The Young Wireless Operator--As a Fire Patrol

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The Story of a Young Wireless Amateur Who Made Good as a Fire Patrol

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[Illustration: The Forester, Charley and Lew Crossed to the Brook Where the Battle with the Flames Had Begun]

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or

The Story of a Young Wireless Amateur Who Made Good as a Fire Patrol

By

Lewis E. Theiss

Illustrated by
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The Young Wireless Operator--As A Fire Patrol.

This book is dedicated to

Gifford Pinchot

sometime forester for the United States of America, and now Commissioner of Forestry for Pennsylvania, whose ceaseless and undiscouraged efforts to save from spoliation the vast timber stands and other natural resources of America have inspired this story

Foreword

Boys and dogs go well together. So do boys and trees. When a boy gets to love the forest and can live in it, that is best of all. For the forest makes real boys and real men.

Not only does the forest do that, but it keeps the Nation alive. No one can eat a meal without the help of the forest, for it takes more than half the wood cut every year in the United States to enable the farmer to grow the food and the fibres to feed and clothe the Nation. No one can live in a house without the help of the forest, for whether we speak of it as a wooden house, a brick house, a stone house, or a concrete house, still there is wood in it, and without wood it could not have been built.

We are apt to think of the city dwellers as people who are not dependent on the forest. As a matter of fact, they are the most dependent of all, for the cities would be deserted, the houses empty, and the streets dead, except for the things which could not be grown nor mined nor manufactured nor transported without the help of wood from the forest.

Pennsylvania--Penn's Woods--is the greatest industrial commonwealth in the world. Without its woods, it could never have been made so. Unless its woods are restored, it cannot continue to be so, and unless forest fires are stopped, there is no way to restore Penn's Woods.

I have read "The Young Wireless Operator--As a Fire Patrol" with the keenest interest, not only because it is about the forest, but because it is a thrillingly interesting story of a real boy and the real things he did in the woods. I like it from end to end, and that is why, when Mr.

Theiss asked me to write this foreword, I gladly consented.

No one loves the woods more than I, as boy and man, or loves to be in them better. One of the things I want most is to see more and better forests in our great State of Pennsylvania, and in the whole United States. Without our forests we could not have become great, nor can we continue to be so. For the men and boys who love the forest and understand it are of the kind without whom great nations are impossible.

Gifford Pinchot.

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The Young Wireless Operator--As a Fire Patrol

Chapter I

Vacation Plans

Charley Russell sat before a table in the workshop in his father's back yard. In front of him were the shining instruments of his wireless outfit--his coupler, his condenser, his helix, his spark-gap, and the other parts, practically all of which he had made with his own hands. Ordinarily he would have looked at them fondly, but now he gave them hardly a thought. He was waiting for his chum, Lew Heinsling, and his mind was busy with the problem of his own future. Charley was a senior in high school and was pondering over the question of what the world had in store for him. While he sat meditating, Lew arrived. In his hand was a copy of the New York Sun and Herald. He held it out to Charley and pointed to the marine news.

"The Lycoming reaches New York to-day," he said. "Roy will send us a wireless message to-night. Gee! I wish we had a battery strong enough to talk back."

But Charley paid slight heed to the suggestion. Instead he said: "Roy Mercer's a lucky dog. Think of being the wireless man on a big ocean steamer when you're only nineteen. I wish I knew what I am going to do after I graduate from high school."

Roy Mercer, like Charley and Lew, was a member of the Camp Brady Wireless Patrol. With his fellows he had taken part in the capture of the German spies who were trying to dynamite the Elk City reservoir and so wreck a great munitions centre during the war; and with three other members of the Wireless Patrol, especially selected for their skill in wireless, he had later gone to New York with their leader, Captain Hardy, to assist the government Secret Service in its search for the secret wireless that was keeping the German Admiralty informed of the movements of American vessels.

His fellows both envied and loved him. Roy warmly returned their affection, and his vessel never came into port that he did not, regularly at nine o'clock in the evening, flash out some message of greeting to his former comrades of the Wireless Patrol. It was always a one-sided conversation, however, because none of the boys in the Wireless Patrol owned a battery powerful enough to carry a message from Central City to New York. Just now each lad was engaged in trying to earn money so that the club could buy a battery or dynamo strong enough for this purpose. So each boy was working at any job he could pick up after school, and saving all he earned. Both Charley and Lew had already earned more than their share of the purchase money.

"You never can tell what will happen," said Lew presently. "Who ever expected Roy to get the job he has? You may land in another just as good. You stand pretty near the head of your class, and everybody knows you're a corking good wireless operator."

"I can tell well enough what will happen, Lew. The minute I'm out of high school, I'll have to go to work with Dad in Miller's factory. Gee! How I hate the place! Think of working nine hours a day in such a dirty, smoky, noisy old hole, where you can't get a breath of fresh air, or see the sky, or hear the birds. Just to think about it is enough to make a fellow feel blue."

"But maybe you won't have to go into the factory at all," argued Lew. "Maybe you can find some other job you like better."

"No, I shall have to go into the factory," repeated Charley sadly. "Dad says I've got to get to work the minute I've graduated, and earn the most money possible. And there's no other place where I can get as much as they pay at Miller's. Dad says I can get two-fifty a day at the start and maybe three dollars."

Charley paused and sighed, then added, "What's three dollars a day if you have to be penned up like an animal to earn it? I'd rather take half as much if I could work out in the open and do something I like."

"Why don't you tell your father so?"

"I have--dozens of times. But he says it isn't a question of what I want to do. It's a question of making the most money possible and helping him. He says he's supported me for more than eighteen years and now I have to help him for a year or two anyway."

"That's a shame!" cried Lew.

"No, it isn't, Lew," explained Charley. "It's all right about helping Dad. He's been mighty good to me, and he's in the hole now. You see, Dad and Mother have been married twenty years and Dad's worked hard all this time and saved his money to build a house. And just about the time Dad was ready to begin building, prices began to go up. Dad held off, thinking they would drop. But they got higher instead, and finally Dad told the carpenters to go ahead, lest prices should go higher still. Now the house is going to cost almost double what Dad expected it would, and the awful prices of everything else take every cent Dad can earn. With such a big mortgage on the place, Dad says he's just got to have my help or he may lose the house and all he has saved in those twenty years. It's all right about helping Dad, Lew. I want to do that, but I can't bear to think of going to work in that factory."

"It's too bad, Charley. I had hoped so much that we could go to college together."

"Lew, if I could go to college I'd work my head off to do it. You know that. If only I could go to college and learn about the birds and flowers and rocks and trees and animals, I'd be willing to do anything--even to work in Miller's factory for a time. But Dad will need every cent I can earn until I am twenty-one, and I can't see how I can possibly go to college."

"Never mind, Charley. You never can tell what will happen. Look at Roy. He was worse off than you are, for his father died suddenly and Roy had to care for both himself and his mother. And see what came of it. He isn't much older than we are, yet he's got a fine job. Just keep your eyes open and you may pick up something, too."

"It'll have to come quick, then," sighed Charley. "Here it is almost Easter vacation, and I am to graduate in June. This will probably be the last vacation I shall have in a long time."

"Then let's enjoy this vacation. I've been thinking what we could do, and it occurred to me that it would be lots of fun for the Wireless Patrol to make a trip up the river to that old camp of ours. It won't be too cold to camp out if we take out our tents and our little collapsible stoves. Suckers ought to be running good and we can catch a fine mess of fish,

take a hike or two, and have a bully trip up the river and back. Let's go tell the rest of the fellows."

Lew jumped up and started for the door. Then he stopped suddenly and a look of disappointment came over his face. "I'll bet none of 'em can go," he said. "They've all got jobs for the vacation. I'm glad we've got our money earned."

"I just thought of another difficulty," sighed Charley. "Not one of us owns a boat."

"We can borrow one," said Lew.

"I hate to borrow things," replied Charley. "You remember how I borrowed old man Packer's bob-sled and broke it and then had to pay to have it remade. No more borrowing for me."

"Why can't we make a boat? There's plenty of time between now and vacation. If we do the work ourselves, it oughtn't to cost more than two or three dollars and then we'd have a boat of our own."

"Bully!" cried Charley. "We can make it as good as anybody. We'll do it."

"All right. I'll go down-town and find the price of oars and rowlocks, and you go over to Hank Cooley's and find out how his father made that boat of his. It's a dandy and just what we need."

The two boys rushed off in opposite directions, each full of enthusiasm over the plan to build a new boat and make a trip up the river during their Easter vacation.

Chapter II

What Came of Them

A few hours later Charley Russell again sat before the bench in the little wireless house in his father's yard. Before him lay some patterns for a rowboat, and on a piece of paper Charley was trying to figure out how much lumber it would take to build the boat.

"We'll need two sixteen-foot boards, each a foot wide for the sides," he said, looking across the table at his chum, who sat ready, with pencil and paper, to jot down the figures Charley gave him.

"Thirty-two feet," said Lew, setting down the number on his paper.

Charley bent over his patterns, measuring and estimating in silence. "It'll take three more like 'em for the bottom," he said presently.

"That's forty-eight more," replied Lew, jotting down the number.

"And these cross braces," added Charley, after another period of calculation, "will take ten feet more."

Again Lew set down the number.

"That provides for everything but the decks," said Charley. "They will take seven or eight feet more. Better call it ten. That's all. What does it make?"

Lew put down ten and added the column of figures. "One hundred feet exactly," he said.

"Bully good!" replied Charley. "A hundred feet oughtn't to cost much of anything. The rub's going to be to get the oars. You say they want five dollars for the cheapest pair at the hardware store, and the sporting goods store wants six-fifty."

"The robbers!" cried Lew. "Think of it. Six-fifty for about fifteen cents' worth of wood. Maybe we can get a pair of second-hand oars somewhere. Six-fifty is as much as we can afford to spend on the whole outfit."

"It will be all right to get second-hand oars," said Charley, "for we can get new ones later, when we have the money. Besides, we want to put most of our money into the boat itself. As long as we are going to build it, we want to make it the very best boat possible. We want the best wood in the market and we want our boat light enough so that the two of us can carry it. I reckon it may cost two or three dollars if we buy such good wood as that. But it will be worth while. We can get along with cheap oars for a time. Let's go down to the lumber-yard and get our boards."

The two chums left the shop and hurried down the street toward the lumber-yard.

"If we can get our lumber to-day," said Charley, "I'm certain we can get our boat made before the spring vacation. We ought to be able to put in three hours apiece every afternoon after high school lets out, and we can get in another hour apiece before school, if we get up early enough. That's four hours apiece, or eight hours a day. We certainly ought to get it finished and painted inside of ten days."

"Sure," replied Lew. "We'll have her done all right. And we'll have just about the finest boat in town."

"And I reckon we'll have just about the finest trip ever," went on Charley. "If we start right after school closes for the Easter vacation we can row up-stream that afternoon as far as Hillman's Grove, and camp there for the night. That will give us almost half a day's extra time. Then we can reach our old camping ground the next day and get the tent up and our wood cut and maybe even catch some fish before dark. We'll have everything ready so we can jump right into the boat and pull out the minute school is over."

"Sure," assented Lew. Then, after a moment's pause, he added, "Ain't it a shame none of the other members of the Wireless Patrol can go along? We'll miss 'em, particularly Roy. And now that he's wireless man on the Lycoming, he'll probably never go on another trip with the Camp Brady Patrol."

"It's too bad for us, but mighty nice for Roy," said Charley. "Just think of being the wireless man on a great ocean steamship when you're only nineteen. He's made for life. Gee! I wish I knew what I am going to do."

"I know how you feel, Charley. Maybe something will turn up so that you won't need to go into the factory after all. But here we are at the lumber-yard. Let's get the boards and begin our boat at once. We'll have a good time this vacation, no matter what happens afterward."

"Well, boys, what can I do for you?" inquired the lumber dealer, as Charley and Lew approached him.

"We want one hundred feet of the lightest and best boards you have," replied Charley. "We are going to build a boat and we want it to be strong but light, so that the two of us can handle it."

"White pine would be just the thing for you," replied the dealer, "but I haven't a foot of it in the place and can't get any. I have some fine cedar boards that would make a good light boat. Just come over to this pile of lumber." And he led the way across the yard.

"That will suit us all right if it's wide enough," said Charley. "We want foot boards."

"Well, that's what these are. And a good inch thick, too. They're mighty good boards. Hardly a knot in 'em. We don't see much lumber like that nowadays."

"They'll do all right," assented Charley, after examining the boards. "What do they cost a hundred?"

"Ten dollars."

"Ten dollars!" cried Charley in consternation. Then a smile came on his face. "Quit your kidding," he said. "What do they come at?"

"Ten dollars," replied the lumber dealer soberly.

The two boys stared at him incredulously.

"Impossible!" cried Lew. "What are they really worth?"

"Ten dollars," replied the man. His voice was sharp and a frown had gathered on his forehead. "Ten dollars, and cheap at that."

Charley turned to his companion with a look of dismay. "We can never build our boat with wood at such a price," he cried. "With five dollars to pay for oars, and two dollars for paint, and some more for nails and rowlocks, and lock and chain, the boat would cost eighteen or twenty dollars just for the materials. That's three times as much as we have got."

After an instant the look on Charley's face changed to one of intense indignation. He had a quick temper, and now he turned to the lumber dealer in anger.

"I guess the sugar profiteers are not the only ones who ought to be in the penitentiary," he said hotly. "You can keep your old boards. And I hope they rot for you."

Then he turned on his heel and started toward the gate, followed by Lew.

"Come back here!"

The words rang out sharp and sudden. The voice was commanding and compelling. Involuntarily the two boys turned back. The lumber dealer stood before them, his face ablaze with indignation. Under his fiery glances the boys were speechless. For a moment the man said nothing. Evidently he was struggling with his temper. When he had gotten control of himself he spoke. His voice was deep and low, but harsh and cutting.

"Before you make a fool of yourself again, young man," he said, speaking directly to Charley, "you had better know what you are talking about. You called me a profiteer for asking $100 a thousand feet for those cedar boards. Young man, those boards cost me $90 a thousand in the cars at the station. That leaves me a margin of $10 a thousand for handling them. Out of that I have to pay to have the boards hauled from the station, pay for insurance on them, pay their proportionate share of overhead expense, and pay for hauling them to customers. How much of that $10 do you think is left for profit? So little it almost requires a microscope to see it. I have to handle a good many hundred feet of lumber to make as much as the cheapest sort of laborer gets for a day's pay. The fact is, young man, that far from profiteering on that lumber, I am selling it at a smaller profit than I ever sold any lumber before in my life. Some lumber I am handling at a loss. But in these critical days, with factories closing everywhere, and men by the thousands being thrown out of work, the best thing a man can do, either for himself or for his country, is to keep business moving. That's why I am selling lumber without profit."

Charley was suddenly abashed. "I'm awfully sorry I called you a profiteer," he said humbly. "I beg your pardon."

"It's all right, young man," said the lumber dealer, a smile once more lighting up his face. "You are too young to understand how critical the business situation really is. But be careful in future how you call people names."

"I certainly will," agreed Charley. "But I'd like to know this. Who is profiteering in lumber? Who is responsible for such terrible prices?"

"Well, there has been profiteering in lumber, as in everything else. But there is a real reason why the price of lumber is so high, and that is the scarcity of timber."

"Scarcity!" cried Charley incredulously. "Why, the forests are full of timber."

"And what is it like?" demanded the lumber dealer. "Go out to the forests and look at it. There's nothing but little poles that will scarcely make six-inch boards. We don't produce one-fourth of the lumber we use in this state, and we are using wood ten times as fast as our forests are growing it."

"I thought Pennsylvania was a great lumbering state," protested Lew.

"For a good many years it led the nation in the production of lumber, young man, but now it ranks twentieth among the states. If only fire could be kept out of the forests, we might some day raise our own timber again. But the lumbermen chopped down the big trees and fire has destroyed the little ones and even burned the forest soil so that nothing grows in it again. We have not only destroyed our forests, but we have so injured the land that new trees do not grow to take the place of those we cut."

The two boys stared at the lumberman in amazement. "Where do we get our lumber from?" demanded Lew.

"Practically all of it comes from the South. That's one reason lumber costs so much here. The people of Pennsylvania pay $25,000,000 a year in freight charges on the lumber they use. That's one of the reasons those cedar boards you were looking at cost so much. When the new freight rates go into effect the cost of hauling our lumber to us will be something like $40,000,000 a year."

The two boys were very thoughtful as they made their way back to Charley's shop.

"What are people going to do for wood pretty soon?" Lew inquired of his companion. "If we can't build a little boat because the wood costs too much, how are people going to get homes and furniture and wagons and motor-cars and a thousand other things? Seems to me pretty much everything we use is made of wood."

"I don't know," replied Charley. "But what bothers me more just now is to know what we are going to do during Easter vacation. It may be the last vacation I shall ever have, and I'd like to have a good time."

"Why not follow the lumber dealer's suggestion and go out to the forests? Easter doesn't come this year until after the trout season opens. We could go out to our old camp in the mountains and spend the vacation there, fishing and hiking."

"That's a mighty good suggestion, Lew. If we have our packs ready, we can start from high school the minute it is dismissed. We can make that early afternoon train and get off at that little flag-station at the foot of Stone Mountain. Then we can hike through the notch and reach the far slope of Old Ironsides before dark. We shall have to camp overnight along the run from the spring there, as it is the only water for miles around. Then the next day we can go on into that little valley where we saw so many trout. That is so hard to reach that not many fishermen ever go there. The little stream from the spring on Old Ironsides runs into that brook. Do you remember what lots of little trout we saw not far below the spring? They will have become big fellows by this time and moved down into the larger stream. There ought to be some fine fishing there this spring."

"They say it's an ill wind that blows nobody good. I'm sorry we can't build the boat, but we shall have just as good a time in the mountains as we should have had on the river. We'll borrow that little pup tent of Johnnie Lee's, and take our blankets, hatchets, fishing-rods, and grub."

"I'd rather leave the tent at home and build a lean-to after we get there. Then we could take a portable wireless outfit and talk to the fellows at home here in the evening. Half a dozen dry cells would give us one-sixth of a kilowatt of current, and that ought to carry a message twenty-five or thirty miles easily. At night we might be able to talk fifty miles. We can carry six cells easily. The remainder of the outfit won't weigh much. We'll have to go as light as we can, for it's a mighty tough hike over Old Ironsides and on into that little valley."

"Shall we take our pistols?" asked Charley.

"We'd better have at least one. You never can tell when you're going to need a pistol in the forest. Remember the time that bear treed me on the

first hike of the Wireless Patrol? I don't ever want to get into another situation like that without something to shoot with."

Charley chuckled. "It wasn't a pistol that saved you then," he smiled, "but Willie Brown and his spark-gap."

"Then we'll be doubly armed," replied Lew. "Since you have so much faith in wireless, you can carry the outfit. I'll pack the gun. We're almost certain to have some kind of adventure, for every time the Wireless Patrol or any of its members venture into the woods, something exciting happens."

Chapter III

Off to the Mountains

Busy, indeed, were the succeeding ten days. The outfit that the two boys were to carry was packed and repacked several times, and each time it was overhauled something was eliminated from the packs; for both boys knew well enough that the trip before them would test their endurance even with the lightest of packs. Finally their outfit was reduced to two fishing-rods, one hatchet, a first-aid kit, a flash-light, the necessary food and dishes, one canteen, and one pistol, with the wireless equipment.

This was made as simple as possible. Six new dry cells were to be taken to provide current. Then there were a spark-gap, a spark-coil, a key, and a detector, with the receiving set, switch, and aerial. To be sure, the entire aerial was not packed, but merely the wires and insulators, as spreaders could be made in the forest. Then there was an additional coil of wire to be used for lead-in and suspension wires. No tuning instrument was necessary, because the wireless outfits of all the members of the Camp Brady Wireless Patrol were exactly alike and so were already in tune with one another. Without a tuning instrument, to be sure, it might not be possible for Charley and Lew to talk with anybody except their fellows of the Wireless Patrol, but in the present circumstances that made no difference to them. They had no intention of talking to anybody else.

The various instruments were carefully packed so that they could be carried without injury. The dishes were nested as well as possible. Then all were stowed away in the pack bags, together with the food supplies. The two blankets were tightly folded and tied, ready to be slung over the shoulders. Long before that last session of school, everything was in readiness. When finally that last session was over, the two lads had only to strap their packs on their backs, sling their blankets into place, and pick up their little fishing-rods, unjointed and compactly packed in cloth cases. Lew buckled the pistol to his belt and suspended the canteen from his shoulder, while Charley sheathed his little axe and hung it on his hip. Then, completely ready, the two lads waved farewell to their envious comrades and hastened away to the train. In less than an hour the train stopped to let them off at the little flag-station at the foot of Stone Mountain. In a moment more it had gone whistling around the shoulder of the hill, leaving the two boys alone on the edge of the wilderness.

Quickly they adjusted their packs and started back along the railroad-track toward the gap through which they were to pass to Old

Ironsides. Rapidly they made their way along the road-bed.

"We'd better hustle while the going's good," commented Lew, glancing at the heavy clouds that obscured the sun, "for it will get dark early to-night. It'll be slow enough going once we leave the track."

"There's one thing sure," replied Charley. "We won't be bothered with wet ground. I think I never saw the earth so dry at this season of the year. There was almost no snow last winter and we've hardly had a rain this spring. Usually it rains every day at this time of year."

Charley's prediction proved true. When the boys at last reached the notch in the mountains and left the railroad-track, they found the way almost as dry as a village street. Years before, the timber had been cut from Stone Mountain, and a logging trail had passed up the very gap through which the boys were now traveling. But brush and brambles had come in soon after the lumbermen left and now a thick stand of saplings also helped to choke the path. The briars tore at the boys' clothing and blankets. The bushy growths caught in their packs and straps and wrapped themselves about their feet and legs. Very quickly it became evident that a hard struggle lay before them.

Back from the trail, in the forest proper, there was little underbrush, but the stand of young trees was dense and the way underfoot was so rough and uneven that it was almost impossible to make any headway there. For Stone Mountain was a stone mountain in very truth. It appeared to be just one enormous heap of rocks and boulders. In a very little while both boys were perspiring profusely from their efforts, and both were conscious that they were tiring fast; for the grade up the notch was steep.

"Gee!" said Lew, at last. "This is tougher than anything I ever saw when I was in the Maine woods with Dad. We've got to take it easy or we'll be tuckered out before we get through this gap. Let's rest a bit."

He sat down on a stone and Charley followed his example. As they rested, they looked sharply about them. They could see for some distance through the naked forest. The tree trunks stood straight and tall, and seemed to be crowded as close together as pickets on a fence.

"This sure is a fine stand of poles," remarked Lew, "but it's just as that lumber dealer said. There isn't a tree in it that would make a board wider than six inches. But there's some good timber farther back in the mountains. Do you remember the fine stand of pines in that little valley we're heading for? When we were there three years ago there hadn't been a tree cut in that valley. There must be millions and millions of feet of lumber there."

"And do you remember," replied Charley, "how dark it was under those pines, and how cold the water in the run was, and what schools of trout we saw? Gee! I wish it had been trout season then! But we ought to get'em now. Oh boy! I can hardly wait to get there."

"Then we had better be jogging on. It'll be dark before we know it."

"All right," returned Charley, "but I'm going to get a drink before I go any farther."

"I want one, too. Guess I'll fill the canteen. Then we won't have to, stop every time we want a drink."

The two boys scrambled down the slope to the brook. The lumber trail was near the bottom of the notch and they had only a few yards to go. The little run was rushing tumultuously down the notch, splashing over rocks, scurrying over little sandy stretches, ever singing, ever murmuring, in its downward course. Their packs and blankets made it difficult to stretch out flat and drink from the stream, so Lew rinsed out the canteen, filled it, and handed it to his companion. Charley took a good drink and passed the canteen silently back to his chum.

"If you didn't really know it was the brook," said Lew, "you'd be willing to swear you could hear somebody talking. You can hear voices just as plain as can be. And you can almost make out what they say. Many a time I've caught myself listening hard to try to make out the words, when I heard a brook talking."

"It's no wonder people get scared and pretty nearly go crazy when they are lost in the forest," replied Lew. "Without half trying, you can imagine the forest is full of people or spooks or animals or something, creeping up behind your back."

Lew bent down and once more filled the canteen. He corked it tight and dipped it bodily into the run to wet the cloth cover, so that the water within would be kept cool by evaporation. Then he slung the canteen over his shoulder.

"I never saw a mountain stream so low at this time of the year," he remarked, as he followed his companion up the trail. "You might think it was August. But with no snow to melt and no rainfall this spring, it isn't to be wondered at."

On they went up the trail. For a long time neither boy spoke. The brambles still tore at their clothes and the bushes tripped them. In places the young saplings were so dense that to force a way among them was a difficult task. Their packs began to grow very heavy. But they had one advantage. As Charley had suggested, the ground was perfectly dry. There were no slippery sticks to tread on, nor any moss-covered stones, treacherous with their soggy coats. So they could give more attention to the obstacles above ground. But at best it was a hard, difficult climb.

As they mounted higher and higher, the stream in the bottom constantly dwindled. Long before the crest was reached, the brook had become a very feeble stream, indeed. It had its source near the top of the pass, in a great spring that welled up under a large rock. A single hemlock had sprung up here in years past, and, watered by the spring, had grown to enormous size. For some reason the lumbermen had passed it by. Now it reared its giant bulk high above the younger growths around it, casting a dense shade over the spring basin. Practically nothing grew in this deep shade, so that the space above the spring was open and free from bushes. On the trunk of this giant hemlock, where it could be seen by all who came to the spring, was a white sign that read:

Everybody loses when timber burns.
Pennsylvania Department of Forestry.

"After our fight with the forest fire, when we were in camp at Fort Brady, they don't need to tell any member of the Wireless Patrol to be careful with fire," observed Lew. "But there are lots of people who do need to be warned."

He dipped the canteen in the spring and passed on. "We're almost at the top," he said, "and I'm not sorry."

"The light is already growing fainter," said Charley, "and it will bother us to see before so very long. It's going to get dark awful early to-night. We'd better hustle."

They reached the summit of the pass and started down the other slope. The trail continued. At first it was choked with briars and bushes. But suddenly they found the trail open. It had been cleared of all obstructions and enlarged until it was several feet wide. Even the roots of the bushes had been grubbed out, so that the path was smooth and clean. The cut saplings and brush had been burned in the trail itself, but the work had been done so carefully that never a tree had been scorched. Even the marks of fire had been obliterated by the subsequent grubbing of the roots.

"Bully good!" cried Lew, when he saw the path lying smooth and open before him. "The forest rangers have been making a fire trail of this old path. We can make great time here."

He pushed on at top speed. Charley hung close at his heels. Neither boy said a word, each saving his breath for the task in hand; for with the packs on their backs even a down-hill trail was not easy.

"We can go scout pace here," said Lew over his shoulder, and suiting his action to his words, he broke into a trot. Fifty steps he went at that gait, then walked fifty. Then he ran fifty more. So they went down the mountain in a mere fraction of the time it had taken them to ascend. But long before they reached the bottom, Lew dropped back to a steady walk.

"We've got to save our wind for the climb up Old Ironsides," he said over his shoulder.

It was well he did so. Before them a long, high mountain stretched across their way, like a giant caterpillar. No notch cut through its rugged side, to give an easy way to the valley beyond. Only by climbing directly over the rugged monster could the two boys reach the snug little valley on its far side, where they expected to find the trout teeming tinder the dark pines. Old Ironsides was the rocky barrier that confronted them. Even Stone Mountain was not more rugged and rocky. Like Stone Mountain it seemed to be a mammoth rock pile. Rocks of every size and description covered its steep slope. Mostly the mountain was shaded by a good stand of second-growth timber; but in places there were vast areas of rounded stones, like flattish heaps of potatoes, that for acres covered the soil of the hill so deeply as to prevent all plant growth. Old Ironsides could have been called Stone Mountain as appropriately as its neighbor, for truly it was rock-ribbed. But the stones on its slopes, unlike those of Stone Mountain, contained a small percentage of iron. Hence its name. The nearer slope of this hill was as dry as it was stony. Not a spring or the tiniest trickle of water wet its rocky side for miles. But part way down the farther slope a splendid stream gushed forth among the rocks. It was this spring, or the stream issuing from it, that Charley and Lew hoped to reach before they made their camp for the night.

Thanks to the work of the forest rangers in clearing the fire trail, it looked as though the two boys would reach their goal before dark. Could they have gone straight up the slope of Old Ironsides, they would have

come almost directly to the spring itself. But the grade was far too steep to permit that. They would have to zigzag up the hill and find the stream after they topped the crest. Because of the peculiar formation of the land below this spring, the water did not run directly down the hill toward the bottom, but flowed off to one side and made its way diagonally down the slope.

At the bottom of the fire trail Lew and Charley sat down and rested for five minutes. Then they began their difficult climb upward. And difficult it was. There was no semblance of a path. The way led over jagged masses of rock, through dense little stands of trees, and among growths that were hard to penetrate because of their very thinness; for where the stand was sparse the trees had many low limbs to catch and trip and pull at those who sought to pass through.

There were great areas of bare stones to be crossed--stones rounded and weathered by the elements through thousands of years, and finally heaped together like flattish piles of pumpkins on a barn floor. Acres and acres were covered by these great deposits of rounded, lichened rocks.

In crossing these rocky areas it was necessary to use the greatest caution. Many of the stones rested so insecurely that the slightest pressure would send them rolling downward. If one stone started, others might follow, and great numbers of rocks might go rushing down the hill as coal pours down a chute into a cellar. Serious injury was certain to result if either of the lads got caught in such a slide; for some of the stones in these piles weighed hundreds of pounds.

Rattlesnakes constituted a second danger. The mountains hereabout were full of them. One never could tell at what instant a rattler might be found lying among the stones, or coiled on a flat rock that had been warmed by the sun. So like the rocks themselves in color were these snakes that in the dull light it would have been easily possible to step on one of them without seeing it. So the two boys advanced slowly and cautiously across these barren stretches, stepping gingerly on stones that looked insecure and ever keeping a sharp watch for anything that might suggest snakes.

Up they went and still upward. Across bare rock patches, through brushy growths and among dense stands of young trees, the two boys forced their way, ever ascending, ever working upward toward the summit. Now they made their way to the right, now to the left, and sometimes they climbed straight upward in their efforts to avoid obstacles.

"Gee!" cried Charley after they had been climbing for some time. "This is what I call tough going. Let's have a drink."

They sat down on a stone to rest. Perspiration was pouring down their faces. Both boys were breathing hard. The canteen was uncorked and they took a good drink.

"Not too much," cautioned Lew, as Charley started to take a second draught. "You can't climb if you fill up too full."

After a short rest they went on again. The way grew rockier. There were fewer piles of loose stones, but more outcropping rocks, the bare bones of the earth. Constantly the light dwindled. Their progress grew slower. From time to time they paused to drink and rest.

"We're never going to make it before dark," said Charley, again pausing to get his breath. He took a drink and passed the canteen to his companion.

"Then we'll have to make it after dark," said Lew. "For the canteen is about empty and we've got to have water. I'm so thirsty I could drink a gallon."

They said no more, but pushed ahead as fast as their weary legs would carry them.

"We're not far from the top now," Lew said after a time. "I see our old landmark over to the left. It isn't more than half a mile from that to the water. We'll make it all right."

But he had hardly gone fifty yards before he stopped and cried out. Before him lay a blackened, desolate area that stretched the remainder of the way to the summit. Fire had swept over the spot. But it was not the fact that fire had been through the region that made Lew cry out. Fire and subsequent storms had practically leveled the stand of trees between the spot where Lew stood and the summit. Here and there a blackened tree thrust its bare trunk upward, limbless, its top gone, a ragged, spectral, pitiful remnant of what had been a beautiful tree. But mostly the thick stand of young poles had been laid low even as a scythe levels a field of grain. And these fallen poles lay in almost impassable confusion, twisted and tangled and in places heaped in towering masses. A barbed wire entanglement would hardly have been a worse obstacle. To penetrate the mass, even in the light of noon, would have been no easy work; but to cross the area now, with dusk fast deepening to darkness, was indeed a difficult task.

"Well," said Lew, after a few searching glances at the burned area, "we've got to go on, and we might as well plow straight through it. I can't see that one way looks any easier than another."

They went on, slowly, painfully. Now they were forced to crawl underneath a fallen tree, now to climb over one. Again and again their way was completely blocked by high barriers of interlocked trunks and branches. Sometimes they had to mount the fallen trunks and cautiously walk from one to another. Darkness came on apace. They could hardly see. The flash-light was brought forth, the last drop in the canteen swallowed, and they started forward on their final push.

"It's only a few hundred yards to the top, now," said Lew. "It will be easier going down the other side."

Painfully slow was their progress. More than once each of them tripped and fell. The sharp ends of the broken branches tore their clothes and scratched them badly. But silently, doggedly, they pushed on. At last there remained but one barrier between them and the summit. It was a great pile of fallen trunks that had no visible ending. There was nothing to do but go over it. From one log to another they scrambled up, each helping the other, advancing a foot at a time, feeling the way with hands and feet and searching out a path with the little light. So high were the trees piled that at times the boys walked ten feet in air, making their way gingerly along the slender trunks. Eventually they got beyond the log barrier and the remainder of the way to the top was more open. At last they stood on the very summit.

"I wonder where our landmark is," queried Lew, flashing his light this way

and that. "I understand now why we saw it so plainly from below. There were no standing trees to hide it. We never saw it from so far away before."

The landmark was a great, upright rock like a huge chimney. It was not far distant and presently Lew found it. The boys made their way to it.

"Now," said Lew, with a sigh of relief, "we go straight down. We should come to the brook flowing from the spring in a few minutes. We'll have to make it soon or I'll die of thirst."

They started down the slope. The fire had swept over the summit and the way before them was like the area they had just crossed. But they were now going down-hill and it was far easier to force their way. A few yards at a time they advanced, now held back by a fallen log or turned aside by dense entanglements of prostrate trunks.

Presently Lew gave a cry. "Do you see that big stone like an altar, Charley?" he called, turning the light on a great rock. "That's the stone where we made our fire the last time we were here. It stands within twenty-five feet of the brook."

"Thank goodness!" answered Charley. "My back is about broken. This pack weighs a ton! And I'll die if I don't get water soon."

Recklessly they pushed forward, almost running in their eager haste.

"Here we are," exulted Lew, a moment later. "Here's the brook."

Before him he could dimly make out the depression in the earth where the stream ran. He dropped his pack and ran forward, then threw himself flat in the darkness and felt in the stream bed for a pool deep enough to drink from. His fingers touched only dry sand and stones.

"The light, Charley," he panted. "Bring the light, quick."

His comrade flung his own pack on the earth and ran forward to the bank of the stream. He turned his light downward and flashed it right and left along the bed of the brook. There was no answering sparkle of light. The bed of the brook was not even moist. The spring had gone dry.

Chapter IV

In the Burned Forest

The two boys were almost stunned by their discovery. For a moment neither spoke. Indeed neither dared to speak. Their disappointment was so keen, their thirst so intense, that both boys were near to tears. But presently they got command of themselves.

"I knew it had been a mighty dry season," said Lew, in amazement, "but I never imagined it was anything like this. I supposed that spring never went dry."

The two lads stood looking at each other in consternation.

"What in the world shall we do?" asked Charley, slowly.

"I don't see that we can do anything," rejoined Lew. "I'm all in myself. I couldn't go another rod if somebody would pay me. We'll just have to make the best of it."

"Well, we can eat if we can't drink," said Charley. "Start a fire and I'll get out the grub."

Charley began to unroll his pack, while Lew gathered up a few twigs and made a cone-shaped little pile of them close beside the great rock. He struck a match and in a moment flames were drawing upward through the twigs. With the hatchet Lew cut some short lengths of heavier wood and soon the flames were leaping high, lighting up the forest for rods around.

Dismal, indeed, was the sight the two lads looked upon. Nowhere could they see anything green, save a few scattered ferns. Everywhere gaunt, ragged, blackened trees thrust their sorrowful looking trunks aloft. The earth was littered with blackened debris--burned and partly charred limbs and fallen trees. The very rocks were fire-scarred and scorched. Hardly could the mind of man conceive a picture more desolate. As the two boys looked at the scene before them, Lew quoted the sign on the hemlock.

"Everybody loses when timber burns," he said. But though both boys were looking directly at what seemed the very acme of destruction and loss, neither as yet comprehended the full significance of the statement Lew was quoting.

Charley spread the grub out on his blanket and put the dishes together near the fire. While he was waiting for a bed of coals to form, he cut some bread and spread the slices with butter. Presently he put the little frying-pan over the coals and began to cook some meat. Every time he bent over his pile of grub, he smelled the coffee. The odor was tantalizing, almost torturing. Never, it seemed to him, had he ever wanted anything so much as he now wanted a drink of coffee. But with no water they could have no coffee. Finally Charley put the package of coffee in the coffee-pot and clamped down the lid so that the odor could reach him no longer. From time to time Lew quietly stirred the coals. Charley fried the meat in silence. Neither boy felt like talking.

When the meal was ready, they sat down on the dry ground and in silence ate their food.

Presently Lew broke the quiet. "I wonder what Roy had to say to-night. I thought maybe we'd be able to get our wireless up and listen in. But I'm too tired to bother with any wireless to-night, even from Roy. It'll be the hay for mine, quick."

He began to look for a place where they could sleep. When he had selected a spot, he took the hatchet and with the back of it smoothed the ground, removing all stones and little stumps. Charley, meantime, put the food away and piled the dishes. They could not be washed. Then the two boys rolled themselves in their blankets, put their pack bags under their heads and were asleep almost instantly. Their difficult climb had tired them utterly.

The next morning found them fully refreshed. No clouds hung above them,

and the sun's rays awoke them early. Aside from their intense thirst, neither felt any the worse for his hard experience.

"It's still early," said Lew, as he looked at the sun that had hardly more than cleared the summit of the eastern hills. "Let's push on down to the bottom and cook breakfast after we reach water. It won't take very long to get down, and then we can have some coffee. Oh boy! I never knew how good coffee was."

"I could drink anything--even medicine," smiled Charley, "so it was wet."

Rapidly the packs were assembled and the blankets rolled. "Put things together good," said Lew, "for it will be a tough journey even if we are going down-hill. I've been looking at some of the tangles we came through last night and I don't see how we ever made it."

"Sometimes," replied Charley, "it's a good thing a fellow can't know exactly what he's attempting. If he did know, maybe he'd never have the nerve to try."

They started down the slope, their packs and blankets securely slung about them and even tied fast with strings, to prevent them from catching among the fallen trees. Unintentionally they followed the dry bed of the stream. It led along a slight depression that ran diagonally down the mountainside. But quickly they realized that this was the most difficult path they could have chosen. For along the margins of the brook, the timber, fed by the flow of water, had been much denser and larger than the timber farther from the bank of the stream. So dense was the tangle now that at first the boys could see only a few hundred yards ahead of them. Presently they noticed that they were traveling through the thickest part of the timber, or what had been timber. If possible, their way was more difficult than it had been in ascending the mountain. But daylight and the fact that they were going down-hill made it possible for them to travel with comparative rapidity. Once they noticed that they were advancing by the most difficult route, they left the margin of the brook and cut straight down the slope.

Now the way was more open. They could see farther. But both were so preoccupied with what lay immediately around them that for a time neither gave heed to more distant views. Furthermore, the bottom was still obscured by a heavy night mist. The warm spring sun rapidly dissipated this, opening the valley to view as though some invisible hand had rolled back a giant cover. Presently Lew reached a little area that was swept absolutely bare of everything. Nothing remained but the nude rocks and soil. Lew, who was leading the way, paused to spy out the best path. Then he cried out in dismay. A moment later Charley stood by his side and both boys gazed in speechless horror at the scene before them.

The magnificent stand of pines that they had expected to see in the bottom was no more. For miles the valley before them was a blackened waste. Like giant jackstraws the huge pine sticks, that they had last seen as magnificent, towering trees, were heaped in inextricable confusion or still stood, broken, blasted, gaunt, limbless, spectral, awful remnants of their former selves. No words could convey the terrible desolation of the scene. Where formerly these giant pines had risen heavenward, higher and more stately than the most exquisite church spires or cathedral columns, there were now only scattered and blasted stumps, while the floor of the valley was strewn with the horrible debris. The scene was sickening, appalling.

For a moment neither lad spoke. The scene before them oppressed them, made them sick at heart. They knew no language that would convey what was in their minds. But even yet they did not fully understand the tragedy of a forest fire. They were soon to learn. Silently they went on; but they had gone no more than a hundred yards when they came upon a sight that fairly sickened them. In a little circle, as though the animals had crowded close together in their terror and helplessness, lay the remains of a number of deer. The flesh had either been burned or had rotted away; but the most of the bones and parts of the hides remained. There could be no mistake as to the identity of the dead animals. The very positions of the skeletons told a pitiful story. Blinded by smoke and flame, made frantic by the red death that was sweeping the forest, confused, terror-stricken, weakened by gas and fumes, the poor beasts had finally crowded together and perished under the onrushing wave of fire. For a moment the boys gazed at the scene in fascinated horror; then they turned away, to shut out the picture. They were oppressed, almost stunned.

They went on. Not a vestige of its former magnificent vegetation covered the slope. Nothing in the world could be more awful, more desolate, more disheartening to behold than the area the two chums were now crossing. Never had either seen anything that so oppressed him. For not only had the slope of Old Ironsides been laid waste, but the entire bottom had been swept by fire, and the opposite mountain slope devastated. Before them was nothing but desolation.

Soon they were near enough to see the sparkle of water in the bottom. In their horror at their immediate surroundings they had temporarily forgotten even their terrible thirst. The sight of water recalled their need.

"Thank God water can't burn!" cried Lew, as the sparkle of the brook caught his eye. "We'd be in a fine pickle if the brook had been consumed, too."

The prospect of a drink stirred them. They threw off the spell that so depressed them and hastened downward, reckless alike of menacing branches and loose stones and obstructing tree trunks. Headlong they pushed downward. But fortune was with them and neither a broken bone nor a strained ligament resulted, though more than once each lad slipped and fell. Presently they reached the bottom of the slope and came to the very brink of the run. Almost frantically they flung themselves on the ground and drank.

Long, copious draughts they drank; and it was not until they had quenched their thirst that they really noticed how shrunken the brook was. Instead of the deep, rushing mountain stream they had seen when last they visited the spot, they now found but a slender rivulet that flowed quietly along the middle of the stream bed, leaving bare, bordering ribbons of stony bottom along its margins. Nowhere did the water seem to reach from bank to bank, excepting where some obstruction in the stream bed dammed the current back. Like the forest, the brook was also a sorrowful picture. But there was this difference. The forest was dead, whereas the brook, though feeble, still lived.

The full significance of the shrunken stream did not strike the two boys until they had traveled for some distance up the bank of the run. Presently they came to a spot they recognized as a favorite trout-hole. A great boulder jutted out from one bank, while opposite it, on the other

shore, stood or had stood, a mammoth hemlock. These obstructions had formed a little pool, and the current had eaten away much earth from beneath the roots of the great tree, forming an ideal lurking place for trout. And in this dark, deep, secure retreat great fish had lived since time immemorial. More than one huge trout had the two chums taken here. Never was the pool without its giant occupant, for when one big fellow was caught another moved in to take his place, the run being fully stocked from year to year by the smaller fishes from the spring brooks, like the vanished rivulet above. But now no trout hid under the hemlock's roots. They stood high and dry, while the puny stream that trickled beneath them would hardly have covered a minnow. The two boys looked at each other in dismay.

"You don't suppose the entire stream is like that, do you, Lew?" asked Charley. "There won't be a trout in it if it is." Then, after a pause, he added: "What in the world do you suppose has become of the trout, anyway?"

His question was soon answered, at least in part. Continuing along the bank of the run, the boys presently came to one of the deepest pools in the stream. In the crystal water they could see many trout, for there were no hiding-places in the pool at this low stage of water. Some of the fish were large. At the approach of the boys the frightened trout darted frantically about in the pool, vainly seeking cover.

Around the margins of this pool were innumerable little tracks in the earth. "Raccoons!" exclaimed Lew. "There must have been dozens of them here."

But not until he found some little piles of fish-bones near the farther end of the pool did he grasp the significance of the tracks. He stopped in amazement.

"Look here, Charley," he called, pointing to the piles of fish-bones. "Those coons have been catching and eating trout." Then, after a moment's thought, he added, "If this stream is like this in April, what will it be in August? There will be hardly a drop of water or a trout left. Why, this brook is ruined for years as a trout-stream--maybe forever. And it used to be absolutely the finest trout-stream in this part of the mountains."

Depressed and silent, the two lads continued along the brook. The mountains on either side of them and the entire bottom between lay black and desolate. But far up the run they could now see green foliage again, where the fire had been stopped.

"Let's go on to those pines before we eat our breakfast," said Charley. "It would make me sick to eat here in these ruins."

"That's exactly the way I feel, too," replied Lew. "It is the most awful thing I ever saw. Let's get out of it."

As rapidly as they could, they forced their way up-stream. The valley became narrower as they advanced. It was shaped like a huge wish-bone; and they were nearing the small end, where the mountains came together and formed a high knob. As the valley narrowed, the grade became much steeper, and their progress was correspondingly slower.

The pines they were heading for stood almost at the top of the knob at the crotch of the wish-bone. They were, therefore, at a considerable elevation. From the edge of these pines one would have to travel only a

short distance to reach the very summit of the knob. After a hard walk the boys reached the end of the burned tract. They penetrated into the living forest far enough to shut out the sight of the dead forest they had just traversed. Then they threw down their packs and hastily set about cooking their breakfast.

"Gee!" cried Lew. "I never was so glad to get away from anything in my life. I hope I shall never again see a sight like that. It fairly makes a fellow sick."

In their haste to start cooking, they were not as careful as they might have been in building their fire, and they made considerable smoke. Before they were half done eating, a man appeared farther up the run, advancing through the pines at great speed. He seemed to be in a big hurry until he caught sight of the two boys as they sat on the dry pine-needles. After that he came forward at an ordinary gait.

"Good-morning, boys," he said pleasantly, as he drew near. Then, catching sight of their rods, he added, "If you came to get fish, you struck a mighty poor place."

"It used to be the best place for trout I ever saw," replied Lew. "This brook used to be full of 'em--big ones, too. But the season has been so dry, the brook has almost disappeared."

"You mean that the fires that have swept this valley have burned it up," replied the stranger.

"It's too awful a thing to joke about," replied Lew.

"A joke!" exclaimed the stranger, frowning.

"It's the literal truth--and a most terrible truth, at that."

"I don't understand," said Lew, slowly. "How can fire burn water? I supposed the lack of snow last winter and of rain this spring had made the brook shrink."

"Not for a minute, young man, not for a minute. If fires hadn't swept this valley the past two or three years, there would have been plenty of water in the run, rain or no rain."

"I--I don't exactly understand," said Lew hesitatingly.

"It's like this," said the stranger. "The forest floor is like a great sponge. The decayed leaves and twigs are so light and porous that they soak up most of the rain as it falls and hold the water indefinitely. That keeps the springs full, and the springs feed the brooks, and so there is water all the year round. It is nature's method of storing up water. When a fire sweeps through the forest, especially such awful fires as have gone through this valley, the leaves and twigs above ground are burned, and even the roots and the decaying vegetable matter under the earth are consumed. Nothing is left but mineral matter--particles of rock, stones, sand, and the like. The rain will no longer sink into the ground, nor will the earth hold the water as the rotting leaves do. Then when it rains, the water runs off as fast as it falls. The brooks are flooded for a few hours and then they dry up until another rain comes. So you see I meant exactly what I said. This trout-stream was burned up by the forest fires. Likewise many of the trout were burned up with it, for in places the fire

made the water hotter than trout can stand. Thousands of them were literally cooked."

For a while both boys were silent. The idea was a new one to them.

Presently Charley spoke. "I knew that fire burned up our timber," he said, "but I never thought about its burning up our water, too. I know we're getting awful short of lumber. Is there any danger of our running out of water? But that can't be, surely."

"It surely can be," said the stranger. "I judge you boys have been here before, and-----"

"We have," interrupted Lew.

"Then you know what a magnificent stream this run used to be. Look at it now. I don't believe there is one-tenth as much water in it as there used to be. Suppose all the mountains in this state should be devastated like this valley. Where would the towns and cities get their water?"

"Great Caesar!" said Lew. "I never thought of that. There wouldn't be any water for them to get. If the brooks dried up, the rivers would dry up, too. Why--why--what in the world would we do? There wouldn't be any water to drink or wash in or cook with or run our factories. Why, great Caesar! If the forests vanished, I guess we'd be up against it. I never thought of the forests as furnishing anything but lumber. And I never thought much about that until we tried to buy a little lumber the other day and the dealer wanted ten dollars for half a dozen boards."

"Exactly!" said the stranger. "That's the price you and I and the rest of us in Pennsylvania pay for allowing our forests to be destroyed."

"They haven't all been destroyed," protested Lew.

"No, but the greater part of them have been."

"You don't mean really destroyed, do you?" asked Lew.

"Yes, sir. Absolutely destroyed. You came up this valley, didn't you?"

"Sure," said Charley.

"Would you call the forest there destroyed?"

"If it isn't, I don't know how you would describe it," said Lew.

"All right, then. There are some 45,000 square miles in this state. Originally practically all of that area was dense forests. The early settlers thought the timber would last forever and they cut and destroyed it recklessly. The lumbermen that followed were just as wasteful. It was all right to clear the land that was good for farming. But there are more than 20,000 square miles in this state just like these mountains--land that is fit for nothing but the production of timber. None of that land is producing as much timber as it should. Much of it yields very little. And more than 6,400 square miles are absolutely desert, as bare and hideous as the burned valley below us. That's one acre in every seven in Pennsylvania. Think of it! Six thousand, four hundred square miles, an area larger than the states of Connecticut and Rhode Island put together, that is absolute desert! Every foot of that land ought to be producing

timber for us. Then we should have lumber at a fraction of its present cost. You see the freight charges alone on the lumber used in this state are enormous."

"That lumber dealer told us they amounted to $25,000,000 a year," replied Lew.

"They do," assented the stranger. "And when the new freight rates go into effect the amount will be $40,000,000. What it will be when we get our wood from the Pacific coast I have no idea, but I suppose it will be at least double what it is now, anyway."

"The Pacific coast!" cried Lew. "Why should we get lumber from the Pacific coast when we can get it from the South? The lumber dealer told us that practically all the wood we use now conies from the South."

"He was right. But we shall presently be getting our lumber from the far West for the same reason that we now get it from the South. In ten or a dozen years there won't be any lumber left in the South for us to buy. They will do well to supply themselves. Then we must bring our lumber from Idaho and Oregon and Washington and California. The freight charges will be something terrific, and the wood itself will cost a good deal more than it now does because it will be so scarce."

"Great Caesar!" cried Lew. "What will a poor devil do then if he wants to build a boat?"

"Or if he wants to build a house?" suggested the stranger. "You know lots of folks have to build houses every year. Look at all the people who get married and build homes. Why, when I was a little boy, you could buy the finest kind of lumber for ten or fifteen dollars a thousand. It didn't cost much then to build a house. Now a man has to work for years before he can save enough to pay for a home, even a very modest one. And what it will cost when the wood from the South and the far West is all gone I hate to imagine."

"The wood from the far West all gone!" cried Charley. "Surely that can never be. Why, the forests there are enormous. I've read all about them."

"The forests here were enormous, too, young man. Forty years ago Pennsylvania supplied a large part of the nation with its lumber. And to-day we don't grow more than one-tenth of the wood we use. Yes, sir; within twenty-five years or so after we have finished up the wood in the South, there won't be any left in the far West, either."

"What in the world are we going to do?" asked Lew.

"God knows," said the stranger solemnly. "But there is one thing we've got to do right now. Get these mountains to growing timber again. We must take care of what has already started to grow and plant trees where there are none. Most important of all, we must be careful with fire. I came down here just to warn you boys to be careful with your fire."

"It wasn't necessary," said Lew. "We fought a forest fire once, and nobody but an idiot would ever be careless with fire if he had seen what we have seen this morning."

"Well, I must be moving, boys. There are lots of other fishermen that are not as careful as you are. Good-bye."

The man started on, then turned back. "If you came here to fish," he said slowly, "you're up against it. But I can tell you where to go to get all the trout you want. Go on up to the top of this knob. Face exactly east and you will see a gap in the second range of mountains. Make your way through that gap and you'll find as fine a trout-stream as God ever made. This is state forest and the Forestry Department wants everybody to use and enjoy the forests. We are always glad to help campers."

"Are you connected with the State Forest Service?" asked Charley, all interest.

"Of course," smiled the stranger. "I'm a forest-ranger," and he threw back his coat, exhibiting a keystone shaped badge on his breast.

"And it's your duty to protect the forest from fire?" asked Charley.

"Yes; and do a lot more besides. A forest-ranger has to look after the forest just as a gardener has to tend a garden. And that means we must care for everything in the forest--birds and animals and fish as well as trees, though, of course, the game wardens have particular charge of the animals."

"And how do you take care of the animals and the trees?" demanded Charley eagerly.

"Young man," he said, "it would take me all day to answer your question. We do whatever is necessary to the welfare of the forest and its inhabitants. We take out wolf trees, make improvement cuttings, plant little trees, keep our telephone-line in shape, and do a million other things, as we find them necessary. If I had time just now, I'd go down this run and pile some stones in the pools for the trout to hide under. I was through here the other day and I noticed that the coons are playing hob with the fish."

"And does the state pay you for doing this work?"

"Certainly. Pays me well, too."

"Tell me how I could-----" began Charley.

But the ranger interrupted him. "I can't tell you another thing now," he said. "I must be moving. You never can tell when some careless fisherman will set the forest on fire. The fact is I ought to be at headquarters with the other rangers. The chief keeps us pretty close to the office during the fire season, so as to have a fire crew at hand to respond instantly to an alarm. But we have had such difficulty in securing fire patrols this spring that some of us rangers have to do patrol duty. This piece of timber you are in is the most valuable part of this entire forest. It is virgin pine. It would cut close to 100,000 feet to the acre. There is very little timber left in all Pennsylvania as fine as this. A good part of it has already been burned. We are keeping close watch on what is left. You never can tell when or where fires will start and we want to grab them at the first possible minute. So I must shake a leg."

"How do you grab a fire?" demanded Charley. "Please tell us. Maybe we could help put one out some day if we knew how."

The ranger laughed. "You're a persistent Indian," he said, "and I'm glad

you like the forest."

"Like it!" exclaimed Charley. "I love it."

He poured a cup of hot coffee and handed it to the ranger. "Tell us how you put out a fire," he pleaded.

The ranger chuckled. "You're a diplomat as well as a forest lover, I see," he said. "Well, I shall keep moving through this tract of timber all day long. If I see a fire I shall hurry to it, the way I came down to your big smoke. I'll put it out, if possible. And if I can't get it out, I'll summon help. Then we'll fight it until we do get it out."

"How could you get help, when you're alone in the deep forest?"

"I'd make my way out to the highway where our wire runs and connect up this portable telephone," and the ranger pointed to a little leather case, like a kodak box, that hung from his shoulder by a leather strap. "In a minute's time a fire crew would be on the way to my assistance in a motor-truck."

The ranger handed Charley the empty cup and thanked him.

"Have some more coffee?" urged Charley.

"'Get thee behind me, Satan,'" quoted the ranger. "I believe you'd keep me here all day if you could. I must be moving."

"Just a minute," pleaded Charley. "You said it was difficult to find fire patrols. Could I get a job as a fire patrol? I don't know as much about fighting fire as you do, but I can patrol the forest and report fires as well as anybody."

"I wish you could be a patrol," replied the ranger heartily. "I'm sure you'd make a good one. You seem to like the forest. But I don't believe it is possible. The chief never hires anybody under twenty-one years of age excepting in very unusual circumstances. In fact, I know of only two such cases. And those two boys were almost of age and were unusualy well qualified. I'm sorry, for I'd like to see you in the Forest Service. Good-bye." He turned on his heel and was gone.

Lew watched the ranger until he disappeared from view. Charley scarcely glanced at him. He was lost in thought. Evidently his thoughts were not pleasant, for from time to time he scowled.

"Lew," he said, at length, "I never realized until this minute just what that sign on the old hemlock meant." And he quoted: "'Everybody loses when timber burns.' It's true. Everybody loses--positively everybody. The sportsmen lose game, the fishermen lose fish, the towns lose their water-supply, the mills lose their water-power, civilization loses wood. Why, Lew, civilization's built of wood. How could we live without it? And as for me, think what I've lost through forest fires. I've lost an opportunity to own half of a boat. I've suffered from thirst. I've lost a chance to catch some fish. And, Lew, I've lost a college education! I never understood it before. If the cost of lumber hadn't gone up so much, Dad could have paid for his house easily and helped me through college. Now I've got to give up going to college. I've got to work two or three years for Dad and if ever I get married and want to build a home, I see where I've got to slave for the rest of my life to pay for the lumber

that's in it, and the wooden furnishings inside of it. Think of it, Lew! You and I and all the rest of us have to work for years and years just to pay for what a lot of reckless people did before we were born. It's terrible, Lew, terrible. I've got to spend three years in a factory because of it. I thought for a minute that I might get a job here in the forest. That would have been grand. But there's no such luck. It's the factory for me. I'm sure of it. I don't know how I'll ever stand it, Lew."

Chapter V

A Lost Opportunity

Half an hour later the two boys were all but ready to go on. Before rolling his pack, Charley filled his coffee-pot in the run and thoroughly soaked the last embers of their fire.

"You'll never burn any timber," he said, as he poured on the last potful. Then he stowed the coffee-pot in his pack and in a few moments the two boys were once more afoot.

They struck directly for the top of the knob, as the ranger had told them to do. The slope of the ground alone guided them. So dense was the stand of timber that the huge trunks shut off the view in all directions. It was almost as though they were encircled by palisades. And so thick was the shade that rarely did a sunbeam reach the earth. They were in the forest primeval, a land of perpetual gloom. There was no underbrush and they could travel rapidly. In a very short time they came to the top of the knob.

The summit had been entirely cleared of timber. On the very highest point one lone tree remained. A long pole had been planted near its trunk, with its top fastened to a branch of the tree. Crossbars between the tree and the pole made a sort of rude ladder of the affair. And well up the tree a rough staging had been constructed of small limbs. The boys saw at once that this was a rude sort of watch-tower, and they suspected that the ranger had been in the tree when he discovered the smoke from their fire.

They climbed up the tree and surveyed the scene before them in silence. Indeed, it was too sublime for words. On every side stretched the forest. Mile upon mile, league after league, east, west, north, south, far as the eye could reach, spread the leafy roof of the forest, seemingly illimitable, boundless, vast as the ocean, a sea of trees. And like a sea the forest rose and fell in huge billows. On either hand great mountains reared their huge bulk heavenward. Beyond them other ranges heaved their rugged crests aloft. And still other ranges lay beyond these. Over all was a cover of living green, the canopy of the forest. Sublime, majestic, awesome, almost overpowering was the spectacle. And neither lad could find words to express the emotion that arose within him. So they stood and looked in silent wonder. Finally Charley spoke.

"It's worth all we've been through, Lew, just to see this," he said. "I shall be well paid for the trip, even if we never get a fish."

Presently Lew looked up at the sun. Then he examined the mountains a

little to the left of the sun.

"There's where we go," he said, pointing over the nearest ridge to a gap in the mountain beyond it. "The trout-stream will be in the third valley. We've got to travel due east. And it will be some hike, too--over a mountain and through a high gap. Let's pick out our landmarks and get under way. It will take us a good many hours to make it, but we ought to be there in time to have trout for supper."

For a few moments the boys examined the way in silence.

"See that bunch of rocks on the summit?" asked Lew. "They look like chimney-rocks from here. Anyway, they stick up higher than any other part of the mountain. And there's three tall pines right beside them. That's a good landmark. It's exactly in a straight line for the gap. We can find that mark if we can find anything. But you can't see very clearly through this timber. Was there ever anything like it?"

"Finest timber I ever set eyes on, Lew. Isn't it wonderful? and to think that the whole state was once covered with timber like that!"

They climbed down the rude ladder, slipped their packs over their shoulders, and set off down the mountainside at a fast pace. And they could go fast in such timber. No underbrush tripped them or caught in their sacks. No low limbs impeded their progress. Indeed there was hardly a limb nearer the ground than fifty feet. Their only care was for the rocks and the roughness underfoot. From time to time they paused as they came to some mammoth pine, and gazed in awed wonder at its huge bulk.

As they got down into the bottom the timber seemed to be even larger than it was on the slope. The forest floor was soft and springy. Their feet sank into it as into a soft, thick rug. The top of this leafy covering was dry enough; but a few inches under the surface, the forest mold was as moist as though a shower had just fallen. Yet there had been almost no rain for months. Not only did the leaves hold the moisture, but the very shade itself conserved it by preventing evaporation.

In the very centre of the valley ran a little stream. Long before they could see it, they heard the brook talking to itself. The forest was filled with a gentle murmur, which grew to a distinct rushing sound as they approached the stream.

"Can't you just hear it speak?" said Lew. "What do you suppose it is saying?"

"Those really are voices," insisted Charley.

"Now who's getting dippy?" laughed Lew. "You'll be as bad as I am if you keep on."

"But I do hear voices," protested Charley. "I plainly heard the word 'six.' Listen. Somebody said 'eight,' just as plain as could be."

Lew looked puzzled. "Of course there might be some fishermen in here besides ourselves," he said.

They looked carefully about them, but at first saw nothing. Then a voice distinctly said, "Hemlock--five." There could no longer be any doubt. Some one besides themselves was in the forest.

They made their way in the direction of the sound. Presently they saw three men. Two of them carried calipers and walked in advance. The third came behind and held a pencil and note-book.

"Wonder who they are and what they are doing," Charley said quietly.

"Let's watch and see."

But in a moment the approaching party caught sight of them. "Good-morning, boys," said the man with the note-book. "Out for trout?"

"Surest thing you know," replied Lew. "But we've had hard luck. We intended to fish in the valley back of us. It used to be a fine place for trout. But it's been burned over and there are no trout left."

"I know," said the man. "I've seen it. Be careful with your fires, boys. We don't want any more of this fine timber burned."

"Are you a forest-ranger, too?" asked Charley eagerly.

"No; I'm the forester. I have charge of this forest."

"Why, I thought you were at headquarters with your fire crew," cried Charley, hardly realizing what he was saying.

The man looked at him sharply. "I ought to be and I wish I were," he said. "I don't like this a bit. But I was ordered by the Commissioner to send in an immediate estimate on the amount of timber in this stand. There's a big sale on and they have to know how much there is to sell." He paused and then added: "How in the world did you know I was supposed to be at headquarters with the fire crew?"

"A ranger told us so. We met him over in the other valley. He said he wished he was with you."

"Oh! That would be Morton," said the forester. "I sent him out on patrol because we were short of fire patrols."

"Could you use me as a fire patrol?" said Charley quickly.

The forester looked at him searchingly. "Why do you want to be a fire patrol?" he asked.

"I've got to go to work at something," said Charley, "and I'd love to help care for the forest. You see, I'm almost through high school and I've got to go to work and help Dad the minute I've graduated. He wants me to go into the factory with him. I hate factories. But I love the woods. You'd never be sorry, if you hired me, sir."

"Are you sure it isn't work rather than the factory you dislike?" demanded the forester bluntly.

"No, no!" protested Charley. "I'd work day and night gladly if I could do what I want to do. And there's nothing I can think of I'd rather do than help take care of the forest."

"Very good," said the forester, "but I need patrols now, not after school closes in June."

"Maybe I could get excused for the rest of the term," pleaded Charley.

"And throw away your chance to graduate? I don't think I want that kind of a boy for a fire patrol," said the forester with a frown. "You might decide to quit this job, too, about the time we stacked up against a hot fire."

Lew spoke up. "You don't understand what Charley means, sir," he explained. "Charley is away ahead of most of us in his school work. He's done enough now to give him his diploma."

"Indeed!" replied the forester.

Then he turned to Charley in apology. "I beg your pardon, young man. I misjudged you. I should like to have such an exemplary young man for a patrol, but you are too young. We practically never employ a man not yet of age as a fire patrol. A boy would have to have very unusual qualifications if we did take him. I'm sorry, my lad. I believe you are a fine boy, and I'd like to hire you. But you are too young."

Charley turned his head away to hide the tears that he could not keep back as he saw the opportunity slipping away from him. Then he dashed his hand across his eyes and again faced the forester.

"You do not understand who we are," he said with determination, "nor what our qualifications are. I am accustomed to the woods, sir. I know something of woodcraft. I have fought fire in the forest. I have spent weeks in the mountains. And I am a wireless operator, sir. Are any of your patrols better qualified?"

The forester looked at him with renewed interest. "As a patrol," he remarked, "you would have to deal with grown men. You would find yourself in many situations that you could not handle. Grown men do not like to take orders from boys."

"I have handled men, sir; that is, I have helped to handle them. I helped to capture the German dynamiters at Elk City, sir, when the Camp Brady Wireless Patrol saved that place from destruction."

"Are you a member of that organization?" asked the forester with increasing interest. "I remember reading about that."

"We both are," said Charley. "And I could help you so much with my wireless, sir. Your ranger told us this morning that if he found a fire he couldn't handle, he would have to go clear out to the highway before he could summon help. With the wireless, help could be summoned almost instantly."

The forester smiled indulgently. "It sounds good," he commented. "But you forget that we have no wireless and that none of us knows anything about radio-telegraphy. No; I am afraid I can't use you, though I'd like to. If you still want a job when you are of age, come to me. I can use you as a patrol and I might even have a place for you as a ranger. We have mighty few rangers as well educated and equipped as you will be. Or you might even decide to go to Mont Alto and take a degree in forestry and become a forester like myself. I would like to see you in the service, but I can't take you in now. I must get on with my work and hurry back to my office. Good-bye and good luck to you. And don't forget about your fires."

Turning to the elder of his two companions, he said, "All right, Finnegan. Go ahead."

The man stepped to the nearest tree, slipped his calipers on it breast-high, then glanced aloft. "White pine, forty-three, five," he called.

The forester put down the figures in his cruising book.

"Hemlock, twenty-eight, four," called the other man.

The men were experienced timber cruisers. They were measuring the amount of wood in the forest. The first man meant that the white pine tree he was measuring was forty-three inches in diameter breast-high and would make five standard logs, each sixteen feet long. The second scaler had measured a hemlock twenty-eight inches in diameter and long enough for four logs. They were measuring the timber on a few acres, so as to form an estimate of the amount for sale.

The work interested Lew greatly, but Charley had no heart for anything. He had fought hard and apparently his last chance had slipped away from him.

He was very quiet as they made their way through the valley. Even the run in the bottom failed to stir him, though he loved the little mountain streams passionately. Yet he did notice that here, beneath the lofty pines, where the forest mold lay deep and spongy, the brook flowed strongly. It sang as it rushed along between its rugged banks. But there was no music in its song for Charley. So alluring was the stream that Lew wanted to fish, but Charley had no heart even to try for a trout; though it was practically a certainty that there were trout aplenty to be had. Time heals all wounds. It would heal Charley's: but not enough time had yet elapsed for the healing process to begin. At present he could think of nothing but his dismal prospects.

So they went on through the bottom and slowly ascended the opposite mountain. As they had suspected might be the case, it was impossible to distinguish the landmarks they had chosen. The innumerable great trunks of the pines cut off their vision as effectually as a high board fence could have done. But the slope of the land told them which way to go, and the freedom from underbrush made it possible for them to travel in a comparatively straight line. So they reached the crest of the mountain, after a stiff climb, not far from the spot which they had selected.

The summit was sparsely timbered and they had no difficulty either in finding their landmarks or in mapping out their way down the farther slope and across the valley to the gap beyond. This second valley was also well timbered. In the middle of this second valley another fine brook flowed. And here they rested and had a bite to eat, with a cold drink from the stream. Then they filled the canteen again and pressed on. The afternoon was well advanced before they had climbed through the pass and reached the valley that was to be their home for the next few days.

Like the valley in which they had met the forester, this bottom contained some wonderful pines, though it was really a mixed stand of timber with hardwoods beneath and the pine tops rising high above them. There were countless numbers of these mammoth pines that towered a hundred to a hundred and twenty-five feet in air. The hardwoods, though shut out from some of the light, were also wonderful for size and vigor. It was a

splendid example of a "two-storied-forest." The resulting shade was so dense that it was like twilight at the ground level. And the stream that went rushing among the trees was a joy to behold. Deep, dark, crystal clear, and almost as cold as ice, it was an ideal haunt for trout.

By the time they reached it, Charley had recovered his spirits. "Oh boy!" he cried, when they reached the margin of the run. "Look at this brook." As he stopped and dipped his hand in the water, he added, "It's cold enough to freeze a fellow. Thank goodness, there isn't any underbrush here. We won't have to wade. I'll wager this place is full of fish."

Hardly had he spoken before a great trout darted across the stream, almost at their feet. Charley extended his rod over the water and waved it vigorously a few times. Instantly trout darted out from a dozen different points.

"Gee whiz!" shouted Charley. "Did you see 'em, Lew? I can hardly wait to get a line in."

"We've got to get our camp made before we do any fishing," replied Lew. "Let's hustle up and find a good camp site."

They walked rapidly up the valley, keeping a few yards back from the brook so as not to alarm the trout.

"I don't know how our wireless will work among all these trees," said Lew. "If we could find an open spot I'm sure it would be better."

Presently they came to exactly the sort of place they desired. At some time, evidently within a few months, for no brush had as yet sprung up, a hurricane had swept through the forest: and where it had passed lay a windrow of trees as flat as a swath of grain after the scythe has gone through it. The windrow was several rods in width, and not a tree remained standing within that space. The fallen trees were piled upon one another in confused masses.

For a time the boys gazed at the scene with awe. "That opening will make a fine place to hang our aerial if we can get the wires up," said Lew. "I believe that we have enough wire to hang 'em up pretty high and still have a long lead-in wire. If there is, then we can camp back here under the trees close to the run. We have no tent and the dense tops will protect us from dew. It'll be much warmer back among the trees, too."

Speedily they found a place that suited them. They put their packs on the ground and got out their wireless instruments. Then they made some rude spreaders from branches that Lew cut in the windrow. When the aerial was ready to hang up, Charley took a length of wire and made his way across the windrow and up a slender tree that stood on the farther edge of the opening. He fastened one end of the wire to the spreader and the other end he attached to the tree. Lew was duplicating his movements on the other side of the opening. In no time the aerial was swinging above the windrow, and the lead-in wire had been brought back through the trees to the camp site. Here the instruments were connected and the wire coupled to them. The dry cells were next wired and the outfit was then ready. Lew sat down beside the spark-gap and pressed the key. Bright flashes leaped from point to point. He adjusted the gap, so as to get the best spark, then laid the pack bags over the instruments.

"We missed out on listening to Roy this time," he said, "but I'll bet we

can raise the rest of the bunch. She works fine. We've got a dandy spark."

"Good!" cried Charley. "It won't be long before it is dark. It's already twilight under these trees. Now for the trout."

Chapter VI

Trout Fishing in the Wilderness

"Shall we go up-stream or down?" asked Lew, as he jointed his little rod and fastened a hook to his line.

"Let's go down. We can't fish very long, and we know there is no brush along the stream below us. We can try it up-stream to-morrow."

"To-morrow we'll fish on opposite sides of the run," said Lew as they buckled on their bait boxes and started. "I don't see any way to cross now and there's no time to hunt for a way."

"It's full of 'em. I'll bet on that," smiled Charley. "We'll catch a mess in no time. Here goes with a worm."

He threaded one on his hook, crouched down, and cautiously drew near the bank. A dexterous flick of his rod landed the worm fairly in the middle of the run. Hardly had it hit the water before something grabbed it, and Charley drew forth a flopping fish. But it proved to be only a fingerling. In disgust Charley wet his hand and carefully unhooked the little fish.

"Shows they're here, anyway," he said, as he tossed the little trout back into the stream.

But if they were there, they were strangely shy in making their presence known. Rod after rod the hoys advanced, careful not to show themselves, making their casts with greatest caution, and keeping as quiet as possible. But no fish so much as smelled their bait. Again and again they let their hooks float down into promising pools, but never a strike resulted.

They took the worms from their hooks and tried flies. But though their gaudy lures landed lightly on the water and danced in the rapids like real insects struggling for their lives, never a fish rose to grasp one.

"They won't touch worms and they don't want flies. I wonder what they do like," grumbled Lew in disgust. "I wish we had some grasshoppers or crickets. Bet we'd get 'em then."

They continued their efforts until it was almost dark. "We'll have to be getting back to camp," said Charley. "We can't see much longer. We don't want to be caught here in the dark. The flash-light is back at camp."

"Here's a fat grub," said Lew, picking up a whiteworm out of a rotting log. "I'm going to make one more try. Maybe they want grubs."

He slipped the worm on his hook and flicked it toward the brook. A second

after it struck the water there was a splash, and Lew's reel sang shrilly.

"Oh boy!" cried Lew, as he struck up his rod smartly. "I've got him."

He had. The fish leaped clear of the water, but failed to loosen the line. Then it darted away like a shot, the line cutting through the water with a sharp, swishing sound.

"Hold him," called Charley. "He's heading for that snag."

Lew put his thumb on the line and raised the tip of his rod higher. Under the tension the supple steel bent almost double. The fish stopped his rush, turned, and darted down-stream before Lew could reel in a foot of line.

Charley forgot all about his own fishing in his desire to help land the trout. "Don't let him get under that rock," he warned, coming close to the brook. "He'll cut the line."

Lew increased the tension on the line and the fish stopped short of the rock. For an instant the trout sulked and Lew reeled in rapidly.

"Guess I got him," he cried triumphantly, as the fish was drawn near to the bank. But as he bent to grasp his prize there was a tremendous splash. The trout leaped high out of water, then darted off again like a flash. Lew had to give him line or lose him.

"He's a whopper, Charley," he cried. "Gee! I hope I don't lose him!"

"Here's a shallow place," cried Charley. "Work him into it and we can grab him."

Lew maneuvered the trout toward the shoal. Again and again the fish broke for the deeper water and Lew had to give him line. But each time he stopped the rush and patiently worked the fish back toward the shoal. At last the trout was fairly on the edge of it. Lew began to pull steadily on his line and slid the tired fish into shallow water. It flopped helplessly on the stones. Lew drew it to the bank and thrust a finger into its gills. In another second the fish was dangling in air.

"Great Caesar!" cried Charley excitedly. "Ain't he a beaut! He's the biggest trout I ever saw."

"He's the biggest one I ever caught," answered Lew. "He'll make a meal himself."

"He'll have to," returned Charley. "We can't fish another minute. It's almost dark now."

Lew slipped his finger down the throat of the gasping fish, and bent the creature's head sharply back. The trout hung limp in his hand. Then the two fishermen made their way through the dusky forest to their camp, where Charley lighted a fire.

"I'll just see what this fellow has been eating," said Lew. "Maybe we can find out what sort of bait to use." He opened his knife and slit the fish's belly. "Crabs!" he cried, as his knife blade turned up the remains of a crayfish. "Now we know what they want."

Soon Charley had a good bed of coals. Lew, meantime, cleaned the fish. Quickly it was cooked and eaten and the dishes washed. By this time it was altogether dark.

"Now we'll get some crabs for to-morrow," said Lew.

"Wonder how we can catch them?" queried Charley.

"What we need is a little dip-net. With that and the flash-light we could get a peck of them. These little streams are full of them."

"Let's try scooping them with a coffee-pot. The lid comes off. If we are careful, I believe it will answer."

They took the lid off of the pot, and stepping to the brook turned the beam from their flash-light on the bottom of the run. The scene was fascinating. Feeling secure in the darkness, the living creatures in the brook had ventured abroad freely. Where the bright light of the sun would have disclosed only stones and sand, the little beam from the search-light revealed a myriad of moving shapes. Little minnows moved about in schools. Salamanders, large and small, crawled about among the rocks. Occasional trout were visible, lurking in the deeper holes, lying as motionless as sticks, or moving their tails slowly. Eels lay on the sandy spots. And lying still or crawling slowly among the stones were many crayfish. The water seemed to be filled with living objects.

"Gee whiz!" whispered Charley. "It's like going to an aquarium and looking at the fish in glass cages. I never dreamed a brook could be so interesting."

With the utmost caution they moved along the bank of the run, looking for crayfish of suitable size. Whenever they found one, Charley focused the flash-light on it, moving the beam so as to dazzle the creature and keep the space behind it in darkness. And Lew would slip the coffee-pot into the water and move it cautiously up to the crayfish, ready for a final, quick scoop. Sometimes he was successful and sometimes the intended victim escaped. Always the click of the metal pot against the stony bottom sent the little creatures in the water scurrying for cover. A second after Lew tried for the crayfish not a living thing was visible. So it was necessary to move on along the stream. From spot to spot the two boys proceeded, now getting a good bait, now missing one, but ever keenly enjoying the wonderful glimpses of the life in the brook. So they continued until they had a goodly number of crayfish.

"I believe that's enough," said Lew. "Let's get back to camp. The fellows will be at their instruments at nine, ready to talk to us." He glanced at his watch. "I had no idea," he cried, "that it was so late. It's almost nine now. We'll have to hurry."

So fascinating had been the glimpses of life in the brook that time had sped much faster than either boy realized.

They hurried back to their camp. They had taken the precaution to sling their grub high above ground on a piece of wire, but apparently nothing had tried to molest anything. Lew rekindled the fire in the little stone fireplace they had built and Charley uncovered the wireless instruments and sat down on one pack bag. The other he flung to Lew. Then he slipped the receivers on his head, threw over his switch, and sent the bright sparks flashing between the points of his spark-gap.

"CBWC--CBWC--CBWC--CBC," he rapped out. (Camp Brady Wireless Club, Charley Russell calling.)

Then he sat in silence, waiting for an answer. It came promptly.

"CBC--CBC--CBC--I--I--I--GA." (Charley Russell--We're here. Go ahead.)

"Got 'em," he cried. He answered and got a reply. "They want to know why we didn't call up last night," Charley said to Lew.

The fire in the little fireplace burned clear and bright, making a circle of light in the dark forest. Lew sat near the fire, cross-legged on his pack bag, thrusting an occasional stick into the flames. Charley sat by his instrument. Rapidly he pressed the key, and the sparks flew between the points of his gap like tiny flashes of horizontal lightning.

"Hello! Is that you, Willie?" rapped out Charley.

"Sure," came the answer. "But we're all here. Why didn't you call up last night?"

"Couldn't," answered Charley. "Didn't reach Old Ironsides camp site until long after dark. Forest fires have burned up all the timber there. Spring dried up, too. Had terrible time. Awful thirsty and no water to drink. Too tired to put up aerial."

"Where are you now?"

"In the third valley east of Old Ironsides. Never been so far in the mountains before. Grand stand of timber here. Great trout stream. Full of big ones. Won't touch worms or flies. Just been catching crabs to try to-morrow."

"Get any yet?"

"One big one."

"Have any adventures?"

"Not unless you call our experience in the burned timber an adventure. Toughest thing I've stacked up against in a long time. Timber burned for miles. No fish. Raccoons catching 'em out of the little pools. Had to come here to get any. What are you doing?"

"Everybody hard at work. I got a new job yesterday helping a fellow make a wireless outfit."

"Where?"

"Right here. We're making it in my shop."

"Will you be there to-morrow?"

"Sure. All day."

"We'll call you."

"Good! I'll listen in every hour on the hour. Then you can get me almost

any time."

"Bully for you. We're going to fish to-morrow, but we may catch so many in the morning that we won't want to fish after dinner. I'll let you know how we make out. Good luck to you all. Wish you were here. We'll bring you a nice mess of fish, anyway. Good-night."

"Good-night and good luck."

"I wish they were here," said Lew, as Charley covered the instruments to protect them from dampness, and moved over near his chum. "It doesn't seem right to be in the forest without the whole crowd. This makes me think of our camp in the forest near the Elk City reservoir, when we were hot on the trail of the dynamiters. I'd hate to camp out at this time of year without any fire."

"Well, let's turn in. We want to get up early to-morrow and try those crabs. I'll bet we get a bunch of trout."

"Bet we do, too," replied Charley.

Little did he dream that on the morrow he would be engaged in matters far more serious than catching trout.

Chapter VII

The Forest Afire

The earliest rays of light had hardly penetrated beneath the giant pines the next morning before the two boys were astir. Their breakfast was quickly cooked and eaten. Then they buckled on their bait boxes, now bulging with worms and crayfish. They carried as well their books of flies. And Charley slipped the little axe into his belt, to have something to chop with in case they wanted to hunt for whiteworms.

"Let's go back where we caught that big fellow last night," said Lew. "There may be some more like him in those deep pools."

"All right. Come on."

With nothing but their little rods to carry, they made fast time through the forest, and had already reached the pool in which the big trout was taken, before the first ray of sunlight came flashing among the tree trunks.

"We're going to have a fine day," said Charley. "It's my turn to catch a fish. Here goes for a try."

He baited his hook with a crayfish, and cautiously made his way toward the brink of the brook. Half-way he paused and straightened up, sniffing the air. Then he turned and looked at Lew.

"Smell anything?" he asked.

Lew had also detected a taint in the fresh morning air. "Smells like smoke," he said. "Probably some fisherman cooking his breakfast."

Charley turned toward the brook again, then once more faced his companion.

"People don't cook with leaves," he said soberly. "That isn't wood smoke, that's burning leaves."

For a moment the two boys looked at each other in silence.

"You don't suppose----" began Lew, but Charley cut him short.

"Let's make sure. Which way is that smoke coming from?" He stepped to the brook and dipped a finger in the cold water. Then he held his hand aloft.

"There's so little wind stirring I can't tell which way it's blowing," he said. "One side of my finger feels as cold as the other."

Again he tried it. There was just a suggestion of an air current. "Seems to be blowing straight up the valley," he said.

"I'll try a match," said Lew. He took his waterproof match box from his pocket and drew forth a match, which he lighted on his heel. "You're right," he said. "The flame blows up-stream a little. What shall we do?"

"It doesn't seem possible that the woods can be afire," answered Charley. "But let's make sure. If the forest is afire and we can put it out, it would be a crime if we don't. The memory of it would haunt me the rest of my life."

"All right. We'll go down-stream. If there is a fire, we'll do our best to put it out. If there isn't any fire, there's no harm done. We can probably find as many fish down-stream as there are here. We'll save time if we unjoint our rods."

Quickly the lines were reeled up and the rods packed in their cloth cases. Then, with nothing to hamper them, the two boys hurried down the valley.

Gradually the odor of burning leaves grew stronger. A very little breeze arose, blowing straight in their faces. It was heavy with the smell of fire. Ahead of them the forest began to look gray and misty, as though a heavy night fog still covered the earth. But both boys knew that the gray blanket was no night mist. It was smoke. They quickened their pace. The smoke cloud grew denser. Then a dull, reddish glow appeared. There could no longer be any doubt. The forest was afire.

"Come on," cried Charley. "We've got to grab it quick."

As they started to run, Lew protested: "Not too fast. We'll tire ourselves out before we get there. We may have a long fight before we put the fire out."

The smoke now rolled past them in dense clouds. The red glow grew brighter. In a few moments they reached the fire itself. It was in an opening where the timber had been cut and little but brush remained. It was a ground fire that crept slowly along among the leaves. Yet it had already spread until it seemed to stretch across half the valley.

"If we can only put it out before the wind comes up," said Charley, "we

can save the forest."

He looked about for a low tree, discovered a thick, young pine, rapidly chopped off some bushy branches, and again sheathed his axe. Each boy seized a branch.

"Our rods--what shall we do with them?" asked Lew.

"Throw 'em in the run. Fire can't hurt 'em there and we can get 'em at any time."

Lew rushed over to the brook and put the rods in the water. He set a flat stone on them to keep the current from moving them. Then he dipped his pine bough in the brook and began to beat out the flames, working straight out from the bank. Charley joined him. Rapidly they rained blows upon the fire. Rod after rod they advanced. The heat from even so small a fire was great. The smoke was blinding and stifling. Heat and smoke and their own exertions tired them rapidly.

"We've got to take it easier," said Lew, after a little, "or we'll be all in before we get the fire half out."

Of necessity they slackened their efforts. As they wore out their weapons, they cut new ones. Every little while they rested. They were tiring fast. At the same tune, the wind was beginning to freshen. Here in the open there was nothing to break its force. The flames leaped higher under its breath and began to run over the ground instead of crawling. The fire itself created a draft. The greater the draft, the hotter the flame became, and the hotter the fire grew, the stronger blew the draft.

"We're never going to do it," panted Charley, after a while. "The wind is blowing harder all the time. We must call help."

He looked at his watch. "Twenty minutes of seven!" he ejaculated. "How far do you think we are from camp?"

"Two miles, anyway," answered Lew.

"If I can make it by seven, I may be able to get Willie. He said he would listen in every hour."

"Hurry," said Lew sharply. "I'll keep at work here."

"If it gets too hot for you," said Charley, "go right back to the brook, and come up along it to camp. That's the way I'm going back, and I'll return that way after I get Willie. Good-bye."

He started off at a fast pace. But his exertions and the heat and smoke had so weakened him that he quickly saw he could not maintain such a gait. He dropped to a steady jog. Even that taxed his strength. But he gritted his teeth and clenched his hands and kept on.

The forest was now full of smoke. The dense cloud completely hid the sun. Among the great pines it was almost like twilight. Charley pushed on as fast as his weary legs could carry him. More than once he tripped and fell. He could no longer see distinctly. Fatigue and the smoke in his eyes blurred his vision. He was scratched and torn and his hands were a mass of little burns. Charley scarcely noticed them. His mind was wholly intent on getting help and saving the forest. Nothing else mattered. So he staggered

on through the dusky woods. He glanced at his watch. Ten minutes had passed. He felt sure he had been running an hour and that his watch had stopped. He held it to his ear. The steady ticking somewhat reassured him. After what seemed like another long interval he ventured to look at it again. Five minutes more had elapsed. Five minutes remained before Willie would be at his post waiting for a possible message. Charley crowded on all the speed that was left in him. But his feet seemed to be made of lead. His heart pounded painfully against his ribs. His lungs seemed nigh to bursting.

"Five minutes more," he kept muttering to himself. "Only five minutes more. I've got to make it. Only five minutes more."

Suddenly he came to their camp. In his weariness he had not recognized any landmarks. He could hardly believe it was their camp. But there were the grub bag hanging on a wire, the dishes piled by the fire, and the wireless instruments protected by the pack bags.

"Thank God for the wireless!" gasped Charley, as he threw himself on the ground beside his key. He tried to flash a call, but his hand trembled so he could not form the letters correctly. He dropped flat on his back to rest for a moment, glancing at his watch as he lay there. It lacked one minute of seven.

For sixty seconds Charley lay prostrate, looking at the second-hand on his watch as it went round. Then he sat up. The minute's rest had steadied him wonderfully. He moved his switch, pressed his finger on the key, and sent the bright sparks flashing between his gap points.

"CBWC--CBWC--CBWC--CBC," he called, then paused to listen.

There was no response. An anxious look crept into his eyes.
"CBWC--CBWC--CBWC--CBC," again he called.

No answering signal sounded in his ear. His face went white.
"CBWC--CBWC--CBWC--CBC," he rapped out anxiously. And without listening for a reply, he repeated the message frantically half a dozen times. Then a buzzing sounded in his ears. A look of relief came on his face. He sighed. Willie was acknowledging his call signal.

"Good-morning," continued Willie. "Caught any trout yet?"

"The forest is afire!" flashed back Charley. "Get the district forester on the telephone instantly. His headquarters are at Oakdale. Tell him the fire is in the third valley east of Old Ironsides; that the message is from the two boys he met yesterday; that we are trying to hold it. Ask what we shall do. I'll wait for his answer."

For what seemed an endless period of time, Charley waited. Seconds were like minutes. Minutes dragged like quarter hours. It seemed as though Willie would never answer. There was nothing for Charley to do but sit and wait. In his impatience he could hardly keep still. He could not take his mind from the fire. He could think of nothing but that roaring line of flame consuming the floor of the forest and destroying the young growths. Would Willie never get the forester? Must the entire woods burn before the forester knew of the fire? In his excitement Charley clasped and unclasped his hands and nervously swayed back and forth as he sat on the ground.

Suddenly he sat up as steady as a stone image. The wireless was beginning

to speak.

"Forester on wire now," came the message from Willie. "Wants know exactly where fire is."

"A little south of east of where he met us, in the third valley beyond Ironsides," flashed back Charley.

"How big is the fire?" came a second question, after a brief interval.

"Don't know. Too big for us. Lew still fighting it. I'm going back. What shall we do?"

Again there was a pause. Then Willie answered: "Forester says find header and back-fire. Try to hold it till fire crew arrives."

"Will do our best. Listen in often. May need call you. Good-bye."

Charley threw over his switch, covered the instruments with the pack bags, and was off down the valley. He felt much refreshed by his rest. At a steady jog he made his way along the brook.

Now he found it difficult to breathe. Smoke was rolling through the forest in billows. Close by he heard the cries of terror-stricken animals. He came to the edge of the burned space beside the brook, where they had beaten out the flames. Here there was practically no smoke. He turned away from the run and followed the black edge of the burned area. He knew this would bring him to Lew, and he wanted to make sure that they had extinguished every spark in the distance they had covered. Only at one point did he find fire smouldering. He beat out the sparks and went on. He could see almost nothing. The smoke grew thicker and thicker. Through it he began to distinguish the red glare of the flames. Ever louder sounded the crackle of fire. From a low, humming sound it grew, as he drew near, into a subdued roar. Then all other sounds were lost in the greater tumult of the forest fire.

Now he came close to the flames. The heat was terrific. The smoke choked him. He could hardly breathe. The roar of the fire was terrifying. Hitherto he had felt no fear. Now a feeling of alarm suddenly seized him. What if Lew had been overcome by smoke and burned in his absence? The possibility had never occurred to him before.

"Lew! Lew!" he shouted at the top of his voice, and started along the line of the fire. There was no reply. At least Charley heard none.

"Lew! Lew!" he cried. "Where are you?"

But no voice answered through the smoke.

"If he's down, I'll find him or die trying," muttered Charley to himself.

His face was grim and set as he started along the line of the fire again, paying no heed to the flames but looking only for his chum. Every few yards he stopped and shouted. But no answer ever reached him.

On he went, rod after rod, keeping as near the flames as he dared. He saw nothing of his friend. He came to a point where a tongue of fire had run far in advance of the remainder of the blaze. It seemed to be traveling twice as fast as the rest of the flames.

"The header!" he cried to himself. "Here's where we ought to be at work. But I must find Lew first. He certainly never got beyond this header."

Charley stopped and called. Again and again he shouted. There was no response.

"Maybe he went back to look for me and I passed him in the smoke," thought Charley. "I'll go back to the brook."

He turned to retrace his steps. Something suddenly flashed into flame close beside him. It caught Charley's attention. He saw it was a pine bough. Then he noticed that it had been freshly cut.

"It's Lew's brush," cried Charley. "He must have been here."

He sank on his knees close to the blazing bough, and heedless of smoke and flame began to examine the ground carefully. He ran his fingers lightly over the leaves, feeling for footprints. At first he found nothing. Then he discovered the impression of a heel. He could not be certain which way the footprint pointed.

With the heel mark as a centre, he began to feel about in a circle two or three feet wide. He judged that would be the length of his chum's stride. Twice he felt around the circle before he found a second footprint. It was in the direction of the brook. He moved forward and searched where he thought the third step should have fallen. Here he distinctly saw the mark of a foot. When he rose to his feet his coat sleeve was beginning to smoke and his face was blistered.

"Lew's gone back to the brook," he muttered. "I must have passed him in the smoke. He's probably looking for me."

But he still felt vaguely uneasy and fearful. He walked rapidly toward the brook. The trail he was following became distinct. The leaves had been kicked up here and there by Lew as he walked. The track grew plainer and plainer. It became more like a plow furrow. At first Charley did not grasp the meaning of the shambling trail. Then it came to him.

"He's dragging his feet," he muttered. "He must be all in. Maybe he's down."

Charley took a quick look at the flames. They had crept frightfully close to the trail in the leaves. Then he sprang forward at top speed. His face was white.

"I've got to reach him before the fire gets him," he sobbed.

He kept peering through the smoke. "There's another header shooting out toward that log," he said, "but I won't leave the trail. I might miss Lew."

The trail led straight toward the log. Charley increased his speed. As he neared the log he gave a cry of terror and bounded forward like a shot. What Charley had mistaken for a tree trunk was his chum's prostrate form. The flames had almost reached it.

With his brush Charley fell on the fire savagely and beat it out for the space of a rod or two on either side of Lew's body. Then he rushed back to

his chum and knelt beside him. Lew was unconscious but breathing regularly. His nose was half buried in leaves and moss. That fact had probably saved his life, for it had given him pure air to breathe.

Charley drew Lew over his shoulder until he had him doubled up like a jack-knife, and could therefore carry him easily. Then, at a steady pace, he set out for the brook. Soon he passed the end of the line of fire. In a few minutes more he reached the stream.

He laid his chum close beside the run, felt his pulse and listened to his breathing. Lew's heart was beating regularly and he was breathing easily.

Charley sighed with relief. "He's all right," he muttered.

Then he filled his hat with water and sprinkled some on Lew's face. Lew's eyelids flickered. Then his eyes opened.

"Where am I, Charley?" he asked. "What are you doing?"

For a moment he lay still. Then suddenly he sat bolt upright.

"I know now," he said. "The forest is on fire. I was fighting it and you went to call help. Did you get Willie? And how did you find me? I guess I got too much smoke. I started for the brook. That's all I can remember. I'm all right now. We're going back."

He got to his feet, but at first had to be supported. Charley made him lie down again. In a few minutes his strength seemed to return to him. He got up.

"I'm all right now, Charley," he insisted. "I mightn't be awake yet if you hadn't thrown that water on my face. Thanks, old man."

Charley did not tell Lew how near to death he had been. Instead, he said, "Are you sure you're strong enough to tackle that fire again?"

"Sure as shooting," nodded Lew.

"Then come on. The fire has an awful start on us. The forester wants us to try to hold the header by back-firing."

As they started toward the blaze Lew said, "We'll have to work some distance in advance of it. If only we had rakes we might conquer it even yet."

They made their way to a point well in front of the header. Then they cut sticks and made little bundles of them to use like rakes.

"I'll clear away the leaves and you start the fire," directed Charley.

He began raking away the leaves, clearing a sort of path about two feet wide straight across the line of the advancing header. Lew lighted the leaves on the side of the cleared space toward the header, following close upon Charley's heels. From time to time he ran back along the cleared space to make sure the flames had not jumped across it. Wherever they had, he beat them out with his brush. On the other side of the cleared space the flames slowly worked their way toward the onrushing header, widening with every minute the barren area where the flames could find no fuel to feed upon.

Rod after rod Charley cleared a narrow lane and Lew kept close behind him with his torch. With amazing rapidity they extended their line.

"If only we had the Wireless Patrol here," panted Lew, "we'd lick this old fire to a frazzle."

On and on they went. To save their strength they exchanged tasks at intervals. Every few minutes they faced about and ran back over their line to make sure no flames had crossed the cleared space. The air was dense with smoke, but the heat from their back-fire was trifling in comparison with that of the main conflagration. The stand of timber grew thicker, breaking the force of the breeze more and more. Their back-fire ate its way into the wind much faster, and the real fire came on slower. It seemed to be getting farther and farther away.

"We've passed the header," cried Charley exultantly. "We ought to be able to hold the main fire."

They rested a moment, then went at their task with renewed hope and vigor. Rod after rod they cleared a path and fired the leaves on the windward side of this lane. Finally their line grew so long that they could no longer guard it properly.

"If only we had half a dozen boys to patrol the line," sighed Lew. "I'm afraid the flames will jump across somewhere. Then all we have done will be in vain."

"We'll make a trip over the whole line," declared Charley, "and be sure it's safe. Then we'll stop back-firing and beat out the flames again. It's the only sure way I can think of."

He drew his axe and cut fresh boughs. Then they went back along their line. In one place flames had already leaped across, but they fell on them vigorously with their bushes and soon put them out. They patrolled the line until they felt sure it was safe.

"If we can put out the flames between our back-fire and the brook," said Lew, "it will make our job a great deal easier. We've already put out part of them."

They began to work their way back to the brook, following the line of flame and beating out the fire foot by foot as they advanced. There were many things in their favor. The dense stand of trees at this point not only checked the wind and made the fire less fierce, but the absence of underbrush also helped to check it. There was little for it to feed upon but leaves. So the two boys could work close to it and beat it out with ease, though the smoke was stifling. Only lads of great determination and courage would have stuck to the task.

With frequent pauses, necessary for rest, they went on, foot by foot, yard after yard, rod upon rod. "We're going to make it," cried Lew presently. "It's only a little distance to the end of the flames."

They increased their efforts. Quickly they reached the end of the line of fire. Beyond that the woods had been saved by their first efforts.

"Now we'll go back over the line," said Charley, "and make sure the fire doesn't start up anywhere."

"I'm dying of thirst," said Lew. "Let's get a drink first. We are not far from the brook."

They hurried to the run and threw themselves flat on the bank, drinking copious draughts of the cool and refreshing water.

"I wonder what time it is," said Charley, as they got to their feet again. "It seems to me that we've been fighting fire for hours." He looked at his watch. "We have," he cried. "It's after eleven o'clock. The fire crew has been on the way four hours. They'll follow their fire trails and get here in a fraction of the time it took us to come in. They certainly ought to be here soon. If we can hold the fire for a little bit longer the forest will be safe."

"Come on," called Lew. "We've got to do it."

Again they went along the line of their back-fire. For rod after rod the fire was conquered. In other places it still burned; but the back-fire had now eaten its way so far to windward of the cleared space that there was no longer any danger of the flames leaping past the barrier. So they covered the entire length of their line and found it safe.

When they reached the main fire again they began to beat it out with branches. Rod after rod they continued to work their way. But at best their progress was painfully slow.

"Lew," said Charley of a sudden, "while we are beating out these flames here, there may be another header in front of us traveling like a racehorse. I'm going to run ahead and see. You stay here. Call every little bit and I'll answer. I'll be back in a few minutes."

He made his way along the line of the fire. Here in the thick timber it still burned slowly and feebly. He could trace the line of fire far ahead, and it seemed to have advanced with remarkable evenness. Nowhere could be seen a header of flame jutting out far in advance of the main line.

"If the wind doesn't rise," he muttered to himself, "we're going to make it."

He went on, trying to locate the other end of the fire. Behind him he heard Lew halloing. Before he could turn to answer, an echo came back from the mountain in front of him.

"If only that were a real voice," muttered Charley to himself.

Then he stood stock-still. Shout after shout came ringing in his ears. "It is a real voice," he cried. "The fire crew is coming."

A moment later a dozen forms became visible in the smoke. They were running along the edge of the fire, evidently trying to determine where to begin their attack on it. At their head was the forester. He came directly toward Charley, but gave no sign of recognition. Nor, could Charley have seen himself, would he have wondered at it. With his face blackened by smoke and caked with blood from innumerable little cuts and scratches, his hands grimy and almost raw, and his clothes torn in a hundred places, Charley could hardly have been recognized by his own mother.

"How far across the valley does this fire extend?" asked the forester.

"You are almost at the end of it, sir," replied Charley.

"It's making a tremendous smoke for such a little blaze, then," said the forester.

He turned to his men. "Get right at it and beat it out," he ordered. "This is all there is to it."

Again he faced Charley. "Are you sure?" he demanded. "When we came over the pass it looked as though the entire bottom was afire."

"It was," said Charley. "That is, everything this side of the run was afire. We have got it all out but this."

"Have you seen anything of two boys with a wireless outfit? They notified me of this fire."

"Why, I am one of them, sir. It was I who asked you yesterday for a job as fire patrol."

The forester looked at him narrowly for several seconds. "See here," he said severely. "Did you boys set this forest afire?"

Charley looked aghast. "Set the forest afire!" he exclaimed in amazement. "Certainly not. Why should we?"

"Are you telling me the truth?"

Even through the grime Charley's face was red. "See here," he said angrily, "I don't care whether you are the forester or the President of the United States. You are not going to call me a liar. If Lew and I hadn't been here fishing, you wouldn't have any forest by this time. We've fought this fire for hours and it's only a piece of luck that Lew isn't dead. He'd have been burned to a crisp if I hadn't found him just when I did. We've done everything we could to save the forest. I demand to know your reason for suggesting that we started the blaze."

"Young man," said the forester, "more than one forest fire has been set by persons who wanted a job fighting fire. You wanted a job. You told me what an advantage your wireless would be.

"My ranger reported to me by telephone last night that excepting for yourselves he had seen nobody in this region all day. This morning a fire breaks out; you report it promptly by wireless; and when we arrive, you have it almost out. Isn't that a suspicious chain of circumstances? Doesn't it look as though you might be trying to show the forester something?"

"A fellow who would set the forest afire just to prove his own qualifications as a fire fighter ought to be put in prison," said Charley indignantly. "Do you think I'm that kind of a skunk?"

"No, I don't," said the forester. "I believe you boys had no hand in starting this fire and that you have risked your lives and done heroic work to save the forest. But I had to be sure. There is something queer about this fire. With no railroads near to shoot up sparks, no thunder-storms to flash lightning, and no campers to be careless with their fires, what did cause it? It isn't the first time mysterious fires

have started in this fine timber. You saw in the other valley what two of these fires did before we got them out. This is the third fire that has occurred in this tract. If it hadn't been for you boys, I hate to think what would have happened. You have done a great service to the people of Pennsylvania."

Charley was suddenly abashed. He turned his glance on the ground. He did not know what to say.

After a moment the forester spoke again. A new idea seemed suddenly to have occurred to him. "Now that you have had a taste of real fire fighting," he said, "would you still like to be a fire patrol--possibly a ranger?"

"Better than anything in the world," replied Charley. "I love the forest."

"Are you sure you can be released from further school work?"

"I feel certain I can."

"Then I have a particular job for you, Mr. Fire Guard."

"Mr. Fire Guard," echoed Charley, his heart beating wildly. "What do you mean?"

"I mean," smiled the forester, "that you are here and now appointed a fire patrol; that you are now a representative of the State of Pennsylvania, and after you have been sworn in you will have the power of making arrests. The particular job I have for you is to guard this forest. Somebody wants to destroy this stand of virgin timber. Your job is to protect it."

Chapter VIII

Making an Investigation

The fire crew, hardy woodsmen and rangers, accustomed to severe toil, soon beat out what was left of the fire. Then they went over the entire line of the fire to make sure every spark was extinguished. The forester and Charley found Lew, and the three crossed the valley to the brook where the two boys had begun their battle with the flames. When the fire crew had returned and the forester was satisfied that there was no further danger, he turned and held out his hand.

"Report to me at my office at the earliest possible moment," he said. "If I dared risk being away from my headquarters so long," he added regretfully, "I'd stay here and make an investigation. But a fire may start somewhere else, and here I'd be with my fire crew. A thousand acres might burn over before I knew it."

"Isn't there anybody in charge at headquarters?" asked Charley.

"Sure. I have an assistant there. But if an alarm came in he wouldn't be of much use without a fire crew."

"Send your fire crew back," said Charley. "You can stay here and make your investigation, and we can keep you in touch with your office easily."

"Are you sure?"

"There isn't any doubt of it. Willie said he would listen in every few minutes, and Willie always does what he says he will. You instruct your fire crew to tell your assistant to keep in touch with Willie by telephone, and we'll tell Willie to keep in touch with us by wireless. It's as easy as rolling off a log."

The forester looked doubtful. "I'd like to stay," he said. "Are you positive you can do this?"

"Of course," said Lew. "We do that sort of thing right along."

"Well," said the forester, still hesitating, "I'll risk it. It is of the utmost importance that an investigation be made at once. It might be days before the chief forest fire-warden could come here. You are absolutely certain about this wireless business?"

Charley smiled. "Absolutely," he said. "But to make sure, we'll go to our camp and talk to Willie. You can send a message to your assistant yourself."

"That'll settle it," said the forester.

He called his fire crew together. "Hustle right back to headquarters," he said. "The motor-truck will hold you all, though you may be a bit crowded. Leave my car where it is. I'm going to look around a bit. I'll follow you as soon as possible. Tell the assistant forester to call up the boy in Central City who telephoned us about the fire and arrange to keep in communication with him. We will communicate with that boy by wireless. If fire occurs anywhere, let me know at once."

The fire fighters looked their astonishment, but made no comment. They were accustomed to obeying orders. Soon they were gone and the forester and the two boys headed up the run toward the little camp by the windrow.

"I guess we might as well get better acquainted," said the forester. "My name is Marlin--James Marlin."

"And mine," replied Charley, "is Charley Russell. This is Lew Heinsling. As we told you yesterday, we are from Central City and belong to the Camp Brady Wireless Patrol."

"That is why you are now a fire guard," said the forester. "You don't suppose I would appoint an unknown boy to such an important post, do you? To be sure, I don't know you personally, but I know about your organization and some of the things you have done. I know your leader, Captain Hardy, very well. You see your membership in that organization is recommendation enough for me."

"But I thought you suspected us of setting fire to the forest," said Charley.

"I never said so," replied Mr. Marlin. "I merely asked you if you had started the fire."

"It's pretty much the same thing," said Charley.

"Not at all, young man. Not at all. I did not really suspect you. But I saw there was a possibility that you might have done just what I suggested. I wanted to see what you would do when I suggested that you were the culprit. I could have told if you had lied to me."

"How?" demanded Charley.

"Never mind now," smiled the forester. "But while we are on this subject, I want to say this to you: when you are trying to solve a crime, you must forget your prejudices. You must look at the facts and not at the people concerned. You must take the attitude that anybody may be guilty until he is proved innocent. In short, you must be ready to suspect anybody. You must not assume, for instance, that because I am the forester I would not set the forest afire, or because my rangers are connected with the Forest Service they would never start a fire."

Charley looked almost startled. "Why, it would be the worst sort of crime for a forest protector to set a fire in the woods," he cried.

"Of course it would," replied the forester. "But in this world almost everybody acts according to his own interests or his own passions. If a man could earn more money by setting fires than by preventing them, there are many men who would take the chance. Or a man might set fire to the forest to be revenged on somebody--possibly on me; for a forester can hardly avoid making some enemies."

The forester paused. "Somebody has three times set this part of the forest afire," he continued after a moment. "We have no clue as to who did it. So it is our business to suspect anybody and everybody that circumstances may point to. But that doesn't mean we must condemn a person merely because circumstances point to him. We must study the facts and either condemn or acquit him according to the facts. I say this to you because you have probably had little or no experience in tracing crime and, like most young folks, are prone to trust people too far."

Charley's face was very serious. He had not thought of detective work as a possible part of his duties.

"Don't take what I say too seriously," laughed the forester, when he noticed Charley's expression. "You will really have very little of this sort of thing to do. Most fires come through the carelessness of campers. To warn them to be careful, to try to put out fires as soon as you discover them and notify me if you fail, will be about all you will ordinarily have to do. The chief forest fire-warden will attend to investigating fires. But in this case, I especially want to know how this fire started. Sometimes boys, if they are shrewd enough, make the best of all agents for watching folks. People don't take boys seriously, and will often do or say incriminating things before boys that they would not dream of doing in the presence of grown men. If you keep your eyes and ears open and your mouth shut, you may be very useful. And the less you appear to know, the more useful you will be."

Charley looked at his watch. "Willie will be at his instrument in three minutes, sure," he said. "He might even be there now."

He drew the pack bags from the wireless instruments and sat down, watch in

hand, beside them. The forester looked on with keenest interest. He no longer regarded the wireless outfit as a mere plaything. If the boys could do what they said they could, he saw what a help wireless communication might be in protecting the forest. He had always considered the telephone as about the last step that could be made in quick communication in the forest. But his telephone was miles away and he had to get to it before he could talk with his office. Here was a boy who could sit down anywhere and instantly talk to a wireless operator anywhere else within a reasonable distance--that is, he could, if all that Charley said was true. Of course the forester knew about radio-telegraphy, but he was like many other people who have not actually seen persons talk by wireless. It seemed as though it could hardly be.

But he was not to remain long in doubt. When the three-minute period had elapsed, Charley threw over his switch, and sent Willie's call signal flashing abroad. Hardly had he taken his finger from his key when the answer buzzed in his ear.

"Got him," said Charley.

"Who?" asked the forester in astonishment.

"Willie Brown, at Central City. I'm telling him to get your assistant on the telephone." And he made the sparks fairly tumble over one another, so rapidly did he manipulate the key.

"Willie's going to get him," he announced, a moment later.

They sat silent for several minutes. Then a signal once more sounded in Charley's ear.

"Willie's got your assistant on the 'phone," said Charley a little later.

"Tell him to tell my assistant that the fire is out, with little damage done; that the fire crew is on the way home, and that I have decided to remain here to look around a little. Tell him that if he needs me he shall call your friend at Central City. He'd better arrange with the telephone people for quick connections if he needs to talk to me. I guess that's about all."

Charley flashed out the message to Willie and soon the assistant forester's message came back. Everything was O.K. and he would do as directed. Then Charley talked to Willie on his own account, telling him they were going to move their aerial and asking Willie to listen in often. Willie said he would sit by the wireless table and keep the receivers on his ears so that Charley could get him at any time.

While Charley was talking with Willie, Lew had been collecting and packing the camp utensils. Now the wireless instruments were quickly uncoupled and stowed away in a bag, and the aerial taken down and loosely rolled around the spreaders so that it could be hoisted in a moment's time. Then the little party set off swiftly down the valley toward the point at which the fire started.

Walking rapidly, they arrived at the edge of the burned area in half an hour. Smoke was still rising from smouldering embers at various points in the burned area; but there was no danger to be feared, for everything inflammable about these embers had been consumed. Even should the wind fan them into a flame again they could do no harm, for there was nothing for

them to feed upon. Along the entire edge of the burned area the fire crew had made sure there was a wide belt of ground in which no spark remained. Thus, though these glowing embers might continue to smoulder for hours, they could do no harm. The quantity of smoke arising was still considerable, but it did not shut off the vision as the dense clouds of smoke had done during the fire. So the onlookers could get a fair idea of the extent of the blaze.

The blackened area on which they looked, they were relieved to find, was not of great width, though it stretched from the edge of the brook on one side almost to the mountain on the other. Altogether, the fire had swept over not more than a hundred acres. Had it not been for the presence of the two boys, it might easily have destroyed thousands of acres. The fire had started in a cut-over tract just below the edge of the virgin timber. Had the morning proved windy, instead of calm, the flames would have gone racing into the big timber, with the chances good for a disastrous crown-fire, when the flames would have gone leaping from tree top to tree top, utterly consuming the forest, as the previous fires had destroyed the timber on Old Ironsides. A lucky combination of circumstances alone had prevented a holocaust.

Climbing upon a high rock, the forester searched for the point at which the fire had originated. Prom his pocket he drew some powerful field-glasses, and again and again swept his vision over the farther edge of the burned area. Presently he closed his glasses and leaped to the ground.

"Come on," he said, and headed diagonally across the burned tract.

In a few minutes the three stood on the unburned forest floor on the farther side of the strip of black.

"We must get our aerial up at once, Lew," said Charley. "It's been three-fourths of an hour since we talked to Willie."

They glanced about, selected two suitable trees, and had the supporting wires attached to them in no time, with the aerial dangling aloft between the trees. It took only a moment more to couple up the instruments.

"CBWC--CBWC--CBWC--CBC," rapped out Charley, as soon as the outfit was in readiness.

Almost instantly Willie replied to the signal.

"Any message for us from Oakdale?" inquired Charley.

"Not a word. What are you doing?"

"We are investigating the cause of the fire. Have moved our aerial down past the burned area. Forester and Lew and I alone. Fire crew on way back to Oakdale."

"Have you found cause of fire?"

"No. Just got here. Haven't investigated yet. Will listen in every quarter hour, beginning with the hour."

"All right. I'll be here. Good-bye."

The minute Charley finished talking with Willie, the three investigators set about their work.

"We'll walk along the edge of the burned area," said the forester, "and try to find the point of origin."

He went ahead, the two boys following. They were facing toward the brook. The line was irregular, like a huge saw-blade, with little jutting, black teeth here and there, where the flames had crept out in advance of the main line. The wind that had come up when the boys were fighting the fire had driven the flames back upon the area they had already consumed and the blaze had died out of itself. It could not eat its way to windward out here in the open, as it could have done in the dense timber where the wind was broken. From their starting-point they walked to the brook, finding nothing to enlighten them. They then retraced their steps, walking along the windward edge of the fire. Yet they found nothing to show them how or where the fire originated.

"Evidently the flames have eaten their way some distance to windward of the point of origin," said the forester. "We shall have to look within the burned area."

As he started to cross the black strip, the forester continued: "Perhaps I had better go through the burned strip alone. I want things disturbed as little as possible, and three will stir up the ashes a good deal more than one. You keep looking along the edge, and I'll search among the ashes."

"Is there anything in particular we are to look for?" asked Charley. "Is there any special way to distinguish the starting-point of the fire?"

"If this blaze started at a camper's fire, there ought to be some trace of that fire discoverable. If it began with a lighted match, the stem of that match might not be entirely consumed. If blazing paper created the fire, there may be a scrap of paper left unburned. And even the ashes might show that paper had been burned. That's why I don't want the leaves disturbed any more than we can help. We shall quite likely find our clue, if we find it at all, in the ashes themselves."

The forester started slowly across the valley.

"I don't see where he has anything on us as observers," said Lew. "If our drill at Camp Brady didn't make competent observers of us, I don't know what it did do. Captain Hardy drilled us and drilled us in noticing even the most minute things. Let's go along the line again and look more carefully. We've got a better idea now of what we're looking for."

They started once more along the edge of the black belt. The forester was walking well within the burned area. The two boys centred their attention on the strip between the forester's tracks and the edge of the black area. This was a strip roughly fifty to seventy-five feet wide. Practically everything was blackened in this area. A piece of unburned paper would have shown with startling distinctness. But there were no pieces to show. The forester crossed the black belt from brook to mountain, and the boys kept pace with him for a little. Then Lew turned back in order to listen in, while Charley went on with the forester. For a long time the two searched among the leaves, but found nothing to indicate where or how the fire had started.

"The fact that we can't find where it started," said the forester at last,

"is what makes me suspicious. A fire can generally be traced. I guess we'll have to give up. I'll get back to headquarters, and you go home and make your arrangements as quickly as possible. Then report to me."

"We'll go right back with you," said Charley. "That is, we will if Lew is willing. It would hardly be right to ask him to give up his fishing trip. And, anyway, two of us could guard the forest better than one."

"That's true, but until you are regularly sworn in you will not have the legal authority you should have as a fire patrol."

"Then if Lew is willing, we'll go right out with you. We can take the train at Oakdale."

They returned to Lew and explained the situation. "Of course we'll go home," protested Lew. "This is your chance, Charley. You don't think I'd stand in your way, do you?"

"Thanks, Lew," said Charley, holding out his hand to his chum. "But I hate to cut your trip short."

"That's easily fixed," said the forester. "Go home and make your arrangements and bring Lew back with you for the rest of the vacation if he wants to come. You can do your patrol work and still catch some fish. And I'd feel a lot easier to know two of you were here. You've proved that you are good fire fighters."

Charley called up Willie and told him they were about to leave the forest and would be in Oakdale in about four hours. Then the wireless was quickly dismantled and packed, and the little party started across the burned area once more, on their way out to the distant road.

They did not forget to examine the ground as they went. They had gone perhaps a hundred feet when Charley noticed a heap of burned leaves. They were in the cut-over area, and the floor of the forest had apparently been carpeted thinly and evenly with leaves. So the little mound caught his eye. At first he thought nothing of it. But when his glance swept the surrounding ground and he saw how very thin the ashy coating was, and what a dense pile of ashes was in this little heap, he wondered why the leaves should have collected in this way. Without as yet really suspecting anything, he walked over to the heap and began to rake the ashes from one side of it with a little stick. Many of the burned leaves still retained perfectly their shape and outline. The serrated edges and the feathery veining were distinct in the ashy residues. They were interesting to see. Charley continued to level the burned leaves on one side of the pile. At the touch of his stick they lost their shape and crumbled into formless ashes, even as fairy crystals of snow turn to water beneath a warm current of air.

Suddenly Charley stopped dead still. Among the ashes turned over by his stick was a long, thin sheet of ash. Charley looked at it a moment in astonishment. Then he knew that it was pasteboard. He sank to his knees on the blackened earth and with his fingers carefully worked in the still warm ashes, raking off the upper layers of leaves gently, so as not to disturb the bottom of the pile. Carefully he worked, until he had laid bare a long strip of what had been pasteboard. At his touch this, like the leaves, crumbled. But one end of it did not disintegrate. A tiny piece was unconsumed. From the ashes Charley drew forth a charred bit of greenish pasteboard. Swiftly but carefully he raked aside the burned pasteboard.

Then he gave a little cry. On the ground, in the very bottom of the heap, was some candle grease. His startled exclamation brought Mr. Marlin and Lew running to his side.

"What have you found?" asked the forester sharply.

"A piece of unconsumed pasteboard and some candle grease," said Charley slowly. "They were under this mound of burned leaves."

"We need look no farther for the starting-place of this fire," said the forester, his face very sober. "It is just as I suspected. This fire was of incendiary origin. Whoever set it, placed a lighted candle inside a pasteboard box, partly filled the box with leaves, heaped some leaves on top of it, and hurried away. The candle probably burned for hours before it burned low enough to set fire to the leaves. By that time the culprit was far away and could prove an alibi."

Charley drew from his pocket the little microscope he used in his class in botany in the high school. Over and over he turned the scorched scrap of pasteboard, studying it intently.

"The fibers are arranged in a peculiar way," he said, "and there's an almost invisible machine marking of a peculiar pattern. The color of the pasteboard was a dark green."

The forester took the microscope and examined the charred fragment, handing both, when he had finished, to Lew.

"This is our clue to the incendiary," he said slowly. "We must find where pasteboard like that comes from and who had some of it. Meantime, do not breathe a word of this to any one. Do not let a soul know that we have discovered how the fire originated. Let them think we know nothing. And bear in mind what I told you before: suspect anybody that circumstances point to, no matter who he is. Now remember! Not a soul outside of the three of us must know about this. We've got a long trail ahead of us, but we have at last got a clue. Sooner or later, if we keep our eyes and ears open and our mouths shut, we'll find the man who set this forest afire."

Chapter IX

Charley Becomes a Fire Patrol

Rapidly the three made their way through the forest. The forester led his companions up the valley a distance to a fire trail. Along this they traveled as rapidly as they could have done on a village sidewalk. By several of these fire trails they made their way through valleys and over hills, finally reaching the road. The forester's car was there, and an hour's run brought them to the forester's office at Oakdale.

Charley was intensely interested in everything he saw in this office. On the wall were huge maps of the forest areas under Mr. Marlin's control. These maps showed the mountains, big springs, streams, roads, fire trails, etc., and little tacks with heads of different colors were stuck here and there in the maps to show where rangers, fire-wardens and game protectors

lived. The telephone was also shown.

Charley was interested to learn that he and Lew had been fully twelve miles distant from the telephone. It had taken the fire crew, hardy men experienced in mountain travel, three hours to cover those twelve miles, even when they had fire trails most of the way. He wondered how much longer it would have taken them if they had had to travel through the rough forest. Many hours longer, he was certain. And that meant that it would have taken one equally as long to get out to the telephone to notify the forester of the fire. He felt sure there must be many places where one might be more than twelve miles distant from the telephone; and he realized more keenly than ever what a big part the wireless could play in saving the forest. He resolved that he would keep his wireless outfit with him when he went back into the forest as a fire patrol.

But the maps on the wall were not all that interested Charley. There were fire-fighting tools of various sorts. There were double-bitted axes and axes with short handles to be used in one hand. These were of the finest steel, very sharp, and well balanced. There were implements that were really potato-hooks, though in the forest they were used for clearing away brush and leaves rather than for digging potatoes. Then there were short-handled, four-toothed rakes, for use in back-firing. Also there were lanterns, and finally a small compressed air sprayer, for wetting the ground when back-firing. All these tools were painted a bright red. The forester explained that the sprayer wasn't often used, but that sometimes it came in very handy. The implements were red so that they could be found easily. Otherwise many would be lost in almost every fight with a fire.

Particularly was Charley interested in the portable telephone. It was like the one the ranger had had in the burned valley. Mr. Marlin handed the instrument to Charley and let him examine it. The battery was contained in a small box, and the mouthpiece and the receiver were in one piece, which was held alternately to the ear and the mouth. Then there were considerable lengths of wire to be attached to the telephone-lines. If a ranger could not climb a pole and attach his wires to the telephone-lines, Mr. Marlin explained, he could tie stones to his wires and throw them over the lines. All that was needed was to have the two wires touch the two wires of the telephone system. Then a connection would be made and one could talk with the portable instrument. The battery, the mouthpiece and receiver, and the connecting wires all could be packed snugly into a little leather case and slung over the shoulder. It was an excellent outfit.

At one time Charley would have been wild to try it. Now he could not help seeing how really inferior it was to the wireless as a means of communication. In order to talk with it, it must be connected with the telephone-lines, and they must be in working order. Charley's quick mind instantly saw that falling limbs or trees, heavy snows or ice-storms in winter, or a pair of nippers in the hands of a miscreant, could put the forest telephone out of commission for hours at a time. He rejoiced to think that no one could tamper with the air and that he could always get a connection with his wireless. More and more he saw the possibilities of usefulness for the wireless in protecting the forest.

But the two boys had little time to examine the many interesting things in the forester's office because their train was due within a short time after they reached Oakdale. They made the acquaintance of the forester's assistant, Mr. Franklin Conover, and soon started for the railroad station, leaving their duffel at the forester's office.

Before they left, Charley called the forester aside. "How much pay am I to receive as a fire patrol?" he asked.

The forester frowned.

"You mustn't think," said Charley hastily, "that the pay is all that I care about. I want to be a fire patrol because I love the woods. But I don't know whether Dad will let me be a fire patrol unless I can make as much here as I could in the factory with him."

"How much could you earn there?"

"Dad says I ought to get two dollars and a half a day."

"Then you needn't worry. I have some leeway in the matter of pay. You have already shown your worth, and I am going to pay you the highest rate within my power. You will go on the payroll at eighty-five dollars a month, which is as much as many of our rangers get."

Charley was so astonished at this unexpected good fortune that he was hardly able to answer Mr. Marlin. He did not know how to express his thoughts. All he could do was to thank the forester warmly and assure him he would earn every cent he got. Then he and Lew hurried away to their train.

For some time after the two boys boarded the train Charley was silent. He sat watching the forest through which they were rushing so fast. Never had it appeared to him quite as it did now. Always he had known the forest was an animate growth, but now he realized more vividly than ever before how truly the forest was alive. Now he thought of the great growths of trees more as one would think of a flock of animals that must be tended and cared for. Many, many times he had seen the forest under happy conditions. But never before this trip had he seen it in agony. Never before had he heard the cries of fear and pain from the forest animals. Never had he seen the charred remains of those that had been burned. Never had he beheld the awful skeletons, not merely of burned trees, but of a burned forest. He was deeply impressed. A tree had suddenly become in his consciousness far more than a piece of timber. And a forest had taken on new meaning. With all his mind he loved the forest and the innumerable things of life and beauty within it. Beyond expression was his joy at the thought that he could have a part in protecting and caring for the forest.

And when he thought of all the forest meant to mankind--more than any other single gift of nature excepting food and water--he saw the forester, the forest-ranger, and the fire patrol in their true light. He saw them as real servants of the people, as real promoters and builders of civilization, which could not have come into existence without wood. He realized that the man in the forest as truly helps mankind forward and upward as the statesman in the legislative halls, the chemist at his test-tube, the physician at his operating-table, the engineer building his bridges and roads, or any other of the constructive workers who make civilization what it is; for the forester's work is the foundation for the work of all the other builders of civilization. When he realized this, his heart sang with pride to think that he was to have a part in saving and perpetuating the forests for the countless generations of people who would follow him in the world.

He tried to tell Lew something of what was in his heart, but words failed

him, and he sat silent until the train was far beyond the limits of the forest. Then his thoughts drifted into other channels. Before he knew it, the conductor shouted "Central City," and the two chums left the train.

When Charley told his father that he was to get eighty-five dollars a month, he had no difficulty in winning his father's consent to the plan he had in mind. Nor was it much more difficult to secure his release from further work at school. Charley was a great favorite with his teachers. Always cheerful and polite, a faithful worker, mentally quick, and liking his instructors, he had their entire good-will. They wanted to help him get on in the world as much as they had wanted to see him advance in his studies. When they understood Charley's position at home, and his need of earning money to help his father, and especially when they realized what the present opportunity meant to Charley in the way of personal happiness, they were more than willing to release him from further school duties.

So it came about that on the following day Charley and Lew took the train back to Oakdale. The entire Wireless Patrol accompanied them to the station, each boy carrying some part of the luggage. Thus divided, the equipment did not seem large; but when it was all assembled, it appeared entirely adequate. There was a good waterproof tent, a strong tick to be stuffed with leaves, blankets, a coil of rope, additional cooking utensils, and generous supplies of food. Charley took a light, high-powered rifle and his revolver with plenty of ammunition. Their comrades piled this luggage in a corner of the car, then hustled back to the station platform and gave the Camp Brady yell, in honor of their departing friends. In a moment more the train was speeding toward Oakdale, where they found the forester in his office.

Mr. Marlin expressed his pleasure at the successful outcome of Charley's effort to secure his release from high school.

"I don't believe much in talk," said the forester who himself was distinctly a man of deeds, "but I am going to say this to you, Charley: the fact that you have worked your studies off ahead of your class makes you twice as valuable to me as another boy would be who was merely keeping abreast of his class."

Charley looked his surprise. "Why?" he asked. "I don't know any more than the others know or soon will know."

"What you know has nothing to do with it, young man. It's what you do. It's your habits. Habit is the strongest force in the world. The mere fact that you are ahead of your class tells me that it is your habit to be forehanded, to be prepared. It tells me that you will keep your tools and your records in their places and in good condition, and that you will be prepared for almost any emergency that will arise."

"I don't understand," expostulated Charley, "how you can figure that out from the mere fact that I kept a little ahead of my class."

"Of course you don't," smiled the forester. "They teach you about the laws of gravity in school, but they don't bother to teach you about the laws of life. But life has its laws, and one of the strongest is the law of habit. A good habit is worth a million good resolutions. A man may possibly keep a good resolution, but he can hardly fail to keep a good habit. Your good habits are worth just about fifteen dollars a month to you now; for I wouldn't be paying you the top rate if you were a lad of bad habits. Just bear that in mind and be careful of the habits you form in future."

Charley was too much astonished for words. He had never thought of his habits as having any bearing on his possible earning capacity.

But the forester gave him no opportunity to consider the matter just then. "I want you to hurry back into the forest," he went on. "Get acquainted with as much of the forest as possible."

He reached in a drawer and pulled out a map, which he gave to Charley. "This is exactly like the big map on the wall," he said, "excepting that it is on a smaller scale. Here is where you had your camp."

As he laid his finger on the map, he continued, "That was a good location for a fisherman's camp, but a poor one for a fire guard. High up on this hill," and again he laid a finger on the map, "there is a fine spring. A dense rhododendron thicket surrounds it, and tall hemlocks grow above it. Make your camp in that thicket. It is so dense that I think nobody could possibly see a tent there. But make sure. If necessary, put hemlock boughs or rhododendron branches around it. Nobody but Mr. Morton and I must know that you are in camp in the forest or that you have any connection with the forestry department. I will tell him where your camp is and he will inspect it and give you more detailed instructions. But remember that yours is a secret patrol. I would rather that nobody should learn of your presence in the forest. But if you do meet any one, pose as a fisherman. Don't, under any circumstances, let anybody suspect your real purpose."

The forester paused a moment, in deep thought. "Smoke," he said at last, "would betray the location of your camp--at least in the daytime. Don't make any fires unless it be at night. Then be sure they are small, well concealed, and as smokeless as possible. Do your cooking with this."

He stepped to a closet and returned with an alcohol stove and a can of fuel, and continued: "From your spring to the summit of the mountain it is only a short distance. You can get a wide outlook there. Examine the forest carefully in every direction as often as possible. But leave no telltale marks to indicate that the place is a lookout point. And be sure you don't do anything to draw attention to your camp."

The forester then swore Charley in as a fire patrol and gave him his badge, with instructions to keep it out of sight.

"You'll need this, too," he said with a smile, handing Charley a portable telephone. "Your friends can't be at the other end of the wireless all the time, you know."

"Can we fish at all?" asked Charley. "I want Lew to have some fun on this trip. He's going to help me a lot with the work."

"Fish as much as you like, as long as it does not interfere with your duty. But remember that your business is to protect the forest. That comes first. You will have to decide how to do it, according to circumstances."

The boys carried their duffel to the forester's car. Mr. Marlin telephoned his assistant to look after things during his absence, and in another minute Mr. Marlin and Lew and Charley were whirling along the highway. They reached the point at which they were to enter the forest, jumped to the ground and unloaded their duffel. Mr. Marlin said good-bye, turned his car, and sped back to his office, leaving the two young fire guards alone in the heart of the wilderness.

Chapter X

An Encounter with a Bear

Rapidly the duffel was made into two packs. These were both heavy and bulky.

"Gee!" said Lew, as he surveyed the packs, "I hope we don't meet any state cops. They would arrest us for peddling without licenses."

There was small chance, however, of their meeting any one, unless it might be some lone fisherman. On every hand the forest stretched, seemingly interminable.

"I guess we'd better get our bearings," said Charley.

He drew the map from his pocket and spread it on a flat rock. The two boys pored over it for some minutes.

"We have to cross these two mountains," said Lew, "and camp just the other side of the summit of the third. That's about the same as climbing over three mountains. There are two valleys that we'll have to get across. I judge we'll be just about as far from the road as our old camp was. That's twelve miles or so."

"Gee!" laughed Charley. "That means I've got to hike twelve miles over these mountains every time I want to talk to anybody on the telephone. I'm glad Mr. Marlin doesn't care much for talk. The telephone is all right, but compared to the wireless it's like a candle beside an electric light. Mr. Marlin was right when he said the fellows couldn't be listening in for me all the time, but you just bet I'm going to figure out some way to use my wireless. Why, I've got to, if I'm going to make good. This whole neck of the woods could burn up while I'm hiking twelve miles to call help and twelve more to get back to the blaze. And I reckon I'd feel like putting up a stiff fight after hiking twenty-four miles over these mountains. Mr. Marlin is all right, but he isn't quite up to date. He still thinks the wireless is a sort of plaything."

"What you need, Charley, is a battery powerful enough to carry a message to some regular wireless station, where an operator is on duty all the time."

"I've been thinking of that, too, Lew. It wouldn't take so very much more power to carry to the government station at Frankfort. I'm sure the operators there would be glad to help us out. You remember how Henry Harper helped Mr. Axton, the day operator over there, when he had appendicitis. The operators have been mighty nice to us fellows of the Wireless Patrol ever since. The difficulty would be to get the battery. Things cost so much now that I don't see how I could ever save enough to pay for it. You know I'll have to give Dad about all I earn."

"I'm going to talk to the boys about it, Charley," said Lew. "Maybe somebody can think of a way out. Gee! We ought to be able to do something,

with Roy a regular steamship operator and Henry almost as good as a substitute government wireless man."

By this time they were well into the forest. They were climbing through a notch over the first range of mountains. When they reached the valley beyond, they had to turn to their left and go up the valley two or three miles, until they struck a fire trail. This trail led straight over the second mountain, which was really the knob at the head of the burned valley. It was on this knob that they had found the rude watch-tower after their meeting with the ranger, Mr. Morton. Beyond this knob they had still to traverse a wide valley and climb a third mountain before they reached their camp site. But there was a good fire trail almost the entire distance.

Traveling with such heavy packs on their backs, the two lads made but slow progress. Every little while they had to stop to rest. During one of these pauses they heard a low, whining sound.

"Listen! What is that?" asked Charley, who loved animals and was keenly sensitive to their sufferings. "It sounds like a dog."

They stood motionless. Faint but distinct came the unmistakable cry of a dog in distress.

Charley dropped his pack instantly. "There's a dog in trouble," he said, "and we've got to help him."

He began to whistle. Then he called, "Here, boy! Here, boy!"

From somewhere ahead of them came a joyous bark, followed by a painful whine.

Charley picked up his pack. "Come on," he said, and hastened toward the sound. But he did not go far. Soon he caught sight of a dog, painfully limping toward him. Charley ran up to the animal, which wagged its tail violently and barked with joy.

"He's only a half grown pup," said Charley, noticing the big paws. "Isn't he a fine young fellow?"

The animal leaped up against Charley and licked his hand. "Come here, boy," said Charley, taking the dog in his arms. "Let's see what's wrong."

Charley began to examine the animal's paws. The dog submitted patiently. "Nothing wrong with that one," commented Charley, dropping a fore paw.

But when he began to feel the other front foot the dog whined with pain. "No wonder," said Charley with sympathy. "Look here, Lew," and he pointed to an enormous thorn that had embedded itself in the paw.

"Hold him tight while I take it out," said Charley as he drew forth his knife, opened the small blade, slit the skin slightly, and carefully dug the thorn out. The foot was festered and swollen. Charley squeezed out the pus.

"Don't let him get that paw in the dirt," he said, and ran to his pack. He fished out the first-aid kit and got some absorbent cotton and a disinfectant. He wrapped a tiny bit of cotton around the end of a twig, wet it with water from the canteen and swabbed out the little wound. Then

he soaked another bit of cotton with the disinfectant and stuffed it into the foot.

"We'll let that stay there a while," he said.

"The dog is probably lost. We'll keep him until we find his owner."

Relieved of the thorn, the little animal frisked about, limping but slightly. He fawned upon Charley and seemed to be trying to express his gratitude.

The two boys shouldered their packs again and started on. Charley whistled to the pup, but the call was unnecessary. The pup stuck to their heels as close as a sticking-plaster.

"They say two's a company, but three's a crowd," laughed Charley, "but I guess it doesn't apply to dogs."

"You never can tell," replied Lew. "A pup of that age may get you into all sorts of difficulty."

"I'll take a chance on it," smiled Charley, as he bent and patted the dog.

They went on. For a long time they traveled in silence, the little dog trotting and frisking at their heels. From time to time they stopped to rest. Their packs were growing heavy and neither felt like talking. They settled to their tasks and plodded on. When they came to the fire trail, they turned to their right and went straight over the first mountain. The way was smooth enough, but the grade was very steep and it tested their endurance to the utmost. Every few minutes they were compelled to rest. Finally they topped the ridge and went down into the next valley.

The bottom here was very wide, for the mountains had drawn far apart. Apparently the valley soil was rich. It seemed to be deep and black, and the trees grew to massive size. Ordinarily the two boys would have taken keen enjoyment in the sight of such fine timber, but by this time they were too tired to care much about anything except reaching their destination.

At the foot of the last ridge they took a long rest. They were just starting on when Lew heard a peculiar little sound behind some bushes just off the fire trail. Curious to know what might have made the sound, he dropped his pack and went to investigate. Behind the bush he found a cunning, little black animal that did not seem to be at all afraid of him. He picked it up and rejoined his comrade.

"Charley," he said. "See what I have found. What is it?"

"It's a bear cub," said Charley. "You had better leave it alone. If its mother came along, she might make it hot for us."

"I'm going to keep it for a pet," said Lew. "I knew a fellow who had a pet bear cub once and----"

Lew never finished the sentence. A savage growl sounded close at hand and a great black animal came rushing through the bushes. Lew dropped the cub and took to his heels. The bear followed in hot pursuit. She was a great, clumsy, lumbering beast, and yet she got over the ground with astonishing speed. Lew ran as fast as he could, but the bear gained on him at every

stride.

"Climb a tree, Lew," cried Charley, slipping off his pack and starting to his chum's assistance. "Be quick about it."

Lew headed for the first tree he saw that was small enough to climb. It was a little pole, a foot in diameter. The lowest branch was seven or eight feet above the ground. Lew raced toward it, gathered himself for a leap and sprang upward. He caught the limb and swung himself up with all possible speed. He was not a second too soon. As Lew's body shot upward, the bear rose on her hind feet, and the vicious swipe of her paw barely missed Lew's body. Lew drew himself erect and climbed upward a few feet, where he paused to look down at the bear.

Meantime, Charley was following the animal. He hadn't the slightest idea of what he should do. The law protected the bear at that season of the year and he did not know whether he would be justified in shooting her under the circumstances or not. And anyway, his rifle was back with his pack. He had his little axe on his hip, however, and he drew it from its sheath so that he would have it ready in case he had to use it.

The problem was settled for him, however, in a very unexpected manner. The little dog, which had been playing with a stick at some distance from the two boys, noticed Charley running and came tearing after him. Then he saw the bear and went after her at full speed. The instant the bear heard the dog, she turned to face him; then as quickly faced about again and started to climb the very tree in which Lew had taken refuge.

"Get that dog away from here," yelled Lew in consternation, as he began to climb frantically toward the top of the tree.

Despite the seriousness of the situation, Charley burst into a roar of laughter. But a second appeal from his chum stifled his laughter. He grabbed the dog and started to carry it away. But he had not gone two rods before Lew called frantically for him to bring the dog back. Charley turned around and saw the bear climbing after Lew. As long as the dog was under the tree, the bear had paid no attention to Lew. But when Charley started away with the pup, the angry bear continued her pursuit. Charley returned the dog to the base of the tree.

"Sick 'em," he cried. "Catch 'em."

The little pup made a terrific clamor and the bear paid no further attention to Lew, who immediately began to look for a way out of his predicament. Within two or three feet of the base of the tree which he had climbed, a second tree had sprung up. But the two had grown away from each other, much like the sloping sides of the letter V. At first Lew thought he could cross over to the other tree, but a careful inspection showed him that this would be impossible. Down where the bear was he could have swung himself from one tree to the other; but the farther up the tree he was the farther he was from the other tree and the smaller the limbs were. And Lew was now as near the top of the tree as he dared to go. To try to leap from his present position to the other tree was not to be thought of. It would certainly mean a fall of thirty feet or more. And Lew did not dare come down nearer the bear, lest the animal should again try to claw him. There was no apparent way to get the bear out of the tree, and Lew knew that he could not stay up where he was indefinitely.

Charley tried to divert the bear's attention to himself by reaching up the

tree with his axe and striking the trunk. The bear growled but made no attempt to reach Charley. Her attention was centred wholly on the dog. With her hair erect, her lips drawn back, her ears laid flat, and her massive claws ready to tear and rend, the beast presented such a fearful front that Charley did not dare take the dog away. One swipe of those paws, or one crunch of the great jaws might cripple Lew for life, or even kill him outright.

"Keep perfectly quiet, Lew," said Charley, "and maybe the bear will forget about you. She's terribly enraged at this pup."

Charley felt in his pocket and found a piece of strong cord. He knotted it around the pup's neck and tied the animal to the tree.

"I hope that bear won't come down and kill him while I'm gone," he muttered to himself. To Lew he said, "I've got an idea. I'm going to get the rope and see if I can lasso the bear from the other tree."

"Sick 'em, pup," he cried, urging the little dog to make another frenzied outburst. And while the dog was making the valley ring with his clamor, Charley raced to his pack and got the coil of rope. Back he ran and hastily climbed the tree beside the one in which Lew and the bear were resting. The bear eyed him angrily, but kept her attention centred on the pup. Charley climbed to a point a little higher than the limb on which the bear rested. Quickly he fashioned a noose and got his rope ready for a throw. Then he realized that he could never make a successful cast among the limbs.

An idea came to him. Drawing his little axe, he quickly cut and trimmed a small limb, leaving a fork on the end of it. He put the noose on the forked end and cautiously extended the pole. All the while he was urging on the dog, which now began to jump up against the trunk of the tree. The bear more and more centred her attention on the yelping dog. Her hair bristled, and she growled continually. She bent her head down and got ready to deal the dog a savage blow if he came up the tree. Her posture could not have been better for Charley's purpose. Swiftly but quietly he extended the pole until the noose was just beyond the bear's nose, then lowered it swiftly and pulled back hard on the rope. Luck was with him. The bear, taken utterly by surprise, was fairly noosed before she saw the rope.

Charley's sharp jerk to tighten the lasso almost pulled the bear from her perch. She grasped the trunk of the tree with her paws to avoid falling, and that gave Charley an opportunity to tighten and secure his rope. To keep from falling, the bear had to maintain her hold on the tree. Thus she could not claw or bite the rope.

"I've got her," shouted Charley.

It was true enough. In a moment he was almost sorry that he had her. For Lew could not reach the ground without climbing past the bear, and although the animal was caught by the neck, he dared not trust himself within reach of those fearful claws. It occurred to Charley that perhaps he could strangle the bear, or even pull her from the tree. He did not want to kill the animal lest he get into difficulty with the law and so incur the displeasure of his chief. Nor did he want to tumble her to the ground because that would certainly mean the breaking of his rope and the probable loss of part of it.

"What are we going to do, Lew?" he called.

"There's a strong limb about four feet above her head," replied Lew, peering down through the branches. "If you could get your rope over that, we could drop her to the ground and strangle her until she's about all in. Then we could cut the rope and beat it."

"That sounds all right," said Charley, dubiously, "and I guess we'll have to try it. I see nothing else to do."

Fortunately his rope was long. He had taken a turn or two around a limb before making his cast, and he now held the bear taut, with ease. The loose end dangled down the trunk.

"I don't know about this," said Charley with a wry face. "It isn't as simple as it looks. I'll have to unwind the rope from this limb and hold it with one hand while I throw the loose end with the other. I don't know whether I can do it or not. And how am I to get the end again?"

"Can't you catch it with your pole?"

Charley looked at the pole. He had let go of it when he noosed the bear, but it had lodged in a branch within reach.

"Here goes," he said. "I'll try."

Cautiously he unwrapped one winding from the limb. Then bracing himself, and pulling hard so as to keep the line taut, he unloosed the second coil. The rope now hung free in his hand. The bear was not quiet for a moment. She had struggled constantly from the instant she was noosed. She continued to tug and pull at the rope. But she was at such a disadvantage that she could not put her full weight into her struggles. Nevertheless the strain on Charley's arm was terrific. To lessen the tension would give the bear more leeway and so make the strain still greater. And to hold the bear with one hand, while he cast his rope and got it in with the other, Charley at once saw was impossible.

"I can't do it, Lew," panted Charley. "She's nearly pulling my arm off."

He gathered up the rope and put it back over the limb, preparatory to taking a turn about the branch once more. While he was attempting to work the rope around the limb, the dog suddenly increased his clamor.

The bear gave a terrific, convulsive jerk on the rope and jerked it through Charley's hand. The sudden pull completely unbalanced him and he fell from the limb. But instantly he tightened his clutch on the slipping rope and in a second was dangling in air, frightened but safe. He slid to the ground, and drew the rope taut. Now he had the rope over a limb, as he wanted it, but the limb was on the wrong tree.

"I'll try it, anyway," he said.

He tied the end of the rope about the trunk of the tree in which Lew and the bear rested.

"I'm going to pull her off her perch, Lew," he cried. "If I succeed, she'll swing over toward the other tree. I may be able to pull her up on her hind feet. Anyway, I think I can hold her, and if you come down as quick as you can, the two of us can certainly pull her up. Are you ready?"

Lew came down the tree as far as he dared. "I'll be with you the second she drops," he said. "Pull!"

Charley suddenly threw his entire weight on the rope. The bear, taken by surprise, was jerked clear of the limb. She dropped downward and then swung toward the other tree like an enormous pendulum. Lew slid down the tree like a flash and landed in a heap beside Charley. He was up in an instant, and, grabbing the rope, added his weight to Charley's. The bear was fairly on the ground, but almost straight under the limb over which the rope hung. She was clawing frantically at the noose.

"Let's give a jerk," said Charley. "Together--now!"

They strained suddenly at the rope and the bear rose to her hind feet to ease the strain on her neck. Instantly they pulled in the slack.

"We've got her now," cried Lew. "Pull again!"

Once more they strained at the rope. It tightened about the neck of the bear, shutting off her wind. She rose to her very tiptoes and the boys pulled in a little more slack.

"We could choke her to death now," said Charley, "but we mustn't. How are we going to get out of this?"

"Let's tie the rope fast and take our packs some distance away. She won't strangle for a while. Then we can come back and free her. I think she will not attack us, for she is too much afraid of the dog. We'll keep him on a leash and beat it the minute we get the rope."

"But how are we going to get the rope?" demanded Charley.

"Gee! You've got me. Maybe we'll think of something while we're carrying the packs away."

The two boys got their packs and hurried along their route for some hundreds of yards. Then they laid their packs down and ran back. But Charley carried his rifle on the return trip.

The bear was still pawing at the rope when they got back. The hair on her neck was worn off by her violent struggles, and the skin was bleeding freely.

"That bear will wear a collar on her neck for life," said Charley. "If we ever see her again, we'll know her."

An idea came to him. "I've got it," he said. "I'll cut that rope with a bullet. You stand ready with the dog, and I'll be ready for a second shot, if necessary. We're not going to take a chance of being badly hurt, law or no law."

Lew untied the dog from the tree and held the leash with his left hand. Charley handed him the axe, and Lew stepped a little aside where he could use it, if necessary. But it was one thing to talk about cutting the rope with a bullet and another thing to do it, for the bear kept the rope in motion continually. Charley leveled his weapon and tried to get a bead on the rope. It seemed to him that the bear would never stand still. But the beast had nearly reached the limit of endurance. Her tongue was protruding

from her mouth, her eyes seemed ready to pop from her head. She was gasping pitifully. Her own struggles were slowly strangling her. Suddenly she stopped fighting and hung limp. The rope stretched like a rod. Instantly Charley's rifle cracked. The line was severed as though some one had cut it with a sword. It flew upward into the tree and the bear dropped to the ground. The noose about her neck came loose and she breathed freely.

"Quick!" cried Lew. "She'll be on her feet in a second."

Charley untied the rope from the tree, drew the severed end to earth, and gathering up rope and rifle, fled toward his pack, with Lew at his heels, dragging the frantic dog by main force, for the animal was wild to charge the fallen bear.

As they ran, they glanced back over their shoulders. At first the bear did not move. Then she stirred uneasily and a second later, rose to her feet and ran madly away. The boys stopped running.

"I guess both parties had a lesson," said Lew.

Chapter XI

The Secret Camp in the Wilderness

Their encounter with the bear made the two lads forget for a while their weariness. They made fast time along the fire trails. After a long tramp, they topped the final ridge and paused to rest and study the country. This they could do with ease, for the summit of the mountain was rather sparsely timbered. A very little search disclosed a tree that was at once tall and easy to climb, and that was surrounded only by low brush that would not obstruct the vision. From this lookout they gained a wide view in every direction.

"We can see for miles and miles," said Charley. "The forester was right in telling us to come often to this lookout. We can discover more from here in a minute than we could by a week of wandering about among the trees."

Slowly the boys swept their vision around the horizon. Everywhere the mountains appeared to bask in the warm spring sunlight, seemingly as secure as cats dozing by a fireplace. The fleecy clouds, passing across the face of the sun, threw shadows on the hillsides, making beautiful patterns of light and shade. The fresh, young growths gave forth a soft green tint, in pleasing contrast to the darker colors of the pines. Brooks sparkled in the bottoms. Far as the eye could reach this gorgeous panorama extended.

"Isn't it wonderful?" said Charley, after the two boys had surveyed the scene in silence. "The forest is one of nature's very finest gifts. And to think what we do to it by our carelessness. At any minute this green paradise may become a very hell of roaring flame, just because some smoker is too careless to blow out his match before dropping it, or some camper too lazy to make sure his fire is extinguished. Why, it seems to me that a murderer is an innocent angel compared to such a man. Think what he does!

He kills the fish and the birds and the animals and perhaps some human beings, and he destroys not only the wood that civilization must have, but he ruins the very ground so that it cannot produce another forest. It seems to me that a man who does that ought to be punished more severely than any mere murderer. Why, a murderer kills only a single being. The man who starts a forest fire kills countless living things. I tell you, Lew, it makes me mighty proud to have a part in protecting this grand forest."

The boys were silent, wrapped in thought, until Lew suddenly pointed to a dense growth of evergreens directly below them, and not very far down the ridge. "That must be our camp site," he said. And both boys examined the spot with interest.

"That must be it," said Charley. "It's dense enough, goodness knows! And there is a little stream of water stealing out of the lower side of the thicket. So there is a spring in there. Let's go down and take a look at it."

They shouldered their packs, whistled the pup to their heels, and went down to the thicket. In a space not less than a hundred yards in diameter rhododendrons grew in indescribable density, while above them towered some huge hemlocks. The two boys came close to the thicket and peered into it. Even now, in the bright glare of the full sun, deep twilight reigned beneath the rhododendrons. Evidently they were growths of great age. Their stems were like young saplings. Their tops rose high and spread wide. And their branches were laced and interlaced and twisted and grown together so as to make a mass almost impenetrable.

"Great Ned!" cried Lew. "A passer-by would have about as much chance of seeing us in there as we have of discovering China from this hillside. The question is, how are we going to get into the place?"

Charley dropped on his hands and knees and crawled slowly under the low rhododendron branches.

"Keep right in my tracks, Lew, if you come in," warned Charley. "If there are any snakes in here, they'd bite a fellow before he could see them. I'll look sharp for them and if you follow me, you won't run any risk."

He picked up a fallen branch, trimmed it, and crept on, stick in hand. Suddenly he crowded back hard on Lew, almost kicking him in the face. At the same time he began to thrash about in the leaves ahead of him.

"Great Caesar!" he exclaimed. "I almost crawled on a big rattler. He was so near the color of the ground that I didn't see him until he coiled and raised his head. Gee! That was a close shave."

"As long as you didn't get bitten," said Lew, "It's a good thing it happened. We'll be on our guard now."

"Yes, indeed. Did you put the potassium permanganate in the first-aid kit, and the hypodermic syringe?"

"Surest thing you know."

"We'll just carry them with us, Lew. We won't take any chances on death by snake-bite. These mountains are full of rattlers and copperheads."

"And we won't take any chances on being bitten in this thicket, either,"

answered Lew. "We'll put the pup in ahead of us."

They whistled in the dog and sent him scouring through the thicket. But either there had been no more snakes within it or else all had fled, for the dog raced eagerly about but found nothing to alarm him.

Confidently the boys now pushed into the interior of the thicket. At the very heart of it lay the spring. It came bubbling up through pure, white sand, and had formed a deep basin, over the lower edge of which the crystal water went rippling away through the thicket.

"We'll put our tent right here," said Charley, indicating a level spot beside the spring basin. "We'll have to clear away some of the bushes to make room for it. We can use what we cut as a screen, though nobody would ever see a tent away in here, especially one of brown khaki, like ours."

He drew his little axe and began clearing a space for the tent, cutting the rhododendron stems a little below the surface of the ground. Lew piled the branches at one side. Then the tent was dragged in and set up, the rope being used as a ridge and tied to two strong saplings. The sides of the tent were squared and pegged down.

"Drive the pegs tight, Lew," directed Charley. "We don't want to have anything crawling under the sides. Thank goodness, we have a sod cloth."

After they had completed this task and set about bringing in the duffel, Charley remarked, "We can't go in and out this way, on our hands and knees. We've got to make a path. We'll find the best way out and trim the bushes so that we can walk upright."

"We'd better not make the path straight," said Lew. "If we zigzag it, nobody will know it really is a path."

After they had picked out a level route they trimmed back the rhododendron branches so that they could walk through the thicket, though the branches at the very edge were left undisturbed. The cut branches were added to the screen about the tent. Then the duffel was carried in and stowed in the tent.

"What bothers me," said Charley, "is to know how to put up our aerial. We don't dare hang it up where it can be seen, and I don't know how well it will work among these hemlocks."

"All we can do is to put it up and try it," said the ever practical Lew, "and the sooner we do it the better."

Quickly they had their wires suspended between two hemlock trees. The aerial reached almost from trunk to trunk, and the wires were completely hidden by the branches that stood out all about them.

"If she'll work," commented Charley, "it's a peach of an arrangement. Nobody would discover that aerial in a hundred years. I can hardly wait until evening to test it out."

"Willie might be listening in again to-day," suggested Lew. "It will take him several days to get that new outfit made. We'll try him on the hour."

"Good idea, Lew." He looked at his watch. "It's ten minutes to the hour now. If Willie is listening in, we'll soon know whether or not our aerial

will work."

They began putting the tent in order, stowing the duffel in neat little piles. Just outside the tent Lew built a foundation for the alcohol stove, by leveling the earth and setting a flat stone for the stove to stand on. Meanwhile, Charley was stuffing the tick with dry leaves.

Exactly on the hour Lew sat down at the wireless key and sent a call flashing into the air. Promptly; his receiver buzzed in response.

"Got him," said Lew, and while Charley went on filling the tick and bringing in hemlock branches to use like springs under the tick, Lew conversed with Willie. The latter was still working at the new wireless set, and had listened in every hour during the day. All the other members of the Wireless Patrol were likewise hard at work, and it was practically certain that by the time the vacation was ended each would have earned his share of the money needed to buy the desired battery.

"I can't tell you where our camp is," rapped out Lew, "because that is a secret that we are not supposed to tell. The forester does not want anybody to know that Charley is employed by the forestry department. We are posing as fishermen. Tell the fellows not to talk about Charley and tell Charley's father the forester does not want it known for a time that Charley is a fire patrol. He thinks that we have a better chance to find things out if it is not known that we are connected with the forestry department."

Willie said that he would caution the boys and tell Mr. Russell. Also he said he would be in his workshop until supper time and would listen in most of the time. The club members would be at their instruments as usual to catch the time from Arlington and pick up some of the news. Lew replied that he would call Willie then, if he needed him.

For some time after Lew laid down the receivers, the two boys worked silently. They finished setting the hemlock branches in the earth, placed the stuffed ticking above them, and laid their blankets in position. They brought the wireless outfit into the tent and set the instruments in a corner. The grub was stacked in another corner. A little pool was dug in the stream just below the spring, to make a place for washing dishes. Their extra clothes were hung on the ridge-rope. The first-aid kit was fastened to the tent wall where it would be handy, and Charley put the permanganate and the hypodermic syringe in his pocket.

They had almost completed their task, when a low whistle was heard outside the thicket. The pup pricked up his ears and was about to bark. Lew grabbed him and held his jaws together. Then both boys sat silent, listening and looking questioningly at each other. Soon the whistle was repeated.

"We've got to find out who's whistling," said Charley. "Keep the pup quiet and I'll slip out and take a look."

He left the tent, but had hardly gone ten feet before a voice cried, "Hello, Russell! Are you in the thicket? This is Morton, the ranger."

"Sure we're here," replied Charley, an expression of relief coming on his face. "We didn't know who it was and kept quiet until we could take a look. I'm coming out now."

He hurried from the thicket and shook hands warmly with the newcomer. Instinctively he knew that he was going to like his ranger. Big, broad-shouldered, quite evidently powerful, with a kindly expression, a winning smile, and a deep voice that instantly created confidence, the ranger was a picture of honest manhood. No one could look into his deep blue eyes, set far apart, or examine the lines on his face, at once betokening strength of character with gentleness, and not feel that here was a man in very truth. One knew instinctively that he would never hesitate a second to risk his life to save another's, and that he would be as gentle as a woman in his dealings with all creatures. But the great, strong jaw and the straight mouth and long nose all foretold fearless courage, and were ample warning that the man would be terrible if stirred to wrath.

"Come in and see our camp," said Charley, after the two had conversed for a moment. And he led the way into the thicket.

The ranger followed, his practiced eye noting everything. "You've made a good job of it," he said with commendation, when he was at last seated in the tent. "Nobody will ever find you here, unless you do something to betray your position. You'll have to be a little careful about fires. I wouldn't make any during the daytime."

"We aren't going to make any at all," explained Charley. "Mr. Marlin gave us an alcohol stove to cook with."

"I don't believe you need go so far as that. Use your alcohol stove during the day. At night nobody can see smoke, and if you screen the blaze, nobody will ever discover you. It would be pretty dismal here at night without any light. Let's see if we can't fix up a little fireplace that will help you out."

He got a number of large, flat stones, which he set on edge, fashioning a high, square fireplace that opened toward the front.

"The stones will screen the flames on three sides, if you don't build too big a fire," he said, "and your tent will shut off the view on the fourth side."

"Thank you," said Charley. "It will be a whole lot more cheerful with a fire. We have a candle lantern that we intended to use, but a fellow just ought to have a fire when he's in camp."

As they began to discuss the work ahead of them, the ranger inquired, "What instructions did Mr. Marlin give you?"

"He said that we should keep our connection with the department secret," said Charley, "and if possible, avoid meeting any one. If we do bump into anybody, we are to pose as fishermen. He said you would give us detailed instructions."

"Very well. First, about your outfit. Have you any firearms?"

"A light, high-powered rifle and a pistol."

"You can't carry a rifle in the forest at this season without exciting suspicion. Leave your rifle here. Let me see your pistol? Have you another?"

Charley handed him his pistol and said that he had no other.

"Then take this," he said as he handed Charley his automatic. "Let your chum carry your pistol. I'll get another at the office. It isn't likely that you will ever need to use a weapon in the forest. I have been a ranger for years and have never yet drawn one, but I never travel without one. You'll meet some pretty tough characters in the forest and sometime your life may depend on having your pistol. My advice is never to patrol without it. But keep it out of sight. Keep your badge out of sight, too. And since you are supposed to be nothing more than fishermen, you'll have to play the parts. Carry your rods and catch a few fish each day during the season."

"Where are we to patrol, and what hours are we to observe?"

"You are especially employed to guard this virgin timber, though, of course, you must protect any part of the forest you happen to be in. Take some good hikes over the region right away and get acquainted with it. Use your map and, if possible, learn the region by heart. Then your map will mean something to you. Learn where the virgin timber lies. Keep a close watch on it, and on any fishermen or campers. I'll spend at least two days a week out here and you must report to me each time I am here. Meantime, you must report to the office every night the last thing before you turn in. The chief said you had a wireless and could do it. Maybe you can, but it beats me to know how."

"We'll show you in a little while," smiled Charley as he glanced at his watch. "Willie will surely be listening in within twenty minutes and we'll call him."

"I'll have to take your word for it," said the ranger. "I can't wait a minute. It will be long after dark before I get out of the mountains. I telephoned my wife I'd be late, but she always worries when I'm out after dark. You know snakes are bad up here, and they're all out at night. And by the way, you'd better carry some of this permanganate. Do you know anything about it, and what to do with it if you're bitten?" The ranger started to pull a bottle from his pocket.

"Thanks," said Charley. "It's mighty good of you to offer to share with us. But we have permanganate and a syringe both, and we know what to do with them."

"Good. But be careful where you step. What do you wear on your feet?"

He examined the boys' shoes and canvas leggings. "They're all right. I don't believe any snake will bite through them. But high leather boots would be safer. Bear it in mind when you buy new shoes. Now I must go."

"When and where am I to report to you?" asked Charley.

They agreed upon a place of meeting, half-way between the highway and Charley's camp, whereupon the ranger, holding out his hand, said, "Good-bye and good luck to you."

"Do you have to go?" asked Charley. "Couldn't you stay overnight with us?"

"I'd like to, but the wife would worry herself sick."

"Suppose she knew that you were going to stay here. Would that make it all

right?"

"I'm often away overnight during the fire season," smiled the ranger. "It's the snakes that she's afraid of. She'd rather have me stay here all night than come through these mountains after dark. You see her father was bitten by a snake when she was a girl and she is mortally afraid of them."

"Then you're going to stay here all night," said Charley, with decision. "I'll get word to her right away."

The ranger smiled incredulously. "I wish you could," he said. "It would relieve her mind."

Charley threw aside the pack cover that had been placed over the wireless instruments. The ranger looked at the outfit with wondering interest. Charley glanced at his watch and threw over the switch.

"Willie might be listening in," he explained, as the sparks began to leap between the points of his spark-gap. Twice he called, then a bright smile came over his face. "Got him," he said.

For some moments he alternately worked his key and listened to the return buzzing in his receiver. Then he turned to the ranger. "Willie has the forester on the telephone," he said. "What shall I tell him?"

"Ask him to tell Katharine that I shall stay here with you in your camp overnight, as I could not get home until long after dark."

With fascinated gaze the ranger watched the sparks fly under Charley's manipulation of the key. Then there was a long silence as the three sat waiting for the reply.

"Katharine says to tell Jimmie she's awful glad," said Charley, relaying the forester's message literally, "and to thank the new patrol for taking care of him."

Then and there Charley knew that he was going to like not only the ranger, but also the ranger's little wife. As for the ranger, he was almost spellbound.

"I know you talked to the chief," he said, "but what gets me is how you did it. Why, if I knew how and had an outfit like that, I could talk to Katharine any time and anywhere."

"We'll make you an outfit and teach you how to use it," cried the two boys together. "You shall have your first lesson to-night."

Twilight drew near. Lew brought out the grub bag, and Charley began cooking some food over the little alcohol stove.

"I think that you can safely take a chance on a wood-fire at this hour," said the ranger. "I'll build it myself."

He placed a few dried leaves within the fireplace and stacked some twigs, broken into short lengths, in a cone-shaped heap above the leaves. At once he had a bright little fire that made almost no smoke but gave lots of heat, though the flames did not reach as high as the stone sides of the fireplace. Quickly a little bed of coals formed, and Charley put his frying-pan directly over them. In no time the air was savory with the odor

of sizzling bacon and hot coffee.

Squatted about the little fire, the three guardians of the forest ate their evening meal. From time to time the ranger thrust a stick into the fire, and so kept the flames alive. But it was a dim little blaze at best. Yet it was mighty cheering and comforting as the darkness wrapped the forest, and the gloom beneath the rhododendron thicket became inky and impenetrable.

For a long time after supper was eaten and the dishes cleaned, the three sat before their little fire. Spellbound, the recruits listened to this veteran guardian of the forest as he told them of his work in the woods, of his encounters with beasts, of birds and reptiles, harmful and otherwise, and of the rocks, and flowers, and trees. For the ranger loved the forest even as Charley did.

When the evening was farther advanced, and the air was vibrant with the voices of the wireless, Lew and Charley took turns reading the news, while the ranger's expression of amazement and admiration grew deeper and deeper, and his liking and respect for his young subordinate increased rapidly. Finally the ranger was given his first lesson in radio-telegraphy. While Lew was writing down for him the wireless alphabet, Charley was showing him how to make the letters on the spark-gap. Before they turned in for the night, the ranger had learned to distinguish the difference between the sound of a dot and of a dash as the signals buzzed in the receiver.

Chapter XII

On the Trail of the Timber Thieves

Very early the next morning the ranger was afoot. Before ever the faintest streaks of light penetrated the thicket, he had started the coffee to boiling on the little stove, and breakfast was almost ready before he wakened his young comrades.

"Why didn't you call us sooner?" asked Charley indignantly, as he leaped out of his blanket. "It's our place to do the work here, not yours."

The ranger smiled. "It would have been cruel to waken you earlier. It's easy to see that you aren't accustomed to such stiff work as your hike here yesterday must have been. You slept like logs."

"We intend to do our full share of the work," said Charley.

"I'm sure of it," replied the ranger. "If I had thought you were trying to shirk, I'd have had you out of bed long ago."

Many a time afterward Charley thought of that statement and pondered over it. He was learning a good deal about life these days.

Grateful indeed was the warm coffee, for the April morn was chill. Quickly the food was eaten, and the ranger prepared to depart.

"I don't want to burden you with rules," he said in parting. "Your business is to protect the forest. Every day you will meet some new situation. You must do your best to protect the harmless creatures of the forest, as well as the timber. That means you may have to deal with gunners who are violating the law. Such men, with firearms in their hands, are dangerous. You may come across timber thieves. Get acquainted with your territory so that you can tell whether a felled tree is on state land or on private property. Your maps show you where the lines run, and you will find the trees along these lines blazed. If you find lumbering operations going on within the state forest, do your best to stop the cutting and report the matter at once. You may find traps set out of season. And it is practically certain you will have to deal with fires and perhaps the men who start them. Being a fire patrol involves a whole lot more than merely walking about through the woods. I can't give you rules that will cover all the situations you will find yourself in. Common sense is the best rule. The chief has given you a very important post here. It's an unusual responsibility for one so young. But we both expect you to make good. I'll be disappointed if you don't. You know if you fail, I'll have to take part of the blame." He shook hands with both boys and was gone.

"He's a prince," said Charley, after the ranger had left the thicket. "He knows just how to treat a fellow. Why, I've simply got to make good now. I'd get my ranger in bad if I didn't."

Quickly they put their camp to rights, then slipped their pistols into their pockets and got their fishing-rods.

"What is the first thing on the programme?" asked Lew.

"We'll go up to the top of the hill and have a good look over the country," replied Charley. "It's just about time for campers to be cooking their breakfasts. If there are any of them near us, we might see the smoke from their fires and locate them. You know the ranger wants us to keep tab on everything that's going on in our district."

They ascended the mountain and climbed the tree from which they had viewed the country on the preceding day. The sun was just coming over the eastern summits, sending long, level rays of light flashing among the dark pines, making beautiful patterns of sun and shade. In the bottoms the night mist had gathered in little pools, in places completely blotting out the landscape. The tree tops, upthrusting through these banks of fog, looked like wooded islets in tiny gray lakes. In every direction the two boys scanned the country, looking sharply for slender spirals of smoke. But they saw only mist curling upward.

"It looks to me," said Lew, "as though mighty few people ever get into this valley. It's such a hard journey to get here that I suppose the fishermen will stop at the streams in the valleys nearer the highway, and nobody else would want to come here at this time of year. Unless this timber is set afire purposely, I believe there is not much danger of its being burned."

"There's just the rub," replied Charley. "It would naturally be safe, being so hard to get to, and for that reason it wouldn't be watched as well as more accessible regions, particularly when it is difficult to get fire patrols. But because some one is evidently trying to burn this particular stand of timber, it is especially necessary to guard it. Mr. Marlin wants it watched continually, but so secretly that no one will realize that it is being guarded. That might make the incendiary

careless--providing he comes again--and so lead to his detection. We must do nothing to betray ourselves. We'll have to be careful not to mark this tree in any way, so that a passer-by would guess it was used as a watch-tower. And we shall have to be sure that we don't wear a path leading from it to our camp."

For many minutes the boys sat in the tree, well screened from observation by the spreading limbs, yet themselves able to see perfectly. In every direction they searched again and again for telltale columns of smoke, but saw nothing.

"It looks to me," remarked Charley, "as though there isn't a soul in this region except ourselves. If that is so, it is the best possible time to do a little exploring. Suppose we take a look at the valley above our camp. We can cover a lot of ground between now and noon and yet get back here for another observation during the dinner hour. We ought to be in this watch-tower or at some other point equally good every time men would naturally be having fires, and that means morning, noon, and night. Between times we can explore the forest. It means some pretty stiff hiking, but I guess we can stand it."

They drew their map and compared it with the country as it actually appeared.

"We aren't so far from the end of the state land in this direction," commented Lew. "That's the very place you suggested exploring. We might look up the line, as Mr. Morton suggested. You notice the stand of pines ends a long distance this side of the line. That's all hardwood forest up that way."

"The sooner we get at it, the better," agreed Charley.

Carefully they descended the tree, picked up their fishing-rods, and hastened down the mountainside as fast as it was safe to travel. The nearer they came to the centre of the valley, the larger the trees grew. Evidently the rich soil had worked down into the bottom, during the centuries, and the tree growth was enormous. Under these huge trees there was no underbrush, and the two boys could make fast time. They approached the stream, which flowed swiftly along under the tall pines, where they had no doubt trout innumerable lurked in the shadowy depths. The temptation to stop and fish was strong, but they put it aside and pushed on up the valley.

For a long time they passed like ghosts among the pines. The earth was springy with the accumulated needles of many years, into which their feet sank silently. Under the huge trees everything seemed to be hushed. There was no wind to set the pines awhispering, and the music of the brook stole through the forest like the low singing of a muted violin string.

For a long distance they passed through a pure stand of pines. Then the character of the forest began to change. Soon they were in a mixed growth, and not long afterward they found practically nothing but deciduous trees about them.

"We're not far from the line now," suggested Lew. "This must be the stand of hardwoods we saw from the lookout tree. I doubt if it is more than half a mile to the line."

"Keep your eyes open for blazed trees," said Charley. "We ought to see

some before many minutes."

They had gone on, perhaps a quarter of a mile, when Lew said, "It looks pretty thin ahead. Either there is a natural opening in the forest or else the timber has been cut out."

Charley thought of what Mr. Morton had told him about timber thieves operating along the boundary lines. He was glad that he had decided to explore this particular section of his district. A moment later he was still more glad, for the stillness of the morning air was suddenly broken by a splitting, rending sound, which was followed by the crash of a great tree as it came thundering to earth. There could be no mistaking the sound. A tree had been felled. Both boys stopped dead in their tracks and looked questioningly at each other.

"Timber thieves!" said Charley in a low voice. His cheeks paled a trifle. Then a look of determination came into his eyes.

"What shall we do?" asked Lew in a loud whisper.

"I don't know," replied Charley. "But we'll find out what they are doing. Then we can decide what to do ourselves."

He drew his automatic but as quickly thrust it into his coat pocket, as he remembered what the ranger had told him. But though the pistol was in his pocket, he still grasped it in his hand. The tense look on his face showed plainly enough that he was ready to shoot right through his coat. Lew, observing his companion's movements, followed his example.

Minute after minute the two young forest guards stood silent, listening for the sound of axes or other customary noises that ordinarily accompany lumbering operations. But the morning stillness was undisturbed. A puzzled expression crept over their faces.

"Maybe that tree wasn't cut at all," whispered Lew. "Maybe it just fell of itself."

"We'll find out," replied Charley, and cautiously they began to make their way toward the point whence the sound had come. Sheltering themselves behind trees, they advanced rod after rod. The stillness remained unbroken. The stand of trees grew thinner, with more and more underbrush. Presently they saw before them an unmistakable clearing in the forest. Rapidly they advanced, screened by the bushes, until they stood close to the edge of the clearing. Beyond question somebody had been cutting trees. Over a considerable area the timber had been felled, and whoever had felled it had cut ruthlessly. Hardly a sapling remained in all the cleared area. On every hand trees lay prone. Some had been trimmed and cut into pieces. Some remained exactly as they fell. Everywhere freshly cut stumps told plainly enough what had occurred.

"Somebody's cutting timber all right enough," whispered Charley, "and it's on state land. I wonder where they are. They certainly cut that tree we heard fall, but I haven't heard an axe or a human voice and I don't see any signs of lumbermen."

"Maybe they're at camp eating breakfast. It's still early, you know."

"If they are," said Charley, "then this is the very time to investigate. We'll look around before anybody gets back."

Glancing once more about the opening to make sure that nobody was in sight, they stepped from behind their concealing bushes and started across the open space. But immediately they came to a dead stop. Like rifle-shots, a succession of sharp sounds rang out, accompanied by splashing noises. The two boys were at first alarmed, then puzzled. They looked at each other in amazement.

"What was that?" asked Lew.

"I don't know," replied Charley. "At first I thought somebody was shooting at us. But I didn't hear any bullets hum. And the noise didn't sound exactly like a gun, either. It was like the noise a fellow makes when he hits the water real hard with a board."

In every direction they scanned the clearing. They saw no living things but the trees. "It's queer," commented Charley. "Let's look at that nearest tree that's down. Maybe we can learn something from it."

They walked over to the tree, then studied it in amazement. "I never saw anything like that before," cried Lew. "I don't believe that was ever cut with an axe. It looks as though it had been gnawed off."

"It has," cried Charley with sudden excitement. "I understand the whole thing now. We've found a colony of beavers. I never saw a live beaver, but I've read about them and seen pictures of their huts and their work, and that looks exactly like the pictures. And those noises like rifle-shots were their alarm signals. They slap the water with their tails when they are frightened and dive under water. I suppose they're all in their lodges now, and we'll never get a peep at them. Gee whiz! Just think of finding beavers, Lew, real beavers. I didn't know there were any in Pennsylvania."

"It seems to me that I read something about the game commission stocking the state with them a few years ago. I think they put a number of them in the state forests. Doubtless they have multiplied in numbers and started new colonies."

"That explains it," said Charley. "Gee! I'm glad we found these fellows. And I'm just as glad that they aren't timber thieves. You know, Lew, it made me feel kind of queer to think of facing real timber thieves. I didn't like the idea a bit. But I kept thinking about Mr. Morton and what he said about his being blamed if I fell down, and I made up my mind I'd do it, no matter what happened."

They now turned their attention to the felled tree once more, studying the innumerable teeth marks, like so many tiny chisel cuts, on stump and butt. Then they noticed the great chips lying about the stump, some of them half as big as dinner plates.

"It gets me to understand how they can bite out such huge chunks," said Lew, "when their teeth are evidently so small. Why, you'd think an animal would have to have a mouth as big as a hippopotamus to take bites like these."

Charley laughed. "Looks that way, doesn't it?" he said. "But as I remember it, what I read said that the beaver gnaws out parallel rings around the trunk and wrenches out the wood between. It's like sawing two cuts in a board and chiseling out the board between them."

"I see," said Lew. "But I should think they'd break their teeth all to pieces."

"So should I. But they have very strong teeth that grow out as fast as they wear away, and that are as sharp as a chisel. I wouldn't want a beaver to bite me. I'll bet he could bite right through a bone."

"I suppose," said Lew, "they cut these trees to use in making their dam; but what gets me is how they are going to get the trees over to the dam. It would take a team of horses to drag this trunk. It's fifteen inches in diameter."

"The article I read," said Charley, "stated that as the beaver dams became higher, the land adjacent was flooded and that the beavers made little canals through the flooded area and floated their logs where they wanted them. You notice that they have gnawed the limbs off of a number of these trees and cut several of the trunks into lengths. I was sure they were sawlogs when I first saw them."

"Well, there isn't enough water here to float a log," said Lew, "though it's mighty wet and it looks as though the water was several inches deep a little farther on. Let's see if we can find a canal."

They stripped off their shoes and stockings, and, rolling up their trousers, began to wade. Very soon they found the water nearly knee-deep.

"There's more water here than there seems to be," admitted Lew. "There's so much marsh-grass and so many water-plants it fooled me."

Cautiously they waded about. Suddenly Lew plunged forward, and only by grasping a bush did he save himself from getting completely wet. As it was, he found himself standing upright in three feet of water. After he recovered from his surprise, he felt about with his feet.

"This is their canal all right enough," he said. "It's very narrow, but it will float anything that grows in this forest."

He scrambled out and the two boys made their way back to dry ground. "How are you going to get dry?" asked Charley. "I don't want to make a fire unless it is absolutely necessary."

"Never mind about me. I'll dry off soon enough. Let's find their dam."

They made their way toward the run and soon discovered the dam. It was a great pile of branches, stones, moss, grass, mud, bark, etc., that had been built across the stream and extended for rods on either side. It looked very solid, yet the water did not pour over it, but filtered through it.

"Think of all the work it took to make that," cried Lew. "Why, every stick in it had to be gnawed down and floated here, and all the bark and grass and roots had to be pulled and brought here and the stones collected. And say! How in the world do you suppose they ever handled those stones? And how do you suppose they ever anchored the stuff when they began building? I should think the current would have swept everything away at first. That's a pretty swift stream."

"I read that they start their dams with saplings, which they anchor across the current with stones. They are much like squirrels, you know, and can

use their fore paws about as well as we can use our hands. I suppose the stones lose weight by displacing water, but if I hadn't seen these rocks, I'd never have believed that such big stones could be handled by animals no larger than beavers."

"See here," said Lew. "These willow branches must have taken root, for they seem to be growing right up out of the top of the dam. And there's a birch that's surely growing. You know the branches of some trees will root if you put them in water, especially willows. Why, if they continue to grow and take more root, there'll be a hedge of living trees right across this brook. The dam will become so dense that it will back up a great quantity of water. I reckon this bottom will just naturally turn into a swamp after a time."

"Now that's interesting," suggested Charley. "You know the Bible tells us the world was made in six days; but it seems to me it isn't finished yet. Every rain washes down soil from the hills and helps to fill up the valleys and the river-bottoms, and the floods scour out the watercourses and carry earth and stones down to the ocean. And here we see a piece of land that used to be fine, dry bottom, now becoming a swamp. It looks to me as though the earth is changing every day."

They examined the dam more critically. "It's two hundred feet wide if it's an inch," said Lew, "though the brook isn't more than fifteen or twenty. You see, it extends on each side of the brook to land that is a little higher than the level of the stream bank. That's what makes this big head of water. At the least there are several acres of it."

"There's one thing that we haven't seen yet," added Charley, "and that's their houses. They ought to be some distance above the dam."

"I wonder if those are beaver lodges," said Lew, pointing to some bulky heaps of brush at a little distance up-stream.

"That's exactly what they are. They don't look much like houses, do they? But I guess they're pretty snug inside. The entrances are deep under water, you know, so that the ice can't clog them in winter, and so that the beavers can get to their food all right."

"What do they eat, Charley? Do you know?"

"Sure. They eat roots, and tender plants, but mostly bark from certain trees. I believe these are willow, poplar, birch, and some others. They cut down the wood in summer and pile it under water in front of their huts and hold it down with stones."

"Well, what do you think of that!" cried Lew.

"They eat a pile of it, too. I don't remember how many trees that article said a colony of beavers would eat in a winter, but I'm sure it was up in the hundreds. I remember how astonished I was when I read about it."

"No wonder they clear the forest so fast. I wonder if we ought to tell Mr. Marlin. Maybe he doesn't know about these beavers. They might begin to cut down his virgin pines. I'm sure he wouldn't want that to happen."

Charley laughed. "I'd bet my last dollar that Mr. Marlin knows all about these beavers. You can bank on it that he knows all there is to know about the territory he has charge of. And as for the beavers eating the pines,

it seems to me that I read that they never touch evergreens."

A ray of sun slipped through the leaves above them and fell directly upon Charley's face. He glanced up and was surprised to note how high the sun had climbed. Then he looked at his watch.

"Gee whiz!" he cried. "We must have been fooling around this beaver dam for more than an hour. We must be about our business. We'll go on and locate the boundary line."

"I wish we could get a glimpse of a beaver," sighed Lew.

"Not much use to wish it," said Charley. "They're furtive, and I suppose they will stay in their lodges for hours. It seems to me I read that they work at their dams mostly at night. We'll go on now, but maybe we could come up here some moonlight evening and see them at work."

They made their way around the beaver dam and continued on up the valley. Within a few hundred yards they came upon a blazed tree. Speedily they discovered a second. Then, following the line indicated by these two trees, they rapidly passed tree after tree blazed and painted white, tracing the line entirely across the valley. They picked out some landmarks by which they could readily locate the line again.

"If anybody except those beavers starts any timber cutting," said Charley, "we'll know in a second whether he's cutting the state's wood or not. Now I guess we'd better hustle back to camp."

Lew got their noonday meal while Charley ascended once more to the watch tree at the top of the mountain and made a careful survey of the country. Not a sign of smoke could he see in any direction. No fire was discovered during the afternoon hike. The evening inspection from their tower was equally reassuring. After a brief chat by wireless with their friends at Central City, and through them sending their nightly message to the forester, telling him that all was well, the two tired young fire patrols rolled up in their blankets and were quickly asleep, serene in the knowledge that the forest they guarded was safe.

Chapter XIII

Spying Out the Land

All too rapidly the days passed. Occasionally a shower moistened the surface of the ground, but for the most part the dry weather continued, with every hour increasing the fire hazard. During the first few days Charley was never free from a feeling of dread. Every time he awoke he expected to smell fire. Every trip to the watch tree was made in the fear that somewhere within his vision there would be telltale clouds of smoke arising. A nervous apprehension seized upon him, and a mortal fear of fire; and a growing disbelief in his own power kept him in a state of unconquerable anxiety.

All these were sensations new to Charley, though they were normal enough. The natural result of responsibility, they were coupled with Charley's

keen realization of the insignificance of his own or any one else's powers as opposed to the vast forces of nature. Had Charley never seen a forest fire, had he never done battle with the raging flames, he could not have had this sharp realization of the insignificance of his own strength. But the recent struggle with the forest fire and that far more desperate battle with the same enemy years before, when the Wireless Patrol was in camp at Fort Brady, had given Charley a true estimate of the well-nigh irresistible fury of a fire in the forest, should conditions be favorable to the flames.

Only luck, Charley realized, and the best of luck, had brought him and Lew out victorious in their recent contest. The next time fire started--and he knew well enough that there would be a next time--there might be a strong wind, or to reach the blaze might take him hours, or he might not be able to summon help with his wireless, or other unfavorable conditions might arise to render his efforts useless. Then the forest would go roaring up in flame. And even though he might not have been unfaithful to his trust, the result would be the same. The timber would be destroyed. This great forest would be consumed. And he, especially selected to guard and protect it, would have failed. The thought was overwhelming.

More and more Charley turned to his wireless as a drowning man clutches at a straw. He saw that when Lew had gone and he had nothing but his own powers to depend upon, the wireless was going to be like a life-line to him. He realized that to have the powerful battery he wanted was imperative, if he was to have even a chance to make good in his efforts to protect the forest. And as he and Lew patrolled the timber, he made it evident to his chum what a vital part that battery would play in his success. But neither of them saw any way for Charley to come into immediate possession of it.

As the days passed and the forest still slumbered in safety, the sharp edge of Charley's anxiety wore off. That, too, was normal, for he could not naturally remain at such a pitch of emotion. So his interest in the life about him gradually returned. And indeed there were innumerable objects to interest a nature lover like Charley.

The country itself was enough to make a nature lover happy. When Charley climbed his watch tree and looked about, he could see nothing but forest. East, west, north, south, league upon league, far as the eye could see and much farther, stretched the forest, like a huge green sea. The mountains rose like great waves; and from his lofty perch Charley could see several parallel ridges rearing their crests aloft on either side of him.
Distinctly he could see the two bottoms at the foot of the mountain on which stood his watch tree. Splendid stands of timber filled these valleys with swelling streams of water that flashed in the sunlight here and there through little openings in the trees. But what lay in the farther valleys he could only guess, though he knew that each must have its stream and some timber. What else there might be Charley did not know.

It was part of his work as a patrol to find out. And eagerly he looked forward to the daily hikes that would take him here or there or elsewhere in the great forest. Already he loved it; and he wanted to share all its secrets. Had Charley but known it, that very attitude of mind made him more valuable both to his ranger and to the forester. It meant that his work would not be done in a perfunctory manner, but with that genuine interest born of love that alone leads to perfect service.

The two chums made themselves familiar with their own valley from the

border line of the state lands above the beaver dam, to a point many miles below their own camp. They found that they were in the heart of the stand of virgin timber, and that the location of their camp was by far the best that could have been chosen for the purpose of guarding the stand.

Charley thought it wonderful that the forester could offhand select such a strategic point. He felt more certain than ever that Mr. Marlin must have an intimate knowledge of the territory over which he had jurisdiction. Could Charley have known how intimate that knowledge was, he would have been amazed. And what he did not even guess was the fact that the forester had planned just such a secret watch on the big timber as Charley was now keeping, and that he had selected the camp site only after days of investigation.

Nor did Charley so much as dream that for some time Mr. Marlin had been looking about for some one he could trust to do the work. The native mountaineers did not command Mr. Marlin's entire confidence, nor did many of them possess the intelligence or education he desired in the man he selected.

Yet his sudden choice of Charley was characteristic of the forester. He always acted quickly when he thought the time for action had come. Charley's grit and pluck in voluntarily fighting the fire, coupled with his membership in the Wireless Patrol, were the factors that led Mr. Marlin to engage him at once. Had Charley known these facts, he might have felt a bit conceited or at least elated over the situation. But his belief was, as Mr. Marlin wished it to be, that the forester had taken him only as a last resort. And Charley was working hard to make good. He could hardly have taken a better way than the road he had chosen--to make himself familiar with all the territory he was to guard, and so to prepare himself for the emergencies that lay ahead of him.

Every day, and every hour of each day, the two boys found much that excited their wonder, for now they were studying nature at first-hand. Taking their dog, they one day climbed the mountain beyond the one on which their watch-tower stood, and came down into a lovely valley. But what instantly arrested their attention was the face of the mountain on the far side of this valley.

Instead of being a timbered slope, this mountain was a sheer precipice of rock that rose abruptly a thousand feet in air. Its rugged sides were seamed and scarred. Here and there a projecting ledge offered a scant foothold, but mostly the face of the cliff was one vast, frowning rock that rose almost perpendicularly. On tiny ledges and in crevices of the rock little ferns grew in masses, hanging down the face of the cliff like green fringes. Wild flowers had taken possession of the crannies. In precarious footholds, where it seemed impossible for them to exist, a few trees had sprung up, their roots crawling fantastically over the rocks in search of bits of earth to grow in, while the tops of the trees stood up slantingly against the face of the cliff. Mostly they were evergreens, and their scraggly branches made irregular dark masses on the face of the precipice.

As the two boys made their way toward the foot of this cliff, a great bird came soaring over the top of it, and sailed in lofty circles over the valley.

"Look at that hawk!" cried Lew. "Isn't he a whopper? Look at the spread of his wings. And see how he soars, without ever moving a muscle. I wonder if

he can see us."

Evidently the bird saw something, for suddenly it tilted downward, shot toward the earth like a flash, and was lost to sight behind the trees.

"Whew!" cried Charley. "Did you see that drop? It almost took my breath away to watch him."

A moment later the bird rose into sight again, bearing in its talons a dark-colored animal of some sort. Though the animal was not large, it must have weighed many pounds. Yet the bird flew upward swiftly, lifting himself rapidly with strong strokes of its wings.

"Gee whiz!" exclaimed Charley, after watching the bird a moment. "That's no hawk! That's an eagle. It's a bald eagle, too. See his white tail and head and the bare shanks?"

"Are you sure?" demanded Lew. "I've always wanted to see a bald eagle. It's our national emblem, you know."

"I'm pretty sure that's one," replied Charley. "I've read about them and seen pictures of them, and that bird's exactly like the pictures. We can see his legs well because he's holding them straight down. They're bare. The golden eagle has feathers all the way to his toes."

"Gee! I'm glad we saw him," exclaimed Lew. "Look where he's going."

The bird flew straight toward the cliff, climbing upward with tremendous speed. He flew directly to a ledge far up the precipice, where he vanished from sight.

"That's where the nest is. I'll bet anything on it," said Charley. "We'll keep an eye on this place and see if there are any little eagles later in the season."

For some time they watched the ledge to which the eagle had flown, but the bird did not again come into sight. Evidently the ledge was much wider than it appeared to be from the bottom of the valley, and perhaps the face of the cliff was worn away, cave like, at that point, affording a secure retreat. At any rate, the eagle was seen no more.

"Well," said Lew, after a time, "if we can't see the eagle again, perhaps we can find out what sort of an animal it was he got. I think I can pretty nearly point out the spot where he landed."

They started toward the point at which the eagle had come to earth. When they thought they were near the place they began to search the ground carefully for some signs of the tragedy that had occurred. They looked in vain. Nowhere could they find any telltale marks.

"I suspect it must have been a coon," suggested Charley. "It looked like it to me. We know there are lots of them in this forest."

Just then the excited chattering of squirrels attracted them. They began to examine the trees about them. Presently they came to one around which were scattered innumerable shells of nuts that had been gnawed into and eaten.

"There must be squirrels in that tree," said Lew.

Now muffled squeaks of fear or pain were audible. The two boys looked at each other questioningly.

"There are squirrels up there all right," agreed Charley, "and something's wrong. That's exactly the way a squirrel sounds when it's in trouble. Yes; there are some squirrels in the tree top. They're terribly excited over something."

The boys began to examine the tree. It was an old oak. Well up its trunk a limb had broken or rotted away, and the resulting decay of the stub had made a hole in the tree itself. What instantly riveted the attention of the two boys was something black and tapering that projected from the hole and that slowly waved in the air.

"A blacksnake!" cried Charley. "He's probably eaten the little squirrels."

In a second Charley was shinning up the tree. Not far below the squirrel hole the stub of another old limb projected. Charley pulled himself up and got a footing on it. He drew his little axe from his hip, and, yanking the snake half-way out of the hole, broke its back with a sharp blow of the axe, and then threw the reptile to the ground. Lew was on it like a flash with his feet, tramping it to death. In the snake's mouth was a small squirrel still kicking and making muffled noises.

Charley slid to the ground, drew his knife and slit the snake's head, releasing the young squirrel. It was hurt and terribly frightened, but was apparently not really injured. Charley kept it in his hand, feeling for broken bones.

"I don't believe this squirrel is really harmed a bit," he said finally, "but it was a pretty close call. I'm going to put it back in the nest again."

He put the little creature in his pocket, then again shinned up the tree, and placed the squirrel in its nest. Meantime, the old squirrels in the tree top chattered incessantly.

"Nobody's going to hurt you," said Charley, looking upward through the branches. "We're only trying to help you."

When he came to earth once more he examined the snake. "He's a big fellow," he said, stretching the reptile out straight. "He's a good deal more than six feet long. I guess we'll take his skin and make a belt of it."

As he drew out his knife again and proceeded to skin the snake, he continued, "I don't believe in killing snakes as a general rule, but blacksnakes do more harm than good, I believe. It's true they kill rats and mice, but they also eat birds' eggs and young birds and squirrels, and no end of other useful creatures. And they are so active that one snake will kill a great number in the course of a year."

"I don't understand how they can eat anything so big as that young squirrel," said Lew, "but I know they do."

"Really they don't," laughed Charley. "They drag themselves outside of their prey. You know their jaws are loose so they can spread them, and their teeth point backward. What they do is to work the upper jaw and then

the lower, hooking their teeth into their food, pulling back with each half of the jaw in turn. You see they literally pull themselves over their prey. Well, I'm glad we got that fellow. I suppose it's my business to kill all the blacksnakes I can. Whatever harms the squirrels, hurts the forest."

"What do you mean?" asked Lew.

"Why, you know that squirrels help to plant the nut trees in a forest. Some tree seeds, like pine and maple seeds, are so small or light that they are carried easily by birds and winds, and so scattered about. But acorns and nuts are so heavy that they fall straight down to the earth. If the squirrels didn't carry them away and bury them in such quantities, how could we ever have had these great stands of nut and oak trees?"

"I never thought of that," said Lew.

"It looks as though what Mr. Marlin said was right--walking about through the forest is only a small part of a forest guard's work. He's got to know an awful lot about things before he can be sure just what he ought to do."

"I never had any idea how big a job it is, Lew. And think what a forester must have to know. I tell you it takes a man to fill a job like that."

Noon came. The boys grew hungry. "I could eat all the sandwiches we have myself," smiled Charley. "I wonder if we couldn't catch some trout to help out. It would be all right to make a fire over here, I'm sure. And we'll keep it so small it won't make any smoke. And even if it did, it couldn't possibly betray the location of our camp."

They made their way to the stream in the middle of the valley, baited their hooks, and dropped them into the water. In no time they had half a dozen fine trout.

"You clean 'em, Lew," suggested Charley, "and I'll make a little fireplace."

He selected a little shoulder of earth close to the run and began to dig into it with a stick. In a moment he had uncovered a deposit of solid clay. The clay was hard to dig, but he could shape his fireplace in it exactly as he wanted it. When the task was completed, he started a very small fire with leaves and small branches. By careful feeding, he kept the flames burning clear, with almost no smoke. Presently he had a bed of glowing coals that almost filled the little fireplace.

Lew, meantime, had cleaned the fish and cut some black birch branches which he thrust through the fish lengthwise. Squatting beside the little fire, the two boys now held the fish over the coals, turning them slowly, and roasting them thoroughly. With the addition of the trout, their meal was ample.

They ate slowly, and after their meal sat for a time beside their fire in the warm sun, watching the forest life about them, and listening to the song of the brook and the myriad other sounds of the woods. Finally they prepared to leave. The fire had shrunken to a white bed of ashes.

"We'll make sure that it is out," commented Charley. And he stepped to the run and got a hatful of water, which he poured on the ashes. To his astonishment the ashes were washed away, leaving the fireplace bare. The

fireplace had changed color and looked as though made of brick. He touched it and found it as hard as stone.

"Fire-clay," he said. "That's probably worth something. I'll take a sample along."

He dug away more top-soil and scooped out a big ball of clay. Then he filled in the holes he had made, covering up all traces of the clay deposit, and blazed a tree near by to identify the spot.

The journey back to the camp was made by a route different from the one taken in the morning, the boys following the stream down the valley for a distance before crossing back to their own valley. The first fishermen they had encountered were seen on the return trip. The men were wading in the stream below the boys and so did not observe the young fire guards behind them. Charley and Lew instantly slipped behind trees, and after watching the men until they were lost to sight, struck off toward their camp. They got there shortly before sunset. While Lew prepared supper, Charley once more made his way up to the watch tree, where he remained until dusk.

Early in the evening they got into touch with their friends at Central City, and through them sent a reassuring good-night to the forester. Then, too tired to listen to the night's news, they wrapped themselves in their blankets and were soon sound asleep.

Chapter XIV

The Trail in the Forest

The following day the two young patrols were to report to their ranger at the appointed place in the forest. Although the ranger had much farther to travel than they did, the boys knew from experience that he was afoot early during the fire season, and they felt certain he would be at the meeting-place before the appointed hour. Charley wanted to be as prompt as his ranger, and so the two boys were astir by the time the first streaks of light tinged the eastern skies.

It was still dark enough to risk a little blaze in their fireplace and the warmth was grateful, for the early morning air was chill enough. Breakfast was soon cooked and their camp put to rights. Then, taking their fishing-rods again, they set forth to patrol the forest. The pup was tied in the tent, lest he should get into trouble with a porcupine or some other creature of the forest, and so make them tardy for their appointment.

Their plan was to travel down their own valley for a distance, then pass through a gap to a fire trail in the next bottom, which would lead to other trails that would take them close to their destination. They had studied out their route carefully on the map, and they made their way with both speed and certainty.

For a long time nothing of moment happened to them. The sun came up bright and clear, flirting with the fleecy clouds in the sky, that now plunged

the land in deep shadow and again drew aside so that the forest was bathed in golden sunlight. The earth sent forth fragrant exhalations. A gentle breeze lent a tonic quality to the atmosphere. The leaves sparkled with dew, and the stream in the bottom flashed in the sunlight, filling the woods with its sonorous babble. So inviting was the scene that despite their haste, the boys could not resist the temptation to drop their hooks in promising pools as they moved along. Without half trying, they accumulated a dozen fine trout. The smaller ones they carefully unhooked and threw back into the stream.

They passed through the gap in the mountain and started to cross the bottom to the fire trail. At the brook in the middle of the valley they paused to make one last cast in an especially inviting pool. At that moment two men came out of a near-by thicket. Both were smoking. They were equipped like fishermen, though they had no fish. They were rough looking, with hard faces. One of them had an ugly scar above his right eye and showed a mouthful of gold teeth when he took his cigar from his mouth, as he asked, "What luck?"

"We've got a few," replied Charley, extending his creel for their inspection.

The man looked at the fish and swore savagely. "These kids have fished the brook out," he growled. "There's no use trying this stream. We'll have to go on to the next valley."

Charley was in a quandary. These men, with their cigars, were a menace to the forest. It made him nervous merely to look at the glowing tobacco and the careless way the men flicked the ashes about. He was almost panic-stricken at the idea of their passing into his own valley while he was absent. He did not know whether to tell them the truth about his fish or remain silent. But he remembered that his watch in that valley was supposed to be a secret one, and he said nothing. Afterward he was glad that he had remained silent.

"Come on," said the man with the gold teeth. "These kids have queered us here. We'll be moving."

As he started away he gave Charley such a savage look that it almost frightened Charley. It did worry and alarm him, for he could not help asking himself what he should do if he had to deal sternly with such a man. Even with Lew at his side, he felt fearful. Alone in the forest with such desperate-looking men, he knew that he would be helpless.

Then he remembered the automatic stowed in his hip pocket and felt relieved. Now he understood much better why the ranger had given it to him. The remembrance that he had this weapon stiffened his courage wonderfully. He determined that if gun-play ever became necessary, he would not be caught napping. At once he shifted the automatic to his coat pocket, where he could shoot without drawing the weapon, and where he could carry his hand without exciting suspicion.

"Gee!" whispered Lew, after the two men had passed out of hearing. "I wouldn't care to meet that pair after dark."

"What I am afraid of," said Charley, "is that they will set the forest afire. They were mighty careless with their cigars. Will they be any more careful with the butts when they have finished their smoke? I don't know but what we ought to trail them. Yet we've got to meet Mr. Morton and I

don't want to be tardy. I can't make up my mind what we ought to do."

After a moment's consideration, he unjointed his rod, and started off in the direction from which the men had come. "We'll find Mr. Morton just as quick as we can," he said with decision, "and tell him the situation. Meantime, we'll make sure those men didn't start any fires up to this point."

Charley's anxiety lent wings to his heels and he started at a rate of speed that would soon have winded both boys. At a protest from Lew, he dropped to a fast walk. With open fire trails before them, the chums advanced rapidly. Soon they were well up the slope of the next mountain. They turned and studied the country behind them with anxious eyes. But no smoke columns showed against the green of the forest and they went on with lighter hearts.

"I'm certainly going to get a pair of good field-glasses," said Charley, "though I don't know where the money's to come from any more than I know how I'll get my battery. But I just have to have both."

Their meeting-place with Mr. Morton was in the next valley. Charley glanced at his watch and saw that they were early for the appointment. Yet he kept on at good speed in the hope that Mr. Morton might also be early. He wanted to talk to him as soon as he possibly could. The two boys never reached the meeting-place, however, for shortly they met Mr. Morton himself coming up the fire trail. He had reached the meeting-place, and, being early, had decided to climb to the top of the hill. He knew that his subordinate would almost certainly travel by way of this fire trail, and he planned to keep watch on the mountain top while he waited for him.

Charley was so relieved to see his ranger that he scarcely knew what to say. He suddenly felt so different that he was almost ashamed of having been alarmed. As he looked at it now, it seemed foolish to have been so disturbed because a stranger had been provoked at what he chose to regard as interference with his fishing.

The ranger shook hands warmly with his young friends. "I see you have kept the forest safe so far," he said with a smile. "How have things been going?"

"All right," replied Charley, "but we met a couple of men an hour or so ago, whose looks we didn't like."

"How's that? What did they do that you didn't like?"

"Well, they were smoking and they were careless with their cigars. Since we met them I've been expecting to see a smoke column rising every time I turned around; and I'd hate to tell you how many times I've looked back in the last hour."

"It never hurts a man in the forest to look back," said Mr. Morton with another smile. "Lot's wife is the only person on record who came to grief that way. But seriously, you mustn't get nervous just because you see a smoker. You'll meet hundreds of them, and they're all pretty careless."

Charley flushed a little. "You don't understand, Mr. Morton," he went on. "I wasn't nervous--that is, I didn't--I mean, it wasn't the mere fact that the men were smoking that made me feel anxious. I didn't like the looks of the men or their actions."

"What did they do?"

"Well, they swore at us."

The ranger laughed. "That's a habit of these mountaineers," he said. "You mustn't pay any attention to it. They don't mean anything by it."

"Do they look at you as though they'd like to kill you, too?" demanded Charley. "Is that a habit of these mountaineers?"

Instantly the ranger's face was sober. "See here," he said seriously. "What have you been doing? What did you do or say to the men that made them curse you? A little authority hasn't made you toplofty, has it? You know you are not supposed to let anybody know that you're a fire patrol."

"I didn't," replied Charley, stung by the implied criticism. "We caught a few fish in our own valley, then cut through to the valley just below us, on our way to this trail. Just as we reached the run, two men came out of the bushes. They asked what we had caught, and when I showed them, one of them swore at us terribly and said we had fished the stream out so that they would have to go on to the next valley."

"Is that all?" laughed the ranger, looking much relieved.

"No, sir, it isn't," continued Charley. "They looked as though they wanted to kill us."

The ranger was inclined to smile, but he forbore, seeing that Charley was sensitive. "You'll soon get used to meeting tough-looking customers in the forest," he said.

"I hope that I don't meet many like that fellow," sighed Charley. "When he scowled at me, he looked as fierce as a chimpanzee. And he had an ugly scar over his eye that actually seemed to turn red."

Instantly the ranger's face became sober. "A scar over his eye," he repeated. "Which eye?"

"His right one."

"Did you notice his mouth?"

"Sure. I couldn't help noticing it. It was full of gold teeth."

The ranger gave a low whistle. His face became still more serious. "Tell me exactly what was said and done," he continued. "Repeat your conversation just as accurately as you can."

When Charley had rehearsed the entire affair in detail, the ranger asked, "And you are sure you gave him no hint that you had come from the next valley?"

"Absolutely none. I thought right away that I mustn't do that."

"You're a lad of discretion," smiled the ranger. "You have done well. But be awful careful of that old scoundrel. That's Bill Collins. He's a bad egg if there ever was one. He never came into these mountains to catch fish. That's merely a blind. And he was headed for your valley, too.

That's absolutely certain. Otherwise he wouldn't have gone there."

The ranger paused in thought. "Did he go there?" he continued. "That's the problem. If he said he was going there, it's more than likely he was headed for some other place and wanted to throw you off the track."

Again the ranger paused and studied Charley's face keenly. Evidently the wide-set eyes, with their indication of intelligence, the strong nose and good chin, and especially Charley's straight mouth with its thin lips, reassured him. "My boy," he said kindly, "I don't want to alarm you unnecessarily, but be careful of that man. He's up to something, or he wouldn't be in this forest; but what it can be, I've not the remotest idea. The only thing I can think of that would bring him here is the virgin timber. He's been mixed up in several crooked lumber deals. He wouldn't hesitate for an instant to steal timber or to set the forest afire. And it's my personal belief that he wouldn't stop at"--he paused and studied Charley's face again--"at murder."

The two boys were sober. For a moment they looked at the ranger in silence. Then, "What had I better do?" asked Charley.

"Keep out of Collins' road," answered Mr. Morton instantly. "If you can get track of him, watch him; but don't let him see you or know he is watched."

Again the ranger paused to ponder the matter. "It isn't a square deal to let you kids go up against that old crook," he said suddenly. "Come on. We'll see if we can find him. And if we do, I know how to deal with him."

The ranger strode forward at a terrific pace. The two boys had almost to run to keep up with him. Over his face came a grim expression that boded no good for Bill Collins. On and on he went, saying never a word. Evidently he was revolving the situation in his own mind. Not until they reached the brook did he utter a syllable. Then he said, "Show me exactly where you boys were and where the two men came out of the bushes."

Charley pointed out the respective positions. Mr. Morton searched the bushes but found nothing enlightening.

"Which way did they go after they left you?" he asked.

Lew pointed out the route they had taken. Along the margin of the brook both men had left clear footprints. Mr. Morton sank to his knees and the three studied these prints closely. Then, "Come on," he said, rising. "We'll see if we can trail them."

Lew led the way to the point at which they had last seen the men. The disturbed condition of the leaves showed plainly that some one had passed. Very slowly and painstakingly the ranger followed the trail. In many places the forest mold still retained the imprint of a foot distinctly. So they followed the trail for several rods. Then they were unable to find any more footprints, nor did the leaves appear disturbed in any way.

"They've turned off to one side or the other," said the ranger, when he was sure they had overrun the trail. "Let's see if we can find which way they went."

The three investigators turned and spread out, advancing a foot at a time, and examined the ground minutely. Not a leaf nor a stick, nor yet the

bushes or tree trunks escaped observation. At last Charley gave a little cry. He had found a footprint that corresponded exactly with one they had studied by the brook. A little farther on a second imprint was visible, and the leaves again had the appearance of having been disturbed. For some distance they continued to search for and to find footprints and other unmistakable signs of the passage of the two men.

"It is useless to look for any more tracks," said the ranger, straightening up. "Collins and his companion quite evidently went up this valley instead of the one they told you they were heading for. They were merely trying to mislead you, which makes me all the more certain they are here for no good purpose. They certainly had no reason to suspect your connection with the Forest Service, and I presume that Collins was so annoyed at being seen by anybody that he just couldn't keep his temper. So he swore at you. He's a violent chap. It's certain that he's somewhere ahead of us, with at least two hours' start. We'll try to overtake him, though we don't want him to see us. What we'll do if we find him will depend upon circumstances. Now let's hustle. But be quiet and keep your eyes open."

Not until near sundown was the search discontinued. Then, finding themselves almost directly below the watch-tower, the ranger and his two helpers struck directly up the slope, took a long, careful look for smoke, and descended toward Charley's camp.

"I'm going to spend the night with you," explained the ranger. "I wish that you would try to call up Katharine and tell her how it is. I don't like to leave the forest until I find out what those scamps are up to."

They came to the camp. The pup was still in the tent, and everything seemed to be as it was when the two young patrols left in the morning.

"Things seem to be all right," said Charley. "We'll be a bit cautious and cook on the alcohol stove to-night."

But when he went to the spring for water, he gave a cry of dismay. In the soft ground by the spring basin was a footprint exactly like that they had traced so painfully in the other valley.

Chapter XV

The Telltale Thumb-Print

More serious than ever was the ranger's face when Charley showed him the telltale footprint.

"It's bad!" he said. "Altogether bad! He's as cunning as a rat, that Bill Collins. But how he could ever discover a camp so well concealed as this one is, I don't know."

And with that the ranger fell into a brown study. Lew and Charley went on rapidly with their preparations for supper.

"Here," called the ranger, noticing what they were about. "Mr. Marlin sent

this to you. I almost forgot about it." He reached into the capacious inner pocket of the hunting-coat he wore and drew forth a bulky package.

"Beefsteak!" cried Charley, opening the package. "Oh boy! And enough for two meals. We're certainly obliged to you and Mr. Marlin both."

Meantime, the pup, neglected, fawned upon them and began to whine, when suddenly the ranger cried out, "I've got it. It was the pup."

"The pup?" echoed Charley. "What about the pup?"

"Why, it was the pup that betrayed the camp. In some way those men got within hearing or smelling distance of this place, and the pup must have barked or whined. You know how a lonely dog will howl and carry on. I'm sorry, but I guess that pup will have to go, Charley."

Charley's face expressed almost as much mental agony as the pup's whine had shown, though he said nothing. The ranger, looking up, caught the expression, however, and understood. He knew how lonely it would be for Charley after Lew returned to Central City. "The harm's already done," he continued, "and I suppose it never does any good to lock the stable after the horse is gone. You may keep your pup, Charley; but I do wish he was a dumb brute in fact as well as in name."

"I can train him to be quiet," said Charley eagerly. "I trained Judge Gordon's dogs to hunt and I can train this little fellow not to make a noise. If I could keep him, sir, I'd be mighty glad. He'll be a lot of company."

"Keep your dog, noise or no noise," said the kindly ranger with determination. "If you can really train him well, he'll do us a thousand times more good than he does harm. Now that I know Bill Collins is in these woods, I don't like the idea of leaving you here alone. You train that dog as fast as you can. Train him to warn you of the approach of strangers, and train him to fight, too--and to fight hard."

Again the ranger lapsed into silence. After a while he said, "What puzzles me now is this: Should we move your camp to another place or leave it where it is? Bill Collins knows there is a camp here. He saw you two boys in the forest and he has probably seen no one else. He will likely infer that it is your camp. But he has no way of knowing that you are connected with the Forest Service, unless, unless--By George! Why didn't I think of that sooner? Ten to one he hid close by and watched for you to come back. If he did, he saw us when we came down from the top of the hill. And if he saw me with you boys, he knows as well as I do why this camp is hidden and what you boys really are doing. I'll bet it made him swear some when he saw me." And the ranger chuckled.

"But maybe he didn't see us," suggested Charley.

"I'd just as soon believe that the sun didn't set. That fellow's a fox for cleverness and a bulldog for persistence. Yet I don't see that we need feel bad, even if he does know where your camp is. We've learned more than he has. We know he's back in these parts and that he is making a secret visit to this timber; for you may be very sure he intended it to be a secret visit."

"But he can't be certain we know who he is," argued Charley. "He is as much a stranger to Lew and me as we are to him."

"True enough, Charley, true enough. It was really a great piece of luck that you boys happened to bump into him. It would have been better, of course, if you could have seen him without being noticed yourself, but in that case we should never have guessed who he was. No; it's a game of checkers between us now, and we've each lost a man to the other. But in my opinion we got a king in exchange for an ordinary checker. What I'd like to know is, who the man is that's with him."

"Supper is ready," announced Lew.

The three entered the tent, where Lew had hung the lighted candle lantern, and in the growing darkness ate their meal.

"It seems to me," suggested Lew, "that it would be best to leave the camp right where it is. If we move it, that will indicate that we know its location has been discovered. If we let it remain where it is, these men won't know whether we are aware if their visit here or not."

"You've a good head on you, young man," said the ranger approvingly. "That's exactly the thing to do. Besides, if we moved it and Bill Collins wanted to find it, he'd stick right to the job until he succeeded. But I don't believe he has any interest in watching this camp or in staying in this forest. It isn't a healthful place for him and he knows it. You see, Bill and I are old acquaintances. It's my opinion that he came in here for some particular purpose and that he'll get right out the instant that purpose is accomplished. Those men didn't have any packs, did they?"

"Not a sign of a pack," replied Charley. "Their coat pockets bulged out as though they had sandwiches or something in them, but they hadn't a thing in their hands or on their backs except fishing-rods and creels."

"That settles it," said the ranger. "They can't stay here more than forty-eight hours at the most. And there's no danger of their telling anybody else about your camp because they won't want anybody to know they were here. We'll just consider the camp situation settled."

They finished their supper and had begun clear up the dishes when suddenly Charley thought of the fire-clay. "Oh! I have something to show you," he cried, and went to the corner of the tent to get the clay ball. It was just where Charley had left it, but the instant he picked it up he was somehow conscious that it was different. He held the ball up and looked at it critically. Then he hefted it in his hand.

"Lew," he exclaimed, "how big was that ball of clay we took for a sample?"

"Four or five inches in diameter," rejoined Lew. "Why?"

"Look at that. It isn't a bit more than three inches thick. I was sure we had more clay than that. I meant to make a little pot of it."

"We did have more. I'm sure of it. You don't suppose those men could have taken any of it, do you?"

"Let me see," said the ranger.

He took the ball and examined it critically. "That looks like fire-clay. If it is, and the deposit is of any size, you have found something of value. You know the state sells things like that on a royalty basis. We

might be able to develop a good clay business. We like to work up all the business we can, because the revenues go toward the purchase of the equipment we need. You know the legislature won't give us all we need to buy implements for fighting fires, and for fire-towers, and other equipment."

"If we could make a fire," said Charley, "you could soon tell whether it is good fire-clay or not."

"Make a fire," said the ranger. "Collins already knows where our camp is and nobody else will be prowling around here at this hour."

In a minute the boys had a fire going. When they had a deep bed of coals, they dropped the ball of clay in it and made more fire on top of the bed.

While they were waiting for the clay to bake, Charley sat down at his wireless key. As it was still early in the evening he did not feel certain that any of the Camp Brady boys would be listening in. He called several times with no response, so he threw over his switch and resumed his conversation with his fellows. When he flashed out his signals a quarter of an hour later, however, he got a prompt reply.

"I've got 'em," said Charley quietly to his comrades. "And it's Henry talking." He was silent a while, listening to Henry's message. Then he said, "Henry wants to know when Lew is coming home. Vacation is about ended."

"Tell him that I think I'll go back with the ranger to-morrow. I've stayed as long as I possibly can."

Again there was a pause. "Henry wants to know what we are doing and whether or not we've had any adventures. I wish I could tell him the real situation. But that would never do."

Charley turned to his key and began to tick off a message: "Everything as quiet as--" He stopped abruptly. A cry that fairly made him shiver sounded in the forest. He turned to the ranger. "What in the world was that?"

"A wildcat," replied the ranger. "He smells the meat you hung up. You'll just have to be a bit watchful. He may hang around here for days, and sometimes those fellows get nasty."

Another piercing cry startled the night. Again Charley shivered. Lew got up and by putting more wood on the fire lighted up the interior of the thicket brightly.

Charley turned to his wireless key and sent a call signal flashing.

"What's the matter?" came back Henry's reply. "Why did you cut off?"

"Wildcat," flashed back Charley. "Just outside our camp. Smells our meat. Scares a fellow half to death when he cries out. Ranger says it may hang around for days. Wish you would send us some traps."

"You'll bring them out on your next visit, won't you?" said Charley, turning to Mr. Morton.

"Bring what out?" demanded the perplexed ranger.

"Why, traps. I forgot that you couldn't read the message I was sending. I'm asking Henry for traps."

"Tell him to send them along. Trapping will be better than shooting under the circumstances, but don't hesitate to use your gun if you need to."

Charley turned back to his instrument and asked Henry to rush the traps. He inquired about his fellows of the Wireless Patrol. Henry had nothing out of the ordinary to report. Then Charley asked Henry to get the forester at Oakdale on the telephone.

After a long wait, Charley's receiver began to buzz. "Henry has the forester on the telephone," Charley explained to the ranger. "What shall I tell him?"

"Nothing. I'll tell him about Bill Collins myself. Just say that everything is all right and ask him to get Katharine on the telephone."

Again there was a pause. "He's got her," said Charley.

"Please tell Katharine," said the ranger, "that it was necessary to stay in camp with you to-night. Ask how she and the little girl are."

While his friends sat in silence before the crackling fire, Charley took the message. "Katharine says that everything is all right and they are well. She thanks the fire patrols for taking care of her husband."

Charley said good-night and laid down his receivers. "Your wife is a pippin," he said with a smile as he turned toward the ranger. "I don't wonder you like her. Think of her thanking us for taking care of you. Why, we'd be scared to death if we were here alone, with that confounded hyena howling out there in the bushes. She must be a brave little woman. She didn't seem a bit worried because you hadn't come home."

"I guess she had an idea I wouldn't get back to-night," said the ranger. "You know it's a pretty good hike for one day."

Charley knew well enough that Mr. Morton was trying to mislead him. He saw at once that the kind-hearted ranger had intended to spend the night in camp. But not knowing what to say, he turned in silence to the pup, which evidently smelled the wildcat, and tried to quiet him.

"You can be glad that you've got that dog," said the ranger. "I don't think that cat will come any closer, for it can smell the dog as well as the meat. Take care of him and make him useful. Now we'd better turn in, for we must pull foot early in the morning."

"Let's first see if our clay is baked," suggested Charley.

Charley scattered the embers and rolled the clay ball out of the ashes with a stick. It was baked as hard as a brick. The ranger folded up the newspaper which he had used as an outer wrapper for the meat, and picked up the ball with the paper. Lew held the candle lantern close while the ranger examined the clay. Slowly he turned the ball around, picking at it with his knife blade.

"Who made this ball?" he asked suddenly.

"I did," said Charley.

"Did Lew touch it at all?"

"I can't recall that he did."

"No; I never laid a finger on it," said Lew. "Charley rolled it and carried it here himself."

"Let me see your thumbs, Charley," said the ranger.

Charley, puzzled, held them up for inspection. The ranger examined them closely. "Now let me have that little microscope of yours," he continued.

Charley handed it to the ranger, who studied the clay ball intently through the glass, then as carefully looked at Charley's thumb. Then he chuckled. "We've taken another king in this little checker game," he said. "Look at that."

While Mr. Morton held the lantern for them, the two boys studied the burned ball of clay. On it were a number of distinct thumb-prints, now turned into solid brick by the action of the fire. The boys looked at each other questioningly and then at Mr. Morton.

"It's a clever rogue who doesn't trip himself up somewhere," chuckled the ranger. "What happened is as clear as daylight. Collins and his companion found this clay while they were inspecting your camp. They must have suspected that it was fire-clay and that you had found a deposit of value. They took some along to test, and rolled what was left into a ball again, thinking you would never notice the difference. But they forgot that clay would take finger-prints so readily, and they have left their calling cards behind them."

The ranger carefully wrapped the clay ball in his handkerchief, and then in a newspaper. "Let me have this," he said. "The police may have some duplicate prints somewhere. We don't know what Collins and his pal are up to, but we have something here that we may find very useful. It isn't every crook that is so considerate as to leave his thumb-prints behind him."

Chapter XVI

Good News For the Fire Patrol

As the ranger had foretold, the forest guards did indeed pull foot early in the morning. Black darkness still enfolded the camp when the ranger awoke his young companions. Fire was speedily kindled and breakfast gotten under way.

"Better eat your meat, boys," suggested the ranger. "Otherwise it will keep that cat hanging around here. We'll hardly dare to leave the pup behind again, and that beast might get in here and tear your tent to pieces. These cats play hob with things sometimes."

Lew decided that he would carry nothing back with him, as he contemplated

visiting his chum at intervals.

"Just take your rifle," said the ranger to Charley. "You'll be all alone on your return trip and with two such animals as we've seen hereabout, it will be just as well to have it. If I were you, I believe I'd make a pretty close companion of it and always keep it within reach."

When they left the camp, they were burdened only with Charley's rifle and food for the noon meal, which they stowed in their pockets. The instant there was light enough to guide their footsteps, the trio set forth.

For hours they trudged through the forest, for the most part in silence. Although they traveled by a circuitous route, and with eyes and ears alert, they neither saw nor heard anything that pointed to the presence of other human beings in the forest. The ground bore no telltale footprints. No incriminating marks were discernible on the trees. Smoke was nowhere visible. No firearm disturbed the silence of the wilderness. No birds flew upward with cries of alarm, save at their own approach. And the only voices that were audible were the voices of the brooks.

Under other circumstances Charley would have been supremely happy. The sun came up bright and clear. No veil of mist floated before the face of the sky. But woolly, white cloud banks sailed lazily aloft, intensifying by contrast the blue of the sky. A gentle wind blew fitfully. The earth steamed fragrantly, sending up an odor joyful to the nostrils. And the little brooks babbled wildly in their joy at the spring-time.

But Charley was not in a responsive mood. The thought of the man Collins and his evil-favored companion weighed upon him heavily. Nor was the knowledge that a wildcat was prowling about his camp reassuring; though Charley was far from being afraid of the beast. And always the dread of fire was in the background of his consciousness. What troubled him more than anything else just now was the approaching loss of his chum. Could Charley have diagnosed correctly the feelings that oppressed him now, he would have known that it was the fear of loneliness more than any fear of Bill Collins or wildcats or forest fires, that made him sad. To read about Robinson Crusoe was all right, but to be Robinson Crusoe was quite a different matter--at least a Crusoe without a good man Friday. And Charley was too downcast at present to realize that the pup at his heels could be to him all that Friday was to his master, and perhaps more.

Again and again Charley turned over in his mind the problem of how he could get the battery he needed. More than ever he felt that he absolutely must have it. Such a battery would cost many, many dollars. To be sure, Charley's salary would soon bring him in enough money to pay for such a battery; but all of his income, or practically all of it, Charley knew, he must give to his father. How he should get around the difficulty, Charley could not see.

As they trudged on, he talked the matter over with Lew again. Lew seemed unduly light-hearted over the matter, and even smiled about it. Instead of sympathizing with his chum, he counseled him not to worry about it, as the way would likely open. That seemed so heartless that Charley was hurt. He thought that his chum, about to leave the forest himself, no longer was concerned. So he fell silent, and walked along in greater dejection than ever.

Long before the sun had touched the zenith, the three forest guards had reached the last ridge that lay between them and the highway.

"You've come far enough, Charley," said the ranger, "and perhaps it would have been better if you had stopped short of this. If anything should happen in that big timber, you are a long distance from it. There's a good spring part way up this ridge, and it's high enough so that we can get a good view. We'll stop there and eat our dinner. We can watch as we eat. After you've had a good rest, you had better hike for camp. You're a good ten miles away from your tent."

They climbed to the spring, took each a good drink, and sat down to eat their food. The panorama that spread before them was wondrously beautiful, but Charley had no heart for scenery. He ate in silence, his eyes for the most part bent on the ground.

After the meal was finished, the three friends sat silent, looking out over the vast range of territory before them, each busy with his own thoughts. If one could have judged by the expressions on their faces, Lew was little short of jubilant. Again and again he smiled and looked meaningly at his chum. But Charley still sat with downcast eyes, heedless of his chum's glances. But why Lew smiled it would have been hard to guess. If he had any scheme in mind, he dropped no hint concerning it.

Finally the ranger rose. "We've got to shake a leg," he said. "And you had better start back to camp."

Charley got up mechanically. His face showed all too clearly what was in his heart. The ranger looked at him searchingly, and a kindly expression came into his eyes.

"Never mind, Charley," he said. "You won't be alone long. Lew, here, or some of your other friends will be slipping out to spend the week-end with you, and I shall see you regularly twice a week. It may be, in view of Bill Collins' visit, that Mr. Marlin will think I ought to come oftener."

"Have you learned your alphabet yet?" replied Charley, a sudden gleam of interest crossing his face. "Just as soon as you learn to use the wireless, we can talk at almost any time. I'm sure that one of the fellows will lend you his outfit."

"I'll make Mr. Morton an outfit myself," said Lew. "I'll make it exactly like yours. Then you two can talk without tuning."

"That will be bully," said Charley, beginning to brighten up. Then he turned to the ranger. "Did you learn your alphabet?" he repeated.

"I've been working at it a little," said the ranger. "To tell the truth, I don't care much about it. I'd just as soon stick to the telephone. But the wife is crazy over it. She says if we knew how to do it and had the instruments, we could talk at any time. She's learned the alphabet already."

"She has! Bully for her!" cried Charley. "Hurry up with that outfit, Lew, so we can teach her to send and read. I'll be glad to talk to her, even if her husband doesn't want to."

"I'll be home by sunset," said Lew, "and you can call me at eight o'clock. I shall have had a chance to talk to the fellows by that time and I hope that I shall have something good to report to you. I'm coming out the first Friday I can, to spend Saturday and Sunday with you. Good-bye."

Charley shook hands heartily with his two friends and turned back into the forest. Although he was still somewhat cast down, the intense depression that had weighed upon him during the morning was lightened. The events of the past twenty-four hours had made him forget temporarily the plan to teach Mr. Morton how to operate the wireless. But the news that the ranger's wife was also to become a radio operator pleased him more and more as he turned the matter over in his mind.

The pup, rubbing against his heels, recalled another matter to his mind. He had to train the dog to be useful to him.

"No time like the present," muttered Charley to himself. And the training of the pup began then and there. All the way home, through the wide valleys, over the mountain tops, and across the little streams, Charley worked with the pup, trying to teach him to be silent and to walk quietly at his heels. And though many, many subsequent lessons were necessary before the pup was even half trained, the work with the dog made Charley forget his loneliness. He arrived at his camp, which he found undisturbed, once more in his normal frame of mind.

What shortly followed was to send him to bed soon afterward as happy as the traditional lark. For when Charley got into touch with Lew by wireless at the appointed time, Lew told him that the Wireless Patrol had met him,

Lew, at the station in a body, with the news that funds for the battery had all been earned and the battery ordered; and that when he had told them of Charley's situation, the club had voted unanimously and enthusiastically to send the battery to Charley for him to use as long as he needed it in the forest.

Furthermore, Lew informed him, Henry had been talking to the wireless men at the Frankfort station, and not only were they willing to work with him to protect the forest, but they were also sending an amplifier to Oakdale so that Charley would be sure to get their messages with the greatest distinctness. The battery would be forwarded as soon as it reached the Wireless Club and had been inspected, and the amplifier would go with it.

No wonder that Charley rolled up in his blankets, with shining eyes, careless alike of cats and Collinses. With the pup and the new battery he felt that he should indeed be in position to render efficient service to his forester and his ranger, both of whom he was coming to love, and to the grand old forest around him.

Chapter XVII

An Accident in the Wilderness

As though she also were pleased at Charley's good fortune, Dame Nature smiled her best in the days that immediately followed. The sun rose warm and grateful. The forest was instinct with the spirit of spring, of new-born life, of hope eternal. Wilderness birds sang in the branches. The brook babbled and gurgled and ran madly down the slope. The leaves overhead whispered of the new life that had come. All the forest animals

seemed filled with the joy of living. And Charley was not a whit behind them. His whole being thrilled with happiness.

Now he could see matters in their true light; or if his vision were a trifle clouded, the clouds were tinged with rose instead of black, as they had been previously.

Charley thanked Providence that he was just where he was. In some respects an unusual boy, he was mentally no abler than many of his fellows. He possessed a trueness of vision and an understanding of things that were, however, unusual in a lad of his age. Always he had had to earn the things that he wanted. And always he had been able, within reason, to get what he desired. Early in life, therefore, he had come to understand that everything has its price, and that he who is willing to pay the price can get almost anything he wishes. So now, instead of bewailing the fact that he was where he was, as many another lad would have done under the circumstances, he rejoiced. He rejoiced because he had sense enough to understand that his opportunity was at hand, here in the forest, and now.

In another respect Charley was mature for his years. He had come to understand, at least in a measure, that real success is always won by long and persistent effort in a given direction. Like other boys, Charley had his dreams and cherished lofty ambitions. But the stern necessities of life, as he had lived it, had taught him that dreams seldom come true as the result of luck, but are realized most certainly through consistent effort. He did not want to go to work in the factory because he hated the dirt and the noise and the odors and the sense of being cooped up, like an animal in a pen. Now he had all the freedom in the world, and the opportunity had come to become well acquainted with the things that he loved--trees, flowers, ferns, birds, animals, and all the other gifts of nature.

When Charley looked abroad and realized that his opportunity had come, and come in such a delightful way, he could hardly keep from shouting in his happiness. Like the sensible lad he was, he immediately asked himself this question, "What is the best thing for me to do first?" He decided that he would go on with the training of his pup. All day, as he walked through the forest, he labored to teach the young dog to trot quietly at his heels, or to walk silently in front of him.

Charley's purpose, of course, was to have the dog always at hand, to give him warning of the approach of man or beast, and to fight for him, if necessary. That the pup should learn not to betray himself or his master, was equally needful. So Charley had the additional task of teaching the dog to be silent, excepting for a very low growl, upon the approach of other creatures. Charley thought of the Leatherstocking and his dog, and wondered how that dog had been trained so wonderfully.

Day after day the lessons continued. Charley had abundant opportunity to work with the pup, for the forest was full of creatures that constantly excited the young animal. The training required no end of patience: but Charley loved the dog and never wearied in his efforts. By the time he had completed his labors with the pup, his own shadow was hardly more constant and quiet than the dog.

Charley was elated one day when the dog signaled the approach of a fisherman by no more than the faintest sort of a bark, and then at command, came promptly to heel and remained there, silent and watchful. It was the pup's first test with human beings. The fisherman proved to be

one of two who were making their way along the margin of the run. Charley and the dog remained quietly behind some bushes until the fishermen were out of sight and hearing. Then Charley praised his little pup and went on.

His efforts with the dog, however, did not prevent him from thinking of other matters. Day after day his mind returned to the problem of the forest fire and the piece of green pasteboard. Ever since he had found the telltale pile of ashes and the charred pasteboard beneath it, Charley had been turning the problem over in his mind. How he was to solve the puzzle he did not see. Somewhere, he felt sure, he had seen pasteboard like the charred piece now in possession of Mr. Morton; but when or where he had seen it, he had not the slightest recollection. How he was ever to find another piece like it, he could not imagine; for as a fire patrol he had neither time nor opportunity to mingle with people.

He could see just one possibility of success. Undoubtedly there was a great deal more of the green pasteboard in the world than had been contained in the burned box. Hence persons other than the incendiary must have some of that same pasteboard. Perhaps some of those persons might bring a bit of it into the forest. Campers and fishermen often brought food and other things into the woods in pasteboard boxes. So Charley resolved to examine carefully every camp he came to, and even to scrutinize the remains of camp fires. But day followed day and Charley found nothing to enlighten him.

One day when Charley was on his way to meet the ranger, he suddenly realized that he was away behind time. Charley hated the idea of being tardy, especially when he had no reason for being late. He had been training his dog, and his work with the pup had delayed him more than he realized. But with haste he could still reach the meeting-place on time.

At the fastest pace that he thought he could hold Charley set off. His daily hikes through the forest had rapidly made a good walker of him, and now he went along at a rate that would speedily have tired out most travelers. Sometimes, to rest himself by changing his gait, he went scout pace, walking fifty steps, then jogging fifty. He allowed nothing to hinder him or take his attention. When he reached the meeting-place it still lacked a few minutes of the appointed hour. Charley was pleased to find that he had arrived before the ranger.

When the time of meeting came and the ranger was not there, Charley began to scan the fire trail carefully and to look about for smoke clouds. He knew that something of moment must be afoot to make the ranger tardy for his appointment. The ranger was not visible, however, though Charley could see straight down the fire trail for a long distance.

"I'll go meet him," said Charley. "He's sure to come this way."

In the sand of the trail he printed a message for the ranger, in case the latter should be coming by an unaccustomed route, and continued along the trail. He had gone a full mile before he met Mr. Morton.

"Sorry I am late, Charley," said the ranger. "A lot of stuff came to the office for you last night and the chief asked me to fetch it out this morning. I think your new battery has come."

"It's about time," said Charley. "I had about given up hope of ever seeing it." Then he added, "But you couldn't pack that way out here. It must weigh sixty pounds."

"Is that all?" laughed the ranger. "I had come to believe that it weighed in the neighborhood of half a ton."

"Did you really try to carry it?" asked Charley.

"Sure. The chief sent all your stuff as far as he could in the truck, and I packed it in as far as I could carry it. That's why I'm late. But I had to drop it a distance back. I brought these along, however, and thought we'd go back and get the battery, for I'm sure that's what it is." He paused and handed to Charley two pasteboard boxes he had strapped to his back. The larger one was bulky, but weighed comparatively little. The other was small.

"I wonder what it is," said Charley, as he untied the string and opened the smaller box. "The amplifier," he said. Then he opened the larger box.

"Your wireless!" he cried in delight. "Everything is here, even to the aerial. Only the spreaders are lacking. We could make them and have this outfit set up in no time if we had to. Isn't it bully? Now we can talk directly with each other as soon as you learn to send and read. Won't that be dandy?" With practiced eye he once more glanced over the outfit to make sure everything was there. Then he tied the box up again.

"I'll just take it back with me," he added. "This goes to your house, you know, and you can pick it up on your way home. We'll take it as far as the battery and leave it there."

They strode rapidly along the trail, and in half an hour reached the battery where the ranger had set it down. Some traps lay on top of the battery.

"I forgot to bring them sooner," said the ranger.

Charley lifted the box. "How in the world," he said, "did you ever pack that thing over these mountains on your back? Why, you've carried that more than four miles."

"We'll cut a couple of saplings and tie them to the box for handles," said the ranger. "Then we can carry it easily. Give me your axe."

Charley handed his little axe to the ranger, and began to fumble in his pocket for the cord which he had used as a leash for his dog. The ranger looked around him for suitable poles. Close by the trail lay the rotting trunk of a large tree that had fallen years before. On the far side of this log and close to it some fine saplings had grown up, probably made thrifty by the rotting wood of the great tree. The ranger reached over the log to chop a sapling. At the same instant the pup, ranging in the bushes, growled savagely. Momentarily the ranger lifted his eyes, letting his axe head sink to the ground. Something moved under it, and at the same instant a hideous head reared itself above the leaves and struck with lightning-like rapidity, hitting the ranger just above the wrist-bone. With a startled exclamation the ranger drew up his arm. As he did so, a huge rattler glided away through the brush.

Charley turned at the ranger's cry. He comprehended the situation at a glance. "Quick!" he cried, springing to the ranger's side. "Give me your arm."

He jerked back the ranger's sleeve, disclosing two dark spots on the back of the wrist where the fangs had punctured the skin. Drops of blood were oozing from them. Charley whipped out his knife and without hesitation drew the keen blade several times across the ranger's wrist. Blood began to flow down the hand. Putting his lips to the wound, Charley sucked out mouthful after mouthful of blood, which he spat on the ground.

"Now squeeze your wrist tight just above the bite," said Charley. "Stop the circulation of blood if you can."

Like a flash Charley picked up the dog leash and tied an end of it around the ranger's arm, close to the shoulder, drawing it so tight that the ranger winced. He cut the dangling end and took a second turn just above the ranger's elbow. Then he made a third turn half-way down the forearm. With little sticks he twisted the cords still tighter. Then he jerked out his hypodermic syringe, which he carried already filled with fluid, and thrusting the needle into the bleeding arm, injected the permanganate into the wound.

Meantime, the ranger stood silent, his face pale, his jaws set courageously. "Where did you learn to do all that?" he finally asked Charley, with evident admiration. "You go about it like a doctor."

"When the Wireless Patrol was in camp at Fort Brady," replied Charley, "one of the fellows was bitten by a copperhead. Dr. Hardy had already drilled us in first-aid and we knew just what to do. You bet none of us will ever forget."

"I shall owe my life to you," said Mr. Morton. "That is, I shall if----"

"There's no if about it," interrupted Charley with determination. "We got most of the poison out of your arm. I'll bet on that. What's left may make you sick, but it can't kill you. What we've got to do is to prevent that poison from reaching your heart, at least in any quantity. You sit down against this tree and keep quiet so your heart will beat as slow as possible. In about twenty minutes loosen this bottom cord. Loosen the middle one after another twenty minutes, and open the third at the end of an hour. That's all I know how to do. Thank God, we've got a wireless here! Now I'm going to get it up as quick as possible."

He tore open the pasteboard boxes and took out one instrument after another, coupling up the wires quickly and skilfully. Then he seized the little axe, chopped some branches for spreaders, fastened the aerial wires to them, and added other wires to suspend them by. Quickly he selected two trees for supports, and climbing up first one and then the other, soon had his aerial dangling directly above the fire trail. He coupled up his lead-in wire and ran his eye over the outfit. Everything was complete. Only the power was lacking. With the axe he pried off the lid of the box containing the battery, tore away the paper and excelsior wrappings, and in another moment had his wires around the binding posts. He threw over his switch, and springing to his key pressed his finger on it. A brilliant flash shot between the points of his spark-gap. Rapidly he adjusted the points until his instrument was giving a spark of maximum strength. Then he settled himself to the task ahead.

"WXY--WXY--WXY--CBC," called Charley. (Frankfort Radio Station--Charley Russell calling.) Several times he repeated the call. Then he shut off his switch and sat in silence listening for a reply. None came.

"They may be talking to somebody," he muttered. Again he called. "WXY--WXY--WXY--CBC," he flashed again and again. Once more he sat quiet and listened. At first he got no reply. Then, clear as a bell on a frosty morning, a signal sounded in his ear: "CBC--CBC--CBC--I--I--I." (Charley Russell--I'm here.)

Charley sighed with relief. "Got 'em," he said to the ranger. Then he turned intently to his key.

"Please telephone District Forester Marlin at Oakdale instantly," he rapped out. "Ranger Morton bitten rattlesnake. Send motor-car where battery was delivered this morning. May need man help ranger. Bring doctor. Tell wife get ready. Will listen for answer."

As Charley sat waiting for a reply, he studied the face of the ranger. It was set hard. Courage was written on it plainly.

The ranger started to speak. "Don't talk," interrupted Charley. "Keep as quiet as you can, and watch your bandages. If you keep them tight too long it harms your blood somehow."

They sat in silence a while. Then Charley said, "I wish you didn't have to walk, but I guess there's nothing for it but to hike out to the highway at the earliest possible moment. We'll start the instant we've heard from Mr. Marlin."

"What about your instruments?"

"I'll nail the cover on the battery box and put the other things in the pasteboard box. I don't think anything will touch them. It's all we can do, anyway."

He felt in his pockets and found a stub of a pencil and a scrap of paper. "Property of the Pennsylvania Forestry Department. Please do not touch," he printed in large letters. With his knife blade he pried out the tacks that held the address tag on the battery box and tacked his sign on the box. Then his receiver began to buzz. Charley gave the return signal.

"Forester on wire now," came the message. "Wants to know where you are and how Morton is."

Charley ticked off the information and waited for a reply. It came very soon. "Will rush doctor and men. Come as far to meet me as you can."

Chapter XVIII

The First Clue to the Incendiary

Slowly Charley and his friend made their way along the fire trail toward the highway and safety, Charley assisting the ranger as much as possible. The latter began to suffer great pain in his arm and the limb started to swell. Meantime, the forester, with a physician and a helper, was racing at top speed to reach the ranger. At a pace utterly reckless he drove his car over the forest road, and the instant the rescue party arrived at the

point where Charley and Mr. Morton would reach the highway, they plunged into the forest. Faster than he had ever raced to a forest fire, the forester sped along the trail, his companions striving doggedly to keep up with him. He was deep in the woods before he met Charley and the ranger.

With hand extended, the forester ran to his ranger. Their hands met in a tight clasp. "How is it, Jim?" asked the forester, with anxious eyes.

"I'm all right," rejoined the ranger. "I'll pull out of this all O.K. That snake got me right, though. If it hadn't been for Charley here, I don't know how I would have made out. He's as good as a doctor."

By this time the doctor himself had come up, puffing too hard for words. He nodded his head, clasped the ranger's hand, and with a single word of greeting quickly began an examination of the injured arm. "How long ago did this happen?" he puffed.

"More than two hours ago," said the ranger.

"You haven't kept these tight all that time, have you?" and the doctor laid his finger on one of the cords around the ranger's arm.

"No, sir. Charley had me loosen them, one at a time, every twenty minutes or so."

"That was quite right. What else have you done?"

When the ranger had told him in detail exactly how Charley had treated him, the doctor grunted, "Confound it! Then what did you hustle me out here this way for? I thought you were at the point of death."

Charley was amazed and offended at what he considered the heartlessness of the physician. "You don't understand," he protested. "Mr. Morton was badly bitten, sir."

Charley was still more astonished when both the ranger and the forester burst out laughing. He looked from one to the other questioningly. It did not occur to him that this was merely the doctor's way of saying that Charley had handled the situation about as well as he could have done it himself. Evidently the forester did not propose to enlighten Charley, for all he said was, "Don't let him worry you, Charley. He's just naturally lazy and a grouch. He doesn't like it because I made him hustle for once, and he's disappointed not to find Jim at the point of death. These doctors are strange animals, Charley. But with all their faults we love them still." And he slapped the physician affectionately on the shoulder.

Charley looked puzzled. But concluding that silence was the best course, he said no more. All this time the doctor was continuing his labors, and Charley was amazed at the dexterous way he did things.

For a moment he listened to the beating of the ranger's heart. Then, seemingly with a single motion of his knife, he slit the sleeve of the ranger's shirt. Another motion laid open the undershirt sleeve, disclosing the arm to the shoulder. The physician examined it closely. The arm was swelling fast. The physician opened his case and gave the ranger some medicine. "Now we'll get to bed as soon as possible," he said, "and rest for a few days."

Assisted by a man on either side of him, the ranger started for the

waiting motor-car.

"Mr. Marlin," said Charley, after the party had gone a few rods, "this morning Mr. Morton brought out a little wireless set that Lew made for him, as well as my big battery. It's back where Mr. Morton was bitten. May I get it and set it up in the ranger's house? It will be a good opportunity for him to practice while he's at home. Mrs. Morton is learning to operate the wireless, too. It would mean so much to both of them and to the forest as well, if they could talk to each other by wireless."

"How long will it take you to put it up, Charley?"

"Not very long, sir. Perhaps an hour or two."

"I don't like to leave the forest unprotected for a single minute at this season, Charley, but I guess we'll take a chance on it. Get your stuff to the road as quick as you can. I'll take Jim home and return for you."

The forester hastened after the ranger's party and Charley darted off into the forest. At the fastest pace he could maintain he jogged along the fire trail. In a very little time he was back at the instruments. He took down the aerial, threw away the spreaders, uncoupled the amplifier which he needed for use himself, and replaced the little outfit in the pasteboard box. Then he hurried back to the road, where the forester was already waiting to whirl him away to the ranger's house.

If Charley had had any doubts whatever about his liking the ranger's wife (though he hadn't), they would have vanished the instant he came in sight of the ranger's home. It was a small, weather-beaten cottage set in the shoulder of a hill, with the forest all around it. About the house itself was a clearing of a few acres, with a little orchard on the slope behind the house. The home itself was enclosed by an unpainted picket fence. Lovely old trees shaded it. Vines clambered riotously over its soft, gray clapboards. Well arranged shrubs and bushes had been planted here and there. There were flowers about the base of the house and along the borders. The grass was trimmed as neatly as a city lawn. Even now before plant growth had started, the yard was attractive. With pleasure Charley noted that the ranger had set out two European larches, evidently brought in from a forest plantation, at his gateway. One glance at the inviting and neatly kept yard told Charley what he would find within the house itself.

Nor was he disappointed when he entered the door and found the house as clean as a whistle, plainly but neatly and attractively furnished, and beautiful with a wealth of flowers and plants that, had quite evidently received loving and intelligent care. On the wall Charley instantly noted the telephone, and hanging on a nail beside it was the leather case with the ranger's portable telephone instrument.

There was not the slightest doubt in Charley's mind that he was going to like the ranger's wife. And when, a moment later, she came quietly into the room and took his hand in hers and, with moist eyes, thanked him for saving her husband's life, she won Charley's heart completely. She was slight and girlish and good to look at, and made Charley think of some of his nice girl friends at high school. Yet Mrs. Morton had been married a good many years, for just behind her stood her daughter, Julia, a girl of twelve, waiting her turn to thank Charley.

But girlish though the ranger's wife appeared, Charley did not need to be told that she was not of the weeping, hysterical sort. On every hand were evidences of efficiency and foresight. A fire was evidently burning briskly in the stove, and kettles of water, presumably heated in case of need, were steaming on the range, easily seen through the open kitchen door. In the sick-room were evidences of the same sort of forethought. Everything that the house possessed that could possibly be useful in treating the ranger had been assembled in handy little piles. This must have been done before the ranger reached home, for most of the piles were untouched.

The ranger was resting comfortably in bed, though his arm was badly swollen and his face was distorted with pain. At sight of Charley his countenance lighted up. He reached out his left arm and wrung Charley's hand until the lad winced.

"The doctor says I'll pull through this all right, though I'll have a painful time of it," said the ranger, "and he told the truth, at least as far as the pain is concerned. But the pain's nothing. The thing that counts is the fact that I am safe at home. I owe it to you, Charley, and you may be sure I'll never forget."

That was as much as the ranger, reticent, hating any display of emotion, quiet like most men of the woods, could bring himself to say. But Charley knew that it meant volumes. He tried to reply, but found himself also suffering from a strange embarrassment. So Charley said good-bye to the ranger, assured him that he would take good care of the forest, and set about fixing the wireless outfit. The forester helped him. Quickly they got up the aerial, brought the lead-in wire into the living-room, and set up the instruments on a board table close beside the telephone instrument.

"Now everything is complete except for the battery," Charley said to the forester when they had finished wiring up the outfit. "Half a dozen dry cells will supply all the current needed."

"I'll send them out by the doctor in the morning," said the forester.

Charley showed Mrs. Morton how to wire the cells and couple them to the instruments. Then he told her how to adjust her spark-gap and tune the instrument to any given wave-length. He compared his watch with the clock on the wall.

"At eight o'clock every night," he said, "I will call you up. Suppose you take Mr. Morton's initials as your call signal. What are they?"

"J. V. M.," replied Mrs. Morton.

"Very well. Then at eight o'clock every night I will call J. V. M. slowly a number of times. Then I will tick off the alphabet slowly and the numerals one to ten. You listen in, and if the sounds are blurred or not sharp, tune your instrument as I have shown you until you can hear distinctly. If you make the letters with a pencil as you read them, it may help you. I'm sure you will soon learn to read. I'll repeat the alphabet and the numbers three times slowly. Then I'll listen in for five or ten minutes. If you want to try to call me, give my signal and follow it with your own, thus: 'CBC--CBC--CBC--JVM.' That means 'Charley Russell--James Morton calling.' If I hear you, I will send the letters 'JVM--JVM--JVM--I--I--I.' That means 'James Morton--I am here.' Then you can begin to send your message. I hope we'll be able to talk to each other

very soon."

"It won't be my fault if we don't," smiled the ranger's wife.

"Now I must be off," said Charley. "I've no doubt Mr. Marlin is getting impatient. We'll just clean up this mess and then I'll go."

"I'll clean things up," insisted Mrs. Morton.

"No; I made the mess and I'll clean it up," protested Charley.

He began to pile the torn pieces of pasteboard together so he could thrust them into the stove. The bottom of the pasteboard box had been built up with several layers of pasteboard, evidently cut from other boxes. Charley took them out one at a time, preparatory to crumpling up the box itself. As he lifted the last layer of pasteboard he stopped in blank amazement. Then he called excitedly for Mr. Marlin. Before him lay a piece of green pasteboard exactly like the charred fragment taken from the ash heap in the burned forest.

Chapter XIX

The Forester's Problem

For a moment the two men looked at each other in astonishment. Then, "Keep that," said the forester. "We'll talk the matter over on our way back." Mrs. Morton, not comprehending what had happened, also looked astonished. But like the wise woman she was, she held her peace. Charley tossed the other pasteboards in the fire, stuffed the green piece in his pocket, and said good-bye to his new friend. The forester, after telephoning to his office, followed Charley, and a moment later the two were spinning up the road toward the fire trail.

"I can't understand it," said Charley. "Here's a package direct from Lew, with the very clue we're looking for, and Lew never said a word about it. I can't understand it. I'm certain Lew sent the box. That was his handwriting on it. And I'm just as sure he never saw that bit of pasteboard, for Lew would never slip up that way. I just can't understand it."

They reached the point where Charley was to leave the car and plunge into the forest. But Mr. Marlin, instead of stopping his motor, turned into a natural opening in the woods and drove slowly among the forest trees. In a moment he ran the car into a stand of pines, where it was protected by the dense tops above and well hidden from sight of the highway.

"You couldn't get in here with anything but a Henry," laughed the forester. "This old bus has taken me lots of places you would never have believed possible."

He took the key from the switch on the dashboard, and the two stepped to the ground. Charley wondered what the forester intended to do, but by this time he knew enough not to ask questions. The forester started up the trail with him. When they came to the big battery Charley understood, for

without a word the forester took Charley's little axe and began to chop poles to carry the battery with. In a few moments these handles were bound fast. The forester tossed the traps over his shoulder. Charley tied the amplifier box to his belt. Then they picked up the battery and started toward camp.

Suddenly Charley stopped. "By George!" he cried. "I forgot all about the pup. I wonder where he got to."

He whistled and whistled, but apparently in vain. They went on, and at intervals Charley whistled for the dog while he and the forester were resting. Still no dog appeared. Charley's face grew long. "Gee! I'll miss that pup," he said regretfully. "Why didn't I think of him sooner?"

Night was at hand when the two reached Charley's camp. Nothing had been disturbed. Charley took advantage of the remaining daylight to couple up the battery and the amplifier to his wireless. He tested the outfit and found he had a strong spark that cracked like a whip when he touched the key.

"Look at that!" he cried. "Now I feel better. I can always get into communication with somebody now."

"You aren't a bit more pleased than I am, Charley," smiled the forester. "I'll take back all I ever said about the wireless. If Morton can learn to talk by wireless, the rest of my crew can also. When the dull season comes, I'll start a radio school with you as instructor and we'll make every man in the service learn to operate the wireless. The Department ought to be glad to supply a good outfit; but if we can't get the money, we can at least make some outfits like yours. We're going on a wireless basis or my name is not Marlin."

The forester was interrupted by a joyous bark and in rushed Charley's pup. "You blessed little fellow," said Charley, fondling the animal. "I suppose you lost our trail when we got into the motor-car and you probably hung around the battery all day and followed our trail back here. That's pretty good. You've got great stuff in you, pup. The next thing I teach you will be to stand guard over things as you probably did over that battery to-day."

Darkness fell. Supper was cooked and eaten. "Have you heard that cat lately, Charley?" asked the forester.

"No," replied Charley, "but I think I'll put the traps out anyway."

"We can attract it even if it isn't near by," said the forester. "Have you a can of salmon that you can spare?"

"Sure."

"Then give me the traps and bring your can."

Charley got the things asked for. The forester, taking the flash-light, led the way through the thicket to the open forest. At some distance from the camp the forester stopped and turned the beam from the search-light upward. Finally he found what he was looking for--a small branch about seven feet from the ground. Then he cut the top of the salmon can, and punching holes in the sides near the top, fastened a string to the can and suspended the can from the limb. Then he set the traps in a circle under

the can, fastening the chains to convenient saplings, and threw two or three small pieces of the salmon on the ground within the circle of traps. Then they made their way back to camp.

Charley lighted a little friendship fire in the fireplace the ranger had made, and the two sat down beside the flames. It was little more than three weeks since Charley had first entered the forest. During that time he had really seen very little of the forester. Yet as he sat beside his chief, Charley felt as though he had known him always. A common emotion had drawn them close together this day, and somehow Charley believed that his feeling of affection for his chief was fully reciprocated. For a time they sat in silence, each busy with his own thoughts.

"Charley," said the forester, after a time, "this accident to Jim hits me pretty hard. It not only leaves the finest piece of forest under my care without a direct overseer at the most dangerous time of the year, but there were so many things we had planned to do this spring that cannot be done without a ranger to supervise them. To be sure, I could transfer a ranger here, but I have work for every man in his particular district. Besides, nobody knows this territory like Jim. I believe you know it better than anybody besides Jim. I only wish you were old enough to take his place for a time.

"We're away behind with our planting, and there are trails to be brushed out, new ones to be cut, roads to be built, camp sites to be selected, timber to be cruised, a big lumber operation to be watched and the trees to be marked for cutting and the lumber scaled, improvement cuttings to be made, camp sanitation to be enforced, a fire-tower to be built on the mountain here where your watch tree is. There's a tremendous lot of work that Jim and I had mapped out for the spring and summer.

"Now it looks as though we should not be able to get any of it done. We can't do a thing without a ranger to direct operations. Part of the timber to be cut is in Lumley's district. He joins you here on the north. He will look after all the lumbering in his territory, and I may have to let him take charge of it all. It's a big operation and will have to be watched closely. I just wish I knew where I could find a man capable of taking Jim's place for a while."

"What will the ranger have to do in looking after this operation?"

"He'll have to mark the trees to be cut and see that only those marked are cut; and he'll have to make sure the regulations are observed in felling the trees and disposing of the tops; and finally he'll have to scale the lumber and make sure that the state gets paid for all that is cut."

"What is there so difficult about that?" demanded Charley. "Tell me what sort of trees are to be cut, and I can select and mark them as well as the next man. And if you give me a copy of the regulations, I can tell whether or not the lumbermen are observing them. If I can't make them live up to regulations, I can easily report to you. And as for scaling timber, that's a mere matter of arithmetic. I could learn to do that in five minutes. Couldn't I help you with the lumbering? And as for the other jobs, Mr. Marlin, give me some books that tell about them and let me study up on them. I could put in several hours here every night in study. You don't know how much I could learn in a week. And then you could give me some practical lessons after I had studied up the theory of things. I'm sure I can do lots of the work you were counting on Mr. Morton to do. Won't you let me help you?"

"Bless your heart, Charley! I know you mean every word you say. But you don't realize the difficulties you would encounter. Your chief job would be in handling men, tough men some of them, too. You could never do it, never. But I certainly wish you were old enough to attempt it. There's nobody I'd trust sooner than you, Charley. You've got a good education, and you think quickly and clearly. You've been equal to every emergency you've faced yet."

"Then why isn't that a pretty good reason to trust me further?"

"Trust you, Charley? I trust you absolutely. But you are too young. You could never do it."

Charley said no more. The hope that had sprung up in his heart died as suddenly as it had been born. In his heart he believed that with all the study and effort he was willing to put into it, he could do a ranger's work all right. But he saw it was not to be.

"Anyway," he muttered to himself, "I'm going to be a ranger some day, and I'll show the chief now that I'm the best fire patrol he ever had. That's the best way to qualify for promotion."

He turned to his wireless, threw over his switch and flashed out the call signal of the Wireless Patrol. In his delight at the power of his new battery he almost forgot his disappointment. In a very short time he got a reply from Henry.

"Don't say anything about that pasteboard," cautioned the chief.

"I don't intend to," answered Charley. "I'm going to write to Lew about it and let you take the letter out in the morning. You never can tell who will pick up a wireless message."

For several minutes Charley chatted briskly with Henry, who said the new battery carried the signals to him as clear as a bell. Charley told Henry about Mr. Morton's accident, omitting reference to his own part in the affair, and then through Henry got into touch with both Mrs. Morton and the assistant forester at headquarters. Mr. Morton was getting along all right, though he suffered very great pain. The forester's assistant reported everything quiet in the forest.

Charley turned away from his wireless key, and got out pencil and paper. By the light of the candle lantern he began his letter to Lew, and had almost finished it when the pup, his hair bristling, ran to the door of the tent, growling savagely. An instant later both the forester and Charley leaped to their feet as the stillness of the forest was broken by an awful scream that rang through the dark and was thrown back by the mountain in a magnified echo even more terrifying than the original cry.

Chapter XX

Charley Wins His First Promotion

With startled eyes, Charley looked at the forester, at the same time reaching for his rifle. To Charley's surprise the forester began to grin.

"I guess you got your cat, Charley," he chuckled. "But it sure did startle a fellow."

The first piercing scream of the wildcat was succeeded by a variety of furious screams. The animal could be heard thrashing about in the leaves, spitting, snarling, growling, rattling the chain, and evidently fighting furiously to free itself from the trap.

Taking both the candle lantern and the flash-light, as well as rifle and axe, the two men started for the cat.

"Grab that dog," said the forester, as the pup darted out of the tent ahead of them.

Charley whistled and called, but the pup was too wild with excitement to heed the command.

"Hurry up," said the forester, "or you won't have any pup left."

They pushed rapidly through the thicket, then ran toward their traps. Faintly they could see the wildcat. The pup was worrying it. With arched back, hair erect, eyes ablaze, and snarling furiously, the wildcat was waiting its opportunity to strike. The pup circled about it, yelping and barking, every second growing bolder because the animal did not spring at it.

"Give me that rifle, quick!" said the forester. "That cat'll kill the pup in another minute."

He seized the weapon, sank on one knee, quickly sighted along the barrel, and pulled the trigger. Even as he fired, the cat leaped toward the pup. For a second there was a terrific scuffling in the leaves. Then the search-light's beam showed the pup lying motionless, its neck broken and torn, while the cat was clawing the air wildly, and spitting and snarling in fury.

"Don't ever let one of those critters get on your back, Charley," said the forester, as he approached the cat for a final shot. "Sometimes they will follow a fellow in the forest. It's seldom they really attack a man, but if a fellow loses his nerve and runs, they will sometimes leap on him. A single swipe of those claws will cut a fellow to ribbons."

The forester was now close to the cat, which had gotten to its feet and had crouched, snarling, ready for a leap.

The forester circled so as to get a shot at the animal's shoulder. Quickly raising his rifle, he fired. The cat screamed, clawed the air desperately for a few seconds, and lay still.

Charley rushed in and tenderly lifted his motionless pup from the ground. There were tears in his eyes as he bore the little body to one side. "Poor fellow," he said, "I'll miss you awfully. I was counting on you a lot to help me guard this timber. You did the best you knew how. You thought you were helping me, didn't you?"

He passed his hand across his eyes and faced the forester. "It's some

consolation to know that that beast paid for this, and paid well. I'm sure glad he's dead. It's a good thing for the forest."

"Yes, that's a good job done," replied the forester, "and a nice skin and a bounty for you. That ought to be some consolation to you. But I'm mighty sorry about the pup. Whenever you can, get rid of those fellows. How many young deer or other harmless animals do you suppose this fellow would have slaughtered before another spring?"

Making sure that the cat was really dead, the forester opened the trap.

Then he picked up the dead cat and led the way back to the tent. "I'll show you how to skin this fellow," he said, and, taking out his knife, began to remove the hide.

"Gee!" exclaimed Charley. "Wouldn't the fellows like to know about this?" He looked at his watch. "Some of them will surely be listening in," he said.

Then he sat down beside his key, and while he watched the forester skin the wildcat, he kept his spark-gap snapping and cracking with the fat sparks from the new battery. He was calling Lew. He got no answer and flashed out the signal for the Wireless Patrol. Almost immediately Henry answered. His workshop was the headquarters of the Wireless Patrol.

"Hello, Henry," rapped out Charley. "Do you know where Lew is?"

"He's right here," came the answer. "So are most of the other fellows."

"Tell them," replied Charley, "that we just caught the wildcat in the traps you sent, and Mr. Marlin is skinning it. I'm going to get him to show me how to tan it. When it's done, I'm going to send it to the Wireless Patrol to help furnish our headquarters. I'm going to add the eight dollars bounty money to the club fund for wireless equipment."

Then came a long pause. Finally this message came back to Charley. "The Wireless Patrol thanks you, Charley, but we want you to sell the skin and use the money and the bounty to pay for the field-glasses you need."

Charley turned away from his instrument with a suspicious moisture in his eyes. It touched him deeply that his fellows were so solicitous concerning his welfare and success. He did not realize that he was merely reaping the reward of his own kindly good nature, that had made him a general favorite with the boys of the Wireless Patrol.

There were no further alarms that night. Early in the morning the ranger started back to his office, taking with him the letter to Lew. Charley accompanied him part of the way. Then he continued on his patrol.

The next time Charley met the forester he received Lew's answer to his letter. Lew had addressed the box, but several of the boys of the Wireless Patrol had helped to pack it. The piece of green pasteboard proved to be from a box in which Henry had gotten shoes by mail. The box came from Carson and Derby, a big New York mail-order concern. Almost everybody in the country around Central City bought articles from mail-order houses, so Lew's letter threw no light on the problem. There might be a green pasteboard box of that particular pattern in every farmhouse in the county. Yet as Charley thought the matter over, he recalled that almost everybody he knew who shopped by mail traded with Slears and Hoebuck, of

Chicago.

The days passed. Little happened to vary the monotony. Yet the sameness of life in the forest was far from being bothersome to Charley. On the contrary, he found new delights every day.

Spring was now well advanced. The trees would soon be in leaf, the flowers were coming along in rotation, and the forest fairly pulsed with life. Now Charley found a gorgeous bed of blood-root. Again he came on great patches of arbutus. Here the Dutchman's-breeches grew in rich clumps. There spring-beauties fairly whitened the earth. Violets, Jacks-in-the-pulpit, marsh-marigolds, and dozens of other familiar and lovely blooms he found as he wandered through the forest.

There was nothing Charley liked more than the flowers. He determined to know every bloom in his section of the forest. So he divided his territory into definite strips, patrolling a different strip each day. Thus he became intimately acquainted with every part of his district.

There were more objects than flowers, however, to delight him. The birds and the animals were a constant source of pleasure. Often he had opportunity to study their actions and their habits. The mating season brought a wealth of pleasing experiences. Sometimes he came across a mother grouse with her brood of little ones. It pleased Charley to see how the tiny creatures scattered and hid among the leaves, making themselves invisible at the first warning note from the mother, while she fluttered along before him, dragging a wing as though it were broken, and drawing him farther and farther from her little ones. Wild turkeys, too, he saw, and many other feathered inhabitants of the forest.

Perhaps nothing touched Charley so much as an incident that occurred late one day when he was fighting a small fire. The fine, spring weather brought out regiments of fishermen, and numbers of them got deep into the woods. Whenever he possibly could, Charley avoided meeting them. Sometimes Charley could not avoid a meeting. Then he always posed as a fisherman. He never moved abroad these days without his rod. The rifle he had temporarily laid aside. More than one little fire, started by careless fishermen, Charley detected and extinguished.

One day he saw smoke at a considerable distance. By the time he could reach the spot, the fire had a good start and had already burned over several acres. It was blazing briskly and Charley was at first uncertain as to whether he should attempt to fight it alone or call help. But night was at hand, the wind was already falling, and Charley decided that he could conquer the blaze single-handed. He judged that the best way to do this was by beating it out with brush.

Quickly chopping a pine bough, Charley attacked the fire. It was not a fierce blaze, though when the fitful wind blew strong it flamed up savagely. Even the tiniest of forest fires is hot enough, and Charley found it trying work. He had many hundreds of yards of flame to beat out. The smoke and the heat were stifling and exhausting, and every little while Charley had to turn away from the fire to rest and get his breath. During such periods, Charley would walk back along the fire-line to make sure that the blaze was extinguished behind him.

Darkness came quickly in the deep valley, and before Charley had the blaze half extinguished, he was unable to see distinctly. Indeed he could hardly have seen anything at all had it not been for the fitful light of the

flames; and this dancing light made objects appear uncertain and unreal.

In one of his trips back along the line, Charley came to a stump that was ablaze. In beating out the flames just here, he had failed to extinguish some tiny sparks in a hollow place at the base of the stump. The wind had fanned these into life after Charley had passed on, and the fire had communicated to the stump. Now the stump was a pillar of flame. At any moment sparks might fly from it and rekindle the fire.

Charley beat at the stump with his brush until the flames had entirely disappeared. But fearing that sparks might yet be smouldering under the bark or in the dry wood, Charley began scraping the sides of the stump. As his hand reached the top of the stump, there was a sudden startling whir of wings and something shot upward into the dark. Charley recoiled as though shot. His heart beat a tattoo against his ribs. His first thought was of the sudden blow the rattler had given the ranger. Yet he knew it was no rattler that had suddenly sprung upward into the night. He drew forth his flash-light, which he always carried, and turned the beam of light on the top of the stump. There lay two little turtle-doves, unharmed despite the fierce flames that had played about them. They had been protected by the mother dove's body.

"Little turtle-dove," said Charley, "I take off my hat to you. When anybody tells me about a deed of heroism hereafter, I'll tell them about you and how you hovered over your young ones while the flames were slowly roasting you. I'm certainly glad I got here when I did. You would have been burned in another five minutes and your little ones with you."

Charley started back to the line of flames again. "If a turtle-dove can do a thing like that," he muttered to himself, "you're a poor thing if you can't face a little blaze like this."

He cut a new bush, once more fell on the fire, and never ceased his efforts until not a single blaze lighted the forest. Then he stepped inside the burned area and made his way completely around the edge of it. The ashes were hot and Charley knew that they might scorch the leather in his shoes. But he also knew there would be no rattlesnakes where the fire had burned. When Charley came to the stump again, he turned his flash-light on its top. The dove had returned and was once more hovering over her little ones.

When he was certain that the fire was absolutely extinguished, Charley made his way through the dark forest to his tent and made his nightly report. It gave him great happiness to be able to report that the fire was extinguished and that once more all was well in the forest.

Mr. Marlin had sent out to Charley a package of books that dealt with various phases of work in the forest. Night after night, by the light of candles, Charley sat in his tent studying his texts. He found them fascinating. Here in the forest, where every day he could see illustrated the truth of what he had read the night before, he learned, with unbelievable rapidity. Whenever he came to anything in his texts that he did not understand, he made a note of it. Sometimes at night he got Lew on the wireless and through him questioned the forester. He did not want to bother the government wireless men except in case of necessity.

Two or three times a week the forester came out to see Charley and to keep an eye on this, his finest stand of timber. From time to time he brought supplies and more books. Indeed Charley's capacity to acquire what was in

the books astonished the forester. He knew that Charley understood because of his intelligent questions and his increasingly intelligent practices; for, without orders to do it, Charley was voluntarily doing many of the tasks that Mr. Morton should have done in the forest. As he grew in comprehension of the needs of the forest, Charley began to make suggestions to the forester. More than one of these proved practicable, and Charley was given permission to go ahead with the proposals. Before he knew it, Charley found himself working sixteen hours a day and regretting that the days were not longer. And as always happens to people who are busy about work they love, Charley was supremely happy.

Not the least part of his happiness came from his wireless talks with the ranger's wife. With a speed that surprised him, Mrs. Morton learned both to read and send. On the very first evening after the doctor brought her dry cells, Mrs. Morton managed to tick out an acknowledgment of Charley's call. And though it was faltering and uneven, Charley read it and smiled with delight. As he slowly ticked off the letters of the alphabet and the first ten numerals, Mrs. Morton listened intently, jotting down the dots and dashes on a bit of paper.

When Charley had repeated his message according to promise, he flashed out the call signal for the Wireless Patrol and promptly got a reply from Henry. Through Henry he made his nightly report to the forester, and through the forester sent his congratulations to Mrs. Morton on the success of her initial attempt at radio communication, and inquired after the sick ranger. So both Charley and his new friend were happy that night.

It was quite evident to Charley, when he called Mrs. Morton on the following night, that she must have spent much of the day practicing at her key; for the certainty and assurance with which she transmitted her brief message this time could have come only from hours of practice. Now, in addition to acknowledging Charley's call, she added the simple message, "Jim is improving." Charley did not guess that she had practiced that short message for an hour. Even if he had, he would have been none the less pleased; for practice was the very thing needed to make her an efficient operator. By the time three weeks had elapsed, Mrs. Morton could communicate with Charley readily. Also her husband was improving every day, though it would still be weeks before he could resume his duties. Altogether, Charley's cup of happiness seemed full to overflowing.

There was still more happiness in store for him, however,--a happiness he had not dared to hope for. One day Mr. Marlin appeared at Charley's camp just at dusk. Charley was about to cook his supper. At once he doubled the portions of food to be cooked, and while he worked over his fire, he reported to his superior on the condition of the forest under his charge. By this time Charley knew every inch of it intimately. He had just completed an inspection, lasting several days, of the entire area. He was enthusiastic about his work and full of plans for the future. Practically all his suggestions were good, and the forester smiled and smiled with approval, as he sat back in the shadow, listening.

When Charley had completed his statement, the forester said, "Charley, your report is very satisfactory, and I am especially pleased with the way you comprehend the needs of the situation and plan for improvements. I approve of practically all your suggestions. How would you like to go ahead and work them out?"

"They ought to be done," said Charley impetuously. Then he stopped. "I mean," he corrected himself, "that it seems to me they ought to be. But to

do most of them would require a ranger with a crew of men."

"But you haven't answered my question," said the forester with a kindly smile.

Charley looked puzzled. "I told you I think that they ought to be done."

"Still you haven't answered my question."

Charley stopped a moment to try to recall exactly what the forester had said. Then he went on. "Of course, I should like to work them out, for they ought to be done. But I also told you it would need a ranger and a crew of men. I couldn't do all those things alone."

The forester began to laugh. "Charley," he said fondly, "the Bible tells us there are none so blind as those who won't see. If you were the ranger in charge of those men, would you still like to do the work?"

"Oh! Mr. Marlin," cried Charley, "you don't mean----"

"Yes, I do. Your service as a fire patrol ends to-night. To-morrow you take charge of this section as temporary ranger, pending Jim Morton's recovery. I just can't get along without a ranger in this district. Work is being neglected, the big lumber operation has already commenced in Lumley's district, and things are piling up here too deep. I can't get along another day without a new ranger."

Charley was too happy for words. "I'll do my best," he said, with quavering tones. But in a moment he got command of himself. "You told me I couldn't handle a crew of men," he said.

"Maybe you can't, Charley, but you've handled everything else and handled it well. It is plain that you love the forest and understand as much about its needs as any ranger I have. A little experience is all you need to make a first-class ranger. I'll give the men a talking to. When I get done, they'll know it won't pay to monkey with you, even if you are only a high school boy. Now, Ranger Russell, I think we had better turn in and get some sleep, for we'll have to pull foot early to-morrow."

Chapter XXI

A Trouble Maker

Pull foot early they did, too. Charley himself was no sluggard, but the forester's capacity for work simply amazed him. He knew the forester was on the job late every night, for he reported to him each night the last thing before he went to bed. Yet whenever the forester spent the night with Charley, Mr. Marlin was up at an early hour; and the present occasion proved no exception.

Mr. Marlin had never said much about himself to Charley, and no one else had happened to do so; but Mr. Marlin had worked himself up from the ranks. He had been a fire patrol and later a ranger, and then had attended the state forestry school, as the other district foresters had done.

His unusual training, great diligence, intelligence, and untiring energy had made him one of the ablest men in the service. By sheer ability he had won for himself the oversight of this district, which was one of the most important in the entire million acres of state forest lands.

Hardly was the forester afoot this morning before he had a fire going and breakfast cooking. Before breakfast was ready, the two forest guardians began to strike camp. Charley took down his wireless and stowed it as compactly as possible. The tent was lowered and rolled up. Everything was gotten into portable shape, and as soon as breakfast was over, the dishes were washed and they, too, were added to the bundles.

"I don't care to let anybody know where your camp was," said the forester. "I may want to use this site again. So we'll have to pack our stuff out ourselves, at least part of the way. I am going to put a crew of men in here to-morrow and they can finish carrying out the duffel if we cave in before we reach the road. It will be a pretty good load."

Each of them strapped a big pack to his back. The rifle and the fishing-rod had been fastened to the battery, which in turn was roped to poles for handles. In this way it was possible for the two to carry all Charley's outfit. By sun-up the two were already on the trail. They toiled up the slope and crossed the ridge close to Charley's watch-tower. The way was rough and the going hard. But once they struck a fire trail, the path was easy. Yet at best it was a hard and toilsome hike, and several hours elapsed before they reached the forester's motor-car, which he had concealed in the pines. Both of them were tired, and Charley felt as though his arms were about ready to part from his shoulders.

Most of their journey had been made in silence. But now that they were seated comfortably in a motor-car, they once more began to talk.

"I had to bring you in from the forest, Charley," explained Mr. Marlin, "because as a ranger it will be necessary for you often to be at headquarters. I have arranged for you to live with Ranger Lumley. His district adjoins yours, and his house, right in the forest, is near the dividing line. So it will be about as convenient for you as it is for him. He is to be at the office to meet us and look after you. We'll pick him up and go on to his house with your things."

Ranger Lumley was on hand as the forester had said he would be. Charley had found Ranger Morton and his wife so likable that he was glad indeed of the opportunity to become acquainted with this second ranger. But the minute he laid eyes on him, he felt a chill of disappointment. Yet he could not have told exactly why. Somewhere, too, he felt sure, he had seen the man before; though he could not remember when or where.

Lumley was a man small of stature, with a hooked nose, fishy blue eyes, a thin, hard mouth, and a face seamed and wrinkled. Yet he was quite evidently not an old man. Charley had noticed that some of the tough characters in his home town looked like that, and the more he studied Ranger Lumley's face, the less he liked the man. Particularly did he dislike his eye. Once he caught the ranger looking at him slyly, and the gleam in the ranger's eye reminded Charley of the vicious look of a horse when he shows the white of his eye. It seemed to Charley, too, as though there was something suggestive of craftiness and cunning in the man's countenance.

When they reached the Lumley home, Charley felt his dislike for the man increasing. Unlike the neat and attractive dwelling of the Mortons, the Lumley house was dirty and disorderly. The children were unclean and ragged. They had no manners whatever. Yet they obeyed readily enough when their father spoke to them. But it did not take Charley long to discover that they obeyed because of fear. When he realized that, he thought of the vicious look he had noted in the ranger's eye. There were dogs innumerable about the place, and they all slunk away when their master approached. Yet all the time, as he showed Charley about, the ranger was almost obsequious. This evident contradiction between the man's actions and his looks made Charley distrust him immediately, and it was with heavy heart that he said good-bye to Mr. Marlin and watched him drive away.

The ranger showed Charley to the room that was to be his. Charley began to carry his luggage up-stairs. He would much rather have taken it all himself, but the ranger insisted upon helping him. When Charley saw how the man eyed every package and scrutinized every article, he understood quickly enough that Lumley wanted to help him, not because of any wish to be courteous, but simply because of his burning curiosity. Especially was the ranger curious about Charley's wireless outfit, but Charley volunteered no information.

The more Charley considered his situation, the gloomier he felt concerning it. He had looked forward to his coming, after Mr. Marlin had told him of the arrangement, with a feeling of pleasant anticipation. Charley was not the least bit shy and made friends readily. He had a feeling that all the men in the Forest Service must be pretty fine men and that their interest in their work would make them, like Mr. Marlin and Mr. Morton, eager to help a recruit. Thus Charley had believed that Lumley would be very helpful to him. He had intended to put himself more or less in Lumley's hands and trust to the ranger for guidance. But a very few minutes spent with Lumley made Charley feel that he could not take the man into his confidence. He almost felt as though he dared not, though when he came to consider the matter fully, that attitude seemed foolish. Lumley was a guardian of the forest as well as himself, and surely he could trust him with matters that pertained to the forest.

Charley tried to fight down this feeling of distrust. It seemed to him very wrong to accept a man's hospitality, even if he was to pay well for it, and at the same time be suspicious of the man. But hardly had he decided that he ought to be frank with his fellow ranger when Lumley began asking questions that caused the feeling of distrust to return with renewed force. Lumley's questions were intended to seem innocent enough; but Charley was sharper than he perhaps looked, and he saw the real intent behind the questions. The man was slyly trying to find out all he could about Charley's history, and particularly how much Charley had been paid as a fire patrol and what he was to get as a ranger.

Charley answered most of Lumley's questions openly enough, but could not tell him what he was to get as a ranger, for he had never once thought about the matter, nor had Mr. Marlin mentioned it. But when Charley told Lumley so, he could see that the ranger did not believe him.

When the ranger began to question Charley about his recent work in the woods, Charley answered him evasively. Lumley knew that Charley had been acting as fire patrol, because Mr. Marlin had told him so. But Charley felt very sure he did not know where the secret camp had been pitched, for Mr. Marlin had distinctly said that matter was a secret between Charley and himself. So Charley answered him evasively and soon turned the

conversation to other matters.

While Charley was arranging his duffel, two or three dirty youngsters came bouncing into the room and at once began to drag Charley's wireless apparatus from the pasteboard box. With a cry Charley sprang toward them and snatched the instruments out of their hands. The ranger gave a savage oath and aimed a kick at the lads, but they dodged and ran from the room.

At first Charley was terribly annoyed. But in a second he was glad the incident had happened. Nothing had been injured and he had had a warning of what might be expected. It gave him a good opportunity to shut up his things without seeming to be suspicious of his host. Charley acted at once.

"I have no need of this wireless outfit at present," he said, "and if you have a spare box and some nails, I will just nail these things up until I have time to set up the outfit." So the wireless instruments were safely boxed up and locked in a closet, along with Charley's rifle and fishing-rod. There was nothing in his remaining luggage that could be much harmed, even if the youngsters did get hold of things.

As soon as his belongings were stowed away, Charley decided that he would go to the forester's office and talk over his work. He had three miles to walk, and although he had already trudged several times that distance, heavily loaded, he did not hesitate for a moment. When Lumley suggested that he use the telephone and avoid the walk, Charley merely smiled.

"I don't mind it," he said.

"I'd like to see myself walk that distance for any such fool errand," growled the ranger.

When Charley had said he didn't mind the walk he had told the truth. Yet he had understated it. The fact was that he hugely enjoyed the walk. He was rested from his long carry, and with nothing to weight him down, his feet felt light as feathers. He trudged briskly along the smooth highway, every sense alive to the delights of the forest. All about him the woods were vocal with the calls of birds. The wind whispered and sighed in the pine tops. And sometimes, when the air in the bottom was still as sluggish water, Charley could hear the wind roaring among the trees far up on the hillsides. The scent of spring was in the air--that indescribable mixture of the smell of opening buds and flowers and green things and rank steaming earth, that together make such an intoxicating odor. And all about him Charley caught glimpses of the wild life of the forest.

It was late in the day when he reached the forester's office. The forester seemed greatly surprised to see him.

"I came to talk to you about my work," explained Charley.

The forester frowned. "What is the telephone for?" he asked a bit brusquely.

"I didn't want to talk over my business before that man," protested Charley.

The forester looked at him sharply. "What business do you have excepting the business of the forest?" he asked.

"None," said Charley.

"Then surely you could discuss forest matters in the presence of a ranger."

"It may be that I am unreasonable," said Charley, "but I don't like that man. There's something about him that I don't trust."

The forester looked at Charley searchingly. "Sometimes," he said, "I almost feel that way myself. I realize that Lumley is mouthy and inquisitive and disagreeable personally, but he has been in the Forest Service a long time and it hardly seems right not to trust him. He's a pretty efficient ranger."

"Well, I'm here, anyway," continued Charley. "I came to find out what my first duties are to be and how to do them."

"There's a little tree planting that simply must be done in your territory, late though it is," said Mr. Marlin. "To-morrow I shall send you out with a small crew to do it."

"Please show me just how it ought to be done," said Charley.

The forester smiled with approval. "Come out-of-doors," he said, picking up a mattock. And he led the way to a bed of seedling spruces that had been heeled in the ground, and dug up two or three of them.

"These ought to be lifted in small bunches and their roots puddled," he said, dipping the earth-covered roots in water to show how to puddle them. "They should be planted thus." He struck his mattock sharply into the soil, bent it to one side, and in the hole thus opened thrust a tiny tree. Then he stepped on the ground close to the seedling and pressed the earth tight about it.

"That's all there is to it," he said. "Your crew will work in pairs, one man carrying the trees in a pail of water and inserting them in the ground, while the other man carries the mattock and opens the holes. The trees should be planted in straight rows and about four feet apart each way. You will have to go ahead of the crew and set up the line pole. Pick out some trees or saplings to sight by and you will have no trouble to keep your line straight."

"Is that all?"

"You'll have to oversee the work, of course. Make sure the planting is done right, and watch your men. You will have to take whatever steps seem necessary to keep them working well and cheerfully. Sometimes it is a good thing to switch a man from one job to another. It rests him to use another set of muscles."

"What else am I to do?"

"Day after to-morrow I want you to brush out the fire trails leading to your old camp. That is, you must start brushing them out. It will take several days. They are so overgrown now that they are a real menace to the forest. These trails were originally five feet wide. We took out all the roots and underground growths down to mineral soil. You must cut away all the brush that has grown in, chop it into short lengths, and pile it in little piles in the trail itself for burning on windless days. You must

grub out the roots that have grown in, too. Really the entire trail ought to be grubbed again, but we can't do that now. You will have to assign men to cut brush, to pile it, and to grub up the roots. That's about all I can tell you."

"It sounds very easy," said Charley, "but I am willing to confess that handling these tough looking mountaineers is more than I counted on."

"Are you going to quit so soon?" asked the forester with scorn. "I thought you had more stuff in you than that, Charley."

Charley turned red. "Who said anything about quitting?" he demanded. "I only want to know what I am to do if I get into trouble with the men."

"That's more than I can tell you. It's up to you as a ranger to find the ways to manage your men. But I can tell you this. It is always best to follow Mr. Roosevelt's plan and speak softly but carry a big stick. Be kind to the men. Be square with them. Play no favorites. Look after their interest. But don't let them loaf on the job. They expect to have to work, and they won't have much respect for a man who doesn't hold them to their task. After all, they are not very different from horses. They have to be driven if they are to work."

"I suspect some of them will be hard to drive," said Charley, "if the few I have seen hereabout are good samples."

"It all depends upon how you get started with them. Don't let them get away with you. Let them know you are the boss. And remember this: as a ranger you have power to hire and fire these men. If it comes to a show-down, don't hesitate to fire a man. We're short-handed, but we can much better afford to lose a laborer than to have an entire crew spoiled."

"Thank you," said Charley. "I feel better already. If you don't mind, I'm coming to you before each new job and get you to show me exactly how it should be done. A fellow can get along so much better if he really knows what he is talking about."

"Good boy," smiled the forester. "I don't believe I am going to be disappointed in you, Charley."

Charley shook the forester's hand and started back to his new habitation, which he reached just as supper was ready.

After supper he and the ranger talked about the forest. Or rather Lumley did. He was so loquacious that Charley soon stopped talking and let his companion carry on the conversation alone. Lumley was quite able to do it, for he was truly, as Mr. Marlin had described him, mouthy. He had something to say about everything, and what he had to say was usually of a derogatory character. He was guarded in what he said about Mr. Marlin, yet Charley saw that he was trying to damn the forester by faint praise.

"You may make a good ranger in time all right," he said bluntly to Charley, "but it seems mighty funny to me to take a raw high school boy and put him in charge of the finest stand of timber in the entire forest. I'm the man that post ought to go to. Besides, I have a greater interest in that timber than any one else."

Charley choked back his resentment at the statement about himself and asked, "Why have you a greater interest in that timber than any one else?"

"Because our family used to own that timber," he said, sudden passion inflaming his eyes. And Charley once more saw in them that savage look he had detected before. "If my old fool of a grandfather hadn't let himself be bilked out of the whole holding," he said coarsely, "I'd own that timber to-day and I'd be a millionaire instead of a poor forest-ranger. By rights the land is mine, anyway." And again the ranger swore at his dead ancestor.

Charley listened in disgust but made no comment. The ranger saw that he had talked too much. He muttered an apology. "When I see somebody else getting the money that ought to be mine," he said, "it makes me so mad that I could almost commit murder." Then he quickly changed the conversation and once more became the smooth, oily individual he was when Charley first saw him.

But Charley had seen and heard enough to be utterly disgusted with the man. As early as possible he got away to his room on the pretext of weariness, but it was a long time before he went to bed.

Early next morning he was at headquarters, where Mr. Marlin introduced him to the half dozen men who were to serve under him. Ordinarily ten men would form a unit for planting, but Charley did not know that, and so was ignorant of the fact that Mr. Marlin had tried to make his first day of authority easy and successful by giving him only a few selected men to handle. Mr. Marlin introduced Charley to the men one by one, as they came in. Charley tried to talk to them, but found it rather difficult. The mountaineers had little to say.

When the men were all on hand, Mr. Marlin turned to them and said, "By the way, men, this is the lad who saved Morton's life."

At the mention of the sick ranger, Charley saw the men's faces light up.

"He's a little young yet, but he knows his business. Jim says he handled the snake-bite as well as any doctor could have done. I want you all to be good to this lad and help him as much as you can."

Now they had found something in common to talk about. All day long, at intervals, the crew discussed rattlers; and Charley told them, at their request, just how the ranger was bitten and what had been done to save him.

"You see," he said, "the danger from snake-bite comes when the poison reaches the heart. So it is necessary to suck as much of it out as possible and to prevent the remainder from reaching the heart except a little at a time. That's why the bandages were put on the arm so tight. The old notion of taking a stimulant was all wrong. The thing to do is to keep the heart beating as slowly as possible until the venom reaches it. Then if it begins to slow up, give a stimulant."

This suggestion was contrary to all forest practice and Charley could see that the men were greatly interested in it. How much his recital about the snake contributed to his success that day he never realized. He kept his lines straight, switched his men from one task to another, now relieved this man or that, and did his work in such a highly efficient manner that he would have had no trouble anyway; but at intervals all through the day the men reverted to the rattlesnake story. They were so busy thinking about something else they almost forgot about Charley.

But the next day had a different tale to tell. The forester had increased Charley's crew by four men, and a tougher looking lot Charley had never seen. Rough, rugged, reckless mountaineers, there was not one of them who could not have picked Charley up and broken him in half with ease. And one of them, a tall, surly fellow, was quite evidently bent on making trouble.

Charley's knees almost shook under him when he faced the crew and realized that it was up to him to command and control these men. Also he knew that he was lost if he showed any hesitation. The instant the party reached the trail, therefore, Charley seized an axe.

"Let's get at it, men," he said, starting work himself.

"What do you want us to do?" asked the tall, surly looking chap. The others gathered round to see what Charley would say. And Charley realized that he was on trial with the men.

"You heard what the forester said," he replied pleasantly. "We're to brush this trail out. I want it made as good as it was when it was first completed. Mr. Marlin said you were a mighty good crew and knew your business thoroughly. So you don't need any instructions from me."

Evidently the reply tickled the men. Charley saw one or two of them nudge their fellows and chuckle; and all of them looked slyly in the direction of the man who had asked the question. Charley judged that the fellow was trying to make game of him and that the crew thought Charley had come out on top. Charley did not mean to lose this slight initial advantage.

With his axe he began briskly chopping away the brush along the sides of the trail. Here and there he noticed little bushes that had sprung up in the trail itself.

"I wish you would take a mattock," he said to the man nearest him, "and grub out all the plants in the trail. Take out all the roots and get everything clean down to mineral soil." To the others he said: "We'll chop up the brush fine and pile it right in the trail to burn on windless days."

The crew fell to with a will and the work went forward briskly. Presently they reached a place where the trail was badly overgrown. Charley assigned two more men to grub up roots. He was learning fast. Most of the time he worked at the head of the gang, so he could see what was ahead, and be prepared for any new situation that arose. But from time to time he walked back among the crew to see that the work was being done right.

Evidently the crew liked the way Charley was taking hold. They worked cheerfully and skilfully. That is, all did with the exception of the tall, surly fellow. He seemed bent on annoying Charley, but Charley paid no attention to him. At last, however, a situation arose that he dared not overlook. The trail had originally been five feet wide, but the bushes, crowding in on either side, had greatly narrowed it. The main reason for brushing out this trail at this time was to widen it again to its original size so as to make it an effective barrier against fire. The tall laborer was deliberately neglecting to cut bushes that had sprung up within the original five-foot area.

The instant Charley noticed this, he spoke to the man. The others, scenting trouble, stopped work to look on. Charley sensed the situation

and set himself for a tussle. "Let them know you're boss," he remembered Mr. Marlin had said to him. So he stepped toward the man and said quietly, "I neglected to say that I want this trail cleared to its original width. Just take out those bushes you have missed."

"The trail's wide enough," said the man, sulkily. "Lots of trails aren't half as wide as that."

"It isn't a question of how wide other trails are," said Charley good-naturedly, "or of how wide this ought to be. All I can do is to obey orders. Mr. Marlin told me to clear the trail just as it was originally."

The man looked angrily at Charley and sudden passion lighted up his eyes. "If Mr. Marlin wants this trail that wide, he can say so himself. But nobody's goin' to make me take orders from a high school boy. I know how this trail ought to be brushed."

Charley saw that it had come to a show-down. Inwardly he was greatly agitated. His heart beat so fast and the pulse in his temples throbbed so violently that he was afraid the men would see how excited he was. But he took a grip on himself and answered slowly, thinking hard all the time, and trying not to betray his real feelings. Again he recalled what his chief had said about letting the men know he was boss.

"You are quite right," said Charley slowly. "Nobody can make you take orders from a high school boy. This is a free country and you do not have to take orders from anybody if you don't want to. You are free to quit this job at any time you like and nobody can stop you. But as long as you stay on the job you will have to obey orders. I'll give you your time and you can get your pay at the office if you want to quit. If you want to stay, just brush out that trail as Mr. Marlin wants it brushed."

Without waiting for a reply Charley turned away and returned to his place at the head of the line. The men about him resumed their work with a will. In a moment the tall laborer picked up his axe and began clearing out the bushes he had missed. Charley had won.

Chapter XXII

Charley Finds Another Clue

As he trudged homeward that evening, Charley pondered over the events of the day. At first he did not know whether to rejoice or be sorry over the outcome of his encounter with the laborer. He was sure the man would hate him, and if he did, he might try to make more trouble for him. On the other hand, he realized that if he had let the man get the better of him, he could never have hoped to maintain discipline; and Charley was old enough to know that without discipline he could not succeed in any post of authority.

Perhaps he was most worried by the fact that he could not talk to Mr. Marlin about the matter. Of course, he could have used the telephone, but the idea of discussing his difficulties before the Lumley family was so repugnant to him that he could not bring himself to attempt it. So he

decided to get up his wireless at once. Then he could talk to Mr. Morton and Lumley could not understand what was being said. He felt free to tell the Mortons anything. By this time Mrs. Morton could operate the wireless readily and her husband was learning fast. So Charley hurried to eat his supper and get his wireless installed.

He foresaw that Lumley would insist upon helping him. He steeled his mind to the event and accepted the proffered assistance with the best grace he could. Afterward he thanked his lucky stars that he had done so.

While there was still light enough out-of-doors, Charley assembled and hoisted his aerial; and Lumley, who was really dexterous, was of great help to him. As soon as the aerial dangled aloft, Lumley got tools to bore a hole in the window-sash for the lead-in wire.

Now Charley got another insight into Lumley's character. It was a little difficult to make the hole just where it was wanted. Lumley instantly became impatient and went ahead recklessly. Suddenly his bit snapped. With a volley of oaths, Lumley threw down his brace and hammered the broken bit out of the window-frame. In doing so, he broke out a long splinter of wood, leaving a gaping crack in the sash. He swore until he was out of breath. Then he got some putty and puttied up the hole, forcing the putty into the crack with his thumbs. Then the wire was brought in through the sash and Charley began wiring up his instruments. But it had taken half an hour to accomplish what five minutes of patience would have done. Charley was utterly disgusted with the ranger's show of temper.

As he coupled up the instruments, he answered, as politely as he could, the ranger's numberless questions. Behind every question he saw, or thought he could see, some ulterior motive. By every means he could, Lumley was trying to find out all that was possible about Charley and his relations with the forester. And Charley could see that Lumley was envious of his intimacy with Mr. Marlin and jealous of him because, though a mere boy, he was already as high up in the service as Lumley was after years in the department. Charley realized that this was an unfair way to view the matter, as he, Charley, was not really a ranger, and did not expect to continue as a ranger after Mr. Morton was well enough to resume his duties. But he could see that Lumley took no account of that. He began to understand that it was the man's nature to be suspicious and jealous.

That was clear enough from Lumley's remarks about himself; for again he repeated the story of his family's former ownership of the big timber, and of how he had been robbed of his heritage. Charley felt sure the man had brooded over the matter until his judgment was warped. He listened, however, without comment.

Presently Lumley began to make insinuations about the forester, telling Charley that Mr. Marlin had been as much the child of luck as he had himself; but Mr. Marlin had had all the good luck, while he had had all the bad luck. When he spoke of Mr. Marlin's rise from the ranks, Charley could see plainly enough that Lumley was green with jealousy. He thought he ought not to listen to such talk, and telling Lumley flatly that Mr. Marlin's industry, he was sure, was the main reason for his success, Charley turned the conversation into more agreeable channels. Finally Charley finished coupling up his instruments and tested his spark.

"It's a slower way to talk," said the ranger as he watched Charley adjust his spark-gap, "but I can see that it beats the telephone all hollow. Why, a wind-storm, or a snow, or a thunder-storm can put the telephone out of

business quicker than you can say scat, and it may take hours and hours to find the trouble and remedy it. I guess you couldn't put the wireless out of commission, could you?"

"That's where you are wrong," smiled Charley. "A piece of iron laid across the terminals for half an hour would put this battery completely out of business."

How easily the telephone could be put out of business was soon shown; for the very next day a terrific wind-storm came along, uprooting large trees, wrenching loose great limbs which it hurled for many yards, bending flat some of the smaller, weaker saplings and ripping its way through the forest with a roar indescribable. Charley was with his crew brushing out the fire trail. The wind was accompanied by some rain, and the crew sought shelter under an overhanging ledge of rock. While they waited for the storm to blow itself out, Charley turned the situation over in his mind. Hurricanes were something he had never thought to ask Mr. Marlin about. He felt sure the storm would mean some new duty for him, but he did not know exactly what. He hesitated to ask his crew, for he did not want to betray his ignorance. But a chance remark one of his men dropped about repairing the telephone-line furnished a clue for Charley. He thought the matter over, and by the time the storm had ended, Charley had come to a decision. Right or wrong, he determined to act promptly.

"I want one of you to help me look after the telephone-line," he said, picking out one of the crew. "The rest of you can go on with the fire trail."

With this helper, he made his way out to the telephone-line and followed it the entire length of his territory. In several places saplings had blown across it. One tree, partly uprooted, was leaning against it. And in one place the line was actually broken. Charley had no tools for handling wire, and he decided that he would henceforth carry a pair of nippers in his clothes. Fortunately for Charley, the wire had stretched so much before it broke that he and the man were able to get the broken ends together and give them a twist. The repair was temporary, but it would answer until a permanent job could be done. When Charley reported to headquarters that night, the chief commended him for his good judgment in repairing the telephone-line so promptly.

The few days that Charley had worked in the forest had made his hands very sore, for he had no gloves. He had cut and scratched and torn his fingers until it seemed to him there was room for no more bruises. He wanted to get some gloves, but did not know when he could get to a store to buy any. He mentioned the matter to Lumley.

"Buy them by mail," said Lumley. "We get most of our goods from mail-order houses."

Charley had never bought anything by mail, and had not thought of securing his gloves in that way. "That would be all right," he said, "but I wouldn't know how to order."

"Here," said the ranger, plunging his hand into a cabinet, "these catalogues will help you." And he drew forth three catalogues from as many different mail-order houses. There was one from Slears and Hoebuck, one from Montgomery Hard, and a third from Carson and Derby.

Instantly Charley thought of the telltale piece of green pasteboard and a

quick suspicion leaped into his mind. As quickly it faded out. He could not for a single second bring himself to suspect a guardian of the forest of being a woodland incendiary. Yet he could not refrain from asking, "Which one of these concerns do you buy from?"

"Whichever one sells cheapest," replied the ranger.

Charley found some cheap working gloves that he thought would suit him and ordered several pairs.

In the days that followed, he thought often over the problem of the green pasteboard. It was true he had made another step in unraveling the problem, but he did not see that it helped him much. He had discovered that Lumley sometimes bought stuff from Carson and Derby, but doubtless dozens of other near-by dwellers also did. Furthermore, it did not follow that any near resident had fired the forest. Some one from a distance might have done so. The more Charley thought about the matter, the less importance he placed upon his discovery, and he decided to say nothing about it to any one. How the guilty party was ever to be traced Charley could not even imagine. The situation appeared hopeless.

However, Charley had small chance to worry about the matter. As the days passed, the forester laid more and more duties upon him. Many a lad would have thought the forester was imposing upon him, but Charley was eager to do everything he possibly could. He realized that the more he accomplished, the greater would be his experience; and that the larger his experience was, the faster he ought to get ahead. He had the good sense to know that the short way of spelling opportunity is w-o-r-k. And he realized that he had his chance here and now. So he did everything he possibly could do and asked for more.

The forester, like any other man in authority, was pleased beyond words at this spirit. His response was to pile the work on Charley. He was testing him out, to see whether the desire for work was just a whim or whether Charley possessed that real ambition, that inward spirit of progress that drives a man on and on through the years to greater and greater accomplishments. For the best worker in the world is the man who works because he wishes to work, and who is always striving to become a better workman.

Certainly Charley became a better workman, as any one does who works in the spirit he exhibited. The mere getting of a wage, the mere earning of a living hardly figured in Charley's calculations. He was working to learn, to get ahead, to climb up in the Forestry Service. Hence there was nothing perfunctory in what he did. He strove for perfection; and like all who so strive, he began to attain it.

Before he had been many weeks a ranger, Charley was as valuable a man in many ways as the forester had under him. All Charley lacked to make him perhaps the very best man was wider experience; and this was coming to him daily. Furthermore, Charley was fortunate enough to have learned, through his schooling, that although experience is the best teacher, he is a fool who learns only through his own experience. All the information in all the books that Charley had ever studied was the result of experience--somebody else's experience. And he had early grasped the fact that to learn through the experience of others is to save time and difficulty. So now he supplemented his own experiences by much reading and study at night and by the discussion of forest matters with the more intelligent of his workmen.

New experiences came to him frequently. The forester surveyed and laid out a road through the forest. Charley helped with the surveying and learned much about levels and grades and the theory of road making. And after the road was fairly started, the forester left its completion largely to Charley. This new road was to lead into the big timber operation which was shortly to begin in Charley's territory.

Already a great crew had been assembled and much timber had been cut in Lumley's district. Lumley had to oversee this operation and he was kept far busier than he liked to be. So Charley saw little of him.

In overseeing the operation in his own tract, Charley would have to select and mark the trees for cutting, see that they were felled so as to save the young growths, compel the prompt removal of trees that had fallen across little saplings that had been bent under them, and make sure the tops were properly lopped off and either burned where possible or piled so that they would quickly rot. Then he would have to be particular that the trees were thrown away from the roads and lines, and that a strip at least one hundred feet wide was kept cleared of brush between the cutting operations and the remainder of the forest, as a protection against the spread of fire. Then there would be timber to scale and a hundred other things to be looked after. To safeguard the state's interests would require both experience and determination should the timber operators wish to be tricky. Mr. Marlin intended that Charley, as a reward for the fine spirit he was showing, should handle the lumber operation in his own district entirely alone, just as a full-fledged ranger would do. It was both a high compliment to Charley and a fine reward, for the timber operation was large, involving great sums of money, and even with the most careful supervision the state might easily be defrauded of thousands of dollars.

But Mr. Marlin was far too wise to put Charley in such a position without adequate training. Personally, therefore, he began to prepare him for the work. Accompanied by Charley, he went entirely over the operations in Lumley's territory. He carried a duplicate of the contract under which the wood was being cut. Together they discussed every phase of the contract, and the forester showed Charley how each step in the operation should be carried out; how the trees should be selected and marked, how they should be felled and trimmed, how the brush should be disposed of, and finally how the timber should be scaled at the skidways along the highway, whence the timber was being carted away in huge trucks.

Then he went with Charley into the latter's own district and started him at the task of selecting and marking the trees for cutting. These had to be greater than ten inches in diameter, breast-high, and had to be marked. Crooked trees and wolf trees whose unduly large tops harmed lower growths were also to be cut. The trees were marked by blazing them at the butt and breast-high and striking the blazes with a heavy hammer that left the imprint of the state's marker on the wood. Merely to select and mark all the trees to be cut was a considerable task, but Charley tried to do this and carry on his other work as well. It meant that he worked from the earliest possible moment in the morning until he could no longer see at night. Day after day he worked at his tasks, content to eat cold meals that Mrs. Lumley packed for him, and reaching home so weary that he tumbled into bed and was asleep the instant he had telephoned his daily report to his chief.

Darkness had already fallen, one night, when Charley drew near the Lumley habitation. To his surprise he saw a light up-stairs in Lumley's room. As

he drew nearer, he could faintly discern the forms of two men in the chamber. Involuntarily he stopped to scrutinize the figures. At the same instant Lumley's dogs began to bark, as they always did when any one approached. Quick as a flash the curtain of the chamber window was pulled down. But in that brief instant Charley was sure he recognized the man with Lumley. It was Bill Collins.

Charley was startled completely out of his weariness. A moment later he got a second shock. Like a flash it came to him where he had first seen Lumley. He had been with Collins the day the latter had appeared in the forest. Collins had attracted Charley's attention so strongly that he had hardly noticed Collins' companion. Yet now he was certain he was right. He was certain that he was not mistaken.

From the beginning he had believed that he had seen Lumley somewhere before the forester introduced Lumley to him. Now it came to him where he had first seen Lumley. Lumley was the man he and Lew had seen with Bill Collins.

Still another surprise awaited Charley. When he entered the house Lumley was seated at the table opposite a stranger, and the stranger was not Bill Collins. But he resembled Collins so much that Charley did not wonder that, at such a distance, he had made the mistake of thinking the man was Collins.

Chapter XXIII

A Startling Discovery

Charley was glad enough that the man was not Collins. Had he been Collins, Charley would have had another matter to worry about. He was carrying such a load of responsibility these days that he sometimes felt that he couldn't stand another thing; and in moments of depression he thought he could not continue to carry the load he already had.

For Charley was learning the lesson that every man in authority learns: when the forester laid out a piece of work for him, the forester expected him to get it done. No matter what the difficulties were, Charley had to find a way to surmount them. Many and many a day he would gladly have exchanged places with the humblest laborers in his crew.

All that was required of them was merely to do what they were told to do, hour after hour or day after day. There was no need for them to lie awake wrestling with problems that seemed impossible of solution, as Charley had more than once lain awake.

For it had not all been smooth sailing for Charley, any more than it is for any man in authority. After his first set-to with the surly laborer, he had not had any open trouble with his men. But more than one of his crew did not always do an honest day's work, and any failure on the men's part put Charley behind with the amount of work he was expected to get done. This difficulty Charley had finally remedied by asking for Mr. Morton's help. The latter had sent for several of the laborers and had shown them that in hindering Charley they were hurting the Forest Service

and thus, in the long run, harming themselves.

Furthermore, as the days passed, and Charley showed that he knew his job, that he was just to everybody, that he had control of his temper, that he expected a fair day's work every day, while he himself accomplished more actual work each day than any man in his gang, the attitude of the men under him changed. Before the summer ended, Charley had as loyal a crew as any man could ask for. And to their loyalty they began to add ambition. For Charley was able gradually to instil into them the spirit which made them want to do as much as any other crew and a little bit more.

So his road making came on apace. Rapidly the rude highway advanced through the forest. Every day after his crew had gone home, Charley went over the area to be made the succeeding day, examining carefully every inch of the ground and determining how he would meet each little problem that would come up. Thus prepared, he speedily acquired a reputation for unusual ability. The result was that his men, when stopped by some obstacle, at once came to him for assistance, though at first they would have scorned to ask a "high school boy" for enlightenment about any task in the forest.

The road under construction was being pushed straight through the heart of the big timber. It was to lead directly to the foot of the mountain on the top of which Charley and Lew had had their secret watch tree. Materials for a real fire-tower, a sixty-foot structure of steel, had been purchased, and as soon as the road was completed, this material was to be trucked to the foot of the mountain, and the tower itself erected on the summit, close to the very tree that Charley and Lew had climbed so often.

The erection of the tower was another task for which Charley would be responsible. Long before the road was completed, therefore, Charley and the forester went over every step in the process of construction, and decided how to do each task, from the making of the concrete foundations to the stringing of the telephone wires when the tower was complete. The tower itself was to be a slender steel structure made of angle-iron supports bolted together, with a little square room at the top for the watcher. This room would be enclosed on every side with glass windows, and from this great elevation a watcher could see in every direction over miles and miles of forest. A telephone would connect with the forester's office.

At the foot of this tower Mr. Marlin intended to build a snug, little cabin, so that the tower man could remain at his post twenty-four hours a day throughout the fire season. The materials for the cabin would be trucked in along the new road and carried up the mountain, and some of them would be cut right on the spot; for the forester planned to erect a neat log cabin.

Before the road was completed, Charley had cement carried in as far as the trucks could travel. Then the cement was carried up the mountain by laborers. It had been put in small sacks so that it could be handled easily. Sand was already at hand, and water could be had at the run coming from the spring by which Charley had camped. Tools and boards were brought, the proper excavations made, forms fashioned and fitted into the excavations, and then cement was mixed and poured into the forms to make the foundation to which the tower was to be bolted. By the time the road was finished so that the steel framework could be trucked in, the cement foundations were hard as stone and ready for the instant erection of the tower.

At once the steel frame began to ascend. Upright was added to upright, cross brace bolted to cross brace, and rung after rung added to the steel ladder that led up to what was to be the watch-tower. In a surprisingly short time the steel work was completed. Now the forester brought in skilled carpenters and the wood for the tower room was cut after the patterns and the cut pieces hoisted up to the top of the steel frame where the watch-tower itself began to take shape.

While these operations were afoot, Charley and his laborers were back in the forest, running a telephone-line along the new road. Holes had to be dug, poles cut, barked, hauled, and set up, and the wires strung. While his men set the poles, Charley himself, with a helper, strung the wires. At this job he needed no instruction. His experiences with the wireless were now of great value to him, for he understood about insulation, grounding, short circuits, and the like as well as any skilled lineman.

So the telephone-line came on apace, and long before the tower was finished, Charley had the line complete from the highway, where it joined the main line, to the summit of the hill where the tower was going up. He installed an instrument in a waterproof box nailed to a tree, so that he could now talk from the hilltop to the forester's office. When the tower was finally completed, he ran the lines up inside the angle-irons to protect them from the terrific winds, so that the tower man could instantly communicate with the forester at Oakdale.

Now the cabin went up. Large, flat stones were assembled and a rough but stable foundation made below the level of the ground. Trees were felled, barked, squared on two sides, and properly notched at the corners. When a sufficient number had been prepared, the frame of the cabin was erected, log being laid upon log, with the corners dovetailing. Wooden pins held the logs in place. Windows and a door were cut out and framed. Then the rafters for the roof were fashioned, the sheathing nailed on, and shingles, made at a former lumber operation in Mr. Marlin's own territory, completed the job. A fireplace was made of big stones and concrete, and the cabin was about complete. A telephone extension was run into the building. At any time now a fire patrol could take up his twenty-four-hour watch at the fire-tower.

The early rush of fishermen was past; but the fine weather still brought hosts of them into the woods, and the danger of fire increased rather than lessened. The scanty rainfall in spring had left the woods still dry, and now but few showers came. Fire patrols were still difficult to obtain, however, and Charley decided that he would take up his residence, at least temporarily, in the new cabin.

There was ample room in it for two men, should a fire patrol be secured, and by living there, Charley would, of necessity, spend much time at this observation post. Night and morning and at intervals between, when he was at home, he could ascend to the tower and view every part of the neighboring forest. Furthermore, the location was very convenient, for the tower was close to the heart of his district. By living here he would be with his work twenty-four hours a day.

Mr. Marlin approved of Charley's decision to move into the cabin. With the new road completed, the forester could come to the very foot of the mountain in his motor-car. He was in instant communication with his ranger by telephone and, when it was necessary, he could get to him by motor-car with the greatest ease.

The forester himself helped Charley move his belongings from Lumley's house to the new cabin. While Mr. Marlin was loading Charley's other luggage on his truck, Charley was dismantling his wireless. When he removed the lead-in wire from the window-sash, he noticed Lumley's finger-marks in the puttied crack and told Mr. Marlin about the ranger's fit of temper. When everything was finally packed, Charley thanked Mrs. Lumley for her hospitality and then climbed into the waiting truck.

As he sat down beside the forester, he sighed with relief. Merely to get away from Lumley's house made him feel as though a burden had been lifted from his shoulders. Mr. Marlin laughed at him, but that did not disturb Charley. He had never been able to rid himself of his feeling of distrust for Lumley, and he felt oppressed when he was in the Lumley home.

Charley and the forester carried Charley's possessions from the truck to the new cabin. A tiny stove had been brought along for Charley to cook on. Although it was so small, it was heavy enough. Between that and the battery, the two had all the carrying they wanted before everything was finally placed in the cabin.

Charley fastened his aerial between the fire-tower and his old watch tree, which was still standing, but which had been shorn of most of its branches to allow the watchman in the tower to see past it. Finally, everything was complete. The wireless was in working condition, Charley's few furnishings were in place, the stores put away, and the cabin was fully ready for his occupancy.

Immediately Charley called up Mrs. Morton on the telephone and asked her to talk to him on the wireless. A moment later their invisible messages were speeding back and forth over the miles of billowing pine tops that intervened between the two little forest homes, and no listener in on the department telephone system could either know that they were talking or tell what they said. Charley was overjoyed when Mrs. Morton told him that her husband was about ready to come back to work. His arm was still painful and he could not use it much, but he could now get around well and was fast becoming strong again.

When Charley told the forester the news, the latter expressed his pleasure. He studied Charley's face a moment to see how Charley felt over the news.

"You realize what it means to you when Jim is able to do his work again, do you?" asked Mr. Marlin.

"Certainly," said Charley. A feeling of regret passed through his mind and was mirrored on his face. But there was nothing unkind or unfair about it. "Maybe some day I'll qualify as a real ranger," sighed Charley, "but I'm glad I had this opportunity to learn something."

"Charley," continued the forester, "you've earned the right to see this lumber operation through. It's a big responsibility. You've worked night and day to get ready for the job. Do you think I'm the kind of man who would rob you of the reward that you have justly earned?"

"I don't exactly understand," said Charley.

"I mean," replied the forester, "that no matter whether Jim gets well in time or not, you are going to handle the lumber operation in this

district. Jim can do something else. There's plenty of work for a dozen rangers. You are to be the boss of this job."

"Do you really mean it?" cried Charley in delight.

"Surely I mean it," said the forester. "It wouldn't be a fair deal not to let you take charge after the way you've tried to qualify for the work."

Charley held out his hand. "Thanks," was all that he could say, for a lump came into his throat.

"And while we are talking about the lumber job," the forester went on, "I want to say that I was never so badly fooled about anything in my life. The cut isn't coming anywhere near my estimate. It must be five to ten thousand feet per acre less than I thought it would run. I guess the Big Chief at Harrisburg will think I'm a pretty poor timber cruiser."

"How's that?" asked Charley.

"Well, you remember the day I first met you in the forest, Charley, I was cruising with two good timber estimators. They're skilled men. We were making the estimate on which this sale was based. I sent in my estimate and the department made its figures on that basis. But the timber that is actually being taken out doesn't begin to scale what I thought it would. Of course I was wrong in not cruising a bigger strip. But I just couldn't spare the time, then. Evidently the stand over in Lumley's district is not so heavy as it is here. The right way to estimate timber is to cruise strips entirely across the stand. You can't make a correct estimate by cruising an acre or two as I did and estimating an entire stand on the basis of that acre or two. You see the stand in the bottom may be half as heavy again as the stand on the hillside."

Mr. Marlin paused. After a moment, he went on, "Before the lumbermen get into your district I want to make another estimate. You and I will cruise a few strips the entire width of the stand. That will take quite a little time. We can't start to-day, but we'll get at it at the first opportunity. Meantime, I want you to get all the practice you can in scaling lumber, so that you can do it readily. You will have to scale every stick cut in your district and keep tally on all the lumber that is taken out. It's highly important work, for the state depends upon your figures to get its just pay for the lumber cut. If you make mistakes, the state will lose accordingly. I want you to practice scaling so that you can do it as readily as you can measure a board with a yardstick."

"Then I'll do some practicing to-day," said Charley. "You sent my crew into another district and I can put in a whole afternoon practicing."

"Very good. I'll take you out to the skidways where the logs are being piled by the highway, and you can work there as long as you like. Do you have that log-rule I gave you?"

"Sure. But what about this? How shall I know if my measurements are correct?"

"I'll tell you what we'll do. You scale every pile of logs at the highway and make a record of your measurements. When Lumley turns in his official record we can compare your figures with his. Then you will know how nearly right you are." They went down the mountain and climbed into the motor-car.

"Perhaps you would rather do this some other time," said the forester suddenly. "You'll have to walk back, for I must go right along to my office. And it's a great deal farther back here than it would have been to Lumley's house."

Charley's reply was a good-natured laugh. "Have you ever found me afraid of a little hike?" he asked. "I may not have another opportunity as good as this, for I'm going to be mighty busy when my crew gets back."

They drove on, and at the skidways Mr. Marlin dropped his subordinate. "I'll be out to see you to-morrow," he said, "with some maps and specifications I must work out to-night. Good-bye."

"He's a prince," muttered Charley, and fell to measuring logs.

Applying his log-rule to the small end of each log, he noted the diameter of the log and from the scale on the rule read the number of board-feet in the log. Already Charley had done a little scaling of logs and he went at the work readily. As he scaled pile after pile of logs, he worked faster and faster, acquiring greater facility with every measurement. The contents of each pile he noted down, a log at a time, on a bit of paper. When he had finished the work, he totaled up the board-feet, and whistled when he realized what a tremendous quantity of lumber was contained in the log piles he had been measuring.

"Gee!" he said to himself. "At the price lumber is selling for now, those logs are worth a small fortune. Gad! It makes a fellow feel pretty sober when he thinks how easily he could make a mistake that would cost the state hundreds of dollars."

He tucked his record in his pocket, along with his pencil, and started for his cabin. Despite the fact that he was soon to lose his place of authority, he could not help feeling happy. His diploma had been awarded to him on Commencement day, although he had not been able to be present to receive it, and that was one cause for happiness. His comrades had never yet been able to visit him, but he had received a letter that morning telling him that the entire Wireless Patrol was coming out to spend a Sunday with him in the new cabin. That was a second cause for happiness. His friend, Mr. Morton, was almost well, and that was a third cause for happiness. And finally, he had earned the confidence of his chief so completely that his chief was entrusting to him the very important task of overseeing the lumber operation. That made Charley's heart swell with pride. Even the near approach of his reduction to the ranks again could not mar his happiness; for in his heart he knew that he had made good and that it was only a question of time until he should become a ranger in fact as well as in name.

So he went on his way happy, rejoicing in his accomplishment, enjoying the new life of the forest, joyous with the strength and hope and confidence of youth. He came at last to his trail's end, and climbed the tower to look for fire and to watch the sun go down.

"It's warm enough so that a fellow could sleep up here now," he said to himself suddenly. "I'll just build a bunk up here and then I can sleep here whenever I feel like it. If I wake up in the night, I can take a look around and make sure everything is all right."

He went down to his cabin and got a rope, some boards, foot-rule, saw,

hammer, auger, and nails. He went back to the tower and made some measurements. Then he came down, cut his boards, bored holes into them, tied them together, and went up again with his tools and nails and the end of the rope. He hauled up the boards and drew them into the watch-tower. Then he nailed them together and had a snug little bunk that stretched completely across one side of the little structure. He wove the cord back and forth across the bunk through the auger holes in place of springs. Then he went down to the ground, made a tick out of one of his sheets, filled it with leaves and got it up to the tower.

"Now," he said, as he spread it on the rope, "all I need is a pillow and a blanket and I'm fixed."

He went down and cooked his supper. Then he talked both to Mrs. Morton and to Lew by wireless. He made a cheerful blaze in his fireplace and studied until ten o'clock. Then he got a pillow and a pair of blankets, blew out his lamp, and ascended to the tower. He intended to go to sleep at once, but the night was so beautiful that for a long time he sat on his bunk, looking out over the forest, which lay still as a sleeping infant under the moon's white light. Finally he wrapped himself in his blanket, stretched out on his bunk, and was quickly asleep.

Charley was up early the next morning. He glanced at his watch and saw that it lacked three-quarters of an hour of the time he usually had a brief wireless chat with Mrs. Morton, so he cooked his breakfast at once. Before he had finished eating, he heard the distant chugging of the forester's car. Sometime later a cheery voice called up the slope, and looking out of his door, Charley saw Mr. Marlin climbing up the mountain. Charley hustled to get a cup of coffee ready for his chief.

"I came early," said the forester, "for it will take us some time to go over these plans. Also I brought Lumley's figures for you to check up your estimate by." And he handed Charley some slips of paper.

While Mr. Marlin was drinking his coffee, Charley compared Lumley's figures with those he had made on a bit of paper. At first he looked crestfallen. Then he appeared puzzled. Then an expression of great indignation came into his face. He seemed greatly agitated.

The forester was studying his expression closely. "What's the difficulty, Charley?" he asked.

"I told you I never trusted Lumley," he burst out. "Just look here."

He laid his figures beside Lumley's. Mr. Marlin ran his eye over them. At first he, too, seemed puzzled. Then his face grew black as a thundercloud.

"Are you certain that you know how to scale a log right, Charley?" he asked.

"Absolutely, Mr. Marlin."

"How do you estimate a log?"

Charley got his rule and laid it across the end of an unburned log in his fireplace. It was ten inches in diameter.

"If that were a twelve-foot log," he said, consulting the scale, "it would have three board feet in it. If it were sixteen feet long, it would

have six feet."

"Absolutely correct, Charley. Did you measure those logs that way yesterday?"

"Yes, sir."

The two men looked at each other for a full minute. "Charley," said the forester, "I've been as blind as a bat. I never liked Lumley, any more than you did, though I couldn't tell you that. But I trusted him because he had been in the department a good many years and was fairly efficient. He has betrayed my trust and attempted to rob the state by false measurement. I understand now why my estimate seemed so far out of the way. The estimate was probably close enough. Lumley has sold out to the lumber operators. I'd like to know how they reached him."

The forester fell into a deep study. His face was dark and angry. A long time he sat silent. "I wonder," he said finally, "if Bill Collins' presence in the woods last spring had anything to do with it. I'd just like to know who that was with him."

"Oh! Mr. Marlin," cried Charley. "I forgot to tell you what I discovered. The other night when I got near Lumley's house, I saw Lumley and another man up-stairs. They pulled the curtain down quick when the dogs barked. At first I felt sure the man was Collins. But when I went into the house, Lumley sat at the table with the man. He wasn't Collins, though he looked like him. But I discovered this. The man I saw last spring in the forest with Collins was Lumley. I hardly noticed him at the time, but when I saw these two men together I felt sure they were the pair I had seen in the woods--only the stranger wasn't Collins."

"Are you quite sure?"

"The man I saw at the table wasn't Collins."

"Are you sure he was the man you saw in the bedroom?"

Charley looked at the forester in silence. "I never thought of that," he said, after a moment. "There must have been two strangers in the house. Lumley thought I was coming and would recognize Collins, so he must have hustled down-stairs with the other man and left Collins up-stairs. I'll bet anything that's what happened. And that makes me believe more than ever that Lumley was with Collins in the forest. Otherwise, why should he fear to have me see Collins?"

"Charley, it is as plain as the nose on your face. Collins is the go-between in this crooked lumber deal. These lumber operators meant to cheat the state when they sent in their bid. They must have had it all arranged with Lumley then. That's why they put in the highest bid, so as to make sure to get the timber. By George! They could afford to bid high. Just see what they've stolen in one day's cut of timber."

The forester's face grew black as a thundercloud. "But we'll fix them, Charley," he cried. "We'll get all that money back for the state and maybe put these fellows in prison besides. Anyway, we'll put Lumley there sure. Don't breathe a word of this to a soul. We'll check up Lumley's figures every day now at the skidways. When we have enough evidence, we'll act. Meantime, don't let a soul suspect that you know anything, and don't do anything to alarm Lumley."

Chapter XXIV

Checkmated

Charley was afoot very early next morning. At the usual time he flashed out a wireless call for the Mortons, and the ranger himself answered. Mr. Morton could now operate the wireless quite readily, though, of course, with nothing like the skill his wife had acquired. He reported that he was to return to duty the next morning, starting work, with a big crew, on a six-foot fire-line along the summit of Old Ironsides. Charley was overjoyed at the news. It meant that now he would have a chance to see this friend from time to time.

Mr. Marlin had not said that he would come to see Charley this morning, nor had he telephoned any message to that effect; but when Charley heard the steady chugging of a motor in the valley below, he believed it must be the forester. He was not quite certain, however, because the motor did not seem to beat exactly like Mr. Marlin's. The dense foliage completely hid the approaching car from view, so that Charley could not see what sort of an automobile it was.

It mattered little to Charley, however, who it was. He was the soul of hospitality, and at once he set some coffee to boiling for his approaching visitor.

This proved to be the forester. He presently came puffing up the slope, and after he had drunk some coffee and gotten his breath, the two men began to plan how they should best watch Lumley. The logs must be checked up carefully, yet it was desirable that no one see Charley measuring them. Finally it was decided that each day Charley should measure them in the early evening immediately after the last log truck had started away with its load. There would be nobody around then, and Charley could easily measure the day's cut and get home to his cabin before dark.

For an hour the two guardians of the forest discussed matters that pressed for attention. Then the forester rose to go. "I have Lumley's report on yesterday's cut," he said, "and if nobody is around when we reach the skidways, we'll just check it up. We can drive out in a few minutes, but you will have to walk back. Get your log-rule and come on." And they went down the mountain to the end of the new road.

"Hello!" cried Charley in surprise, as he caught sight of the forester's car. "You're driving a big truck, eh? I thought that motor didn't sound like your Henry."

"Yes; there was a load of stuff to be hauled out for Jim's crew. He starts work to-morrow. I killed two birds with one stone by bringing the stuff, which I dumped at Jim's, and then coming on out here."

As they reached the car, Charley said, "It looks powerful."

"It's one of those old army trucks Uncle Sam gave us. Got a great battery and tremendous power. Get in."

They climbed aboard. Mr. Marlin touched the starter and the engine began to chug. He let in his clutch but the car would not move. The car happened to be standing on a moist spot and its great weight had pressed the wheels far down into the soft new road. Mr. Marlin threw on the power. The truck jumped, something snapped sharply and a banging noise followed as the car moved jerkily ahead.

"Thunderation!" cried the forester. "I've broken the differential. I bet ten dollars on it." And investigation proved his diagnosis was correct. "I suppose it will take all summer to get a new part," growled the forester. "This truck will have to stand here idle until repairs come. But we can't stand here idle. Come on."

They set off down the road. After a long hike they came to the skidways at the main road. Nobody was in sight.

"We'll begin at one end and work toward the other until we hear somebody coming. Then we'll have business elsewhere."

Pile by pile they scaled the logs, Charley using the log-rule under Mr. Marlin's close observation, while the forester himself kept tally. Alone in the big woods, they talked freely.

"Why do you suppose Lumley took a chance like this?" asked the forester. "He might have known he'd get caught."

"Primarily because he wanted the money, of course," maintained Charley. "But there's another thing that may play a part in the matter. Did you know that Lumley's folks once owned this virgin timber?"

"I've heard that a generation or two back the Lumley family owned big tracts of land hereabouts. Naturally some of that land would now be included within the limits of the state's holdings."

"When I was living at Lumley's, he told me over and over about his family's having owned this timber and his grandfather's having been swindled out of it. He seemed to me to be mighty unreasonable about it. He was awful sore, and said he'd be a millionaire to-day if he had all the timber his grandfather owned and that it was his by rights, anyway. I recall that he said the thought of anybody else's getting the money for the timber made him almost want to commit murder."

The forester looked sober. "He's a bad egg," he said. "I really believe he wouldn't hesitate to commit murder if he were cornered. You want to watch him. We'll have to be mighty careful how we handle this business."

"Hark!" said Charley. "Isn't that the sound of a truck?" And as they listened, faintly they could hear the sound of a motor.

"Probably a log truck coming for a load. If we'd had a few minutes more, we could have completed the job. There are only two piles left. We'll just disappear until this truck goes away. Then we can come back and finish."

The beating of the motor sounded louder. The two men moved toward the forest. As they passed the farther end of the first unmeasured log pile, the forester stopped in amazement. A man sat on the ground, leaning lazily against the logs. It was the man Charley had seen that night at Lumley's.

"What are you doing here, Henry Collins?" demanded the forester sternly.

"I'm working for the lumber company," said the man, sullenly.

"You appear to be working hard," replied the forester scornfully.

"I help load the trucks," said the fellow, as the forester turned on his heel and walked away, followed by Charley.

"You don't suppose that he could have heard what we said, do you?" asked Charley, anxiously.

"Heard every word of it," replied the forester. "The jig is up. That was Bill Collins' cousin and he's as crooked as Bill. Lumley will know what's afoot as quick as Collins can get word to him. We've got to act quick. There's a detail of state constabulary at Ironton, and they could get here in a motor in thirty minutes if I could only telephone them. Why in thunderation did I ever leave the office without my portable instrument? The nearest 'phone is at Jim Morton's. It will take me three-quarters of an hour at my best pace to make it. But it's the best I can do. I'll hike for Jim's. You hustle back to your tower and keep a close watch on things. I'll telephone you as soon as I can. We've got to step lively if we are to catch that scoundrel Lumley."

Chapter XXV

The Crisis

The forester hastened down the highway at a A tremendous pace. Charley set out along the forest road he had so recently built. Before he knew it, he was running madly. He ran for a long distance, hardly conscious that he was running. Presently he stopped from very fatigue. Then he realized that he was greatly excited and that he was running from sheer nervousness.

"This won't do at all," he muttered to himself. "You're worse than an old hen. If ever you needed to keep your head, it's right now."

He took a grip on himself, drew a long breath, and settled to a fast walk, thinking hard. He could not see how he himself could accomplish the arrest of Lumley. If his chief did not think it advisable to attempt it, he was very certain that he ought not to try it himself. And he was glad at the thought. For he could not help but recall the wicked gleam in Lumley's eyes, the man's savage outburst of temper, and his vicious talk. He understood well enough that Lumley would not submit to arrest without a struggle.

Then the thought came to him that he had no business trying to arrest Lumley, even if he could do it. The chief was attending to that and the chief knew best what to do under the circumstances. Also, the chief had given him his orders. His business was to obey orders. And those orders were to take care of the forest.

Fresh alarm seized him. Why had the forester given him those orders? Was there danger of any one's setting fire to the forest? At the thought

Charley was almost in a panic again. A passionate love for the great woods he was guarding had sprung up in Charley's heart. He held come to dread fire with a dread unspeakable. He had come to regard it with a feeling of absolute terror. In this feeling there was nothing of physical fear. A little blaze in the forest made him so wild with anger that nowadays he would fight it recklessly. His fear was the dread lest the immemorial trees he was guarding should be wasted and the forest destroyed. It was apprehension for the forest, not for himself, that troubled Charley.

Rapidly he passed along the road, now jogging to relieve the nervous tension, now proceeding at a fast walk. He came to the slope of the mountain but his pace was no whit slower. At last, panting and almost exhausted from his terrific efforts, he reached the crest. He staggered to the ladder and climbed painfully to the watch-tower. Steadying himself, he swept the horizon in every direction. The forest seemed to slumber. No smoke arose, no winds swayed the tree tops. The twilight peace enfolded everything. Satisfied that all was safe, Charley sank down on his bunk and lay there until he was rested. Then he climbed down to his cabin and cooked supper.

Never since he had been alone in the forest had Charley so much felt the need of companionship as he did now. He lighted a little fire in his hearth and the cheery snapping of the burning sticks comforted him. He sat down at his wireless and talked with Mr. Morton. The latter could not tell him much about the situation. The forester had telephoned from his place for the police and the latter had started at once for the forest. That was all Mr. Morton knew. Charley called up Lew and told him as much of the situation as he thought wise, and got the news from Central City. When he threw over his switch and turned away from his wireless table, he felt somewhat comforted. But the feeling of dread and apprehension had not altogether left him.

For some time he read, or tried to read. Study he could not. At last he went to the telephone and called Mr. Marlin. He reported that all was well in the forest. He was burning to ask his chief all about the situation, yet hardly dared. He might say something that the chief would rather have unsaid; for always there was the possibility of listeners in on the telephone. And Lumley's family could listen in as readily as any others.

Doubtless Mr. Marlin appreciated Charley's self-restraint. Before he said good-night, he remarked casually to Charley, "I may want you to do some work at the lumber camp to-morrow. I tried to find Lumley there late this afternoon to give him some orders, but he had gone away. I have asked his wife to have him call me the moment he comes home. Don't forget my final instructions to you this afternoon. Good-night."

To an outsider the message would mean nothing, as Mr. Marlin intended it should. But to Charley it told the whole story. Lumley had fled before the arrival of the forester and the state police.

Charley reviewed the forester's words to him, as they talked at the log piles. "He's a bad egg. I really believe he wouldn't hesitate to commit murder if he were cornered. You want to watch him. We'll have to be mighty careful how we handle this business.... You hustle back to your tower and keep a close watch on things."

Again a feeling of apprehension came to Charley, and this time there was something of personal fear about it. Again Charley recalled the fugitive ranger's violence of temper, and his evident jealousy of the chief. And as

Charley considered the matter now, he saw that Lumley must have been even more jealous of him, Charley, than he was of the chief. Now he understood all the prying efforts Lumley had made to learn the size of his pay. Quite evidently Lumley could not endure to see another man get ahead. Charley felt sure that it would not be safe for him to meet Lumley. He resolved to be on his guard every second. Then he sighed with relief at the thought that Lumley had fled.

But a moment later his face became very grave. "How do I know that Lumley has fled?" he asked himself. "To go any distance, he would have to walk along a highway, or ride in a motor-car, or board a train; and in any case he might be seen and traced. On the other hand, Lumley knows the forest like a book. He has lived in it for years. Where else could he so well hope to elude pursuit?" Charley felt certain that Lumley must be somewhere in the forest.

Immediately he got his rifle, filled the magazine, and stood it within reach. He tried to read, but was too nervous. Then he thought of the open windows and his light within the cabin. Any one could see through the windows--or shoot through them. Charley put his flash-light in his pocket and blew out his lamp. The evening was warm, and Charley opened the door and sat down on the sill, leaning against the jamb of the door, and cradling his rifle across his knees.

Soon his eyes became accustomed to the darkness. From where he sat, Charley could look out over what seemed like infinite stretches of forest. The moon had not yet risen, and the valleys below him were vast depths of darkness. Mist floated above, partly obscuring the stars. A gentle breeze was blowing up here on the mountain top, but Charley knew that down in the valleys the air was like stagnant water. The whispering of the trees around him was like the quiet breathing of a babe asleep, and the occasional sounds of the forest creatures were no more disturbing than the gentle murmurs of a dreaming child. Peace enfolded the forest. It seemed to Charley as though that great, invisible, beneficent Spirit we call God had cradled the forest in His arms as a mother cradles her little ones. The thought comforted him. Something of the peace about him crept into his own heart. He drew a long sigh and sat back.

After a time he began to feel drowsy. He took his blanket and his rifle, and, closing his cabin door, climbed to the fire-tower. He closed and bolted the trap-door in the floor of the tower. For some time he sat on the edge of his bunk, watching the forest. Behind the eastern mountains the sky began to glow. The moon was coming up. In another hour or two, Charley knew, the forest would be flooded with silvery light. He loved the moonlight on the pines, but he was becoming too sleepy to stay awake to see it. The moment the moon's first rays shot over the eastern hilltops, Charley lay back in his bunk, stood his rifle within reach, drew the blankets about him, and was almost instantly asleep.

Yet he slumbered uneasily. Terrible dreams disturbed him. Once or twice he awoke and started up in alarm. Once the slender tower seemed to vibrate as though some one were mounting the ladder. But Charley dismissed the idea as idle fancy, for the nocturnal stillness was unbroken. So, fitfully, Charley slept through the night.

Dawn found him afoot. Eagerly he scanned the horizon. Banks of mist lay over the valleys, concealing much of the forest. Slowly Charley examined the horizon, half fearful, half relieved. From the two sides of his tower he could see nothing disturbing. But when he turned to the third side his

heart stood still. Unmistakable in the whitish mist, darker clouds were rising upward. The forest was afire.

Intently Charley studied the smoke pillar, trying to locate it exactly and to estimate the extent of the blaze. Satisfied, he swept his glance farther along the horizon, but stopped abruptly. A second spiral of smoke was stealing upward through the mist. Before he had completed his survey, Charley discovered four more smoke columns. Somebody had fired the forest in half a dozen different places.

Whoever had done it must have known the forest intimately. The blazes had been kindled just where they would do the most damage.

Charley's mind worked like lightning. Even as he examined and located the smoke columns, he was planning how best to extinguish the fires. It was still very early. The wind would not rise for hours yet. Even then the dense timber would break its force. Meanwhile the fire would spread but slowly. If only he could get his men to the spot in time, Charley felt sure he could put out every blaze with but slight damage done. By the time he reached for the telephone, he had his plan of campaign mapped out. Morton's big crew would be assembling in a short time. The forester might be able to hasten their assembling and to collect more men. With trucks he could rush the gang clear to the foot of the mountain, where the broken army truck lay. An excellent fire trail would take some of them afoot direct to the first blazes. Other groups could strike through the passes for the other fires. With the chief and Mr. Morton and himself to head three of the crews, and experienced fire fighters to lead the other groups, Charley felt sure that they would hold the fires.

Sharply Charley whirled the bell handle and put the receiver to his ear. There was no response. Impatiently he rang again. Still he got no reply. A feeling of alarm took possession of him. Frantically he rang and rang, but the receiver at his ear was mute. The wire was cut.

"Thank God for the wireless!" cried Charley, snatching up the trap-door and descending the ladder recklessly. "There aren't any wires about that to be cut."

Involuntarily he glanced toward his aerial. Then he stopped dead. His aerial had disappeared. Now he knew why the tower had vibrated during the night. Somebody had been on the ladder. If only he had gotten up to investigate! But it was too late now for regrets. He must act. He must get up another aerial. An idea came to him and he shouted for joy. He would use the tower itself as an aerial.

He raced to the cabin and flung open the door. A single glance showed him his cupboard had been rifled of its food supplies. He leaped toward his operating-table and stopped aghast. His face turned pale, his hands fell helplessly to his sides, and he stood looking at the instruments before him, the picture of despair. A heavy file lay across the terminals of his battery, and the battery was useless.

Unnerved, Charley sank down on a chair. He covered his face with his hands. It would take him hours to reach the Morton home on foot. And it might be hours more before the forester could be notified. It looked as though the forest were doomed.

Fairly shaking himself, as a terrier shakes a rat, Charley freed himself of the fear that clutched at his heart and forced himself to think. Calmly

he began to consider what he could do. He thought of the dry cells he had first used. They were still wired together and in the cabin. Like a flash Charley coupled them to his instrument, but the cells were exhausted. He could get no spark from them.

Again he sat down and thought. Suddenly he leaped to his feet. "The army truck!" he cried. "If he overlooked that, I'll beat him yet."

He began to assemble tools and instruments. But when he looked for wire to fashion an aerial, his face grew black. The intruder had taken both aerial and lead-in wire, and Charley hadn't a hundred feet of wire left in the place. What should he do? What could he do?

Again he paused and pondered. And again an idea came to him. "They use trees for aerials," he muttered, "and they make perfect ones to receive by. I don't know whether one could send from them or not. But it's my last chance. I'll try it."

He gathered together his tools and instruments, including the creepers he had used in putting up the telephone-line, carefully stowed them all in a big basket and started down the mountain. A hundred yards from the door he turned about and ran back. When he came out of the cabin again, his rifle was tucked under his arm. Then he went down the mountain as fast as he could travel.

Fearfully he studied the truck as he drew near. It was untouched. With a cry of joy, Charley tore open the battery box. In no time he had some wires fast to the battery. He spread out his instruments and coupled everything carefully together. The outfit lacked only an aerial.

Buckling on his creepers, and stuffing some spikes and a hammer in his pocket, Charley rapidly mounted a tall tree that stood close beside the truck. As luck would have it, the tree stood all by itself, its nearest neighbors having been cut in making the road. Two-thirds of the way up the tree, Charley drove a spike deep into the wood. He sank a second spike not far from the first. Then he drove home a third. The lead-in wire dangled behind him at his belt. He unfastened it and twisted it tight to the spikes, wrapping it close about one after the other. Then he climbed down and made sure his wire did not touch the earth. Trembling with eagerness, he sat down at his key.

One moment he paused, drawing out his watch. With a cry of joy, he put his finger on the key. It was almost the hour at which he was accustomed to exchange morning greetings with Mr. Morton. He pressed his key and a sharp flash resulted. Joyously he adjusted his spark-gap until he had a fine, fat stream of fire leaping between the posts. Then he fairly held his breath as he rapped out the ranger's call signal.

"JVM--JVM--JVM--CBC," he called and listened. There was no response. Again he called. And again there was no response. His face became pale. His fingers began to tremble.

"JVM--JVM--JVM--CBC," he rapped out frantically, sending the call again and again. Then he sat back to listen. Suddenly his receivers buzzed. With startling distinctness came the answer.

"CBC--CBC--CBC--I--I--I. Your signals very weak."

So the ranger could hear, Charley did not care how weak the signals were.

"Forest afire in six places," he flashed back. "Wires cut. Wireless broken. Talking over temporary outfit. Notify forester. Collect all men possible. Come immediately in trucks to end of new road. Can get to fires on foot from here easily."

"Where are fires?" replied Mr. Morton.

"South and west of fire-tower. In valleys both sides of fire-tower mountain."

"How far away?"

"About two miles--maybe three."

"How big are they?"

"Still small. Can put out before wind rises. Must have help quick."

There was a long pause. Then came this message, "Have sent neighbor with his automobile to notify forester. Will rush crew. Hold fire best you can. Good-bye."

With a cry of relief that came from his very soul, Charley threw over his switch and leaped to his feet. He seized his rifle, then stood a second, hesitating.

"No," he said decisively, "the man who set those fires won't wait around to be seen, even if he is a desperate man."

He slipped his rifle under a clump of bushes and buckled on his little axe. Then he started down the fire trail at a fast pace. Now running, now walking, advancing as fast as he could without exhausting himself, Charley hastened toward the fire. Long before he reached the nearest blaze, Charley smelled smoke. As he drew near the fire, he studied it as best he could. He rejoiced that it was so small. The mist bank and the heavy fall of dew had so moistened things that the fire crept but slowly.

Charley cut a pine branch and fell upon the flames ferociously. A great anger surged up in his heart, like the fierce passion that takes possession of a bull when he sees red. It lent power and determination to him. Yet Charley tried to conserve his strength. Yard after yard he beat out the flames, thankful that he had to face only a little creeping fire. Small as it was, the blaze was, nevertheless, hot and stifling.

Rod after rod Charley fought his way around the ring of fire, never pausing for a single instant to rest. By the time he had completed the circle and the blaze was out, Charley was beginning to tire badly. He doubted if he could beat out the six fires alone. If they grew any larger, he knew he could not. And larger they were becoming, for the first faint puffs of the morning breeze were beginning to stir the tree tops.

Half a mile through the trees Charley smashed his way to the next ring of fire. He could see that the flames were leaping a little higher and that they were eating their way along at a faster pace than the first fire had traveled. He knew it would be hard to stop this blaze. But he cut a new bough, and gritting his teeth, once more fell to fighting fire.

Quickly he found it was quite a different fire from the one he had

extinguished. Fitfully the wind was coming up. When it blew, the flames seemed to leap at Charley. His shoes, his clothes, his hands and wrists were blistered by the heat. His fingers were torn and his muscles ached. His lungs and throat became painful. His eyes grew blurred. He could no longer see clearly. There was a ringing noise in his ears. Yet coughing, choking, gasping for breath, stumbling and tripping, and at times falling prone, he fought his way along the line of fire.

He was so weak, so worn out from physical exertion and nervous strain that he could no longer think clearly. But blindly, stubbornly, doggedly, he fought the flames. His movements became mechanical. Sometimes his descending bough hit the fire and sometimes it struck the unignited leaves. Charley was fast nearing the point of exhaustion. He could scarcely control his movements. Yet he tried valiantly to hold himself to his task. He thought of the turtle-dove on the burning stump and for a moment the thought seemed to give him new strength. But the inspiration was only momentary. Blindly now he staggered along the line of fire, gasping, reeling, swaying, hardly able to keep his feet. He tottered on.

He could hardly raise his brush. His efforts were useless. Yet he hung doggedly to his duty. Just as he was about to plunge headlong into the flames, a shout sounded in his ears, forms came rushing through the smoke, and Charley was lifted in the forester's strong arms and borne to one side.

Chapter XXVI

More Thumb-Prints

For a long time Charley lay on his back, hardly conscious of anything. But slowly the pure air revived him and his powers came back. He sat up, then rose unsteadily to his feet. In a few moments he felt all right. He began to look about him. The fire he had been fighting was extinguished. He ascended an easily climbed tree and saw that the third fire in the valley was also out. He knew that the fire fighters had gone on to the next valley to subdue the blazes there. The wind was still no more than a zephyr and he knew they would succeed. The forest was saved. A feeling of great relief came to him.

He sat down and rested, thinking what he ought to do. He remembered what the forester had said about the desirability of an immediate investigation of incendiary fires. Here was his job.

He made his way to the blackened area where he had put out the first fire. The space burned over was small. Charley stood and looked at it for some moments, thinking the problem over. Then he walked slowly around the burned area, examining it closely, but not stepping within the fire-line. Then he wet a finger and held it aloft. Unmistakably the light breeze was from the west. It had doubtless been blowing from that quarter all the morning, though this particular fire had been extinguished when there was hardly more than a suspicion of a breeze. The fire would have spread in an elongated circle, or more exactly an oval. Charley tried to figure out the exact starting point. He felt sure he could estimate it within a few yards.

When he had decided about where the fire must have originated, he made his way cautiously, a yard at a time, toward that point. He was careful not to disturb the leaves any more than was necessary in putting down his feet. Carefully he scrutinized every inch of the ground he covered. He was looking for a mound of burned leaves or any other suspicious thing. But he found none. Look where he would, the leaves seemed to have been disturbed before the fire started.

Not far from the point selected by Charley as the probable place of the fire's origin, the ground thrust up in a little, low shoulder, as though there might be an outcropping ledge of rock there. Immediately around this elevation the ground was clear of brush. No trees stood near. Charley paid little attention to the mound until he noticed that it was hollowed out on top. At the same time a piece of freshly dug earth caught his eye near by. At least Charley judged it to be freshly dug, although it was blackened by fire. He made his way very carefully to the little mound. Now he noticed that the leaves about this mound had been raked together, for the ashes lay thick in the hollow centre in the elevation.

Cautiously Charley began to scratch among the ashes at the edge of the pile. His fingers encountered many rough chunks of earth, partly hardened by fire. The rain, the frost, and the cold of winter would naturally have broken those chunks down into loose soil. So Charley knew they could not be very old. As he scratched more of them out of the leaves, he blew the ashes from them and examined them critically. He could think of no connection between these chunks of earth and the fire, yet something made him scrutinize them closely.

All the time he was carefully digging the ashes away, and working toward the centre of the pile. Suddenly he picked up a chunk that was quite different from the crumbly earth masses he had been handling. This piece was partly hardened and reddened. At once Charley saw it was clay.

Charley continued to scrape aside the ashes. He found more and more little chunks of clay, while the hollow place in the centre of the mound proved to be a square, small depression that must have been made with human hands. Even before he had it cleared of ashes, Charley knew that. The depression was much too rectangular to be natural. It was about eighteen inches square and almost a foot deep. In the bottom of it were charred ends of sticks and a little candle grease, buried under the mass of ashes.

When Charley had carefully scraped and blown out all the ashes possible, he lay flat on his belly and examined the place minutely. Some person or persons had dug a little square chamber, like a sunken box, right in the shoulder of the mound. Charley decided that a candle had been placed in the centre of the box-like excavation, leaves packed loosely about the base of the candle, some fine, dry twigs stacked across the edges of the excavation, and across the top of the hole other dry twigs had been placed. Then the candle had been lighted, the open side of the excavation closed with twigs thrust vertically into the clay, and leaves heaped over and about the excavation.

As Charley examined the mound, he could not but admire the devilish cunning exhibited in the construction of this fire box. The open space about the mound would give full sweep to the morning breeze, and the box was located in the windward shoulder of the little mound, exactly where the breeze would hit it hardest. The piles of leaves heaped about the box would spread the flames on all sides.

The candle grease in the bottom of the excavation, Charley had no doubt, was the remains of one of his own candles, taken with the food supplies from his cupboard. Nor did he doubt that the man who had taken it was Lumley. He must have disappeared in the forest the moment Henry Collins had told him what was afoot, for there could be no doubt Collins had informed him. After the moon rose, so that he could see well, Lumley must have come to the cabin, stolen food and candles, cautiously removed the aerial and grounded the battery, and gone straight down the valley to set his fires. If he could not get the money for the timber, or at least some of it, quite evidently Lumley did not intend to allow any one else to have it, not even the state.

In his own mind Charley had no doubt whatever that the incendiary was Lumley, and that he had done exactly the things Charley pictured him as doing. Even now he must be somewhere in the forest. But Charley felt relieved when he realized that in all probability Lumley had no firearms. He must have fled without taking time to equip himself. Also Charley doubted if he would remain in the forest. The forester would be certain to scour the woods for him, and Lumley could hardly hope to evade pursuit indefinitely. He would probably make his way out of the forest at some distant point and try to get away. Sooner or later, Charley felt sure, the man would be captured and doubtless sent to prison for cheating the state. It made Charley feel bad to think that he did not have enough direct evidence to insure Lumley's conviction for arson as well.

An idea came to Charley. Blowing away the remaining dust and ashes, Charley once more began an examination of the little excavation. Inch by inch he scrutinized the surface of the pit. He found it partly baked. Suddenly he gave a cry. He had found the distinct prints of some one's fingers. On the second side of the excavation he found more prints, and the third side yielded still others. Carefully Charley chopped out the incriminating bits of clay. When he laid them side by side and examined them under his microscope, he found they had been made, not by one person, but by three. Apparently each side of the pit had been fashioned by a different man.

Chapter XXVII

Trapped

While Charley was turning the matter over in his mind, the forester suddenly appeared. Charley gave a glad cry when he saw him.

"Did you get them all out?" he asked anxiously.

"All will be out in a short time," was the reply. "Morton and his big gang crossed directly into the other valley when I came here with my crew. As soon as we had finished your job here, we hustled over to the other valley. The fires there had spread considerably, but as there was little wind and we had a big force of men, we quickly got them under control. The minute I was satisfied we had them in hand, I came back to see how you were. Jim is in charge over there, so everything will be all right. How are you?"

"All O.K.," said Charley, "but I guess I must have been about all in when you got here. I don't remember much about it."

"Yes, you were about gone. We got to you just in time. Now tell me what you know about this fire."

The two men sat down in the shade and Charley told his chief all that had happened to him since the two had parted on the preceding evening. When he showed the forester the marks in the clay, the forester was elated.

"He's a pretty clever rascal who doesn't trip himself up somewhere," he said. "It's an easy guess who your three fire bugs are. I have a very great suspicion that the thumb-prints in that ball of clay I took from your secret camp will match up with some of these marks, and that both sets of prints will correspond with the marks on the thumbs of one Bill Collins, though I didn't know that he was in the neighborhood at present. And it's just as safe a bet that another set of those marks will match the ends of Lumley's thumbs. If only he had been as considerate as his friend Collins, and left his calling cards behind him, we'd have a complete case against him."

"We have," cried Charley, leaping to his feet in sudden excitement. "Lumley left his thumb-prints in the putty he stuck in his window-sash. I never thought of them until this moment."

"Excellent!" cried the forester. "I suspect we can find the duplicates for this third set of prints only when we lay hands on Henry Collins. But I have a strong suspicion we'll have a chance to make that comparison very soon."

"How?" asked Charley eagerly. "What do you mean? Have the police made any arrests?"

"I don't know," replied the forester. "But this is the situation. Lumley will never dare hang around in the forest, for he will know that every man in the Forest Service is looking for him. Then, too, he can't have much food with him."

"Only what he took from me, I suspect."

"That makes it certain that he must leave the forest soon. It's a good many miles from the lumber camp to this neighborhood, so the three fugitives must be traveling in this direction. If they keep on for fifteen or twenty miles further, they will come out of the mountains near Pleasantville or Maple Gap. They can board a train at either place. The state police already are watching both stations. If Lumley and his fellows went straight on after they started the fires, and Goodness knows they wouldn't hang around here, they could reach the railroad in six or eight hours. That means they would be there by this time. There is a train that reaches Pleasantville about eleven o'clock. They would have time to make it. I should not be at all surprised, when I get back to the office, to find a message saying that the police had caught them."

"Let us hope you do," said Charley.

The forester arose. "Would you like to go see?" he asked.

"Surest thing you know," replied Charley.

"Then we'll hike back to the road and slip out to Lumley's house in my car. We can get that window-sash and put it in a safe place in my office and be back here before Jim brings his gang out."

Rapidly the two walked back along the fire trail. "Charley," said the forester suddenly, "just how did you manage to get that message to Jim? It's all that saved the forest. The telephone was put as completely out of commission as your wireless was."

Charley then told the forester how he had used a tree for an aerial. "It was my last chance," he said. "If it hadn't worked, the forest would have burned. I had read about the use of trees to receive by, and I thought I had read that messages had been sent through trees, but I wasn't sure. It was my only chance and I took it."

"You're a wonder, Charley. I take back everything I ever said about the wireless. I have telegraphed for the Commissioner to come on from the capital. I shall put this entire matter before him and urge the installation of a wireless outfit in every district of the state forests. No matter what is done elsewhere, we're going on a wireless basis here as soon as we can get the outfit, just as I told you. If I can't get money from the state for the outfit, I'll pay for it myself and have your Wireless Club make it. This coming winter we'll start a radio school and you shall have charge of it. Maybe Jim can help you now."

"That will be grand," said Charley with sparkling eyes. "If only we had the money Lumley robbed the state of, we could buy a dozen outfits."

"We'll get every cent of it," said the forester with decision. "Don't you worry about that. When we went to the lumber camp after Lumley last night, I stopped all cutting. Before another stick is felled, you and I are going in there and measure every stump. Then we'll estimate the timber that came from those stumps and the lumber operators will pay for it or they will face a criminal prosecution. If we catch Lumley, we've got the operators dead to rights. He's the kind of a rat that will squeal quick when he's caught."

They reached the road, jumped into the forester's car and sped away to Lumley's house. Half an hour later they entered the forester's office, carefully carrying a window-sash. As the forester reached his desk, the man in charge handed him a message from the state police at Maple Gap. It read, "Have arrested three men who came out of the forest here and tried to board a train. They give fictitious names, but no doubt two of the men are wanted. Third has gold teeth and scar over right cheek. Do you want him?"

"Do we want him?" echoed the forester, as he began to write an answer. "Well, I should say we do."

He dashed off his message, and handed it to his assistant. "Rush that," he directed.

Then he took a long coil of wire from a closet and led the way back to his car. "That's for a temporary aerial in case you decide to make one," he said, as Charley climbed up beside him and they went whirling back to the fire-tower in the mountains.

Chapter XXVIII

Victory

In due time Ranger Morton came out of the forest with his big crew. The men were black with smoke and their hands and faces were blistered and scratched. But they were a happy crew for all that. They had extinguished what at first bade fair to be the worst fire ever seen in their district.

By this time every man in the gang had heard the story of Lumley's dastardly act and Charley's quick wit. Most of the men lived in or near the forest, and a great fire might have consumed their homes just as truly as it would have destroyed the forest. It was small wonder, then, that to a man they had only admiration and gratitude for Charley. The last vestige of ill-will that any of them might have had for Charley was gone. Like men of the forest, they said little. But Charley knew that this little meant much. He had won the good-will and respect of every man in the district. No wonder he was happy.

This thought did much to offset the feeling of regret that he could not help experiencing at the realization that his days as a ranger were numbered. When he became a patrol again, or a member of Jim's crew, for he believed that Mr. Marlin would grant him that wish, he knew that he would stand on a par with the men in their own estimation. So he waved good-bye to the departing trucks with a mixture of happiness and regret.

But he was not allowed many hours to indulge in either emotion. Very early next morning the telephone, which Ranger Morton had promptly repaired, began to ring. Charley answered the call and received a brusque order from the forester to remain at the tower, as the forester was coming out to see him.

"I wonder if Mr. Marlin ever sleeps," said Charley to himself. "He's probably on his way here now and I'm hardly out of bed. I'll make him a cup of coffee and some toast anyway."

But when Charley came to make the toast, he could find only three slices of bread. Lumley had cleaned him out of food. It seemed no time at all to Charley before he heard the chugging of the forester's motor in the valley. A short time afterward two men ascended to the cabin. Charley was surprised.

"Let me introduce you to the Chief Forester of Pennsylvania," said Mr. Marlin. Charley was suddenly abashed. He held out his hand and responded to the Commissioner's greeting, but was at a joss for anything further to say. He thought of his toast and coffee and was more than ever embarrassed, because he had only three slices to offer. Nevertheless, he set what he had before his guests.

"I'm awfully sorry this is all I can offer you," he said, "but I had some visitors yesterday who cleaned me out of food."

"So I have heard," replied the Chief Forester, with a smile.

"You will be glad to know, Charley," said the forester, "that those same

visitors have confessed to their crime, or rather Lumley did. When we produced the thumb-prints in the putty and in the clay and compared them with Lumley's thumbs, he made a clean breast of everything. It won't surprise you to learn that he set the previous fires in this virgin timber. He wants to be state's evidence."

"Excellent!" cried Charley. "They won't burn any more forests--or rob any more cabins. By the way, Mr. Marlin, did you bring me any more supplies?"

"No," said the forester.

Charley looked vastly perplexed, but said nothing. He didn't want to bother the forester, but how he was to live without food he could not imagine. Evidently his face must have mirrored his thoughts, for the forester, after studying Charley's countenance, burst into a laugh.

"Charley," he said, "it's clear that you don't pay much attention to your Bible."

"What do you mean?"

"Why, don't you recall that we are admonished to take no thought for the morrow, as to what we shall eat, and so on? Here you are worrying over a little matter like food. Don't you have any ravens out in these mountains to bring you grub if you get hungry?"

"It isn't any laughing matter," replied Charley. "What am I going to do? I haven't an ounce of food left in the cabin."

The forester's eyes sparkled. "Shall we tell him what he's to do, Commissioner?" he asked.

The Chief Forester turned toward them with a smile. "I guess you had better. It would be a shame to torment this young man after what he has accomplished."

"Very well, then. Listen, Charley. Here are your orders. To begin with, Jim is now on deck again and you are relieved of your position as temporary ranger."

Charley tried hard to choke back the lump that came into his throat. Evidently his face betrayed his feelings.

"Look at him, Commissioner," said the forester. "I believe he's going to pout."

Charley bit his lip and tried to smile.

"In the second place," continued the forester, "you are to remove your belongings from this post and oversee the cutting of the lumber operation."

The smile that now came to Charley's face was not forced.

"In the third place," the forester went on, "you are hereby appointed a ranger in the Pennsylvania Forest Service to succeed one George Lumley."

"Oh! Mr. Marlin," cried Charley, "you don't mean it honestly?"

"I sure do. And there is nothing temporary about your appointment. You are a full-fledged ranger. You have earned the place and I congratulate you heartily on having won it." He held out his hand and clasped Charley's warmly.

"Now, that is all I have to say to you," concluded the forester, "but I think the Commissioner wants to speak a few words with you."

Charley turned to the Chief Forester and stood expectant.

"Mr. Marlin tells me that it is your ambition to become a forester," said the Commissioner.

"It is," replied Charley.

"He also tells me that you are hindered by lack of funds and some family obligations and that you cannot see your way clear to take the regular course of studies at the state forestry academy and so achieve your ambition."

"That is true, sir," said Charley. "There is nothing I would rather do than become a forester if only it were possible. I love the forest."

"The way you have striven to protect it is proof enough of that. How would you like to become a forester without attending Mont Alto?"

"Oh! Sir, if there is any way it could be done, I would work until I dropped to accomplish it."

"There is, and you shall have the chance. It is the policy of this department to promote men for merit and to make it possible for good men to advance in the service. Mr. Marlin tells me that you came into the forest absolutely ignorant of forestry practice, but that in a short time by great application to your work and by study at night you have become one of the best men he has. All you lack is experience. Time will remedy that. If you could become a forester through a continuation of such study and work, would you like to do it? Mr. Marlin is willing to teach you the technical branches that you would study if you went to Mont Alto. He will take you into his office in winter and you can assist him in technical work from time to time in the forest, thus obtaining a complete training for the position of forester. What about it? Do you wish to do it?"

"Oh! Mr. Commissioner," cried Charley, "I can't tell you how much I want to do it. If you will just give me that chance, you'll find I'm no shirker."

"Then the chance is yours. You have earned it. Now we must hurry back to headquarters, Ranger Russell. I hope that some day I shall be able to call you Forester Russell."

Charley's heart was too full for utterance. He grasped the proffered hand and wrung it, but was afraid to say a word, for a big lump had come into his throat.

A moment later he was bustling busily about the cabin collecting his luggage. His heart was singing merrily.

"Some day," he said to himself, "we may get enough timber back on these hills so that when a poor boy wants to build a boat he can do it, and so

that a working man can build a house without having to slave for a lifetime to pay for it. I tell you it makes a fellow feel mighty big to think he's going to have a hand in making life easier for so many million people."

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