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VACATION ON THE TRAIL

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I. A Mountain Camp.—Moraine Lake, and Valley of the Three Peaks in the Canadian Rockies.

The Open Country Books—No. 4

VACATION ON THE TRAIL

Personal experiences in the higher mountain trails with complete directions for the outfitting of inexpensive expeditions

BY

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UNIVERSITY OF ILLINOIS

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DEDICATION

To my various companions of the many trails—the wife who managed the commissariat and was equal to every emergency; the daughter who grew up with the mountains and carried the artillery; the knight of her choice, H. B. Tukey, who came in due time and proved a worthy initiate; Dr. Elmer Roberts, prince of good fellows, who taught me the diamond hitch and whose genial good humor enlivened many a camp fire; the wife of his choosing who took to the trail like an old-timer; the extra member of the family from across the seas; and last of all, even the burros, good, bad, and indifferent,—to so goodly and varied a company is this little volume of experiences and information affectionately dedicated.

THE AUTHOR

PREFACE

Frankly the following pages are written in the hope of interesting the thousands of men and women who go summering every year in search of that which will relieve from the strain of office, study, or classroom and send them back refreshed for the labors of another year. The aim is to point out a more excellent way than has yet been discovered by the vast majority who perforce follow the crowd to the popular "resort" or at best join an excursion and "do" half a continent in thirty days.

What the worn-out teacher, clerk, or executive needs is not rest but change; not inactivity which dulls the physical powers but action which stimulates; not mental excitement, of which he has had too much, but simple surroundings under his personal control. He needs something that will set his idle body at work and stir up his sluggish processes, especially those of elimination; and yet that something must be so filled with daily details as effectually to prevent the mind from slipping back into its old ruts to go wool-gathering after the deep things of life. In short, the man or woman seeking recuperation needs to reverse the daily grind and live a life of active, though not exhaustive, physical existence with enough of variety to keep the mind interested but not really employed. So shall the tired vacationist go back to his work re-created and virtually a new man in body, mind, and spirit.

The conditions necessary to this kind of vacation may

be found in a great variety of places,—in the Adirondacks, in the Alleghanies, in the Canadian woods, in the Rocky Mountains, in the Coast Range, or wherever the country is wild enough to make walking interesting and the population is scanty enough to give the effect of living with nature rather than with man.

The outfit may be carried on the back, and the novice is likely to attempt this mode of transportation. But I have personal objections to making a pack horse of myself even under the guise of vacation, having seen some distressing results of this attempt. Besides, an outfit that can be so transported is too meager for comfort and comfort is one of the prerequisites of vacation. It is equally important not to take so much as to be burdened with property that must be handled every day. An adequate outfit can be carried in a one-horse cart or a two-horse light wagon, depending on the size of the party; or it can be packed on horses or mules or burros, which latter is the approved and altogether desirable method of transportation of grub and tents and duffle.

The enterprise may be conducted from a more or less permanent site with side excursions from time to time, or camp may be broken every day, in which latter case the theory is that one lives on the trail, stopping for rest or exploration wherever night overtakes or inclination dictates.

The objective may be hunting or fishing or collecting or simply wandering. My own preference is distinctly for the latter with an objective that seeks always to see what lies just over the ridge or beyond the pass or at the end of the trail. This means the very heart of the higher and wilder mountain districts where all our trips

have been taken, and it means an entirely self-sufficing outfit packed upon burros.

After a goodly number of experiments, the author and his family have settled down to the kind of vacation life herein described, in which the daily tramp with its resultant appetite both for food and water are relied upon for physical rejuvenation, the events of the trail are sufficient to keep the mind fully occupied with new and fresh material, and an ever-changing panorama of the best available scenery serves as a never-ending inspiration to the soul.

In its physical effects there is no exercise like walking, for it works the whole body without overworking any part of it, if only the feet are properly shod and cared for. Nowhere else is there such a succession of details to occupy the attention without mental strain as is afforded on the trail, and if it should chance to lie on the upper levels of the mountains, there is not to be found elsewhere so vast an outlay of nature's best or so changing a display of her mighty works. Altogether, there is nothing to be compared with a vacation on the trail.

It is from this standpoint and as the result of the experience of many years that I shall write, hoping to be able so to interest the reader as to entice him to the trail and to specify so clearly the essentials that he may safely depart from the particular plan of the writer sufficiently to meet his special conditions without sacrificing the fundamentals of a vacation in the open.

Finally, in the words of Samantha, "Think of the cheapness ont", for the food costs no more than at home, even less than at boarding houses, and there is no other expense in the walking trip save a nominal rent for pack

animals and the cost of the outfit, which would not be great and is borne but once.

Without further explanation or apology the author will undertake to depict what life on the trail really means from day to day and to make clear its entire feasibleness even to the tenderfoot. If any apology were needed, it lies in the fact that so few are availing themselves of the wonderful possibilities of our many national parks, the playgrounds of the people, set aside for the very service of recuperation.

Acknowledgment is due to Booth and Roberts for the illustration "Forty Miles from Anywhere," to The Denver and Rio Grande Railway for Mt. Massive, to the Great Northern for Plates IV and V, to the Northern Pacific for Plate III, and to the Canadian Pacific for the frontispiece.

E. Davenport

University of Illinois
August 1, 1922

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Part I

LIVING WITH THE MOUNTAINS

I

THE CALL OF THE WILD

> I will lift up mine eyes unto the hills,
> From whence cometh my help.

Thirty days for the heart of the Rockies! What a prospect for a vacation! Grub and tents and sleeping-bags packed safely upon a string of burros that live on next to nothing, feeding themselves as they go; walking togs with sturdy but easy boots warranted against water up to fifteen inches deep; care-free and away from civilization with its responsibilities, its noises, and its smells, answering to the call of the wild!

Living alone with nature "forty miles from anywhere," eight, ten, twelve, and thirteen thousand feet above the sea with the tang of the mountains filling the nostrils morning, noon, and night with the very breath of Heaven! Brother to the peaks and the snow fields and the vast amphitheaters of green and white and gray that have guarded the passes since the world was young; friend to the timber, the waters and the wild flowers; companion to the clouds and the shadows and the drifting mists, the lightnings and the thunders and the storms; neighbor to the very stars at night that seem to beckon one to step off the edge and be with them!

What a privilege, yet how few have realized it among

the thousands that go summering! Even of the many who go to the mountain regions almost no one goes into the mountains where an unsuspected world would be discovered whence he would bend eager steps, did he only know what lies along the higher reaches and how easy it is to get there. Our little party has lived it all, day after day, not once but many times, until it has become a part of our very being.

This is the story of how it all happened and what it is like, told not so much to entertain as to entice, if possible, some thousands to enjoy what now is almost unseen and unfelt by the sons of man, even by most of those who think they have been to the mountains because they have ridden along the foothills in a pullman or an automobile and have seen the peaks some twenty or thirty or fifty miles away.

II

WE DISCOVER THE TRAIL

It all came about in a perfectly natural way. The impulse lay heavy on us a good number of years ago to try out the mountains for vacation purposes, and accommodations were secured on a ranch well up an almost inaccessible canyon in the very heart of the Rocky Mountains.

"Ranch" is western for farm, whether large or small. Accordingly our meals were taken at the chuck-house, but lodging and quarters were provided in a tent close by a raging torrent that was a never-ending joy by day and a soothing lullaby at night, bringing with the chill of the air such slumber as only childhood knows. So did we regain our youth with what might be called the first intention.

It was here in a permanent camp that we learned the life of the out-of-doors and two summers were spent upon the same spot, some seven thousand feet above the sea, taking frequent tramps up and down the valley, literally reveling in the ever-changing experiences and fascinated by the majestic views over the distant hills.

In the interest of variety we sought and obtained a new location in a wilder spot not connected with a ranch, which required that we should provide our own supplies from time to time. Here we set up a somewhat elaborate

outfit of canvas and accessories, imported or improvised, and here we took further lessons in the delights of life in the open.

The permanent camp, however successful, must be located near a base of supplies and this means at or near the mouth of a valley; that is to say, at the bottom of a canyon and, therefore, two to four thousand feet below the surrounding ridges. The valley is superb and the slopes magnificent, but the range of tramping as limited to the immediate neighborhood is soon exhausted. Besides, who can resist day after day the temptation to discover what lies just over the ridge? And so it is that the permanent camper must climb for most of what he sees.

An early start with a hard scramble up the wall of the canyon hour after hour brings one eventually to the top to stand entranced at the panorama that lies spread out before him. On the one hand, ridge on ridge with mysterious valleys between stretch away and away as far as the eye can reach. On the other, with marvelous lights and shadows lies an undulating valley surrounded by snow-capped peaks and glittering in the sunlight like an enchanted gateway to some abode of the gods, while a trail at one's very feet leads enticingly thitherward, serving to beckon the traveler on and on like some spirit from another world.

But it is near night and camp is far away and after a few minutes of this magnificent view, it is a wrench to turn the back on it all and scurry down the hill again in order to get supper out of the way before dark. And how one's dreams are mixed and his waking hours are haunted by what lies all about him but over the ridge and therefore just out of sight!

So it was that we came to say: "The time shall come when we will never go back but will go on and on indefinitely, camping when and where night or inclination overtakes." We discovered the trail and found it a vast improvement over the permanent camp, not only for scenery and variety of experience but for comfort as well. The occasional hard climb leaves one weary and lame most of the time, while the daily tramp of seven or eight miles, even ten or fifteen, makes him always fit, and at the end of a month he feels that he has sojourned in the very outskirts of paradise and is new-created for his work. Nor does the effect of it all vanish as the days and months go by, but rather it grows and intensifies with the passage of time.

With apologies to my mountain friends, therefore, I will do the best I can to give the general reader some idea of what it means to live day after day on the trail, following its lead up and up and ever upward beside the rushing torrent, along the sloping shoulders of some mountain giant, through acres of roses and columbine, paint-brush, and monk's-hood, across fields of melting snows, and over the pass into another valley with new enchantments that bewitch the eye and uplift the spirit of the traveler.

July is the favorite month in the middle Rockies because then the flowers are at their best, the water is cold, and the passes are open or at least passable. In June the snow is too abundant in the higher levels and the flowers are not yet out; while in August the streams are low and the water warm; besides, an occasional snowstorm may be expected, and falling snow is exceedingly mussy on the trail. To the north, in the United States and Can-

ada, the most favorable season is correspondingly later though the altitudes are lower.

The author is convinced that more tired men and women would spend their vacations in this bohemian fashion if only they were aware of its advantages, if they knew how to outfit so as to be comfortable, and if they knew how to live comfortably day by day in the out-of-doors, changing camp with every rising sun. The physical and psychological advantages of the trail are obvious for those who like it, and others of course are not interested.

It is the purpose of this little volume, therefore, to acquaint the reader who cares for it with a detailed description of life in the open and of the necessary outfit. The aim is to do this so thoroughly and so accurately that the merest novice can, if he will follow directions, hit the trail with impunity even in the wildest regions of the higher levels. To this end the account will be limited to the results of actual personal experience as being more convincing than any abstract treatise, however well it might be done. The reader will, therefore, overlook the personal element in the interest of clearness and of accuracy.

III

THE LAYOUT

What to take on the trail by way of food, clothing, and equipment is matter for separate consideration. We are now concerned only with the external features of life on the trail and their influence on the human body and the soul, together with their power to exalt and to re-create the best that is in human kind.

The particular region that may be chosen matters little, for in general all mountain systems consist of a series of more or less parallel ridges with valleys between, rising more or less abruptly from the plains to the peaks some twenty or thirty miles away. Down these valleys and across these ridges the waters from the melting snows have cut their courses deep into the living rock, a hundred, sometimes a thousand feet, and in the case of the Royal Gorge, a full half mile in breaking the way on their restless and irresistible rush to the lowlands and on out to the open sea.

It is up these gorges and canyons that all roads and trails run; indeed, must run, for elsewhere the mountains are all but impassable. If one should make his way for some distance independently of the valleys, it would be only to find himself soon confronted by an impossible wall or an impassable gulf. Following a canyon, how-

ever, means following a river up to its source at or very near the pass, crossing its tributaries on the way, and all with a full certainty that over the pass will be another valley and another stream widening as it descends, the whole affording a guaranteed passage over the Divide and into the country that lies beyond.

Mountain travel, therefore, means a succession of ups and downs, generally with easy grades, rarely with a level stretch for more than a few rods at a time, and occasionally with pitches rivaling in steepness any roof but a church spire and compelling a resort to the well-known principle of the zigzag.

Nothing is so deceptive in or near the mountains as levels. As one approaches a mountain range or stands facing a lofty peak, the unaccustomed foreground destroys all judgment as to level lines and, in general, the ground seems to pitch abruptly away from the traveler and to descend rapidly toward the foot of the mountains, even when the actual rise is very considerable. The result is that water on these lower levels, though descending rapidly, seems to be frantically tumbling uphill. This is one of the most frequent, as it is also one of the most disconcerting, phenomena of the hills, for almost everybody thinks he knows uphill from downhill and is likely to charge up his newly discovered inability to the effects of altitude as the only means of preserving his self-respect in a very ordinary matter.

This, in general, is the layout confronting the traveler who essays to know the mountains, and so strange and formidable does it all seem that comparatively few realize what actually lies in the mysterious upper valleys. It is not strange that primitive folk regard the mountains as

II. Forty Miles from Anywhere.

the home of spirits and that even Greece peopled her little Olympus and its neighbors with a whole fraternity of warring gods and goddesses and accordingly kept out of the hills instead of using them for recreation purposes.

No guide is needed even in the wildest regions, for excellent maps of all the national parks and most of the other mountain sections are published by the United States Geological Survey and may be obtained for a nominal sum direct from the office at Washington. These maps show in great detail all lakes, rivers, small streams, and contour lines, and by their use the traveler may pick his landmarks and know always where he is. If he will cut the maps to pocket size and paste on muslin with a quarter-inch space between the sections, he can carry the largest map with perfect convenience and know at any time both his whereabouts and his elevation. Thus the zest of exploration will be coupled with the satisfaction of knowing always exactly where one is and where one may expect to emerge from the trail.

IV

GETTING USED TO THE MOUNTAINS

The casual traveler thinks too much about the altitude, and palpitation and faintness often come more from fright than from rarefied atmosphere. The basic fact is that in the higher altitudes the accustomed work of the lungs does not provide even the usual amount of oxygen, whereas the climber is probably working harder than at home. The obvious remedy is deeper breathing. Most persons, until they learn better, will hold the breath and run up a steep incline thinking to rest at the top, but they succeed only in making a bad matter worse, because the seeming crest is gained only to discover further and further heights beyond, for there is no top for miles ahead. The old-timer takes a long, slow, and deliberate step, breathing the while "to the very bottom of his boots." And so he goes to the top without distress. Never to hurry is an absolute rule in the mountains when the altitude is above five or six thousand feet.

The novice should first accustom himself to an altitude of about seven thousand feet until he learns to breathe with all the lungs he has and to walk properly. Then, if he will forget all about altitude, he can safely go to the higher levels unless he has some organic trouble, in which case he would better keep out of the mountains.

Our own party went over the pass at twelve thousand feet the third day out, with no difficulty other than frequent pauses for breath.

Not because it is the mountains but because the kind of camping party in mind is undertaking a radical change in its manner of living, it is well always to "lay up" the second or third day out, look over the equipment, make everything shipshape, and incidentally let the lameness get well out of the legs.

It is an abiding weakness of the tenderfoot to set himself daily stunts and above all to make the first pass as soon as possible. This is all wrong. If it takes a week to get over the pass, it does not matter if the party is in good condition and getting its tramping legs well under it. The objective is not to make passes but to live successfully and comfortably out-of-doors; not to put space behind but to absorb what the mountains have to give.

The tramper must leave behind all fear of "bugs and snakes and things" and learn to sleep on the ground. Cots are cold in spite of all the bedding that can be carried; besides, the pack must be reduced far below the proportions of such trumpery as frame beds and folding bathtubs, else the very property becomes a burden. The would-be mountaineer must learn a new mode of life in almost every respect; indeed, that is one of the objects of the trip. Beyond the use of soap and toothbrush, he should forego all attempts at carrying his daily habits with him; indeed, a large part of the good of it all is the breaking up of the ordinary habits of civilization, many of which are more burdensome than necessary.

There is nothing to fear in the mountains except the

bulls. The few wild animals on the higher levels are a timid folk "not out looking for trouble." But the cattle in the valleys and on a thousand hills are unaccustomed to man except on horseback, and the bull will not leave his band or the cow her calf until time is afforded to draw slowly away. Given plenty of time, both bulls and cows will retire peaceably with no danger to the tramper, while if crowded, either one might charge and create an ugly situation.

Landslides and washouts are never for a moment to be left out of the reckoning, though at the season in question both have subsided to a minimum. Nevertheless, the most casual observation will serve to show that these are mighty factors in mountain architecture and that, so far as the western ranges are concerned, at least, the job of creation is far from finished.

Every winter sends down enormous quantities of earth and rock from the higher levels, and the occasional cloudburst will do the same at any season. However enticing the spot, therefore, no camp should be pitched even in the pleasantest weather in any of the funnel-like shelving mountain sides which observation may show are natural pathways for a sudden deluge. All camp sites should be chosen on rounding shoulders and not at the foot of side ravines.

Some tenderfeet seem possessed of a determination to kill themselves by venturing into dangerous places, and by that is meant the edge of cliffs or on shelving hillsides covered with the notorious "slide rock" that the experienced mountaineer fights shy of or upon glaciers without a guide, alpine stock, and plenty of rope. It is a safe rule never to go anywhere except on ground that

by no possibility can give way, and even so, the factor of safety must be kept liberal. The fool impulse of mountain travel is the passion to have the picture taken when posing in dangerous places. Here common sense, rather than impulse, must govern action.

While there is no danger on the trail to those who use due caution, yet, because accidents may happen, the minimum number that should constitute any tramping party is three,—as one mountaineer put it, "one to get hurt, one to stay with him, and one to go for help." The rule is a good one, though the chances of getting injured are rare indeed if only reasonable caution is used.

One may drink in safety from any stream in the higher levels, but irrigation ditches should be avoided. However, the traveler would be wise to take the anti-typhoid treatment before starting out to tramp in any section of the country, even the higher levels, though this precaution applies to any other form of expedition even more strongly than to the mountain tramp in which the principal danger of infection lies in going and coming.

The laws of perspective deceive the traveler as to heights of mountains, and so profound is the deception that he is always disappointed in the appearance of even the most lofty peaks. In his mind he has accustomed himself to look almost straight up to see the top of a fourteen-thousand-foot mountain, and that would be correct did such a peak rise straight up like a liberty pole. But as the traveler skirts the foothills, the peak is many miles away and probably looks merely like a shoulder in the landscape, perhaps like a low-lying cloud. Indeed, it may be entirely hidden by some intervening insignificant foothill. The one great test of height is snow at the top,

the next is dimness of detail as compared with nearer hills, and the final test is that blue haze which lies between the eye and all distant objects, the same haze that makes the "blue vault of heaven."

If, therefore, the peak shows snow, is dim of outline, or is seen through blue haze, the traveler is safe in concluding that he is looking at one of nature's majestic mountains, perhaps seventy-five or a hundred miles away. The writer got his first view of Teneriffe at one hundred and twenty-five miles as a pointed cloud rising slightly above the horizon.

Perchance some day may come unannounced a forest ranger locating the smoke of the camp-fire, a cow-boy going to a round-up, or possibly a sheep-man looking for company, for these men are lonely out in the hills. They are all human beings and grand good fellows to boot. With them the tramper will do well to keep on friendly terms, for they will be fond of him as he is of them, if only the opportunity offers, and they will help him in every possible way. These denizens of the hills are not a species separate from the genus Homo, as some tenderfeet seem to assume, even if they do wear chaps of leather and sheepskin to keep the branches from tearing their clothes; indeed, a surprising proportion are college graduates. But whether lettered or unlettered, they all have absorbed the greatness of the hill country and their meeting is always a happy incident, for they are a real part of the mountains.

It is frequently necessary to scout out a new trail or road where none exists or where there is some doubt as to the proper course. In order that the scout may be certain of returning to his party through thicket or con-

fusion of turnings, it is well to break down a limb or twig occasionally on his way out or set up some kind of marker by which he may find his way back with certainty, for everything looks different on the return.

Finally the traveler must not expect the sensational every moment of the time. Even the mountains do not afford continuous panoramas of superlatives. Besides, one goes to the hills not wholly, or even mainly for that which he can see with the eyes, but to become a part of the mountains themselves and to live a life that all in good time pervades and uplifts the very soul of him.

V

THE TRAIL

The start is always the same,—a plunge into the foothills, more than likely over a fairly good road and on what seems a steep decline, as already described, so that the river, the ever-present river, seems to be rolling tumultuously uphill to meet the traveler. This deceptive appearance is due to the same perspective that makes all peaks and mountainsides look flatter than they really are. The way, in truth, rises rapidly from the plain as it heads directly for an opening, through the canyon.

The first few miles of the real climb will probably be upon a generous road or trail, sending branches up side canyons here and there, growing steadily narrower and less used as it ascends, leaving travel and civilization behind as it winds its tortuous way higher and ever higher toward the everlasting snows.

In all the lower levels the trail is readily followed, as it conforms to the sweeping bends of the river whose waters here are strong enough to plow out a fairly easy, even though winding, channel. Farther up, however, the mountain becomes master and the infant river makes its turbulent way as best it may over rocks it cannot move, against bluffs it cannot pierce, and around points it is unable to wear away, plunging here and halting there—

any way to get ahead and downward in its tumultuous hurry out of the hills.

It is here on the higher levels that the trail often becomes confused. Clear as any highway up to a certain point, it suddenly vanishes so completely that the tenderfoot casts his eye upward as in wonder whether, like Jacob's ladder, it may not have been drawn up into the heavens. The old-timer knows, however, that he has only struck an open spot in which every traveler and every animal has had a choice of ways instead of wearing a single path. Therefore, he scouts a great circle until he picks up the trail again. It may be going in the same direction as when it was lost, it may possibly turn abruptly around some point or other obstruction, or it may head straight up some inviting valley or friendly slope.

There is no danger of getting lost. It is assumed that the traveler has acquainted himself by maps and other reliable information which can always be secured of the forest ranger with the general lay of the country and particularly with the principal rivers and peaks, and so has plenty of landmarks. If, however, he should become hopelessly confused, there are two things to be done. In a frequented region, he should build two smoke fires and wait; otherwise, he should travel downhill until he comes to water, follow this and it will lead him out, for the mountains are not like the trackless and illimitable forest; there is always a sure way out by following the streams.

It is along the higher levels that the trail makes its tortuous way as best it can. Now it follows a broad and easy road through heavy timber with vistas here and there that would seem to lead straight up to Paradise. Now it

comes to a turn so sharp as to suggest the end of the trail, but, skirting a cliff, it emerges without warning on broad meadows green with grass or blue with lupins. Up a winding valley carpeted with Indian paint-brush, past beds of larkspur and of columbine, stateliest of the mountain flowers, and on through fields of roses with borders almost as distinct as if made by a gardener, the ascending trail leads the astonished traveler up and ever upward, revealing new wonders at every step.

Up and up, and always up, the trail climbs the slopes between great bowlders with scarcely room for packs, rounds the point on an overhanging rock, and strikes out upon the broad mountainside steeper than many roofs and a thousand feet or more above the foaming waters rushing along so far below that all motion is lost to the eye and the turbulent stream seems a ribbon of silver flecked with wool. Upward and still upward the trail runs across fields of melting snow. Here the beaten path lies eight or ten feet farther down the slope than upon the solid land, mute witness that, like any other glacier, melting snow is generally under irresistible motion down the sides of the mountain.

At the head of the valley, in most instances, the trail leads up a rocky and almost perpendicular wall five hundred, possibly twenty-five hundred, feet in height, depending on the character of the cirque that is just below the pass. In any case, it is nearly always so steep as to compel a resort to the zigzag method of climbing, which is the only way of reducing the steeper grades to the possibilities of the footman or his pack animal. This last climb is the great feature of approach to any pass.

Here at some point we cross the timber line so sud-

III. We Discover the Trail That Leads Always Upward.

denly that the trees themselves seem to have been sheered off with some giant sickle, so level are the tops and so suddenly does all timber stop. Thenceforth, above timber line, the trail lies always in the open with all conspicuous vegetation left behind, excepting only the lowliest flowers.

Most attractive of these denizens of the upper levels are the hundreds of beds of forget-me-nots, fairest and most fragrant of all the mountain sisters. These little blue eyes look straight into the face of the traveler with a kind of yearning, as if they had been expecting him all along and as if wondering why he leaves so soon.

Strange, almost uncanny, is this vivid evidence of life up here, where all else is bare and cold and dead, where snow holds supremacy undisputed, and where keen winds blow at any season of the year. Here the traveler may pick his bouquet with one hand and make a snowball with the other, as I have done many a time when lingering for a moment on the higher levels we have been climbing so long to reach. From here to the top the trail leads alternately over broken ground, bare rock, snow fields, and tundra, as it makes its final ascent to the pass.

VI

THE PASS

Most mountains have a slightly flattened top; that is to say, the steepest places are some distance below the summit. As we near this shoulder and the grade lessens, the feet seem about to run away with the body, by which the old-timer knows, even before the eye gives him warning, that he is nearing the pass and the beginning of another valley that will lead him down the opposite side. A few moments later this new prospect literally bursts on his view, as it seems to rise without warning out of the very earth beneath and in front of him with an effect that is startling both for its suddenness and for its grandeur.

No words have been invented that can describe the magnificence of the vision that greets the traveler as he emerges from the valley behind and suddenly finds another spread out at his very feet, stretching away and away below him miles on miles into the distance,—a vast amphitheater of green and blue and gray and white; another world complete in its every detail.

A lake glimmers in the foreground while the inevitable silver stream winds away and is lost in the distance as it plunges below the timber line. On every side of the enchanted valley and shutting it in from the remainder

of the world, rise the great mountains side by side like giant guards, silent, massive, eternal, white, and cold. Their huge bare shoulders, on which the foot of man has never rested, nor indeed will rest, stand boldly out against the sky, while their mantles of melting snow, like great lace collars, seem to stream away down the sides as the accumulation of a thousand storms lingers in the deeper gorges and melts but slowly away. Above and over all rise the snow-crowned heads of these mighty monarchs of the Divide, their shining helmets glittering in the sunlight far above the mists and clouds that drift across their lower levels like skulking coyotes caught at their kill.

Looking back over the valley from which he has emerged, the traveler, standing on the pass, is again amazed to behold, in a single view and with finished perspective, what he has been so many hours in laboriously ascending. There lies behind him that mighty sweep of mountainside with the trail pricked out here and there in forest and bush and rock, running like a thread of gold through a fabric of green and gray. Far below is the camp site of the night before and a little farther back is all that remains of the great snowslide that went thundering down the mountainside last winter, uprooting the largest trees and taking everything along as it went. In its mighty energy it stopped not at the bottom of the valley but rushed on some hundreds of feet up the opposite slope, there at last to come to rest with its mass of snow and ice and rock and broken trees, reckless of the damage done as another step was taken in filling the valleys from the slopes above and in smoothing off the earth that is yet in the making. Surely it is here that the

giants come to play, and it was in a place like this that the prophet must have stood when he exclaimed, "What is man that Thou art mindful of him?"

Between the two, the valley behind and the valley ahead, between what he has seen and the vision of a prospect he expects to explore, the astounded traveler at the pass bares his head in adoration that such things were made to be, and silently he utters a word of thanks that he is one of the fortunate few to stand alone with it all at the top of the world—seemingly in the very presence of the Most High, whose voice he feels he might hear at almost any moment thundering down the mountain, as Moses did on Sinai.

Lost in wonder and amaze, the climber at the pass feels at first almost like an intruder on the privacy of nature but gradually becoming accustomed to the heavenly vision, he continues his way a different and a better man, for the normal human soul cannot behold these visions face to face and day after day without being profoundly influenced, not only at the time but permanently.

This will seem extravagant language to one who has never stood at the passes of the great mountains, and yet how feeble and inexpressive it all appears as I read it over. After all, how inadequate is language for expressing the unusual and the sublime!

Whoever has gone over Middle Cottonwood and seen the panorama of peaks beyond; whoever has climbed Taylor Pass and gazed on the valley spread out for thirty miles below; whoever has stood on Pearl or on St. Elmo day or night wondering what lay beyond; whoever has climbed Red Mountain and looked back on the amphitheater of hills rising to his feet from seemingly illimit-

able depths; whoever has gone over Independence and looked down on the deserted village nestling snugly in the valley a thousand feet below; whoever has walked or ridden over the great shoulder of Pegan or the slopes of Gunsight; whoever has climbed the twenty-four zigzags at Swift Current, looking backward two thousand feet below and out over a hundred miles of prairie; whoever has gone on up the narrow pass and gazed fifteen hundred feet down on Granite Park, then lifted his eyes in amazement to Heaven's Peak beyond, with its halo of snow glittering in the sunlight; whoever has seen Yosemite across the valley, climbed the zigzags at Vernal Falls, or taken off his hat to El Capitan at the entrance; whoever has stood on these or similar enchanted spots, will agree that neither word nor brush can convey more than a feeble picture of what the mountains really mean to man.

To know this meaning, one must feel it, and to do that he must not merely see the mountains as in a picture—he must live with them and their timber, their snows, and their waters, day after day, in sunshine and in storm, and in all the moods and tempers which nature here takes on. That is the privilege only of the one who actually tramps their foothills, their slopes, and their passes, day in and day out, as part of the nature they so grandly typify.

VII

MAKING CAMP

It is the end of a perfect day. We have climbed, we have waded, we have seen, we have heard, we have felt. We have followed the trail in all its meanderings, we have wandered at our own sweet will, we have loaded ourselves with wild flowers, we have marveled at mountain slope and cloud effect, we have unslung the cup from the belt and carried it brimming to the lips from the mountain torrent a score of times. We have rolled rocks down the precipice and listened like boys at play as they went thundering into the depths below, we have stood with heads uncovered before the mighty majesty of the mountains, and we have really lived, for we have experienced what is rare, except in childhood,—the rapture of bare physical existence.

But now we are weary and hungry! Hungry, not politely and reservedly as at home, but hungry with a kind of savage and all-pervading demand for food and plenty of it. And why not? We have been on the trail since morning with only a cracker or a biscuit or a handful of raisins, for the tramper does not eat when climbing. But now we impatiently crave nourishment as we did in childhood; and we have need for it, for if we have climbed say three thousand feet, we have done lifting

equivalent to the shoveling of some twenty tons of coal from the ground into a wagon. For an hour or more we have been looking for a good camping site and here it is.

Here is timber for shelter and for that shut-in effect that makes a home out of a camp, even in the wilderness. A home out-of-doors in the wilderness? Yes, indeed; for if the spot be favorable in its immediate surroundings and in its view either up or down the canyon, a few minutes will suffice to put the equipment in its accustomed order and to set up comfortable living with that homey feeling which the traveler seeks always to gratify. We have a number of such temporary homes scattered over the mountains, and we pay them frequent visits, not only in our dreams, but in our waking retrospections, as we live again from time to time the glorious experiences of vacation on the trail.

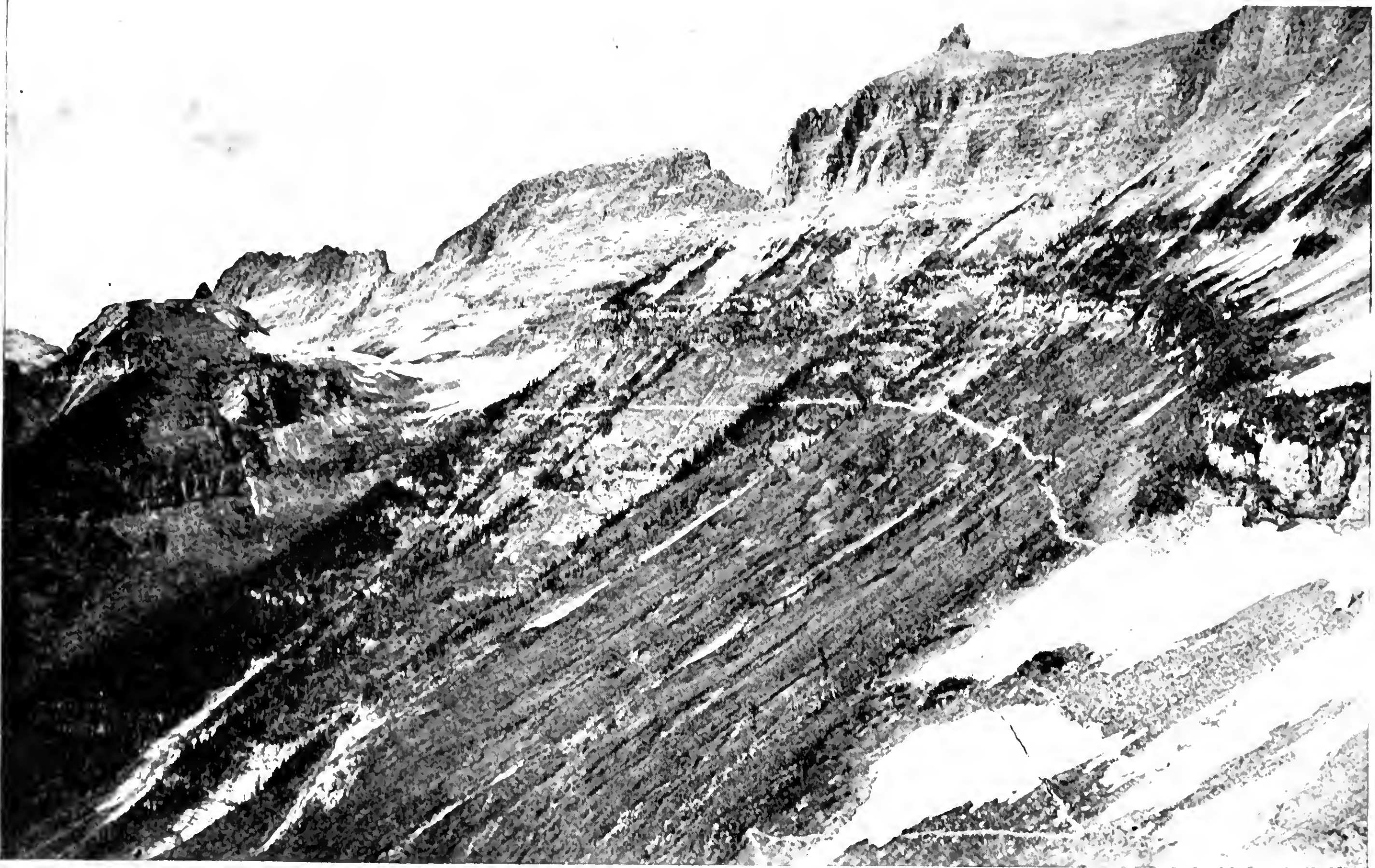
In choosing a camping spot, certain definite requirements are in mind. No matter how good the timber or how attractive the spot, the camp must not be at the mouth of a valley likely to be flooded by a sudden cloudburst or other cause of the breaking away of waters from their accustomed channels on higher levels. With this provided against, the camp may be located wholly with reference to the traveler's immediate needs, always remembering that the wind will turn at sunset and blow down the valley until morning.

Here is an open space for tents and over there is an excellent spot for the "kitchen," with plenty of space near by for that important event to follow—the feast of biscuits and bacon, with simple trimmings. Yonder is an ideal site for the camp-fire, later on, with plenty of

open space for sitting about the blaze. Wood is abundant. Water of the best is just at hand and running to waste, and down the slope is plenty of grass for the burros. Everything is ideal for meeting the needs of the party for refreshment against another day, and here we rest.

These separate spots are features to be located definitely before a knot is loosened for unpacking. I am not describing travel by caravan with great trains of pack animals, a retinue of servants to do the work, and supplies that insure a Delmonico dinner, nor am I referring to that abomination of all camping by which the tramper carries his supplies upon his back; cooking, eating, and I had almost said living, in his frying-pan. I am trying to describe a simple style of family camping in which the party does all its own work and in which one pack burro can carry the food, tents, and supplies for each two members of the party on a thirty-day trip. Three to six make an ideal party, but if the company is larger than six, it would better break up into sections and travel separately with definite meeting places arranged in advance.

The party, whatever the number, will divide into two groups, one to prepare the food and wash the dishes, and the other to gather wood, bring water, pitch tents, wrangle the pack animals, repair equipment, and finally to pack for the next day's trip. In a mixed company the division is obvious, the male members being best adapted to the use of the only kind of language which most burros understand and to those forms of activity best calculated to secure from the lazy and tricky little beasts that attention to business which is necessary to progress. This



IV. At the Head of the Valley the Trail Zigzags, Leading Up to an Almost Perpendicular Wall.

means by the principle of *reductio ad absurdum* that the ladies do the cooking.

The camp is quickly made. The packs are unloaded near—not on top of—the various spots selected for the tents and for the kitchen fire. It is a queer kink in human nature that leads the novice on the trail to dump his pack on the very spot on which he expects to pitch his tent or erect his stove, compelling an extra handling. It seems to take a man of ordinary intelligence and foresight about a week to learn to pile his stuff just one side of the spot selected for actual operations, all of which is a vast argument for the doctrine that evolution is the only hope of the race.

A good plan is to lay the sleeping-bags unopened on the ground while everybody drops down for about ten minutes flat on the back for a real stretch out before beginning the labors of the evening. This does not mean a nap, for that would bring stiffness in the cool of the approaching night, but only a few minutes of complete relaxation of all the muscles.

The first task is to put up the cooking jack and build the kitchen fire. Then, while one shift prepares the supper, the other pitches the tents, opens the sleeping-bags or bed-rolls and digs a little trench to turn water from the tent, making everything taut for the night, for one never knows when a sudden storm may come. If one of the party is to slip away with hook and line to secure a little variety, I am sure that nobody will object, but nothing must interfere with the job of getting everything ready for the night before darkness comes creeping over the mountainside, for it is not feasible to provide illumination beyond a small electric flashlight.

The best of all tents for the movable camp is one with a front that can be raised as a fly under which cooking may be done in time of storm. This tent requires but two poles, and the same rope is used both for ridge and for end stays. This part of tent-pitching must be well done, for if this rope is securely fastened to trees or heavy stakes, almost anything will serve for pegging down without danger of collapse in a sudden gust of wind. All knots should be tied with loose ends by which they can be untied with a jerk, even if tightened by wetting.

Before spreading the beds, the ground should be carefully looked over for snags and protruding shrubs and rocks, which can be dug out by that most useful of all camp tools, the mason's pick. The pack covers make good tent rugs, protecting against the litter of the ground.

By the time these matters are carefully attended to, the call to chuck will be heard in camp and everything drops instantly. There is no need to instruct even the merest novice as to how to deal with the biscuits and bacon that will form the bulk of the meal. There is no use either in cautioning anybody to eat moderately, for under the circumstances it will not be done. In truth, there is little need of caution, for I have never known acute indigestion in camp.

If anything is left—but there will not be—it can be fed to the burros; and this is the usual practice when breaking camp, for I have never found anything that they refused to eat, esteeming, as they do, tinfoil and greasy paper napkins as special delicacies.

With the washing of the dishes and the collection of wood, the company is ready for the last and the best ceremony of the day, the camp-fire.

VIII

THE CAMP-FIRE

While "the girls," that is, the cooks, are doing the dishes after supper—for this royal gorge may not be called a dinner—"the boys" that is, the wranglers, collect wood for a camp-fire. It may be dead aspen warranted to make a bright yellow smokeless blaze. It may be sagebrush when out upon the desert, and sagebrush is better for the camp-fire than for cooking, unless it be chopped fine and burned in a shallow trench. It may be a small dead tree cut into six-foot or eight-foot lengths to be burned in two by "niggering," then swung together at the ends to make a "hot one." A few evergreen branches may be available to throw upon the bed of burning coals as the fire dies down, filling the nostrils with the pungent odor of burning balsam, and sending streamers of fire off into the night, chasing the gathering shadows back into the forest again.

The warmth of burning logs and the flare and flicker of the flame, especially in the gathering shades of evening, exert a subtle influence out in the wild that is not far from that of companionship with something intelligent, beneficent, but mysterious. It is not difficult, therefore, to understand how primitive folk easily become fire-

worshipers. To any man with sentiment living alone out in the mountains, the building of a new fire is well-nigh a sacred rite to be performed with especial deliberation and almost ceremonial care involving certain definite and specific acts,—the selection of the spot, the gathering of suitable material, the discovery of dry quick-burning stuff for the lighting, and, last of all, the proper laying of the kindling and the logs.

The spot may be against a rock, if it is desired to reflect the heat into tents or over the camp site, but never against a log or stump or tree, for it is impossible completely to extinguish a fire in such a location, and the putting out of the last spark either by drenching with water or covering with dirt is both the legal and the moral obligation of any man who starts a fire in the wild. Let the site be chosen, therefore, against a rock or preferably, in most cases, out in the open.

Almost anything that is dry will serve for making heat, but a beautiful flame is a consideration as well, and the camper will soon learn the most desirable woods in his locality. Pitch is to be avoided as smoky and unduly hot, but an occasional evergreen bough will often give fine effects in fiery streamers that float off into the night like evil spirits seeking rest.

The last hunt is for something that will light easily to start the fire. A search under down timber, rotting logs, in dense thickets, or other sheltered places will usually discover dry slivers, twigs, or bark that can be lighted easily. Failing in this, the ax may be requisitioned to split a dry chip out of some dead tree or seasoned stump from which shavings can be made with a jacknife. As a last resort even in wet weather, the bark may be twisted

from dead twigs, leaving the wood fairly dry, but the experienced camper carries in his pack a small piece of fine kindling against all emergencies.

Everything is ready for the laying, and herein lies a fine art that seems to be known only to the woodsman. The tenderfoot has seen wood burning always in horizontal piles as in the stove or furnace, and that is his idea of laying a fire. Not so the experienced camper. He first selects a back log five or six inches in diameter and against this he builds his fire. Having lighted the shavings or twisted bark, he begins to lay on small slivers or twigs, not horizontally but standing on end, gradually enlarging the size of the sticks but always building teepee fashion so that the blaze is teased up through the mass by the natural draft as in a chimney. See insert in illustration opposite p. 52.

Should it chance to be raining, it may be necessary to cover the incipient blaze with a piece of bark until it gets well started or, in extreme cases when other shelter is wanting, it may be required to use the hat or even the coat for temporary shelter. It is no fun to build a fire in a rain but it frequently has to be done and, with plenty of wood, one can really dry himself at an open fire even when it is raining hard.

I am assuming that the camper is not only provided with that modern necessity known as matches but that he has them always on his person and that in the pack he has guarded the supply against any possibility of getting wet. Of course if any camper wishes to start his fire by rubbing two sticks together, he is at perfect liberty to do so, but, so far as actual experience goes, that performance is a primitive fad, like frying bacon on a

stick instead of in a skillet, as every practical woodsman does, not only to cook the bacon without burning but to preserve the fat as a substitute for butter. In all these necessary matters, it is the part of wisdom to find the method that best squares with all the conditions and follow that. There is no virtue in being uncomfortable or in doing a thing in the most inconvenient way merely because the camper is living next to nature; indeed, quite the contrary. The wise tramper will avail himself of every advantage and every convenience which circumstances provide, even to appropriating a deserted cabin in a storm.

Here, around the camp-fire, the company assembles to rest before retiring, to talk over the events and adventures of the day, and to make plans for the morrow in the only hour of real leisure that is found upon the trail. We talk over how the day compares with yesterday or the trail with others done before; the excellence and the shortcomings of this particular string of burros compared with others we have known; how no thistle blossom escaped the vigilant eye of old Jenny; how Jack got fast between two trees, not knowing enough to back out; how Jeremiah, the fool on the job, fell completely over, with his pack wedged between two rocks and his feet waving helplessly in the air; how "I. W." lay down upon the trail, feigning illness, time after time, until the old-timer, tired of his tricks, went at his ears right roughly with his walking stick; how a burro can know so little and live, and how he came to know so much that is of no earthly use to him or anybody else; wondering what becomes of a burro in the end, for nobody ever saw a dead one—does he explode into primordial dust, does he evaporate

into elemental vapors, or is he transported unchanged into interstellar space to make music for the spheres?

So is the mountain canary a perpetual source of amusement, of anger, of curiosity, even of despair. He is truly the pepper of the trail and the spice of the journey, and we would not have it otherwise. We wonder whether the snow at the pass half a mile ahead will be hard enough to hold the burros in the morning, and whether we can "make a get-away" before it softens in the rising sun. If unable to make the pass, shall we scout out a road over the shoulder at the right or at the left? Will it freeze to-night as it did last night out on the desert, and may be expected on the pass? What about tomorrow's trail? Will it be good or bad up the slope and over the Divide and will we make the deserted village by camping time?

These and a hundred similar questions take up the time till the fire dies down from neglect, the shadows begin to creep back from the forest, the cool of the evening is on the company with a deep drowsiness, and nothing further invites but the sleeping-bag or the bed-roll. So the Psalm is read by the flickering light and the day ends at dusk, and early darkness finds us all in care-free slumber such as only children and trampers know, lulled by the continual music of the mountain stream a rod away, which, like Tennyson's brook, goes on and on forever. No wonder that five o'clock finds everybody rested, as rest is not known except on the trail, and ready to begin a new day, anxious to be off before the snow softens on the pass or the heat of the day has well begun.

IX

BREAKING CAMP

In the early morning the camp comes to life with a bang and at the first sign of action there comes floating up the valley the answering heehaw or rather "ee aw" of the burros. One of them is not a good singer, and the best he can do is a fair imitation of the squeak of a rusty hinge. His sides go in and out vigorously, however, as if something worth while were really coming of all his effort, but results are abortive. The camp is alive, and the new day has fairly begun.

The wranglers build the cooking fire, then saddle the burros, for no burro can be tightly cinched at the first attempt. He will swell up to nearly bursting as soon as he sees the saddle and pack cloths coming, and the only way to beat him at the game is to saddle him early and then catch him unawares a little later on and "cinch him up for keeps," after which a side view of him may look more like that of a wasp than of a humble representative of the genus Equus.

While breakfast is preparing, the tents must come down and either be folded for packing or, if covered with frost, laid out in the sun to thaw out and dry off. The beds should be shaken out and folded or rolled according to the kind of pack to be used, the duffle-bag filled and tied,

and the ground well searched to see that no piece of property is left behind.

Immediately after breakfast the actual packing begins. First the tents and bedding are disposed of while the dishes are being washed, and last of all the kitchen equipment—dishes, stove, oven, and tables, if that luxury is afforded, as it may well be.

The details of the pack will be reserved for another chapter, but there are four final chores in the breaking of the camp, no one of which should be omitted. The first is to see that some wood and kindling are put in a dry place for the next traveler who may come that way, perhaps in a storm. I have had the experience of starting a fire under these very conditions with kindling and wood that our own party had left upon the spot some two years before. So does bread that is cast upon the waters return after many days.

The second chore is to see that no scrap of camp rubbish is left unburned or unburied to disfigure the beauty of nature and offend the next occupant of the camp site. The third is to make certain that no spark of fire is left to make trouble for the forest rangers, and the last is to take a final look, insuring that not so much as a steel tent stake is left behind.

The rule of the trail is that no man must destroy or take more than he needs and must leave the camp with everything ready for him who shall come after. If a camp is along a frequented trail, he may find food and cooking utensils. He may not take of the former except in distress without leaving a full equivalent of what he uses. He is welcome to use skillets and coffee-pot but he must leave them clean or he is a veritable pariah

among campers. After its abandonment, a camp site should show no evidence of occupancy that will offend the eye of the most fastidious, or betray an abuse of nature's bounty, the latter having special reference to the care of young and growing timber and the evil habit of carving trees, disfiguring rocks, or befouling springs and streams.

Life in the open is wild and free but it has its natural limitations which all right-minded men and women will observe, and nobody is so thoroughly disliked, even despised, in the mountains as the picnic type of camper who has never a care for what he does or leaves behind because he never expects to come that way himself again. May his tribe soon vanish from off the earth!

X

THE LAY-OVER

As already noted, it is well on the second or third day out to "lay over" one day in order to work the lameness out of the legs, revise the methods of the camp, repack the stuff as experience has suggested, and, in general, prepare for the steady life of the higher trails.

Again, from time to time later on a lay-over day will be convenient or desirable, and time for such diversions should be included in the general plan. On the trail, as elsewhere, bathing is a duty to be performed, requiring here special preparations, for the icy waters of lake and stream are not only forbidding but often dangerous. Certain washing must be done, and beds must be opened, sunned, and aired. Besides these matters of necessity, an occasional camp site is so bewitchingly beautiful that one wishes to linger in the shade of an especially friendly grove or tarry beside a particularly attractive stream. Here is the place, and this is the time, to combine necessity and inclination into a lay-over.

I well remember one such spot at which the bulk of the family washing was laid in a long pile, a rope tied about the middle of the bundle, and the whole heaved over the cliff to be washed and rinsed in the raging torrent below, as sailors wash at sea, without labor and without

price. I recall groves and valleys and passes where the instinct to worship was so stimulated that man could not, if he would, resist the urge to adoration, and here can be found in these favored spots the primal cause of the religious impulse in primitive man. In places such as these the camper will probably linger, perform his few unusual duties, and fill himself with what nature has to give more completely than would be possible were the camp site utilized only as a stopping place at night. In one such place our party has camped three different times, in another twice, and always with increasing satisfaction, returning to the old spot with yearning as a full-grown man comes back to his childhood home.

It is in the lay-over camp that certain indulgences are possible—a little later rising hour, a side excursion to valley, gorge, or hilltop, extra seating about the camp-fire, retiring nooks worked out of impenetrable thickets—these and a hundred other variations from the daily routine will suggest themselves.

Now is the time for some slight change in the menu. If beans are to be cooked, this is a favorable opportunity for so long a process. Much nonsense has been written about cooking at high altitudes, as if it were impossible, for example, to boil potatoes at ten thousand feet. At any height likely to be reached by the tramper, the difference in cooking will hardly be noticed, except that a little extra time is required in boiling.

The near-by snow-bank can be utilized for the making of ices and it is even better than the stream for the hardening of jello. If the season is right, berries can be found; and, all in all, the lay-over will be acceptable.

One day is enough, and by the next the company will

V. Lakes Like Mirrors Set in the Landscape.

be ready to go ahead for, after all, the spirit of adventure is uppermost and the desire for action and constant change is on all the company, except perhaps the burros, though the more they work the better they behave.

And so it goes to the end of the trip. Every day is different, and the moving panorama of water, timber, scenery, and the changing moods of nature afford variety experienced nowhere else as in the mountains. When on the trail these details so overlap and merge together that few distinct impressions are created, but afterwards, on review, each stands out by itself a distinct and impressive entity, almost sentient in its influence.

XI

THE MOUNTAIN WATERS

The higher mountains abound with water, great quantities of it, tumbling down every canyon, streaming over almost perpendicular walls, and trickling from seams and crevices at every hand, although there are dry sides wherever the strata tilt in the opposite direction.

This abundance of water comes almost entirely from melting snows, for aside from an occasional cloudburst, most summer showers in the higher levels are insignificant. However, the quantity is unaccountable when compared with the snow fields whose actual extent is dwarfed by the vast expanse of mountainside, whole townships of it lying bare and gray in the sunlight.

Snow water seems to behave like no other I have ever known. Emerging from an ice field, turbid and milky, it soon clears and by the time it has become a torrent it flows with a peculiar greenish-glassy luster, half liquid, half crystal, that marks it anywhere as coming from the snow fields. So restless is its energy as it hastens over the rocks and around obstructions that it appears to be possessed of a kind of intelligent purpose to get on and out of the country.

Opposed, as it frequently is, by bluffs and turns it cannot conquer, it lashes itself into foam wherever it is

balked, then hurries on as if to make up for time that was lost. Everywhere the beds of streams are filled with bowlders sent tumbling and bumping and booming against their neighbors from time to time by the sheer weight of rushing water—reason enough why experienced travelers keep out of the larger mountain streams where death awaits the unwary.

All this is music sweet to the heart of the experienced camper, and as the torrent rushes by his tent at night or his sleeping-bag out under the stars, he feels in his very soul that this continued swishing roar of rushing waters is the great voice of Mother Nature lulling him to rest upon her bosom. Perforce he sleeps the sleep of childhood, even the busy man of a thousand cares, and he wakes with the rising sun a new creature in a new creation.

The streams are low in the morning because the chill of night has checked the thawing of the snows, but with the rising of the morning sun, the waters swell again and towards mid-afternoon they will reach their height. A muddy river indicates a cloudburst or landslide higher up, but so heavy is the material and so powerful the current that the most turbid of steams will clear in a few hours, returning quickly to the customary glassy appearance and inviting flow as it swings around the bend and tumbles madly down the gorge.

When this snow water from a thousand silver rills, slipping down the higher peaks, gathers, as it sometimes does, into one of the few little mountain lakes, and quiets down before beginning its final turbulent journey, it is so still and so clear that it seems the emblem of eternal rest; for this is the land of the sky-blue waters beside

which all other is turbid and yellow and common. These little mountain lakes, encountered unexpectedly beside the trail, look not so much like bodies of water as like so many mirrors set in the landscape, reflecting and doubling the glories not only of mountain peaks rising in the distance but of every tree and shrub and flower that grows upon the brink. Blessed be the mountain waters, whether in motion or at rest! Instinctively we kneel to drink from cup or hand or hat, or better yet to dip the face into the very substance of the limpid glory.

The camper soon comes to regard the water as his special friend and he drinks of it abundantly. The cup that hangs from his belt is requisitioned at almost every turn, and the marvel is that one can drink so much with satisfaction. The tramper falls regularly to the temptation, if for no other reason than that so much that is good seems going to waste.

Here, too, abide the fish he often entices into his net by skilful cast of line. Finally, it is the stream that points the way and carves out the road whereby the traveler may reach the higher levels. Water is a constant and untiring friend to the tramper, and when it begins to fail as the summer advances, he feels that an old friend is slipping away, and it is time for him to fold his tents and depart for the ordinary haunts of man. In the desert or on the dry side of a mountain it may be necessary to scout for water. In this, as in following a blind trail, a kind of sixth sense seems to develop. Just as a broken twig or a bit of bark or wood scuffed off a rotting log or even a peculiar lay of the loose stones will serve to betray the road, so the camper scouting for water will learn to seize on the most insignificant indications. A

tree in a dry place or some tufts of unusually long grass will suggest that a little digging may strike moisture, and a suspicious ledge of rocks will often shelter a spring that is inconspicuous because its scanty waters so quickly sink away.

No joy of the chase can equal the satisfaction of the hunter after water when he has once found an ice-cold spring in a dry place. No wonder water plays so large a part in the imagery of the Old Testament where writers living in the mountains and the deserts knew well the meaning of a well of water in a weary land and of green pastures beside running brooks.

XII

THE TIMBER

In the fastnesses of the higher mountains will be found the final retreat of the splendid timber growth that once covered so large a part of the North American continent. Here, in solitary sublimity, the great forest makes its last stand against the encroachments of civilization with its ax and plow, changing the face of nature to comply with the ideals and purposes of mankind commercialized.

From foothills to timber line, which ranges from eight to twelve thousand feet according to latitude, moisture, and exposure, the mountains are clothed with a dense growth of evergreens, except only where the ranchman has carved out a clearing or where fire, that great enemy of the evergreen tree, has ravaged the hillsides, fanned and carried up the slopes by the wind that bursts into fury the moment a general conflagration starts.

The lightning that plays freely in the higher levels is a fertile source of uncontrollable fires, and in all the national preserves, the foresters' watch-towers planted on the highest points command views of the country for miles around. The smallest smoke is a call to duty. The traveler is at first surprised to find here and there beside the trail, even in the wildest wilderness, little square up-

standing boxes with a notice nailed on the door, inviting the passer-by to break the lock in case of fire and make use of the ax and shovel he will find to stop the impending conflagration while yet it can be controlled. By measures such as these, coupled with eternal vigilance, the Forestry Service is controlling fire with marvelous success, and useful timber is rapidly increasing its growth. However, immense tracts were burned over long before we adopted measures of foresight in the case of our timber, and here the evergreen is being replaced by the rapidly growing, but short-lived, aspen.

The camper blesses both evergreen and aspen for either makes an ideal shelter for the camp sites, but only a tenderfoot would pitch his tent in close proximity to a full-grown tree of any kind lest a sudden storm uproot it.

In most places the evergreen and the deciduous are freely mixed, and both are valuable to the camper not only for poles and shelter but for camp-fire and for sturdy support to his tents. The choicest wood for cooking is from the smaller aspen, two or three inches in diameter, that has died and fallen down. The same timber makes the best poles, being light, strong, and free from pitch, which latter the camper soon learns to avoid, not only for its disagreeable stickiness but for its smoke and its certainty of melting down the cooking jack. Small dead evergreens, still standing, make the best camp-fire wood, while the deadened lower limbs of the larger trees are good for any kind of a fire, especially for baking in the reflector oven.

The camper only partially appreciates the timber until he has been obliged to make camp in the open desert

with not a leaf to break the fierceness of the sun upon his tent and not a thing to burn but sagebrush, although, when he learns to chop it fine and dig a hole for his fire, he can get on very well with a sagebrush fire in most kinds of cooking. Even so, he will come back to the timber at the first opportunity as to a friend of his childhood, for it is only in the timber that the camp can be made really homey and comfortable.

The tramper is conscious of the general steepness of things mountainous, not only by the aneroid barometer and his probable shortness of breath, but more especially by the angle at which the timber grows, an angle so sharp as to make all the trees seem to be leaning over backwards to keep from falling down the hill, giving to the forest floor a strangely slanting appearance, as seen from underneath the trees.

Nearing the limits known as the timber line, the forest floor merges into the open, the trees changing not so much in species as in size, being suddenly dwarfed, so that within a belt of six or eight hundred feet the growth is reduced from the diameter of a good-sized saw log and a height of seventy-five or one hundred feet to hard and scrubby stuff that is scarcely the height of a man, yet it represents perhaps a hundred years of battling with the elements for barely a chance to live.

If near a pass or other wild exposure, all the limbs will be upon one side of the dwarfed and crooked trunk, giving a curiously wind-swept appearance and often, in dry regions, this exposed and scrubby growth will be cut into and actually whittled away by flying bits of sand, so that with timber, as with rocks, all sorts of fantastic shapes and twistings may be found.

It is fashionable to rave over the virtues of a bed made of evergreen boughs. Somebody has been brave enough to remark in this connection that other things can be done which do not pay. That is to say, it is possible to make a bed of boughs but it is a long and tedious task, this shingling with hundreds of little sprays in such way as to cover all the stems and make the surface soft and smooth. The labor and the expense of material are justified, if at all, only as a last expedient in a permanent camp. For a single night, almost any mountaineer would prefer to roll an old log out of its bed and ensconce himself in its place to undertaking the labor of making a bed of boughs.

Timber is, next to water, the greatest friend of man on the trail. It shelters, warms, and cheers, and the camper everywhere looks on the trees as his best protector. If he is above the timber line when a storm is gathering, he descends at once and builds a fire where he can weather anything but a cataclysm. The experienced mountaineer is never caught without matches, nor is he ever far from the means of building a fire.

Some poet should sing to the mountain timber, not so much to the individual tree, though it is frequently worthy of his praise, but more especially to the forest as a whole, the oldest child of the higher slopes, twin brother to the waters and friend extraordinary to the wandering camper.

XIII

A STORM ON THE PASS

The pass with its cross currents is the birthplace of the storm. It may come as rain on one side of the ridge and on the other turn to snow, which is the bane of the tramper, sending him scurrying down to timber line. It may drizzle all night, making it necessary to keep fire in front of the tent. In the morning everything may be covered with ice and the valley below be filled with fog, to be lifted only by the rising sun in great rolling billows like cumulus clouds, as they really are.

In general, however, a storm on the higher levels is wholly a glorious experience to the camper, even the sight of a lifetime to him who invades these unaccustomed solitudes. For the pass is high above the life and activity of the valleys and the hills below. Here the timber has been left behind, the rushing torrent is not yet born, and only the silent rivulet from the snow field gives hint of the beginning of a mighty river. All is silent, cold, and dead on the pass until the storm king begins his revels, and then is the traveler treated to a display that suggests the gods at work with the elemental forces that make and remake worlds.

From such a spot, the writer once looked down upon no fewer than seven separate storms in as many

canyons—one of hail, one of snow, the others of rain, with lightnings playing here and there and a rainbow lying horizontal in the valley some fifteen hundred feet below. Standing in the sunlight in the midst of all this revel but far above it, one instinctively bares his head and repeats again that age-old question, "What is man that Thou art mindful of him?"

It may be that one great central storm is moving across the pass attended by outrider clouds upon the different peaks and ridges, for all the country is spread out to view for fifty miles around. Some of these outriders may be glorified almost continually by lightning flashes that illuminate the snowy peaks with an unearthly brilliancy as, like golden chariots, the stately company of clouds sweeps majestically across the sky bathed in the slanting rays of the descending sun, for the late afternoon or early evening is the favorite time for cloud displays.

A storm, as commonly seen by us groundlings, seems to be a thing of the upper air and far above us; but a storm on the pass twelve thousand feet or so above the sea is not only among the very peaks themselves but it is at, or above, the level where most of our storms are born. The observer on the pass, therefore, seems to be in the very heart of it all, for as the lightnings play around him, the storm is truly a part of the landscape, indeed of the very atmosphere. The lightnings crack about one's ears as in recognition of his presence, and the thunders roll along the ground as if giants were out bowling down the valleys.

Such a storm on the pass means a glorious sunset after the lightnings have ceased to play and the rumblings have died away. Sunset in the mountains is always an

impressive sight, for nowhere, not even on the deepest of deep blue seas, does the going down of the sun rival that glorious display of rich and changing color that characterizes the mountain sunset. After a day of clear blue skies the sun will set behind the peaks in a blaze of red and yellow glory in sharpest contrast to the intense cold white of the snow on the higher levels and the deepening gray shadows in the foreground. Out on the desert the browns and tans of the landscape and the softened blue haze of the distant mountains make a background for the sagebrush gray which turns the boundless waste into bewitching beauty that seen even but once will never be forgotten.

It is at the pass and just after the storm king has ceased his revels that the sunset is at its best. The mists have cleared away and the last rumbling thunders gone to sleep. Great masses of clouds come rolling up from the west, dragging across the pass to float away over the valley like shining chariots of gold. Alive they seem until the growing quiet of evening gradually subdues their movements and the descending sun that seemed to have set the world on fire softens the colors as in some great dissolving view from gold to tan and then to that mellow violet haze that we call the alpine glow. I saw it once over a great valley lying spread out below for thirty miles, and again as a shaft of soft blue-green light flung through a rift in the clouds as if it were a highway let down from Heaven and one could almost see angels ascending and descending in the mellow haze. Who knows what Jacob might have seen out there in the hills some four or five thousand years ago! And no wonder he exclaimed that God was also in that place.

VI. Above—A Paradise, Not a Solitude. Below—The Deserted Village of Tin Cup.

And then follows the night, out under the stars two miles above the sea, where there is no need for tents! One is too awed for sleep, looking straight up into the heavenly depths, wondering what lies beyond! The shimmering moonlight bathes the valley with a mellow glory that rests upon the hills around like a benediction from above. How far away the stars look and how witching the silvery light that seems more like a section of the milky way let down to earth than anything else we mortals have ever known. I saw it once at midnight shining across the valley on the great face of Mount Massive some twenty miles away—brilliant, glittering, glorious. I saw it again from the pass overlooking Taylor Valley after the storm had spent itself. The moon and the stars were out, shining with a scintillating brilliance known only in the clear cold air of the higher levels. The mists had settled into the valley like a great white sea of foaming waters, shut in by the snowy peaks fading off into the distance some forty miles away. At two in the morning, after a stormy sunset, there lay the peaceful vision spread out below like an enchanted valley, uncanny and seeming not of earth. Such is the moonlight of the mountains, fit finish to the sunset and the storm.

XIV

THE DESERTED VILLAGE

Caution needs to be observed in depending on towns named on the map for replenishment of supplies. For example, the town of Emma is an old mill site which even the rats have abandoned long ago. Dorchester figures prominently upon maps and trail marks, but its streets are grass-grown, the "hotel" has neither guests nor proprietor, and the only remains of the saloon are a battered bar and five or six cords of beer bottles stacked in the rear. Independence and Rumley have been abandoned for twenty years. Ivanhoe, on our last visit, had four inhabitants, and Busk had two, while other pretentious names stand for nothing physical but stakes driven into the ground.

Ashcroft, the first mining town in the country, had at last account one inhabitant, my old friend Dan McArthur. Aspen, a dozen miles down the valley, was the successful competitor with Ashcroft and Independence for the county seat. It is the youngest of the lot; but lying between the two, it ran away with the prize by the ingenious device of playing the middle against both ends. As a result, Aspen is a charming little town with hundreds of the finest people, excellent shops, and a good hotel, amid extensive tracts of magnificent scenery, while

the two rival towns are dead. This town is a good point to make on the trail, when the original supplies may be somewhat reduced at the outset except as to milk powder, dried eggs, and such standard articles that can be obtained only from the larger supply-houses.

The coming suddenly on a deserted village causes mingled feelings of anticipation and disappointment, together with an uncanny conviction of one's being somehow out of place, intruding where the inhabitants have gone away for business or pleasure and are likely to return at any moment.

We have reached the further side of the pass and there lies the little village spread out below seeming to offer shelter, cheer, and welcome. Some of the party hasten on in the gathering storm, while others stay to bring the packs along. Down the single empty silent street the scouters wander, past open doors and roofs that are tumbled in. There is no answering voice, for no man has lived in the abandoned cabins for more than twenty years, and the stamp mill stands unroofed and with rotting machinery and tools and equipment scattered about as if the men had but just gone home to dinner and would soon be back to start up for the afternoon.

It is always and forever the same silent place, all the more dead for having once been alive and the abode of men who worked and gambled and swore and loved and hated as other men have done since the beginning of time and will do until the end.

Nestled in its amphitheater of snowclad peaks is a little weather-beaten shanty town once the pioneer in silver mining. We near it, having known it in more

prosperous days, and think to renew acquaintances. The doors seem strangely open, the familiar streets are deserted and grass-grown. No loafers enliven the "hotel." Even the saloon is closed, being open to the weather and empty, the only evidence of former life and prosperity being some cords of bottles carefully stacked in the rear. One man and his dog constitute the inhabitants now. "Lonesome?" "No, I've got my dog; besides there's the hills just the same as ever. But, say, friend, when you get back to the states, you might send me a bundle of old magazines. The winter nights ye ken are a wee bit long since the boys have gone over the Divide." And so we left him, standing there with one hand on the head of his dog, a solitary remnant of a day that is gone.

We came once almost unexpectedly on a newly abandoned town of many houses and much sign of recent life and prosperity. We had been tramping all day along the wildest of mountain trails, turning occasionally to admire the range of snowy peaks that hemmed the valley in and seemed, as they always do, to close up behind us as we followed the trail that led to the pass ahead.

Rounding a point, the village literally burst on the view, for there it lay spread out, filling the great amphitheater between the hills that until recently had been the scene of intense activity. Here by the right is a modernly equipped schoolhouse. A little further down is the town hall with the stars and stripes flying from the pole, and with fire-fighting apparatus standing under the shed hard by. Hydrants, like those of any city, showed that this was meant to be no shanty town built by squatters. It

had clearly been made to stay. However, silver had dropped in the markets, the best veins had run out, some prospectors had struck it rich in another valley, a mysterious fire had wiped out the principal store, and as a climax of disaster, the mail stage route had been abandoned. Wherefore the inhabitants acted as always under such circumstances—pulled up their floors and left, going over the mountains to the more promising town in the neighboring valley. Some locked their doors on a few remaining possessions and others left them standing invitingly open. Only about a dozen hung on where hundreds had lived and hoped before. These still had hopes in a new lead just struck, and one of the most hopeful of them had kept the flag still flying over the old "town hall," where meetings were no longer held or probably ever would be.

So does every deserted village have its history. Somebody will linger ten or a dozen years, appropriating the best of the cabins, but finally the last one nails up and goes, leaving the one-time haunts of men to the coyote and the cattle that follow close on the heels of the miner.

They are scattered everywhere in the hills, these pathetic remainders of the hopes of others, and we come on them almost without warning. Rarely do they offer acceptable shelter; and when they do, the accommodation is tinged with sadness and the haunting feeling that the rightful owner may turn up any minute and claim his own. Nor is the feeling tempered by the probable fact that this same rightful owner, if ever there was one, has been sleeping in his grave for some ten or twenty years.

XV

THE MOUNTAIN SOLITUDES

This stock phrase implies a world of inactivity like the moon that is dead. The term is coined and used in this relation by those who never could have really seen the mountains; or, if they have seen them, it must have been from many miles away and, knowing them to be uninhabited, they have jumped to the conclusion that up there in the mountain fastnesses is the home and headquarters of a solitude that is like unto death.

Except on the peaks and passes everything in the mountains speaks of life and of action. There are trees and shrubs and flowers everywhere—whole swamps of columbine, larkspur, monk's-hood, and paint-brush of a thousand hues, with literally acres of roses. The timber is deliberate but the flowers are riotous in their growth. Water is in motion everywhere, great shadows chase each other up and down the valleys and along the mountainsides, and even the snow seems to be streaming down the peaks and slopes and to move about as the sunlight falls upon it, taking new shapes each day as it slowly melts away. Everything here radiates life, energy, and activity.

On every hand is evidence of the changing landscape, and, though we seldom see animal life, we know that our

brothers of the wood are all about us, as their recent tracks abundantly testify. Elks and bears and lions and bobcats there surely are. The chipmunks and the camp-robbers are in evidence everywhere, and the whistle of the marmot in the rocks and the calling of the cattle on the range below testify always that the mountains are inhabited. If perchance some night a coyote or two should bark, the camper will be ready to swear by all that is dependable that the hills are full of the noisy little pests, at least a thousand of them.

Every year is witness of what the storms have done in a twelve month; and as we come to know how worlds are made, and as we return to the same old spot year after year, the changes are profound and seem to be going on rapidly all about. Even the peaks appear in motion, and the Hebrew poets spoke truly when they sang of the hills as dancing for very joy. The mountains speak everywhere of life, of action, and of change.

To live amid these changes and note this ceaseless riot of activity is to feel response to the great heart of nature. Except for the rushing waters, everything proceeds with that resistless quiet that marks always the greater enterprise. Even the tumbling torrent, so noisy when just at hand, is soon lost in the general prospect the moment we consider the mountain as a whole. It is then that details shrink into insignificance, even the flowers and trees and rivers merge themselves into the general impression and that impression is one of stately, resistless, ever-changing, but deliberate, action. And the effect is good on the soul of man.

Part II

OUTFITTING FOR THE TRAIL

XVI

RESULTS OF EXPERIENCE

Vastly more persons would get into the mountains for a new kind of vacation if only they knew how to outfit for a moving camp and how to set up a new home every day. Those who have experienced the possibilities, the pleasures, and the satisfactions of life on the trail would do anything within their power to induce as many as possible of their sedentary brethren to enjoy with them what is literally going to waste in the higher mountains.

It is the present purpose so completely to describe the necessary outfit that the veriest tenderfoot is perfectly safe in starting out on the bohemian plan for the very heart of the mountains. While different persons would choose somewhat different outfits, yet the possibilities for variation within the necessities of the situation are not great. This being the case, I shall describe in full the exact outfitting which our own party has gradually evolved after a good number of seasons' experience, mainly in leaving behind a quantity of useless trumpery and adding some things whose need is discovered only by experience.

I shall describe an actual outfit for a party of four, which is an ideal number, living in two tents, for a period of thirty days with no opportunity for replenishment of supplies; and I can assure the reader that this will be a

perfectly safe set of specifications to start with, from which, with experience, he may develop his own additions or subtractions; but I would not advise snap judgment in advance lest he encumber himself with useless baggage on the one hand or find himself stranded on the trail for lack of some necessity upon the other.

Without further introduction, therefore, I shall give the list of food, clothing, tents, bedding, and accessories which we have found by actual experience to be suited to the needs of the trail for a party of four.

XVII

FOOD

The general rule for "grub" is this: a pound and a quarter of dry food for every adult member of the party and for every day of the trip. Should the party consist entirely of robust young men, the amount should be increased to approximately one and one-half pounds a day, but the daily pound and a quarter is a perfectly safe family ration. This will be found, in the words of my old friend Dan McArthur, "an excellent sufficiency, any more would be a superfluity, and any less a calamity."

When it is all piled up for packing, the four tenderfeet will exclaim, "My goodness! We never can eat all that stuff!" But thirty days is quite a long time; besides, a new set of appetites will develop and when, after a few days on the trail, the pile begins to go down with promptness and dispatch, a feeling of fear will possess the party lest the supplies run out too soon.

It is specified that this shall be strictly dry food, such as flour, meat, fat, and dried fruit. If potatoes, canned fruit, and the like were to be taken, it would vastly increase the pack without in any way compensating for the added bulk and weight, an alternative that cannot be afforded on the trail where both bulk and weight are serious considerations. In case supplies are available

along the trail, these luxuries may be added as the packs go down, making due allowance for the difference between dry and fresh supplies.

"But," says somebody, "I cannot live on this kind of food." Oh, yes, you can, and like it. One gets so hungry on the trail that he eats anything and everything with relish, even avidity. Besides, one of the purposes of the trip is to set up an altogether new and different style of living from the one to which we are accustomed at home, and this is part of the good of it all.

FOOD FOR A PARTY OF FOUR LIVING THIRTY DAYS ON THE TRAIL

Item	Quantity	Item	Quantity
Bacon	20 pounds	Apricots, dried	5 pounds
Ham	15 "	Raisins	4 "
Salt pork	5 "	Dried corn	1 pound
Dried beef	2 "	Spaghetti	1 "
Dried milk	15 "	Corn-starch	1 "
Codfish	2 "	Crackers in tin	4 packages
Dried eggs	2 "	Jello	10 "
Crisco	4 "	Bouillon cubes	6 "
Butter	2 "	Cocoa	1 package
Cheese	2 "	Tea	¼ pound
Flour	40 "	Geo. Washington coffee	4 small cans
Baking-powder	2 "	Pepper	¼ pound
Corn-meal	5 "	Salt	1 small sack
Rice	2 "	Sweet chocolate	1 pound
Sugar	12 "	Baker's chocolate	1 "
Rolled oats	2 "		
Prunes	5 "		

Here are 149 pounds of real food, besides the crackers and accessories, almost the exact equivalent of the pound and a quarter for each daily ration. Some variation is, of course, entirely feasible as between bacon and ham, for example, though bacon keeps better than ham. Dried eggs can be dispensed with but they are a great advantage. Fresh eggs can be carried in wooden cases but there is

VII. Above—The Lay-over. Below—Ready for the Start.

manifest danger of losing the entire supply at any moment when the burro rolls down the hill; besides they are too bulky to transport if it can be avoided.

The butter specified is only for the start and as a kind of easement, for it must be packed in tin and will not keep many days at best. When well settled into the new manner of living, bacon gravy on hot biscuits will substantially replace the need for butter, because bacon and biscuit are standard on the trail. It is surprising to see how everybody comes gladly to this standard ration.

Lovers of rice may vary the amount with flour, but corn-meal does not keep well, nor does graham. The dried milk is standard and comes in five-pound tin cans. It is better in flavor than the condensed variety, besides being much lighter and less bulky. Crackers are a concession to luxury but are too bulky to constitute much of the ration. Their use is for a light lunch on the trail for the first few days, but a cold biscuit is a good substitute and raisins are better still.

Beans can be carried, but their proper cooking is too long and difficult to be recommended except in the "layover." Potatoes are discarded only because of bulk and weight, for all talk about the impossibility of cooking at the high levels covered by the tramper is nonsense, and as the pack goes down, one of the first indulgences will be for "spuds," if perchance a town should lie along the way.

Prunes, dried apricots, and raisins are standard. Other dried fruits are to be avoided, as are all evaporated vegetables, unless one stands ready to divide his rations with the burros to the disgust of a beast which esteems paper napkins an extreme delicacy. Whatever their merits at

sea level with abundant time for rehydration, evaporated vegetables are not suited to the trail. We tried it as tenderfeet in the interest of variety before we learned the uselessness of endeavoring to carry all our living habits with us over the mountains. Great variety is not needed, for appetite will provide the spice, and the kinds specified will be found ample from the point of view of variety as well as amount.

Chocolate-lovers may wish to increase the supply, indeed all kinds of confections are acceptable but difficult to preserve in the pack. Jello is especially suited to provide variety, as the ice cold water everywhere insures its perfect consistency.

All food not put up in tin packages should be inclosed in cloth sacks to insure against wastage, and small articles may well be packed in wooden boxes for protection. It must never for a moment be forgotten that the pack is not a tender and careful mode of transportation and things must be prepared to withstand considerable pressure from the cinch and possibly from the effects of a tumble down the hill.

It is better to use several small packages of tinned goods, such as coffee, rather than one large case because, when a package is once opened, there is some danger of loss by leakage; besides, when a small package is empty it can be thrown away, reducing the pack, which is always desirable.

XVIII

CLOTHING

In general, light weight, open weave, woolen garments are far preferable to cotton, both for outer and underwear, not only because of their additional warmth in the chill of the evening and their porosity in the heat of the day, but for the comparative ease with which they can be cleaned with good soap, even in cold water which shrinks the goods less than warm. The younger members of the party may insist on cotton underclothing, but woolen socks are standard, not so much for warmth as to insure against sore feet when they perspire, as they surely will.

Each person will need two suits of light woolen underclothing and two wool shirts with roll collar and necktie. Should any portion of the trail lie in the open desert, one suit of light cotton underclothing may be grateful, but in the higher levels woolen is altogether preferable.

Three pairs of woolen socks will be needed for each person. The difference between woolen and cotton in the protection of the feet is almost unbelievable, and a sore foot on the trail is the one great discomfort to be avoided. It is better to follow the wisdom of experience, wear woolen even in July, and bathe the feet frequently in witch-hazel or rub with lanolin than to trust to luck.

Knickerbockers for the ladies and breeches for the man

are standard wear on the trail. Skirts are taboo, as are also ordinary trousers, coats, and such abominations as high-heeled or narrow-toed shoes. The only over-wrap needed is a medium-weight woolen sweater or a short jacket with waterproof interlining over the shoulders. Raincoats and heavy sweaters are bulky and unnecessary, except in extremely cold and rainy regions, for a slight occasional wetting on the trail is a trivial matter that can be disregarded.

One pair of laced waterproof walking boots, fifteen inches high, with "bellows," that is solid, tongues like the Gokey, with an extra pair of laces and a box of waterproof dressing are standard. Rubber heels are an advantage but under no circumstances should the soles be hobnailed. These walking boots, though heavy, will be exceedingly comfortable, and their flexible sole is desirable, not only for ease in walking but for holding to rocks and standing wear. The boots should be cleaned every day and kept well oiled, including the soles. Old shoes will not stand the wear and tear of the trail and should not be taken. The feet need special attention, and the best is none too good. There should be in the party at least one pair of arch supports in case some member should spring an instep.

Except for fishing, hip boots are necessary only on extremely unusual trails, and one pair of large size would be enough to ford the party over any stream that the burros could cross. They can usually be discarded.

One light felt or cotton hat with not less than a three-inch brim and a pair of gauntlet gloves will complete the outfit, so far as ordinary clothing is concerned. If flies or mosquitoes are to be expected, a net made of mosquito

netting and worn over the hat is a grateful protection; but only once have we used it in the mountains.

With a nightdress or suit of pajamas, three small bath towels, and a supply of handkerchiefs for each member, the party will be provided for the trail, except for the ordinary toilet articles which should include a steel mirror and, for the ladies, a supply of vanishing cream and talcum powder for morning use, and cleansing cream for night as a protection against sunburn—all carried in a special bag or knapsack that can either be dropped into the duffle-bag for packing or carried outside the pack. It may be worth remarking that the tenderfoot on her first trip will insist on carrying these Lares and Penates by a strap over the shoulder, but she will soon learn to "chuck everything into the duffle-bag and let the mules do the lugging."

There would need to be provided, in addition, one rubber-lined apron for each person who cooks or washes dishes, and one light rubber poncho for the party is a convenience in case of a rainy day in camp, though it is hardly necessary.

To the novice, this may seem a rather meager outfit, but it is sufficient, and, in the words of my mountain friend, "any more would be a superfluity."

XIX

TENTS AND BEDDING

The widest latitude may be permitted in the choice of shelter from pup tents up but only simple designs and small sizes are permissible on account of space. The house tent is preferable for permanent camp but not for the trail.

The best tent for two is about seven by seven on the ground, two and a half feet at the back, rising to a ridge six and a half or seven feet high, and so built that the front can be either tied down for privacy or raised as a kind of porch to protect from sun and perhaps shelter the cooking in time of storm. Such a tent can be slung with two poles, two large stakes, and a single rope that serves both for ridges and stays.

A very good tent is made from a kite-shaped piece of canvas strung with a single rope with two short poles. This tent is suitable for shelter only, as it cannot be closed. A small extra piece of light canvas, six by twelve or thereabouts, is useful about camp to cover the cooking jack in time of rain, to serve as a toilet screen on necessity, and if carried on the outside of the pack is an excellent protection against a sudden downpour on the trail; for such a piece thrown about the shoulders will easily

shelter half a dozen people when standing in a compact group.

The best material of course is silk, but it is expensive and easily injured. The most practical is the so-called Egyptian cloth, a fine strong cotton that is both waterproof, light in weight, and not easily snagged, though any tent must be well protected in the pack, which will strike against sharp rocks or broken limbs every day of the trip.

There will be needed for pitching each large tent fifty to seventy-five feet of half-inch manila rope of the best quality, boiled slightly to take out the kinks and soften the fiber but not enough to weaken. The extra length is advisable in order the better to reach adjacent trees so far as they may be available, for they are stronger than stakes and save labor.

There should also be two tent poles, six to seven feet long according to the length of the ridge. These poles may be jointed or, better yet, made of hollow tubing and used as walking sticks. In timber, rough poles will suffice, but poles are not always available and the tramper must carry all of his absolute necessities. This means also one half dozen fifteen-inch and a half dozen eight-inch steel tent pins for each large tent and a few feet of extra rope for reaching to trees, for which purpose a hank of clothes-line or forty to fifty feet of quarter-inch rope will serve perfectly. In practice it will be found that pitching the tent every day is not so much a work of art as one of speed and security in which trees, bushes, rocks, and everything within reach is utilized, and plenty of rope and then a little more is one of the necessities. Indeed, as we say on the trail, "too much rope is just enough."

There are many uses for ropes and cords of various sizes; besides they wear out rapidly.

The standard bed is the waterproof sleeping-bag or the army bed-roll, thirty by seventy-two inches, laid flat on the ground for warmth. The cot is impossible on the trail, not only on account of its weight and bulk, but because it more than doubles the difficulty of keeping warm. The camper soon finds that the breast of mother earth is his best foundation for the bed, insuring the sleep of childhood, and he need have no more fear of "bugs and things" than when traveling in civilization, indeed not nearly so much.

Underneath should be a good kapoc mattress made to fit the sleeping-bag, and for covers either a four- or five-pound wool comfort or two or three woolen blankets should be used. Sheets are a luxury not tolerated on the trail, but instead the comfort or the inner blanket should be provided with a temporary covering of green or gray cheese-cloth or other light material which can be changed at the end of the trip. The blanket should be folded double to fit the sleeping bag and fastened along the bottom and up the side with a half dozen four-inch safety-pins. When so installed, the sleeper can crawl under as many thicknesses as he pleases.

Pillows are an impossibility unless the luxury of the air pillow can be afforded. The boots must be put under the mattress every night for protection against porcupines, and these, with the day clothing, constitute the usual pillow of the trail.

An air mattress is desirable from many points of view, but it is heavy, is constantly liable to puncture, and withal it offers some lung exercise in filling at the rarefied atmo-

VIII. The Most Serviceable Tent, with the Fly Up. Insert—The Way to Start a Fire.

sphere of twelve thousand feet. I have tried it and know. That is why we now use kapoc, which is even more comfortable.

The best ties to use in fastening ropes will be discussed in another chapter, but at this point attention is called to the manner of driving stakes, which must slant as nearly as possible in line with the strain of the rope so that the pull is endwise, not at an angle with the stake. The novice always drives the stake at about right angles with the stress, but a brief trial will convince him that when it is almost impossible to start a stake by a direct pull, it comes easily when the pull is crosswise; indeed, a slight horizontal kick will loosen almost any stake, and this is the method always used in pulling stakes, whether steel or wood, when breaking camp.

XX

COOKING EQUIPMENT

It is possible, of course, to follow the example of the prospector who gets on with a frying-pan, a plate, and a tin cup, using his pocket-knife for all kinds of cutting operations. But we are providing for comfortable, though simple, living, and the burros may as well carry a reasonable load, for the more they work the better they behave. After having cut out all superfluous duffle, we may as well be comfortable.

All dishes must be of metal. Enameled ware is preferable for plates, cups, and basins, but the wash-dishes may as well be of tin. Paper napkins are a luxury, but they come in handy, not only in the ordinary way, but in cleaning the plates and skillets from superfluous bacon fat at the end of the meal preliminary to washing, a practice especially approved by the burros which regard greasy paper napkins as a supreme delicacy.

Sizes and shapes should be selected to nest as closely as possible for packing. For this reason, the open-handled cup is the only practicable one for the trail and it can most readily be carried on the belt, as every member of the party will like to do with his particular drinking cup.

There should be provided for each person: one six-inch plate, two cups, one saucer, one small bowl, one table

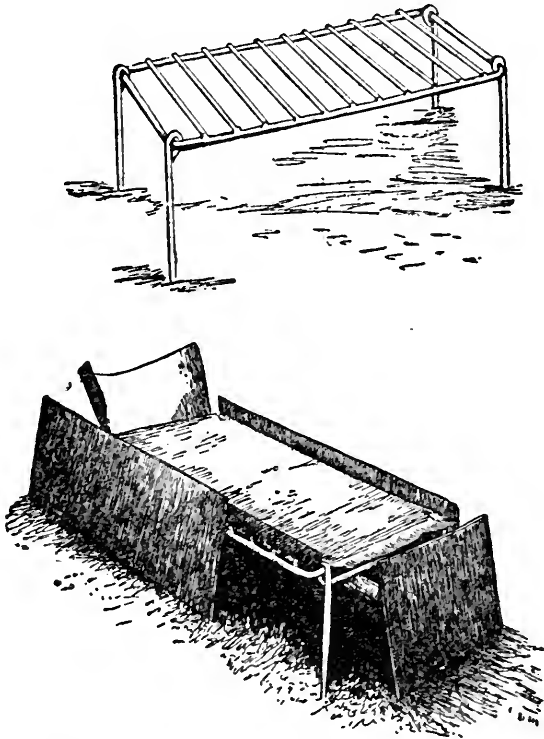
knife, one fork, and two spoons. For general use there will be needed for comfortable service: three plates, four bowls of different sizes from two-quart down, one long-handled fork, one long-handled spoon, four tablespoons, one teaspoon, one paring knife, one good butcher knife, one can-opener, one jack-knife, one kitchen table knife, a flat file for sharpening, and both salt and pepper shakers.

For cooking there should be provided: one large (ten-inch) frying-pan with heavy bottom, one smaller (eight-inch) and light in weight, one aluminum pancake griddle, one five-quart stew-pan with cover, one three-quart stew-pan, one four-quart kettle,—all of enamel ware and, like every other kind of dish, selected to nest for packing. One small flour-sifter, one measuring cup, a biscuit cutter without handle, one canvas water bucket, and two tin wash-basins will complete the cooking outfit, while two larger basins should be added for toilet and bathing purposes. The coffee-pot is ruled out as impossible to pack and accordingly George Washington coffee is provided.

For baking, a Dutch oven will serve, but a reflector oven made of bright tin can be obtained from the supply house for a very small sum and it is vastly to be preferred for most purposes, because the cook can see all that is going on. The only disadvantage of the reflecter oven is that it requires a generous fire, but that is no draw-back where firewood is abundant, as it is almost every-where in the mountains.

A steel wire cooking jack, twelve by twenty-four, will be needed to stand over the fire and it will be well to fit this jack with a thin sheet-steel top, turned up one inch at the edge, from which sides eight or nine inches wide can be hung and banked at the bottom with dirt to confine the

fire and protect the boots of the attendant. An extra piece of sheet iron, twelve by eighteen inches, may be bent and stuck in the ground at the back for a kind of chimney, the "stove" being fed from the end, and a small piece, twelve by fifteen, can be set up as a door to regulate the draft. This will all pack flat with the reflector oven and can be wrapped in a piece of canvas, a yard square, for packing. If care is taken, the blackened side of the canvas can always be put on the inside, and the bundle thereby kept clean for handling. (See Fig. 1.)



1. The "stove" as fitted with sheet-steel. One side pushed back to show construction.

XXI

ACCESSORIES

There is a small multitude of little things that goes with living anywhere. The great danger is that one or more of the necessities may be forgotten, but even greater is the likelihood of taking more than is needed and being encumbered with many articles. Even at the risk of possible repetition, I will assemble in one place a list of those accessories that will be indispensable for comfortable living on the trail, and it includes everything that need be taken.

Personal toilet articles will suggest themselves, but let the list be not much extended beyond such obvious necessities as the comb, hairbrush, toothbrush and paste, safety-razor, steel mirror, hair-pins, and soap, except that the ladies must include cold cream as a protection against sunburn and witch-hazel as a soothing balm for the feet. In this connection it is well to remind the ladies that on the trail cold cream is a better friend of the face than is water. On coming in from the trail, a cleansing cream should be applied; then the face bathed in warm water just before retiring, with another application of cream. In the morning before setting out, vanishing cream should be applied with plenty of powder. If these

directions are followed, the complexion will assume a beautiful tan. Otherwise some several thicknesses of skin may peel off from nose and face and ears, a performance that is neither ornamental nor comfortable. Smoked or colored glasses are necessary for the snow or desert, and are useful on many occasions.

One waterproof duffle-bag for each tent is sufficient to carry all the extra clothing and other articles; and this, like the boots, tents, sleeping-bags, cooking utensils, and all other camping supplies, including clothing, can be secured from any house handling sporting goods; such, for example, as Abercrombie of New York, or Von Lengerke and Antoine of Chicago.

One folding canvas table for the "kitchen" and one for the "dining-room," each with an oilcloth cover to be rolled on a piece of old broom handle for packing, are not absolutely necessary but exceedingly convenient.

One small folding camp-stool for each member of the party is a great source of comfort and is not difficult to pack.

One piece of three-ply board, twelve by eighteen inches and a quarter of an inch thick, on which to cut meat and mold biscuits is also desirable and it will pack with the jack and the reflector oven.

Five or six yards of cheese-cloth for wash-cloths and dish-towels, six or eight bars of soap for dishwashing and laundry, one can of Dutch cleanser, one five-cent scrubbing brush, a length of clothes-line and a package of pins are necessities not to be forgotten, though bushes make a fair substitute for line and pins.

A canvas wall pocket with many compartments is convenient for holding the various small articles used in

cooking. It can be hung on a tree when in use and folded and packed with its contents in a single roll.

One dozen boxes of safety matches should be divided and kept in different packs, the main supply at least in a tin box, for even life itself may depend some time on a few dry matches. Each member of the party is supposed always to carry matches that he may never be without the possibility of making a fire.

Each member of the party should have a good jack-knife.

One first-aid kit and a bottle of ammonia for insect bites and one of witch-hazel, both in tin cans, a roll of two-inch adhesive plaster, a good antiseptic, and about two yards of mosquito netting to a person should not be forgotten.

One or two pairs of in-soles are advisable, with a pair or two of extra taps, a few nails or pegs, and an iron last for fixing repairs and on which to hammer down the nails that will continually work up through the boot heels. At least one pair of arch supports for the party is a wise provision.

One small two-handed ax, two to two and a half pounds, kept sharp and never used for pounding iron tent stakes, is one of the indispensable features of every outfit. The one-hand ax is not sufficient for the possible exigencies of the trail.

One brick mason's hammer, really both a hammer and a pick, is the most useful single tool of the outfit, being adapted to driving in stakes, digging trenches around the tent, prying out stones from under the sleeping-bags, cutting grubs, and doing all kinds of rough work. (See Fig. 2.)

One whetstone for the ax, one four-inch flat file for sharpening butcher-knives, two pairs of cheap leather-faced gloves for handling wood, fifty feet of extra half-inch rope besides the packing ropes and those for pitching tents with a hundred feet of quarter inch should be included. Too much rope is just enough.

One hank of chalk line, one spool of linen twine, a

2. The mason's pick, the most useful tool in camp.

small quantity of linen thread, darning yarn, assorted needles, and a few buttons will come in handy.

Three or four strips of whang leather, two or three leather straps, one inch wide and three feet long, for replacing broken cinch straps, one dozen copper rivets, one dozen one-inch clout nails, and a bit of copper wire should be tucked in against needed repairs on the pack saddles.

Besides the individual toilet articles, including soap, there should be added three or four packages of toilet paper, preferably in the flat. Five or six yards of com-

mon muslin, six feet wide, to wrap about three or four trees or stakes will make an excellent toilet tent.

Two light jointed poles for each tent or their equivalent in walking sticks must not be omitted.

One aneroid barometer in the party is a great satisfaction as indicating altitudes, but it is not a necessity. Watches are superfluous, but some member of the party should wear a pedometer, and there should be at least one revolver of not less than 38 caliber. Spy-glasses and cameras will suggest themselves and need not be specified as necessities.

No games will be played, though a handball might be tucked in; and no books will be needed beyond one or two to while away a rainy day, and some selections from the Bible, preferably the Book of Psalms. It is strange how the mountains turn one's thoughts to far-off Palestine and to the prophets of old, who were among the first of all the races to look on the hills as friends.

Maps of the region should be secured through the United States Geological Survey, cut and mounted on cheese-cloth as already described, and with these there will be no danger of losing the trail, at least as to the general direction.

Beyond these accessories it is not at all necessary to go and the great danger is that too much will be taken along to become a daily burden in the handling. We are not moving our home to the hills. Rather, we are setting up a new manner of living, and that is part of the object of it all.

XXII

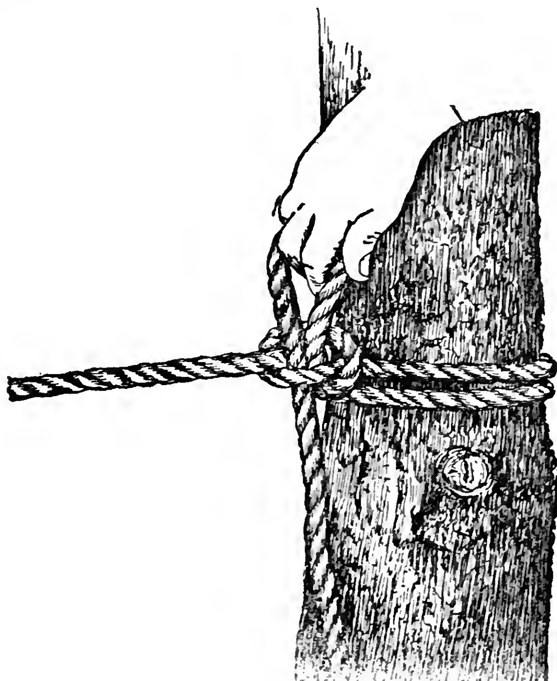
ROPE AND STRAP CRAFT

The camper does not need to know much about ropes and straps but he should be cognizant of a few points before setting out on the trail.

All packing and tent ropes should be half-inch best manila, boiled slightly to make pliable and to take out the kinks, but not enough to injure the strength. Few laymen realize what it means to handle ropes continually or how fast they wear out. The best is none too good and bad rope is taboo.

A knotted rope end is an impossibility in camp life. To prevent raveling, it should be wound for two or three inches with stout linen string, and the process is as simple as it is easy. Take a piece of small stout cord, two or three feet in length, depending on the size of the rope, fold back one end about six inches or thereabouts, lay the loop upon the rope to be wrapped in such way that the short end projects about an inch and a half beyond the end of the rope. Holding this loop firmly upon the rope with the left hand, begin with the right to wrap the long end tightly around both loop and rope, commencing about a quarter-inch from the end and continuing until something like two inches have been closely covered. The closed end of the string will then be projecting an

inch or two outside this wrapping. Pass the free end through this loop, then catch the short end of the string at the end of the rope and pull hard enough to draw both loop and the free end together well under the wrapping. Both ends may then be cut off, and if the work is well



3. The best fastening to tree or stake.

done, the wrapping will stay in place until the rope wears out.

The camper may use his choice as to knots except that they must open easily by a single jerk of the free end, even when wet. The most convenient knot for most purposes is a kind of half-hitch best described in fastening a guy rope to stake or tree, and something as follows:

When the rope has been wound around the tree, instead of using the ordinary slip knot, which allows the stay to loosen, the best tie is made by throwing the free end over the main rope, drawing taut and tying back upon itself by a simple loop drawn tight as in Fig. 3. This is easily opened, whether dry or wet, by a single jerk of the free end. The same tie is used on the pack and is the best general fastening for ropes about camp, though the double loop has some advantages, especially for stakes and roping to the end of a pole. This fastening is made by laying two loops one above the other, the free end down in both cases, then placing over the end of the stake and pulling taut by the free end. Such a fastening has no knot, but it will hold until the stake comes out or the rope breaks.

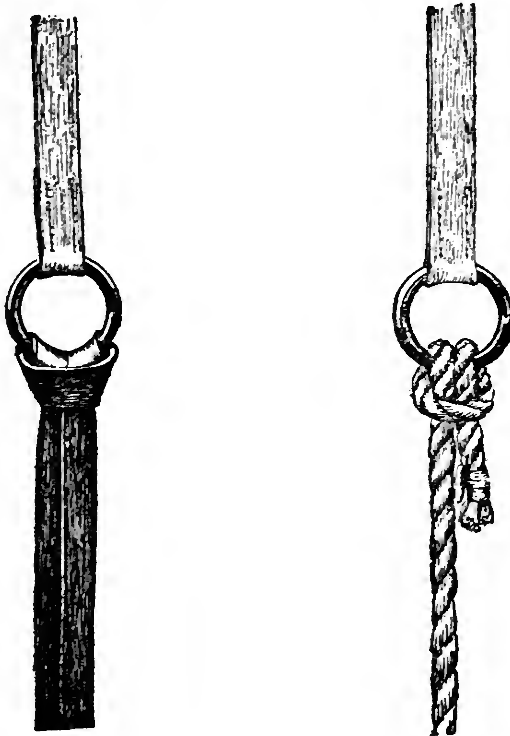
All straps for saddle and cinching should be of medium thickness, an inch to an inch and a quarter in width for burros and correspondingly wider for horses, made of the best leather, and should be in good condition when starting out. They should be fastened to the wood of the saddle by rivets and to rings either by stitching or by rivets. Straps should be fastened together with the cinch tie, not by buckles which are certain in time to cut the leather, and such a cut is practically beyond repair on the trail.

This cinch tie is used for fastening a strap or rope to a ring, as in cinching saddles, and is made as follows: Put the strap or rope through the ring from front to back, carry the free end around to the left, then bring it forward across the front at right angles to the main strap or rope. Tuck the free end through the ring from the right side but this time from back to front. Then tuck

IX. Above—On the Trail. Below—The Finished Pack, Diamond Hitch.

the free end under the loop by the side of and parallel to the main strap or rope, pull taut, and the knot is finished. (See Fig. 4.)

If a pack is to hold, the saddle must be cinched ex-



4. The cinch tie with strap and rope. The latter illustrates the position of the free end.

tremely tight. This is no disadvantage to the animal because a loose saddle means a sore back and almost any cinch will work loose and will need to be tightened as the day advances.

Every pack saddle has two cinch straps, one on the right and one on the left, each connecting with a cor-

responding ring on the surcingle. In practice it is the left cinch strap that is loosened in unsaddling and this is the only one concerned in cinching from day to day.

In cinching on the saddle, the cinch strap, being fastened to the saddle by a ring, is passed through the surcingle ring from inside to outside, pulled taut, tucked through the saddle ring from outside to inside, back again through the surcingle from inside to outside, and pulled as tight as is considered necessary. From this time on, all that remains is to make the cinch knot in the upper ring as already described; that is to say, once more the cinch strap is tucked through the saddle ring from the outside, brought around to the left, carried squarely to the right across all straps, tucked under the saddle ring this time from inside to outside, brought down under the loop thus formed, pulled taut, and the knot is finished.

It facilitates the tucking of the strap, particularly toward the last, if it is somewhat narrowed and pointed at the very tip.

XXIII

THE BURRO

Two burros are the minimum for a party of four and if folding tables and the rather generous outfit herein indicated be taken, a third should be added—a wise precaution anyway in case of a possible accident. Each burro will need a pack-saddle and a saddle-blanket, the latter best made of two or three old gunny sacks. Advance arrangements for burros and pack-saddles should be made by correspondence with the prospective place of departure.

All burros are good animals but some are worse than others, and most of them will try out a stranger to see whether or not he is a tenderfoot. This trial will come soon and will take the form of lying down with the pack, throwing back the head, and emitting a series of moans that will deceive the very elect into assuming that the little beast is sick unto death. However, a few sharp cuts over the ears, the only sensitive spot on a burro, will restore him instantly to most excellent health, and to as high a degree of activity as he is likely to exhibit, for he is an animal of very great self-restraint.

No provision need be made to feed the little animals as they will forage along the way. Nor is it necessary to record any further instructions about managing burros, for they would be too voluminous for print. Every one

of these experiments in creation is a law unto himself, especially the one whose peculiar penchant it may be to untie the whole bunch, leading them off on the back trail to hide in the hills should they hear evidence of being followed.

Because of the peculiar nature of the burro, there must be at least one even-tempered and merciful man in the party, lest murder be committed in a sudden moment of blind wrath when some burro deliberately runs between two trees for the evident purpose of stripping his pack and getting away, leaving the whole party stranded with no means of transportation. Seriously, the burro in general is the personification of patient endurance and willing service and the better he is treated the better he will perform, except that all burros behave better when fairly well worked, and most of them will try out a stranger to see of what stuff he is made. Nothing is more evident to the old-timer in reading Stevenson's Journeys with a Donkey than the fact that the little beast worked her master both day and night and for every step of the way.

A good string of burros has its leader, who expects to go ahead and must be maintained in this official position or nothing but confusion will result. The constant scrapping among the others for leadership is sometimes amusing but often disconcerting. In a well organized and well conducted expedition the same order will be followed day after day, for the burros need neither to be led nor driven but will follow the leader and keep the trail except when stepping aside for a moment to secure a choice morsel like a thistle blossom.

It is a safe precaution to tie one or two of the fe-

males at night, at least for a time, lest the whole bunch start home some evening on the back trail and leave the company stranded. Well out on the trail, however, a good string will not stray far from camp, for they are homey little creatures and camp refuse keeps them contented and attached.

A "mean bunch," and there are such, will well tax the ingenuity and the patience at times; but even so, the pack animals are a never-failing source of entertainment. If they cannot be trusted to keep the trail, the party would better divide, one portion going ahead to prevent a stampede, the other behind to bring up the stragglers.

Most of the technique of the art of wrangling burros must be learned by main strength and experience, and attempts at specific directions are well-nigh useless.

XXIV

THE PACK

Nearly every burro will "swell up" as soon as the saddle cinch is applied. He should, therefore, be saddled before breakfast and taken suddenly in a moment of abstraction afterward and cinched tight.

For each pack there should be provided two panniers or "kyaks," and as these will probably not be procurable from the burro man, they would best be purchased from a supply house and taken along. For each pack there should be provided a waterproof canvas cover, six by seven feet, which can be used at night as a tent floor. There will be needed for roping, one surcingle and about thirty-five feet of the best manila half-inch rope for each pack. There should also be extra rope for "tying-out," because at least one burro will need to be tied up at night and if the "string" is an assembled gang of culls, they may all need tying.

The first job is to fill the kyaks with the food, dishes, and other small stuff not adaptable to folding like tents and bedding. The kyaks must be so packed that no sharp corners project on the back side to hurt the animal, and they must be so paired off that the two which go opposite on the same pack shall be of approximately equal size and

weight, or it will be impossible to build upon them a pack that will ride.

After the kyaks are hooked on the saddle, the space between should first be filled, and this is a good place for the duffle-bag. After this the tents and bedding are piled in a compact evenly balanced stack, with the precious tent well protected between bedding, and over all the canvas cover is spread in such a way as to protect from rain or snagging, whatever may happen.

Over all goes the rope, and the tighter it is the less likely will it be necessary to repack; indeed, it is rare that a good pack becomes dislodged, even if the whole outfit should take a tumble down the hill. Either the diamond or the square hitch may be used and both are described in the chapters immediately following.

Whatever the hitch, there are four rules to observe in packing:

1. Nothing must hurt the animal.
2. The pack must be of even weight and bulk on opposite sides, that it may be perfectly balanced.
3. The weight should not exceed two hundred pounds for the best burro, a matter that can practically be disregarded in camping where bulk prevails rather than weight.
4. Everything must be tight, not in the ordinary sense of the term but extremely tight and then a little more to make certain. The tenderfoot will not know what is meant by this until he has learned to put his foot against the animal and the pack, using a good degree of strength both in cinching and in tightening the pack rope.

One of the requirements of handling camp stuff in packing and unpacking is to keep it clean. The novice will tumble his blankets, sleeping-bags, and other duffle in hopeless confusion, drag them over the ground, and probably have his pack animals on top of the pile a few times until he learns to keep his stuff stacked and out of the way of packing operations. Until he learns this, he will find all kinds of woods dirt in his bed and his whole outfit will be covered with dust and dirt.

XXV

THE DIAMOND HITCH

Of the many and varied devices for roping a pack, the justly famous diamond hitch is by far the best for most purposes. It is named from the diamond-shaped position which the rope assumes on top of the pack when the hitch is finished.

The aim of the diamond hitch is, first of all, to put a rope tightly around both animal and pack and after that to throw a loop around both the right and the left sides of the pack, binding all together so firmly that the animal may roll over without seriously disarranging his load. The roping is done in such a way that in unpacking, the whole device will unwind by merely drawing out the free end of the pack rope. This means that, except for the cinch around both animal and pack, the whole is put on with a series of loops so threaded the one through another as never to make a knot until the whole is finished.

It requires two men to throw the diamond hitch, as it does for most other hitches in common use. They will be designated as "right" and "left" with reference to the animal that is being packed.

The half-inch manila pack rope should be thirty to thirty-five feet long for a burro, depending on the size

of the pack, and correspondingly longer for horse or mule, boiled and wrapped as elsewhere specified. One end should be fastened to the surcingle by a cinch knot, already described. The other should be left free for roping.

After the pack is properly built, the man on the right tosses the surcingle under the animal to the man on the left and passes the rope to him over the center of the pack. The man on the left now passes the rope through the ring in the free end of the surcingle, braces his foot against the pack, and cinches it up practically to the limit.

Holding what he has by friction through the ring, the man on the left, while retaining the free end on his side, now carries a quantity of the rope back to the top of the pack and tucks a loop twice under the cinch rope from back to front. This will naturally make a loop about the width of the hand, but enough rope should be drawn through to permit its being spread both ways down the cinch rope to a total width of nine or ten inches, even more if it is a large pack.

We now have a double rope up the left side of the pack and for about ten inches on top. One is the original cinch rope that is taut and extends entirely around the animal, the other is the flattened loop nine or ten inches wide that holds its position by friction. This looser portion of the loop will make the back half of the diamond, and that portion of the cinch rope between its ends will make the front half when all is finished.

The next step consists in looping the rope around the right side of the pack from front to back and this is accomplished by tucking a loop from back to front through the space between the two ropes on top of the

X. The Heart of the Rockies.—Mt. Massive as seen from Leadville, twenty miles away.

pack, passing it around the right side of the pack from front to back, taking care that it has a firm hold upon the bottom of the kyaks. The loop is then pulled taut from the rear, bracing the knee or the foot against the back of the pack.

All this time the man on the left has retained possession of the free end of the rope. Stepping to the back of his side of the pack, he now tightens his rope by pulling backwards and slightly downward, taking the slack from his partner, thus forming the back half of the diamond. He now steps to the front, passing his rope forward and under the pack from back to front and adjusting it well on the under side of his kyak. Putting his foot against the front side of the pack, he pulls it taut. He now carries the free end of the rope up the front of the pack, and tucks it under the original cinch rope at a point midway between the two sides of the loop, pulling forward and downward, thus making the front half of the diamond on top of the pack. Fastening with a simple loop, already described, finishes the operation.

Of course the hitch can be so altered as to finish at the back instead of the front, as is often done, but in that case the first loop on top of the pack would be tucked from front to back instead of from back to front.

When properly done, the diamond hitch is a work of art in which no actual knots are tied except the one fastening the rope to the surcingle at the last moment, and the whole can be unwound by a single pull on the free end.

I have confidence in the adequate utility of this description for I have tried it out on two men who never before saw the diamond hitch and they made a fair success at the first trial,—perfect, indeed, so far as security

is concerned. I feel confident, therefore, that the tenderest of tenderfeet need have no fear but that he can pack his duffle without further instructions than are contained in this description.

XXVI

THE SQUARE HITCH

The square hitch presumes a wide rather than a high and compact pack, and it is slung low on the saddle rather than high as in the case of the diamond hitch. In this kind of hitch, there is no attempt to lash the pack to the animal, but it is fastened to the saddle with two loops, one on either side, with nothing going over the top.

To start the square hitch, the pack rope should be doubled to find the middle; then at this middle point it is passed under the front tree of the saddle and with a double loop fastened to the cross tree, throwing one end of the rope to one side of the pack animal and the other to the opposite side. The man on either side now carries the free end of his rope to the rear, passes it through the back saddle tree from rear to front, brings it under the loop then formed, and drops it to the ground, leaving the loop large enough to go easily over the pack when built.

The pack is now laid on, when each man picks up his loop and passes it over the top of the pack, from front to back and so placed that the two ropes will be not more than five or six inches apart as seen from the top. Each man then pulls his loop taut from front to rear. He then drops to the ground, reaches up under the pack to see

that the rope will run free, and with his foot against the pack, pulls it taut and brings the rope up the side at about the middle point. He now passes it under the loop on top, and draws down with about all the strength he can muster, tightening the original loop almost to the limit as it is brought well down the side of the pack.

It is necessary that the partners on opposite sides of the animal should work together in tightening the pack, else it is likely to be drawn from one side over to the other. If all this is successfully done and the ropes are tight at their respective sides, a pack will be lashed that will remain in place as long as the saddle stays on the animal.

For tents and bedding and ordinary packing, the diamond hitch is preferable, but for bed-rolls, boxes, barrels, and the like, the square hitch has many advantages.

In unpacking, the loop on either side will be opened enough to be swung off the pack, but the free end of the rope will be left under the rear saddle-tree so that when the pack is off both ropes may be carried on the saddle by winding back and forth between the trees; but it will never be taken entirely off as is done in the diamond hitch.

This description, also, has been successfully tested out on men who have never seen the square hitch put on.

XXVII

THE END OF THE TRAIL

Finally, when it is all over, when the last camp has been pitched and broken, the last camp-fire kindled, the last adventure related, and the last experience encountered, when the last of biscuit and bacon and apricot has been eaten, the last diamond hitch has been loosened and the pack unstrung for aye, then only will come a full realization of what it all has meant in the way of real relaxation from labor and freedom from care. There has been just enough hard work to insure an appetite and sweet sleep, and just enough of everything to have re-created the tramper physically, mentally, and spiritually without emptying the pockets; and in addition, a new revelation of the majesty of the mountains has come like a benediction on his soul.

And he will live it all again, over and over, weeks and months and years afterward. He will pack the burros in his dreams; and when he cannot sleep from weariness, he will retrace the trails and in memory he will stand again at the pass and lie down under the stars as of yore. So will the spirit of the mountains and of the camp-fire creep over him in his weary sleepless hours like a mother's lullaby, and even in retrospect will he find rest.

So shall the tramper discover his Eldorado, and so shall he learn that his investment in the mountains and the trails is forever and a day.