April 20, 1909

I am a little bit tired tonight as the trip today was rather long and hard. On the whole thought I had rather good luck as I came through without any serious mishaps. I left Fresno at 7 o'clock this morning and got off at a switch about eight miles from Polaski. I found three horses waiting for me there so I climbed on and started out. I reached Polaski at ten and Bellview at 1:30 where I added another horse to my trail. I had no bad luck on the road so I made the entire trip today—about 60 miles—and arrived at South Fork at 6:30 in the evening.

As ever, John

P.S. Address me at Bootjack, Mariposa County, c/o Forest Service

Bootjack? What a name. It is east of Mariposa on state highway 49. It probably was one of the old collapsing mining towns that often became temporary Forest Service work centers in the early days.

April 27, 1909, Sunday night

I was also both surprised and pleased to know that you would be willing to address a letter to such a place as Bootjack. It is certainly a very formidable looking sort of name and one quite unsuited to civilization. The place is no better than the name. It is a little one horse post office about six miles from our camp along the mail road out from Mariposa. You don't see much there except three houses, and one of them is a barn.

I intended to write sometime again last week but I had so much traveling to do that I did not have the chance. We did not get away from North Fork until last Wednesday morning. We made the ride through in one day although it is quite a trip. The next day I had to go to Mariposa to look up some land records in the County Court House. Mariposa is twelve miles from here and is the nearest town of any size. I did not get back until late in the evening and had to go up near Signal Peak to look over a claim the next day with the same result—I got home late.

So far as my work is concerned at present I think that I shall like it fairly well, although I have considerable to do between now and the opening of the summer season. We certainly have a camp full of rangers here now. Altogether there were nine men there yesterday and there will be about seven

J.M. Miller family

Figure 18—Bootjack Rangers, Sierra National Forest, May 1909. John Miller is second from right.

tomorrow. I think that we will camp at our present quarters for a month or six weeks yet before we establish a permanent camp. We are all living together and batching—I sometimes think that I have had enough of batching, but we have a very jolly time of it here.

May 1, 1909, "Bootjack"

This will be another short letter as I will have to write it before breakfast. It is now 5:20 a.m. so you see that I am getting up pretty early. I have a chance to mail this letter in a little while so I will try to do the best I can.

I have been very busy this week; in fact I have been very busy ever since I came up here. I have a crew of eight men and it takes some rustling and planning to keep them all going [fig. 18]. We are working now on a pasture fence where we will probably have our permanent camp for this summer. It is a very pretty location although I am hardly in favor of establishing the District headquarters here on any place in this neighborhood for that matter. I think that next fall we will try and get a station over near Fresno Flats. That is on the regular Yosemite stage road and we get a daily mail there. At "Bootjack" the mail only comes three times per week which is not very satisfactory, all things considered.

I am of the opinion that you are having some warm weather down in the valley now. It has been fairly warm here, although we are over 3000 feet up in the mountains. It gets warmer here I believe than it does at the same altitude other places in the

mountains. The feed and wild flowers are growing nicely every place in the hills here.

Yesterday I rode out to Jerseydale where one can look across the Merced Canyon and see the Yosemite peaks. It is a very pretty strip of country up that way-much prettier in fact than I expected to find in this District.

May 6, 1909

To begin with, I spent the best part of yesterday by taking a ride with Mr. Tully and Howard out to the Outlook point above the Merced river where we could look out over the old Hite mine and Devil's gulch. This is the first time that I have had a chance to see the northern boundary of this District although I have been here now considerably over a week. I must say that I saw some pretty wild and rugged looking country. I could see the Merced river and down to the old Hite mine.

This morning when I first got up and went out to look for my horse, I made the discovery that she had disappeared in the night and it took me several hours to find her. Then by the time I had saddled up and was ready to go, it was almost ten o'clock. We went up past Jerseydale, a very picturesque little valley set in the pines and on down the old Hite mill road. This is one of the historic mines of California and once produced millions of dollars for its owner. A well built road once ran from Mariposa to the mine on the South Fork of the Merced River. It is down in a very deep gorge and it hardly seems possible that anyone would live in such a hole, even for gold, but never the less a busy settlement once thrived there.

The mine was abandoned some years ago and the road is rapidly going out of repair. TheYosemite railroad comes up the Merced River several miles from the mine. Another railroad has been surveyed up the South Fork of the Merced River to Wawona and I suppose that if we wait long enough we may sometime hear the train whistle up in this country. It will give us a much easier method of getting here when it comes.

I have been very busy ever since I first came up here and I find that I have a bigger contract on hand than I expected, although everything is going along as well as can be expected. It will take some time to get the District into shape but I have agreed to stay for a year and I intend to see it through unless something happens to change my present plans. I have had very pleasant dealings with the people here so far, but it will take some time to establish ranger stations and administrative sites.

I saw in the paper last night that Mr. Shinn might possibly be promoted, which means that we will have a new supervisor here. I don't know yet how that will affect me, although I am quite sure that it will not affect my present position for some time. Mr. Shinn was exonerated from the charges made against him by the people of this District and the chances are that he will be transferred to some other line of work.

It was not uncommon during the early days of the Forest Service to have local citizens file legal charges against the Rangers or Supervisors for thwarting their God-given and historical rights to cut timber, mine, graze stock, and hunt wherever and whenever they so desired. Sometimes to save the officer so charged, the Forest Service "promoted" them out of the area to save them from bodily harm or ostracism of their family. The early years were not always fun years, but apparently Miller got along with the local pioneers quite well.

May 13, 1909, Tuesday night

I have not entirely recovered from the effects of going to school yet, and even after I have gone to work out in the cold world where I have plenty of other things to keep me busy and all I need to keep me occupied, I still seem to be unable to avoid the impression that I will have to quit pretty soon and get ready to begin school work again. I received a notice in the mail last night inviting me to the reception of Pres. and Mrs. Jordan to the Senior and Graduates at the Zoology building. I will have to hurry some, I am afraid, if I go.

The Wawona Big tree trip was quite a success. Mr. Howard and I worked all Saturday morning with the surveying crew and rode over to Wawona in the afternoon. Wawona is quite a picturesque place with one big hotel and a number of small summer cottage buildings. There were a few tourists there on their way to Yosemite Valley, but as yet the season in not underway. The biggest crowd comes in June.

We took the trail up to the Trees a distance of about 8 miles. The grove is much larger than any I ever saw before. In fact there are really two groves, and upper and lower and both contain hundreds of large and small redwoods. This is the grove which has the famous pictures which you have seen so often. The Wawona, which had a roadway running through it, and the Grizzly Giant, the largest and oldest tree in the world. The best part of the trip

though consisted in the view from Wawona point. This gives one an outlook over the South Fork of the Merced Canyon and it was well worth the trip. The Merced Canyon has some very pretty falls known as the Chilnualna. The falls are a long series of cascades which form almost a mile of spray. We came back over Signal Peak and so had another fine view of the mountains and plains before we arrived home.

The weather has changed from warm to cold again. My fingers are getting so cold that I can hardly write, so I will either have to build more fire or go to bed. From the way I feel, I think I will have to go to bed, so good night.

Forever your own, John

Miller had not fully recovered from the "Universities," a common syndrome in those who had just completed a satisfying college career. He kept close ties to Stanford University throughout his life.

Wawona is a beautiful area in Yosemite National Park. In 1909 there was a company of U.S. Cavalry from the Presidio, San Francisco stationed there in the summer months who acted as park managers. They evidently had not arrived yet or Miller probably would have mentioned them.

May 17, 1909, Sunday night

My Dear Bess:

I started a letter to you Friday night and intended to mail it at Fresno Flats today; but I failed to finish it so I guess that I had better begin all over again now.

I was too tired Friday night to write much of a letter as I had just returned from a trip to Mariposa where I spent a day in the County Recorder's Office looking up land cases. It was a pretty good long ride. I left at eight in the morning and returned at six o'clock at night and spent 4 hours at the court house.

It seems peculiar to speak of this as a "court house." It more nearly resembles a large size school house, but as it was built in 1854, it is not to be expected that it has a very prepossessing style of architecture. Besides, it is quite in keeping with the town.

Yesterday, Bill Howard and myself left here about three o'clock in the afternoon to go to Fresno Flats. Before we had been on the road for an hour we changed our minds and decided to go to Miami, where we could get telephone communication with North Fork. This is about twelve or fifteen miles from our camp and requires a climb of about 1,000 feet. We reached there about half past six and stayed over night at the rangers' camp. There was one ranger and his wife there.

We telephoned to North Fork, Fresno Flats and around over the Reserve generally. The telephone is certainly a great institution up here in the mountains. It saves all sorts of hard work and inconvenience. This morning we left the Miami camp about eight o'clock and rode down to Fresno flats in about two hours and a half. Our principal reason for going down there was to get a horse which I bought. I now have a "real" horse. I wish you could see him. He is a big bay, five years old and as pretty as a picture. I don't know what to call him. I will have to try and get a good name for he is gentle and sensible and has a good disposition. I still have little Chiquita but she looks so small beside him that I guess she will have to do for a pack horse now. We left the Flats about one o'clock and arrived here at seven, just about two hours ago.

I will have to go over to North Fork again about the first of June to meet our new Supervisor. Mr. Shinn is going to leave about the first of July, having been promoted in the Service. I don't know yet how this is going to affect my plans, but I suppose that I will have a chance to stay here just the same as I intended. It may relieve me of my agreement to stay here for a year, but I won't know until after the first of July whether I will want to stick to that or not. We will certainly miss Mr. Shinn as a supervisor for he has done a great deal for the forest and for the men who are working under him. I expect that we will have a sort of farewell "hurrah" at North Fork before he leaves.

I will have to let this do for this time as it is time to go to bed. I will have to get up early in the morning.

Forever yours, John

Supervisor Shinn was the first and only Supervisor the Sierra National Forest had ever had to that point in time. He was a legendary pioneer Forest Service Officer. His wife, Julia, also worked for the Forest Service as the telephone operator (called a dispatcher nowadays) in the Supervisor's office. It was said she did this as a volunteer. The Shinns retired in North Fork.

June 6, 1909, Friday night

My Dearest Bess:

I shall probably not have a chance to write tomorrow night or Sunday as I expect to leave for Yosemite then, so I shall probably have to mail this letter in the Valley or some place along the road. Besides, I certainly owe a letter by this time so I will do my best although it is nine o'clock.

I would like to come down to the plains about June 4th [July?] but I don't see how I can as I have to be in North Fork on that date to meet the new Supervisor. There will be a general meeting of the District men of the Sierra Forest then to meet the new "boss" and say goodbye to the old one. We will all be sorry to see Mr. Shinn leave. He has always been a good man in the place and he always seems to have the interests of his men at heart. I have been wondering whether or not I will have as good an opportunity under the new Supervisor but I presume that if I do not, I will soon find it out.

Monday morning:

This letter was unfinished Friday night so I will proceed to add something to it while I am writing in camp. Howard and I rode through to the valley yesterday and we are now camped on the Merced River with the grandeur of the Yosemite all about us. I don't know whether I am sufficiently impressed with it all or not, as it looks so much just like the pictures I have seen and read so much about that I can hardly believe that I am seeing anything new.

The trip in here was almost as interesting as the valley itself. We left our camp about six yesterday morning and came down the old road to Hites Cove on the South Fork of the Merced River. This is a pretty big canyon and very rough and wild. We had a steep, hot trail to climb in getting up the north side of the canyon. We crossed the main Merced on an old cable bridge which threatened to give way at any minute and let our horses drop down into the cascade below. Still it held us up long enough to get our horses and pack over. Then we followed up the railroad track to El Portal.

It seemed rather queer to be riding along a railroad track in the middle of the mountains, but it came in very conveniently too. The track follows right up the main river to the boundary of the National Park and from there a wagon road leads on to the valley. We reached El Portal about four in the afternoon and rode on to the valley in the evening.

We stopped at a little camp above the Sentinel Hotel and were mighty glad to get there as we had been traveling all day and it was then about 9 p.m. I don't think that Yosemite is a nice place at all to camp. The place is all tied up with rules and regulations and the Valley usually is full of people. Still, there are not many campers in here yet and this morning we found a beautiful little camp right along the river.

Mr. Howard has been expecting his folks out from the East for a long time and they arrived in the valley by stage this morning. He expects to go back with them to Wawona and then take them on to North Fork. I will have to go back alone I suppose about day after tomorrow.

It is quite warm in here today and I am loafing around camp here as I write. It seems quite natural to hear the murmur of the Merced River and look up to Glacier Point on one side of the valley and see Half Dome on the other. You can hear a gradual roar from the waterfalls. They are the most interesting and picturesque feature of the valley. I think that I have seen some canyons in the higher mountains that are almost as good, but we do not have them all in one place and we do not have in any place such magnificent waterfalls.

It is almost time to start dinner, so I think you have tried to read this writing long enough. I have a stub pen and I can't write much with them. Someday I will have to write to you on my new typewriter so that you can read it.

I will write you again when I reach North Fork.

Forever yours, John M. Miller

Yosemite Valley obviously captured Miller, for he returned there at least once a year for either business or pleasure for the next three decades.

It is interesting to note Miller's dislike for all of the rules and regulations and hordes of tourists in 1909. He should see it now.

June 8, 1909

I have been pounding on the typewriter all day today and worked off two long reports that I have been dreading for some time. I have had four and occasionally five men at work all this week. We are building a "place to live" up at the Cummings Station. We have about completed now a good sized barn, and will probably begin on a five room house after the first of July. I have been wondering

if I will have someone to share it with me next fall! I almost hope not for I hope to be some place else next fall, although we have a pretty location at the Cummings Station I hope to hear from my examination pretty soon now. It may not change my present plans very much, but I am in hopes that it will.

Rangers not only had to be horsemen and packers, but they also built most of the original ranger stations, cabins, and barns. Many national forests still have an original building or two standing from these early efforts maintained as historic sites (Joslin 1995).

June 21, 1909, Sunday night

My Dearest Bess:

It is after ten o'clock but I am going to do my best to write before I get too sleepy and have to go to bed. I have procrastinated most shamefully today and did not get around to letter writing until the very last thing. I had two reports to get off in tomorrow's mail, but I put them off until after supper and then I found more work than I expected, so here I am, just getting through now.

The weather is behaving quite improperly this season. It treated us to a very heavy rain last Friday which was quite unheard of for the 29th of June. We had to lay off for a day, and the farmers about here are all discouraged over having most of their hay crop spoilt. It is almost as bad as a rain down on the plains during the raisin season. It has been dry for so long that this shower seems as though fall were upon us. And the fourth of July not gone yet! I am afraid that this will seem like a long summer although I think the time will go fast enough from now on.

I hope to hear from my examination in a few days or a week now. I may not hear until July 1st, but am beginning to wonder how I came out. My application papers came back to have several dates corrected, which had to be done by Mr. Shinn at North Fork. I carried these with me on the trip through Yosemite to North Fork, and as luck would have it, lost them there. They were returned to the Yosemite P.O. and mailed to me at North Fork after I had left that place and returned to Mariposa. However, Howard happened to get them and as he understood the situation, had them corrected and returned to the Civil Service, so that I think they arrived in time for me to get my rating.

I have had to put my bay horse out in pasture again as the Yosemite trip used him up pretty bad. Yesterday I packed some shakes for our barn down the mountain on Chiquita. Packing shakes however seemed to be an occupation quite unsuited to her tastes and sensibilities and she proceeded to make her objections known by bucking about 300 shakes off and scattering them at various intervals over the mountain. Some of them are there yet, but we gathered up most of them. This was not quite so dangerous though as your episode in Parlier.

It is getting late. I must "zu Bett gehen." Mr. Egan, one of our men, is still writing here too. Says he's writing a girl in Missouri!

As ever your own, John

So maybe the mare, Chiquita, didn't like being a pack horse. She may have been too small for Miller's lanky frame, but she wasn't stupid.

July 12, 1909, Tuesday night

You may find it hot in Missouri but I think you can thank your stars that you are not down in the valley at present. We seem to be having another one of those hot weather celebrations and we are getting our share of it up here in the hills. I went down to Mariposa yesterday and almost melted down on the way back. I put in a good share of my time at the ice cream soda fountain while there, making up for all that I lost while up here in the hills.

Today I went to a cooler climate by going up on the hill above us to examine a homestead claim. It seemed good to be up in the Sugar Pines and the tall firs again. As I was coming home I passed through a little canyon where I saw some of the most beautiful rhododendrons that I have ever seen. They bloom early here. The sight of them took me back about a year to the time when a party of us were on our way back to Dinkey. I wish that I could have seen and experienced all of that trip again. It was not so much the Big Trees that interested me as some other associations.

Mr. Shinn left this morning on his way back to North Fork and I was not altogether sorry to see him go as I have been working early and late since he has been here. As usual, my plans have been more or less disarranged upon seeing him. He wants me to stay at North Fork this winter instead of Mariposa. Also he wants me to start out on a sort of entomological tour of the forest about this fall and work up a report on it this fall and winter. I hardly know yet whether it will be possible for me to get done all that he has planned, but I think I can't afford to miss the trip.

As ever yours, John

Supervisor Shinn was proposing a new project that would change Miller's life forever after. He had of course taken some entomology courses from Professor Doane at Stanford, and Supervisor Shinn was aware of this because he had visited Miller at Stanford the year before. To Shinn's great credit he discerned that his subordinate's education and interests could be used in a most useful way. And, obviously, Shinn had not transferred from the Sierra National Forest.

July 14, 1909, Sunday night

> Mr. Shinn has been here since Wednesday and has had me going some ever since. We have been working on the forest boundary, looking it over to see if any more land can be added to the forest, or if any should be withdrawn. Incidentally we have been visiting the settlers to see how they feel about it. The attitude of most of those we met seemed to be very friendly towards the Service. There are some very nice people up here in spite of the fact that many unpleasant things have been said about them and there has been almost two years war between them and the Government.
>
> Last night I went to a party up at Boothe's place. They are the largest and most influential family here—two of the boys are appointed rangers. We had a very nice time and did not get home until morning.
>
> This afternoon we went up to Ferguson's place. They are very peculiar old people who came here in 1885 and have a peculiar history connected with their ranch and early settlement. Miss Ferguson, their daughter, is the school mother here and a very nice girl. She was educated in Oakland.
>
> Well it is getting late and I have some rather bad news to relate so I had better get through with it as soon as possible. The Government seems to have gone bankrupt and has postponed all promotions in the Department of Agriculture until next January. This leaves me on my present salary until then, but Mr. Shinn has assured me that I am sure of getting a raise then, but it don't help me out very much in the meantime. Besides, I lost out on my examination in April so I will have to keep at my present work for a while. It does not affect my plans very materially as I expected to stay here anyway for a year. Mr. Shinn wants me to take up some work in entomology next fall which will take about a month of travel and also wants me to stay at North Fork for the winter. I hardly know yet whether I will agree to all of this as I want to have my sis Clara come up and stay with me this fall if possible.

Miller was just introduced to one of the vagaries of federal government service, annual appropriations may or may not be as much as expected and salary freezes are often the result. It is surprising though that he did not pass his Ranger's Examination. His education, experience, farm background, and intellect seemed to make him a natural for Ranger appointment.

July 19, 1909, Sunday night

> Everything is moving along at a rapid rate here, and my plans have been shifted about with considerable suddenness in last week. We will have our house done in another month but as I expected, I will probably not stay here this winter. I think I told in one of my recent letters that I came out about as I expected on my examination and that promotions have been delayed until next January. At present, my "boss" intends to put me on an altogether different type of work and turn the District over to someone else for this winter.
>
> He is willing to let me stay here if I want to, but he has also offered to let me take my scientific work, and spend my winter at North Fork. His intentions are that I shall work up a general report on the injurious insects of the forest from the Merced to King's River. This will require about six weeks work in the field collecting specimens, photographs and data, and take probably most of my time this winter working them into shape for a published report.
>
> I do not expect to get away from here before September 1st or possibly not until later. It is really up to me to stay here until I get the work in this District into some kind of shape. Everything has been going along fairly well, and I think that I will be free to leave in six weeks more. On the whole I think that I will like the work better than this District work and besides, North Fork is a much more desirable place to stay. Then, this other work will give me more of an opportunity, besides being interesting.
>
> Well, I don't suppose I ought to bother you with a discussion of all my troubles. I would rather talk these matters over with you if I could. You have not told me yet when you intend coming back to California. I hope to get down to Reedley soon after you return if you are there by October 1st. If

my present plans carry through I will travel down through the mountains with saddle and pack outfit, going through the back country and timber cuttings and finally work down home through the Kings River Canyon. It will be a most delightful trip, but I am not sure yet whether I will have anyone to go with me or not.

Yesterday I rode up to Signal Peak and from there over to Miami, where I stayed last night. This is a most delightful camp—it was so cold that we had to build a fire in the house to keep warm. There is quite a colony of rangers here too, counting in their families. The mountains are fine too as there are so many beautiful meadows which are just at their height now. The rhododendrons about them are a beautiful sight.

Miller was about to take up some "scientific" entomology work. This may have been an unusual assignment in those times because the national forests were usually short handed and underfunded and few Rangers could be spared from essential day-to-day work. Miller had obviously impressed Shinn with his knowledge of entomology and curiosity about the state of injurious forest insects in the Sierra National Forest.

July 28, 1909, Monday night

The management and responsibility of this work here takes a lot of time and is quite a strain on my small amount of gray matter. I have five men here now and several different lines of work going on. Sometimes I am too tired at night to write even when I have the time, so I go to bed without further ceremony.

You ought to be back in California to enjoy the cool summer we are having. It will soon be the last of July and we have not had any of the record breaking hot weather such as we had through July last summer. No fires yet as a result our work has been going along very well. The house is up and the roof will be on pretty soon. I sometimes wish I had more time to help work on it for I like to do some kinds of carpentry.

Miller's carpentry skills come in handy in a few years when he built screened cages to rear forest insects. He continued using these skills until the late 1940s at the Institute of Forest Genetics at Placerville, California.

August 23, 1909, Sunday night

Sunday night a ranger came in from District 2 and wanted two men to help on the telephone line. We were about ready to move up to our new camp so we made the move Monday and I sent two of the boys over to Miami Tuesday. That day Mr. Shinn came in and I had to take another trip with him the next day down into Hite's Cove. We left camp at 2 o'clock in the morning and got back at six in the evening. There was not much chance to catch up on sleep the next night for Mr. Shinn got me up at four o'clock again and we started out for Miami stopping at C.K. Westfall's and Mr. Boothe's on the way. We got to Miami that evening and I went out on the telephone line the next morning and worked until last night. There was shortage of men on the crew and we were trying to rush the line through so that we could get it over into our District. I was too tired to write last night and so went to bed. This morning I went down to camp meeting and did not get back until about an hour ago.

They are holding a camp meeting now about five miles from our camp. Today was the first chance I had to attend and they had a very good service this afternoon. I intended to stay to church tonight, but our grazing ranger, Tully, came over and besides, I wanted to write to you tonight.

As ever, John

In addition to other duties, forest rangers had to be telephone linemen. Two-way radio was still in the future, so the crank-operated battery-powered telephone, primitive as it was, connected the outlying guard stations, lookouts, and supervisor's office. The trouble was that the heavy galvanized line had to be packed and strung in some very rough country, over as straight a line as possible. Telephone poles were hard to come by and it took time to dig holes and set them, so white porcelain split-ring insulators on about a foot of wire were spiked 10 or 15 feet up the bole of large, live trees. These white insulators can still be found on large ponderosa pine, wherever old lines were established. The only problem was that during storms, trees might fall across the lines. The lines purposely had slack in them so the tree would ride the line to the ground and not break it. But the telephone would not work then, so someone would have to patrol the line, cut off fallen trees, and sometimes shorten

the line up a bit with a splice. The men doing this often worked alone and there are more than several cases of Forest Service men falling to serious injury when their climbing spurs tore loose.

September 3, 1909, Thursday night

I would give almost anything if I could only be down there for a few days when you arrive, but I know that my boss wouldn't think of letting me go at such a strenuous time as this. Fortunately, we have had no more fires since the big one down on the Merced River, but the season of bad fires will be on for a month yet.

There are five of us here tonight and we are very comfortably situated in our own new quarters. Somehow I like this camp better the more I see of it. I think that we will have a very pretty little house when it is completed. I don't much like the idea of going off and leaving it this winter. Mr. Mace, the man who is going to take my place for the winter, is here now and will probably stay for a few days. He will go back to North Fork and move up here with his family later. He has a wife and a little girl.

I wish that I could make some promises about when I am coming but I can't do that for a while yet. Still the season acts as though it were going to be an early fall. It is a great deal cooler than it has been for some time. The summer has gone so fast that I can hardly realize that it will soon be over. I am always glad to see the fall come. It is the pleasantest season of the year for me and I think the very best of all seasons in the mountains.

September 6, 1909, Sunday night

The Camp Meeting closed last Sunday and it seemed to be quite a success, both as regards to the amount of noise and the number of converts. I think that there were about 38 conversions altogether. Some of them were of the howling Methodist kind, but I presume that they were all sincere. They were going to start a movement today to build a church here. I hope that they succeed for I think that it would be a nice thing for them to have a church in this community. I would like to see them get a better minister, though . . .

Mr. Mace, the man who will probably take my place here this winter, came up here last Tuesday and left this morning. He will probably move up before long and bring his wife with him. He seems like a very pleasant sort of a man and I think will make friends among the people here.

It seems hard to realize that the summer is over. It has gone so much faster than I expected. The days are beginning to feel like fall though, and we had a little touch of rain today. We are not having the rain that we had last summer at Shaver. At camp 16, it rained almost an inch in August. I would like to see that much rain, now, to put an end to the fire season, but I am afraid that the farmers down in the valley would object. It seems strange yet not to be out picking grapes at this season of the year. I don't believe that I care much about working in a vineyard anymore. I think that I would rather fight fire.

September 11, 1909

I went down to the Boothes' last night. One of the boys here is going away and they were going to have a little evening's music for his benefit. However, he went down to Mariposa and did not get back last night. Two of us went down anyhow and we had quite a sing. The Boothes are certainly pleasant people and we always have a good time every time we go there.

I stayed at home yesterday and worked in the office all day—a new filing case came in the other day and I had to transfer all the correspondence. The day before, I went over to Miami and got my brown horse at the Grove pasture. He has been enjoying a protracted vacation for the last six weeks. He came here fat and looking fine and I hope to get some good use out of him from now on.

Miller's pretty bay horse was living a life of luxury in a Forest Service pasture. Most ranger station locations were chosen with the necessity of having pasture nearby for their horses and mules. These pastures were often very pretty natural meadows with a source of water. Consequently the old ranger station sites can be some of the most pleasant areas on the forest. Many such stations are still actively used as work centers or were converted to public campgrounds. All because the rangers needed fuel for their four-footed transport.

September 29, 1909, Saturday night

I returned last night from a trip to Fresno Flats where I rode to have my horse shod and also to have a talk on the telephone with Mr. Shinn. I also had a talk with him a little over a week ago before the fires broke out which rather unsettled my plans for this winter. I don't think that I have written to

you about this yet. I would much rather talk to you about it but that will be out of the question for several weeks yet so I will try and tell you something of it now.

My plans were to leave here sometime before this and work down through the mountains to North Fork and further south on a "bug hunting" expedition. When this was completed, the boss had planned to put me in one of the stations near North Fork and put in my time there through the winter, doing general office work and writing out my special report.

One thing and another has come up to delay my trip so that it is now pretty late in the season to start out. Although Mr. Shinn said a lot of nice things about my being too valuable a man to leave in a district, and that I could expect to be a deputy supervisor soon, etc., he did not offer me anything definite in the way of promotion. Besides his understanding that if I gave up this District now, I could expect to do so permanently, did not appeal to me very much. I prefer to stay with the district until something better turns up. Consequently, I got stubborn and refused to go in to North Fork this winter. I don't know whether or not the boss liked this very well, but he agreed to let me stay up here and do what I could with the special work in entomology using this as headquarters.

I don't hardly know whether I acted wisely or not, but I had several reasons for doing so. One was that if we carry out our plans I think that you will like it better here than at North Fork. Mr. Shinn still expects to move me out of here next May, but that is a good way ahead yet and a good many things may turn up between now and then. I don't suppose that I can make all of this clear to you until I have seen you and talked with you, but if everything goes alright, I think that we are safe in going ahead and making our plans.

I would say that if nothing interferes we ought to be able to set a date for that little affair on which my happiness depends, about next December. This will give us a chance to spend several weeks on the coast or some place so that I can come back and start to work again about January 1st when I hope to have that long postponed promotion.

I have been hoping all day that I would have a chance to get started out on my trip in a few days, but I had a letter tonight saying that an inspector was coming down here from San Francisco soon and for me to remain in the District until he arrived. This will delay my work quite a little. I may not be able to get down until about November 1st.

Miller's assignment to survey forest insect problems that fall apparently went awry. The "District" he is referring to is his Ranger District (Mariposa). In those days (before 1930) Regions also were called "District" e.g., District 5 for California. It seems that Supervisor Shinn may have been stringing Miller and his insect survey along for some unknown reason. Perhaps Shinn was simply too shorthanded to let Miller take off "hunting bugs" for 6 weeks.

October 5, 1909, Monday night

Now this sounds foolish does it not? To come down to practical affairs, I have every reason to feel like celebrating tonight. The fire season is over, the telephone line is completed, our house is comfortable and we will soon have it fixed for the winter. The telephone crew left here Friday and I now have one man left with me to run the District with this winter. We have just had a splendid rain, which lasted for almost 3 days and put a damper on the fires for the rest of this season. I suppose that a great many in the valley were rather sorry to see it on account of the raisins, but it is an ill wind that blows no good, and it certainly did sound good to hear that rain pouring down on our new roof.

An inspector was in here for two days and left apparently well satisfied with affairs at this end. He was from the San Francisco office and seemed to be an A-1 man in every respect. Before leaving, he asked me if I wanted to consider a position in the San Francisco District office—said that they had been looking for a man there with considerable field experience and he thought I could do the work. He did not know whether the place had been filled yet or not, but he would see about it when he returned. I told him that I would be ready to think it over when he had something definite to talk about but for the present would consider my plans here as permanent. I do not even know if it will be a desirable job, but on whole I will be rather surprised if I hear anything further from it.

October 11, 1909, Thursday night

I have been pounding the typewriter all afternoon and I almost feel tempted to use the machine instead of trying to write with pen and ink. I am becoming so accustomed to the machine that I can

scarcely write a letter anymore that anyone can read. In fact I am getting no better fast if such a thing is possible.

I wish that you were here now to enjoy some of this beautiful spring weather. I say "spring" weather for that is just the way it feels. The days are warm and the grass is coming out at a great rate. If this keeps up and we have plenty of rain later, we ought to have a good horse feed through the winter.

We returned from the Mt. Pinoche trip Friday night and I was certainly glad to get home. It was a hard trip over the most abominable trails and we hope to be able to keep out of that part of the District hereafter. I came very near losing my saddle horse in two or three places.

We reached the mining claims and stopped there the first night. Our second day of travel took us down to the railroad at El Portal and we came home Friday via Hites Cove.

Now his horse was earning his keep and then some. Horse accidents were common. Forest Assistant Pernot on the Ochoco Forest in Oregon died from a horse accident on duty in 1913 while surveying a bark beetle infestation. He was the first entomological worker to die in the line of duty (Burke and Wickman 1990). Many others have been injured including myself when I was bucked off a horse in the Eagle Cap Wilderness in 1992.

October 13, 1909, Tuesday night

I worked on our house yesterday morning and in the afternoon rode down to Chowchilla school house to send a message back to a man whom we are dealing with. I came home by Mr. Boothe's place and stopped there for supper. They are certainly nice people and have been extremely good to me this summer. Of course they are naturally friendly to the Forest Service as there are two of the sons in the work and they are stationed in two of the lower districts.

I went out hunting this morning but I didn't meet with much success. One of the Boothe boys came up here tonight and we will go out and try it again tomorrow morning. That means get up at four o'clock so I will hurry this letter along so that I can get to bed early.

I have been staying at camp as much as possible for the last few days trying to put it in some sort of shape. We want to build a fire-place for the winter and our house is not finished much on the inside. Other work keeps piling up though and it seems like I will have my hands full getting some of it completed. I have a homestead application to examine, several trespass cases to take up and a number of reports to complete. Consequently it keeps me planning to tell how my time is coming out. Sometime when I have a chance I am going to write you a decent letter.

Saturday night

My Dearest Bess:

I came down tonight from Signal Peak for which I departed about four o'clock this morning. It has been a very peculiar day. In fact, I don't believe that I have seen one just like it in the mountains. There has been a sort of blue haze over the hills that is so dense you can not see but a few miles. When I got up on the ridge this morning, I could look out towards the plains, and there seemed to be a heavy fog there. This afternoon has been quite cold, very much in contrast to the last few days which have been quite warm. We are all hoping for more rain which would be a great benefit to the country now and insure us a good feed for the rest of the winter.

We have been working on the water supply of the house and have it piped into the kitchen now with faucets, sink etc. That is, we will have it piped in here as soon as the water rises in the spring up on the hill. The hot weather of the last few days lowered it so that it scarcely runs now, but the cool weather will bring it up again, as soon as another rain comes. It will be convenient when we get it into working order.

Sunday night,

Today seems to have slipped by without my seeming to know where it went to. I have a lot of other letters to write tonight but I shall complete this first. It has been a lovely autumn afternoon and I have been wishing that we could stroll out on the hill or take a horseback ride or do something so that we could enjoy it together. Our neighbors, the Boothes, came calling on us this afternoon, and as we were just getting through lunch and did not have the house cleaned up yet, I guess that they formed a rather poor opinion of our housekeeping ability. Mrs. Boothe said, though, that we had a very cozy little house—that is, it would be such when we get it cleaned up.

I believe you asked something about the house and I will try and send you a picture of it before long. It has four rooms and two seven foot porches on the south and west. We are planning to build a fire place soon. In fact, we begin to feel the need of it these cold nights. However, the house is double walled on the outside, and covered with shingles, cottage fashion, so I guess that we ought to be able to stand the snow.

I have thought a great deal about our plans for this winter, and I am all the more anxious to see you soon and talk it all over. I have but one man left with me now and he goes over to North Fork the first of next week to take the examination, and I shall have to stay here until he gets back. You can depend on my coming down as soon after that as I can get away which shall probably be soon after Nov. 1st.

Of course you probably understand that if we are up here together this winter, that the arrangement will only be temporary and we will probably be at headquarters after May. Mr. Shinn tried hard to get me out of the District this fall, but I objected for various reasons. I had intended to put my time in this winter on special work in entomology, but did not have enough time for the field work this summer so I decided to try and have the work postponed for another year. It seems probable that I may spend next summer at this too.

In fact it is hard to depend upon a permanent home for anyone who stays in the Forest Service. In this respect, I guess it compares with the teaching profession or the ministry. While this mode of life has some advantages as well as disadvantages, I seriously question my right to ask you to share it with me, for I know your choice would be for something permanent. But on the other hand, I think that there are a great many things you would enjoy about a year or two up here. There are many pretty and interesting things to be seen, and there is a certain amount of freedom about the life that appeals to anyone who can appreciate beauty. Besides I don't regard the branch of the work I am in now as permanent unless advancement comes around my way. For the next year or two, it offers me a living and an opportunity to get into something better, so I don't intend to leave the Forest Service until I have given it a test.

November 1, 1909, Sunday night

My trip to Signal Peak was rather unproductive of any results except the evil kind. As I wrote you Friday, we had a good rain that did a world of good down here, and Friday morning broke clear looking as though it would be a beautiful trip on the mountain. I started out to make the climb on foot as I intended to stay overnight, but Mr. Davey laughed at me for going that way, as my horse, Mike, was kicking up his heels and working off surplus energy in various ways.

I saddled him up and rode up to the top of the ridge just back of camp. The peak did not look so inviting then as I could see snow over most of it. When I reached the snow it began to cloud over and get very cold. The snow was not deep however, but by the time I reached Stendarts camp it began to snow again.

The man whom I had arranged to meet did not appear, so I left my horse in an old barn and went on about five miles to the hunter's camp. I had a big feed of venison steak that night, and the next morning was a brighter day, but rather cold. I hunted over most of the mountain and returned to the barn where I had left the horse. As the shakemaker had not appeared yet, I took my horse on down to the Hunter's camp and stayed there again last night. Something scared Mike in the night and he broke his rope and started out. When I woke up this morning I did not have any more horse than a rabbit. I carried my saddle back to Stendarts, and then followed my trail on out thinking that the horse would return to camp. He has not appeared yet so I suppose that I have several days' walk laid out for me hunting him up. It was so cold up there in the snow that I almost froze my feet and I think I contracted a bad case of chilblains. I will have to go back up there again, I guess, and get some more snow to cure them.

Now the most unfortunate thing about it is that I am afraid it is going to delay my trip down there for another week. I have a lot of work piled up ahead of me besides finding my horse. I am sorry for it delays just so much about making arrangements for that event in December.

I think that we had better plan on putting the date pretty well along toward the last of the month-both on account of my work here, and because it will give us more time to prepare for it.

As ever, John

November 2, 1909, Bootjack, California

I found my runaway horse yesterday after following him until four o'clock in the afternoon. I thought for a time that I would have to go clear up

to Miami to catch him, but someone caught him along the road and tied him up. I think that I shall ride him down to Fresno next week, just to have an opportunity for him to redeem himself. I shall probably leave for the valley about next Saturday or possibly Monday.

Somehow it seems that the harder I try to get away, the more there is to do. We had an excellent storm the other day, and as it has turned warm since then, it has done a world of good. The hills are turning beautiful now in their autumn coloring. We have so many oaks about our camp here that I think it makes a very pretty spot.

They are all turning a brilliant scarlet and yellow now. The warm weather has started the grass to growing too, and that means that we will probably have good pasture and plenty of feed this winter.

As ever, John

November 21, 1909, Friday night

Well, I started in to discuss my trip. I rode to the Toll House the first night and put up at the Hotel there. I started at six o'clock the next morning and rode to North Fork arriving there about two o'clock. I intended to write you from there, but I stayed with Mr. Shinn that night and he had so many things to talk about that I did not have a chance.

As usual the effect of talking with Mr. Shinn was to unsettle my plans generally. His latest development was that he was going to send me in to San Francisco to the District Office there for three or five months. This would be soon after the first of January next. However he has to get the approval of the District Office to carry this through, so the success of the plan does not look at all probable. I am telling you this, not because there is any possibility of its happening, but to give you some idea of the uncertainty of Forest Service work generally. Something of this sort may turn up almost any time to knock out all calculations you have made for other things.

I left North Fork Wednesday morning and rode through to Miami that day. I say rode through, although waded through is probably a little more descriptive term. I found snow from Crane Valley on and it made progress rather slow. There must have been about a foot of it left at Miami. I stayed at Ranger McLeod's summer camp that night. There were plenty of provisions in the house and hay and barley in the barn, so neither Mike or myself had any reason to complain about quarters.

The next morning I went over to the Grove pasture where I left my other horse. Although I had to cross nearly two feet of snow in places, I found the pasture open. The little roan was looking fine. I don't think I ever saw her any fatter. If it had not been for the trouble of making another trip back there to get her I would have left her there for a while yet. However, I brought her down and put her in the pasture near camp.

Mr. Davey had made himself busy while I was gone painting the house and fixing up around the place. We have the fire-place almost completed but have not had a chance to test it with a fire yet. We hope to get it fixed up and most of the house finished inside by the middle of next month.

You are certainly missing some beautiful sights by not being here now. The oaks at our place are right at the height of their autumn coloring. We have a view of the mountains where the oak and pine are mixed, and it is certainly a contrast to see the golden and scarlet leaves of the oaks among the green pine needles.

The Forest Service of this era was probably the most military-like of any civilian government agency. Personnel were moved about constantly, sometimes with little regard for family situation. If an employee didn't like it, there was usually only one solution—quit! Miller showed some gumption when he told his supervisor that he would spend the winter on his district, in the house he had built, thank you. But then Shinn came up with another idea—send Miller to District 5 headquarters in San Francisco for the winter.

November 25, 1909, Tuesday night

We are having an awful time at our camp keeping the work going. Something keeps coming up to interfere with our work on the house, so that it is hard to accomplish much. We have three or four days work left yet on the fire place and then we have some papering and inside finishing yet to do. My pardner is going out on his vacation the first of December and will be gone 12 days so I will have a hard time getting very much accomplished before I leave as there is always other matters coming up to take the District ranger's time.

Most of Miller's letters now are discussions about arrangements for the soon-to-be-wedding in Parlier, California. Most of the discussion was about how rapidly they could catch a train for San Francisco to get away from

the small town. Miller was no longer very chatty about work. His mind was elsewhere.

November 29, 1909, Saturday night

> Dearest:
>
> I got your letter last night just before I was leaving to go down to Boothes' for supper. We were asked down there for Thanksgiving dinner but it rained so during the day that we did not try to go. To keep them from taking offence, we went down there and spent yesterday evening. Their oldest son is there for a few days. He is a district ranger down below the Toll House and was married a few days ago to a girl in Tuolumne County. The bride seems like a very nice girl, and is a sister of Will Parkinson, the ranger whom I was with at Shaver last summer. I think they left today for their home camp.
>
> We were feeling very well satisfied at our camp tonight as we at last have a big fire going in the fire place. The chimney is not quite completed, but we at least have it far enough along so that we can keep warm. One advantage of it is that it is big enough to hold a lot of wood, and I guess that we will have plenty of wood on this place to last us for a while yet.
>
> So you got my letter a day ahead of time! I guess that was because it was mailed in Mariposa instead of our mail box. I was down in Mariposa last Saturday. We drove down with our team and brought back a load of provisions.

Sunday afternoon

> I have about forty other letters to write this afternoon, but I am going to finish this one first. I got sleepy last night and got to talking afterwards with Mr. Davey, so that I did not accomplish much in the line of letter writing.
>
> This has been another beautiful day. Last night we had a fog up here—something that rarely happens. It cleared away by morning though, and I think that you were getting your share of it down on the plains then. I imagine you are having some of Fresno's famous fogs from the looks of things below.
>
> I had to stop just now to talk to Mr. Shinn on the phone. He brought up the San Francisco question again and said that he was going to try and make the arrangements for my going in. I hardly know what to expect, but in any case don't care much one way or the other. He will have to get the authority of the District Office first and that is something that I am skeptical about. I shall certainly plan on staying here as the San Francisco arrangement would only be temporary anyhow.

The detail to the District 5 office in San Francisco (now Region 5) keeps cropping up. Supervisor Shinn sounds a bit insensitive to a sensitive time in one's life—getting married. He surely knew of Miller's impending marriage.

November 30, 1909, Monday night

> Your letter of Thursday came in this evening and I have just finished reading it for the second time. It really must have been exciting to watch a football game in the rain. It reminds me of the time when I used to play. I certainly missed seeing the game this fall. But then I have so many other interesting things that I hardly have time to think about football.
>
> We finally finished our chimney today and I am certainly glad of it. It has been a pretty big contract. But then I guess that it will be worth all the trouble. It works fine and I am sitting before a big bed of coals which make the room seem cheerful. A fire place always seems to afford an air of comfort and cheerfulness to any sort of house. We might have built a better looking one than we did, but we had to do the work ourselves and we were more interested in getting something that would keep us warm than we were in looks.
>
> We are having lovely weather now. There are light frosts in the mornings but the days are warm and sunny. I am afraid that you are hardly so fortunate down on the plains, as I can see a bank of fog out over there all day. We have not had a foggy day here yet.

The reference to Miller having played football was probably referring to high school. As mentioned earlier he was an avid Stanford football and sports fan.

December 3, 1909, Thursday night

> It is so cold tonight that it is a hard matter to get far away enough from the fire to write this letter. I am afraid that it will have to be brief and of not very much interest to you as I have to get up at three o'clock tomorrow morning and there is not very much in the way of news to tell.
>
> We have been having some very rapid and noticeable changes of weather during the last two days. Tuesday was a pleasant day and I went to Mariposa. Yesterday it began raining in the

J.M. Miller family

Figure 19—Rangers' convention, North Fork, Sierra National Forest, 1910.

morning and rained nearly all day. I went down to the Magoon pasture to catch the roan horse, and it sprinkled nearly all of the time. We got back to camp by noon and then it began to rain. It was a regular downpour and it kept up until this morning.

Today we had some surveying to do and that kept us busy until four o'clock this afternoon. While we did not have to work in the rain, it was very cold and cloudy. I thought all the time that it would snow but it didn't. I guess the storm is over though by this time and I hope it will be clear by tomorrow morning. Mr. Davey is going over to North Fork to go out on his vacation. I have to go to Signal Peak, and as he is going to start at 3 o'clock, I think that I will get up and go with him part of the way.

December 5, 1909, Tuesday night

It seems as though Jupiter Pluvius has started in to give us our share of storms this winter. Yesterday the thermometer did not rise above freezing and in the evening a strong wind came up and it began another snow. Instead of getting colder this time, it turned warmer and before morning, settled into a rain.

Well, I suppose that all this discussion of the weather does not particularly interest you. If you were here you probably would be interested as one has to be prepared to go from warm spring-like days to cold wintry weather with everything as white with snow as though Santa Claus were coming.

If you were here you would probably make me change my mode of living too. I do hate to go to the trouble of cooking when I am all alone, and I haven't built a fire in the cook stove since Sunday. I simply camp in here around the big fire place like an Indian. I rather like it, both because it seems like camping out, and because it is so much more comfortable than building another fire in the kitchen.

I took some more pictures yesterday, and hope to have enough to send away to be developed by the end of the week. Snow pictures are pretty, I think, if they are successful.

December 7, 1909, Thursday night

Our siege of bad weather is getting tiresome and I would like to see it stop some time. I have been able to do nothing all this week but rustle wood for the fire and a little office work. This afternoon I went out for a few hours and worked on the telephone line.

This morning about four o'clock, I woke up and was glad that our house is up on a hill. Even as it was, I began to consider building some sort of an ark before the water should come any higher. For about two hours the rain came in a steady downpour. It was a warm rain and carried the snow with it, so that by daylight every small stream was a raging torrent. Fortunately the drainage is good here so that no damage was done but I am afraid that something must have happened down below.

> Yesterday my pardner cut his foot, and I have been exercising my medical skill to his great sorrow. By my "pardner," I mean the yellow pup who is a great deal better than no company at all. He is in the irresponsible stage yet, but will make a good dog when he gets older. He ran into a saw lying in the snow and nearly split his front paw open, but I think that it will heal without his going lame.

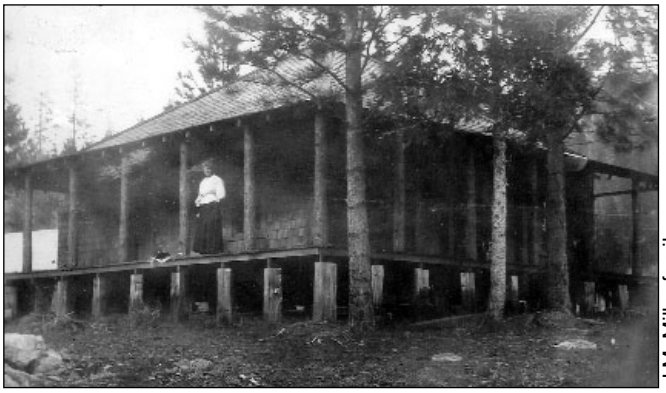
Miller's last letter to Bessie was on December 15, 1909 and was full of plans for the wedding that he would be departing for within a week.

This was the end of Miller's letters for 1909. After he got married on December 23, 1909, the letters were infrequent except for several when he was working near Yreka, California. Miller's life and career was about to change in 1910, perhaps more drastically than he could have imagined (fig. 19).

Chapter 7: Miller Starts Entomology Work With the Forest Service, 1910

"Married on the morning of December 23, 1909 and after the ceremony at Brose ranch left for San Francisco." This short passage in John Miller's diary marked a change in his personal life, and as the New Year progressed there was a major change in his professional life.[1]

After the private wedding ceremony at his in-laws' home, the newlyweds left on an afternoon train to San Francisco. John and Bessie had been planning their wedding for months via correspondence, but much of the planning seemed to revolve around how private the wedding could be and how quickly they could depart for San Francisco. And the trip to San Francisco was not for an extended honeymoon. Miller immediately took 2 weeks of leave in Palo Alto at Stanford University to work on an "Insect Report," and prepare for a planned entomological survey on the Sierra National Forest (fig. 20). During this period he also visited the District 5 office at least once.



J.M. Miller family

Figure 21—Mrs. Miller at Cummings Ranger Station, 1910—their first home. This is the cabin the crew built as described in chapter 6.

J.M. Miller family

Figure 20—Mrs. Miller on horseback during honeymoon trip. Miller was checking bark beetle infestations in the southern Sierra Nevada Mountains, 1910.

On January 7, he reported to the District office and worked on Sierra Forest Boundary reports with Roy Headley, chief of operations, and he "worked out a circular for supervisors instructions on collecting insects" to be used for Forest Service Personnel.

He worked in the District office for the chief of Silviculture and office of operations under Headly until January 22, when he and his wife left San Francisco. By January 23, he had returned to the Cummings Ranger Station to resume his duties as District Ranger.

Obviously something else was in the works for Miller during the coming field season. He had spent a lot of time at Stanford and San Francisco preparing insect reports, gathering entomology publications at the Stanford book store, and setting up some insect collecting criteria for field rangers in District 5.

After returning to the Cummings Ranger Station (fig. 21), he did a lot of wood chopping and hauling to keep his new home warm. But he also worked with his Forest Guard, Davey, through the remainder of January, all of February, and March on grazing examinations, trail building,

[1] Miller's letters were rare after his marriage, but all forest rangers were required to keep a daily official diary. The diaries were saved by John Miller's son Harold (Dusty) Miller who also served as a forester on the Sierra National Forest at North Fork, California. His daughter Susan Miller Lowenkron was entrusted with them until she gave them to me for writing this book.

boundary surveying, fence building, and checking settlers' property claims. According to his diary, he worked 6-day weeks and spent at least part of many Sundays writing and filing reports and letters. With Miller's inclinations toward biological research, such a schedule must have been onerous. Especially demanding was a grazing allotment map for the district that Supervisor Shinn desired. This task took weeks according to his diary.

March 8-11 Miller led a Forest Service trail crew to set up a camp on the Merced River below El Portal. An interesting camp supply list with prices was included in his diary as follows:

"List of provisions for trail"

1/2 sack flour	$1.25
6 cans milk	$.60
20 lbs. spuds	$.80
10 lbs. sugar	$.15
1 lb dried peaches	$.15
5 lbs beans	$.40
1/2 roll butter	$.40
1 3-lb bucket of honey	$.25
3 loaves of bread	$.10
2 bars soap	
	$4.75

Unless they were planning on catching a lot of trout in the Merced River or shooting a deer, this sounded like pretty skimpy fare for a three-man crew. Perhaps every man was required to bring his own camp food and this was just Miller's larder. The diary also indicates they "got powder from the Hite mine," indicating another skill the rangers needed, rock blasting during the trail building.

On March 17, Miller returned to El Portal to inspect the trail work, get the crew's time, and take them supplies. He found that they had used "50 lbs of powder, need 50 lbs more, also butter and canvas."

Finally on March 22, Miller was able to get back to his "insect report, mounted several specimens and took pictures." But the next day he was out riding a telephone line and repaired it in several places. On March 25 it stormed all day so he delayed his trip to the El Portal trail crew and mounted (pinned) insects all day. The 26th he packed barley (for horses) and supplies to the El Portal Crew.[2] The next day, Sunday, March 27, 1910, "Went to top of Pinnoche [sic] Mountain to look over work on trail to old Mexican mine—decided to abandon work and transfer trail money to Devils Gulch [Trail]. Returned to camp Cummings in a snow storm."

For the next several weeks Miller alternated between working on his insect collection and repairing telephone lines. By April he was out looking at insect infestations for the first time in the season. "Wednesday, April 13, 1910, worked in office in a.m. writing letters to Professors Doane and Kellogg—mounted insects collected the previous day." By the next day he was back to counting cattle on the range and trying to get stockmen to pay their range fees. On April 18, Miller had a bad toothache all day. He could not find a dentist locally so had to take the stage to Reedley where he had "two teeth extracted and some repaired." The medical trials of rangers in the field were notorious. Not only that, but because of the transportation problems, he had to take 4 days of sick leave. When he got back to the Sierra National Forest headquarters at North Fork on Sunday, April 24, he spent the morning talking to Supervisor Shinn and then went target shooting in the afternoon. Forest Rangers were supposed to be proficient marksmen (Davies and Frank 1992).[3]

On April 30 Forest Guard Clark arrived as Miller's assistant. Clark was being trained to act as Ranger for Miller during the planned insect survey so pretty much shadowed him for most of May. On May 19, Miller packed up his entomological supplies and household goods. "May 19 started for North Fork with outfit consisting of wife, 3 horses, 1 dog, and various incidentals. Reached the Buford Camp that night." The Millers went on to South Fork so John could have a last conference with the supervisor before he started his entomological detail examining the Sierra National Forest for insect-damaged forests.

[2] This is what he took to the crew: 25 lbs. potatoes, 5 packages of salt, 50 (?) Star tobacco, 1 sack barley, 1/2 doz. cans tomatoes, 10 lbs. sugar, 5 lbs. dried apricots and prunes, 1 gal. syrup.

[3] Part of the field tests in 1905 on the Klamath National Forest required shooting at targets with a rifle at 100 yards and pistol at 50 yards. It didn't say whether they had to hit the target.

Bess took the train and part of the outfit to Reedley, but John rode horseback to Reedley with their camp outfit. Then they traveled to Visalia, to Porterville, and to Hot Springs over the next several days that were hot and disagreeable. It must have been bad because the page for May 30 has been torn out of the diary. But it was the start of an interesting wilderness pack trip to survey and report on all national forest lands in the southern Sierra Nevada. Shinn's promise to Miller finally came true. It also appeared to be a combined work trip and delayed honeymoon for the Millers.

The months of June and July were spent riding, packing, camping on the southern part of the Sierra National Forest including parts that are now part of the Sequoia and Kings Canyon National Parks and the John Muir Wilderness. Bessie was more than a tagalong; she cooked, washed, watched the horses, and, interestingly, kept part of the journals. It must have been agreed that in order to free John for collecting insects and keeping biological notes, Bessie would keep the travel journal. Thus there are two diaries for this period. John's would be interesting to an entomologist, but his scrawls are practically unreadable and mostly noted insects collected, counts of bark beetle larvae, etc. He must have had entomological shorthand. Some of Bessie's entries are included here because they introduce some important new colleagues that Miller was associated with for many years. And, some entries illustrate the trials and tribulations of horsepacking in 1910.

Diary of Bessie and John Miller

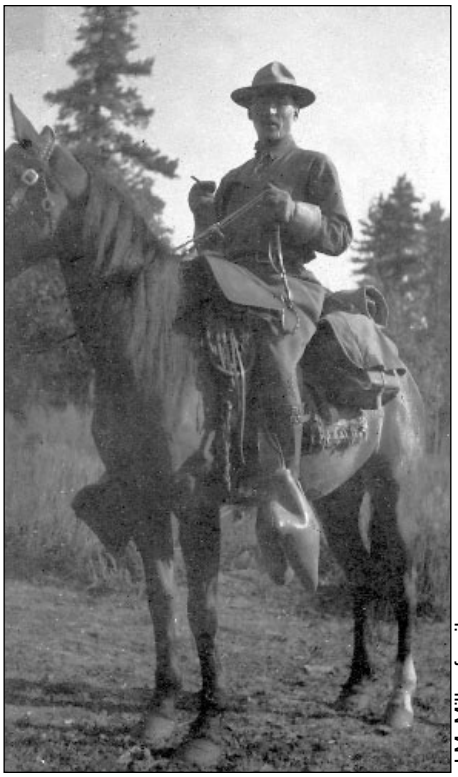
June 9, 1910
At Loyd Meadows John inspected some dying timber and took some pictures. I stayed in camp and washed. In afternoon Dr. Meinecke[4] and ranger Kelly arrived and camped for the night [fig. 22].

June 15,
Camped at Rifle Creek. John fished in morning (got 4) and in the afternoon took pictures of dead timber. I stayed in camp and cooked—provisions down to bed rock. John went fishing in the evening and did not come in till late. I got uneasy about him and started out with rifle on my back to look for him—met him with string of 12 fish.

June 16,
Camped at Rifle Creek. John walked 5 miles to look at some dead timber and when he reached it found out fire instead of insects had destroyed it. I stayed in camp and watched the horses. Turned them loose at noon and they struck out over the hill, hard time catching them again.

June 17,
Packed up and made it through Farwell Gap down to Mineral King. Shoveled path through snow in the Gap and were 6 hours coming through Gap to Mineral King. Old Bachelor Stephens took us in and treated us kindly giving us our meals while in Mineral King.

June 25,
John went to Breely and I stayed at Hopings [Hoppings']."[5]



J.M. Miller family

Figure 22—E.P. Meinecke camped with the Millers several times during their 1910 honeymoon trip.

[4] Dr. E.P. Meinecke was born in San Francisco and died there in February 1957 at 87 years of age. He was educated in Germany and is considered the pioneer forest pathologist in the West. He spent almost all his career in District 5 (Region 5) and became a close friend and collaborator of Miller. Together, they often visited forest areas having tree mortality problems.

[5] Ralph Hopping was stationed in District 5 San Francisco and was in charge of insect control in the District. Miller probably met him in 1908 or 1909. They became friends and colleagues jointly visiting many insect outbreaks in the District. There will be more about Hopping later in the story.

June 26,
At Hoppings in morning, afternoon Clair and I went up to meet the men. Rode through Grant Park [eventually a National Park].

July 2,
Stayed in camp. John in camp in morning, afternoon went out collecting with the Dr., Hopping and Derby. Between them carried whole tree into camp.

July 3,
Stayed in camp and baked bread. John dug bugs out of bark most of the day.

July 4,
Broke up camp and came as far as Big Meadows in the morning. P.M. John and the other three went out collecting and I stayed in camp. Sierra Club's pack train came through and got mixed up with our horses.

July 16,
Left Simpson Meadows and came over the Tehipite Trail to Tehipite. Terrible trip. My horse fell hurt her leg. Mule fell had to be unpacked another mule over the precipice almost killed himself. Delayed two hours digging him out. Killed 4 rattlesnakes—hard time finding a suitable crossing in the river. Scenery magnificent!"

July 17,
Left Tehipite came to Gnat Meadows and stopped for lunch. Caught in thunderstorm. Came on to Crown Valley, rained all evening. Ate supper with rain pouring on us. Tehipite Trail a fright!

July 25,
John left early in the morning for Ellis Meadows. I got up early got his breakfast and there at six o'clock took the stage for Fresno. Forgot my tie and Dr. Meinecke gave me one of his.

When their trip ended at North Fork the end of July, Bessie went home to her folks' home in Reedley for awhile to help prepare for her sister-in-law Clara's wedding. She rejoined Miller on August 11 as he continued his entomology work on the north end of the Sierra National Forest. He made copious notes in his diary, about his insect collections.

Miller rode to Reedley on September 1 and from this point, I don't think Bessie was with him in the field. On September 4, Miller arrived in Palo Alto "saw Burke, Doane and Mann. I made arrangements with Doane to send in specimens for rearing and storing." At this date, Burke knew that Miller was doing forest entomology work and had official Forest Service orders to survey, collect insects, and make entomological reports for the Lassen and Klamath National Forests. What Miller was doing was a little irregular and, according to Hopkins, impinged on the supposed responsibilities of the Bureau of Entomology, Division of Forest Insect Investigations.

For most of September, Miller traveled to insect infestations (mostly mountain pine beetle in lodgepole pine) on the Lassen National Forest. He collected insects and wood-borer-infested wood and made observational notes of tree damage. He also sent back material to Doane at Stanford University for rearing and he started what he called "experiments," cutting down infested trees and counting insects under the bark in the upper bole.

His diary notes the following:

September 22 worked on Lassen Report. Wrote to Baldenweck, R.A. Teet and Case [names unknown to me]. September 23 sorted out specimens, wrote to Stanford bookstore, A.D. Hopkins, and Mann. Mailed specimens for identification. [to Hopkins?]

September 27, examined 180 cones drying at Crocker R.S. splitting them open and found 76% infested with worms.

By now Hopkins must have known that this Forest Service Ranger, John M. Miller, was doing **entomology** work in California! And there was more to come in October and November.

Miller remained on the Lassen until October 19, writing reports, taking some field trips with forest pathologist Dr. Meinecke, complaining about some eye trouble, and writing to Ralph Hopping in District 5 headquarters. Hopping will enter the story a little later.

Miller's next move was to continue his entomology work on the Klamath National Forest. His itinerary follows:

October 20, stage to Truckee, October 21, train to Nevada City, October 23, night train to Sisson [Mount Shasta], October 24, to the Headwaters of the Sacramento River with Rangers, October 26, Hummingbird Ranger Station to Fawn Creek, October 27, collected near Sisson and road to McCloud, October 27, to Yreka.

All of this travel could be done in one day by auto now.

On October 31, Miller went with Klamath Supervisor Rider and Deputy Supervisor Hall to Glendinning's ranch on Moffett Creek to examine dead yellow pine [ponderosa pine]. They found trees being killed by western pine beetle, *Dendroctonus brevicomis*. (This area was to become the next bark beetle control project in the West and will be the subject of the next chapter). However, Miller still had several more weeks on the Klamath Forest with some interesting diary entries concerning his work. He remained at Glendinning's ranch for several more days to select trees for cutting [his experiments] and observed a small woodpecker apparently feeding on bark-beetle-infested trees. He next went to Humbug Creek and took photographs. On November 7, he corresponded with L.O. Howard, Chief of the Bureau of Entomology, who was Hopkins' superior. On November 8, he "talked to Attorney Taylor at Yreka, who was representing Moffett Creek Lumber Company. He said his company was willing to cooperate on control of beetles." November 10, Miller was in the Sisson office working on expense accounts and reports, then left on the train for Sacramento. The next diary entry is very significant.

> November 11, could not leave Sacramento on train so went down to State Capital and interviewed Assistant State Forester Hodge in regard to the insect infestation on Moffit [sic] Creek. Hodge favored the project as mainly for state supervision. "There is very little prospect of treating the entire territory as a matter for Forest Service supervision." Left Sacramento 10:10 am, reached Fresno at 6:10 pm, stayed at the Grand Central.

By now A.D. Hopkins must have been getting anxious about the number of nonentomologists who were players in his self-described domain.

This was pretty high-powered control policy for a young district ranger on a detached work detail to be discussing with another agency. My guess is that Miller had approval from the District 5 headquarters, namely, Ralph Hopping, to represent the Forest Service. By November 15, Miller had returned to North Fork, but he did not resume his district ranger duties. Instead he selected some trees for "experimental work" then went on annual leave. On December 3, 1910, he set up a laboratory at Stanford University. On December 9, he gave a talk to Professor Doane's forestry class and on December 11, worked on a paper to give at the forest supervisors' meeting to be held December 12-17 in San Francisco. With time out for Christmas, he worked on his insect collection until the end of the year.

For the next 2 months, Miller was on detached duty at Stanford University, Palo Alto, working on his insect collection, rearing material he had sent to Doane earlier, working on the Klamath National Forest report (Miller 1911; the earliest report I know of concerning a forest insect outbreak in California national forests) and, significantly, writing to A.D. Hopkins and sending him insect material from "lot 171." He also was preparing an insect manual for rangers. Miller was for all practical purposes the District 5 entomologist long before any other Forest Service districts had such a professional.

Miller was at Stanford until the end of February 1911, then mysteriously his diary ends, and we (the family and I) can find no other diaries by Miller for this year. As this is the only gap in four decades of Miller's diaries, he might have purposely destroyed the last 10 months of his 1911 diary because of some unpleasant controversies that developed over his entomological work as a Forest Service employee. However, one of Miller's rare letters to his wife after they were married written May 2, 1911, from Yreka, California, states, "I am mighty glad to think that I can get out again and camp out. I think that we will have a pretty jolly crew, with the Supervisor (Rider) two forest assistants and three rangers. This is to be the 'bug' crew with Miller in charge. I don't know what old A.D. Hopkins will say when he hears what I am doing, but I don't care much." If this is what Miller was writing in private, there must have been some controversy developing between his role with the Forest Service and Burke's with the Bureau of Entomology. Miller's next letter on May 11 indicates he has plans for continuing his forest insect surveys during the summer.

Camp No. 3, Tuesday night

My Dearest:

I will have to write a few lines tonight as the mail goes out tomorrow. I must not miss an opportunity to send out a letter at least every other day as you will get discouraged and not write to me every day.[6]

. . . Monday, I go down to Sisson in the Shasta so after Saturday you had better send your letters to Sisson care of Forest Service.

I am going out on a snow ski trip from there but I hope to get back and started for Palo Alto by next Friday night. I had a letter from the District Forester recommending my plan to the Forester for this summer's work. That is the trip on the Shasta, return to Palo Alto, the trip to Lassen in June, and then the trip to the Little Kern to study the needle miner after July first. I certainly hope that this plan goes through.

I have been out in the cold all day and am too sleepy to write any more. I am sleeping in a barn now, so I guess that it is about time to "hit the hay."

Lovingly your husband, John

Miller's next letter indicates that Hopkins is aware of the proposed control project and is making certain that he has technical control over Miller.

Hotel Clarendon, Yreka, California, May 16, 1911

My but I was glad to get this job done and get out of the wilderness this time. I was covered with dirt and wood ticks and must have been a pretty hard looking specimen when I hit town. The waitress at the hotel refused to speak to me. I could not get a bath tub so I took a sponge bath and what was worse, I did not have any clean underclothes and there was no way of buying more. So I took the dirty underclothes that I pulled off two weeks ago and turned them wrong side out and put them on again. Tomorrow, however, I will get another new suit and this will last me until I get home.

I also had a letter from Dr. Meinecke. He says that he is thinking up new dishes for you to cook this summer. He also says that the District office is very much interested in the work I am doing up here. I rather feel that I will make a showing on the job. I also had a letter from Dr. Hopkins. He seems to give unqualified approval to this work but wants me to understand that I am following his suggestion by so doing.

Miller was such a gentleman that I think he did not go into greater detail about the professional conflicts so diplomatically summed up in that last sentence.

But the year 1911 was one of change for Burke too. He was transferred to Yreka effective July 1, and arrived July 8 to set up Forest Insect Station 5. He explains the Hopkins-Miller situation very clearly in his memoirs.

[6] None of Bessie's letters to John seem to have survived.

Chapter 8: 1911-1912, Year of Change—Miller Joins the Bureau of Entomology; Burke Heads the Yreka, California, Project

During the period in 1910 and 1911 that Miller was scurrying around California national forests making insect collections and surveys, Burke was in charge of the Northeast Oregon Project, and Hopkins was preoccupied with convincing Chief Forester Graves that he and his staff were the insect experts and the Forest Service should defer to the Bureau of Entomology in all matters concerning insects. Both organizations were young and in the process of establishing their own operating procedures (Miller 1911). Turf was to be identified, fenced, and protected. Luckily, Graves was very much the gentleman and had an ecological interest in forestry. (Photographs in my possession show him on field trips and camping with forest entomologist Edmonston evidently enjoying the experience.)

Hopkins was another matter. Correspondence indicates he could be quite controlling when his ideas were questioned or his authority challenged (Furniss 2003). He was, however, the consummate politician and he was very careful not to alienate his superior L.O. Howard, Chief of the Bureau of Entomology or the Chief Forester, Henry Graves. He and Graves had at least a gentleman's agreement about respective responsibilities of entomologists and Forest Service Rangers. It was negotiated successfully in District 6 on the Northeast Oregon Project, but now it was rearing its head again in the form of Miller in District 5. The man mainly responsible for this was Ralph Hopping who disagreed very strongly with Hopkins concerning his "Percentage Control Principle," that Hopkins had recently advocated on the Northeast Oregon Project (Burke and Wickman 1990). Hopping had administrative authority for insect control in District 5 and it seems he was trying to establish some turf of his own. Hopkins was not easily cowed by Hopping as Burke's memoirs indicate. The solution to the Miller imbroglio was simple—don't fight his insect surveys in the Forest Service—get him transferred to the Bureau of Entomology. How this came about is not documented because Miller does not mention the transfer in his diary or letters to his wife.

H.E. Burke, PSW

Figure 23—Forest Insect Field Station, Yreka, California, 1911-1912 office and laboratory.

Burke's memoirs continue with the next bark beetle control project on the Pacific Slope.

The Station at Yreka, California

On July 1, 1911, I was placed in charge of what was to be known as Forest Insect Station 5 to be located in California. The old mining town of Yreka was selected as the point at which to set up a field station because of the interest in western pine beetle control which had been shown by timber owners in the vicinity. Soon after July 1 the Baker Station was transferred to Edmonston and I moved to Yreka, arriving there on July 8. As soon as arrangements could be made, a dwelling house near the edge of town was rented for office and laboratory use. Accompanying me on this move from Baker to Yreka were Bureau agents, A.G. Angell, J.D. Riggs and J.J. Sullivan. These men were on temporary appointments, but later took Civil Service examinations which qualified them for the position of Entomological Ranger [figs. 23 through 25].

Angell was employed by the Bureau for one year only. He was a cruiser with the Forest Service in the 1911 spring control work of the Northeastern Oregon Project. Appointed as an Agent July 1, 1911, he spent most of the next year attached to the Yreka station. He was the Bureau representative on the Moffatt [sic] Creek Control Project during the winter and spring of 1912 and during May and June was detailed to Baker to make a cruise of the North-eastern Oregon control areas. He afterwards became a Ranger on the Whitman National Forest and made a name for himself by organizing a

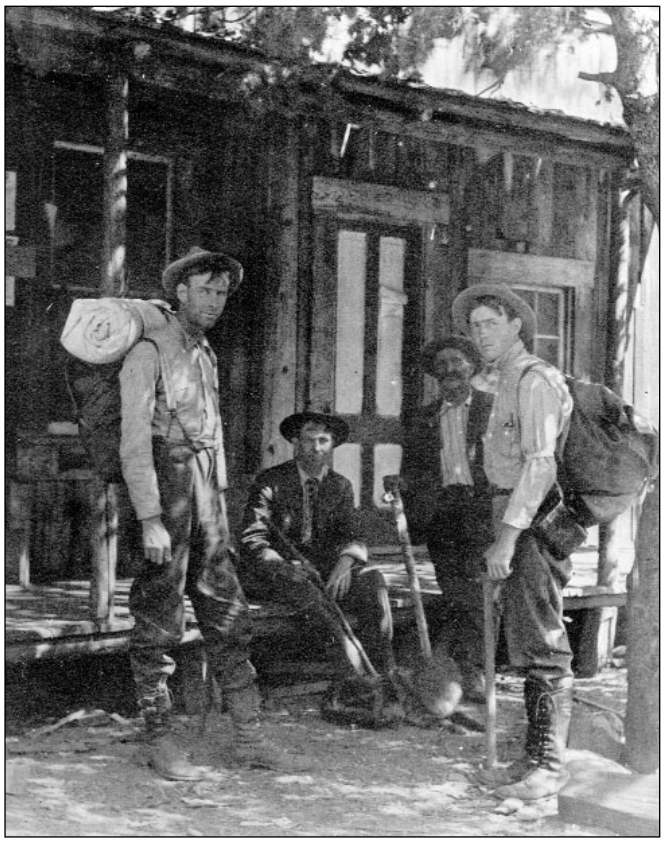

H.E. Burke, PSW

Figure 24—Entomological rangers, J.D. Riggs, (right) and J.J. Sullivan at Cecilville, California, starting on reconnaissance of Salmon River County, September 1911.

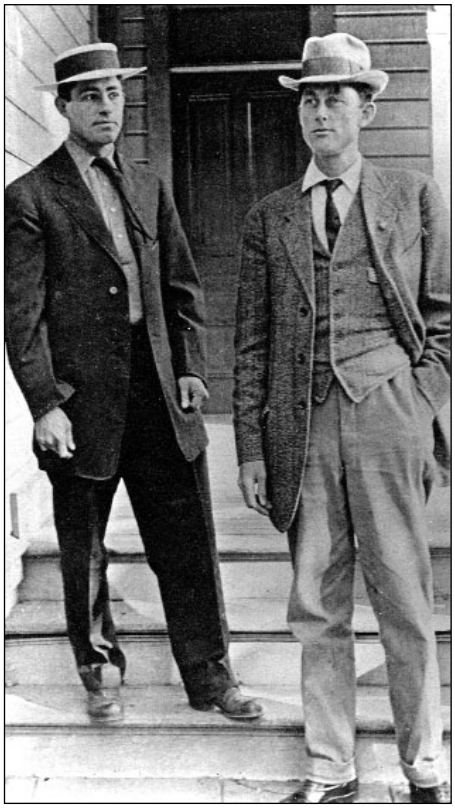

H.E. Burke, PSW

Figure 25—A.G. Angel, agent (left) and H.E. Burke, entomological assistant in charge of station, October 1911.

cattlemen's cooperative association that really cooperated. Later he was attached to the Supervisor's headquarters of the Whitman at Baker and then to the North Pacific Region headquarters at Portland where he had charge of the CCC work for the Forest Service. I believe that he died in Portland in 1943.

J.D. Riggs was camp foreman for the Forest Service on the Northeastern Oregon project and with the Forest Insect Station 5 at Yreka, Placerville and Ashland from July 1, 1911, until about August 1, 1916, when he resigned to go into mining. J.J. Sullivan was a woodsman for the Baker Forest Protective Association in the 1910 fall control work for the Northeastern Oregon Project, and a cruiser in the 1911 spring control work. He served as Agent and later as Entomological Ranger with Forest Insect Station 5 at Yreka and Placerville from July 1, 1911, to September 1915, and was then transferred to the Northern Rocky Mountain Station. Sullivan left the Bureau in June 1916 to go into lumbering [fig. 26].

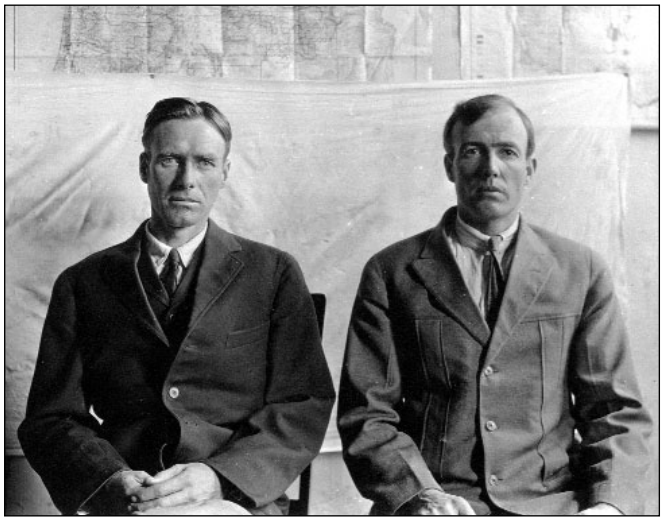

H.E. Burke, PSW

Figure 26—J.D. Riggs (left) and J.J. Sullivan.

About October 1, 1911, Forest Ranger J.M. Miller was detailed to the Yreka station by the Forest Service to assist on the control work that was being developed on the Klamath National Forest. In November Miller was transferred to the

station staff as Entomological Assistant, having qualified through a special examination for appointment by the Bureau.[1]

Although the Yreka station initiated the first large scale western pine beetle control projects, old correspondence in the Bureau files shows that at least two earlier attempts were made by Dr. Hopkins to start control in this region. These deserve mention because of their historical interest.

In 1905 Ranger Baldwin of the Santa Barbara Forest Reserve reported bark beetle infestations in the south-eastern part of this reserve. His report was referred to Dr. Hopkins who made recommendations for control measures by letter. This led up to the first recorded attempt to control bark beetles in any western area, so Southern California can file its claim to this distinction if it so desires.

The area was in Seymour Canyon on Sawmill Mountain, about 20 miles west of old Fort Tejon. The timber was Jeffrey pine and the infesting insects were *Melanophila gentilis* and *Ips oregoni*. Logging slash was supposed to have caused the infestation. Dr. Hopkins had recommended burning the infested bark and in September 1905 Ranger Baldwin undertook to carry out the control work. Eleven rangers were detailed to this job and they burned 55 piles of slash in two weeks. As the control area was a steep mountain slope and the fire season was still on, each pile had to be burned in a large pit. One of the fires got away and in the words of Baldwin "it was hell for the swampers chasing up and down the shale slopes and the fireman got pretty well blinded." Ranger Baldwin also reported, "I find in the case of slash cut after July 15 and exposed to the direct rays of sun, both larvae and in lesser degree the adult beetles are shriveled up and killed by the heat." This observation pointed toward the possibilities of using solar heat to control bark beetles, but the point seems to have been overlooked by the Bureau of Entomology as it was not until 15 years later that the solar heat method of control was "rediscovered" and given serious attention."

The next attempt to set up control work in California occurred in 1908. Early in that year, Victor S. Barber, a brother of H.S. Barber of the Bureau of Entomology, called on Dr. Hopkins in Washington to inquire about some bark beetle infestations he had seen east of Oroville, California. Barber was a surveyor who had done some work in the forests near Stirling City, California, for the Diamond Match Lumber Company.

For some time Dr. Hopkins had desired a practical man to investigate and demonstrate bark beetle control to private timber owners. Finding that Barber was acquainted with officials of the Diamond Match Company and other private owners of timber in California, Dr. Hopkins had him appointed as Agent of the Bureau in March 1908 and sent him to California to see what he could do. Unfortunately Barber did not arrive at a very good time for forest insect control work among the private timber owners.

When the Diamond Match Company started up its operation in northern California a few years before 1908, the company had employed E.A. Stirling (for whom Stirling City was named) as forester. During the first year, operation was conducted according to strictly professional forestry plans. No profits were made, however, so the next year there was less scientific forestry and more old-time lumbering. Some profits were made under this shift in program so the third year still more of the forestry program was dropped and more attention given to lumbering and profits. By the fourth or fifth year, forestry was given up altogether and Stirling left the Company to become Forester for the Pennsylvania Railroad where he remained for a number of years.

Barber arrived at about the time when forestry had been discarded and when anyone connected with forestry in Washington was unpopular. He tried to contact some of the owners in San Francisco without much success, so went back to the forests and tried to make contacts there. He made collections of bark beetles in the vicinity of Chester, California, which were later mentioned by Hopkins in Bulletin 83. However, after several months Barber concluded that there was not much chance of interesting private timber owners in bark beetle control so he quietly went into other work without leaving a forwarding address or notifying Dr. Hopkins of his change in plans. After 3 or 4 of his monthly pay checks came back to Washington unclaimed, the Accounting office appealed to the Bureau of Entomology, who finally contacted Barber and persuaded him to resign in the customary manner.

[1] This was probably the equivalent of a reassignment arranged at high levels in both organizations. Miller's diary does not give this event much enlightenment, but apparently he did not instigate it.


H.E. Burke, PSW

Figure 27—Craggy Mountain Bark Beetle Control Project. Control crew moves from North Fork Camp to Cayuse Gulch, March 17, 1912.

The control work for which the Yreka station provided the technical supervision developed during the fall of 1911 and the ensuing winter and spring into three main undertakings known as the Moffat [sic] Creek, Craggy Mountain [fig. 27] and Barkhouse projects. These projects and some of the developments which followed during the next few years largely set the pattern for a long list of bark beetle control projects that have developed in the California region. So again it seems desirable to digress from this autobiography in order to give a fairly complete story of these first western pine beetle control projects.

Moffat Creek, Craggy Mountain and Barkhouse Bark Beetle Control Projects

Had it not been for a rather sudden interest on the part of the Southern Pacific Land Company in pine losses on its timber holdings, the Station at Yreka would in all probability not have been established. As it worked out, however, this Company called the attention of the Forest Service and the Bureau of Entomology to a western pine beetle infestation on the Klamath National Forest and started action which led to control, not only on the Company's holdings but on adjacent private and national forest lands.

When the Southern Pacific extended its line from Sacramento to Portland during the 1880's it received a grant of every alternate section of land for 20 miles on either side of the right of way. While most of the agricultural land in this grant was rapidly sold, the Company held on to its timber until lumbering developments made it possible to dispose of the stumpage at a good profit. In 1910 it still held many sections in Northern California awaiting logging developments.

About 20 miles south of Yreka was the center of the Moffat Creek area where railroad sections were checker-boarded with other private timber holdings. The stand of timber covered about 10,000 acres and contained around 150 million board feet. To protect this timber from trespass and fire the Company employed as its agent, W.E. Glendinning, who owned and lived on a quarter section in the heart of the Moffat Creek basin. Glendinning was an observant individual and during the summer of 1910 he noted that a number of trees were dying from some cause other than fire. He corresponded with G.M. Homans, then State Forester of California, who sent William Hodge, Assistant State Forester, to Moffat Creek to investigate conditions.

Hodge and Glendinning examined a number of recently dying trees in the area, chopped into the bark and decided that the mortality was due to bark beetles. This conclusion was in line with that of Forest Assistant S.T. Dana who had made a silvical study and report upon the Klamath areas in 1908.[2] Dana had observed scattering yellow pine infested with the western pine beetle all over the Forest and surmised that "a succession of favorable seasons might cause a great deal of damage, but all we can do at present is to watch for developments." Glendinning and Hodge estimated that the amount of dying timber in 1910 had increased about 50 percent over that in 1909 so it was evident that something was developing in the Moffat Creek area.

Hodge reported conditions to the Regional Forester of the Forest Service in San Francisco, who detailed Ranger J.M. Miller to make a further examination of conditions in Moffat Creek and nearby national forest timber. Miller and Forest Assistant Jesse R. Hall of the Yreka office made a trip to the Glendinning ranch in November 1910. Although they found that the western pine beetle was doing a considerable amount of damage in this area, national forest lands were not involved to any extent. The Forest Supervisor, W.B. Rider, then suggested that an examination be made of areas west of Yreka where large acreages of national forest timber interlocked with those of the Southern Pacific Land Company. Miller and Hall went over certain of these areas, mainly the watersheds of Big

[2] Samuel T. Dana worked for the Branch of Silvics in the Forest Service until 1918 and then went on to a distinguished career as chief of the Research Branch in 1920. In 1921 he was appointed Forest Commissioner of Maine. In 1923 he rejoined the Forest Service as director of the Northeastern Experiment Station. He next became Dean of the School of Forestry at the University of Michigan.

Humbug Creek and other tributaries of the Klamath River, and found conditions quite similar to those on Moffat Creek.

Miller made a report on these examinations to the Forest Service in January 1911 in which he attributed most of the loss that was occurring to the western pine beetle, but also called attention to flatheaded and Ips infestations and to the decadent conditions of certain pines which appeared to be dying slowly. This report and some of the correspondence regarding the Klamath situation reached Dr. Hopkins through the Forest Service office in Washington. Dr. Hopkins had not previously been informed of this activity and he immediately wanted to know what Miller was doing and why he was making examinations under the pretense of being a qualified entomologist and without the approval of the Bureau of Entomology. He requested that the Forest Service cease these goings-on until he could look into the situation first hand; so the matter rested until Dr. Hopkins made his western trip in April 1911. After inspecting the Northeastern Oregon project, he went to Yreka where he was met by Miller.[3]

Dr. Hopkins first wanted to see the Moffat Creek area and talk to some of the private owners so he and Miller hired a team and drove out to the Glendinning ranch. A day spent in going over that area convinced Dr. Hopkins that this area presented a good opportunity for a demonstration control project. He was impressed with the infestation and the interest shown by the private owners. He decided immediately that Yreka was the place to locate a field station to further this project.

On the return to Yreka Dr. Hopkins found that the Forest Supervisor was lukewarm toward control work in Moffat Creek. Mr. Rider argued that the Klamath River areas in the Big Humbug and Barkhouse creeks would provide the best conditions for the Forest Service to participate in a demonstration project, because of the large holdings of government-owned timber. Dr. Hopkins remarked that the Forest Supervisor's proposals looked like a "Big Humbug" to him and left Yreka without reaching any understanding with the Forest Service; but he was determined to go ahead with his plan of locating a field station at Yreka in order to develop control work among the private timber owners.

After Dr. Hopkins left for Washington, Mr. Rider decided that more factual information was needed on conditions in the Forest Service areas. He assigned Forest Assistant A.D. Hodson [A.H. Hodgson] to make a survey with Miller's help and three rangers were added to the party to make up a timber survey crew. Five sections were selected in the Barkhouse Creek area where losses seemed to be heavy and 10 percent cruise made of both the dead and green stand. In addition all infested trees were located and mapped. Although the term "spotting" originated on the Northeastern Oregon project, it became officially established on this survey to describe the activity of marking and mapping infested trees. Hodson [sic] prepared a report which showed that the accumulated loss in this area had been very heavy on some sites and that an average of 30 percent of the original stand had been lost on the area cruised. This study was completed early in May 1911 (Hodgson 1911).

After I arrived at Yreka in July 1911 preliminary surveys were started and carried on during the fall on a basis for control plans, not only for Moffat Creek but also in the Big Humbug and Barkhouse areas.

The first control work to get underway was in the Big Humbug Creek drainage. The name of this project was changed to Craggy Mountain in order to lend a little more dignity to the title. The Southern Pacific Land Company agreed to pay for the cost of treatment of trees spotted on its land. The Forest Service proposed to handle most of the cost of contributed labor of its year-long men. The Forest Supervisor was sold on the idea that it was a good thing for his rangers to have something to do during the winter season and "bug work," as it was soon termed, seemed to offer a good outlet for pent-up energy. About 10 men altogether, consisting of District rangers and guards, were called in and assigned to this project. The Forest Service set up a camp and paid for their subsistence.

The camp was moved into the Big Humbug Ranger Station on January 5, 1912, and work was started with about two feet of snow on the ground. Riggs, Miller and Sullivan were assigned to the camp to do the spotting, supervise control methods, and keep a detailed set of records. The work was new to all of the crew but they were fairly enthusiastic. The Craggy Mountain area was completed on March 22 and on March 25 the camp was moved into Barkhouse Creek where the work continued until April 24.

[3] Miller makes no mention of this meeting other than the May 16, 1911, letter quoted in the previous chapter.

H.E. Burke, PSW

Figure 28—Infested tree felled with powder. Most of the men hired on this project were local ranchers and miners. These men knew how to use blasting powder and figured that it was easier to shoot down infested trees than saw them down. Tom Lane, a member of the crew, had a box camera and wanted a picture just as the blast exploded. He lashed his camera to a stake, 15 feet from the tree, tied a string around the tree at the height where the blast would occur and attached one end of the string to the camera shutter. The picture was a success, but the front part of Lane's camera was wrecked.

> For a good part of the time the Craggy Mountain camp was in charge of Forest Assistant Shirley W. Allen.[4] Allen was not only a good camp foreman but he had the happy faculty of keeping the crew in good humor. His songs, jokes and irrepressible good nature went far toward keeping up morale during the bad weather in January and February which interrupted progress of the work. His "Bug Song" to the tune of Casey Jones became a classic among the natives of the Klamath River Country.[5]
>
> Oh, we've chopped 'em all down and you can't find a beetle.
> We've burned 'em all up and you can't find a bug.
> We treated all the trees so you can't find a beetle.
> No, you can't find a beetle on the Big Humbug.

[4] Allen later became a professor of Forestry at the University of Michigan.

[5] The full set of lyrics to this ditty can be found in Davies and Frank 1992: 52-53.

As this was the first project concerned with the western pine beetle, a number of experimental phases were added to it. Time and cost records were kept to determine the most economical methods of treating infested trees. Among the ideas tried out were the use of blasting powder to fall the trees [fig. 28], the use of saddle horses to get men out to the more isolated trees, and the employment of small mobile camps composed of 2 or 3 men each instead of one central camp. None of these ideas turned out to be very efficient.

The Moffat Creek project got underway March 14 and continued until May 10, 1911. It was financed entirely by the private owners on a cooperative basis with W.E. Glendinning supervising the work. Agent A.G. Angell was assigned from the Yreka station to assist on the project and give it technical supervision.

A report upon all three projects was prepared in June 1912. This shows that 544 infested trees were treated on the Craggy Mountain area, 383 on Barkhouse and 373 on Moffat Creek, totaling 1300 trees with a volume of 1,772,000 board feet.

Some interesting developments followed the initial work on the Klamath areas. In the fall of 1912 the Craggy and Barkhouse areas were recruised and it was found that during the summer following control work the beetles had killed about 75 percent as much timber as in 1911. This reduction of only 25 percent indicated that satisfactory results had not been achieved, so the Forest Service reworked the areas during the spring of 1913. This second working of the areas was followed by a fairly satisfactory reduction of the infestation. The amount of timber killed during the season of 1913 was only about 45 percent of that killed in 1912. This amounted to a total reduction during the two seasons following the initial control work of about 70 percent.

It was here that Dr. Hopkins stepped in with his percentage principle of control. He maintained that if from 50 to 75 percent of the infestation is removed by artificial control work, natural factors of control then take over and hold the beetles to a normal or endemic condition. He recommended against any further control work on the Craggy and Barkhouse areas, so the Forest Service did not carry on work during the spring of 1914.

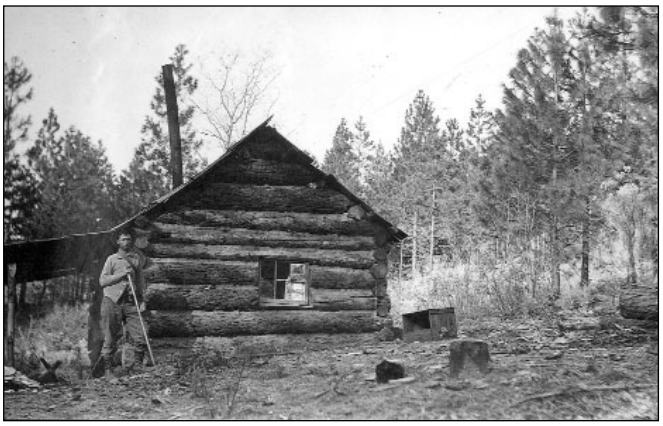
In the meantime Ralph Hopping had been appointed as Forest Examiner to supervise all of the bark beetle control programs of the Forest

J.E. Patterson, PSW

Figure 29—Glendinning in camp at Doggit Creek, California, 1914.

Service in the California district. One of Hopping's first moves was to question the percentage principle of control. He believed that if there was any infestations within an area it should be treated. He examined the Craggy and Barkhouse areas during the spring of 1914 and found infested trees fairly plentiful. He predicted that this untreated infestation would increase and openly criticized the Bureau of Entomology for its short-sighted policy of percentage control. Much of this criticism got into official correspondence channels which reached Dr. Hopkins and Chief Forester Graves in Washington. The matter soon developed into the proportion of an inter-bureau controversy.

Mr. Graves decided to see for himself what all this dispute was about and made plans to visit the Craggy and Barkhouse areas in the spring of 1915. In April he made a trip to Yreka and I accompanied him on an inspection of the areas with Hopping, Forest Supervisor Rider and W.E. Glendinning who had then become an Entomological Ranger in the Bureau of Entomology [fig. 29]. What we found was of little comfort to opponents of the percentage principle. The infestation left on the areas in the spring of 1914 had not increased; on the other hand it had declined without benefit of control work to such an extent that there were fewer infested trees to be seen than at any time since 1910. This condition convinced Mr. Graves that the strategy of percentage control was sound and he later issued a statement reviewing the entire controversy and giving the endorsement of the Forest Service to the recommendations of the Bureau of Entomology.



J. M. Miller family

Figure 30—Miller in front of the log cabin he lived in on the Big Humbug Ranger Station, 1911.

As the percentage principle has worked out on many western pine beetle projects since then, a percentage of the total infestation is about all that it is possible to find and treat anyhow. Even with the most careful work from 10 to 25 percent of the infestations is missed, so percentage control is the best that can be hoped for.

Miller's diary resumes in 1912, mostly in regard to his work on the Craggy Mountain Project, out of Yreka, as a new Entomological assistant in the Bureau of Entomology. On March 20, 1912, John and Bessie's son Harold was born in Yreka, but during the summer wife and baby returned to the Brose Ranch at Parlier (Miller, n.d.a). There is no record of what Bessie thought of this transfer to the Bureau, but she would soon learn that fieldwork was just as demanding for a forest entomologist as it was for a forester. For the next 15 years the Millers spent long periods apart and lived in rented homes in many localities in California and Oregon.

Miller's diary shows he spent the first week of the new year cutting down trees in 18 inches of snow and lived in an old log cabin at the Humbug Station with Sullivan and Riggs (fig. 30). Not much change from the rigors of his ranger duties the year before. Miller went to San Francisco on January 21 to attend the District 5 Supervisor's meeting.

January 25, 1912.

Read paper at Supervisor's meeting, very interesting and live [sic] discussion followed paper resulting in the passing of a resolution by the meeting favoring the devotion of more time and money [to forest insect work.]

Hopkins was pretty shrewd hiring a Forest Service Ranger. He became an ex-Forest Service-insider promoting what Dr. Hopkins had long been trying to convince certain Forest Service officials to carry out.

The next day, accompanied by Burke, who also was attending the Supervisor's meeting, they went to the University of California, Berkeley, and "turned over specimens to Coleman." [Probably for identification?] Miller next went to Stanford University and packed up his specimens there and arranged for shipping them to his new station in Yreka. By the end of the month he was in Yreka unpacking and arranging his specimens, preparing expense accounts, etc. Three days later he was back at work in the field. "February 3, Saturday, worked in the morning on section 1 with Sullivan's crew. Morgan Johnson, walked into Yreka in evening with Morgan, left work at 4:50 pm, reached Yreka at 7:05 pm, went around by Hawkensville." I don't know how many miles they covered in 2 hours and 15 minutes after working all day, but I feel sorry for Morgan.[6]

For the first 3 weeks of February, Miller worked with control crews in the field. Burke often accompanied him, and it was pretty obvious from his diary that Entomological Rangers Riggs and Sullivan were making decisions on camp locations and crew assignments, but in cooperation with Rangers Gott, Morgan Johnson, and others. The Klamath National Forest History said this about the proposed control work: "Word was received that insect control work would be *supervised by the Forest Service* [italics added] on National Forest lands. A staff of specialists was to be established in the District office to assist the forest in surveys and control programs. The Bureau of Entomology would be called on to furnish *only the scientific information needed*" [italics added] (Davies and Frank 1992: 53-54). District 5 Forester Coert DuBois was officially warning Hopkins not to exceed his authority, but in the field there was evidently very good cooperation with a mixing of responsibilities and supervision. The field men realized the job at hand was to kill bark beetles and went at it as a team—forest rangers, entomological rangers, and laborers. For instance, Miller did everything from marking and falling trees to acting as camp cook.

Burke sent Miller on a survey and insect collecting trip to the Weaverville-Hayfork area for the next two weeks. Miller's diary entry for Saturday March 2 is interesting because we have one of Miller's most often used photographs documented by this entry. "Made trip from Lewiston to Redding [by stage coach] stopping at French Gulch for lunch. Took picture along road where Ruggles boys robbed stage."

The next day Miller was back on the control project. The month of March, amid some nasty weather was spent developing photos, writing reports, making maps of infested areas, summarizing data, preparing insect specimens, and every several days checking the progress of the field crews. On March 20, when his first child was born, Miller was overnight at a bug camp. He evidently received word of the event because he returned to Yreka the next day.

By the first week of April it turned hot, and several of the fires used to kill beetles in infested trees escaped. "Saturday April 6 . . . rode back through Kelly Gulch and saw heavy smoke on ridge above water trough (Lane's Camp) saw Conover and Sam White but took Bert Jackson, O. White, and Musgrove to the fire." Miller's days as a ranger when he was an automatic smoke chaser came in very handy.

The next day, Sunday, April 7:

> Went to rattlesnake den below Dead Cow Spring. A large party of Klamath River people were present. Pried off the rock covering hole and got eleven snakes, 18 altogether according to reports were taken from the hole. Took lunch with the Party at the Beetle Camp. Went back to Whites, did not go up to the fire as planned as the cool weather seemed to make it safe.

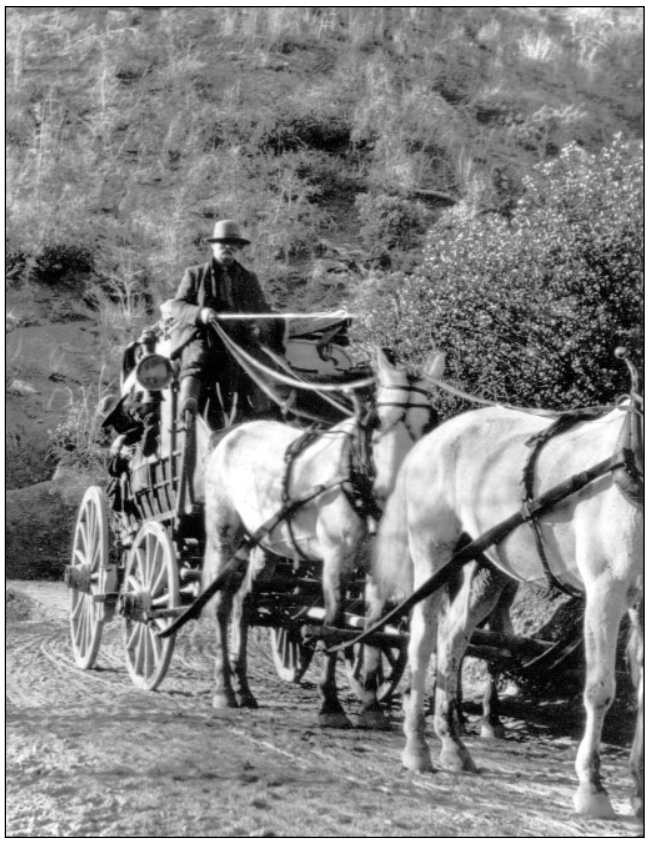
Life was simpler in 1912 when a picnic at a rattlesnake den was considered an exciting Sunday outing (figs. 31 and 32).

The remainder of April turned cool and rainy with occasional snowfall making field work and camp life very disagreeable. However, there were only a few more weeks available for control work. By late April or May beetles

[6] John Miller was a tall, long-legged individual who was renowned for his walking ability by his coworkers even into his late years. There will be more on his prowess over terra firma when Miller's work in Yosemite National Park is covered.

would be emerging from the bark of pine trees, and further felling and burning infested trees would be finished for the season. So there was a rush to hire more men and push the work to conclusion. During this period, Burke and Miller were working together in the field constantly checking the status of control work and moving camps as needed. By April 23 they began closing camps and sending crews in to Yreka. For the next week Miller worked on reports of the Humbug control projects. But a few scattered trees were still being found, felled, and treated up to May 21. The weather had been cool and stormy in May, so the emergence of the new beetle brood was evidently delayed. The next week Miller worked up data on the control project and prepared reports for Hopkins and others. It seemed that since Miller had been involved with the project since 1910, Burke deferred to him to prepare reports and data. Or since Burke was in charge maybe he just gave Miller the dirty work, because Burke authored the final report for 1912 (Burke 1912).

The draft copy of this report in my possession has 12 pages of single-spaced tables covering data on trees treated, costs, crew organization, and other data. There is only a half page of narrative. The report authored by Burke contains page after page of data and says the report was prepared by J.J. Sullivan and H.E. Burke. There is something unsettling about the report. Both Burke and Miller were excellent



J.M. Miller, PSW

Stagecoach at the site of the 1892 holdup by the Ruggles Brothers. Miller was riding from Weaverville to Redding, California, when he evidently convinced the driver to stop so he could photograph the scene, March 2, 1912. The photo has been widely used and is an example of Miller's interest in photography beyond just entomology subjects.

J.M. Miller family

Figure 31—Bug control crew at Little Humbug Creek and the rattlesnakes they killed, 1912.

Figure 32—Picnic at beetle camp (after the snake killing), 1912.

writers and other reports contained very clear explanations and summaries of their projects. This report was presented just 1 month after the conclusion of control work, had practically no narrative, and Burke lists Sullivan, an Entomological Ranger, as author before Burke. It is almost as if Burke and Miller did not want to be strongly associated with it. Did Hopkins or the Forest Service put pressure on Burke and Miller to rush the report out? The final report was prepared by J.R. Hall, Acting Forest Supervisor of the Klamath National Forest (Hall 1913).

The report for the 1913 work gives no reference to Burke, Miller, or other Bureau of Entomology personnel, yet they were there off and on. It contains mostly costs and expense tables and has no reference to the previous year's work. There is no final report by the Bureau of Entomology that I can find. And the report submitted by Burke in 1912 was very uncharacteristic. It was unfinished and unpolished.

Burke packed up Field Station 5 and moved to Placerville, and Miller and several Entomological Rangers went to Ashland to start a new field station. What happened? This was the first large bark beetle control project in California, and based on the reports from other projects of the era, it should have been published.

In early June, Miller was at Sisson [Mt. Shasta City] working on cone insects, but he was still based in Yreka. His entry for June 13, 1912, is noteworthy. "Arranged at garage in Dorris for automobile transportation to Hayworth ranch . . . arrived at ranch at 10 am went up to the Secret Springs ranch with Richardson and Riggs. Cruised out 100 acres in the afternoon. Stayed at camp." Automobiles had probably been used at an earlier date by Burke and Miller, but this is the first reference of such use in Miller's diaries. In one day they traveled for several miles by auto then still had time to cruise 100 acres.

The month of July was spent traveling as far south as Sisson and north into southern Oregon collecting cones and seed insects. Part of these collections were sent to Hopkins. At various times, Burke, Riggs, and Coffman traveled with him. By August 1 Miller was back at Yreka. Significantly, he is calling it a "temporary field station."

The first two weeks of August, Miller worked on cone insects at Yreka. His August 14 entry "climbed Mt. Shasta and returned to Sisson." Quite a hike in one day. Climbers today drive halfway up the mountain and camp overnight. On August 16 he was at the Pilgrim Creek nursery looking for cone insects. Most of the remainder of August, Miller was based in Yreka, but the last week he cruised timber for the McCloud River Lumber Company on insect survey. This was the first such work with McCloud River Lumber Company for Miller, and it started a cooperative relationship

between them and forest entomologists that lasted almost six decades. I did some insect survey work with their foresters in the 1950s.

Early September found Miller finishing up reports. There is no mention of Burke or others being there on September 11. "Worked on reports at Yreka and packed up for leaving." September 12 "cleaned up office and locked up everything for leaving left key at McKendricks. Stored personal belongings at office, left on 2:45 train for Willow's." The beginning of the end for Field Station Number 5 was at hand. In September, Miller was working on what is now the Mendocino National Forest, and using a new mode of transportation. September 14, "Left Elk Creek early in the morning and hired a team and driver to take me out and catch the Alder Springs team— *rode on a load of hay* [italics added] out to Alder Springs met Rube Hartman and Mr. Godwin." On Thursday, September 19, "rode out to Kneecap with Rube Hartman. Returned to Alder Springs about 4:00 pm. Shaved and talked over control work with Godwin." I can see Miller after a week camping in the field all lathered up, razor in hand, discussing the finer points of killing bark beetles.

Miller then went to San Francisco where he met with Dr. Meinecke at District 5 headquarters and then with Burke at Palo Alto. Here he received instructions for examinations of forests in the Southern Sierra. As he traveled south from Palo Alto there is this entry: "September 27, hot, left on Sanger-Hume stage at 7:00 am had a most delightful trip and finally arrived at Dunlap at 7:00 pm. Team gave out on the road." The next day was not much better. As he proceeded by stage to Millwood in Grant Park [National Park] he "walked most of the way." He collected cones for insects for several days at Huckleberry Meadow then proceeded to Reedley where he arrived on October 3. After a brief reunion with his family, he was on his way to El Portal on October 6.

Miller rode the stage, costing $2.50, from El Portal to Camp Curry in Yosemite National Park and interviewed Major Forsythe in the afternoon of October 7.[7] He also wired Burke of his plans and received advice to proceed with his collecting cones in Yosemite. On Tuesday October 8 " . . . saw Ranger Gaylor in the evening and discussed plans for trip to Lake Tenaya." He rented a horse and rode to Tenaya Lake and Tuolumne Meadows where he spent several days collecting cones. On the 14th to 16th of October, he attended a meeting of the Yosemite Park Conference (which may be why he was sent there in the first place). By October 17 he was back in Reedley. For the next several days he worked over his collection of white and red fir cones at Reedley. On October 22 he was back in his old stomping grounds, North Fork. He met Ranger Mainwaring and collected seed from ponderosa and sugar pines for insects. Then it was back to Reedley where he sacked up his cones and shipped them and himself to San Francisco. He met several days at the District 5 office with Dr. Meinecke and at Palo Alto with Burke. He purchased some photo supplies at Stanford University and was back in Yreka on November 1st.

It is pretty obvious that by this time Miller was making a statewide survey and collection of cone and seed insects. A project of this magnitude had to have the blessing of Dr. Hopkins and his keen interest. This was the start of some entomological research that occupied Miller for the next several years and resulted in one of his first publications (Miller 1914). This practical little manual was the first published by the Division of Forest Insect Investigations devoted entirely to cone and seed insects. It contained some excellent photography by Miller. The unusual part of the publication was that the insects discussed had not been identified by taxonomists. It would take a decade or more for the naming of the insects to catch up with Miller's collecting and research.

One of Hopkins' strong points was to encourage his entomologists to publish as quickly as possible. He seemed to believe that entomology could be of no use to the practitioner or used to solve problems unless information was available as a publication. He certainly led by example given his numerous and timely publications.

Miller stayed in Yreka until November 8, packing the office materials, photos, insect specimens, and personal household items. He met Burke at Montague that evening. After a layover in Sisson to confer with the McCloud River

[7] Major Forsythe 2nd U.S. Cavalry was the acting Superintendent of Yosemite National Park. At that time, the U.S. Army had responsibility for protecting and administrating the national parks (Hampton 1971).

Lumber Company, he was on his way to Sacramento and Placerville. He spent the next several days in Placerville looking for a house to rent for his family. It looked like Miller was going to join Burke at the field station at Placerville. On November 19, Burke arrived in Placerville, but Miller spent the rest of the day packing up. Was there going to be a change of plans? Miller went off to San Francisco and Reedley on annual leave. During his annual leave, he visited Palo Alto and San Francisco for several days, then arrived back on duty at Placerville on December 7. He again started hunting for a house for his family. He worked in the "Bug Office" as he called it, developing photos, arranging files, and generally setting up a field station. He moved from one rented house to another. On Christmas Eve he went to "Mosquito Bridge on the American River to collect Christmas tree." New Year's Eve, 1912, found him in the office at Placerville writing a letter to A.D. Hopkins. Was there going to be another change for Miller and his family?

CHAPTER 9: 1913—Western Forest Entomology Is Reorganized

The Division of Forest Insect Investigations was beginning to be noticed as a valuable source of knowledge by Private Timber Owners and foresters in the Forest Service and soon-to-be Park Service. Much of this respect was due to Hopkins promoting from Washington, D.C., and the caliber of entomologists he was assigning to the field offices, but it helped to have some serious forest insect outbreaks in many localities in the West. It was becoming obvious that the half a dozen or so entomological assistants and rangers could not give technical advice in the Rocky Mountains, Sierra Nevada, Cascades, and points in between from their small field stations in Montana, Oregon, and California. There was also some dissent from Hopkins' field entomologists about his meddling and second-guessing their work on the large bark beetle control project on the Klamath National Forest. Also, the Forest Service was taking its insect control responsibilities more seriously, and some of their technical men, like Ralph Hopping, were even challenging some of Hopkins' pet theories on bark beetle ecology.

Hopkins was not about to let his empire falter; he was the proactive type. He therefore called all his field entomologists to Washington, D.C., February 26-March 1, 1913, for a conference on reorganizing the Western field stations. This group included, besides Hopkins, Burke, Miller, Edmonston, Evenden, and Brunner from the West and three of the eastern entomologists. Burke describes the reorganization with few words in his memoirs, but this was a major policy and operating procedure meeting (Anonymous 1913).

The Station at Placerville, California

The station was continued at Yreka for only a little more than one year. A central location in the California pine region seemed more desirable and accordingly Forest Insect Station 5 was moved from Yreka to Placerville during the first part of November 1912.

In February 1913 all of the technical men in Forest Insect Investigation were called to Washington for a conference on plans and organization. I spent February 27 to March 5 at the conference and then stayed in Washington until May 29 to do some special work on the flatheads, particularly *Agrilus*, one species of which was connected with the dying of many chestnut trees.

H.E. Burke family

Figure 33—Burke or Sullivan with team and wagon in Placerville, California, 1913.

At the conference it was decided to place the western forest insect work under three stations, the Northern Rocky Mountain, the Southern Rocky Mountain and the Pacific Slope with headquarters at Ashland, Oregon. I was placed in charge of the Pacific Slope but remained at Placerville to complete the investigations already started [fig. 33]. A sub-station on forest tree seed insects was to be started at Ashland with Miller in charge (Wickman 1987).[1]

His memoirs also included a page on the Southern Rocky Mountain Station and the personnel assigned to it (fig. 34).

What Burke failed to mention was that Hopkins was covering much more than Station reorganizations at this meeting. There were 43 typed pages in the conference report, and subjects discussed included how to collect and ship insects to Washington, D.C., what kind of alcohol to use for preserving specimens, who would be specialists in various types of forest insects (Burke—Buprestids, Miller—cone and seed insects), correspondence policy, publications, lines of authority, and on and on.

Hopkins also decided that the field stations would no longer be numbered; they would have names, e.g., "Pacific Slope" for Burke and Miller's assignment. Hopkins was also becoming increasingly interested in doing his bioclimatic

[1] Actually the research at Ashland was much broader than cone and seed insects. Some of the earliest and most intensive studies on western pine beetle population dynamics and epidemiology were begun there also.

Figure 34—Southern Rocky Mountain Station, Colorado Springs, Colorado, 1913-1919 (left to right) W.D. Edmonston, in charge; A.B. Champlain, and B.T. Harvey. From Baker, Oregon, Edmonston went to Klamath Falls, then to Ashland, and in the fall of 1913 to Colorado Springs, Colorado. With him went Hofer and Harvey. Champlain was later added to the staff to carry on studies of the biology of forest insects and devoted considerable time to the parasites and predators of bark beetles. J.H. Pollock was appointed as Entomological Ranger in 1914 and specialized in studies of forest Adelgids. This station was closed in 1919 when Edmonston and Hofer moved to Tucson, Arizona, and Pollock was transferred to the Ashland station. Harvey and Champlain in the meantime had resigned.

research on a national basis. He instructed all of the men in attendance how to set up his phenology research stations and take measurements, with data to be sent to him at once.

He even suggested, that as railroad travel was the main source of transportation at the time, the entomologists should observe forest conditions during train travel and take notes on their observations. What he perhaps did not realize was that the western entomologists tried to travel by night trains in Pullman cars so they could go to work in the morning at their destinations. Miller's diary has many references to travel by Pullman car.

Hopkins also suggested that an organization known as "The Society for Advancement of Forest Entomology in America" be formed by those in attendance on the last day of the meeting on March 1. The initiation fee was to be 50 cents and the annual dues 50 cents. "The following officers were elected: President, A.D. Hopkins; Vice President, H.E. Burke; Recording Secretary, T.E. Snyder; Corresponding Secretary-Treasurer, F.C. Craighead." The annual meeting procedures and subjects were discussed, but there is no further mention of the society in future years. It must have died aborning, probably because of travel difficulties at the time. It did demonstrate that Hopkins and his entomologists saw the need for a professional society of their peers.

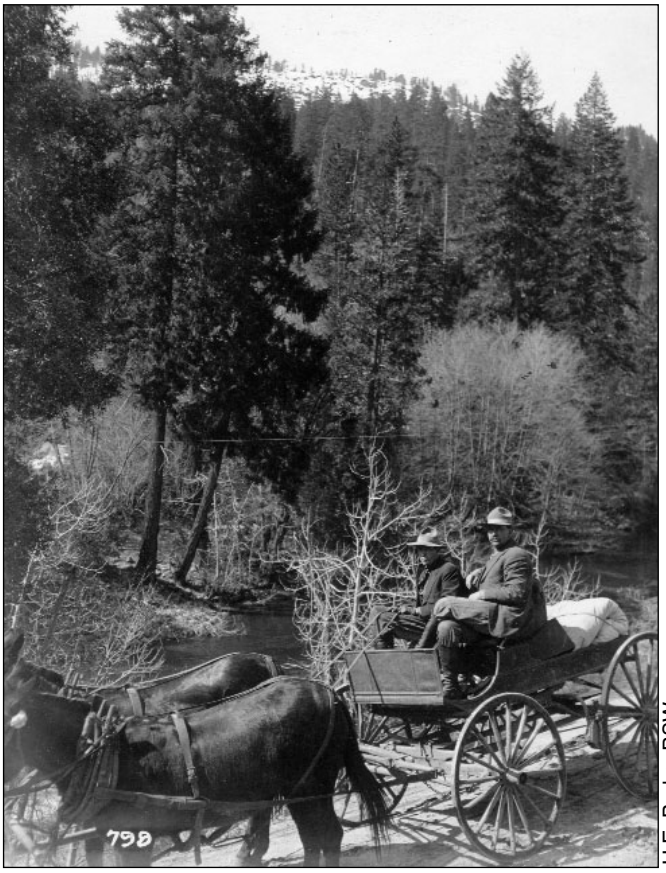
Strangely, Miller's diaries and letters do not go into any detail about his new assignment as leader of the Ashland field station. He assumed that his family would shortly join him in Placerville. He had rented a house and had all of his insect collection, field notes, and photography equipment there. He had spent January setting up his personal and work facilities in Placerville, when his diary, on January 18, states, "Received letter from Dr. Hopkins relating to trip to Washington." Did the letter forewarn him about his new assignment? It is difficult to tell from what Burke and Miller have written. His diary, in a laconic manner, just records his preparation of work on a manuscript on cone and seed insects and much photographic work to do until it was time to leave for Washington, D.C. (which took 5 days of train travel). His diary is not illuminating about his meeting with Hopkins "attended conference of fieldmen at Dr. Hopkins' office in the Star Building." That was the usual diary entry until March 4, when he witnessed the inauguration of President Wilson. He returned to Placerville in mid March.

During March, April, and May, Miller was bouncing around between Placerville, Yreka, and San Francisco, shipping his supplies to Ashland; he finally arrived at his new station on April 27. Then he left for San Francisco and helped Burke with some bark beetle work in Placerville in May. He was about to embark on some historic forest insect work in Yosemite National Park, but first let us return to Burke's memoirs on the Placerville Station.

> Before I returned to Placerville on June 3, 1913, due to the preliminary work done in 1912, control work against the western pine beetle started

H.E. Burke, PSW

Figure 35—The Davis cabin on the tract of timber owned by the C.A. Smith Lumber Company near Pino Grande. This was the field headquarters for the protection work of the company and was used as the base camp for the 1913 forest insect survey. Mr. Davis, Representative of the company and Entomological Ranger J.J. Sullivan made a preliminary reconnaissance in May 1913.



H.E. Burke, PSW

Figure 36—J.J. Sullivan and P.D. Sergent on a trip up the American River Canyon near Kyburz in April 1913.

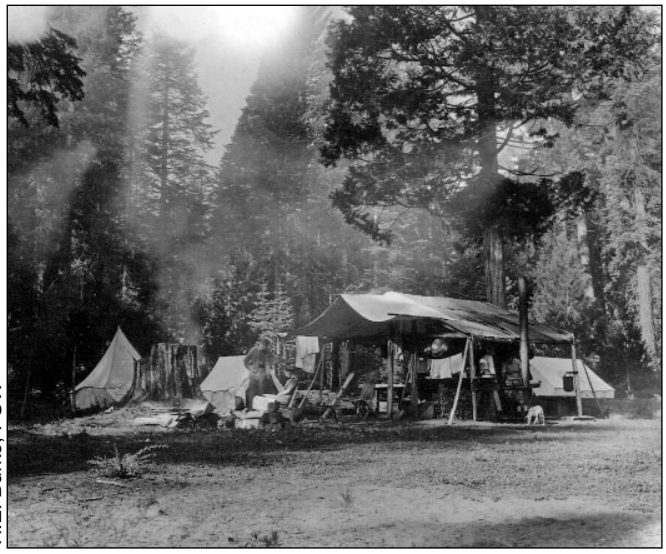
near Bray, Siskiyou County, and in the Yosemite. The first, the Antelope Creek Project, was carried on by the McCloud River Lumber Company with the assistance of J.D. Riggs. It so convinced the Company of the value of bark beetle control that they made it a regular part of their operations for a number of years. This probably was the first time that any private timber company had adopted such a plan. The work in the Yosemite under the direction of J.M. Miller was the first forest insect control work conducted in any of the national parks. It also was carried on for several years.

During July and August I assisted the C.A. Smith Company to cruise part of its timber near Pino Grande to determine the insect loss in a mature stand of mixed yellow pine and sugar pine. This stand between the Middle Fork and the South Fork of the American River was considered by timbermen to be one of the finest stands of timber in California.

A careful cruise of the area indicated that while there had been no insect epidemic for a number of years there was a constant annual loss of the best trees. On 1,280 acres cruised in one solid block, there were 14 killed sugar pine (77,735 board feet) and 16 killed yellow pine (55,230 board feet) all killed in 1913 and a total of 290 killed sugar pine (1,572,745 board feet) and 121 killed yellow pine (327,205 board feet). The cream of the timber was being killed. Ninety-one of the dead sugar pine were over 5 feet in diameter and it was these large trees with the clear lumber that made the lumbering profitable. This probably was the first time that a lumber company had made such a detailed study to determine the actual loss caused by tree-killing insects [figs. 35 and 36].

Field Trips Out of the Placerville Station, 1913

Besides carrying on this project (Onion Creek project) I made a number of observations on the biology of various forest insects. Among these was the biology of the *Oryssus*, a hymenopterous insect of which little was known, but which when the biology was finally determined, changed the major classification of the



H.E. Burke, PSW

Figure 37—Burke family summer camp at Philips east of Placerville, 1913.

order Hymenoptera. Another project started was a study of the oak twig girdler, a pest which caused considerable damage to live oak in California. This study probably aroused my interest in the investigations of shade tree insects which I carried on for a number of years.

I spent the field seasons of 1914 and 1915 and part of 1916 at the Pyramid Ranger Station about 40 miles east of Placerville on the Tahoe road. Close by were sugar pine, yellow pine, Jeffrey Pine, lodgepole pine, white fir, red fir, Douglas-fir, mountain hemlock, incense cedar and Sierra Juniper [fig. 37].

Many observations were made on the bark beetles and on flathead borers. The flathead borers of the genus *Trackykele* were given special attention. Three species of this little known genus were found and carefully studied. One caused considerable damage to the wood of incense cedar, one to the wood of juniper sought for pencils and the third bored in the wood of the tops of white and red fir.

Considerable attention was also given to the project "the relation of Mistletoe on living trees to attacks by tree-killing insects," which had been assigned to me. It was found that 64 percent of virgin growth yellow pine and 73 percent of virgin growth Jeffrey pine in typical areas near Pyramid were mistletoe infected. The conclusions drawn from the study were (a) trees infected by mistletoe are not more subject to attack by *Dendroctonus* beetles than trees not so infected, in fact it looked as though badly infected trees were less liable to attack than trees free of infection; (b) trees weakened by mistletoe do not contribute to the increase of *Dendroctonus* beetles.

Before and after the regular field seasons studies were made of the insects living in the trees and shrubs in the vicinity of Placerville. Special attention was given to the flat headed borers of the genus *Agrilus* and to the bark-mining midge which causes the birdseye pine. Many parasites and other insects were reared and sent to the specialists in Washington. Several trips were made to Palo Alto to study the oak twig girdler.

The Antelope Creek project and the Yosemite Control project continued more or less under the direction of the Placerville station, but due to the poor lumber market, no new private lumber company under took any control work. The C.A. Smith Company which had been such a good cooperator finally failed because of too much timber which they were not able to carry.

It is hard to determine Burke's state of mind during this period. His memoirs give no clue about his reluctance to be with the men under his supervision at the Ashland station. And, with Hopkins putting Miller in charge there, Hopkins was apparently preparing Miller for more important positions. Some of this will come to light later in the story.

A.D. Hopkins notched another first in his bug-seeking endeavors in Western forests, but this time he was not the first to collect or study the reported needle miner outbreak. However, he did discover mountain pine beetle killing giant sugar pine in the Wawona area and encouraged park personnel to begin the first bark beetle control operations in any national park.

Miller's trip to Yosemite National Park was perhaps one of his most important early assignments, and several "firsts" in forest entomology resulted. The history of entomology in the park is interwoven throughout this story because both Burke and Miller had a long-term association with Yosemite (fig. 38), both officially and unofficially during visits with their families.

J.M. Miller family

Figure 38—Hand-built Tioga stage road along Tenaya Lake, Yosemite National Park, 1913.

Pioneer forest entomologist, John Patterson summarized the story of forest insect problems in Yosemite (Patterson 1921). He stated (from Hopkins 1912):

> In 1903 it was reported to the Bureau of Entomology through the Secretary of the Interior that large areas of lodgepole pine in the Yosemite Park were affected by a leaf-mining moth. In May 1904, Dr. A.D. Hopkins visited the Yosemite Park, planning to investigate the conditions reported, but was unable to reach the lodgepole pine area, as all trails leading into the region were still closed by heavy snow.

Next on the scene was H.E. Burke. On July 10, 1906, he started his stagecoach ride to Yosemite probably not knowing that a bandit had held up two stages just 3 days before, on the same route. It must have been an exciting time to be a forest entomologist. Eventually, Burke made it to the High Sierra country in the Tenaya Basin and Tuolumne Meadows and could not find the needle miner, but did find many lodgepole pine being killed by the mountain pine beetle.

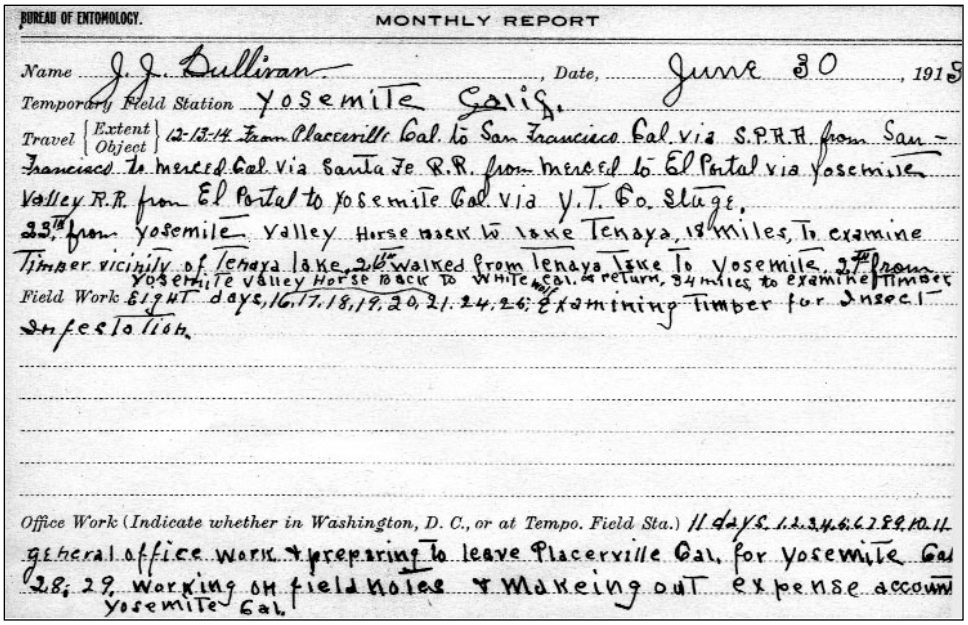
During the next four years, there were reports of the needle miner in Yosemite made by Professor Comstock in 1907 and by forest pathologists E.P. Meinecke in 1911 who noted a heavy flight of moths in the Tenaya Basin. Forest entomologists were unable to visit Yosemite at that time because of large bark beetle control operations in northeast Oregon and northern California. Finally, in October 1912, J.M. Miller, in his first year on the job with the Bureau of Entomology, visited Yosemite's high-elevation country. Miller found that the bark beetle problems in Tenaya Basin and Tuolumne Meadows had intensified, and he found defoliation caused by the needle miner, but no adult moths. The lodgepole needle miner has a 2-year life cycle, and adults fly and lay eggs in odd-numbered years. So the collection of flying moths was hit or miss until more definitive studies of the insects' life history could be made. Miller, however, could easily see that this was a large and important forest insect outbreak and might also be related to the expanding mortality of lodgepole pine by mountain pine beetle. In 1913 the moths were finally collected by Miller and sent to taxonomic specialist August Bursck. He described them as a new species *Recurvaria* [= coleotechnites] *milleri* in 1914.

Miller used Yosemite Valley as his headquarters from June 16 until August 22, 1913, although he was mostly in the high country. When he was there, he used the semi-luxurious accommodations of a tent at Camp Curry and an office/laboratory in a park warehouse.

Miller was constantly riding horses or mules or walking to and from the High Country at Tenaya Lake and Tuolumne Meadows. He was not only studying the needle miner, but he was supervising crews of laborers falling and burning lodgepole pine infested with mountain pine beetle. He had the assistance of Entomological Ranger J.J. Sullivan in this work. As a trained timber cruiser, Sullivan located infested trees for the crew. Sullivan's monthly travel report for June 30, 1913 (fig. 39), shows the hardships and variety of travel in that era. His conveyances included railroads, stagecoach, horses, and shank's mare.

On July 29, Miller's diary notes, "Left Tenaya control camp at 9 am and rode to Tuolumne Meadows. Arrived at 1 pm, began to rain about 2:30 pm and had heavy thunderstorm with rain and hail. Went to Soda Springs outpost and camped directly across the river from Soldiers [U.S. 4th Cavalry (Hampton 1971)] near the Sierra Club Cabin." The Sierra Club Cabin made of local granite stone is still used.

On August 5, Miller left on an extended horse trip with two park employees visiting and noting "considerable dead timber in Virginia Canyon, Benson Lake, and at Matterhorn Canyon. Looked over some of the immense stands of



BUREAU OF ENTOMOLOGY. MONTHLY REPORT

Name J. J. Sullivan, Date, June 30, 1913

Temporary Field Station Yosemite Calif.

Travel { Extent / Object } 12-13-14 from Placerville Cal. to San Francisco Cal. via S.P.R.R. from San Francisco to Merced Cal. via Santa Fe R.R. from Merced to El Portal via Yosemite Valley R.R. from El Portal to Yosemite Cal. via Y.T. Co. Stage, 23rd from Yosemite Valley Horse back to Tenaya Lake, 18 miles, To examine Timber vicinity of Tenaya lake, 24th walked from Tenaya lake to Yosemite, 27th from Yosemite Valley Horse back to White Cal. & return, 34 miles to examine timber

Field Work EIGHT days, 16, 17, 18, 19, 20, 21, 24, 26; Examining timber for Insect Infestation.

Office Work (Indicate whether in Washington, D. C., or at Tempo. Field Sta.) 11 days 1, 2, 3, 4, 6, 7, 8, 9, 10, 11 general office work & preparing to leave Placerville Cal. for Yosemite Cal 28, 29, working on field notes & Makeing out expense account Yosemite Cal.

Figure 39—Monthly travel report of J.J. Sullivan for June 1913, Yosemite National Park. He traveled by railroad, stagecoach, and horseback and walked many miles.

bark-beetle-killed timber there and also in Verrick Canyon and Jack Main Canyon." Miller made the first map of this combined infestation of lodgepole needleminer and mountain pine beetle that covered over 30,000 acres of the High Sierra portion of the park.[2]

August 22 Miller left Yosemite for the summer and proceeded to Placerville to pick up his personal effects and supplies, arriving at Ashland on August 30. Thus began a new phase of his life as leader of the Bureau of Entomology Forest Insect Station at Ashland, Oregon. In September he not only had to rent a building for the lab, but also a personal dwelling, set up the laboratory, meet with his staff of Patterson, Sergent, Glendinning, and Wagner. During all of this activity he received word that his father was gravely ill. He arrived in Reedley before his father died on September 17. By September 23 he was back at Ashland with his family, studying cone and seed insects in the nearby forests and becoming settled in the community.

An illustration of the breadth and modes of travel in 1913 is Miller's insect-collecting trip to Pacific Grove, California, in November. On that trip he rented a bicycle, a motorcycle (which broke down), and an automobile. That year he had already used train, stagecoach, horse, mule, and walking in Yosemite. The newest form of transportation was still in the development stage by the Wright Brothers or he probably would have tried it as well.

In Ashland, Miller finally had the most settled family life of his career thus far and became more oriented toward scientific inquiry versus continual travel to survey, collect, and supervise insect-control projects.

[2] I revisited all of these areas using the same mode of transportation in the summer of 1953 to map a new needleminer outbreak.

CHAPTER 10: The Early Ashland Years, 1914-1916

By 1914 Burke was devoting most of his time to forest insect studies in the Placerville area. It was essentially a one-man station with intermittent help from entomological rangers from the Ashland station. Miller and his family were settling in at Ashland, with Miller in charge of that station. Most of his personal research involved cone and seed insects.

It is odd that neither of them, Burke in his memoirs, nor Miller in his diaries, mentioned an important bark beetle outbreak developing in Klamath and Lake Counties to the East of Ashland. Jackson F. Kimball, secretary of the Klamath-Lake Counties Fire Association, but actually employed by Weyerhaeuser Company, was trying to instigate a cooperative bark beetle control project with private interests, the Forest Service, and the Indian Service (now Bureau of Indian Affairs). In 1911 he got Edmonston, a Bureau of Entomology entomologist, involved in a very unsatisfactory project near Jenny Creek just east of Ashland. Kimball promised much help from his fire association, but delivered little, and what he did do with his men he tended to carry out on his own unscientific terms, greatly irritating Edmonston who bluntly informed Hopkins of the situation.[1]

By 1913, there was a very large mountain pine beetle infestation in lodgepole pine on the Paulina National Forest, just north of the private lands and the Klamath Indian reservation. Kimball and others were convinced the mountain pine beetles emerging from these infested trees would attack and kill the more valuable yellow pine (ponderosa pine) stands and that the beetles should be controlled at all costs. Kimball convinced the Forest Service that the cheapest way to do this would be to wholesale burn the dead and dying lodgepole pine forests. When Hopkins heard of this plan, he was very opposed (see footnote 1) for two reasons: first, his host selection principle stated that mountain pine beetles would not shift their host preference from lodgepole pine to ponderosa pine; and second, he feared that burning a forest on a scale of 30,000 acres or more would destroy great numbers of natural enemies of mountain pine beetles in the infested trees. This could cause more problems in the long run by reducing the controlling effects of natural enemies. This controversy is worth recording here because it involved a challenge to Hopkins' host selection principle, it resulted in a change in future insect control policy as it related to the Bureau of Entomology, and it sheds some light on Burke's reluctance to pursue research related to bark beetle control.

Burke's memoirs and Miller's diaries are not a primary source of information; almost 100 pages of official correspondence tell the story very neatly. At that time, Hopkins was personally in charge of all Bureau of Entomology participation in control operations from his Washington, D.C., headquarters. In earlier chapters, Hopkins' fervor for controlling bark beetles was noted, especially relating to the Northeastern Oregon Project (chapter 4) and the Craggy Mt. Project (chapter 8). Hopkins' policy for the field men was to be responsive to requests from the Forest Service, Park Service, and private timber interests for entomological advice regarding possible control projects. Hopkins asked his men to encourage a large control project if biologically warranted. He probably believed this approach would result in good publicity for his organization, thus larger appropriations and ultimately a larger more prestigious organization. He was probably guided in this somewhat by observing,

Tidbits of information printed in the front of Miller's personal journal for 1914

* Woodrow Wilson was President of the United States.
* War was breaking out in Europe.
* Most countries were on the gold standard, except China, where it was silver.
* The Franc was worth 19.3 cents on the dollar.
* The Pound Sterling was worth $1.86.
* First-class parcel post was 2 cents per ounce.
* The population of Portland, Oregon, from the 1910 census, was 207,214, and San Francisco had a population of 416,912.
* The first aid for being struck by lightning was to dash cold water over the person struck.

[1] Correspondence Edmonston to Hopkins, Hopkins to Glendinning, Glendinning to Hopkins, Kimball to Hopkins, Hopkins to Kimball, in my possession.

through his association with Henry Graves, the Chief, how the U.S. Forest Service was growing.

In the fall of 1913, Hopkins ordered Entomological Ranger W.E. Glendinning, to make a reconnaissance survey of the infested area covering several hundred thousand acres, Glendinning found a serious outbreak of mountain pine beetle in pure lodgepole pine stands on Forest Service lands and scattered western pine beetle (WPB)-infested ponderosa pine on the private and Indian reservation lands. Hopkins seemed determined to run the show, and sent little correspondence to Burke in Placerville over what was transpiring. The voluminous official letter-writing was truly amazing. There was correspondence from Glendinning at Parker Station to Kimball in Klamath Falls and to Hopkins in Washington, D.C., Kimball to Glendinning and Hopkins, he in turn replying to both. Then the Indian Service became involved, so there were letters from the Klamath Falls Reservation to Department of the Interior, Washington, D.C., offices. And the Forest Service Chief's office was writing to Hopkins and others. Eventually, of course, the correspondence went up the agency ladders to the Secretary of Agriculture (Forest Service and Bureau of Entomology) and the Secretary of the Interior (Indian Service). Next, Oregon State Forester Elliot also became involved. Chief Graves pledged up to $5,000 to the project (because the most serious outbreak was mostly on the Paulina National Forest at this point) if the private interests would pledge an equal amount to treat WPB-killed ponderosa pine on their lands.

At this point, Hopkins, in October 1913, finally requested Burke, who was in charge of both Ashland and Placerville Stations, to go see the situation in the field. No bona fide entomologist had actually visited the area. For some strange reason, even though he was in overall charge of the Oregon area and Hopkins was his supervisor, he declined to go. He did, however, write a strong letter to Kimball telling him the Forest Service pledged $5,000 and was ready to start fall control operations. He asked when Kimball's organization could come up with a like amount and be ready to start the project. Burke requested an immediate reply. Now Kimball started stalling. He wanted to pursue his pet project of burning down the infested lodgepole pine forest, claiming he was certain the mountain pine beetle populations would soon move to the adjacent ponderosa pine stands. With all of the delay, several large snowstorms effectively closed the outbreak area for the winter, and no control crews were sent out that fall.

Winter did not cool the fervor of the letter writers however; and Kimball started some sharp correspondence with Hopkins telling him he did not believe in Hopkins' host selection principle and he was certain the beetles had already migrated from lodgepole pine to the ponderosa pine stands, for he had seen it himself. That did it! Hopkins shot off a reply to Kimball that Hopkins was, after all, in a much better position to understand the habits of bark beetles because he had studied them and published his findings. An excerpt from this letter of January 22, 1914, follows:

> I can readily understand how the general observer would conclude that the wide-spread infestation in the lodgepole pine was a great menace to the yellow pine, but don't you think that the opinion of one [namely Hopkins] who has a comprehensive knowledge of the insects involved, with extensive experience in many similar cases, is more likely to be correct than that of others who are not so informed?

The next day, January 23, 1914, a very fierce snowstorm hit the area where Glendinning was waiting for men to arrive and set up a control camp. Glendinning wrote to Burke: "the snow is four feet on the level and from five to seven feet on the divides and still snowing when I came out. The mail carrier and I broke the trail out [toward Ashland] with ten head of horses." This ended the proposed project for the winter.

By February, Hopkins was finished with trying to cooperate with Kimball and he wrote to Glendinning with copy to Burke stating the new policy for his men in the Bureau of Entomology to adhere to henceforth.

> February 11, 1914,
>
> I have your letter of January 31 and am much interested in the information you convey in regard to the situation there and your experience with Mr. Kimball. I am much pleased with and fully approve your attitude in the matter. I am not surprised–it is the same old story. The more we do to help make a control project a success, the less recognition is

given to the source of the information. For example, Kimball's printed report: he makes no reference to the fact that all he or any of his men know about the insects or methods of controlling them is the result of the expenditure of some thousands of dollars of our limited appropriation in giving him special instructions. Now he probably thinks he knows more about the whole subject than we do and consequently has very little further use for our advice or instructions. This attitude has been so forcibly impressed upon me in this and so many other cases that I have decided to make no further effort in the line of direct educational work except in cases where it is clearly and definitely agreed that our instructions will be followed.

In the copy of my letter to Mr. Burke, to you yesterday, which is approved by the Chief of the Bureau, our future policy is definite. I am sending it to you in order that it may serve as a basis for you to make it clear to any one who wants to know–that we are engaged in research work for the purpose of determining facts which will be of practical value to private owners, state and federal forest officials, in any efforts by them to prevent unnecessary losses from insect depredations; and that, while we will take no part in or assume no responsibility for control work that is not conducted in accordance with general principles and essential details which we recommend, we will continue to give information when it is requested, and will give instructions in the essential details which we recommend, we will continue to give information when it is requested, and will give instructions of a representative of the Branch connected with a field station. It will be understood that men so assigned must render enough assistance to make up for the time and trouble in giving such instructions, and that their salaries and expenses must be provided.

The final results were that Hopkins pulled his technical men off the proposed project, and the Forest Service did not spend the $5,000. Kimball's association crews did some haphazard efforts treating ponderosa pine infested with WPB through the summer of 1914. Treating infested trees in the summer is mostly wasted effort because by the time crews spot faded trees, the beetles have emerged and are attacking new trees, which have green foliage and are very difficult to spot.

While all of the activity in Klamath County was taking place, Miller was establishing his research in Ashland. Other

J.E. Patterson, PSW

Figure 40—The Ashland station, which was maintained from 1913 to 1924, was at first set up as a substation under Placerville. During the period of its existence, the Ashland station occupied various quarters in the town. The Ashland station occupied Ashland Normal School from 1916 to 1918.

than a few letters and two short meetings with Kimball in Ashland, he seemed to play a minor role. His position as leader is unclear as Hopkins was running the show from Washington, D.C. Why Miller was never involved in the Klamath fiasco remains a mystery.

In the summer of 1915, Hopkins assigned Glendinning to work directly for him and examine the area of infested lodgepole pine next to ponderosa pine stands to see if his host selection principle held up. It was a good test given the sharp demarcation of the two tree species and the high populations of mountain pine beetle. Glendinning could find no new mountain-pine-beetle-infested trees in the ponderosa pine, so apparently Hopkins was vindicated. I think Burke, observing all of these maneuverings and the long-range management of control operations by Hopkins from the Washington office, was influenced both about the biological effectiveness of such work and the lack of authority he had as official leader of the Pacific Slope Stations. Subsequent events will show how some of this played out.

Burke's memoirs continue with information on the Ashland station even though he did not work there and, in fact, only visited several times (figs. 40 and 41).

From 1915 to 1919, the Ashland station carried on a series of studies of bark beetle infestations in the Rogue

J.E. Patterson, PSW

Figure 41—Ashland station personnel, April 1915, in front of the first office and laboratory: (left to right) Dr. A.D. Hopkins, Chief of Division of Forest Insect Investigations; W.E. Glendinning, entomological ranger; J.M. Miller, entomological assistant; and entomological rangers J.E. Patterson, J.D. Riggs, P.D. Sergent, and F.P. Keen.

River and Klamath River watersheds, which led to some new proposals regarding control methods. These recommendations were considered in a series of conferences with the Forest Service, which resulted in the initiation of several experimental control projects.

Hopkins influenced the operation of the Ashland station during this period with his personal research. It involved his interest in plant and insect phenology or "Bioclimatics" as he termed it. Hopkins had the staff at Ashland establish a series of "stations" up the mountains to the west and southwest of the city at progressively higher elevations. These stations consisted of several marked trees and, in some cases, a crude spike camp with shelter, bedding, and firewood cached for overnight stays (fig. 42). March 17, 1915, Hopkins visited Ashland and went to the phenology stations with Miller (fig. 43). From January or February to late summer from 1914 to 1918, members of the Ashland Station would visit these phenological stations at 3- or 4-day intervals to measure and record the development of tree buds and needles at the beginning of the growing season. At some stations, bark infested with WPB larvae and pupae was nailed to green trees to simulate normal infested trees that might occur at a particular elevation (figs. 44 and 45). The objective was to determine if the development of a WPB brood was influenced by elevation and, if so, could the phenological events of certain plants help predict the seasonal

J.M. Miller family

Figure 42—J.J. Sullivan, entomological ranger, in winter camp at phenology station near Ashland, 1914.

J.M. Miller, PSW

Figure 43—Entomological Rangers P. Sergent and J.D. Riggs packing supplies to one of Hopkins' phenology stations, ca. 1914.

activities of bark beetles in the same area. Everyone on the staff participated in this time-consuming project, including Miller, although he also collected cones during these forays to expand on his cone and seed insect research. Hopkins had five of the Forest Insect Division Stations in the United States participate in this research with all of the data going directly to him for analysis. The result was a book published in 1938 (Hopkins 1938).

Hopkins' bioclimatic law stated that:

> The law is founded on the determined country-wide average rate of variation in the time at which periodical events occur in the seasonal development and habits of plants and animals at different

J.M. Miller family

Figure 44—Sergent and cage for western pine beetle studies at Ashland, 1916.

J.M. Miller family

Figure 45—F.P. Keen inside cage for western pine beetle studies, 1916.

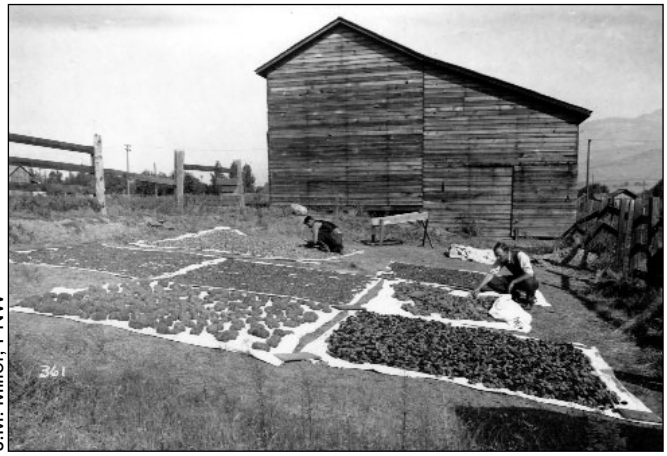
> geographical positions within the range of their distribution. Other things being equal, this variation is at the rate of four days for each degree of latitude, five degrees of longitude and 400 feet of altitude . . . later northward, eastward and upward in the spring and early summer and the reverse in the late summer and during autumn.

The ultimate usefulness of this research relating to bark beetle development was summarized by Miller and Keen (1960) "No fixed relationship of western pine beetle activity to phenological factors has been established, because of the wide climatic and seasonal variations between localities within the range of the beetle's distribution."

Even though the 4 years of research at Ashland may not have produced the desired results, it did have some unintended influence on Miller's future research and career. In the process of dozens of field jaunts to the phenology stations, Miller and his assistants were observing an increasing WPB infestation in the same area. This led to the first detailed epidemiological study of a WPB outbreak called the Rogue River Area bark beetle project, started by Miller in 1914.[2] The phenology research seemed to have an influence on Hopkins' career as well. He became absorbed in bioclimatics and within 5 years resigned as chief of the Forest Insect Division in the Bureau of Entomology and transferred to the Division of Bioclimatics in the Bureau as an entomological scientist where he remained until his retirement. He also seemed to tire of directing the oftentimes frustrating bark beetle control projects best illustrated by the proposed Klamath Project, from his Washington, D.C., office. As Burke relates later in the chapter, 1916 marked the end of Hopkins' hands-on leadership of such projects. He allowed his field men more latitude, to the benefit of all.

Before proceeding with Miller's role in the Rogue River Project, the cone and seed insect research that Hopkins assigned to him in 1913 should be summarized. As noted in the previous chapter, Miller traveled over much of southern Oregon and the Sierra Nevada in California. He did not neglect the coastal tree species. He collected cones and seed insects from Newport on the Oregon coast, south through Crescent City on the northern California coast to Pacific Grove on the Monterey Peninsula. His diaries indicate a particular fondness for Pacific Grove where he visited almost annually for a week or two for a combined collecting project and vacation with his family. His diary entries for these trips are some of the most descriptive in his series. Although his collections and biological notes were meticulous and thorough, and include some of the finest photographs of forest cone and seed insects, little of the work was published, except for his preliminary report of 1914 when he had barely started his research (figs. 46 through 48) (Miller 1914). There were several reasons for this. Miller

[2] Rogue River Area, 1917-1924. A bound compendium of seven typed reports totaling 172 pages of maps, tables, and narrative by Miller, Patterson, and Keen. On file with Wickman.



J.M. Miller, PNW

Figure 46—Cones drying so they could be checked for seed insects, Ashland, Oregon, 1914.

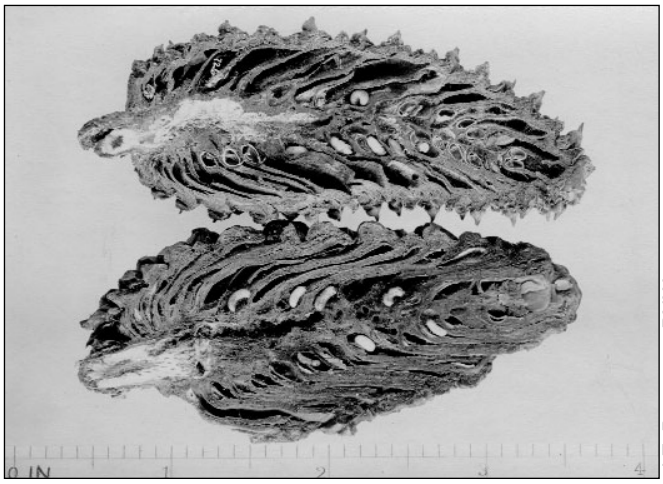
was given administrative responsibility for the Ashland station including supervision of five or six assistants, he was saddled with making Hopkins' phenology measurements, he had responsibility for overseeing bark beetle control projects in Yosemite National Park, and it was becoming increasingly evident that WPB outbreaks were the most important destructive agent in Pacific Slope ponderosa pine forests—even more so than forest fires, as Hopkins had long proclaimed. But perhaps the main reason for ending the cone and seed insect research was that Miller was simply ahead of his time. When F.P. Keen ultimately published most of Miller's studies in 1958, he summarized the history of this research (Keen 1958).[3]

In 1910, Miller, then with the U.S. Forest Service, proposed to Hopkins that a study be made of cone and seed insects. Miller's rationale was that there was a need to assist the Forest Service in seed-collecting work, so collectors could avoid areas where seed was badly infested with insects, sometimes destroying more than 50 percent of the seed. This in part led to Miller's transfer to the Bureau of Entomology in 1911 and ultimately his 5 years of research on the subject. But as Keen points out "the work on cone and seed insects at Ashland was so far ahead of its economic usefulness, that for nearly 40 years very little of the copious material collected at that time was assembled or published." In the 1950s and 1960s, the demand for seed for replanting burns and logged areas revitalized the research.

[3] At least three new species were named for Miller in this bulletin.

J.E. Patterson, PNW

Figure 47—Patterson using camera stand built by J.P. Patterson for taking close-up photographs of cone and seed insects, Ashland, Oregon, 1913.



J.E. Patterson, PNW

Figure 48—Photograph of insect-infested sugar pine cone taken by using Patterson's unique camera stand, 1915.

The development of chemical insecticide applied to forest seed orchards and need for life history information on seed insects finally led to completion of the research begun in 1911.

Possibly the most important research begun by Miller during this period was the previously mentioned Rogue River Project involving the WPB outbreak history in the Rogue, Applegate, and Klamath River basins (Miller and Keen 1960). This first study of WPB epidemiology was started at Ashland in 1914 on a 3,200-acre infestation called the Lambs Mine Unit. (It is not coincidental that the area was also the site of a Hopkins phenology station). The trend and intensity of the beetle infestation killing ponderosa pine was followed for 3 years by timber cruising the area annually. In 1916, Miller suspected that the area was too small to provide an adequate sample of broad infestation trends; therefore, the study was expanded that year to include about 350,000 acres. This area was more than half of the ponderosa pine type in the three adjacent watersheds. This area was biologically and geographically diverse and had a variety of site conditions, so was considered large enough to represent any changes in trends on a landscape scale. Miller, in the first report for this enlarged study, stated that, "one purpose of the study was to determine the character, periods of time involved in, and the causes of the intermittent increase and decrease in the annual amount of infestation" (see footnote 2). This was probably the first landscape-scale biological study in the West, long before such research was in vogue.

Miller summarized the results 1914-17 as follows (see footnote 2):

> *Dendroctonus brevicomis* is by far the most important enemy of the pine and is responsible for 90 percent of the total annual loss. The loss caused by this insect does not remain constant, but is subject to great fluctuations from year to year. In this study the *D. brevicomis* infestation underwent a distinct cycle or epidemic covering a period of 4 years, during which a pronounced increase was followed by a corresponding decrease.
>
> The epidemic which has been studied ran through approximately the same cycle throughout the entire project area of 350,000 acres. The cycle of the infestation within each of the small tributary watersheds which have been termed units was nearly uniform throughout the project area. The high-water mark of the epidemic occurred in 1915 on some units and in 1916 on others. But we do not find a single case of any unit declining to a low point in 1915 or 1916, but in all units studied the epidemic started upward in 1914 and declined in 1917. This indicates that the factors which influence the rise and decline of epidemics are not confined to small local centers or watersheds, but operate throughout great forest areas.

This study was continued under Miller's overall leadership by J.E. Patterson after Miller left Ashland for North Fork, California, until 1925. The study was expanded to other sites as subsequent chapters will detail. It had important implications for future population dynamics research by entomologists and other forest biologists.

Miller also continued his trips to Yosemite National Park to give technical advice on continuing bark beetle control projects there. I do not think he did this because he was enthralled with insect control projects, but because he loved Yosemite high country. In September 1914, he spent 1 week in the Tenaya Lake area, and in 1916 he spent almost 3 weeks in August and September in Tenaya basin and Tuolumne Meadows. Miller encouraged, instructed, and supervised bark beetle control projects throughout the park in sugar pine, ponderosa pine, and lodgepole pine (figs. 49 and 50). He especially promoted control operations against the mountain pine beetle in needle-miner-weakened lodgepole pine. Even though he worked for the Bureau of Entomology, in reality, he became the Yosemite National

J.E. Patterson, PSW

Figure 49—Treating sugar pine for mountain pine beetle, Yosemite National Park, 1918.

Park forest entomologist during this period and set the bark beetle control policies that were carried out for the next four decades.[4]

At the close of Miller's 1916 diary is a very cryptic entry that may be related to the reorganization proposed by Hopkins earlier in the year.

Miller's diary, Sunday, January 31, 1916: "Here endeth the record for the year 1916. Has been fairly successful for yours truly."

In the next chapter Burke will shed light on changes for both men.

[4] The author along with retired Forest Service entomologist George Downing gave technical advice for the last large mountain pine beetle project in Delaney, Dingley, and Conness Creeks in 1955-58.

J.M. Miller, PSW

Figure 50—Lodgepole pine killed by mountain pine beetle following the 1890s lodgepole needleminer outbreak near Tenaya Lake, Yosemite National Park, 1916.

Continued