

Equipment and Technique 1972

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Quality control It has long been standard practice with many firms to test karabiners by pulling to 3000 lb, and the need for this was vividly illustrated by Yvon Chouinard's advertisement in *Summit* recalling a batch which may have had a structural fault. With pitons the problem has been greater as the only way open to the manufacturer was hardness testing and destructive testing. Because of the time and skill involved this has always in the past been done by sampling each batch. This is a rather unsatisfactory technique in that it means that the odd 'rogue' peg could get through and, furthermore, the hardness test, usually carried out with a Vickers Hardness Tester, only tests one spot.

Clogwyn Climbing Gear have solved this problem with the purchase of a Ferrous Segregator which measures hardness. Basically, this consists of 2 electromagnetic coils which compare 2 items placed in them and either indicate that they have similar properties or reject them if they do not lie within preset tolerances.

Thus 2 pegs are checked and found to be similar. Peg A is marked and set aside, peg B is hardness tested and then tested to destruction and if it is found to be satisfactory, peg A, being recognised as identical, now becomes a standard test peg and each and every peg of the same type is compared with it and either accepted or rejected. Once the instrument has been set up, comparison can be carried out by unskilled labour.

Another device they have obtained is ideal for checking both for surface cracks and subsurface defects, normally associated with hand forging. This apparatus consists of an electromagnet and an ultra-violet light. Magnetic iron oxide containing a fluorescent dye is aerosol sprayed on to the piece to be tested, say an ice-axe pick in for bending. This is then placed in the electromagnetic field and irradiated with ultra-violet light, which causes a crack or forging defect to show up as a green line, even if it is below the surface.

The NEL dynamic rope tests have dispelled many of the fears about Kernmantel ropes that spread throughout the country after the BMC published its warning following static tests in Circulars 604 and 615. The present state of affairs is that the BMC's 50 days' use can be doubled for some makes of rope, although of course regular inspection should be carried out to ensure that the rope has not suffered physical damage.

In an attempt to guide the would-be rope buyer, the UIAA has created a rope quality mark. This is granted only to those ropes which under test have withstood at least 2 heavy simulated falls. This mark is in the form of a round label with the sign of the national club on one side and the UIAA sign plus the words 'FALL PROOF AS A SINGLE (DOUBLE) ROPE' on the other side. This

sign applies only to the rope in new condition. The answer seems to be only to buy a UIAA approved rope (others may be satisfactory though not submitted for test) and to seriously consider retiring it after the second fall, whether serious or not.

Plastics and nylon These are finding more and more use in climbing equipment, often where their use is least expected.

Peck have brought out an excellent chock made out of glass-filled nylon called the Ny Chock. Its main advantages are that although its mechanical properties are similar to aluminium, it is much lighter and is also resistant to corrosion. Designed to be used with tape, it is best obtained in the form of a stitched loop. Instead of holes it has parallel slots, a big safety feature when tape is being used. Circular holes cause the tape to be folded, and this can result in a considerably lower strength.

The Brynboot, mentioned in last year's notes, has also progressed to plastic, this time in the uppers. Trials with a special plastic have shown such a boot to have all the advantages of leather and increased waterproofing. The expected perspiration problem has been dealt with successfully and the boot style is now acceptable—it looks like a mountain boot.

Artificial chockstones Chouinard chocks have arrived in Britain, but it is doubtful if they will really catch on due to their high price, and it seems illogical to me that they should. After all, we in Britain invented and developed the use of artificial chockstones and make models to suit virtually every situation in which they can be used. Stoppers are small wedges, the 4 smallest of which are wire sling mounted, as shown in the photographs (Nos 1-4). Hexentrics are basically hexagonals with 3 elongated faces, Nos 5-10 being hollowed out to cut down on weight. An obvious improvement would be for all the stoppers and the 5 smallest hexentrics to be wire mounted. The main disadvantage is their cost. The two sets illustrated cost £7.70 (1972 prices).

Wire walkers This entirely new device was developed by Joe Garnett of Burnley, principally for caving, to replace the heavy, unwieldy and expensive Electron ladder.

In climbing, its obvious use is in fixed rope work particularly in S America, where ordinary fixed ropes are apt to be frayed as the result of high winds. The wire is about the same weight, length for length, as rope and has the advantages that it is less bulky, non-stretch and is more resistant to wear. The stops over which the wire walkers fit are Talurit swages. The 'steps' must be made by the individual out of fine-gauge kernmantel and should reach from the foot to within 4 inches of the chin, not forgetting the wrist loop (see diagrams for further information).

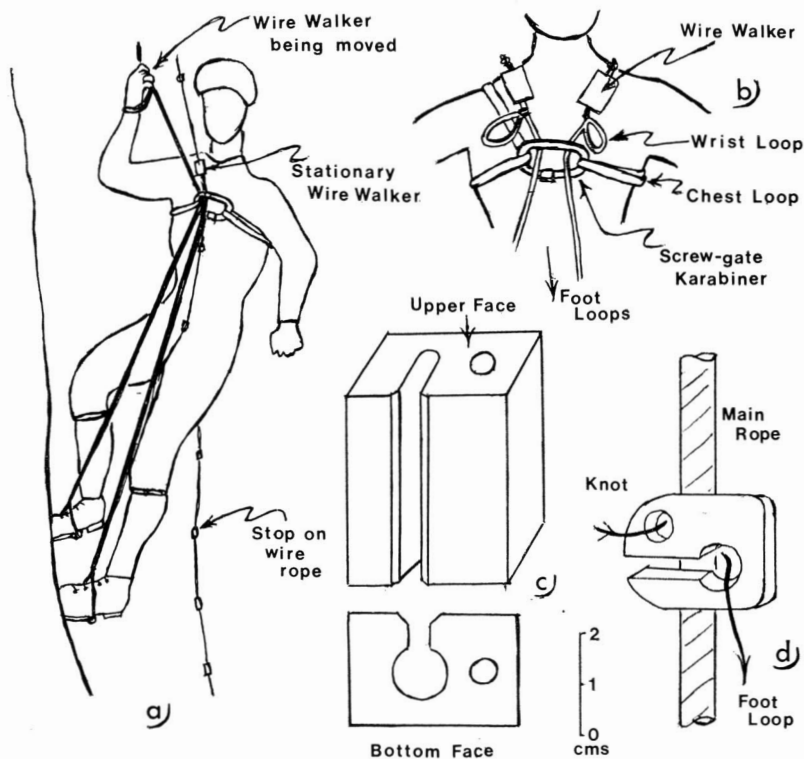
Elevators This new adjustable étrier from Peck is an interesting innovation, which saves the moderate artificial climber the trouble of moving out of his step and considerably eases the difficulties of ultra top stepping on modern étriers.

Another interesting simple metal die-stamping comes from Salewa and makes an excellent safety device at the end of an abseil where an immediate belay is not obvious. It forms a simple, easily fitted prusik device, and though it has its limitations, it is well worth carrying. It can be worn ready for use in cow's tail form, attached to a chest harness.

Snow anchors/deadmen This, it would appear, is a field where theory far outpaced practical testing in development. The earliest snow anchors were made from flat plywood and were used for anchoring dogs in the Antarctic.

Several years and a large number of models later it would seem that this design is still the best. The fixed-angle theory of the wire has certainly been discredited, but not until a large number of anchors fitted this way had been sold. Models folded from a central point do not behave as they should theoretically, and do not necessarily correct themselves into alignment with the falling climber. Edge wings seem to be satisfactory, however.

The securest form of snow anchor/deadman is undoubtedly the one with the greatest surface area that can be used in the conditions. Well-designed snow anchors have already saved many lives where other 'accepted' means would almost certainly have failed.



104 a), b) and c) Wire Walkers; d) Salewa Prusiker Sketches: D. Ellis

Karabiners Clog have brought out 2 light-weight aluminium alloy karabiners which look to be very competitive. The bent wire version has a breaking strength of 2500 kg and the forged model stands up to 3000 kg. The latter will be the first British karabiner to get the UIAA certificate. The bent wire model, while very strong, has been specifically designed for artificial climbing.

Peck are also working on a new karabiner, apparently without moving parts. No details are available but production models will probably be on the market in mid 1973. Previous attempts at this type of karabiner have revolved around the key ring principle, but the time spent clipping in and out made them unacceptable. It will be interesting to see what the Peck think-tank produces.

Also under development (ready in 1973) by Peck are closed cell foam garments, a device which will absorb energy involved in belaying, which can also be used for prusik and abseil work, and a full body harness.

It is of interest to note that a previous energy absorption device, the MSR autobelay (see *AJ* 76 280) has still to reach the market even though it worked perfectly satisfactorily. Possibly, market research has suggested that it will not sell.

Further note on early crampons Luciano Serra writes:

Coming back to the matter of the early use of crampons, it is relevant to quote a passage from a book by an Italian physician, Guglielmo Grataroli, 1516–1568. Persecuted as a Lutheran, he took refuge in Switzerland, where he published in 1561 in Basel a work of hygienic and practical proposals for several kinds of travellers, *Regimen omnium iter agentium vel equitum vel peditum, vel navi, vel curru seu rheda*. His book ran into a second edition (Strasbourg, 1563), and into a third (Cologne, 1571), all issued before Simler's better-known book. Grataroli wrote about crampons: 'Under the boots you bind fast steel points, single and joined with thin iron sheets, four-side shaped, that now you can buy everywhere'.

New Design for Skis

The All Terrain Military Ski programme of Brunswick Corp. USA aims to provide an all-purpose ski (ie suitable for both Alpine and cross-country work) for use in military operations of all kinds by skiers of varying degrees of competence. The normal laminated wood construction has been replaced by a urethane foam core encased in an epoxy fibre-glass laminate. The resulting ski has the same flexural and torsional characteristics as a wood ski; the primary disadvantages of the latter (ie in-storage deterioration, frequent need for repairs when in use and frequent need for replacement of metal edges) have been overcome, while the weight is lower—less than 8½ lb per pair (see *SAMPE Journal* 8(2) 9, 1972).