

Introduction

Abseiling was once the preserve of hardy mountaineers who, when faced with *no alternative* would elect to wrap a rope around a suitable anchor and with the rope passed around the body the climber could then descend in relative safety. The technique required a degree of skill and not a small amount of grit and accidents were common. The invention of harnesses and belay devices changed things and as soon we learned how to arrest our downwards progress with equipment and thus abseiling became considerably safer.

All climbers know the spine tingling thrill of the abseil but most climbers have not relished feeling it – that dodgy retreat from a wobbly peg, those gaping sea zawns with nothing but the foaming briny below and not to mention snow bollards. Conversely climbers generally find ‘safe’ abseils in ordinary situations mundane and by making things safe climbers opened up the delights of the vertical world to the populace at large.

The apparent danger of abseiling far outshine the actual risks and keep the participant in a bubble of fear and excitement making sure that the achievement is very real and the event is a success. The consequences of something going wrong are so catastrophic that a tried and tested system has been developed and for the most part is fool proof and keeps the thousands of people (millions world-wide) who abseil every year completely free from harm. Accidents are rare and it continues to be a popular activity and important income stream for many.

Charity Abseiling and abseiling from artificial, not ‘made-for-purpose’ structures (buildings) is becoming increasingly popular and more high profile. With members of the royal family, politicians and rock stars all doing their bit for their cause and with events such as the Olympics and Paralympics showcasing how ordinary people could be turned into flying superstars it is easy to see why.

It is a relatively cheap and accessible way to enjoy the thrill of abseiling but removes the awkward logistics of having to travel to a suitable location. Add to this the sheer exposure and the increased possibilities of your friends, family and work colleagues being able to witness your spectacular bravery and in some cases watch you walk down the windows of the actual office then it is no surprise that everyone wants the opportunity to run, bravely backwards down the nearest tower block.

Photo 2 Danny abseiling down Morning Slab on Avon Gorge



Photo 3 A massive tower, 60m above London



There are no real limits to what you can abseil down and, indeed a few hardy souls have been abseiling as a 'sport' for years. Even to the point of buying climbing guides and abseiling down graded climbs but perversely, applying the grades to the abseiling difficulty. Due to the need for maintenance crew access it is generally the norm to have suitable anchor points on all large buildings and charity abseils have been arranged on Britain's tallest building, many national stadiums, bridges and any number of office blocks. Another favourite is abseiling off historical buildings and these present a whole different set of challenges such as where to tie the rope to and how to avoid damaging a national monument.

It is a natural extension of what climbers have been doing for years and despite many other competing, interested parties it is still the responsibility of climbers to keep people safe when engaged in abseiling and many companies are developing this niche successfully.

It is important that we take on this relatively new aspect of the sport and realise that it is no longer an isolated 'extreme' sport with very little participation or interest outside of the cliffs, crags and quarries of the country side. It is in the city, on the TV and very much a part of modern culture and ensuring that it is done correctly is of the utmost importance. This responsibility extends far beyond the ability to clip in and hold a rope but has wide implications for the management of climbing walls, the delivery of qualifications and the perception of safety and the climbing industry as a whole.

This book sets out a modern view of commercial abseiling delivery and is aimed at anyone who is involved with it from the earnest, fund raisers, selflessly subjecting themselves to needless terror for the benefit of others to the providers of abseiling themselves; professional throughout and charged with maintaining safety and order in a dangerous and difficult environment. It is hoped that it will prove to be a useful book with information on law and legislation as well as best practice guidelines and industry, insider tips. It also puts everything into context and fleshes out the day to day reality of the business with stories and anecdotes which will prove illuminative, sometimes funny and just occasionally – scary. Stories have been included as reminders and lessons to be learned and are not intended to pass judgement or be critical and none are based on rumour or hearsay – we either know the source or the information is publically available.

By putting it into context it is possible to be focussed and pertinent as there are some great resources on abseiling and in particular rope access already out there that we did not feel it necessary to repeat. A special mention should be made for the Health and Safety Executive that has commissioned and produced reams of documentation for the benefit of us all. There are also hundreds of companies around the world delivering abseiling off urban structures and a vast amount

of experience and knowledge that we have tapped into and we feel that we have represented the industry appropriately and professionally.

As with any instructive document it should not be considered a licence to go and abseil off buildings or employ any of the methods discussed in the book without proper training and guidance. A book does not confer expertise onto the reader and incorrect interpretation should be guarded against. It is also a working document and will hopefully provoke thought and debate – there are many forums out there that can be used as an outlet.

2. Definition of Terms

Picture 4 On Aston University, 60m above Birmingham



AALA – Adventurous Activities Licensing Authority. A body charged with regulating adventurous activities in the UK.

Abseil or abseiling – the act of sliding down a fixed rope using a mechanical device to add friction and arrest the rate of descent

Abseiler – someone who is abseiling or specifically, for the purposes of this book a member of the general public

with no special skill or knowledge who is engaged in the process of a charity abseil

Anchor – a fixed point where ropes and equipment can be tied to securely.

Belay – the act of controlling a rope, normally using a friction device to arrest the speed at which it pays out. Also is used by climbers to refer to *anchors*.

Belay plate/device – a device which adds friction to a rope to allow the user to apply control more easily. See also *abseil device*.

Building Owner – this is the owner of the building but who may have no active involvement with the management of the building and have leased this aspect out to a separate company.

Carabiner – a metal clip used as an attachment in climbing.

Charity – this is, essentially the recipient of the monies raised and who may or may not have a vested interest in the event. Often an event organiser is used but willing volunteers from the charity are used to help organise. This may even involve outside agencies such as the uniformed services that sponsor the event by supplying staff to assist.

Climber – someone who is climbing or specifically a person with a specific skill set which allows them to climb safely and maintain their own safety in dangerous environments.

Cord – refers to a short length of very strong rope no thicker than 6mm.

Cowstail – lengths of dynamic rope of about 1m that are fixed directly to the harness to allow attachment to anchors

Dynamic rope – normally used for climbing and is a rope that is designed to be stretchy to reduce the force transmitted to the climber and the fixings.

Event Organiser – this is normally a third party who have been especially contracted to sort out all the administration on behalf of the party wishing to raise money. They are often allied to a charity but not necessarily.

Harness – a construction of webbing and fittings worn by a person which allows them to be attached securely to ropes and other fixtures.

Helmet – a head protector.

IRATA – Industrial Rope Access trade Association. Referring to tradesmen that use ropes to access difficult areas to perform a task.

Line – a long length of non-load bearing cord or *rope*.

Man-safe – a system of cables securely attached to the roofs of buildings to allow trained and appropriately equipped operatives safe access.

MI – Mountain Instructor. A holder of the MIA and/or the MIC award.

Pick-up (picking up) – the act of a *rescuer* descending a separate rope and attaching themselves securely to a stuck *abseiler*. The *abseiler* then is made safe and taken off their ropes and descends with the *rescuer*.

Prussik knot – a knot (technically a hitch) tied around a rope with a thin piece of cord which when weighted correctly grips the rope firmly.

Rope – for the purposes of this book a rope refers to a very strong, industry tested line of a minimum of 10.5mm otherwise designated as a 'single rope'.

Rescuer – an allocated person who descends a separate rope to *pick-up* stuck *abseilers*.

Scaffolding – a system of metal poles which are easily bolted together to make structures.

Semi-static rope – a term applied to a rope which has a minimum amount of stretch (about 3%) to limit the forces transmitted to the climber and equipment in the event of a fall or sudden load.

Static rope – a term usually applied to a semi-static rope where the rope is manufactured to have a lesser degree of stretch (aka: abseil rope)

Sling – a strip of tough webbing sewn into a loop which is used as an attachment in climbing.

UIAA – Union Internationale Alpiniste Association.

Urban abseil – using a rope to descend to the ground from a high point of a man-made structure.

3. What is abseiling?

Insert 1.

S: (n) rappel, abseil ((mountaineering) a descent of a vertical cliff or wall made by using a doubled rope that is fixed to a higher point and wrapped around the body)
(WordNet)

abseil ['æbsail]

vb (intr)

1. (Individual Sports & Recreations / Mountaineering) Mountaineering to descend a steep slope or vertical drop by a rope secured from above and coiled around one's body or through karabiners attached to one's body in order to control the speed of descent

2. (Engineering / Aeronautics) to descend by rope from a helicopter
(Freedictionary.com)

There are many different nuances to the definition of abseiling or rappelling (and the more flamboyant 'rap jumping') but from a climber's perspective it is the descending of a fixed line using a friction device.

Classic abseiling is the use of one's body to provide the friction and is still commonly used in mountaineering (Photo 5) There are 2 known ways with a variant on the most common (Photo 6) but both require nerves of steel and some very thick clothes to protect yourself from the heat of the friction under the legs and across the neck. The simplicity of this system means that no other equipment is required but that it can only be done over short distances, which is why in an emergency it is a perfectly viable option but hopefully not one that will be called upon.

This was developed in the 19th century as the sport of exploring and mountaineering began to transform into rock-climbing and climbers were able to access difficult peaks with no other access or egress than with a rope.

The originator of the technique is said to be Jean-Estéril Charlet-Straton, more famous for being the first to ascend the Petit-Dru in Chamonix. His

technique of wrapping the rope behind his back was incredibly physical and is not considered safe by today's standards. An improved method was developed in the early 20th century by Hans Dulfer which is what we now call the classic abseil and at the time was known as the 'Dulfersitz' technique. A different system but with the abseiler facing forwards was also developed but this was particularly

Photo 5 – A classic abseil. It is wise to wear layers of hard wearing clothes but despite appearances it is not too painful



difficult and it never caught on; known as the Geneva method this term is still often used to describe abseiling forwards in some countries.

No doubt the technique of wrapping the rope around the body was made more successful by the garments of the time – heavy woollen overcoats and plus fours. Wearing modern day attire such as fleece and polyester it is not a practical option to consider as they have a low melting point and are soon damaged.

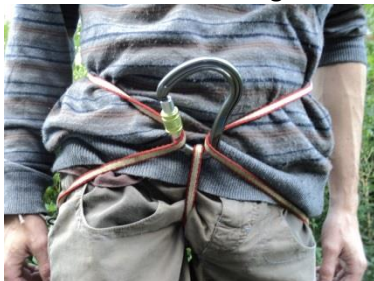
As technology improved so did abseiling and the first use of a harness is also attributed to Hans Dulfer who took a length of webbing and passed it behind his back and between his legs, clipping the three ends together (Photo 7). This gave rise to the phrase, “it’ll ‘Dulfer’ now” – referring to the practice being a bit ad hoc and improvised. The clip which had been recently invented by Otto Herzog and called a ‘carabiner’ would then have a rope passed through it before it was passed around the body prior to descent. This meant the majority of the weight was taken by a metal carabiner and the friction was more easily controlled. There is no clearer demonstration of this than the picture of Toni Kurz hanging from the north face of the Eiger, desperately trying to squeeze the knot through the carabiner – utterly exhausted and with frostbitten hands and almost within the physical grasp of his would be rescuers (Photo 8).

Photo 6 – South African variant on the classic abseil



The arrival of a friction device, designed by Franz Sticht in the 1970’s revolutionised what was possible as for the first time the climber didn’t have to use his own body to apply any of the friction save for gripping the rope. Combined with the arrival of sit-harnesses this made long, free hanging abseils possible and suddenly retreat from steep spires and inaccessible walls was possible.

Photo 7 – A Dulfer sling



This did not, however make it safe. From a mountaineers perspective abseiling is still dangerous and is a last resort. If there is a path around or another way out then this is the preferred option. The main reason for this is the need to retrieve the ropes; it quite simply isn’t possible to take enough ropes to be able to abseil back down an entire rock face. Even if you could carry a 1000m rope it would be too heavy to allow the device to slide down it and even if this was overcome the heat generated would

cause equipment failure. This was evident when in 1996 Ian Ashpole abseiled down a distance of 485m from a hot air balloon. This has still yet to be beaten.

Having to pull your ropes down afterward then means that you need to fold it in half or tie two together and pass it behind a secure anchor where there is no risk of it jamming as you pull one end

down and the other end has to go up and through. By its very nature this is difficult to achieve and to do it safely is fraught with problems. The worst case scenario is that as you pull the rope down it catches for some unseen reason and no amount of pulling can free it. It is then someone's responsibility to ascend a potentially unfixed rope to solve the problem, only to have to go through the same, fraught process all over again.

The fundamental problem with abseiling is that it requires a hand to hold the rope. The friction device only adds friction but if the climber were to let go completely then they would fall as fast as though they had no rope. A retreat is often precipitated by a change in the conditions and falling rock, lightning strikes or hypothermia all limit the ability of a climber to hold a rope. With the inclusion of a prussic knot this changed – a simple loop of cord wrapped around the main rope which gripped the rope as tightly as a hand should the climber be unable has saved many lives.

To make abseiling commercially viable all that was required was a back-up safety rope under the control of an expert.

Since this method was developed very little has changed and today abseils are carried out all over the world using one abseil line held by the novice and a safety rope held by the expert.

However, one thing has not changed over the years and that is how incredibly scary it can be. Every climber has a tale of an abseil that was too close to call or one that nearly went disastrously wrong, some are included throughout the book. The most famous one that is brought to mind is that of Joe Simpson whose ropes had to be cut in 'Touching The Void' but that, was not abseiling. For those who have been unlucky enough to have to be lowered by another normally recall that this was actually scarier than abseiling. For the climber there is a degree of comfort in having control of your own rope but it is tempered with the fact that given the difficulties of descent and objective and subjective dangers it is the abseiler who is the most likely to make a mistake.

Abseils, by their very nature are used for going down, for retreating possibly at the end of very long day or due to adverse conditions or a mistake in route finding. Climbers are usually tired, scared, hasty and prone to making mistakes. Even when this is not the case there is always the unforeseen and seemingly safe abseils prove, on later inspection or perhaps by a following party to have hidden dangers.

Climbers avoid abseiling and the common response to the wide eyed curiosity of a first time abseiler of, "How many times have you abseiled?" is usually met with a reassuring answer in the thousands but the reality of it is that if climbers can find another way – they will. The real fear felt by the thousands of charity abseiling participants every year has been experienced by professional climbers many times and inevitably in far more serious circumstances. It is the ability to control this fear and

Photo 8 Toni Kurz' tragic abseil almost to safety on The Eiger



hold their nerve that makes them so good at standing at the top of buildings and remaining calm whilst helping others seeking a similar thrill.

What sets climbers apart from perhaps rope access workers is not their ability to abseil or to employ appropriate systems but it is this awareness of the fear that participants go through. Rope access work, by its very nature is not dangerous. The work itself is humdrum or hard graft but in order to be able to do it the techniques of access are designed to be incredibly safe and there are tight laws and legislation governing the management of rope access which we discuss in Chapter 4.

Climbers, by contrast are experts in improvisation and dealing with the unforeseen and in abseiling it is the unforeseen that causes the accidents.

There are accidents and these normally make the national press at the time but very soon are forgotten about except by the interested parties. They are treated, entirely appropriately as industrial accidents and with a high degree of seriousness but are normally accidents that whether avoidable or not are tragedies for all involved.

No-one should underestimate the seriousness of abseiling and how dangerous it is – not just a perception but a reality. However it is the perception that makes it so attractive and an easily accessible 'extreme activity'. As long as there is an appropriately qualified and experienced person controlling the safety rope it requires no skill on behalf of the participant and provides fun, excitement, terror and a sense of real achievement for all.

How to Abseil?

Insert 2

Abseiling has a few names throughout the world:

- Abseiling – from the German 'Abseilen' – to 'rope down'.
- Rappelling – from the French 'rappel' – to 'recall'
- Rap jumping – developed in Australia and refers to a specialist set up which is forward facing.
- Abbing – British slang for abseiling

Apart from the direction faced and a few subtle changes in set up generally they all refer to the same thing – sliding down a fixed line controlling your own speed of descent. Later chapters will deal with the equipment and environments but a general brief will be covered here from the point of view of the abseiler.

For 'normal' abseils employing standard climbing kit an abseil is down a fixed line or a doubled over line through a single point if the abseil is to be retrievable (Photo 11).

Photo 11 A retrievable abseil. Note the ropes are tied together and passed behind the tree



The rope is then passed through a friction device as

shown which makes the rope much easier to hold below the device. Having one hand above the device as in Photo 11 provides a bit of stability but adds no discernible braking force and with practice you can hold the rope at the same place as the other hand (Photo 12).

Then the abseiler stands on the edge of the structure to be descended and leans back into thin air all the while maintaining their grip on the rope and slowly controlling their full weight onto the system. Initially it can feel awkward due to the way the ropes are normally tied but as you descend it becomes easier. The abseiler then lets the rope out at a speed to suit; walking or running to the ground. It is possible to stop at any point but not possible to let go of the rope without a helping hand from someone on the ground (Photo 13).

With a bit of practice an abseiler can time the speed they let the rope out with jumping and perform an impressive abseil which is, fundamentally no different

Photo 14 – A prussic loops attached to a rope. Top; classic, middle; Klemheist, bottom; French – the most commonly used for the autobloc.



Photo 12 – Both hands on the rope beneath the device aids control



or more dangerous

A significant addition to the system has been the inclusion of a self-arrest device and several are discussed in the chapter on rescues but the most commonly used one in Britain is shown below. It is common because it is an improvised technique used by climbers and it uses a piece of 50p cord and a carabiner. Known as an 'auto-bloc' it is a prussic knot tied to the leg loop of a harness underneath the friction device therefore being able to 'grip' the rope when the climber does not.

This, for the most part is abseiling. It is simple and easy but exhilarating and fun but remember, most abseiling accidents are fatal and it only takes one mistake.

Photo 13 – A helping hand from Pete on the ground means that although Kelly has let go of the abseil ropes Pete can arrest her descent



