb, assessments that integrate a classification of ascent and which will be discussed in the following paragraphs.

<b>"YDS SCALE" FIRST 5 CLASSES</b>	
<b>Class 1</b>	Walking on an even, often planar, surface with a low chance of injury, and a fall is unlikely to be fatal
<b>Class 2</b>	Hiking up steep trail
<b>Class 3</b>	Steeper scrambling with increased exposure and a greater chance of severe injury, but falls are not always fatal
<b>Class 4</b>	Easy climb, often exposed. Class 4 can involve short steep sections where the use of a rope is recommended, and un-rope falls could be fatal.
<b>Class` 5</b>	Class 5 is considered true rock climbing, predominantly on vertical or near vertical rock, and requires skill and a rope and the use of hardware or anchors to ascend safely. Un-rope falls would result in severe injury or death

*Tab. 1c : The American scale of difficulties on rock (YDS)*

### **1.8 The Australian Scale**

As the *Elbsandsteingebirge* scale, also the *Scale of Australian Difficulties* (Tables 1a and 1d) is not a simple comparison with the other scales of difficulty. The Australian scale, also used in Tasmania and New Zealand, in order to define the technical steps on rock, has grown considerably over the last 30 years, thanks to numerous contacts with U.S. climbers (and North America ones in general). In particular, in the Arapiles area, where currently more than 3000 routes are listed, climber groups have developed fundamentalist visions of climbing. It was thus developed an approach to the walls, called "*Hammerless*", without hammer and pitons, entirely replaced by quick placements. Then, not only on the Arapiles, but also on other Australian cliffs, next to the "Hammerless" system, fixed placements have made their appearance in sport climbing, a discipline that also here in a short time had a good spread, although link with tradition is still strong. Therefore, it is always necessary to make detailed inquiries about the types of placements you can find on your route, since, especially on the old guides, was frequently the "*sandbagging*", i.e avoiding to indicate in the route report the low number or the difficulties of placement. The *Australian Scale of Difficulty* was born in 1967 from an idea of the climber *John Ewbank*, who realized that the *English Scale of Difficulties*, used hitherto in Australia, however, had weaknesses. It was then that he proposed the system which then took his name, beginning with "**1**", and without posing any limit new grades have always been added based on the climbing evolution. It is therefore a logical numerical sequence, without adjectival sub-classifications, which continues forward, and now has reached the grade "**35**".

### **1.9 The Brazilian Scale**

The beginning of "carioca" climbing dates back to 1912 with the ascension of the "God Finger" in Teresopolis, a city located about 150 km from Rio de Janeiro. This one gave rise to the birth of some Club for the development of "*montanismo*", a term which in itself summed mountaineering and climbing, both

free and aid. Later on, a great impulse to the practice of climbing in Brazil was given by the visit of well-known representatives of world alpinism, who introduced the concept of “climbing party” (two climbers linked by a rope which alternatively take the lead), as until then only the team leader really climbed, while the others were ascending along fixed ropes. In the '70s and '80s there was a renewal of means and methods with the introduction of fast placements and bolts; moreover, there was a growth of free and sport climbing, and, more recently, of bouldering. In Brazil too there is a system of classification of the difficulty on rock (Table 1d). This is composed of two parts: the first part indicates the overall level of difficulty, considering the route in its entirety. It ranges from grade **"one"** to **"eight"**, and could be described as a sort of *"Scale of global engagement"*. The other part, the most known and used, defines the technical difficulty of the hardest passage in free climbing (or sequences in free climbing with no rest) and uses Roman numerals (sometimes followed by *"sup."*), up to a difficulty that might be called classic, **"VI<sup>sup.</sup>"** corresponding to **VII + UIAA**, but then the next grade is configured with the Arabic numeral **7** followed by the letter **"a"** and following the Arabic numerals are represented by the letters **"a, b, c"** as the French scale. The maximum level reached so far is the **"12b"**.

### ***1.10 The South African Scale of Difficulties***

South Africa is a land of many contrasts, where there are savannah, hills, cliffs, boulder areas and highlands with peaks and rock walls. The Southern Africa is like a huge plateau with raised edges towards the ocean and depressed in the center, where the South African one has a significant role and towards South ends with the Great Karroo. The South African classification system on rock uses its own scale of difficulty very similar to the Australian one (Table 1d). It is an open numerical scale, adopting Arabic numerals, which does not require the use of levels **"-"** (lower) and **"+"** (upper). For instance, the **"13"** corresponds to **"IV+" UIAA** grade, after which the scale continues increasing of a digit whenever the difficulties "increase" even slightly. Therefore, there will be increasing numbers every time that difficulties increase even of only half a grade, until reaching currently at **"34"** (or, in the meantime going beyond) roughly corresponding to **"XI-" UIAA**

### ***1.11 Other Scales of Difficulty on Rock***

The Scales of Difficulties presented are certainly the most known and used, but they are not the only ones. To these, one could still add some scales on rock as those of the former Soviet Republics, the Alaskan Scale (described in a later section), and more. The list could be long, and also the explanation. What matters is to be able to get information about the scale of difficulty adopted for the classification of the route that you want to face, trying to remain, for the first approaches, always below your limits. As for the comparison tables, they never take into account the status and philosophy adopted to climb the wall or the passage about which the evaluation is expressed, but they want to parameterize, with a good tolerance, the various technical difficulties.

A comparison chart for some of the free climbing rating systems in use around the world:

Free Climbing Grading Systems									
YDS (USA)	British Tech/Adj		French	UIAA	Saxon	Ewbank (Australia, NZ & South Africa)	Finnish	Norwegian	Brazilian
5.2			1	I	I				Isup
5.3			2	II	II	11			II
5.4			3	III	III	12		3	IIIsup
5.5	4a	VD	4a	IV	IV	12		4	III
5.6		S	4b	IV+	V	13	5-	5-	IIIsup
5.7	4b	HS	4c	V	VI	14	5	5	IV
5.8	4c	VS	5a	V+		15			
		HVS	5b	VI-	VIIa	16	5+	5+	IVsup
5.9	5a	E1	5c	VI	VIIb	17		6-	V
5.10a			6a	VI+	VIIc	18	6-	6-/6	VI
5.10b	5b	E2	6a+	VII-		19		6	VI/VI+
5.10c			6b	VII	VIIIa	20	6	6+	Visup/VI+
5.10d	5c	E3	6b+	VII+	VIIIb	21		7-	Visup
5.11a			6c		VIIIc	22	6+	7	7a
5.11b			6c/c+	VIII-		23			7b
5.11c	6a	E4	6c+		IXa	24	7-	7+	7c
5.11d			7a	VIII	IXb				7c
5.12a		E5	7a+	VIII+	IXc	25	7+	7+/8-	8a
5.12b			7b			26	8-	8-	8b
5.12c	6b	E6	7b+	IX-	Xa	27	8	8	8c
5.12d			7c	IX	Xb	28	8+	8/8+	9a
5.13a		E7	7c+	IX+	Xc	29	9-	8+	9b
5.13b	6c		8a				9	9-	9c
5.13c		E8	8a+	X-		30	9+	9-/9	10a
5.13d		E9	8b	X		31	10-	9	10b
5.14a	7a	E10	8b+	X+		32	10	9/9+	10c
5.14b		E11	8c			33	10+	9+	11a
5.14c	7b	E12	8c+	XI-		34	11-	10-	11b
5.14d			9a	XI		35	11	10	11c
5.15a			9a+	XI+				10+	12a
5.15b			9b						12b

The following grades are used for the rating of boulder problems throughout the world. Although fundamental differences in climbing style make direct comparison between bouldering and route climbing difficult, the colors in the above and below tables roughly correspond to equivalent sets of grades.

Table 1d : Comparison of scales of difficulties on rock (Wikipedia)

## 2. EVALUATION OF DIFFICULTIES IN AIDED CLIMBING

A separate discussion is deserved to the scale for the classification of Difficulties in Aided Climbing on rock, a discipline a bit neglected in Europe, but that in the United States has become a favorite of many fans. There are several parameters in the use of the same Scale (Table 2; 2b) and the abbreviations (**A0, A1, A2, A3, A4 and A5**), are interpreted according to the type of climbing, which in the United States is quite different than that practiced in Europe.

### 2.1 Aided Climbing in the States

The overseas mentality of aided climbing and consequently also the "Scale of Difficulty in Aided Climbing" is designed according to the length of a potential fall and to the risk of accident (Tables 3, 3a), partly because materials and means used are quite aleatory and the detachment of a point of progression can sometimes determine the collapse of several others. Assessing aid routes means to indicate the commitment required to

place the various placements and the "quality", or reliability in terms of safety, of the same placement devices. The American Scale of Difficulties in Aided Climbing (Tables 2, 2b) is currently from "A0" to "A5", or from "C0" to "C5". The symbol "A" indicates the aided climbing in general (the one with the aid of pitons, bolts and similar devices or wedges/bongs), while the letter "C" indicates the clean, or ecological, climbing i.e. without hammer and with the only use of quick placements, often aleatory, which do not permanently damage the rock. When a route is classified with the system C0-C5, the climber should climb by adopting the "ecological style", i.e. using only quick placements and without hammer and/or pitons (*hammerless*).

<b>USA SCALE OF DIFFICULTY IN AID CLIMBING</b>	
<b>A0 o C0</b>	On the route there are fixed placements
<b>A1 o C1</b>	On the route, it is easy to place placements and each of them is, theoretically, capable of sustaining a fall. It is often used the "free French" system, where you go up by grabbing the fixed placement
<b>A2 o C2</b>	The placements are solid, but it could be difficult to place them and also, on the total number of placements, a couple of them may be inefficient and unreliable
<b>A2+ o C2+</b>	It presents a difficulty as A2, but the chances of falling are greater, even from heights ranging from 6 to 10 meters
<b>A3 o C3</b>	The ability to protect the route is quite difficult, requiring several hours to complete a pitch and there is the real possibility of a flight of 18-24 meters, but without the risk of touching the ground or sustaining serious injuries. Before being used, the placements need to be tested
<b>A3+ o C3+</b>	As grade "A3", but there is the possibility of suffering serious injuries in a fall. The placements are not very resistant
<b>A4 o C4</b>	There is the possibility of a fall of 24-30 meters, with a very dangerous landing, with placements able to bear only the weight of the climber
<b>A4+ o C4+</b>	As grade "A4", but with even more dangers and more time to complete the climb
<b>A5 o C5</b>	Along the route, the placements are able to bear only the weight of the climber for an entire rope pitch and there are no solid placements, as bolts. A fall of the team leader on a pitch of grade A5 may involve a flight of 90 meters
<b>A5+</b>	With this degree, it is indicated a theoretical classification, but in recent climb it has been reached. It indicates difficulties as those of "A5", but with precarious placements and of poor quality. In case of a fall, the climber falls to the ground
<b>-----</b>	-----

**Table 2 : USA Scale of Difficulty in Aid Climbing**

The aid climbing classification, anyhow, is subject to constant changes, as the climbing reaches higher and higher levels, often unimaginable. For example, a route that was once evaluated as "A4" could have been climbed several times by adding pitons, to the point of presenting new slits able to accept the position of other placements. In addition, the use of "friends" and other very recent materials designed for aid climbing can facilitate a climbing until recently considered "hard", transforming it in a fairly easy climb. It is no coincidence that some routes once considered of "A5" grade, based on the current levels have been reduced in rank, thus being reclassified as "A4" or even "A3".

Jim Bridwell, well known American climber, very experienced in opening routes in *Yosemite Valley* and the mountains of all continents, has developed a unique table for the classification of difficulty in Aid Climbing, which reflects the mental attitude that must have a climber who wants to try this type of climbing. (Table 2a).

<b>"BRIDWELL" TABLE FOR AID CLIMBING EVALUATION</b>		
<b>NBD</b>	<b>No Big Deal</b>	<b>Easy aid climbing without any particular danger (A1/A2)</b>
<b>NTB</b>	<b>Not Too Bad</b>	<b>Aid climbing that can take time and be a little scary, but not really dangerous if you know what you're doing</b>
<b>PDH</b>	<b>Pretty Damn Hard</b>	<b>Difficult aid climbing that will take a long time. Frightening placements: to place them you need a lot of skill and concentration. Dangerous situations</b>
<b>DFU</b>	<b>Don't Fuck Up</b>	<b>Aid climbing not harder than PDH, but that can lead to a mortal fall (or really dangerous)</b>

**Table 2a: Bridwell scale of difficulty in aid climbing**

## **2.2 The Aid Climbing in Europe**

Unlike the American scale, the "*Scale of European Difficulty in Aid Climbing*" (Table 2b) uses the same symbols but introduces the parameter of the effort that must be done to overcome the wall sections with aid means and/or modes. The concept of "*risk*" is introduced and highlighted only in the last grade. It remains too an open scale, although in this regard the considerations made above about the *Scale of the American Difficulty in Aid Climbing* are still valid.

<b>EUROPEAN TABLE OF AID CLIMBING DIFFICULTIES</b>	
	The difficulties evaluated in aid climbing are overcome with the use of artificial tools (pitons, blocks, nuts, friends, cords, stirrups, etc.) used for the progression. It is also considered as aid climbing the use of an artificial medium not for the progression in the strict sense, but also only for the accommodation of subsequent progression
<b>A0</b>	It is the minimum grade of use of material for the progression. Normally it consists of pulling on gear or a piton already hammered, without any particular difficulty, or use of rope for special maneuvers
<b>A1</b>	It may involve the use of a stirrup or a cord and may be necessary to add material for the progression
<b>A2</b>	At this level of difficulty it begins to be required a certain amount of experience to manage the effort to hammer with difficulty, to overcome overhangs or to reach placements a bit far on smooth slabs using double stirrups
<b>A3</b>	Higher technical difficulties in handling and installing placements; often the climber has to face very pronounced roofs
<b>A4</b>	It is fundamental the use of modern tools of aid progression (cliffhangers, rurs, skyhooks, in particular nuts made of "spreadable" materials as copper and brass), and therefore the security, beyond the belay, assumes a certain degree of precariousness
<b>A5</b>	An higher risk of falling and ripping the material from the wall

**Tab. 2b : The European scale of difficulties on Aid Climbing**

### **2.3 The Aid Climbing in Australia**

Even in Australia, there is a Difficulty Scale of Aid Climbing, which is configured as **Scale M** (where **M** stands for "*Mechanical*", to indicate the use of aid tools). This scale currently includes eight degrees, from **M1** to **M8**; this one corresponds approximately to the **A5** of the *American Scale*.

## **3. GLOBAL DIFFICULTIES**

### **3.1 UIAA global difficulties**

The difficulties as a whole are more or less the description and classification of the environment in which the route you want to climb is located. They are necessary when the environment presents some characteristics for which it is not sufficient to give only an assessment of the technical difficulties but it must take into account the factors related to:

- *length of the route*
- *type of gear placement*

- *possibility of retreat*
- *isolation*
- *approach and descent*
- *objective dangers*
- *route finding and other factors that weigh heavily on the success of ascent*

This concept is mainly related to the letters **F, PD, AD, D, TD, ED, EX** (Table 3), introduced by UIAA and often misused to express evaluations that have nothing to do with the concepts set out above. These acronyms **DO NOT correspond to the degrees UIAA I, II, III ... VII** and so on, but they are an information which, more than the moves technical difficulties, give an overall assessment that defines the characteristics of a climb. Thus there is a "double entry" Scale, with a classification of the overall difficulties and a set on the highest technical difficulty. A typical example can be done for some climbing routes on high mountain, which should be evaluated together with overall difficulties as they may have long and dangerous approaches and descents. The overall difficulty is by definition a set of factors that contribute to summarize in an abbreviation an immediate judgment on the level of ascension, that the more complex the more should be accompanied by details (comments, recommendations, etc. ...). Evaluations, as indicated in Table 3, take into account the difficulty of the various moves, continuity, **exposition** and length of ascension. Each level is divided, as grades are, in a sub evaluation "**lower**" ("**inf.**") and "**upper**" ("**sup.**"). The overall assessment, as indicated, takes into account a number of factors, not the single move, which could also be of a higher difficulty than the average route difficulty, but that could be only sporadic and does not alter the overall level of difficulty and such to require the use of a higher level than that adopted for the route under exam.

The overall U.I.A.A. Scale does not produce confusion of numbers or symbols and should be adaptable to any mountain group, as was proposed in the first pages of the volumes of the "Guide to the Mountains of Italy", where an entire chapter was devoted to the description and parameterization of the ascensions on the mountain group in exam. This work, of great value, was followed by *Gino Buscaini*, who left nothing to chance and often questioned the goodness and the quality of his choices, which pondered with great wisdom, under any circumstances without pursuing new fashions or unrealistic trends.

U.I.A.A. SCALE	
OVERALL DIFFICOLTY EVALUATION	
F	FACILE (EASY)
PD	PEU DIFFICILE (A LITTLE DIFFICULT)
AD	ASSEZ DIFFICILE (FAIRLY HARD)
D	DIFFICILE (DIFFICULT)
TD	TRES DIFFICILE (VERY DIFFICULT)
ED	EXTREMEMENT DIFFICILE (EXTREMELY DIFFICULT)
EX	EXCEPTIONELMENT DIFFICILE (EXCEPTIONALLY DIFFICULT)
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Tab. 3 UIAA overall difficulties Scale

### 3.2 The Global Commitment American Scale

The overall U.I.A.A. Scale is not the only one. American climbers, through the **National Climbing Classification System (NCCS)**, have in the past introduced, for the evaluation of their "big walls", the so-called "grade", an open scale of global commitment, which replaces the UIAA one (TD, ED, etc.). This scale (Table 3a) begins with the "**I grade**" and now reaches the "**VII grade**", taking into account, for the definition of the global commitment level, the length and duration of the climb, the continuity of the difficulties, the number of challenging pitches, the level of difficulty of the key pitch, the average difficulty of all pitches,

possible problems in finding the route, the climbing time, the isolation, the overall difficulty of approach to the route, etc. . . . Obviously, as the degree of difficulty increases, so does the level of physical and mental preparation and commitment required to the climber.

It should be added, however, that this classification system, like others, is a subjective method. In fact, as in most cases, some routes of Yosemite Valley, which for decades occupied the highest levels of the American Scale of Global Commitment, in a few years have been downsized due to the evolution of climbing and placement ways.

Another scale which shall include an overall assessment is the English Adjectival Scale or the "overall assessment" one, improperly known as "E" Scale. However, as noted in Section 1.4, the evaluation of this scale is centered exclusively on the route (and not on overall environment), assessing the overall length and the physical (and psychological ...!) effort. For this reason, it does not include all the above requirements to assess the difficulties of the whole and is beyond the scope of this paragraph.

<i><b>GLOBAL COMMITMENT AMERICAN SCALE( BIG WALL)</b></i>	
<i><b>I grade</b></i>	Normally, the ascent takes a few hours, is easily accessible and in a short time, but it may have some short technical difficulty, not complicated
<i><b>II grade</b></i>	The climb takes about half a day and has some technical difficulties
<i><b>III grade</b></i>	The climb has a technical section that, to be overcome, takes about a day and presents average technical difficulties higher than those found in previous grades
<i><b>IV grade</b></i>	The climb has a technical part that takes a whole day for overcoming it, and usually the more difficult pitch of the route is not less than "5.7" (YDS scale)
<i><b>V grade</b></i>	The very long climb, big wall style, usually requires a day and a half to be completed, a bivouac on the wall and the more challenging pitch is generally equal to "5.8" or higher (YDS scale)
<i><b>VI grade</b></i>	The climb (big wall), to be completed, lasts for several days and has many difficult lengths of free and/or aid climbing
<i><b>VII grade</b></i>	Exasperation of previous grade, where the climb, to be completed, requires a long time, more than the previous one, has even more challenging lengths of free and/or aid climbing and requires an approach similar to an expedition
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*Tab 3a : USA Global Commitment Scale (Big Wall)*

### *3.3 The Former Soviet Countries Overall Difficulties*

The scales adopted in the former Soviet countries are quite similar, even if they began to differentiate after the independence of many countries in Eastern Europe. The Soviet scale of evaluation of the overall difficulties has a basic structure formed by Arabic numerals followed by the letter **A** or **B**. This open overall scale usually indicates the most difficult route move and is parameterized with the **UIAA Overall Scale**. In Romania, for example, the level **1A** is the starting point of the scale and is compared to the level **F** of the UIAA scale, while for example the level **4B** is on the same level of D sup. (Table 3b)

Russian	European Alpine
1A:	F
1B:	F+
2A:	PD
2B:	PD+
3A:	AD
3B:	AD+
4A:	D
4B:	D+
5A:	TD
5B:	TD+/ED1
6A:	ED1/2
6B:	ED2 and above.

*Tab. 3b : Former Soviet Countries Overall Difficulties Scale (Buscaini Archive)*

### 3.4 Alaskan Overall Difficulties Scale

The *Alaskan Overall Difficulties Scale* has six grades expressed in Arabic numerals from **1** to **6**. It was conceived by *Boyd N. Everett Jr.* in 1966, and currently it is still a valuable reference for climbing in this part of North America, where environmental conditions put a strain on any mountaineer. To the six degrees of the scale, you can add a "+" (plus) which states that the difficulties have some continuity, without reaching the upper grade.

- Alaska Grade 1: Climb requires one day only, no technical (fifth-class) climbing.
- Alaska Grade 2: Either a moderate fifth-class one-day climb, or a straightforward multiday nontechnical climb.
- Alaska Grade 3: Either a serious fifth-class one-day climb, or a multiday climb with some technical elements.
- Alaska Grade 4: Multiday, moderately technical climb.
- Alaska Grade 5: Multiday, highly technical climb.
- Alaska Grade 6: Multiday, extremely technical climb.

A plus (+) may be added to indicate somewhat higher difficulty. For example, the West Buttress Route on [Mount McKinley \(Denali\)](#) is graded 2+ in the above-mentioned guidebook.

It is important to remember that even an Alaska Grade 1 climb may involve climbing on snow and glaciers in remote locations and cold weather.

*Tab. 3c : Alaskan Overall Difficulties Evaluation Scale (Wikipedia)*

Other Overall Difficulties Evaluation Scales are used in other parts of the world, as in France in the area of Mont Blanc, in New Zealand, or the same Canadian Overall Scale; those scales, however, concern the glacial terrain and will be examined in the paragraph "Difficulty on Ice".

### 4. A NEW PROPOSAL FOR EVALUATION OF CLASSIC (TRADITIONAL) AND SPORT ROUTES: The "Extended Evaluation"

Currently, however, mountaineers and climbers, have some needs that go beyond the classical evaluations that can influence the choices of routes: the placements. Realizing this need, the Italian Alpine Guide *Nicola Tondini* has conceived a "triple entry" Scale of Difficulty based on the *overall evaluation*, the *placement characteristics* and the *technical evaluation*. This system, adopted in several guides and publications, is satisfactory and in some guides, or collections of routes, where the terrain is homogeneous, it achieves a high level of synthesis. The novelty of this scale is the introduction of the abbreviations for six levels of placement, **R1** to **R6** (Table 4; "R" stands for "Risk"), depending on the distance and quality of anchors and the possibility of integration of placement over classic pitons, while, when the placements are based on bolts or fixes, the acronyms, again on six levels, are ranging from **S1** to **S6**. (Table 4, "S" stands for "Spit (Bolt)"). If the route is based on a "mixed" gear placement (nuts, cams, pitons and bolts), the term used is "RS" with the usual six levels.

<b>"PROTECTION LEVEL SCALE" TABLE</b>	
<b>R1</b>	Easily protectable with placements always solid, secure and numerous. Limited mandatory traits. Potential length of a fall: a few feet and a flight without consequences
<b>R2</b>	Protectable in average with placements always solid and secure but more sparse. Mandatory traits required between placements. Potential length of a fall: a maximum of a few meters and a flight without consequences
<b>R3</b>	Hardly protectable with placements not always good and quite distant. Long mandatory traits. Potential length of a fall: up to a maximum of 7-8 meters and a flight with possible injury
<b>R4</b>	Hardly protectable with little or unreliable and/or remote placements that would support only a short fall. Long mandatory traits. Potential length of a fall: up to 15 meters with the possibility of leakage of anchors and flight with probable injury
<b>R5</b>	Hardly protectable with rare placements, unreliable and distant that would support only a short fall. Long mandatory traits. Possibility of long falls and leakage of anchors that can determine a flight to the ground with sure injury
<b>R6</b>	Unprotectable except for brief and insignificant traits far from the key moves of the pitch. A possible fall can have even lethal consequences
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<b>S1</b>	Normal bolt placement, like the one used in cliff climbing. Distance never exceeding 3-4 m between a bolt and the

	other. Potential length of a fall: a maximum of a few meters and a flight without consequences
<b>S2</b>	Spaced bolt placement and mandatory traits required between placements. Potential length of a fall: a maximum of ten meters and a flight without consequences
<b>S3</b>	Spaced bolt placement and almost always mandatory moves. Distance between bolts even more than 5 meters, long flights but not too dangerous
<b>S4</b>	Very spaced bolt placement (over 7 meters), mandatory moves. A fall can potentially cause an accident
<b>S5</b>	Bolt placement over 10 m, mandatory moves and sections where a fall can definitely cause an accident (fall on terraces and ledges or on the ground)
<b>S6</b>	Only partial bolt placement, positioned far from key moves, very long traits, even over 20 m, in which a fall may have even lethal consequences
-----	-----

**Tab. 4: Protection Level Scale**

The overall scheme is integrated with technical difficulties in *UIAA Scale or French Scale*, depending on the type of route (*classic or sport*), and an overall evaluation of seven levels expressed in Roman numerals, corresponding to the *American Global Commitment Scale* (Tables 3a; 4a). In some cases, when the complexity of the climbs so requires, it is also added an evaluation with the *Overall Difficulties UIAA Scale*, not overlapped on the global commitment scale. To give some practical examples, a low altitude sport climbing, requiring a strong commitment and with few and distant fix placements, can be evaluated (**7b/S3/II**), while a classic and at high altitude route, with a long and complex approach and descent, will have an assessment of (**V/R3/IV**).

<b>ITALIAN VERSION OF THE AMERICAN GLOBAL COMMITMENT SCALE</b>	
<b>I</b>	A short route requesting few hours, near the road and with easy approach, sunny atmosphere and comfortable withdrawn
<b>II</b>	A route of some lengths on a wall exceeding 200 m, easy to approach even though it may take a fair ride, comfortable withdrawn
<b>III</b>	A route over 300 m long, harsh environment, it takes nearly the whole day to be exceeded. It may take a long approach and retreat may not be fast
<b>IV</b>	Long route, in excess of 500 m, on a severe wall and far from the valley floor. It takes a full day to be exceeded. The retreat can be complicated and do not take place on the line going up
<b>V</b>	Very long route, big wall style, normally it takes a bivouac in the wall. Retreat difficult, harsh environment
<b>VI</b>	Big wall that requires several days spent on the wall, high mountain environment, difficult retreat
<b>VII</b>	All the characteristics of the VI degree, but exasperated, as in the case of Himalayan big-walls needing an expedition to be overcome
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**Tab. 4a : Table of Italian Global Commitment Scale**

Some would argue that with this system there is a risk of confusing technical engagement with the global commitment, as both are expressed in Roman numerals, but for now the versions of these extended assessments are designed in this way; perhaps over time it will be possible to have clearer versions. To avoid confusion, it should be noted that the technical effort opens the evaluation, while the global one closes it. The main purpose of the "Extended Evaluation " is to give a complete picture of the climbing at first glance and in some cases it can be said that the system works. But in other situations, with a complex climbing, the simple sketch of the route, which usually completes the description given by acronyms, is not enough, even if it is equally true that when a climb is spread over an articulated wall and requires a considerable physical and psychological effort as well as a good experience, a written report should always supplement the graphics and complete in this way the presentation of the route.

The protection level (and risk of flight) of a route had already been classified in 1980, using a *Gravity Scale* by *James Erickson*. There are several versions of the same scale and to understand them it is always suggested to read the indications on the publication itself. The classifications start with the letter "**G**" (**Good**), indicating solid protections, and after five levels they end with the letter "**X**" testifying that there is no protection and the extreme danger of the route (Table 4b).

### YDS protection rating

An optional [protection](#) rating indicates the spacing and quality of the protection available, for a well-equipped and skilled leader. The letter codes chosen were, at the time, identical to the [American system for rating the content of movies](#):

- G – Good, solid protection ground up
- PG – Pretty good, few sections of poor or non-existent placements
- PG13 – OK protection, falls may be long but will probably not cause serious injury.
- R – Runout, some protection placements may be very far apart (possibility of broken bones, even when properly protected)
- X – No protection, extremely dangerous (possibility of death, even when properly protected)

The G and PG ratings are often left out, as being typical of normal, everyday climbing. PG13 ratings are occasionally included. R and X climbs are usually noted as a caution to the unwary leader. Application of protection ratings varies widely from area to area and from guidebook to guidebook.

*Tab. 4b : Gravity Scale (James Erickson 1980)*

## 5. ICE CLIMBING DIFFICULTIES

To illustrate the difficulties in ice climbing has always been used the method of measurement (in degrees) of the "*inclination*" of a slope, or of the angle that the same slope forms with an ideal horizontal plane. The "*slope*", sometimes referred to incorrectly, instead corresponds to the trigonometric tangent of the same angle and is the ratio between the gradient and the base segment. It is expressed in "*percentage*", assuming the base segment equal to 100. In this way a slope inclined at  $45^\circ$  will have a slope of 100%, while, as a limit case, an inclination of  $90^\circ$  will correspond to a slope of infinite value.

To the "*inclination*" of the slope it was always preferred the overall assessment, that is **F, PD, AD, D**, etc.. and this system has worked for years because, by pairing the highest technical evaluation to the overall evaluation, and thus constituting a *Double Entry Scale*, it was possible to provide a summary of objective dangers, isolation, risk and other situations that can be met in a high mountain environment. For example, for the evaluation of an on ice and mixed route, the abbreviations could be: **D, 60°, IV**. As can be seen the evaluation is clear since the abbreviations are very different from each other and, consequently, not creating confusion. But since waterfall climbing techniques have been developed, things are a bit changed: often you use the *Canadian Scale*, born to classify waterfall climbing, also to assess the classic ice routes.

### 5.1 The Canadian Scale

The *Canadian Scale* too (Table 5) is a double entry scale that is based on an overall evaluation and a technical evaluation of the more difficult pitch. It was introduced in Europe to evaluate iced waterfall climbing around 1985 and it consists of *six levels*, expressed in Roman numerals for the overall evaluation and Arabic numerals from **1 to 7 +** for the technical evaluation, open of course to the top. With the evolution of technology and the rise of the overcome difficulties, some abbreviations have been introduced to specify some details, not insignificant, regarding the ice structures. Thus appeared the letters "**M**" to indicate mixed traits, "**R**" to indicate thin ice and "**X**" to indicate the fragility of a structure. The codes **M, R and X** are configured as open scales with progressive Arabic numerals that increase the level of difficulty and risk of the structure. So the evaluation of a waterfall can be configured with the following tags: **IV, 5+, M3, R2, X1**, which should give the climber a complete picture of the difficulties that he will encounter during his climb. A possible, but not least, additional information may be the exposure of the waterfall as the hours of sunlight or extreme cold can lead to changes in the quality and structure of the ice.

Nowadays, the structure of the Canadian Scale is used to evaluate both ascents with "piolet traction" technique in high mountain and classic climbing. The appearance of these scales, parameterized on mountain climbing, however, can cause some confusion, as if on the route you encounter rocky moves, the *Overall Evaluation* (with Roman numerals) could be confused with the evaluation of Difficulties on Rock (**UIAA scale**), unless an indiscriminate use of the letter "**M**" (*mixed*). This abbreviation was introduced by *Jeff Lowe*

(one of the leading innovators of ice climbing) and reached the maximum level of evaluation with *Stevie Haston*, who overcame difficulties up to grade **M10**. It was climbing, sometimes using their hands, sometimes using the appropriate tools for the progression on ice. Lately, the same scale is used indiscriminately to evaluate either climbs with the aforesaid principles or to indicate the difficulty of "*dry tooling*" races, i.e. climbing on natural or artificial rock walls with ice tools, with picks particularly curved and, obviously, crampons.

**Tab. 5: Canadian Scale (overall and technical)**

As you can see, some specializations sometimes intrude into others, and those who want clear references are forced to be constantly documented. Unfortunately, sometimes the same users of these disciplines are creating sectors closed in on themselves, and with the jargon of experts claim to communicate to the world their increasingly amazing performance. The very name "*dry tooling*", coming from the Anglo-Saxon countries, is to indicate sections of rock overcome with ice tools, but applied in classic climbing situations becomes quite ridiculous: there are excellent examples of routes with sections of rock in the middle of a glacial wall and the best definition has always been "*mixed*". The term "*dry tooling*" should be left to races and to the specific situations that may be encountered on waterfalls, that usually, when they present sections of this type, they have in site pretty solid protections. In this regard it is significant a 1999 article written by *Christophe Moulin* and appeared in the journal of *ENSA (Ecole Nationale de Ski et d'Alpinisme of Chamonix)*. The study describes the evolution of ice climbing as something that has not a lot to do with the ice, but with the metallic tools that are used to make progress on any terrain.

In many European ice climbing guides who use the *Canadian Scale*, it is currently used the acronym **WI** to indicate the overall climbing evaluation. The abbreviation **WI** was born in the United States and it means **Water Ice** and his intention is to indicate the type of ice on which you climb, which may differ from **AI (Alpin Ice)** that indicates the ascents on classic (or permanent) ice. Overall and technical evaluations, in fact, are preceded by two different names: **WI** or **AI**, that, followed by the *Overall Evaluation* (in Roman numerals) and *Technical Evaluation* (in Arabic numerals), with the addition of the difficulties of "*mixed*" (**M**) or "*rock*" (**5.9, 5.10**, etc. ...), give an overall picture clear enough to climb.

In conclusion we can say that the technical development of ice climbing, as it was for rock, has led to over-specify the high difficulties, leaving too broad spaces for interpretation in middle and low difficulties. To realize it, just read the definitions of the first technical grade in the *Canadian Scale*:

**Grade 1:** *Steps to 50 ° / 60 °, necessary however experience in the use of ice tool and crampons and knowledge of belaying.* It would be useful to use this scale exclusively on icefalls, where those who are approaching to this type of activity have a proper equipment and a not approximate technique.

## **5.2 The French or Mont Blanc Scale**

To return to the scales for the classification of ice climbing introduced in recent years, it deserves a mention the system used by *François Damilano* and *Godefroy Perroux* (Table 5a), that, in their guide on ice and mixed routes of Mont Blanc, are using a *Canadian Scale* integrated with the classic *Overall Evaluations*, which serve not only as *overall evaluations*, but also as technical evaluations. Practically the first four initials **F**, **PD**, **AD** and **D** are used to classify the technical difficulties up to **50 ° / 60 °**, to go then to grade "**1**" for routes that have long sections at **60 °**, to grade "**2**" for routes with sections at **60 ° / 70 °** and so on. Like the other, it is a *dual entry scale*

and it uses Roman numerals (taken from the *Canadian Scale*) for overall evaluations **by introducing this new system**, which can also produce confusion for the technical difficulties on rock, in case they are expressed with the *UIAA scale*. Obviously the overall difficulties for high altitude climbing, expressed in Roman numerals, are not equivalent to descriptions expressed in the *Canadian Scale*, but they follow specific parameters, developed mainly by French mountaineers with references to known climbing especially in the mountain ranges of Mont Blanc and Dauphiné.

**Scala delle difficoltà su ghiaccio e misto  
introdotta da Francois Damilano e Godefroy Perroux (1994)**

**DIFFICOLTÀ D'INSIEME**

<b>I</b>	Itinerario corto, con poco avvicinamento e una discesa facile.
<b>II</b>	Itinerario un po' più lungo con qualche pericolo oggettivo e una discesa semplice.
<b>III</b>	Itinerario lungo, discesa delicata, con eventuali rischio di pericoli oggettivi.
<b>IV</b>	Itinerario che richiede una buona esperienza alpinistica. Rischi oggettivi, possibile un lungo avvicinamento e una discesa complicata.
<b>V</b>	Itinerario lungo su una grande parete. E' richiesto un ottimo livello di preparazione (ricerca dell'itinerario, buona capacità di assicurarsi). Sezioni difficili e sostenute. Seri pericoli oggettivi. Ritirata difficile. Discesa lunga e pericolosa.
<b>VI</b>	Itinerario lungo che si svolge in ambiente molto severo, difficilmente percorribile in giornata. Difficoltà continue e sostenute. La parete difficilmente raggiunge le condizioni ottimali. Difficoltà nella ricerca dell'itinerario e nelle assicurazioni. Ritirata aleatoria. Grossa esposizione a pericoli oggettivi. Discesa lunga e difficile
<b>VII</b>	Più difficile del livello precedente, può essere meglio o peggio a secondo delle motivazioni...

**DIFFICOLTÀ TECNICHE**

<b>F</b>	Itinerario facile che non presenta difficoltà tecniche.
<b>PD</b>	Itinerario un po' più difficile, necessita di una buona capacità nell'uso della piccozza e dei ramponi e di un minimo di tecnica nelle manovre di assicurazione.
<b>AD</b>	Itinerario che presenta tratti con inclinazioni fino a 45°/ 50°.
<b>D</b>	Itinerario con inclinazioni sostenute e sezioni fino a 50°/ 60°, richiede una tecnica sicura e una buona conoscenza delle tecniche di progressione della cordata.
<b>1</b>	Itinerario che presenta lunghi tratti a 60°.
<b>2</b>	Itinerario che presenta tratti a 60°/ 70° con buone possibilità di assicurazione.
<b>3</b>	Itinerario con passaggi di 70°/ 80° generalmente con ghiaccio buono. Le sezioni ripide sono alternate da buoni punti di sosta che permettono buoni punti di assicurazione.
<b>4</b>	Itinerario con passaggi di 75°/ 85° con eventuali brevi sezioni verticali. Ghiaccio di buona qualità e buoni punti di sosta.
<b>5</b>	Itinerario che presenta una lunga sezione a 85°/ 90°. Necessita di una grande capacità tecnica.
<b>6</b>	Itinerario che presenta una lunghezza molto sostenuta e richiede una tecnica perfetta. La qualità del ghiaccio, gli ancoraggi e le protezioni possono essere aleatorie.
<b>7</b>	Eccezionalmente difficile. Richiede grande padronanza della tecnica e delle emozioni.

Le valutazioni sono completate con le lettere:

- **M**: per una via con tratti di misto
- **X**: la possibilità di strutture a rischio di crollo
- **R**: la segnalazione di ghiaccio sottile

Le difficoltà in roccia sono espresse con la scala francese del passaggio più difficile. Numeri arabi seguiti dalle lettere/ a,b o c.

**Tab. 5a: Damilano-Perroux Scale**

### 5.3 The Scottish Scale

Another method of evaluation of the difficulties on ice, often found in reports of climbing outside Europe, is the *Scottish Scale* (Table 5b). Also this one has a *Dual Entry Scale*, similar to the Canadian one, and it relates in particular to the climatic conditions of the Scotland region, which in winter is transformed into a very complex playground, where local ice climbers have found a way to climb whatever the weather, anticipating by several years the *piolet-traction* technique, then developed over the Alps and iced waterfalls. The Scottish evaluation method is based on the division of ascents in five different categories ranging from "*Snowed-up rock*", to the "*Mixed*" route, to the "*Ice Gullies*", very common and well known as the "*Point Five Gully*" on Ben Nevis, and finally to the "*Thin Face*" or "*Ice.*" What is special about this scale of difficulty lies in this differentiation that specifies the type of route and that therefore precedes the *Roman numerals* of *Overall Evaluation* and the *Arabic numerals* of *Technical difficulties* with the letter "**W**", that stands for "**Winter.**" In some cases, Scots also use this scale to evaluate climbs that take place in other environments, causing not a few embarrassments in those who must decipher these assessments, as there is no parameterization table.

SCOTTISH WINTER CLIMBS – KEYNOTE GRADES

	Snowed-up Rock	Mixed	Ice Gullies	Thin Face	Ice
	Techniques mainly include torquing and use of frozen turf. Great care must be taken not to damage the rock with peg placements, axe and crampon scratches, etc.	Mainly turf, iced cracks or sections of thin ice. Normally less well protected than snowed-up rock routes	Classic Scottish gullies – mainly ice.	Typical of many Ben Nevis routes – thin ice or névé over steep open slabs. Often very bold with limited protection.	Icefalls or ice smears. Harder routes may involve thin brittle ice or free hanging sections.
IV, 3 IV, 4 IV, 5 IV, 6	– Fingers Ridge Aladdin's Buttress Original The Message	Tough Brown Traverse Observatory Ridge Route Major (Etchachan) –	Green Gully Emerald Gully – –	Brimstone Groove Platform's Rib – –	Fahrenheit 451 The Screen – –
V, 4 V, 5 V, 6 V, 7	– Mitre Ridge Savage Slit Hooker's Corner	1959 Face Route Scorpion Sticil Face –	Zero Gully Point Five Gully – –	Indicator Wall Orion Direct – –	The Pumpkin Poacher's Fall – –
VI, 5 VI, 6 VI, 7 VI, 8	– Parallel Buttress Fallout Corner Savage	Die Riesenwand Tower Face of the Comb Crypt –	North Post Direct Minus One Gully – –	Slav Route Galactic Hitchhiker – –	Astral Highway Mega Route X – –
VII, 6 VII, 7 VII, 8 VII, 9	– Central Grooves Citadel Ventricle	The White Elephant The Shield Direct Trail of Tears –	The Fly Direct West Central Gully – –	Pointless The Ayatollah – –	The Shroud Tubular Bells – –

Simon Richardson  
October 1994

Tab. 5b: Scottish Scale

### 5.4 The New Zealand Scale

In New Zealand (Table 5c) it is used a scale of evaluation on ice which is basically an *Overall Scale* that specifies the various techniques and objective dangers that may be present during ascents. It is based on *seven* degrees expressed in *Arabic numerals* that have the possibility to grow up with the increase in the level of performance of local climbers. The technical part is supported in the rocky sections by the *Australian Scale* devised by *John Ewbank*, that also serves as compensation on ice evaluations.

## New Zealand

An alpine grading system adapted from the grades used in the Aoraki/Mt Cook Region is widely used in [New Zealand](#) for alpine routes in the [North](#) and [South](#) islands. Grades currently go from 1–7. The grading system is open ended; harder climbs are possible. Factors which determine grade are (in descending order of contributing weight): technical difficulty, objective danger, length and access.

Standard grading system for alpine routes in normal conditions

- New Zealand Grade 1: Easy scramble. Use of rope generally only for glacier travel.
- New Zealand Grade 2: Steeper trickier sections may need a rope.
- New Zealand Grade 3: Longer steeper sections generally. Use of technical equipment necessary. Ice climbs may require two tools.
- New Zealand Grade 4: Technical climbing. Knowledge of how to place ice and rock gear quickly and efficiently a must. Involves a long day.
- New Zealand Grade 5: Sustained technical climbing. May have vertical sections on ice.
- New Zealand Grade 6: Multiple crux sections. Vertical ice may not have adequate protection. Good mental attitude and solid technique necessary. May require a [bivvy](#) on route and be a long way from civilization.
- New Zealand Grade 7: Vertical ice/rock which may not have adequate protection. Rock grades in the high 20's (Ewbank). Climb may be in remote area. May require a [bivvy](#) on route.

*Tab. 5c: New Zealand scale*

## 6. 6. Boulder Scales

Even in *Bouldering* there are several scales, although the most common one used in Europe is the *French Scale* developed in *Fontainebleau* (Table 6), the cradle of climbing on blocks of the old continent. The term "*Boulder*" comes from the name of the town in Colorado where it was developed this activity of climbing on blocks and from the United States various scales come to us to classify the performance of climbers. For the first steps classifications, Americans used their *YDS Evaluation Scale*, i.e. "**5.9**", "**5.10**", "**5.11**", etc., by preceding the evaluation by the letter **B** (Boulder). Then, with time and with the development of this activity, it was developed in those who climbed on blocks the need to be differentiated from the common performance quantifiable with numbers and this need gave rise to the "*B Scale*" conceived by *John Gill*. This scale is not a common Scale of Difficulty, but it is based on a different view of the difficulty as a measure of performance. It is therefore not based on objective difficulty of the passage, but on the number of repetitions of the same passage already succeeded. For example, the classification "**B0**" was attributed to a repeated passage, while the evaluation "**B1**" was for a passage more challenging than the previous one, but that had very few repetitions, and finally the evaluation "**B2**" was reserved for passages exceeded only once and waiting for repetitions. Obviously, the passage evaluations changed over time, a passage, measured initially "**B2**", with the increase of the capacity of the climbers was destined to go down to a lower evaluation. However, this Scale was limited by the fact that it was grouping within a few values a large amount of passages, reason for which it has been progressively replaced by other Scales. The idea of *John Gill*, however, was very original and it could be a way to differentiate not only on performance, but also from the point of view of the mentality the block climbing from other climbing activities. Another system to assess the difficulties on blocks is the one proposed by *John Shermann*, which is based on classical concepts of evaluation by using a Scale said "**V**" (Table 6), starting from a minimum level of "**V0**" up to a level currently between the "**V14**" and "**V15**". Obviously, this Scale too is open at the top and, with the growing performance of today athletes, the level is expected to rise. Both Scales, the *Gill "B"*, and *Sherman "V"*, are not taking into account any level of risk and/or the possible consequences of a fall during the activity.

The most commonly used Scale, however, in block climbing ("*Boulder*") is than the French one called *Fontainebleau Scale*, (Table 6), with acronyms composed by *Arabic numerals* followed by *lowercase letters* ("**6a**", "**6b**", etc.), which obviously do not have the same value of the evaluations of steps in walls or single pitches, but are much narrow. Furthermore, within the *Fontainebleau Scale* it is usual to distinguish between the evaluation of a passage in traverse, generally softer and closer to the evaluation on cliff, and the one of a passage with a vertical climbing line, generally

more severe. In the terminology of practitioners it is called *"traverse evaluation"* and *"block evaluation"*.

SCALE DI VALUTAZIONE NEL BOULDER			
Scala U.K.	Scala GILL	SCALA V	SCALA FOINTAINEBLEAU
5b	B0	V0	5c
5c		V1	
6a	B1	V2	6a
		V3	
6c	B2	V4	6b
		V5	6c
		V6	6c - 7a
7a	B2	V7	7a \ 7a+
		V8	7b \ 7b+
7b	B2	V9	7b+ \ 7c
		V10	7c \ 7c+
		V11	7c+ \ 8a
7b	B2	V12	8a \ 8a+
		V13	8b \ 8b+
		V14	8b+
		V15	8c
		...	...

Tab. 6: Bouldering Scale

It would be a mistake to confuse the evaluations (in grades) of various *Difficulty Bouldering Scales* with those commonly used in the *Scales of Difficulty on Rock* (Table 6a). Therefore, for any fan of rock climbing, it is important to have a clear correspondence between the grades used in the various *Boulder Scales* and between these scales and the *Scales of Difficulty on Rock*, to avoid unpleasant surprises. However, the comparison between the *"Boulder"* grades and the grades of the *"Scales of Difficulty on Rock"* is not easy, as it is different the type of effort and the different continuity of climbing sequences, so the Table 6a is only indicative.

In some bouldering guides, in the definition of the difficulties, in addition to the technical grade it is common to find the evaluation of the overall difficulties as **"F"** (*Easy*), **"PD"** (*Not So Difficult*), **"AD"** (*Somewhat Difficult*), etc., up to the level **"ABO"** (*Abominable, indicating an extreme difficulty, with risks to the climber safety*), to which it is possible to add the levels **"-"** and **"+"**. The information on a *"Boulder"* area can be integrated also by the characteristics of the various rocks, such as the hazard of falling, boulders suitable for children etc.. Reading a guide and understanding what is indicated is already a good start to get an overview of the location and the characteristics of the same one.

APPROXIMATE COMPARATIVE TABLE BOULDER SCALES / ROCK CLIMBING DIFFICULTY SCALES							
V SCALE	YOSEMITE DECIMAL SYSTEM	FONTAINE BLEAU "BLOCK" SCALE	FONTAINE BLEAU "TRAVERSE" SCALE	FRENCH SCALE	BRITISH SCALE	U.I.A.A. SCALE	D SCALE (DRESDA) (Former D.D.R)
VO-	(5.5/5.6/5.7) 5.8	(1-2-3) 4a		(5a/5b) 5c	(1/2/3) 4a/b/c	(I/II/III/IV/V) VI-	(IV/V/VI) VIIa
VO	5.9	4b		6a/6a+	5a	VI/VI+	VIIa/VIIb
VO+	5.10a/b	4c		6a+/6b	5b	VI+/VII-	VIIc
V1	5.10c/d	5a		6b/6b+	5b/5c	VII-/VII	VIIc/VIIIa/b
V2	5.10d 5.11 a/b	5b		6b+/6c	5c	VII+	VIIIa/VIIIb
V3	5.11 c/d	5c/6a		6c+/7a	6a	VII-/VIII	VIIIc/IXa
V4	5.12a (5.12-)	6a	6a+	7a/7a+	6a/6b	VIII/VIII+	IXa/IXb
V5	5.12b	6b- 6b+	6b/b+ - 6c	7a+/7b	6b	VIII+/IX-	IXb/IXc
V6	5.12c (5.12+)	6c	6c+	7b+	6b/6c	IX-/IX	IXc/Xa
V7	5.12c (5.13-)	6c+/7a	7a - 7a+	7b+/7c	6c	IX	Xa/Xb
V8	5.12d 5.13a	7a+	7b - 7b+	7c/7c+	6c/7a	IX/IX+	Xb/Xc
V8	5.13b	7b/7b+	7c	7c+/8a	7a	IX+/X-	Xc/XIa
V9	5.13c (5.13+)	7c	7c+	8a/8a+	7a/7b	X-/X	XIa
V10	5.13d	7c+	8a	8b	7b	X	XIa/XIb
V11	5.14a (5.14-)	8a	8a+	8b+	7b/7c	X+	XIb/XIc
V12	5.14b	8a+	8b	8c		XI-	XIc
V13	5.14c (5.14+)	8b	8b+ - 8c	8c+		XI-/XI	
V14	5.14d	8b+	8c	9a		XI	
V15	5.15a (5.15-)	8c		9a+		XI/XI+	
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Tab. 6a: Boulder-Rock Comparison Scale

### 6.1 The "Psicobloc" and the evaluation of difficulties

With the term "Psicobloc" was defined a variant of "Bouldering", i.e. climbing "on rocks suspended on water", where a possible fall, sometimes long and even more than twenty meters, should be assumed (unless evaluation errors!) in water. The practice of "psicobloc" is similar in many respects to "DWS" (Deep-Water-Soloing), or free-solo climbing on cliff routes overlooking the water, initially developed on the cliffs of Dorset, Great Britain. The "psicobloc" had a good development, already in the 90s, by local climbers, especially on the island of Mallorca, but it was later developed in other cliff areas, wherever a passionate could find the right combination of elements to practice it. The "psicobloc" grading, according to experts practitioners, is not easy and certainly more complex than the Bouldering and climbing one, especially when the climb is "on sight", where you cannot see or can miss holds and supports resolute and better of the used ones. Even "psicobloc" climbing is trying to develop its own scale of difficulty, which is very open. At present it is proposed according to an *Adjectival Scale* in which at every level there are two levels of *Technical Difficulty* (grade) expressed by using the *Fontainebleau Scale*. To the *Adjectival Scale* the "Psicobloc" adds the maximum height of the fall in water, expressed in meters. The scale goes from **MF** (Very Easy), according to levels **6a, 6b** in *Fontainebleau Scale* and continues with **F** (Easy) **6c, 7a**, followed by **AD** level (Somewhat Difficult) **7b, 7c**, until reaching the level **D** (Hard) **8a, 8b** (Table 6b). "Psicobloc" is an activity that requires specialized knowledge and skills, not to transform a recreational and sporting activity in a tragedy.

"PSICOBLOC" ADJECTIVAL SCALE WITH CORRESPONDENT GRADES OF FONTAINEBLEAU SCALE		
GRADES OF FONTAINEBLEAU SCALE	ADJECTIVAL SCALE	HEIGHT OF FALL (IN WATER)
6a - 6b	MF (VERY EASY)	To the adjectival levels it is added the maximum height of fall into the water, in meters (5, 10, 15, 20 .... etc.)
6c - 7a	F (EASY)	
7b - 7c	AD (QUITE DIFFICULT)	
8a - 8b	D (DIFFICULT)	
Open Scale	Open Scale	
-----	-----	Es: MF5, AD15, D20,...

*Tab. 6b: Psicobloc Difficulties Scale*

### **Final Thoughts**

Surely this long description is missing some classification systems in use in many countries and on which there is little knowledge. Basically, however, it can be said with certainty that an evaluation of the difficulties, in any part of the world be defined, is used to quantify the "performance" that a mountaineer or climber must express in order to overcome a wall, a step, a block. In turn, this evaluation will serve those who want to repeat the same "performance" in order to have a measure of their own ability, or to improve it, before facing the same difficulty. Although these performance ratings are dissimilar from each other, it is a fact that, in every corner of the planet where you can practice climbing activity on any type of terrain, it was felt the need to measure the overcome difficulties and to develop a scale, as a result of beliefs and attitudes of local climbers or mountaineers. In most cases, and over the years, the scale of difficulties became quite complicated and even if, thanks to the greatest possibility of exchanges between practitioners, more and more reliable parameterization tables have been extended, there is a risk that for every group of mountains there are scales created only for that area. With the passing of the years and with frequent attempts to add new definitions, to provide an easy interpretation to practitioners, experts have tried to concentrate in a few symbols the indications and recommendations also for very complex climbs, where many psychological as well as physical factors come into play. Below we offer some simple steps that may facilitate the interpretation of an evaluation:

- a) In the ascent description, a few words of comment should be mandatory, with recommendations and suggestions as well as a precise report and a few clear symbols.*
- b) In case of rock climbing in the Alps, the use of two scales, French and UIAA, should be adopted as proposed in section 1.1, to distinguish the two types of climbs that more and more clearly imposed themselves in recent years. The French Scale could be used for sport climbing, fully equipped and where, at each belaying point, it is possible to go back; the UIAA scale instead could be used for alpine ascents whose route require to be found, equipped and where to retire you must equip a rappel.*
- c) Even generic evaluations over the Alps chain could be simplified by adopting the French or UIAA Scale, both for rock and ice. The symbols F, PD, AD, etc.. are generic and quite adaptable to every group and every mountain guide, or collection of itineraries. They can be used by comparing one another typical ascents, in order to obtain concrete examples. Evaluations taken from American Scale have rigid descriptions, that in some cases fail to give the right evaluation of ascents in a specific mountain group. Obviously it's up to those who will draft a new ascension report to obtain information on the parameters used by the editors of previous guides or collections of routes in the involved area.*

Writing reports and making evaluations are part of a cultural heritage that climbers bring with them from the beginning of this activity. This form of communication has been developed to raise awareness in a growing number of people, first about the mountains, than the valley walls, the

cliffs, the blocks, the iced waterfalls, and this should sensitize those who are going to write a route report or to express an evaluation. There is however a huge space left to the interpretation of everybody and those who want or need to describe and quantify performance, sometimes, just to feel a protagonist, can define scales for personal use.

But the words, written by *Lucien Devies*, are still carved in stone, when, as conclusion of an article in the magazine of the CAF in 1936, he stated: *"The scale of the difficulties have a major flaw: as Alpine Clubs, magazines and guides, they help to remove from the mountain its unexplored part and its mystery. "*

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