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ROCK CLIMBING ON BANKS PENINSULA

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ROCK CLIMBING ON BANKS PENINSULA

An Insight into the Popular Sport of Rock Climbing

This dissertation is submitted in partial fulfilment of
The Diploma of Parks and Recreation, Lincoln College

1983
ROCK CLIMBING ON BANKS PENINSULA

Ronan Crew
Dedicated to -

Steve Taylor

"And when you have reached the mountain top, then shall you begin to climb. And when the earth shall claim your limbs, then shall you truly dance."

"The Prophet" - Kahlil Gibran
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1.0 INTRODUCTION

As the pressures of modern life increase, more and more people are turning to a wide variety of outdoor pursuits to fill their leisure hours. While some are content to walk and jog, other more determined individuals seek out and climb steep and airy rock faces - this is rock climbing.

Easy access and solid rock make Banks Peninsula ideally suited for rock climbing. This dissertation is an attempt to describe the origins and evolution of the sport to its present day status, that of a highly technical, competitive and physically demanding sport.

One of the other purposes of this dissertation is to locate and describe the crags on Banks Peninsula.

Finally, the dissertation will look at some use conflicts that have arisen in recent years and offer some tentative recommendations in an attempt to resolve these conflicts.

Unfortunately, because of the technical nature of the sport, the author has had to resort to the use of a large number of specialist terms and jargon associated with the sport. For the uninitiated, there is a glossary of terms at the end of this document.
Fig. 1 Location Map - The Crags of Banks Peninsula.
2.0 LOCATION AND ACCESS - cont'd

Banks Peninsula's two most popular crags:

Photo 1 Castle Rock as seen from the spur separating the Heathcote and Horotane Valleys.

Photo 2 Rapaki Rock as seen from the northern Summit Road.
2.1 GODLEY HEAD

Godley Head overlooking the Lyttelton Harbour entrance offers exposed, poorly protected sea cliff climbing. It may be reached by driving from Sumner up to Evans Pass and then 7 km along the Summit Road. On foot it may be reached by walking along the Godley Head walkway from Taylors Mistake.

2.2 LYTTELTON ROCK

Lyttelton Rock has undergone a great deal of recent development and has yielded some high quality climbs. It may be reached by driving from Sumner up to Evans Pass and then on foot eastwards a short distance to a series of ledges and bluffs overlooking Lyttelton Harbour.

2.3 MT. PLEASANT

Mt. Pleasant (Bill's Boulevard, Mike's Mum) whatever the name, they are the two cliffs on the western side of Mt. Pleasant spur, above the main line of chossy cliffs. The cliffs provide good climbing on short routes for both beginners and accomplished climbers. Access from Christchurch is from a small carpark on Mt. Pleasant Road above its junction with Honcks Spur Road. From here travel on foot across farmland to a windbreak of pine trees. Where the power lines, which traverse diagonally downwards across the slope, are seen to drop down into the Heathcote Valley, marks the northwestern end of the left cliff. The right cliff may be found by walking along from the southern end of the left cliff up towards the Summit Road.
2.4 CASTLE ROCK

Castle Rock (see photo 1) has been Christchurch's most popular rock climbing area for a long time. It provides a wide variety of routes to cater for beginners and experts alike. Because of its popularity the pace of development of Castle Rock has slowed as all the obvious lines have been climbed and there is little available rock left for new routes.

Castle Rock is perched on the main spur between the Heathcote and the Horotane Valleys. It is only about 20 minutes drive from the centre of Christchurch. Access by car is along the Northern Summit Road (carpark on an outside corner), while on foot it can be reached from the head of the Horotane Valley or from the Lyttelton tunnel portal/bridle path area in the Heathcote Valley. The Lyttelton bus stops near the tunnel.

2.5 THE TORS

The Tors is situated in a small scenic reserve about 1.5 km southwest of Castle Rock. Access is on foot from the Northern Summit Road via the Crater Rim walkway which leads directly to the foot of the crag. The Tors provide hard, steeper lines that in some cases are lacking in protection.

2.6 RAPAKI ROCK

Rapaki Rock (see photo 2) is another popular climbing area and is favoured by beginners because of its easier well protected climbs and its suitability for top roping. Access is best by car along the Northern Summit Road about 5 km from the Sign of the Kiwi. Pedestrians can take the St. Martins bus to Centaurus Road, then walk up Rapaki track directly to the rock. Rapaki Rock is sited in the Witch Hill Scenic Reserve.
2.7 **GIBRALTAR ROCK**

Gibraltar Rock can be found by driving from Christchurch, up the Gebbies Pass road, turning right at the Sign of the Kiwi and along the Southern Summit Road for about 7 km. Gibraltar Rock is the prominent feature above Otahuna Valley, Tai Tapu. This is probably the best single piece of rock on Banks Peninsula with its large crystals, giving excellent friction. The crag is not large, but the climbing is outstanding.

2.8 **REMARKABLE DYKES**

The Remarkable Dykes are situated in the Sign of the Packhorse Scenic Reserve. They provide varied climbing on an interesting geological formation. Access is on foot 5 km by the Summit Track from Gebbies Pass or 5 km by unformed road from the Kaituna Valley Road, about 45 km from Christchurch.

2.9 **MT. BRADFORD (FORMERLY KNOWN AS MT. HERBERT)**

Mt. Bradley has become quite popular lately with many of the earlier established hard routes being done as well as some new routes being undertaken. Mt. Bradley can be reached by paper road on foot; either 5 km from the Purau - Port Levy Saddle, or 2.5 km from the Kaituna Valley Road. It is 6 km from Gebbies Pass by the Summit Track via the Sign of the Packhorse. Mt. Bradley is situated in the Herbert Peak Scenic Reserve which at 240 ha is the largest reserve on Banks Peninsula.

2.10 **THE MONUMENT**

The Monument can be reached by paper road on foot, 1.5 km from the Purau - Port Levy Saddle.

The lower northern section of the crag is composed of columns of basalt which provide excellent jamming cracks.
2.11 DEVILS GAP

Devils Gap is found 8 km from the head of Lake Forsyth by Kinloch, Bossu and Gap Roads and 800 metres on foot across private property. The massive rock face on the northeastern side provides a spectacular scenic feature. While some of the obvious, easy lines have been climbed there is potential for much more development.

2.12 BOSSU

Access to Bossu is about 20 km from the head of Lake Forsyth via Kinloch and Bossu Roads. The crag is the prominent feature adjoining the road above Long Bay. As with Devils Gap, there has been some development here but there is potential for much more.

2.13 BERARD

Berard is to be found to the east of Akaroa Harbour. Access from Akaroa is by car along Lighthouse Road for about 5 km and then follows a short distance on foot across private property.

Devils Gap, Bossu and Berard crags are probably the least frequented of the Banks Peninsula crags. To date there have only been brief exploratory visits but the potential for interesting and difficult climbing remains.

2.14 STONY BAY PEAK

Stony Bay Peak may be reached from Akaroa, 6 km along the Summit Road, and the Purple Peak Road and then 800 metres on foot across private property.

This is probably the most popular crag in the Akaroa Harbour vicinity. A great deal of development has taken place over the last 2 or 3 years and has revealed a large number of routes varying in grade but mostly averagely protected.
2.15 OTEPATOTU

The Otepatotu crag is sited in a scenic reserve that adjoins the Summit Road, 24 km from Hill Top or 14 km from Akaroa. A magnificent rock escarpment provides exciting crack climbing of moderate difficulty, while there are some harder face climbs.

While the author has tried to locate all the known climbing areas on Banks Peninsula, it is highly probable that there are other areas whose existence is known only to a select few. This has occurred previously when a new crag has been discovered by small groups of climbers seeking out new challenges. They often choose to keep the whereabouts of the crag secret until they have climbed the best routes and only later do they reveal its location.

Crags such as Castle Rock and Rapaki Rock remain popular with the general climbing fraternity because of the wide range of graded climbs they offer. Those seeking the challenges of new routes are forced to travel further afield to outlying crags where there are fresh opportunities to pioneer new routes. Many of these outlying crags are being systematically developed, as new routes often require "cleaning" (removal of loose rock and vegetation). In some cases they require the preplacement of protection (e.g. in situ pitons or bolts).
Banks Peninsula consists of the eroded and partly drowned remnants of two ancient and adjoining volcanoes - the Lyttelton and Akaroa volcanoes (fig. 2). These are composite cones consisting of lava flows and ash beds of andesitic and basaltic composition, similar to the present day Mt. Ruapehu. The Lyttelton volcano is the oldest on Banks Peninsula, and appears to have been centred on a vent near Quail Island. A series of thin vertical sheet-like intrusions (dykes) of trachyte radiates from near this point. This series of dykes was sited along a fracture system radiating from the throat of the volcano. This was probably caused by a resurgence of magma beneath the volcano generating a radial fracture pattern in the volcanic superstructure.

The Lyttelton lavas have been dated and suggest that this volcano reached its maximum development about 11 million years ago. When the volcanic activity ceased, a system of streams draining radially outwards from the volcanic cone rapidly eroded the volcano.

Volcanic activity was renewed about 8 to 9 million years ago, but this was centred on a vent near Onawe Peninsula to the southeast of the Lyttelton vent. This activity built up the Akaroa volcano, a larger cone which overlapped and buried the southeastern part of the Lyttelton volcano. As with the Lyttelton volcano, a radial dyke swarm was emplaced around the central Akaroa vent.

The final phase of activity was the extrusion of a series of basalt flows from vents near the summit of Herbert Peak about 6 million years ago. This lava flowed down the inner slopes of the eroded crater to Diamond Harbour, and spread across to the site of Quail Island. At the same time other basalts were extruded from vents at Halswell, Ahuriri and Fort Levy.
The volcanoes were built on a basement of greywacke which is well exposed around Gebbies Pass and Charteris Bay. The greywacke is similar to that found in the Southern Alps and is considered to be of the same age.

The basement rocks occur at heights of 300 metres above sea level at Gebbies Pass, yet between Gebbies Pass and the foothills of the Alps they are thought to lie 900 to 1500 metres below Christchurch. Thus their position above sea level at Gebbies Pass would seem irregular. The basement rocks could have domed up at Gebbies Pass, and the Lyttelton and Akaroa volcanoes could have burst through the disrupted strata there - or the basement rocks could have been upthrust by volcanic activity.

Until the beginning of the Pleistocene age, the two volcanoes formed an island about 48 km off the coast of the ancestral South Island. During the Pleistocene the rapid erosion of the Southern Alps by glaciation, loaded meltwater streams with large amounts of debris. The deposition of these outwash gravels began to fill the shallow seaway between the volcanic island and the Alps. This resulted in the formation of the wide flat gravel deposits of the Canterbury Plains.

During the Pleistocene, wind picked up much of the silt and rock flour formed by glacial action, from deposits on outwash plains and river flats, and blew it southeast. Some of it accumulated on Banks Peninsula forming an irregular mantle of loess.

There is still some thermal activity on the Peninsula, with warm springs at Ferrymead, Lyttelton railway tunnel portal, Cass Bay and Motukarara. It is unlikely that this is due to volcanic activity after a dormant period of 6 million years. It is more likely to be due to rainwater being heated by deep circulation along fault zones.
In summary then these three periods of volcanism - the Lyttelton volcano, the Akaroa volcano and the extrusion of the Diamond Harbour basalt flows (and their associated radial dyke swarms, and lava flows), have resulted in the present day geological formations that lend themselves so well to rockclimbing. A few brief examples of the various geological phenomena being: Castle Rock, an intruded trachyte dyke, Mt. Pleasant, a basalt lava flow, and Gibraltar Rock, a basaltic extrusion (part of the Diamond Harbour group of basalts).

Fig. 2 Geological cross-section of Banks Peninsula.
4.0 ROCK CLIMBING EQUIPMENT

4.1 CLIMBINGropes

The rope, more than any other item of equipment, symbolizes the climber. The main purpose of the rope is to limit the fall of a climber when his strength, judgement or the terrain let him down.

Traditionally, all climbing ropes were made of either hemp or manilla. Since the evolution of synthetic fibres, the nylon rope has virtually replaced natural fibre ropes because of its lightness, elasticity and high tensile strength.

Climbing ropes are made by either hawser laid or kernmantle construction (Fig. 3). Laid ropes are usually composed of three main strands twisted around each other, each strand consisting of many individual fibres which are also twisted around each other. Kernmantle ropes are made of a core of twisted, braided or parallel strands of nylon (the "kern") enclosed in a tightly woven outer sheath (the "mantle"). Kernmantle ropes are superior to hawser laid ones, having better handling and dynamic qualities. They are, however, very expensive.

Fig. 3 Rope Types
4.1 CLIMBING ROPEC - cont'd

Kernmantle ropes are usually available in 11 mm and 9 mm diameters, and hawser laid ropes in 10 mm diameter. The preferred rope for rock climbing is a single 11 mm kernmantle. For very difficult rock climbs two 9 mm kernmantle ropes are used as this facilitates easier rope handling. Kernmantle ropes are normally 40 m or 45 m long.

As nylon deteriorates with age, climbing ropes are generally discarded after 4-5 years' serious rock climbing, sooner if their strength is suspect or if they have been damaged.

4.2 FOOTWEAR

Gone are the days of clinkerd boots for rock climbing. They have now been replaced by soft adhesive rubbered rock shoes (see photo 3). Rock shoes are designed for maximum contact and friction and have smooth rubber soles that bend easily to conform to even minute irregularities on the rock surface. They also have a low profile at the toe which enables them to be placed in narrow cracks.

There are many different makes of similar design available but both E.B.'s and Asolo Chouinard Canyons seem to be the most popular with Christchurch rock climbers.
4.3 CLOTHING

Most climbers favour anything that is sturdy and resistant to abrasion. Track suit pants, together with a heavy cotton shirt, are popular. While in summer, shorts can be worn but offer little protection against abrasions.

4.4 CLIMBING HELMET

A climbing helmet is normally worn when there is a danger of falling rocks or where a fall may result in head injuries. The vast majority of climbs on Banks Peninsula are on solid rock therefore minimising the danger of falling debris. From casual observation, it appears that only a small number of rock climbers wear a helmet.

4.5 HARNESSES

To attach to the climbing rope the climber may tie directly to the body or to a waistline or harness. Tying on directly on to the body or to a waistline has lost favour, particularly in situations where a fall may leave a climber hanging from the rope. A climber suspended by the waistline may die of suffocation very quickly because of constriction of the diaphragm.

The majority of rock climbers today use manufactured harnesses (see photo 4). These come in three main types - the thigh/waist harness, the chest harness or a combination of the two. Thigh/waist harnesses are the most popular as they are easy to use and comfortable. In a fall they act to distribute the load evenly between the waist, buttocks and upper thighs.
Photo 4 shows two manufactured thigh/waist harnesses. A Whillans sit harness (left) and an Aspiring harness (right). The screw-locking karabiner (a) on the Whillans harness is a crucial part of the design. Both harnesses are attached to the climbing rope using a figure-8 knot.

Most thigh/waist harnesses can be linked to an improvised chest harness made of 25 mm nylon climbing webbing (Fig. 4). The combination chest and thigh harness is the safest.

Fig. 4 Improvised Chest Harness (for us in conjunction with thigh/waist harness).
A sling is made by tying a length of 25 mm flat or tubular nylon climbing webbing ("tape") into a loop. The webbing is joined by using either a tape knot or a double fishermans knot (Fig. 5). The most convenient length is 50-55 cm. Nylon webbing is very versatile and has a number of uses in rockclimbing (Fig. 6).

Fig. 5 (a) Tape Knot and (b) Double Fishermans Knot

In the case of a nuisance such as this, it is best to thread the string through itself to grip the rock better. No rule the advice given for the spike runner.

In many cases it is best to extend a walled nut with a sling, this will reduce the chance of the nut being jarred out of position by the rope drag.

The spike runner sometimes it may be necessary to weight down such a runner with spiked knockers to stop the sling rubbing off with the friction of the rope.

Fig. 6 The Use of Slings
4.7 **Karabiners** *(Also Known as Snaplinks, Krabs)*

Early karabiners were made of steel and were therefore heavy. Modern karabiners are made from very light and strong alloys. Three different types are used; a screw-locking karabiner, an ordinary D-shaped karabiner or a modified D-shape (see photo 5).

A screw-locking karabiner has a threaded sleeve on the gate that tightens over the gate opening end to hold the gate closed. One or two are normally carried by each climber for abseiling, connecting to the anchor(s), or to the harness.

Ordinary karabiners (both the D and modified D-shapes) are used to clip into running belays ("runners"), be they natural runners, jamnuts, pitons or bolts.

4.8 **Jamnuts** *(Also Known as Nuts, Chocks Or Protection)*

A jamnut is any piece of metal which is used for wedging into cracks. They were developed as the result of British rockclimbers' opposition to the use of
artificial aids, namely pitons. Originally, chocks were in the form of engineering nuts with a sling through the hole in the middle. These were soon replaced by aluminium nuts, and today there are many varieties. Still the most commonly used jamnuts are stoppers (also known as wedges) and hexentrics (see photo 7). Jamnuts, particularly stoppers, have very small gradations between the smaller sizes, and are as small as 3 mm in thickness. Both stoppers and hexentrics have wire slings in the smaller sizes, while the larger sizes have rope or tape slings.

Hexentrics are very versatile and functional because each nut will fit 3 different sizes of crack. They work well in parallel-sided cracks by virtue of their small taper across opposing sides and ends and are designed to cam under load (see Fig. 7). The largest hexentrics will fit cracks up to 70 mm wide.

(a) wedge, normal placement. (b) hexentric, normal placement

(c) hexentric, wide placement. (d) hexentric, end placement. Hexentric jammed in camming position.

Fig. 7 Jamnut Placements.
4.8 JAMNUTS - cont'd

The following three photographs (6, 7 and 8) show the evolution of rock climbing protection from hammered pitons (photo 6) to Jamnuts (hexentrics and stoppers - photo 7) and finally to the latest generation of rock climbing protection - friends, R.P.s and curved stoppers (photo 8):

Photo 6 Pitons

Photo 7 Jamnuts (a) Large Hexentric (b) Stoppers (c) Wired Stoppers and Hexentrics (d) Lightweight Alloy Karabiners.
The application of modern technology and the continuing emphasis on "clean" climbing has seen the recent introduction of a so-called third generation in rock climbing protection. In this category are curved stoppers, "R.P.'s", and "Friends" (see photo 8).

Curved stoppers are a modified design of the original stoppers. They have curved sides which assist them to hold in the rock. They normally come on a wire sling as shown in photo 8.

"R.P.'s" are very small brass wedges that are designed to fit into very small shallow cracks. There are two smaller sizes than the smallest shown in photo but they are only used for aid climbing as they are not strong enough to hold a leader fall.
"Friends" are complex camming devices that have revolutionised crack climbing. A "friend" has 4 independent spring loaded cams that can be retracted to allow it to be slipped into a crack. When the trigger bar is released the springs will hold the cams against the sides of the crack (see photo 9). "Friends" work because the shape of the cams translates a downward force into an outwards force where the cam surface contacts the rock. The best crack for a friend is a vertical, smooth surfaced, parallel-sided crack. They have also been used in flared cracks where no other form of protection is possible. Friends can be placed in cracks from 25 mm (for a number 1 Friend) to 80 mm (for a number 4 Friend). These 2 sizes are shown in photo 8. Perhaps their only disadvantage is their high cost.

Photo 9 A Friend in Action.
4.9 **PITONS (ALSO KNOWN AS PINS OR PEGS)**

Pitons (see photo 6) were developed shortly after the turn of the century and were used vigorously until recently. With the adoption of the "clean" climbing ethic they began to lose favour because they scar the rock badly. Some modern routes still require the use of pitons for protection. These in situ pitons are left in place.

There are 3 basic types of pitons - offsets, angles, and horizontals as illustrated in Fig. 8. Offsets are thin pitons with the eye at 90 degrees to the blade of the piton. Horizontals are thicker and have the eye abutting the blade of the piton centrally. Angles have a V cross section.

![Fig. 8 Pitons](image)

(a) horizontal

(b) offset

(c) angle

4.10 **BOLTS**

Expansion bolts are currently being used on some Banks Peninsula rock routes for anchors and protection. Bolts are used where no other form of protection is possible.

A bolt is placed by drilling a hole in the rock, inserting
4.10 **BOLTS** - cont'd

the bolt and then tightening it so that it expands in the hole and provides good holding power. A bolt normally has a bracket so that a karabiner can be clipped to it (see Fig. 9).

As with pitons, a great deal of controversy surrounds the use of bolts, particularly because once placed a bolt is there to stay.

![Image of bolt with hanger in place](image)

Fig. 9 Bolt with hanger in place.

4.11 **CHALK**

While not strictly speaking an item of equipment, the use of chalk powder (magnesium carbonate) for rock climbing has become fashionable in recent years. The chalk is carried in a small pouch (chalk bag) attached to the harness. The purpose of using chalk is to absorb hand perspiration that would otherwise make handholds slippery.

The practice of using chalk has created a storm of controversy in some quarters with pundits claiming it leaves unsightly white patches and by marking key holds robs other climbers of some challenge. Many have now conceded defeat on the chalk issue in the face of overwhelming acceptance by the rockclimbing fraternity.
5.0 **ROCK CLIMBING TECHNIQUES**

5.1 **MOVEMENT**

This is the most important aspect of rockclimbing. A good climber moves in a careful and calculating way, with little apparent effort. This can only be developed through practise.

The climber should, where possible, try and maintain three points of contact on the rock, i.e. two hands and one foot, or one hand and two feet. By standing upright and keeping all the weight over the feet the climber is less likely to cause the feet to slip, can maintain balance more easily and can see where to go. Often it is necessary to plan a series of moves in advance, particularly on steep or strenuous ground.

By following these fundamental rules the climber ensures that all motion is controlled and energy saving.

5.2 **THE USE OF HONDS**

Incute, flat or sloping holds require no special techniques. Incut holds (often called jughandles or Thank God holds) are excellent because the fingers can hook over them and support the whole weight of the climber. Sloping holds are normally used as friction holds (if footholds) or as pressure holds (if handholds). For footholds the boot grips on sloping rock because the friction between the rock and rubber will support the weight of the climber. Pressure holds are used to push upwards with the hands. Side holds are also important as they assist balance or movement sideways. Often normal incut, flat or sloping holds are longer than they are wide. Used as footholds they require the foot to be placed sideways as this puts more of the foot on the hold and is more secure than using the toe.
5.3 JAMMING

Jamming is achieved in 3 ways - wedging, twisting or expanding.

The simplest jams use a body part (e.g. hand) that will wedge because the crack narrows downward below the hand. For twisting jams the body part (e.g. fingers) is inserted tightly into the crack and a twisting action is used. For expanding jams the body part is placed in the crack and muscles are used to expand it tightly.

The types of jam most commonly used are fingers, hand, fist, fore-arm, foot and toe.

In narrow cracks the fingers are jammed by twisting them sideways (Fig. 10). Sometimes they can only be inserted to the first joint and sometimes right to the knuckle.

![Fig. 10 Finger Jam.](image)

In a hand jam (Fig. 11A) the fingers are forced against one wall of the crack and the knuckles against the other. The muscles of the thumb are used to expand the hand securely. In narrow cracks the thumb is parallel to the fingers while in wide cracks the thumb is tucked under the palm. For slightly wider cracks a fist jam may be used (Fig. 11B). By clenching the fist the sides of the hand are forced against the sides of the crack.
5.3 JAMMING - cont'd

(a) normal hand jam.    (b) fist jam.

Fig. 11 Hand Jams

For cracks that are too wide for a fist jam the whole fore-arm can be wedged in a crack (Fig. 12A). In narrow chimneys an elbow lock is useful. The palm of the hand pushes against one wall and the elbow against the other (Fig. 12B).

(a) arm jam.    (b) elbow lock

Fig. 12 Arm Jams

There are a number of different types of foot jam as well. Sometimes a foot can be wedged into a crack which narrows below that foot (Fig. 13A). In a parallel sided crack the foot is twisted to jam securely. In wider cracks the foot may be placed with the heel against one side and the toe against the other (Fig. 13B). Toe jamming is useful in narrow cracks where the foot can be turned so that the sole and the top of the toe are twisted against the sides of the crack (Fig. 13C).
5.3 **JAMMING - cont'd**

(a) Foot wedge  (b) Wide foot jam  (c) Toe jam jam

Fig. 13 Foot Jams

5.4 **CHIMNEY CLIMBING**

Chimneys are cracks wide enough to get inside. There are three methods of climbing chimneys: wriggling, back 'n' footing and bridging.

Wriggling is used in chimneys that are just wide enough to get into (Fig. 14A). In slightly wider chimneys the knees can be forced against one wall with the back against the other. The easiest chimneys to climb are those that are wide enough to use the back against one wall and the feet against the other (Fig. 14B). Bridging employs one hand and one foot on each wall, using friction (Fig. 14C).

(a) wriggling  (b) back 'n' footing  (c) bridging

Fig. 14 Chimney Techniques
5.4  **CHIMNEY CLIMBING** - cont'd

The chimney techniques can also be used whenever there is a gap between two pieces of rock.

5.5  **BRIDGING**

The bridging technique is not only useful in chimneys but can also be used to climb corners and grooves. By spreading the weight evenly across two walls, using friction it is possible to move upwards.

Bridging is also used on slab and wall climbs where footholds slope towards each other.

5.6  **LAYBACK**

Where there is a corner with a sharp edge a layback may be the only way of making progress. The feet and arms are used in opposition. The arms pull against the edge of the crack while the feet push against the far wall of the corner, with the body in an inclined position (Fig. 15). This technique is very strenuous, but laybacks generally last no more than a few moves.

![hands and feet in opposition](image)

_Fig. 15 Layback_

5.7  **MANTLE SHELF**

Mantleshelving requires strength, momentum and balance, and is used to climb onto a ledge when there are no holds below it.
5.7 **MANTLESHELF** - cont'd

Both hands are placed on the ledge and the body is pushed up by the arms. When the arms are straight a foot is swung onto the ledge (Fig. 16).

![Mantleshelf sequence](image)

Fig. 16 Mantleshelf sequence

5.8 **TRAVERSING**

Traversing is a commonly used technique especially where a route deviates from an upward line. In a traverse the climber basically walks across the face alternating hand and footholds. Occasionally a hand traverse may be required. This occurs when there are good handholds but poor footholds. With the feet in friction against the rock, the climber can "hand over hand" across an otherwise blank section.

5.9 **PINCHGRIP AND UNDERHOLD**

Pinchgrips are flakes which the hand can grip with the fingers on one side and the thumb on the other (Fig. 17). Underholds are upside down in-cut holds (Fig. 18).

![Pinchgrip](image)  ![Underhold](image)

Fig. 17 Pinchgrip  Fig. 18 Underhold
5.10 DESCENDING

At times the climber is forced to descend a section of rock. If the rock is easy angled the climber faces outwards making route finding easier. As the angle increases the climber turns more and more to face the rock. All the techniques used in ascending can be reversed to descend, but some such as a mantleshelf move are hard to reverse.
6.0 BELAYING

6.1 THE BELAY SYSTEM

Belaying is the way one climber (the belayer) protects another with the rope in case of a fall. The belayer does this by applying friction to the rope to absorb the force generated by the falling climber. The traditional waist belay, which involved the rope being passed around the waist, has now been replaced by mechanical belay methods.

Usually two climbers tie to the rope and one climbs while the other belays. After leading a ropelength ("pitch") or when arriving at the top of the route the lead climber sets up a belay and belays the second up.

The belayer uses jamnuts, "friends" or pitons to anchor to the crag, as the forces generated in a fall can be severe and the belayer may be pulled out of position. The leader reduces the possibility of a long fall by using running belays ("runners") for protection. These may be slings, jamnuts, friends, pitons and are normally carried on a gearsling (see photo 10). The leader places them at intervals and connects them to the rope with karabiners (Fig. 19).

The obvious reason for placing runners is to reduce the distance the leader could fall, but equally important is their effect on the mechanics of belaying. The difficulty of holding a fall depends on the "fall factor". This is the distance fallen divided by the amount of rope between the belayer and leader. The maximum fall factor of 2.0 can only occur if there are no runners. For example, a fall factor 2.0 situation may occur if the leader falls 2 m above the belayer with no runners, falling 4 m. If the leader fell 15 m when 25 m above the belay and was held by a runner, the fall factor would only be 0.6, although the length of fall is greater. As a result of this it is most important to place runners at the start of a pitch.
Runners may also be extended with slings to prevent rope drag (excessive friction caused by the rope running through karabiners and over rock). Rope drag can become sufficient to prevent the leader from moving. Adding slings to runners, particularly nuts with wire slings, ensures that they will not be pulled out as the leader climbs above them, as often happens if there is rope drag. Extending runners with slings also assists the rope to run upwards in the straightest line possible. This will prevent the runners from being ripped out by a large sideways force (as would happen if the rope is in a series of bends) if the leader falls.

In a fall the rope is belayed statically, i.e. it is not pulled through by the force of the fall. The elasticity of the rope will absorb the force of the fall and reduce the impact on the belay system.

Photo 10 Equipment (friends, slings, stoppers) carried on a gear sling.
6.1 THE BELAY SYSTEM - cont'd

(a) the leader places running belays (usually jamnuts) as he/she climbs.

(b) if he/she falls, the belayer stops the fall and the leader is held by the runner.

Fig. 19 The Belay System on Rock.
6.2 **THE BELAY ANCHOR**

The belay anchor is the climbing party's ultimate security. Normally more than one anchor is used as a precaution against failure. By using 2 or more anchors the force of the fall is spread evenly between the anchors.

The belayer either clips into the anchors with slings or uses the climbing rope to tie to the anchors.

If the leader is using runners for protection the belay anchors must be able to withstand an upwards force if the leader falls, because of the pulley effect of the runners.

6.3 **MECHANICAL BELAY METHODS**

Mechanical belaying methods have become popular over recent years because they are simpler and more foolproof than traditional belay methods, e.g. waist belay. The majority of climbers today use a sticht plate belay because it is very effective. A loop of rope is threaded through the belay plate and clipped into a screw-locking karabiner which is attached to the harness (see photo 11). If a fall occurs the belayer pulls the dead rope back, forcing the belay plate against the karabiner and in doing so locks off the rope. The sticht plate is also available with a spring which prevents it from riding up towards the karabiner while rope is being paid out.
A Figure 8 descender can also be used for belaying. This is useful as the same piece of equipment can be used safely for two purposes - abseiling and belaying. A loop of rope is pushed through the small hole and clipped to a screw-locking karabiner. The operation is similar to the sticht plate (Fig. 20).

![A Figure 8 descender can also be used for belaying. This is useful as the same piece of equipment can be used safely for two purposes - abseiling and belaying. A loop of rope is pushed through the small hole and clipped to a screw-locking karabiner. The operation is similar to the sticht plate (Fig. 20).](image)

Fig. 20 Figure-8 Descender Belay.
6.3 **MECHANICAL BELAY METHODS** - cont'd

Some climbers use the Italian friction hitch which creates friction by twisting the rope around a screw-locking karabiner (Fig. 21). This is not as smooth to use as the more popular sticht plate or Figure 8 descender.

![Italian friction hitch belay](a) (b) (c) (d)

Fig. 21 Italian friction hitch belay.

6.4 **CLIMBING CALLS**

Communication between climbers on opposite ends of the rope is essential for efficiency, and to prevent serious misunderstandings as to whether one climber is ready to belay the other. Because it is sometimes difficult to hear, calls should be loud, simple and kept to a minimum.

A system of calls has evolved over the years, and the following calls are in use today:

"CN BELAY" - by the belayer when ready to belay the other climber.

"CLIMBING" - when starting, so the belayer knows to attend to the rope.

"SLACK" - by the moving climber, requesting more rope for a particular manoeuvre.

"TAKE IN" - by the moving climber, to ask the belayer to take in the spare rope.
6.4 CLIMBING CALLS - cont'd

"TIGHT" - by the second when he/she may fall, or requires a tight rope for a difficult move.

"HOLD" - by a climber about to fall, or actually falling. This must be shouted loudly.

"FIVE METRES" - by the belayer, to indicate that there is about 5 metres of rope left, and the leader should therefore look for a belay stance immediately.

"ROCK" - to indicate a rock is falling. This must be shouted loudly.
Lack of co-operation and international understanding has resulted in the evolution of a large number of differing grading systems for rockclimbing. Most countries, where the sport of rockclimbing is practised, have their own special grading systems.

New Zealand rockclimbers originally adopted the British adjectival grading which had 6 main grades ranging from Moderate to Extreme. Each grade had a mild and a hard subgrade. This was soon found to be too restrictive as standards began to surpass the Extreme grading.

This situation was overcome with the adoption, in the mid 1970s, of the Australian (Ewbank) grading system. This is an open ended numerical system that allows for the unimpeded development of climbing standards. Currently the grades range from 1 to 29, 1 being unroped walking, while a 29 would probably be an extremely desperate overhang. There are no grade 29 routes on Banks Peninsula at present, the highest graded climb is a grade 27 (there is one at Castle Rock and 3 at Mt. Pleasant).

The grading is put mainly on the technicality of the hardest move and is then loaded for looseness, exposure, lack of protection and so on.

For aid climbing the American system is used. This has grades AO to A5, which range from rests on free routes to complex moves on points of aid that only just support the weight of the climber. Obviously this is not an open ended system.

The grading of routes is a relatively subjective matter and is often the cause of heated debate. It is, however,
7.0 **GRADING - cont'd**

useful in guide books as it provides the would-be ascentionist with some indication of the technical nature of the proposed route.

7.1 **THE DIFFERENCE BETWEEN FREE AND AID CLIMBING**

A move or series of moves are classified as "aid" when artificial means other than the natural rock are used to make progress (e.g. pulling up on a piton or nut). Aid climbing on crags is generally regarded as unethical as someone of greater ability may be able to climb the route "free". Many of the earlier climbs which were climbed as aid routes or required partial aid have now been climbed totally "free", i.e. the ascentionist resorted to no artificial means to climb the route, relying solely on his/her technique and natural ability.
8.0 THE HISTORICAL DEVELOPMENT OF ROCK CLIMBING ON BANKS PENINSUL.

Rock climbing on Banks Peninsula first began at Castle Rock. With its ready access to Christchurch, Castle Rock came into its own, in the 1920s, as a practice crag for climbers preparing themselves for more arduous ascents in the main alpine ranges. This development paralleled the use by British alpinists of Welsh and Lakeland crags in the 1880s and 90s as a training ground for the European Alps.

At about this time Rapaki Rock also became popular as an area that provided easier climbs for the less experienced. Initial development in both these areas entailed the free climbing of the easier routes while the harder lines were aid climbed. Rock climbing at this time was not seen as a sport in itself but as preparation for alpine climbing.

Following World War II exploratory visits were made to some of the crags east of Lyttelton Harbour and in the vicinity of Akaroa. Despite this the main thrust of development was still concentrated on Castle Rock and, to some extent, Rapaki.

1968 saw the publication by the Canterbury University Tramping Club of a guide book to both Castle and Rapaki Rocks. This comprehensive guide covered such topics as the cultural and geological history of the area, the flora of Castle Rock and detailed route descriptions of climbs at the two crags. It was the first rock climbing guide book in New Zealand. This heralded the beginning of an increasing awareness that rock climbing was not just a form of training for alpine climbing but was fast developing into a recognised sport in its own right.

With the advent of the "Guide to the Port Hills" the pace of development, particularly of Castle Rock, leapt forward.
More and more devotees to the sport could be found extending themselves on new climbs of a previously unheard of difficulty. Because of this the 1968 guide book was soon to become outdated.

Rock climbing began to enjoy a boom in popularity. This not only occurred in Christchurch but also throughout New Zealand and the world. The application of modern technology, the introduction of new materials and the development of ethics regarding the sport, saw the subsequent trend away from hammered pitons to the newer hand-placed jamnuts. As the use of the new generation equipment was mastered, Christchurch climbers began to look further afield and began to make serious inroads into the development of the more remote crags on Banks Peninsula.

Momentum slowed somewhat during the mid 1970s, leaving aspirants to consolidate on a broader base the rapid advances that had taken place in the early seventies.

It was not until 1976, with the arrival of several overseas climbers, that there was a rapid increase in new route activity. These visiting climbers, together with a small band of local climbers, showed that with vision and by adhering to a strict training programme new routes of a very sustained and technical nature could be climbed. Over the next 3 or 4 years they pioneered many new routes on Banks Peninsula crags.

The beginning of the new decade saw the arrival of the latest (but probably not the last) generation of climbing equipment. It was not long before this new equipment was being put to serious use by those at the forefront of Christchurch rock climbing. This new equipment enabled them to push the known limits even further by climbing routes that were thought to be unprotectable.
8.0 THE HISTORICAL DEVELOPMENT OF ROCK CLIMBING ON BANKS PENINSULA - cont'd

The early 1980s also saw an increase in the numbers of climbers who could actually climb at an advanced level. No longer was it the preserve of a select few. Those dedicated enough to train and climb regularly could attain that level of gymnastic strength and skill that many of the modern routes demanded. The era of the rock athlete had arrived.

The publication in 1981 and 1982 of two guide books, introduced many to the pleasures of Banks Peninsula rock climbing. Both Brent Davis' guide to Mt. Pleasant and Gibraltar Rock and David Fearnley's up-dated guide to Castle Rock were responsible for an upsurge in climbing at these respective crags.

Apart from the minority of climbers who are pushing standards to a new high, there are a large number of individuals active at the lower grades. This is in part due to the many outdoor organisations and clubs (e.g. the New Zealand Alpine Club and the Canterbury Mountaineering Club) which run regular rock climbing instruction courses on Banks Peninsula. These courses instruct members in basic movement techniques and rope handling skills and are responsible for introducing an increasing number of people to the sport. Castle Rock and Rapaki Rock are the most popular venues.

8.1 FUTURE DEVELOPMENT

Rock climbing has evolved dramatically over the last 60 years. Nevertheless it has and will continue to attract those that seek out the challenges of this exhilarating sport. As numbers of participants increase and as standards continue to rise, continuing emphasis will be placed on the less developed crags on the Peninsula. As the more popular crags have little room left for development, it is certain that efforts will
be made to locate and develop new cliffs. Because of this drive to develop new areas, problems concerning such things as access will arise. These problems have begun to appear now but with increasing numbers of climbers, they are likely to be compounded in the future. The following chapter will discuss these problems and will also attempt to offer some tentative recommendations for the future.
As stated in the previous chapter, the problem of access to certain crags has emerged over the last few years (e.g. Mt. Pleasant and Gibraltar Rock). While access to those crags that are sited in scenic reserves (e.g. The Tors) remains unrestricted, there are several crags that are sited on reserve land but access to them is initially across private property (e.g. Devils Gap).

In past years when the rock climbing population was relatively small access to crags on private property was unrestricted. With the subsequent increase in the numbers of climbers public relations between some landowners and the climbing fraternity has soured somewhat and permission to climb at certain crags has been withdrawn.

What is needed to solve this are some definite policy decisions regarding the question of access from national bodies governing the sport, such as the New Zealand Alpine Club and the Federated Mountain clubs. The power behind either of these national bodies would be a great help in sorting out these matters.

One course of action open to the national bodies would be to approach the landowners concerned with the offer to site stiles in strategic places in order to minimise damage to fences. In addition to this, the offer to maintain and repair any damage could be given. In return for this service the landowner would be required to grant the right of access to club members (either New Zealand Alpine Club members or those belonging to clubs affiliated to the Federated Mountain Clubs - e.g. Canterbury Mountaineering Club).

A stile has been erected at Castle Rock (see photo 12) and hopefully this will be the first of many.
Photo 12 A stile over roadside fence at Castle Rock.

Doing this will help restore public relations as well as fostering a healthy growth and awareness of the sport.

Another option open to the national bodies is to approach landowners with the suggestion that an open space covenant under the Queen Elizabeth the Second National Trust be placed upon the area of land in which the particular crag is sited.

An open space covenant is a legal document between the QE II National Trust and the landowner or leaseholder to protect an area of land or special feature for a specified time or forever. The main attraction of an open space covenant is that the landowner retains title to the land; it does not become the property of the Trust or the State.
CONCLUSIONS AND RECOMMENDATIONS

The covenant briefly defines the area to be covenanted, states the purpose of the covenant protection and sets out what shall or shall not be done on the land to achieve this purpose. The owner thus agrees not to do various things which would materially alter the appearance or condition of the land, unless the prior consent of the Trust is given.

In most cases the QE II National Trust will undertake to survey and register the protected area at no cost to the landowner. However, there could be certain instances where the landowner would be requested to assist with part of the cost. This would normally only occur where the land or feature to be covenanted was exceptionally large. The Trust, on the other hand, can offer some financial assistance towards fencing off an area to keep livestock out.

The Trust is keen to see public access to covenanted land, with such things as walking tracks, where possible. This, however, may not always be in the best interests of the land or of the owner. Where public access to covenanted land may be inconvenient to the landowner at particular times of the year, the covenant can provide for access by arrangement with the landowner, whose rights against trespass will remain unaffected.

CONCLUSION

Until recently rock climbers have enjoyed, in the most part, good public relations with landowners. Access to many crags was unrestricted. The increase in the numbers of climbers has altered the status quo. It is now up to the national bodies - the New Zealand Alpine Club and the Federated Mountain Clubs, which govern the sport - to make a sincere and concerted effort to regain the right of access to certain crags on Banks Peninsula.
9.1 CONCLUSION - cont'd

The two ways of achieving this - the strategic siting of stiles and open space covenants, have been outlined above.

If the right of access is not restored, increasing pressure will be placed on existing use areas. This will effectively restrict many climbers' recreational opportunities by limiting access only to certain use areas, thereby denying the climber the opportunity to climb on and develop new and existing crags.
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GLOSSARY

Abseiling: sliding down the rope in a controlled manner; used to descend steep ground.

Aid climbing: using nuts and pitons to support the climber's weight; c.f. free climbing.

Artificial climbing: see aid climbing.

Asolo Chouinard Canyons: brand of friction boot used for crag climbing.

Bolt: industrial bolt used by hammering into a hole drilled into rock to provide anchor or protection.

Bouldering: sport of climbing large boulders or small cliffs.

Chalk: magnesium carbonate powder used by some crag climbers to improve friction of handholds.

Chock (from chockstone): originally stone jammed in crack for protection; now also general term for jamnuts.

Chossy: colloquial term for badly weathered rock; often loose.

Clean: in crag climbing ascent made without using pitons.

Cleaning: removing loose material from a rock pitch.

Corner: steep right-angled or V shaped feature formed by two rock walls meeting.

Crag: cliff used for rock climbing in a non-alpine situation.

Curved Stopper: modified stopper with curved sides.

Dead rope: in belaying that part of rope which would not be under load if a fall occurred.
Double roping: see abseiling.

E.B.: brand of friction boot used for crag climbing.

Ethics: collective attitudes among rock climbers which discourage certain tactics considered poor style or harmful to the rock.

Exposure: sensation of airiness when climbing on steep ground.

Flake: semi-detached piece of rock in the shape of a blade.

Free climbing: using nuts or pitons only for protection; c.f. aid climbing.

Friend: complicated jamnut which wedges by camming.

Gardening: removing dirt and vegetation from a rock pitch, similar to cleaning.

Grading: system of rating difficulty of climbs, especially on crags.

Groove: open book rock formation with more than 120 degrees between walls.

Hexentric: jamnut with hexagonal cross section.

Krab: abbreviation for karabiner.

Line: route up cliff following natural weakness.

Live rope: in belaying that part of the rope which would be under load if a fall occurred.

Mechanical belay: belay using Italian Hitch or Sticht belay plate or other belay device.

Nut: abbreviation for jamnut.

Nutting: aid climbing using nuts but no pitons.
Peg: colloquial term for piton.

Fin: colloquial term for piton.

Pitch: section of climb between two belays.

Piton hammer: hammer for placing and removing pitons.

Preplacement (of protection): placing of running belays either on aid or by abseil before a pitch is climbed.

Protection: use of running belays to reduce distance a leader might fall.

Rappel: see abseiling.

Roping up: climbers tying onto rope.

Runner: running belay.

Second: second person in climbing party.

Seconding: climbing as the second person on the rope.

Slab: moderately angled slope of smooth rock.

Snaplink: see Karabiner.

Stance: stopping place on a climb from which climber belays.

Tape: colloquial term for webbing.

Technical difficulty: difficulty of movements of a climb without considering other factors, e.g. protection, exposure.

Top-roping: belaying each climber from the top of the cliff.

Traverse: moving sideways on a pitch.
Wall: rock face which is roughly vertical.

Webbing: closely woven nylon fabric strips used for slings etc.

Wedge: a tapered rectangular section jamnut.

Wire: jamnut with wire sling, usually very small wedge type.