Libby Peter's Climbing Essentials

No. 5 : Trad Essentials - Advanced gear

Last month we looked at your first choices of anchors and runners, the simple ones – spikes, blocks and threads as well as the bread and butter of your rack, nuts and hexes. These alone will suffice for starters but if you're planning to climb on gritstone or wanting to venture onto harder routes you'll need to add some more specialist items to your rack. So let's take a look at what's available.

Camming devices

Every single time I struggle my way up a sustained crack pitch, throwing cams in at every possibility I marvel at the bravery of climbers who lived, climbed and got up routes before cams. Cams, or spring-loaded camming devices (SLCDs) to give them their full name, are a fantastic invention and come into their own in parallel-sided cracks and are quick and easy to place. BUT, and this is a very important but, they are also easy to place badly. If you're just learning how to use them it's wise to be mistrustful until you've really got to know how they perform in different rock types, crack profiles and across the size range. You don't need to buy a full set in one hit, start with a few larger units to take over where your number 9 nut won't fit. A no. 9 nut fits a 1 inch crack (approx.), cam numbers equate (approx) to the crack size they'll fit in inches, so go for a 1, 2 and 3 initially, then add more as your budget allows.

Cams work by opening wider and pushing against the side of the crack when they're loaded. To be able to do this they must be placed mid-way in their expansion range as in *photo 1*. Stuffing a cam tightly in a crack may feel reassuring but this isn't allowing it to work effectively and in addition often results in it getting jammed solid. *Photo 2* shows a badly over-cammed placement.


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Equally, cams that barely make contact with the rock may simply pull out or alternatively they may 'walk' back deeper into the crack. If a cam walks into a widening it may drop out, if it just walks deeply into a uniform crack it may become out of reach. This is really common and many hours are spent by frustrated seconds trying in vain to coax out a deeply stuck cam. Care and thought over the precise placement in the first place minimises the chances of them walking and jamming.

In vertical cracks the stem must be aligned downwards with the anticipated direction of load, as in *photo 1*. Leaving the stem sticking out horizontally like the one in *photo 3* will lead to rotation if the cam is loaded, which may cause it to jam solid, or worse slip out.

Small sizes

The smaller the cam the narrower effective band of operation it has. In other words it becomes even more crucial you place the cam so it's mid-way in its expansion range. *Photo 4* shows a good, small cam placement.

Micro-cams ripping out are a common cause of heart-stopping moments (or worse). On many harder routes they'll be the only protection you get, but it's essential to get to know how they perform before you commit to a crucial placement. You can test a placement by tugging and loading just


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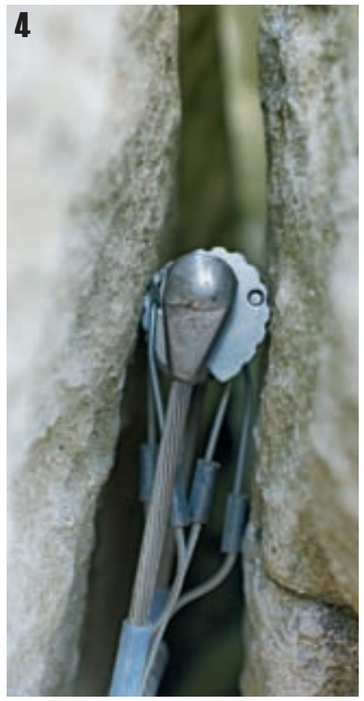
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as you would with a nut to get a feel for its holding power. It's also worth noting that the smallest micro-cams have a strength rating as low as 4kN (kilonewtons), whilst remembering that forces of 3-7kN on the top runner are typically generated in leader falls!

Different rock types and other cam considerations

Cams perform best in parallel-sided uniform cracks in rock with good natural friction. They were originally designed with soaring Yosemite style granite cracks in mind and they're equally at home and effective on gritstone. Smooth grained, low-friction rock like limestone and slate reduces the holding power of a cam dramatically, even when the cam is placed correctly. Be very suspicious of small cams in these rock types.

Irregular or knobbly-sided cracks also hamper the effectiveness of cams; if all four cams are not making contact it'll be prone to rotation.

Cams are great in **horizontal cracks**, especially now that the original rigid stems, (which were prone to snapping), have been replaced with flexible ones. Place them with the wider spaced cams at the bottom and align the stem so it points downwards rather than straight out. Remember to extend the placement with a quickdraw if the cam is deeply placed.

Up to a point cams do work in **flared cracks** but obviously their holding power is reduced and they're prone to rotation. Off-set cams are a highly specialist addition that few climbers carry.

The so-called **passive strength** of a cam describes how well it'll perform if placed like a nut. Most makes are now designed to be used like this if absolutely necessary, i.e. if you don't have a nut or chock to fit. But these placements are quite unusual and best avoided.

Saving a stuck cam.

First, be patient, stuck cams rarely respond to brute force.

Then look really carefully how the cam went into the crack (or ask the leader) before you start to move it.

Retract the cams but move it slowly, realign the cam in the crack if it has rotated before trying to slide it out.

For out of reach or over-cammed placements you'll need two hands so either get your leader to hold you or clip into a higher piece of gear.

If the cam has walked in you'll have to replicate the movement back out in tiny steps.

If it's walked and is over-cammed you'll need to use you nut key to pull on the cams alternately as you walk it.

If the trigger or ring pull is out of reach use a couple of wires looped over the trigger bar or the nut key on the ring pull. You can clip into these and lean back while you press the stem.

Micro wires

Micro wires are a light but specialist addition to your rack. Quite obviously they're not your first choice of runner and are to be avoided as anchors, but they come into their own on certain rock types – slate and gritstone being good examples. It's obvious from the micro wire in *photo 5* that the amount of metal/rock


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contact is small. This means two things; the placement is less secure and the concentration of the load hits a tiny area, so if the rock in this area is brittle (which it often is) it may splinter.

The other factor to bear in mind is that the strength rating of the tiniest brass and alloy nuts is typically 2kN. You could rest on one but would expect it to fail in a significant leader fall, which is one of the reasons that micro-wires are often bunched to help share the load.

Unusual runners

Off-set nuts are even more specialist but very effective in flared cracks. Their value is illustrated in the comparison of *photo 6*, which shows the off-set alongside the standard nut in *photo 7*.

Tri-cams are a rare breed (and some would say old-fashioned) that have largely been superseded by SLCDs. But in pockets, shot holes and peg scars they are sometimes the only piece of gear you'd get. *Photo 8* shows how the tilting action causes the camming/biting action, which is most effective in softer rock types.

You'll come across **pegs** both as runners and anchors. Always take a close look as you clip, both at the quality of the metal and the placement itself. Pegs were originally placed where no other gear could be found but these days you may have another choice so don't get the blinkers on.

Snapped pegs, as in *photo 9*, are common so use them with caution. Poorly positioned pegs are also common; the knife blade in *photo 10* puts the karabiner against an edge. One way to improve it is to use a wire to thread the eye of the peg to extend it as in *photo 11*.

If you're contemplating a **skyhook** runner, as in *photo 12* then it'll be your last resort. Designed for aid climbing but amazingly they do work as runners to!

Next month we way up the decision between single and double rope systems. □

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All Photos: Mike Robertson