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The BEE HUNTER

By GEORGE HAROLD EDGELL



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ALE CONST

THE BEE HUNTER

THIS little treatise is in part the child of frustration, in part the child of irritation. In a modest way, the writer has been an author. The first book he ever wrote, an opus of several chapters, was called "The Bee Hunter." The writer was then eighteen. Submitted, on the advice of the late Robert W. Chambers, to his publisher in New York, the young author was surprised to learn that his manuscript was rejected. The publisher tactfully pointed out that even the English translation of Maurice Maeterlinck's La Vie des Abeilles had lost money for its publisher.

The manuscript was put away to gather dust. I believe and trust now that it is lost. It was terrible.

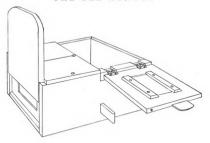
So much for the frustration. Now for the irritation. Being an unsung author on the subject and, more important, a successful bee hunter of fifty years' experience, the writer has read a certain number of articles on bee hunting. One appears every year or two. Starting with two essays by John Burroughs, one fact is common to all. They are written by men who never possibly could have found a bee tree, at least by pursuing the methods they describe. Burroughs came nearest the truth, but even he seems to have

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got his account from some farmer with more imagination than experience. It is time for someone who has hunted bees and found bee trees to write the facts. For bee hunting is rapidly becoming a lost art.

The writer's interest in the sport began at the age of ten when he was initiated by an old Adirondacker who had sunk to driving his grandfather's mules in Newport, New Hampshire. George Smith, as I shall call him, was a character, to the youngster as fabulous as Paul Bunyan. He took his whiskey neat. He smoked and chewed at the same time and could spit without removing the pipe from his mouth. His profanity could take the bluing off a gun barrel. Withal, he was one of the kindest and most generous of men and a mighty bee hunter before the Lord, or the devil if one prefers. He introduced the boy to the simple equipment necessary for the art, and though through the years I have improved it slightly, the fundamentals of the few objects have remained the same.

The most important item is the bee box. This one can make oneself if one is clever, or employ a cabinetmaker to do it from specifications if, like the writer, one is not. The box should be of wood, about five and one-half inches long, three inches wide, and three inches deep. The wood of an old-fashioned eigar box is an excellent material but if used, the box should be left outdoors some time to weather, as bees do not like the odor of tobacco. The box should be divided into two compartments, the front one open with a hinged lid. In the lid there should be a small glass window which can be darkened by a wooden slide. Between the front and rear compartments there should be an opening at the bot-



A REE BOY

tom two-thirds of an inch wide which can be opened and closed by a wooden slide manipulated from the outside. The rear of the inside compartment should be of glass, covered with a wooden slide which can be raised on occasion to admit light to the compartment. The box should be nicely and tightly constructed, shellacked after completion, and lightproof. Remember, it will be out in all sorts of weather and the older it is, and the more weathered it becomes, the better the bees will like it.

Provided with the box, the rest is easy. One needs a couple of pieces of empty honeycomb cut square to drop easily into the front compartment. The best is old, black comb from an old bee tree, but any empty comb will do.

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FILLING THE COMB

A medicine dropper is convenient when filling the piece of comb with sugar syrup

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For nectar it is not necessary to use real honey. A syrup of common white sugar one-third, and water two-thirds boiled for fifteen minutes and then cooled, seems to be as tempting to bees as real honey. If one keeps it so long that it begins to ferment no matter. Bees' taste is not nice in such matters. Bees will cheerfully work the fermented juice of a rotten pear. As a refinement, it is well to provide oneself with a tiny bottle of the oil of anise. If used sparingly, this will attract bees and the faint odor on a bee's feet will attract others. When I say sparingly. I mean more than the word ordinarily implies. The cork of the anise bottle rubbed on the comb and the comb then licked with the tongue will provide anise enough for one's purpose. More will make the bees quite drunk, they will refuse to suck but buzz around looking for the anise and eventually retire to the flowers to sober up, and you will lose your line. To fill the comb, a common eye dropper is very handy though not absolutely necessary. It is handy too to have a stand made of an upright piece of wood such as a four-foot section of a rake handle with a flat board nailed on top and the lower end sharpened so it can easily be thrust in the ground, but a stand can always be improvised using a young spruce cut off at the top or a few stones pilfered from a stone wall. It is also handy to have another small box with a lid, not a bee box, in which to carry small objects. The paraphernalia is therefore very simple, and a good bee hunter can get along if necessary with less. George Smith and I once started a line using an empty 32 calibre cartridge box and a bit of comb stolen dangerously from a nest of paper wasps. Finally it would be well to have a cloth bag or knapsack in which

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the smaller articles may be carried, leaving the hands free.

We are now ready to start but should consider the season. There is no point in going bee hunting if one can find no bees. Bees begin to work as soon as spring gets warm and continue until severe frost. This can be proved by examining any hive on any warm day, but what the bees are working on is another question. They are hard to find except during some definite honey flow such as the white clover season or the milkweed or the goldenrod. Especially the last two are favourable. On the bee box I have used for a good many years, I have scribbled the dates of the findings of fifty-six bee trees. Eighty per cent are in July or September. Only occasionally does one occur in June or August and practically never in October. July and September mean milkweed and goldenrod to the bee hunter.

Let us assume that it is a warm day in mid-July and the milkweed is in bloom. We find a patch and find it teeming with honey bees. Incidentally the first step should be to learn what a honey bee looks like. He resembles a refined and streamlined horsefly and is totally unlike the fuzzy bumble bee that so many mistakenly regard as honey bees. One's first task is to catch a bee. This is done by bringing the box up sharply under him with the lid open as he sits on the edge of a bloom and slapping the lid home as he tumbles into the box. It is not so hard as it sounds, especially if the bee is on a high bloom of milkweed or goldenrod. It is essential that the bee be caught. During the midst of a good honey flow a bee will never voluntarily abandon the flowers and go to a comb, no matter with what

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CATCHING THE BEE

The bee will be scooped into the outer compartment and the lid snapped shut simultaneously

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aromatic lure you may have anointed it. Forget for all time the accounts of writers who drench a handkerchief with anise and throw it over a bush near a stand with loaded comb. No bee would come near it. During a starvation period when flowers are scarce, especially after the autumnal frosts, a bee will light on the comb if he finds it. Ninety-nine times out of a hundred, however, the bees will be somewhere else and no bee will find the comb. There have been exceptions as I shall show, but the only sensible procedure is to hunt bees during a honey flow when they are easy to find, and introduce them into the box by violence.

Having caught the bee in the outer compartment and verifying the fact that he is there by looking in the window, the next step is to close the window, darken the outer compartment, open the slide to admit him to the rear and open the rear window. Seeing the light, the bee will promptly go in there, seeking escape. Then one can close the rear compartment and open the front so as to catch another bee. One can start a line with one bee, but the chance of success is greater if one has a dozen, and during a good honey flow, if the tree is not too far away, these can be caught in ten minutes.

Provided with a dozen bees one is ready to start the line. Fill one of the pieces of comb with syrup. Thrust in the stand if you have one. Open the window into the outer compartment and the door between and admit three or four bees to the part with the comb. They will come if you open the window in front and darken the rear. Then put the box down gently, darken the whole box, put your hat over it and leave it still for three or four minutes. Mean-

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TRAPPING THE BEE IN THE REAR COMPARTMENT
The slide on the side of the box is pulled to open the entrance to the rear compartment, the rear window is opened, and the bee follows the light into the rear compartment

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while, fill the other comb. After three or four minutes, place the box on the stand and gently open the lid. If conditions are right, the bees will have found the syrup and taken a load in the darkness. Sometimes one or two will not have finished loading and will sit quietly until they are stuffed to capacity. If they are loaded, they will fly comparatively slowly as they take off to return to the hive. When they have left, repeat the whole process and let out more bees until all have gone. You are now in the stage of starting to establish the line.

Where most of the nature fakers fall down conspicuously is in describing how to establish a "bee line" giving the exact direction of the bee tree. Actually, when a bee leaves for the first time he is both suspicious and anxious to establish the position of the stand. He leaves in slowly expanding spirals and figure eights. The hunter rolls round on his back trying to follow the convolutions of the bee flight in the air. Usually it ends by the bee flying between the eye and the sun and thus being lost to view. If the hunter can establish when the bee leaves for the first time, whether the tree is more north than south or more east than west, he is doing well. It is not until a bee has come and gone eight or ten times that he becomes familiar with the stand, loses his suspicions, and, on taking off, goes in approximately the direction of the tree thus at last creating a "bee line."

If conditions are right, of your dozen bees four or five will return for a second load. Again if conditions are right, in an hour or two these will communicate in some mysterious way with other workers in the hive that there is free lunch obtainable and the number of bees on the line will increase.



LETTING OUT THE BEES

Two bee boxes are on the stand in this illustration. The lid of the outer compartment of the top box has just been opened, and the bees are about to emerge

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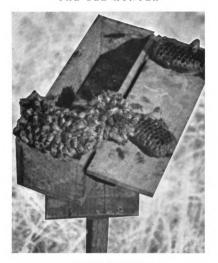
Especially if the tree is near and the flowers not too profuse, this will happen quickly. At best I have had a hundred or more bees running my line half an hour after the first bee left. At times, and this is a common occurrence, no bee will come back at all. Sometimes the original bees will go back and forth but bring no companions. Often the bees will refuse to suck at all but will return on release to the flowers. When that happens, you had best pack up and go home and wait for more propitious conditions.

Why bees will load sometimes and not others, fifty years of experience has left unrevealed. In general, bees run better at the beginning and end of a honey flow when the flowers are not too profuse and too plentiful. Certainly if you are fortunate enough to catch a bee after heavy frosts. vet on a warm day, you will probably establish a roaring line in a short time. Why, however, sometimes bees will load eagerly and sometimes ignore the comb is a mystery. No changes in the thickness of the syrup, no substitution of true honey for the sugar, no aromatic oils like anise applied to the comb will cause bees to suck if they do not choose. They will often suck eagerly in the midst of the heaviest goldenrod season and refuse to suck at other times when flowers are scarce. Nothing is more frustrating than to catch box after box of bees and find them unwilling to load. In such case there is nothing to do but wait a week and try again. The most important quality for a successful bee hunter is patience.

Let us assume, however, that conditions are favourable this July morning. About ten minutes after the release of the first bee, a bee comes back. This is one of the most

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BEES ON THE COMB

The original bees have spread the word to their fellow-workers about the "free lunch." The box in this illustration is the one used for storage of extra comb, the medicine dropper, the bottle of anise, etc.



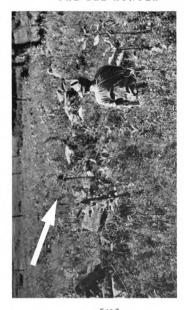
exciting moments in the hunt. An experienced hunter recognizes the sound of a honey bee instantly, but for the last five minutes he has jumped at the sound of every doodle bug that has flown by the stand. The behaviour of the returning bee is very different from that of the departing one. He dashes in circles round the stand, darts away again across the field until you think he will not return, whizzes back to circle the stand again and finally, in narrowing circles, poises above the comb like a helicopter, his buzz still shrilling. One waits with bated breath. The buzz ceases. The bee has come to rest and is loading.

Soon others arrive, and the first comer departs. Once more you try and take his line but once more he fools you as he leaves in widening circles. However, one has got the general direction and can take a position to see better. More information comes as each bee leaves. In an hour's time the comb may have twenty bees on it at once and the arrivals and departures are frequent. Now the bees have begun to be accustomed to the stand and frequently jump off and fly straight so that in a good light the eye can follow one for fifty or a hundred yards. Thus you establish your "bee line." It is never exact, however. No two bees have exactly the same idea as to the best way home. If, for example, there is a large tree in the direction of the hive and perhaps a hundred yards from the stand, one bee may bypass it to the right, another to the left, and a third may lift and go over it. One is constantly revising one's decision as to the true line.

By now we are ready to time a bee and see how long he is

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WATCHING THE BEES LEAVE THE COMB

The general direction of the bees' flight has been established, and the hunter has taken up a position a few feet from the stand (arnew) from which he can easily follow the path of the bees in the air

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gone. This will give one a fair estimate of the distance from the stand to the tree. A bee takes between one and two minutes to load and as much time to unload. He may also have to crawl some distance in the tree to reach the place to deposit his load. He flies at about the speed of a human sprinter, say a quarter of a mile a minute. If he is gone eight minutes, the tree is not too far away. If he is gone twelve minutes, the hunter has a long job ahead. If he is gone four minutes, the tree is very close. The longest I remember having a bee absent and still being able to run a line and find the tree was fifteen minutes. The shortest was two and one-half minutes, and then the tree was actually in sight of the stand, though I did not know it at the time. Twenty minutes is hopeless. No bee will bring others back at that distance, and it is better to abandon the stand, move a mile or more in the direction the bee has taken, catch more bees, and repeat the whole process nearer the tree.

In order to time a bee it is necessary to be able to identify an individual. George Smith used to do this by extracting some seed or pollen from the bud of a small mossy plant and sprinkling a little of the green dust on the back of a bee. At best it was an uncertain process as the dust was liable to be blown off before the bee's return, and even if not, was hard to see. I have evolved a simpler and better system. To our equipment as already described, let us add a small bottle of water, a tiny camel's hair brush, and a piece of blue carpenter's chalk. With the blade of a penknife, scrape some dust from the chalk onto the back of a smooth stone or the blade of a hand axe if you carry one. Incidentally a small scout's axe is a handy thing to have for clearing

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brush, making stands, marking the bee tree when you have found it, and blazing a trail from it if it is deep in the woods and should be hard to find again. On the chalk dust, with the brush, drop a few drops of water and stir till the water is coloured blue. Then with the wet brush dab the rear of a loading bee. This must be done deftly and gently. Bees do not like to be painted. A good hunter can guess which bee is apt to be unreasonably phlegmatic and, especially if one is loading from a half empty cell, with the shoulders buried and his tail raised, he can be painted without disturbing him. Once daubed, the new decoration does not annoy him in the least and is not noticed by his fellows. When wet, the spot shows only slightly, but by the time the bee returns, the chalk dust will be dry and will stand out like a beacon so vivid that it can be spotted even before the bee alights. We now have an identifiable bee and can time him

Let us suppose he takes seven or eight minutes a trip to the tree and back. One should time him two or three times to be accurate and not be disturbed if the time varies a little. We now have a bee line and some idea of the distance of the tree.

Now it is time to move. One might ask why, knowing the direction and the approximate distance, one does not immediately hunt for the tree. The answer is that there are ten thousand trees in the woods and only one the bec tree. One can never be sure of the exact line or, with any exactitude, the distance. Sometimes when one has narrowed the problem to an area of a hundred yards square, it is hard to find the tree. So once more the bee box is placed on the



stand, a loaded comb dropped into the front compartment and the lid left open. The spare comb should be hidden carefully. Great ire on the part of the bees. They again become suspicious and do not want to enter the box. As more arrive, the air is filled with a disgusted humming. In time the temptation is too great and one after another a bee drops down to the comb. When ten or a dozen have done so, snap down the lid of the box and drive them into the rear compartment as before. They are reluctant to go, but a puff of cigarette smoke blown through a crack in the lid will send them scurrying to the rear in search of purer air. Close the slide, reopen the box, place it on the stand and catch another lot. Catch all you can. Then pull up the stand, gather up your paraphernalia and move three or four hundred vards down the line. Then set up the stand and release the bees in batches of eight or ten.

This is another critical moment. Will the bees stand moving? If you have mistaken the line and moved off it to far to the left or right, the bees may not come back, and you will have to return to the first stand and start over again. The same is true if the swarm is weak or the flowers too tempting. The time seems interminable. I have a theory, which I cannot prove, that on the first move the bees return to the first stand before investigating the possibilities of the second. Conditions are right on this day, however, and after a time we hear the welcome hum of the first returning bee, quickly followed by a second and a third. The bees will stand moving. Success seems assured.

Theoretically it is. All one has to do is to continue to move the bees until the tree is reached or passed, in which

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case the line reverses and proves that the tree is between the last and the next to the last stands. If it were as simple as that, bee hunting would not be the art and the fun that it is. In the first place, in order to reestablish a line, the stand should be set up in a clearing. We have now reached the woods and possibly no clearings are available. Released in the woods, a bee circles up into the trees and disappears. Sometimes it is hard to tell whether he goes forward or back. The moves have to be shorter. Often if one moves beyond the tree, the bees will not come back, and you have lost your line. Above all, the lining must be straight. If you meet a swamp, you must go through it. If you meet a cliff, you must go up it. If you meet a pond, you must go round it and set up at just the right point on the opposite side. All this takes time. You must be prepared to spend two or three days before finding the tree. Meanwhile, as the tree draws near, the bees tumble out in greater numbers until literally there are hundreds buzzing about and going back and forth, and one has to refill the comb frequently.

This brings up another point: the danger of being stung. The newcomer is apt to be terrified as the bees buzz round his head while the hunter is tending the stand. The answer I can give categorically. There is absolutely no danger whatever of being stung while running a line. The bees are entirely friendly. They will fight among themselves if two swarms are involved. They will fight a hornet if he has accidentally found the comb. The hunter who is supplying them with free syrup they would not think of molesting. The only possibility of getting stung is some careless accident. I was once stung when a friendly bee had lighted

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on my khaki shirt and, not noticing him, I put my arm down and squeezed him against my side. Naturally, he let drive at my ribs. The fault was mine, not his. One can even imprison a bee in one's cupped hands and he will crawl round and try to find his way out, but if you do not squeeze him, he will not think of stinging you. I once was lining a swarm in the middle of the goldenrod honey flow when a terrific hailstorm came up and leveled all the flowers. The next day the bees were desperate. Their bee pasture was gone and they were mad for syrup. I soon had what seemed to be half the hive around me. They came not in hundreds. but in thousands. Even to an old hunter it was a little terrifying, but absolutely harmless. One had to exercise caution. Feeling a curious tickling on the left side of my breast. I discovered that some two dozen bees had found the anise bottle in my shirt pocket and had gone in to investigate. It was quite a job to get the anise bottle out and persuade the bees to come too, but I did it without accident. The only danger to the amateur is that he lose his head and try to slap a bee that he thinks is dangerously near his face. If he does, he may be stung. He ought to be. It is worth repeating because to the newcomer it seems incredible. There is absolutely no danger of being stung while running a bee line.

As we draw nearer the tree, the moves are shorter and made more quickly. Now there is no worry about losing the line. Indeed, the bees not trapped will often follow the hunter on a short move and, as the imprisoned bees are released, others, arriving from behind, will drop on the comb. Now the hunter is convinced that the tree must be

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in sight. Usually it isn't. As soon as it is established that the line still goes ahead, the hunter will go down the line carefully examining every likely tree This gives him evercise puts in the time and enables him to find a good place for the next stand if it is necessary to establish one. Usually it is. At last, however, one of two things happens. Either the hunter finds the tree or, after a move, the bees will be a long time coming back or if it is a long move though it should not be, they may not come back at all. When bees have been running well and suddenly are slow to return. it is suspicious and auspicious. When the line is at last reestablished, the behaviour of the bees is odd. They will circle off in all directions in the most exasperating fashion At last one or two will fly reasonably straight, and it dawns on the hunter that the line has reversed itself and the bees are going back. The tree is between this and the last stand. It is only a matter now of looking carefully enough to discover the tree

Even then one cannot consider the battle won. A bee tree can be extraordinarily hard to find. The likeliest trees are maples, beeches, and hemlocks, but the hunter must look everywhere. Smith used to have a theory that if the bees rose high as they left the stand, the hole was high in the air. If they pitched low, the hole was low. He also pretended to guess the kind of tree that the bees were in by the colour of the bees. Light-coloured bees were likely to be in a maple. Very dark ones might be in a dead pine. There is something in all this but not much. One time we were running a line of light-coloured bees that pitched high, and I told Smith we had better look high up in maples. His reply was:

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"You look high in the maples and low in the cedars and up and down all trunks and branches, hard wood and soft, big enough to hold a hive and you can be sure of just one thing. When you do find them, they'll be where you don't expect them."

A sound aphorism and worth following. It was this same Smith one time when we were fishing for trout and not finding them in one or two favoured holes, tried elsewhere in less likely places and found them, who said:

"If you want to catch fish, you've got to fish where the fish is, and if they ain't there, you fish where they ain't and there they'll be."

Of course, the greatest thrill of the hunt comes when one finds the tree. Sometimes it is abrupt, if the hole is in an unshaded limb or bole in plain view. More often it is in a position where one has to manoeuvre to see it, and the first warning comes when one sees the flash of wings in the air and, in an agony of hope and doubt, moves about until the hole can be seen and the presence of the swarm truly verified. Even when the tree is pinned between two stands. it may take a long time. I remember one tree that we had so pinned. I had with me my son, who is a good bee hunter, a companion of his, and a couple of rank amateurs. The five of us tramped the area between the two stands for an hour before I found the hive. It was in a smallish swamp maple that divided into two boles four feet above the ground. Neither bole was big enough to hold bees, so we had passed it unsuspecting. In the crotch where the boles divided was a hole and into this the bees were dropping, making their home in the short trunk near the ground.

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THE BEE TREE

The bees have entered the hole indicated by the arrow in an otherwise sound maple tree. Bees rarely choose a dead tree in which to make their hive

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After we had found it we noted that we had actually trampled a path through the ferns within fifteen feet of the tree.

The commonest and most foolish question I am asked is how long it takes to find a bee tree. According to my experience it is somewhere between forty-three minutes and two years. I have already mentioned the accident of setting up a stand within sight of the tree and finding it in less than an hour. Another time it was not an accident but a well calculated guess. In late September I was gunning in the Blue Mountain Forest area in New Hampshire. The day was unseasonably warm. I found no game, but observed a great many bees working the few goldenrod that were left and some late asters. I well knew the terrain. A little to the southwest was a small old sugar bush with large maples. To the northwest but still near was another somewhat larger. Beyond and in all directions had been pine forest that had recently been lumbered. There would be almost no chance for bees to set up in that area and therefore they must be in one of the two sugar groves. I went home, got my bee box and started a line near the small sugar bush. The line came quickly and I never moved. Following the line from the box, I found the bees in the third tree I examined. It took less than three quarters of an hour.

Now for the other end of the scale. Years ago when I was still a boy, Smith and I started a line that ran up the steep slope of the southern-saddle back of Croydon Mountain. The timber was thick, the slope at times ladder-like, and the hunting difficult. We made several moves and then

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hunted for the tree. We could not find it and eventually gave it up. The following summer we struck the same line and hunted it again. Evidently the bees had wintered well, but still we could not find the tree. The next summer we got the same line. By that time our dander was up and we decided to find that tree. We ran a line as well as possible. Then we began to examine the timber horizontally back and forth across the line, blazing our paths to make sure that the whole area was covered. After a time. I heard a vell and considerable profanity accompanying it. It was below me, and I scrambled down the steep slope. The profanity seemed to come from a clump of young spruce out of which projected the old bole of a fallen maple. Smith had stepped on the bole, slipped, and shot through the young spruces ending with his legs on either side of the stump of the fallen tree. The bees were in that, One could have passed within ten feet and not known that there was anything there that could harbour a colony of bees. We had our tree, but it had taken a little over two years to find it.

A word about cross lining. The literary experts seem always to find their quarry by cross lining. They catch a bee, release it, and take its line. Then they move a quarter of a mile, catch another and take its line. By triangulation, where the two lines meet, there will be the tree. Pas plus difficite que (at) Unfortunately, as we have seen, one cannot get even remotely an accurate line the first time a bee leaves. Moreover, if one could, there would be a good chance that bee number two came from another colony. One would get a line north and another northwest, and

where they met, there would be the tree. Nevertheless, cross lining should not be ruled out. Sometimes one will get a line too weak to be worth following. Trying in another place one may get another weak line that seems to cross at a distance the first. If one goes to about where the two seem to meet, there is a good chance that one will be near a bee tree.

Let me illustrate with an amusing example. Three years ago I was bee hunting on the hills not far from my home in New Hampshire. I got a weak line nearly east and directly toward the little village of Croydon Flat. I decided that I must have got onto a tame swarm, though I could think of no one in Croydon Flat who kept bees. However, it was obviously time to try another area and I drove to the Flat and took a road northwest for a mile and a half, caught bees, and set up a stand. I got a weak line southeast, again directly toward Croydon Flat. I hunted up a friend who lived there, one Orrin Pillsbury, and he assured me that nobody in the Flat kept bees. The village is tiny, the intervale small, there is good hard wood timber near and no reason why a wild swarm should not have located near the village. I caught bees and set up in the vegetable garden back of Orrin's house. I soon had a good line northeast, but it went over the house, and since some energetic bees flew over the house, others preferred to clear only the ell and still others went round, we had no accurate line. I moved across the village street to a field on the other side. The bees were a long time coming back and when they did, they established a line northwest. Here was a cross line with a vengeance. We investigated, thinking the bees

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were in one of the elms of the village street. I soon found them pouring in and out of a chimney on the house of one Cy Cummings. Cy had two chimneys and he only used one. The bees had set up in the other. That was one wild swarm I found that did me no good. Cy obligingly let us into the house, but when I suggested opening the disc in the second floor designed for the admission of a stove pipe, he mutinied. That was not unreasonable as I could not have got my head in to see, and the bees could have got out into the bedroom. Cy distrusts bees. I believe subsequently he built a fire in the chimney and brought down a mass of spoiled honey, dead bees, and melted wax. A great waste.

This brings up another point. The writer has been fortunate in that the bulk of his hunting has been within the preserve of the Blue Mountain Forest Association in Sullivan County, New Hampshire. There, if one starts a line of bees, one can be sure it is a wild swarm. There are no farms with domestic bees in the area. Most hunters, however, have to hunt in country districts where there are farms. the owners of which may well keep bees. It will be wise, therefore, before going hunting, to ascertain the localities where tame bees are kept. Nothing is more frustrating than to start a line, get it going well, run it several moves, and end in a farmer's backyard with the revelation that a hard day's work has done no more than adulterate his honey with a half a pint of sugar syrup. This happened to me once, but it has not happened again. New Hampshire is largely wooded, and if a line heads for a deep woods on a mountain slope, one can be reasonably sure that one is

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trailing a wild swarm. Do not, however, let that prevent you from lining a wild swarm near a locality where there are tame bees. Many wild swarms are simply once removed from the domestic variety. Even a good apiarist often loses a colony when his bees swarm at an inconvenient time, and the new colony may set up quarters not far from the old. For years I refrained from starting a line from my own lawn because of the presence a mile and a quarter away of a number of colonies belonging to a gentleman known as Chicken Smith. Chicken Smith's bees used my flowers regularly. Then one day I decided to start a line anyway just for interest and found a wild swarm in my own sugar bush.

One question often asked is how much honey one gets from a bee tree. The amount varies enormously. My record is ninety-seven pounds of unstrained honey from one tree. It was not a large tree, but it had a large hollow. It involved a terrific fight with the bees, as one would expect, and both my companion and I were rather well stung, but we filled a wash boiler with honey and then had to go home for more containers. On the other hand, one may take up a tree and get only a pound or two. I remember taking up an old rock maple. Its branches were so wide that when we cut it down, it merely leaned on its elbows and we had to cut it three times before we could get to the entrance to the hive. The wood was so heavy and the grain so gnarled that a steel wedge held against the wood and struck with a sledge, would bounce off. To get into the hollow was about as easy as cracking a safe, and it took three of us over three hours. Our reward was one

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piece of filled comb smaller than the palm of my hand. It is all a gamble and part of the fascination of the hunt. As an average, I should say one ought to expect to get eighteen to twenty pounds of strained honey from a tree.

As to the number of moves, that varies from no move at all, as we have seen, to a dozen or even more. The longest line I remember I started years ago in the clearing at the base of Crovdon Mountain. The line took me up the steepest slope to the ridge just north of the summit. Thence it carried over the ridge and down the opposite side. When it came time to take up the tree, it was easier to come in from the north than from the south along the line I had followed. It took me three days, and I made fifteen moves. When bees are running well, one can leave them in the late afternoon and pick them up again next day. On leaving them, one fills every available piece of comb, weights the box with a stone so it will not be blown off in case of a sudden wind, and puts one piece of comb in the outer compartment with the lid propped up only half an inch so that in case of rain at least one comb will retain undiluted syrup. In spite of all this, when one returns next day, usually every piece of comb is empty and the bees gone. It is hard not to be discouraged, but there is no need to be. Fill the comb and wait. In five, ten, or twenty minutes a bee will come for one more look to see if a trifle of sweet may still be gleaned. He will load, depart, and in half an hour you will have a roaring line once more.

Bee hunting brings some odd experiences. As boys, my brother and I were bee hunting with Smith and found the bees in the base of a rock maple on the edge of the woods,

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in a fissure not five feet from the ground. It was late September and we decided to take up the tree forthwith. It was not necessary to fell the tree, but merely to cut into the hollow to get the honey. We had, however, no nets or gloves, so we built a smudge to drive back and stupefy the bees while we were getting the honey. We made a good haul and drove back to camp three miles away that evening and had ourselves a Gargantuan meal of brook trout, flapjacks, and new honey. After supper we went out to listen to the bugling of the elk with which the preserve was stocked and, looking across the valley, we saw a bright light. Our smudge had set fire to the tree. We drove back and found the hollow interior a furnace. There was no water available, and the fire had burned high up in the hollow. We had no means to extinguish it, nor did we dare leave it for fear the tree would fall and the fire spread. The elk were bugling merrily, and in those days an old bull in the rutting season was quite capable of attacking a man. We finally climbed onto a large branch of the nearest maple and spent a restless night telling stories and waiting for the fire to burn itself out. Fortunately, by morning it had.

Sometimes the attempt to find a tree is unusually baffling. One time my son and I lined and cross lined a swarm until we narrowed the search to two or three trees. The likeliest was a beech, but though we occasionally got a glitter of wings in the air, we could not be sure that we had the tree. It was not until we had gone home and returned with a powerful pair of field glasses that we were able to distinguish the bees in the foliage forty-five feet in the air and near enough the hole to make us certain that we had our

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bee tree. The actual hole itself we did not see until we felled the tree and took up the swarm. Another time I had run the line to the top of a mountain and then the line reversed itself. Between the two last stands there was nothing but bull spruce not big enough to hold a colony, and moreover I had never heard of bees in a spruce. Tree by tree I examined the terrain. I finally found the bees dropping down into the roots of a spruce where there was a hollow partly in the wood and partly in the ground where the colony had settled. It was a miscrable little swarm, and I never bothered to take it up. The next summer it was gone, as I I had expected in the case of a foolish swarm that had selected so unsuitable an habitation.

Does one ever find a bee tree by accident? Yes, but very, very rarely. I once was eating my luncheon beside a mountain brook and noticed a honey bee loading water at a wet spot. He flew off and soon came back. I got out my watch and timed him. He was gone two minutes. I rose and went in the direction of his departure and found the tree fifty yards away. This was without benefit of bee box or syrup, but did involve lining of a sort. On the other hand. I once found a tree on top of a mountain and choosing a different way down, found another bee tree two hundred vards from the first. My guess is that the older colony had swarmed, and the new commune had decided to set up in the nearest suitable place to the old. Another tree I found accidentally due to an amusing mistake. My companion had had some experience in bee hunting, and when I started out to catch some bees I asked her to fill the comb for me so as to be ready when I returned with the bees.

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She did so, however filling the comb from the anise bottle instead of the syrup bottle. There was nothing for it but to go all the way home for fresh comb and start over again. On the way back we discovered a large colony of bees in a huge pine which we had passed unnoticed as we had gone out the first time. These are the only trees I remember having discovered by accident, and I have looked longingly into thousands of likely trees. To find bees one must hunt them and not rely on chance.

Sometimes bees, for such sagacious insects, show remarkably little sense in the abode they select. I once found a colony in a small dead poplar (or popple I should prefer to call it) so weak and rotted that I could have pushed it over with my weight. Those bees I decided to save for pets. My wife, the farmer, and I drove that night to a place a few hundred yards from the tree. The hole was about five feet up. The family was all at home of course, and I plugged the hole with moss to keep them there. Then we attached a rope to the tree as far up as we could reach and sawed it off at the base, lowering it gently to the ground. Then we cut off the top above the hollow which sheltered the bees. The farmer and I easily carried it to the buckboard and brought it home in triumph. I had already prepared a place for it in a tub sunk in the ground and cement ready to puddle around it. Soon our bee tree was standing erect in the cow pasture near the house with a saucepan over the top to keep rain from seeping into the hollow. I unplugged the hole and went to bed. Next morning I went out to see how my guests did. They were six miles from where they had gone to bed the night before and were quite untroubled

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by it. They had already organized perfectly. The temperature of the hive apparently had risen, and a ring of fanners was around the hole fanning air into the interior with their wings where it was caught up by other fanners and driven through the hive. The ventilation system was humming. The bees had already discovered the small brook a few yards away, and a bucket brigade was busily fetching water. The bulk of the workers had discovered my neighbor's buckwheat patch and were busily gathering nectar. I kept them for several years and got much fun from watching them, nor did they ever show the slightest resentment toward me for shifting their home. Eventually they died in an unusually severe winter.

Apropos of starting a line without catching a bee, it can be done but only by the rarest accident. I did it once, I had gone out to hunt after the autumnal frosts, hoping to find a late flower or two on which I could catch a bee. I went to a sheltered clearing and, leaving my spare box open with the empty comb exposed on a boulder. I wandered round the clearing searching for a bee. Finding none after fifteen or twenty minutes, I returned to gather up my kit and found a bee buzzing round the empty comb. He had found it by accident, having flown near enough to get a scent of the comb and anise. I succeeded in filling the dropper with syrup and squirting it onto the comb without frightening the bee. He found the syrup promptly, loaded, and left. I then filled the comb properly. I had hardly finished when the bee returned with three friends. In fifteen minutes I had a roaring line, and in three moves and about two hours I found the tree. This was a good example



of how well bees will run on a warm fall day after the flowers have gone by. It is also the only example I remember of my being fortunate enough to start a line in this way.

The most ancient bee tree I ever found was approvimately twenty-four hundred years old. My wife and I were examining the ruins of one of the Greek temples at Selinunte, the ancient Selinus in southern Sicily. Of one of the temples, all but two of the columns had been overthrown by an earthquake. One of those standing had been terribly worn by the hot sirocco wind that blows periodically from the African coast. In order to preserve it the top had been capped with cement, but there was a large hollow underneath. As I neared it, some telepathic cell in my brain began to signal "bees." Without thinking what I did. I stepped to the column and ran my eye up it as I would have done had I been looking for a bee tree. At the top the members of a busy swarm were pouring in and out from the hollow under the cement. That was a bee tree I could not take up. I had a similar experience several years later in the ruined abbey of San Galgano south of Siena in Tuscany. The abbey was built by French Cistercians in the early thirteenth century, and the walls and apse are still standing though the roof has long since disappeared. The ruin is fenced off and locked, but a neighboring peasant brings the key and admits one for a few soldi. I was examining the alien architecture with a professional interest when once more the bell rang in my brain and something said "bees." I ran my eye up one of the columns and soon saw so many bees coming and going from an aperture in the triforium that the original colony must have increased

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enormously in almost unconfined space. I turned to the peasant and said:

"Ci sono api in quest'edificio."

He answered:

"Si Signore, ma Lei è il primo che l'ha mai osservato."

I also found a lively swarm in the triforium of the ruined
abbey of Jumièges in Normandy which antedated San
Galgano by a hundred years. So it is possible to combine
the discovering of wild bees with the study of the history
of art

Perhaps the tree I remember most vividly is the first one ever discovered unaided. When I hunted with Smith, he was invariably the one who first saw the bees. Since his death years ago, I have hunted with many people and only twice has my companion seen the bees before I did. There is something telepathic in the way an old hunter senses the nearness of bees, though even he is often fooled. In order to find a tree entirely on my own I had to escape from Smith's tutelage. The great day came when I was about fifteen. I caught bees in front of my father's house in Newport, N. H., and soon got a good line running straight up the side of Coit Mountain. There was a long upland pasture and beyond that the woods. Four moves took me to the forest edge and timing and numbers both told me the tree was near. I went up the line to look for the bees or for a clearing and soon found the swarm in a good-sized rock maple. I have received a number of great thrills in a long life, such as the notification that I had qualified for my doctorate, the reception in New York harbour in late December 1918 after the first World War, the citation from





the President on receiving an honorary degree from Harvard, but, believe me, these thrills are all in class B as compared to the one I got when I first found a bee tree unaided.

The finding had an amusing sequel. The hole was about eight feet up the bole, too far to reach but near enough for the bees to be very conscious of an intruder. I started proudly to blaze my initials on the tree when I became conscious of a roar and the air seemed to grow dark above me. I turned and ran just in time, nor did I return to finish blazing the tree. Later, I related the event to George Smith who covered me with contumely. That a man should find a tree and then be driven off by the bees before he could blaze it. Smith regarded as a disgrace. He assured me that he would take up the tree himself without benefit of veil or gloves. I knew better than to argue, but on the appointed time when he, my brother and I went to take up the tree, I brought two yeils and two pairs of gauntlets. When we got to the tree I set about collecting dry stuff for a smudge, a matter which Smith said was quite unnecessary. I was downhill from the tree when he went to work. I heard the axe fall perhaps a half a dozen times, and then there was a siren-like wail of profanity, and Smith came charging through the woods, a stream of angry bees behind him like a comet's tail. That was one swarm which defeated the intrepid Smith. He borrowed my brother's net and gloves. my brother went off and hid in the woods, and with net and glove protection and a smudge as well, we cut into the tree and took up the swarm. We got sixty pounds of honey.

In this article I have alluded many times to "taking up" a bee tree. The phrase may be colloquial, but it sticks.

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Smith never cut a bee tree. He always "took it up." Moreover, he always referred to a bee as "he." I am well aware that a working bee is a sterile female, but I cannot bring myself to call it "she." There is nothing feminine about a working bee but its anatomy. "She" is "he" to me.

A word or two in more detail about the taking up of a bee tree may not be amiss. It brings us face to face with one unpleasant fact: the cruelty of the performance. For once a tree is taken up, the bees soon die. It is done in the autumn, and the cold soon kills the bees. They are deprived of food and shelter and have no time to gather more of the one or repair the other. They have laboured hard and are pitilessly robbed not only of the fruits of their labour, but of their very lives. They have been friendly during the running, and one has acquired an affection for them. How then can a reasonably tender-hearted person bring himself to destroy them?

A reason I can give, though I do not maintain that it is an excuse. Bees are perhaps the most thoroughly communistic creatures extant. The individual counts for nothing. The spirit of the hive is all. I am told that the life of a working bee during a heavy honey flow is only six or eight weeks. The workers work themselves until they shortly die; the hive is kept alive by the steady hatching of larvae who in turn carry on the work and die. The queen, who alone of the colony lives several years, has one nuptial flight and spends the rest of her life crawling over the comb and dropping an egg into each cell. Though she, more than anything else, is responsible for the spirit of the hive, she is more of a slave than her workers. As autumnal cold

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descends, work stops, and the bees torpidly cling together for warmth and maintain existence by consuming their store of honey. In the spring work and laying start, and the worn workers live just long enough to see the process started once more and enough larvae hatched to replace them and assure the continued existence of the hive. A bee will do everything for the hive; nothing for a fellow bee. A bee from a strange swarm, alighting on the comb, will be instantly attacked. On the other hand, if one tries the experiment of killing a bee on the comb, pinning him with the blade of a knife, he will set up a screaming buzz that sounds horribly anguished even to the human ear - and his fellow worker, loading half an inch away, will pay absolutely no attention to him. When a tree is taken up. the spirit of the hive is killed then and there. The queen is usually crushed or lost. The living thing that is the hive is extinguished, and the individual bees become mere insects doomed to winter destruction as are so many of the common flies. For the individual, the hunter has merely hastened dissolution by a little. He has killed the hive with the crash of the tree. I state this not as an apology, but as a fact, an explanation of why one's conscience does not trouble one after taking up a tree. Illogical it may be, but it is true.

To return to the process. The days have lengthened, and October has come. Frost has killed the flowers. The behave gathered the maximum of honey and will have begun to consume the store. It is time to take up. For equipment you will need a couple of axes, a crosscut saw, a sledge, and at least three stout steel wedges. Plenty of twine is essential. Take as many bee nets as necessary. These can

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be made extemporaneously out of black mosquito netting, but it is easier and safer to get the regular professional beekeeper's veils. For every participant there should be a stout pair of linesman's gauntlets. Wear old clothes, dungarees or old riding trousers. You are sure to get pretty well smeared with honey before you are done. Select a clear day or an overcast one, but not one with a threat of rain. If any water finds its way into the honey, it might as well be thrown away. It will surely ferment and spoil. You will need help, one or, better yet, two good woodsmen. In New Hampshire they are not hard to find. Probably they are working for you on your own place or for your neighbour. A few men have a rooted fear of bees and will be unavailable. The average lumberman, if promised reasonable protection, will come along and face the hard work for the fun. Taking up a bee tree is an exciting and thrilling performance. Lastly, bring plenty of receptacles for the honey. The humiliation of returning with five pounds of comb in a wash boiler is nothing as compared to the exasperation of filling a couple of buckets and finding you have no way of transporting the rest of the honey that is left in the tree.

Thus equipped you sally forth, hunter, woodsmen, and usually one or two camp followers in the way of guests or the curious. Your tree has been marked with your initials and a trail blazed to it with your hand axe so you have no difficulty in finding it. If it is on your property, well and good. If not, your New Hampshire farmer is usually a reasonable being if you treat him properly. A bee tree is not valuable. The mere fact that it has a hollow generally

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proves that it is not commercially valuable for anything but firewood, and after it is felled, if the owner wants to work it up into firewood, he is at liberty to do so. A proper approach and the promise of a jar or two of honey will usually win you permission to take up the tree, and the owner will come along to watch the fun. In all my many years of experience, I have only once been refused permission to take up a bee tree without payment.

Arriving at the tree a council of war will follow as to how best to fell it. If you are wise, you will allow this decision to be made by your woodsmen. If possible, it should be felled so that the hole is on one side or on top. If possible, it should not be felled across boulders, as it is very desirable not to have the bole split. Sometimes a tree will be so leaning, however, that there is no choice in the matter, and one must do the best one can. While the woodsmen are chipping the trunk and beginning to saw. the hunter should gather moss, the fronds of ferns, or other stuff to plug the hole when the tree is brought down. As the saw bites deeper and the scarf widens, the top of the tree will begin to sway. Now is the time for the hunter to don his veil and gloves. Before putting on the veil, it is well to turn up the collar of one's jacket. It is not even an act of supererogation to tie tightly some twine around one's waist. I once had an ambitious bee crawl up under my jacket. down through the band of my trousers, up under my shirt and undershirt and sting me in the small of the back. For protection of the legs, nothing is better than a light pair of fisherman's rubber boots. Failing them, tie the bottom of your trousers or dungarees tightly round the

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tops of your shoes. Do not wear low shoes. My companion did that the time we took up the ninety-seven pound tree. It was in a swamp and, in addition to the discomfort of wet feet, he found that a couple of dozen bees, stupefied by the smudge, fell into the water, revived, and relieved their feelings by swimming across to his ankles and stinging them. The next day his legs looked as though he had elephantiasis, and never thereafter could I get him to help me take up a bee tree. He could not seem to comprehend that the fault was his for wearing low shoes.

The cut deepens. The tree sways wider. It begins to heave, and one hears the first pistol-like reports of the cracking trunk. Slowly at first then with rapid momentum the tree falls with a thunderous roar. The axemen have snatched the saw from the cut and jumped back. The hunter rushes in, his hands full of moss, finds the aperture and plugs it before the bees can escape. At least he tries to. Sometimes he misses a subsidiary aperture, and some bees escape to enliven the proceedings. Sometimes the bole splits at the hollow and nothing can be done about that. Usually the hole can be plugged, and one can take one's time preparing to open the hollow.

The woodsmen now put on their nets and gloves, if indeed they have not done so just before felling the tree. All debate as to whether the hollow extends above or below the hole, often a matter of guesswork. Then the saw comes into play again. The lumbermen cut deep scarves above and below the area where the honey is supposed to be. When rotten wood (and at times honey!) shows on the blade, one can be sure the hollow is entered. Then a

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wedge is placed at the base of one of the scarves and driven home with the sledge. Another, parallel to it, is driven in further down, and a third parallel at the lower scarf. As the wedges are driven home, the bole will split and a great section may be lifted off like a lid, exposing the honey and the bees. Of course, I am describing an ideal performance. Often the tree makes trouble, has to be sawed several times. and the opening enlarged with the axe. As the crack widens under the impact of the wedges, the bees pour out, and the fight is on. They will attack viciously, and one is aware of the ping of bees dashing themselves against the wire netting of the veil. If one has taken proper precautions, one is safe, though, to be honest, one usually gets stung once or twice in taking up the tree. Humans vary in susceptibility to bee stings. I am lucky in that they trouble me little, and usually the swellings are slight. On the other hand, my brother when once stung in the back of the hand, found his arm next morning thrice its normal size to the armpit. Those so constituted had better stop at home when a tree is taken up.

Once the fight is on it is well to get at the honey as soon as possible. Once the comb is well broken, the bees lose most of their fight. They will dash around in a bewildered way, bunch up on a bush, gorge themselves with spilled honey, and generally give evidence that the spirit of the hive is dead. Only a few doughty fighters will continue the battle. The comb will be in layers, up and down the length of the hollow, sometimes in pieces two or two and one half feet long, with spaces between to admit the workers. In describing the equipment I neglected to add a large iron

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spoon and a couple of table knives. Usually it is necessary to cut the comb to get it into convenient sizes, and a good deal of honey will escape and run down into the hollow whence it can be spooned out and added to the spoil in the boiler. If a certain amount of chips, dead wood, and even dead bees and larvae are included, do not be disturbed. It will all be strained anyway. I have long since given up trying to save wild honey in the comb. When the last available drops is gararered, gather up your equipment and retreat. A hundred yards away and you are quite safe and can doff the nets and gloves that by this time are unbearably hot and sticky. Then you have your first taste of delicious honey.

Either wild honey is more tasty than the domestic variety or one's exertions have made it seem so. My quests have always agreed that my wild honey is more aromatic than any one can buy. I imagine the answer is that strained wild honey is a blend, while domestic honey is generally of one variety. The taste of honey varies widely according to the flowers from which it is made. Clover honey. foolishly the most prized, is the most insipid. Golden rod honey is golden vellow and spicy. Buckwheat honey is, if anything, too pungent and heavy as molasses. The honey of Provence, made from wild thyme, has a special piney In straining wild honey no attempt is made to separate the varieties, and the result is a blend, varying somewhat according to tree or season, but always more interesting than the domestic variety. Having sampled your honey and found it good, you can now go home and weigh your spoil. Unless, indeed, you have more than one tree to take up. I have taken up four in a day.

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The rest is an epilogue. The straining of the honey is a matter for the distaff side. My wife makes large bags of cheesecloth, and the comb is broken up and introduced into these. They are then hung over pans in a warm kitchen. The honey drips slowly into the pans. One fears that a lot will be wasted, but not so. In thirty-six hours or more the comb will be dry beeswax, and the honey can be run off from the pans into glass jars. When sealed, the honey will keep indefinitely. After a while it will sugar into a kind of paste. I like this better for eating than the liquid variety, but if anyone disagrees, it is necessary only to place the jar in warm water for a while, and the honey will return to its liquid state.

So much for bee hunting and how it is done. This account has one virtue, perhaps only one: it is true. It is based on experience, and there is nothing in it that I have not done myself. I have relied on nothing that I have been told; there is no hearsay. I have made no attempt to discuss the life of the bee and the fascinating details of its domestic economy. For the curious in these matters, I recommend Maeterlinck's Life of the Bees. I imagine what he says is true, but I cannot prove it by my own certain knowledge. It is certainly very beautiful and perhaps it is more important for a poet to make a thing beautiful than to make it true. These matters are not of my concern. For a more factual but equally fascinating account, I recommend Bees' Ways by George de Clyver Curtis.

I have also tried very hard to avoid purple passages. It has not been easy. Bee hunting is one of the most fascinating of sports, and one could go on describing dif-

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ferent illuminating episodes for many pages. The sport combines almost everything that is desirable. It is played out of doors. It requires exercise both of the muscles and the brain. It is a sport of brawn and of craft. It can be played alone. Moreover, it can be played at any tempo. Time was when I could scramble up and down Croydon Mountain like a squirrel and could push the pace. That I can no longer do but I can move more slowly consider more carefully, draw on the craft and knowledge of long experience and find as many trees as when I was young and impetuous. The sport is one of infinite variety of suspense, disappointment, perseverance, and triumph. You go out into the fields. Before you is a wooded mountain with ten thousand trees. One of those trees is a bee tree With a very simple equipment you set out to find it pitting your skill and your knowledge against the wiles of probably the most intelligent insect in the world. You try. You fail. You try again. You succeed. Your ostensible object is honey. It is the least of your rewards. The reward is when. after hours or days of trial and error, your eye catches the flash of wings in the tree and once more you are able to say checkmate in one of the most difficult, complicated, and fascinating games in the world.