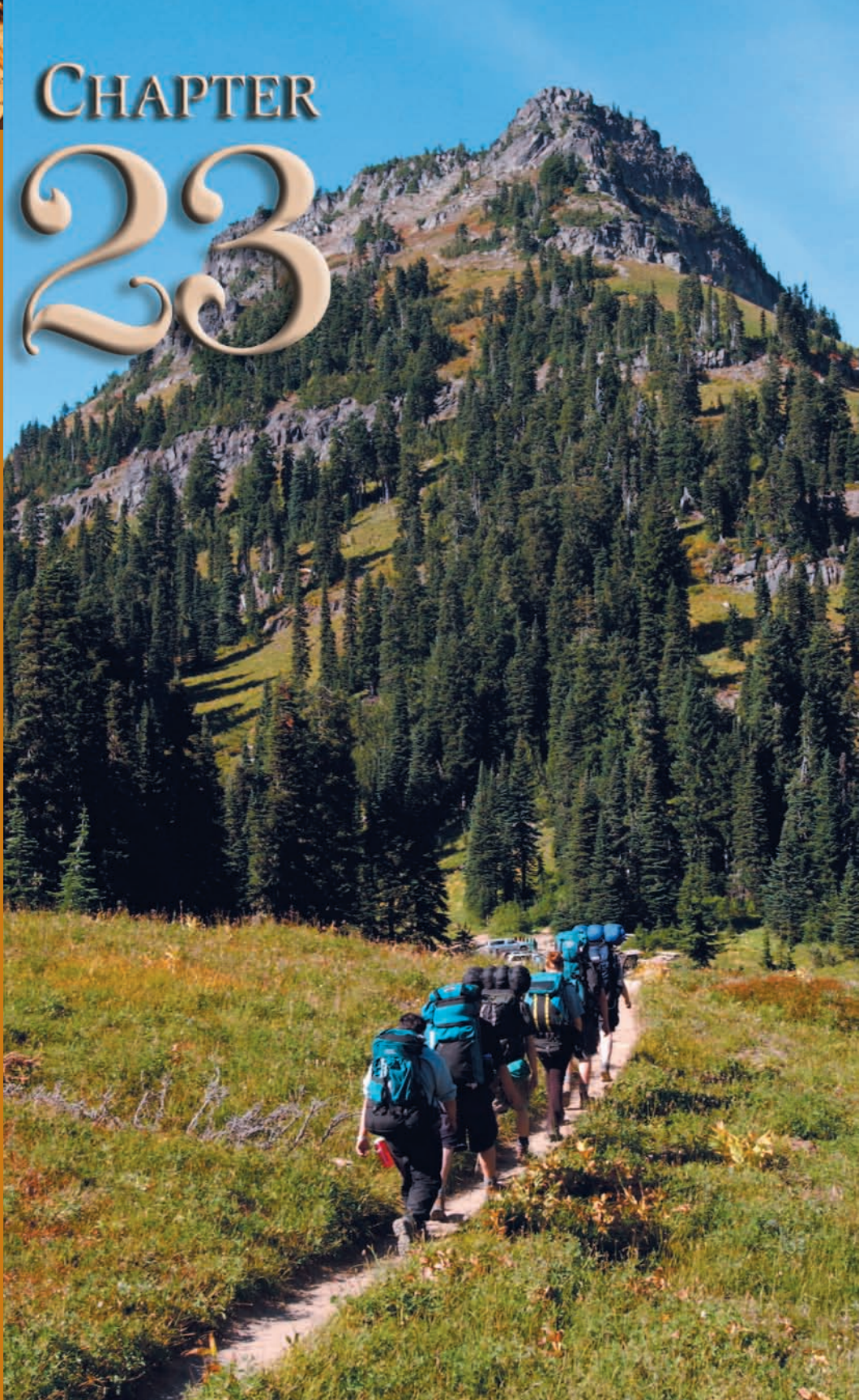
Chapter 23



Mountain Travel

"Double happy . . . is the man to whom lofty mountaintops are within reach, for the lights that shine there illumine all that lies below."

—John Muir (1838–1914), 19th-century naturalist, mountain traveler, and a founder of the Sierra Club

Climb far above the meadows and valleys into a lofty world of summits, ridges, boulder fields, and snow. There you'll find a remarkable ecology thriving in harsh alpine conditions. In yourself, you can find a keen sense of confidence in your ability to travel safely and well through even the wildest territory. Reaching the high country often involves cross-country travel over tough terrain. That's where a knowledge of mountain travel pays off. It can take over where the trail ends, lift you far above the lowlands, and help you explore the great, solitary realm where the summits meet the sky.

Mountain travel can be done as day hikes from trailheads or base camps, or might include nights of camping at high elevations. It is an advanced form of adventure that draws on a mastery of backpacking, wilderness navigation, and risk management. Most of all, it demands maturity and judgment.

Climb On Safely

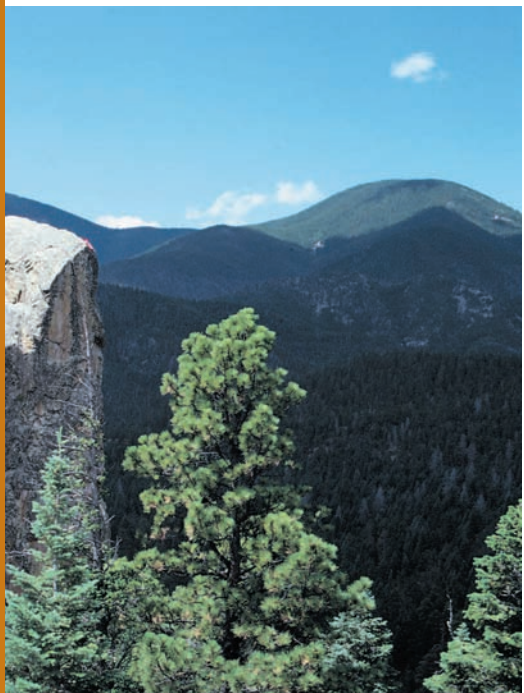
The skills of mountain travel bridge the gap between trail hiking and *technical mountaineering* (mountain travel that involves the use of ropes, anchors, and other technical expertise). Unlike rock climbers who seek out steep, difficult routes, mountain travelers strive to reach their destinations with a minimum of exposure to potential danger. The techniques described in this chapter are intended to alert you to important considerations for planning and enjoying treks in mountainous terrain.

Leaders of Scout units interested in rock climbing or any forms of technical mountaineering must follow the points of Climb On Safely—the Boy Scouts of America's recommended procedure for organizing climbing and rappelling activities at a natural site or a specifically designed facility such as a climbing wall or tower—to provide qualified instruction and adult supervision, and to conduct these activities in a manner that conforms with the policies and guidelines of the BSA.

For the full text of the BSA's Climb On Safely, see the *Fieldbook* Web site.

Deciding Where to Go

Perhaps you have heard of a lake high in a mountain valley that you would like to visit, or a mountain you want to climb, or an alpine pass that can lead you to a faraway destination. On visits to parks, forests, and high-adventure bases you might have seen inviting summits and decided you would someday make your way to the top. Choosing a destination for your mountain travel is often a matter of narrowing down a wealth of opportunities.



Nearly every mountain of any size is featured in local guidebooks that include descriptions of routes, degrees of difficulty, permits required, group size limitations, and hazards to avoid. Land management personnel might also provide information that will help you determine whether destinations are within your skill levels and, if so, how best to reach them.

Planning a Mountain Travel Journey

The challenges raised by mountain travel often are matters of distance and remoteness. You and your group will require appropriate gear and provisions, just as for any trek adventure, but you also might need to prepare to be more self-reliant than when you are close to a trailhead. Risk management, first-aid training, and reliable means of emergency communication must be carefully considered in the planning stages of a trip. So should writing down a detailed trip plan and leaving it with responsible adults.

Monitor weather forecasts in the days leading up to your departure and check with land management personnel for the latest reports. Use your best weather sense while you are in the field, too. If stormy conditions turn you back, remember that the mountains will still be there the next time you want to head for the high country.

For more on preparing for a mountaineering adventure, see the chapter titled "Planning a Trek."

Leave No Trace Mountain Travel

Alpine environments can be especially sensitive to human impact. The principles discussed in the chapter titled "Implementing Leave No Trace" are excellent guidelines for conducting mountain travel adventures in ways that are enjoyable and environmentally sound. Respect limitations on group size, stay on trails whenever you can, and use designated campsites. Otherwise, hike and camp on rock, gravel, dry grasses, or snow, and minimize your impact as much as possible.

For more on responsible mountain travel, see the "Leaving No Trace" section of this book.

Mountain Travel Teams

Team development and leadership issues that are important during any outdoor activity are vital for the success of a mountain trip. For safety, a team should be made up of at least four people. Everyone needs to understand the challenges ahead and prepare for them both physically and mentally. Group members who have succeeded together during Project COPE (Challenging Outdoor Personal Experience) or other trek adventures should be well on their way to developing the trust and teamwork that will see them through journeys involving mountain travel.

For more on the dynamics of travel teams, see the "Leadership and Trek Preparation" section of this book.

Mountain Travel Route Finding

Researching a trip before leaving home can give you a general sense of the lay of the land. You might be able to figure out the hiking trails that will lead you to your destination, and designated sites where you can camp. Once you are on your way, though, you might need to adjust your route in response to local conditions. With the landscape in front of you, study your topographic map. Identify landmarks and consider the shape of the terrain. The map will provide clues to the twists and turns of water courses, the shapes of ridges, any obstacles that might lie between you and your objective, and the possibilities of practical ways to get there.

Studying the territory ahead also will reveal what maps and guidebooks cannot—the conditions of the moment. Snow levels, vegetation, and weather conditions can have dramatic effects on potential routes. Experience

and common sense come into play, too, as you evaluate what you see and determine how you will proceed. A skyline ridge might be the best way to go. A boulder slope might offer a virtual highway to the top. A snowfield could be the easiest means of negotiating a climb. Heavy brush, a swollen stream, or a change in the appearance of the clouds all can influence your on-site route-finding decisions, or perhaps convince you that going farther would not be wise until conditions improve, that you should change your intended route, or that you should go home.

The most important steps you can take to make your way off a mountain happen on the way up. Pay close attention to the route behind you, looking back often to see how it will appear when you are coming down. Take note of landmarks that will help you find your way—a boulder where you need to turn, for example, or a large tree near your camp. A group equipped with a global positioning system (GPS) receiver can program in waypoints while they climb, then use the instrument as a backup navigational tool while retracing their steps later in the day.

Summit Packs

Summit packs—day packs used on the day of a climb to the top of a mountain—will allow you to leave large backpacks at your base camp. Include in your summit pack the outdoor essentials and any other gear you might need. A sleeping bag and bivouac bag or tarp will come in handy if you are overtaken by darkness or if a member of your group suffers an injury or illness and must be treated far from camp.

For more on the outdoor essentials, see the chapter titled "Gearing Up."

Rain, snow, fog, and darkness can obscure your ability to see very far, compounding the difficulties of finding routes. Awakening to the sound of wind blowing rain or snow against your tent might be a strong indication that it would be better to stay in camp and read a good book. There's not much point in climbing high if you can't make out which way to go.

When weather is more inviting, accurate compass bearings taken on your way up can be invaluable during your descent, especially if landmarks are few and far between. As you cross large snowfields, you might want to mark your route with *wands.* Usually made of bamboo and topped with strips of brightly colored flagging, wands will show you the way home even in deteriorating weather. Retrieve them as you descend.

If you become disoriented, stop where you are. Gather whatever information you can from what you are able to see. Are there footprints in the snow? Breaks in the clouds that allow you to glimpse your route, or at least a few recognizable landmarks? Get out your map and compass, talk with others in your group, and figure out where to go next. Whatever you do, don't wander blindly. It is far better to settle in where you are and wait until you can see where you are going, even if that means a night bivouacked on the mountain.

For more on finding your way and staying found, see the chapter titled "Navigation."

Time Management

Start early on the day of an ascent, perhaps even before dawn. That will give you the greatest number of daylight hours for traveling—an important factor if the climb is more strenuous than you had anticipated or if an emergency arises—and allow you to return from exposed heights before unstable afternoon weather moves in.

Enthusiasm to reach a summit or other remote destination can sometimes cloud the judgment of mountain travelers. A late departure from camp, changing weather conditions, and unexpected delays can slow a group's progress. Even though a destination might seem within reach, the lateness of the day could make the return trip difficult and even risky as fatigue and darkness set in.

Before leaving home, decide on an appropriate turnaround time to use on the day of a summit attempt. When that moment comes on the mountain—2 o'clock in the afternoon, for example—all members of your group will begin descending even if they have not reached the summit. The turnaround time should allow you to reach your camp or the trailhead with plenty of daylight to spare.

For more on preventing accidents by planning well and using good judgment, see the chapters titled "Planning a Trek" and "Managing Risk."

Reaching a summit can be the high point of a mountain travel trip, both literally and emotionally. The real goal, though, is getting down safely.

Descending

The focus on reaching a mountaintop can energize travelers and push them to remarkable achievements. More accidents occur on the descent to camp than on an ascent. People often are weary from the ascent. Hunger and thirst can dull their senses, impair their judgment, and take the edge off their physical abilities. Impatience to get back to the comforts of camp will cause teamwork to suffer if some group members hurry ahead of others. Travelers retreating down a mountainside might be further tested by deteriorating weather, evening cold, and the dark of night.

Throughout a descent, refer to the compass bearings you took and the mental pictures you made of how the route looked behind you during your ascent. If your group is using a GPS receiver, refer to the waypoints you recorded. It also is important to keep the big picture in mind. The heights can afford you a bird's-eye view of the terrain below and, when coupled with a close look at a topographic map, a good understanding of your primary route and any feasible alternatives. Small changes in direction high up can lead to dramatically different destinations. From a ridge top, for example, it might be easy to start down any of several valleys or to turn your footsteps down either side of a wide snowfield. Consider where you will end up with each of the options presented to you, then choose the one that holds the most promise. Keep your group together, traveling at a pace that can be managed by the slowest member of the team.

Challenges of Mountain Travel

Surrounded by heavy brush, deep forests, rushing streams, rocky slopes, and snowfields, many mountains seem to defy hikers' attempts to climb them. However, overcoming the difficulties of an ascent can make the view from the top all the sweeter. Here are some pointers on dealing with common mountain challenges:

Brush

Brush can be the bane of cross-country travel. Brambles and briars sometimes choke hillsides and streambeds. Mountains scarred by fire or logging operations can be covered with thick, low, second-growth timber. Avalanches can scour steep slopes, leaving them inhabitable only by dense thickets of low-growing vegetation.

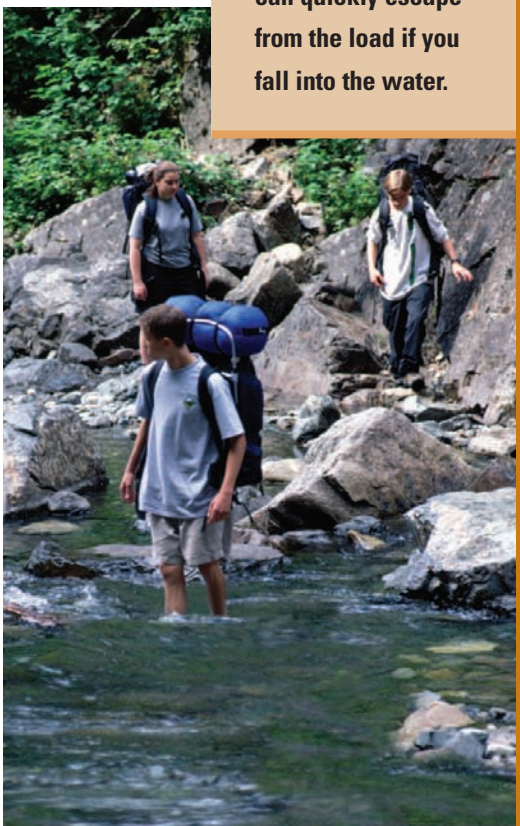
The best way to negotiate brush might be simply to avoid it. Look for a clear route around overgrowth, perhaps by running the crest of a ridge or by ascending the side of a valley until you can pass above the heaviest of the vegetation. When you must wade into the brush, wear clothing that will protect you from snags and scratches. If you will be in the tall tangles for a while, follow a compass bearing so that you can come out where you want on the other side of the thicket.

Before crossing any stream, unbuckle the waist belt of your backpack and loosen the shoulder straps so that you can quickly escape from the load if you fall into the water.

Streams

Crossing streams is always serious business. Twisting your foot on a mossy rock, soaking a sleeping bag in the current, or falling into the water on a chilly day can quickly complicate the best travel plans. Unless it is a brook you can step over or a stream with a bridge you can use, take plenty of time before crossing to size up the situation.

Water more than knee-deep can make you buoyant; add a swift current, and you might have difficulty keeping your footing. Your best crossing places often will be where the stream is widest and the water is calm. Next, look downstream. If you should fall, is there a chance you could be swept into a rapids, against rocks,



or over a falls? Don't tempt fate by challenging a stream that might not give you a second chance.

In mountainous country where snowfields blanket the peaks, snow melting on warm spring and summer afternoons can cause streams to rise. A raging torrent at midday might, after a cool night, be tame enough at dawn to negotiate with ease. When you come upon such a stream, make camp and wait until morning when the crossing can be made safely.

Stepping Stones

Decide which rocks you can use as a route across a stream, and in what order. Plant your feet squarely in the center of large stones, moving smoothly from one to the next. Are the rocks wet or mossy? Expect them to be slippery. A walking stick will help you maintain your balance.

Fallen Logs

While it's usually not too difficult to walk the backs of large, stable logs close to the surface of the water, a more secure (though less graceful) means of crossing is to straddle the log and scoot your way to the far bank. Beware of loose bark and bare wood slick with sap, spray, or rain.

Wading

Wearing shoes while you wade streams will give you better footing on wet rocks and protect your feet from cuts and bruises. If you're carrying running shoes to wear in camp, you can put them on for stream crossings and keep your boots dry. If not, wear your boots without socks. Station one person downstream with a rescue line in case someone loses his or her footing. When you reach the far side, dry your feet before you put your socks and boots back on.

Members of a group usually can wade shallow streams one at a time, but if the water is deep or the stream is wide, they might do better crossing in pairs or groups of three.

Scree, Talus, and Boulder Fields

As mountains break down over the centuries, cliffs fracture, fall, and cover slopes with broken rock. The largest of these stones are *boulders* heavy enough to wedge together. Smaller rocks prone to moving under a traveler's weight are known as *talus.* If the material resembles gravel, it's called *scree.*

Climbing on scree is similar to walking on snow. You sometimes can make headway by kicking toeholds or by pointing your toes out and herringboning up an incline like a cross-country skier. Think of snow as you descend, too, leaning well forward to keep your weight over your feet.

Many rocks on a talus slope are large enough to hold the soles of your boots, but due to their modest size, they can be easily tilted or dislodged. Place your weight in the center of each rock rather than near the edge, and be ready for a seemingly stable stone to move underfoot. Members of a group traversing a scree or talus slope should stay on the same horizontal plane so that rocks loosened by one of them will not endanger others.

Negotiate boulder fields by stepping lightly from one rock to the next. When possible, step to the center of large, dry boulders that are likely to be more stable. Be ready to catch yourself if your feet slip or a boulder tips and upsets your balance. Point out loose boulders to those following you so that they can avoid them or prepare for unstable footing.

The Rest Step

During long climbs, the *rest step* can give your body a moment to recover after every stride. Move your right foot ahead and place the sole of your boot flat on the ground. Swing forward and lock your knee for a moment or two; the bones of your leg and pelvis will support your weight, allowing your thigh and calf muscles a momentary rest. Swing your left foot forward and repeat the sequence. Even though you might be moving slowly, a rhythmic pace will lift you steadily up a mountainside.

Snowfields

In the winter and at higher altitudes during much of the summer, snowfields can be inviting routes for cross-country travel and for reaching summits. Snow on flat terrain and gentle slopes can be traversed with few concerns for hazards. Snowshoes or cross-country skis can add speed and range to your travels, and might be essential if snow is deep and too soft to sustain the weight of your footsteps.

Before venturing onto steeper mountain snow, however, you must understand the danger of avalanches and avoid those areas where avalanches are possible. You also must know how to stop yourself if you lose your footing and begin to slide. For that, you need an ice ax and plenty of practice using it.

For more on avalanches, see the chapter titled “Managing Risk.”

Ice Axes and Self-Arrest

An ice ax can greatly enhance your security as you travel on snowy slopes. Have an experienced snow hiker demonstrate proper ice-ax technique, and master it before you need it.

Ice ax for mountain travel

The head of an ice ax features a *pick* for self-arrests and a short, wide blade called an *adz* for chopping steps in hard snow. Some mountain travelers choose axes with shafts long enough to reach from their palms to the ground so that they can use the axes as walking sticks between snowfields. Mountaineers usually select shorter axes, finding them easier to manage on steep slopes. On the trail, carry an ice ax as you would a cane, or slip it through a loop on your pack and lash the shaft to the pack itself.

The primary reason to have an ice ax is for *self-arrest*—stopping yourself if you fall on a steep snow slope. As you begin to slide, grip the head of your ice ax with one hand (the point of the pick turned away from you) and hold the shaft with the other. Roll *toward* the head of the ax until you are on your belly. The pick will embed itself in the snow and stop you in a surprisingly short distance. If a fall turns into a headfirst tumble, roll toward the pick and, as it bites into the snow and begins to slow your descent, swing your feet around until they are below you.

Self-arresting is a technique that requires expert instruction and plenty of drill. Practice by purposely sliding on a slope with a safe runout (that is, it flattens gradually). Slide in every imaginable position, even headfirst on your back. When you can automatically make the right moves to arrest your fall, you will have mastered one of mountain travel's most effective safety skills.

Snowfield Travel

The consistency of the snow will affect the speed with which you can travel on a snowfield. Deep, powdery snow can engulf your feet and make you feel as though you are wading, while hard, windblown slabs can be slippery. When a snowy slope is not too steep, you can zigzag your way up. On more severe inclines, you also might need to kick steps with the toes or edges of your boots. Holding your ice ax in your uphill hand, drive the shaft into the slope and use the momentum of your strides to kick steps. Settle into your new stance, then move the ax forward and plant it again. Having made the ax a solid anchor before you move your feet, you'll have something sturdy to grip if you lose your footing.

Descending Snowfields

Where a snowfield is free of rocks, trees, and other obstacles, you might be able to descend by *glissading*. Holding your ice ax in the ready position, aim your toes down the slope and ski on the soles of your boots. Keep your knees bent and lean forward. When leaning forward over your boots, you are less likely to slip or fall. Carve small turns by angling your feet and digging the sides of your boot soles into the snow in much the same manner as if you were on skis.

The *plunge step* is another effective descent technique. Lean forward ("nose over toes"), kick out with your foot, lock your knee, and goose-step down the snowfield. The farther forward you lean, the more stable your footing will be.

Crampons

Climbers in the early years of mountain travel wore hobnailed boots for traction and used their ice axes to chop steps in difficult, frozen pitches. Today's mountain travelers can put crampons on their boots and make good progress across slippery and steep snow slopes. They nearly always have ice axes at the ready to self-arrest if they do begin to slide.

Crampons must be matched to the boots on which they will be used. More traditional models are hinged, can be strapped in place, and can be used with some hiking boots. The latest crampons are designed to snap in place on plastic mountaineering boots.

Glacier Travel

Mountain travel, as it is described in this book, does not include the skills required to travel on glaciers.

Glaciers occur when snowfall does not completely melt each year, compressing into slowly moving rivers of ice. The primary hazards awaiting glacier travelers are *crevasses*—cracks in a glacier that can be extremely deep and quite wide. The opening of a crevasse can be hidden by a roof of snow.

Glacier travel demands training in specific mountaineering techniques, and should be done only by teams of experienced mountaineers roped together, ready to stop a climber's fall into a crevasse, and able to conduct a crevasse rescue.

Acute Mountain Sickness

The human body requires a week or more to adjust to higher elevations, compensating for the thin air by producing additional red blood cells to carry oxygen to the cells. Ascending no more than a thousand feet of elevation during each day helps avoid acute mountain sickness. It is not unusual for people traveling into the mountains to feel more fatigued than usual and perhaps to experience mild headaches. Ward off the effects of altitude by drinking plenty of liquids, getting enough rest, and spending one or more layover days partway up an ascent.

At elevations above 8,000 feet, some people may suffer *acute mountain sickness* (also known as *AMS* or *altitude sickness*). In its severe forms, fluid passes through membranes of the brain *(cerebral edema)* or of the lungs *(pulmonary edema)*. A victim might become confused, lethargic, nauseated, and incapacitated. If any of these symptoms appear, escort the ill person to lower elevations as quickly as possible. The person should consult a physician upon returning home. Also, prior to high-elevation travel, consult a physician about medication to help avoid AMS.

A Final Word on Mountain Travel

Mastering the fine points of mountain travel will prepare you to meet the challenges of the most rugged terrain. You also can apply many of these skills to your adventures in less demanding regions. The joy of traveling with confidence, with good judgment, and with an openness for discovery is there for you in any direction you go.

"The mountains can be reached in all seasons. They offer a fighting challenge to heart, soul, and mind, both in summer and winter. If throughout time the youth of the nation accept the challenge the mountains offer, they will keep alive in our people the spirit of adventure."

—William O. Douglas (20th-century conservationist and U.S. Supreme Court justice)