

MODERN YOSEMITE CLIMBING

BY YVON CHOUINARD

(Four illustrations: nos. 48-51)

Yosemite climbing is the least known and understood, yet one of the most important, schools of rock climbing in the world today. Its philosophies, equipment and techniques have been developed almost independently of the rest of the climbing world. In the short period of thirty years, it has achieved a standard of safety, difficulty and technique comparable to the best European schools.

Climbers throughout the world have recently been expressing interest in Yosemite and its climbs, although they know little about it. Until recently, even most American climbers were unaware of what was happening in their own country. Yosemite climbers in the past had rarely left the Valley to climb in other areas, and conversely few climbers from other regions ever come to Yosemite; also, very little has ever been published about this area. Climb after climb, each as important as a new climb done elsewhere, has gone completely unrecorded. One of the greatest rock climbs ever done, the 1961 ascent of the Salethé Wall, received four sentences in the *American Alpine Journal*.

Just why is Yosemite climbing so different? Why does it have techniques, ethics and equipment all of its own? The basic reason lies in the nature of the rock itself. Nowhere else in the world is the rock so exfoliated, so glacier-polished and so devoid of handholds. All of the climbing lines follow vertical crack systems. Nearly every piton crack, every handhold, is a vertical one. Special techniques and equipment have evolved through absolute necessity.

SPECIAL PROBLEMS

Since Yosemite has characteristics all of its own, it also has its special problems and difficulties. Because the Valley lies at an altitude of only 4,000 ft., the lower cliffs are often covered with trees and bushes, and the cracks are often filled with dirt and grass, making it more difficult, time-consuming and uncomfortable for the first ascent party.

Yosemite being situated in the centre of sunny California, the threat of stormy weather is not serious; however, when an occasional storm does hit, usually in the spring or fall, it can be serious because most climbers are not prepared mentally, physically or materially for it. Some climbers have tended to belittle the climbing in Yosemite because of the fact that

it lacks the storms of the high mountains, but personally I have never suffered so much from the weather as I have in Yosemite.

Bad weather in California often means hot weather. The usual climbing temperature is 80° to 90° Fahrenheit during the day and 50° at night. Temperatures above 100° are common. During June and July of 1961, there were fifteen consecutive days with temperatures of over 95°. It is usually too hot to do much climbing from late July to September 1. The heat poses a related problem, that of carrying great loads up the walls. The *minimum* water that must be carried on the big climbs is 1½ quarts per man per day. Water, food and bivouac equipment, combined with the usual forty-five pitons and forty karabiners, make a considerably heavier load than one carries on a comparable climb in the high mountains. On the multi-day climbs which can last up to nine days, one must be equipped to cope with the heat or, if the weather should change, the extreme cold. A perfect example of what the weather can do is our 1965 ascent of the North American Wall of El Capitan. On the first four days, the temperatures were in the nineties; on the fifth day it snowed 15 in.; and it was cold for the rest of the four days.

SAFETY

Even with the standard of extreme difficulty which has been achieved, safety has not been disregarded. The American's mania for anything to do with safety techniques, and his basic insecurity, have caused revolutionary innovations in belaying and equipment. Belaying systems are similar to those of the British, except for the fact that pitons are used far more numerous for protection than in Europe. The objective danger is also less in Yosemite than probably anywhere else in the world. There is little danger of rock-fall, loose rock or bad storms; as the rock is so smooth and steep and has few ledges, a fall usually only helps to build one's confidence.

FREE CLIMBING

Not only is nearly every piton crack vertical, but nearly every handhold is a vertical one. Laybacking, jamming, chimneying, pinch-holds and friction climbing are the usual techniques. Face climbing, such as one finds in Wales or in the Lake District, is a rarity.

Most people who have never climbed in the Valley are under the impression that the rock is similar to that in the French Alps. This is not so. The crystals in the granite are very fine and compact and, being also glacier-polished, the rock is unusually smooth. Yosemite granite does not fracture in angular blocks, as does the granite of Chamonix or even the rest of the Sierra Nevada. The Valley is actually a series of

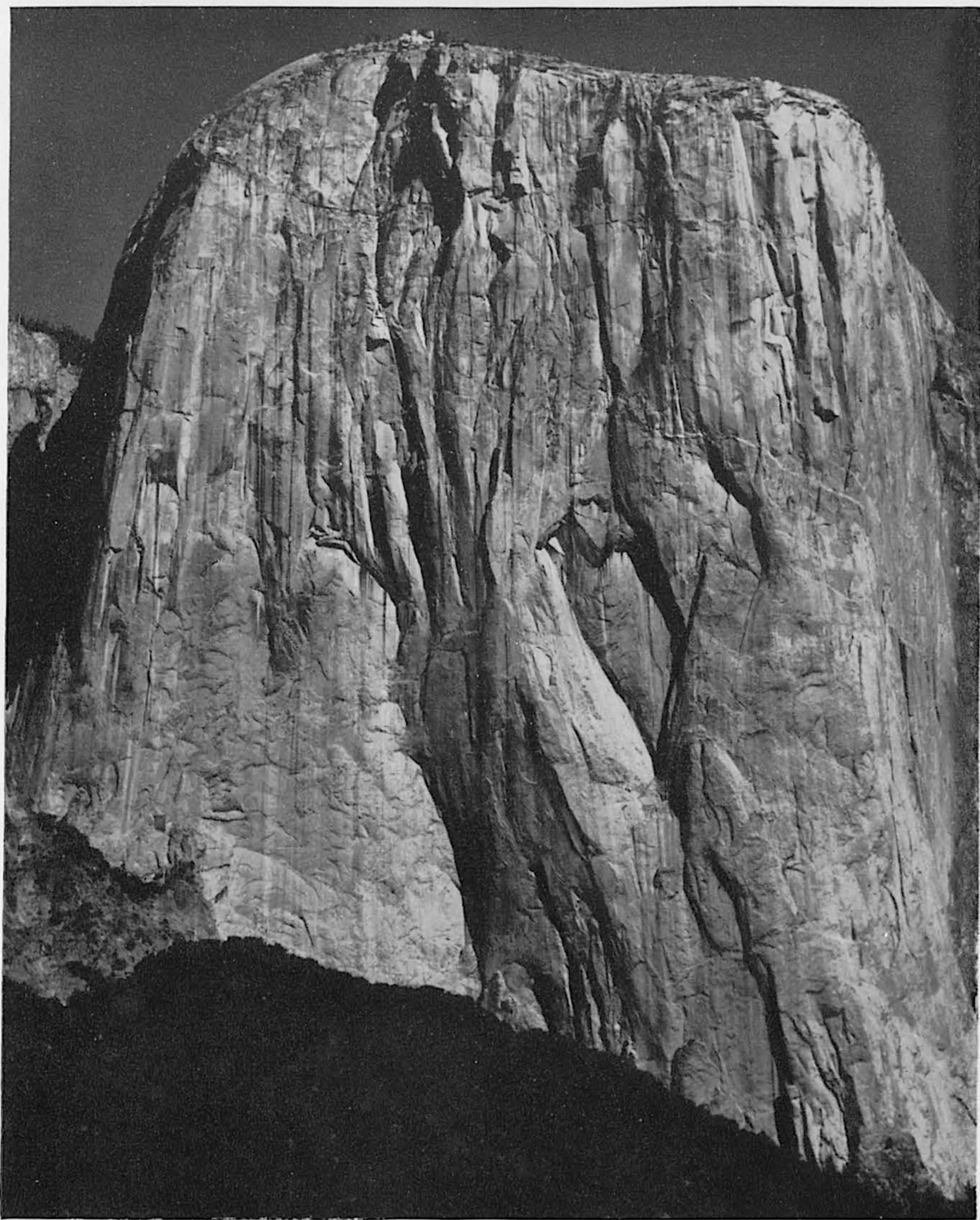


Photo: Tom Frost]

YOSEMITE: THE 3,000 FT. SOUTH-WEST FACE OF EL CAPITAN (SALETHÉ WALL). THERE ARE FIVE SEPARATE ROUTES ON THIS FACE.

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exfoliation domes that have been cut in half by a river and by glaciers. This means that most of the climbing is on flakes, be they small and thin, or large dihedrals. Pitons are usually placed behind a flake, or in a vertical inside corner. This vertical crack climbing takes not only a great deal of technique, but also enormous energy.

There is undoubtedly more chimney climbing on these walls than in any other area. Chimneys range from those that require one arm and one leg techniques to others that have chockstones bigger than a house; from perfect 'Rébuffat' types to flaring, bomb-bay, horizontal 'horror' chimneys; and from short slots to some that are over 1,000 ft. high. The gritstone type of pure jam cracks are in abundance, and some of these cracks constitute the most difficult free climbing pitches in America.

Also characteristic of the Valley is friction and small hold climbing on glacier-polished slabs, similar to the Etive Slabs in Glencoe. There are climbs in the Valley which have hundreds of feet of this. Very difficult moves have been made on these slabs, using friction, fingernail holds, and edging on tiny flakes.

Of the three hundred and fifty or so routes in Yosemite, only about seventy-five require artificial aid of any sort. The rest are all done free, using pitons for protection only. Many of the routes were originally done using pitons for aid and have since been done free. A typical climb, the 1,700 ft. high North face of Sentinel Rock, was first done in five days using about a hundred pitons, mostly for artificial aid. Now it is done with only three pitons for aid, and in one day. Of its nineteen pitches, eighteen are *at least* of medium V.S. standard.

The good weather, the easy approaches, the year-round climbing season and the good piton cracks have left the pioneers free to devote their energies to pushing free climbing to the limit.

ARTIFICIAL CLIMBING

Because most piton cracks are vertical and there are few overhangs, the double-rope technique, standard throughout the rest of the world, is never used in Yosemite. Nor is tension used, except on overhanging rock. Instead, only one rope is run through all of the pitons, and large numbers of runners are used to eliminate the rope drag. The use of one rope has greatly increased the efficiency, simplicity and speed of artificial climbing.

Slings (étriers) made of 1-in. wide nylon webbing have taken the place of the step étriers. There are many reasons for this: (1) The slings grip the sides and cleats of the climber's heelless *kletterschuhe* and give a much greater feeling of security and comfort, especially when belaying in slings for a long period of time. (2) The slings can be used for runners around large blocks, bushes or trees. (3) In an emergency, they can be cut up and used for rappel slings. (4) They can be carried more neatly



Photo: Tom Frost]

EL CAPITAN: THIRD PITCH OF NORTH AMERICAN WALL. NEARLY ALL THE PITONS ARE NESTED TOGETHER WITH ONLY THE TIPS HOLDING.

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on the person or the pack. (5) They can be used for prusiking more efficiently. The only additional things needed are three small loops of $\frac{1}{4}$ -in. cord. (6) They make no noise, so that the belayer can hear the little familiar sounds that help him to understand, without looking up, what the leader is doing, and to anticipate the belay signals. (7) They allow one to 'sit' in one's slings, thus saving a great deal of energy. (8) There is less chance of dropping them, either when a piton pulls out or through carelessness. As far as I can tell, they have no disadvantages over step stirrups.

Every climber carries three three-step slings. The leader never leaves them in place, but moves them up from piton to piton. A karabiner is kept on each sling and is never removed. On low-angle rock, only one sling is used; on steeper rock, two are used, one foot placed in each. On overhanging rock, a third sling is used to clip into the next piton. When cleaning out a pitch, two or even three slings are often clipped together to reach pitons that are far apart.

The actual technique is as follows: (1) A piton is placed. (2) A karabiner is clipped into it. (3) A sling with karabiner is snapped into that. (4) The climber steps up and tests the piton by giving a little hop; he then takes another step up, until the piton is at waist height, and *then* he clips in the rope to the first karabiner. The advantage of clipping in the rope last is that it leaves less slack should the piton pull out and, since the piton is at waist level, the belayer need not let out 4 ft. of slack and then pull in 2 ft. as the climber moves up. Of course, on overhangs the rope is clipped in first, so that the leader can use pull.

With the use of the Jumar *ascendeurs*, a very important revolution has taken place in big wall, multi-day climbs. In brief, their method of use is as follows: the first man leads with a 9 or 11 m. perlon rope, and has another spare rope for hauling. At the end of an artificial pitch, he anchors off the climbing rope, then proceeds to haul up the sacks, using a system of hauling which utilises the Jumars, a pulley and his leg muscles. While he is hauling, the second man is prusiking up the climbing rope on his own Jumars and is taking out the pitons.

With this method, far heavier loads can be carried; no time is lost in hauling; and the second man need not worry about shaky pitons or wearing himself out on the free climbing stretches and having to hang on small holds, or tension, trying to get the last piton out. He merely prusiks right by all the difficulties, and arrives at the belay stance fresh for the next lead.

EQUIPMENT

The first pitons were developed for use in the Dolomites, in limestone, where a piton is expected to 'flow' into a very irregular crack, or hole, and fill all the tiny internal pits and irregularities, and to have such great



Photo: Tom Frost]

YOSEMITE: CHARLES PRATT LEADING THE GREAT ROOF ON THE NOSE OF EL CAPITAN.

holding power that it can never be taken out. It was generally considered that only a piton of very malleable steel or iron had the qualities to fulfil these requirements. All the European pitons today are still being made thus, whether they are going to be used in limestone or not.

John Salethé, a blacksmith and the pioneer of technical climbing in the Yosemite, was the first to realise the need for a piton for climbing on granite. During his attempts on the Lost Arrow, he saw that he needed a stiffer, tougher piton, which could be driven into solid veins of rotten granite without buckling, which was lighter than an iron piton, which had greater holding powers and which yet could be taken out faster, and more easily, and be used over and over again. Out of old model 'A' Ford axles, he forged some beautiful horizontals, which to this day are almost revered by those lucky enough to own them.

The alloy steel piton is based on a theory radically different from that of the iron piton. It is not expected to follow cracks, but rather to act like a spring, pressing against their sides. As the whole piton is stiff, the neck will not bend and flow out of a crack, and because it can be driven harder and deeper without buckling into the typical smooth crack, it has been proved to have far greater holding power. The head does not bend when the piton is removed, thus making it possible to do a several day, three hundred piton climb without leaving a single piton in place.

In the early 1950's, a new piton was invented by another well known Yosemite climber, Charles Wilts, which helped as much as anything else to set the present extremely high standard of artificial climbing. This piton, with a blade the size of a postage stamp, was appropriately called 'the knife-blade'. It was the first piton to be made of chrome-molybdenum aircraft steel, and it could be used in very thin cracks where no other piton could possibly enter. Although these pegs were originally made for artificial climbing, it was soon found that they had even greater holding power than some soft pitons. Gerry Gallwas, in 1957, forged some regular horizontals out of chrome-molybdenum steel (SAE 4130) for the 1957 ascent of the North face of Half Dome; some of these have been used over a hundred times and are still in use.

Yosemite, as any granitic area, has many wide piton cracks. Wooden wedges were never much used, because these large cracks are often filled with dirt. Several people made large angle pitons, some up to 4 in. wide, of various materials. Some, made by William Feuerer for the 1958 ascent of El Capitan, were fashioned from aluminium channel, angle iron and cut-off stove legs.

All of these pitons were made by individuals in home workshops and were available only to friends. Salethé sold a few, but most climbers thought his price of \$.55 too expensive! In 1958, the author started to make this newer type of equipment on a commercial basis. He developed

a new aluminium karabiner, stronger than existing steel models, which had a gate that could still be opened under a climber's weight, and shaped to be used in combination with the Bedoyne karabiner for the Yosemite method of artificial climbing. Ringless alloy-steel angle pitons were invented which were superior in every way to existing models. The larger 'bongs' were made of heat-treated alloy aluminium in order to save weight. A full line of horizontals of alloy steel was developed, ranging from a knife-blade to a wedge.

Abortive attempts on Kat Pinnacle's West face showed the need for a piton which would go into tiny bottoming cracks which even knife blades failed to enter. From the need came the 'rurp'. This 'Realised Ultimate Reality Piton' helped to usher in the A5 climbing, and was instrumental in allowing dozens of existing bolts to be dispensed with and chopped out. These diminutive pins are far from being just novelties, but have become an absolute necessity on nearly all of the newer artificial climbs.

ETHICS AND PHILOSOPHIES

The most obvious split between European and Yosemite rock climbing philosophies is: should pitons be left in or not? In Europe, they are left in place. In Yosemite, even if a climb has been done a hundred times, the pitons are still removed. I believe that nearly everyone, whether European or American, agrees that, if removal of pitons is practicable, a route should not remain pitoned. It is entirely practicable in the Yosemite to take the pitons out. With the pitons removed, and with no guide-book to show the way, a third or succeeding ascent of a route is as difficult as was the second. It is conceivable that a climber who is capable of doing the Bonatti Pillar on the Petit Dru with all the pitons in place might not be able to climb the North face of Half Dome, although both climbs, unpitoned, are of equal difficulty.

In the Alps, climbing is not called artificial until a stirrup is used. Free climbing in California means that artificial aid of any sort is not used, whether it be a sling around a knob of rock, a piton for a handhold, or for a foothold, or to rest on. After a piton has been placed for safety, it may not be used for aid in climbing without changing the classification of the climb.

Especially on short climbs, free climbing is forced to its limits. Guide-books list not only the first ascent of a route, but also the first free ascent. Some climbers feel that it is more of an honour to do the first *free* ascent than the actual first.

Nowhere else, except on the sandstone climbs of the South-west, is the need for expansion bolts more pronounced than in the Valley. However, this does not mean that they have been indiscriminately used.



Photo: Tom Frost]

HALF DOME, NORTH FACE. THE FIRST ASCENT, IN 1957, TOOK FIVE DAYS.

Climbers have gone to extremes to avoid placing one of them, except as a belay anchor; here the ethics are less stringent. The usual attitude towards bolts is that they should only be carried by the better climbers, because only they know where a bolt *must* be placed. If a bolt is put in, and a later party feel it unnecessary, then it is chopped out. Lack of equipment, foul weather or a less-than-expert leader is never an excuse for a bolt.

The Yosemite climbers' way of life is not much different from that of British climbers, the major difference being that in the Yosemite there are far fewer climbers. The usual number of 'resident' climbers is less than twenty at one time. Weekends may bring in double that number. I do not remember ever having been on a climb with another party on it.

Everyone stays in Camp 4, which is reserved for people with dogs and cats, and for climbers. It is situated close to the grocery store, the bar and the cliffs. The living is cheap if one camps out and cooks one's own meals. A visiting climber, especially a foreigner, is very welcome, and is quickly accepted, *unless* he arrives with a competitive attitude, in which case he will be constantly on trial to prove himself; for the native climbers are a proud bunch of individuals, proud of their Valley and its climbs and standards. But then, I suppose it is the same in Wales or in the Wilde Kaiser.

There is a serious lack of easy, enjoyable climbs. Most of the climbs are difficult and long. The average length is about 1,000 ft. The easier the climb, the more likely there are to be bushes and trees and dirt in the cracks. The climbing as a whole in Yosemite tends to be difficult rather than enjoyable. I personally would prefer to climb in the high mountains, because I have always abhorred the tremendous heat, the dirt-filled cracks, the filth and noise of Camp 4 and, worst of all, the multitudes of tourists which abound during the weekends and the summer months. Out of all the routes in the Valley, there are probably less than seventy-five that I would care to do, or do over again. But I remember some crisp, fall days, high up on the crags, when all seemed right with the world, the Valley below virtually empty of tourists and dead quiet. That is when you seem to possess the Valley; and it possesses you with a passion that keeps bringing you back.

THE FUTURE OF YOSEMITE CLIMBING

Nearly all of the great classical lines have been ascended. All of the faces have been climbed by at least one route. This does not mean that there are no new routes left, because there are countless new lines on the cliffs which lie between the great formations. Some will be as difficult as any yet done, but that is all they will be. They will offer very little aesthetic pleasure. The rock is often poor, the cliffs covered with bushes

and the cracks filled with dirt and moss; blank areas will require bolts. As a line becomes less logical and direct, the aesthetic beauty of the climbing also diminishes.

To do a winter climb in Yosemite for the sake of the first winter ascent is senseless. Winter conditions can be better than those in the summer. Solo climbing will not be practical until the routes are pitoned, and I doubt that the big walls will be pitoned for a long time to come.

Climbing for speed records will become more popular—a mania which has just begun. Climbers climb not just to see how fast and efficiently they can do it but, far worse, to see how much faster and more efficient they are than a party which did the same climb a few days before. The climb becomes secondary, no more than a race-track, when man is pitted against man.

The future of Yosemite climbing lies, not in Yosemite, but in using the new technique in the high mountains of the world. A certain number of great ascents have already been done in other areas as a direct result of Yosemite climbers and techniques; notably the two new routes on the West face of the Petit Dru, the South face of the Fou, the Hummingbird arête on Mount Logan, a new six-bivouac route on Chacraraju in the Andes, and numerous big walls in the Bugaboos and other ranges in Canada and Alaska. Although these ascents are as fine and difficult as any in their respective areas, they are merely the beginning of a totally new school of American climbing, that is to say technical climbing under alpine conditions. All of the climbs just mentioned are characterised by directness, technical difficulty and by the climbers living on them rather than using siege tactics.

From experiences gained on the El Capitan walls, I believe that it is possible for a four-man party to be self-contained, carrying all their necessary gear, leaving no fixed ropes to the ground, and to live on a wall for a period of twenty days. Two men would be climbing and two hauling up the gear. Theoretically, a climb equal to two El Capitans could be done in a one-push effort—that is, a wall 6,000 ft. high and extremely difficult all the way.

I have personally seen in Canada untouched walls that are as difficult and as beautiful as any ever done in the history of alpinism. The western faces of the Howser Spires, in the Bugaboos, are from 3,000 ft. to 5,000 ft. high. The Coast Range of British Columbia, the Logan Mountains, the Katchatna group, and the other innumerable ranges of Alaska, the Andes, the Baltoro Himalaya, the Patagonian Alps—all have walls which defy the imagination.

Who will make the first ascents of these breath-taking rock faces? From the Americas, the climbers can only come from Yosemite. These extraordinary climbs will be done by dedicated climbers who are in superb mental and physical condition from climbing all the year round;

who are used to climbing on granite, doing much artificial climbing and putting in and taking out their own pitons; who are familiar with the problems of living for a long time on these walls, hauling up great loads, standing in slings, sleeping in hammocks for days at a time; and who have the desire and perseverance needed to withstand the intense suffering which is a prerequisite for the creation of any great work of art. Yosemite Valley will in the near future be merely the training ground for a new generation of alpinists who will venture forth to the high mountains of the world to do the most aesthetic and difficult walls wherever they may be found.