A Glimpse of the Appalachian Forest Experiment Station

MARGARET STOUGHTON ABELL, '29

Junior Forester, Appalachian Forest Experiment Station, Asheville, N. C.

EDITOR'S NOTE: *Can a woman fill the position of a man in the field of forestry? Her field is no doubt limited in this role, but in research work Margaret Abell has proven beyond all doubt to her associates that she is capable.*

Shortly before her graduation from Iowa State College, she passed the Junior Forester's examination, and was appointed to her present capacity. Her work at the Station has been devoted mainly to Management and Fire Damage studies. She has worked on practically every project of the Station. About one-half of her time has been spent on statistical correlations, summaries, etc.; the rest has been divided between sample plot and quadrat establishment and remeasurement, extensive revision of the Capper report, a little cruising, surveying, some drafting and numerous other small items. The greater part of her time is spent in the office.

ON THE Post Office directory at Asheville, North Carolina, along with the names, Organized Reserves, Prohibition Investigators, Geologic Survey, Pisgah National Forest and others, you will find the words, Appalachian Forest Experiment Station—Room 223.

If, being a forester and filled with the curiosity of Paul Bunyan, you should trail up to Room 223, you will find yourself signing the visitors' register and making a tour of the offices, meeting as many of the technical staff of nine and clerical staff of four as are not in the field. If you are from Iowa State someone will undoubtedly ask if everyone at Ames is named Harold; Harold Moser, Harold Scholtz, and Harold Morey having each spent a field season there.

The five offices, which resemble nothing more than business offices, may not be what you had imagined as an experiment station. Your expectations may be somewhat fulfilled by the library, the two laboratories, two storerooms and the photographic dark room, and probably completely so if you see the Bent Creek Experimental Forest 10 miles from Asheville.

Here you will find yourself, with a member of the Station force or the resident ranger as guide, tramping over a series of units in a mixed oak type—the first a clear cutting; second, silviculture; third, commercial; and fourth, a control. The first duplicates one of the early clearcuttings in which everything,

including brush, was cut to furnish charcoal for the iron furnaces. There are now fair stands of timber in Virginia and North Carolina on lands which were cut in this way. The second represents, from a theoretical standpoint, the ultimate in desirable silviculture. Trees of poor species and form have been removed and a stand of thrifty growing stock left which reminds one of the pictures of German forests. The third area was marked by the national forest in the same way that they mark their timber sales. The control resembles very much in appearance some of the lower oak slopes in Iowa with the trees a little taller and in addition sourweed, yellow poplar, persimmon, sassafras and dogwood.

Then, following the "Hard Times Road," which was built with unemployment relief appropriations, your guide will point out an oak-pine mixture. It is planned to convert this area into pine standards for sawlogs, with hardwood coppice for fuelwood. Your guide will explain that since this is a dry site the pine is more valuable than the hardwoods, but that it is practically impossible to get rid of the sprouting hardwoods. Last year the first cutting was made, taking out 17½ cords per acre and leaving 10 cords per acre.

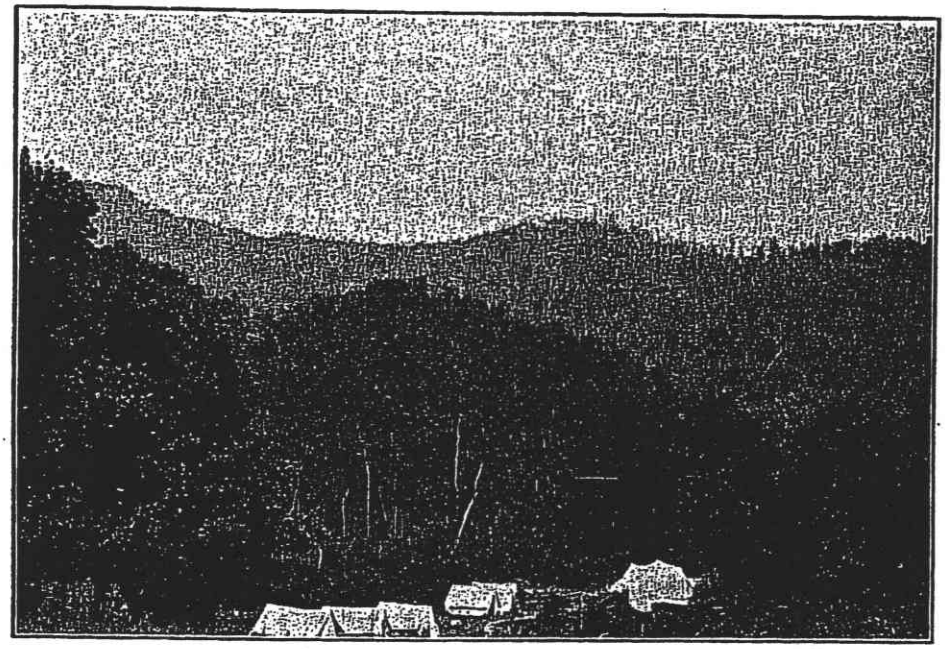
Continuing up the road one of the weather stations is passed. Reports from here will be used with reports from many other localities for the fireweather warning forecasts of the Weather Bureau.

Further up you will find someone making the biennial quadrat-examinations and 5 year tree examinations on the chestnut replacement plots. In this series the chestnut has been cut on some, girdled on others, and poisoned on still others. Some plots have been clear cut and some are controls.

An old house place, such as one happens on often in the woods, may be pointed out to you. This place was probably inhabited from fifty to two hundred years ago. Here one finds ailanthus, apple, plum, daffodils and flowering quince mingling with the plants of the forest.

If it is fall you may arrive at the fire plots in time to see the litter on certain milacres being scraped up, put in huge burlap bags and carried down to the scales, where it is weighed. This is done in addition to the usual tree measurements on this set of burned, raked and control plots. The weight of litter on the plot, which is raked every year, measures the annual leaf fall. The litter weights on the other plots will be used to determine when decomposition starts on the burned plot and when the litter on the burned plot reaches a balance. Litter from the milacre samples on these two plots is carried back and replaced so that the natural conditions will be disturbed as little as possible.

You can see areas in which the growth rate of the unburned forest is compared with that of the burned. One plot in hardwoods, severely burned in April, 1925, showed a continuous reduction in basal area of living trees for four years. By 1931, growth on the surviving trees had begun to overcome losses. A young stand of shortleaf pine burned over at the same time as the hardwoods showed a sharp decrease in basal area in the two years following the fire. During the next four years, the losses reduced the basal area slightly more. A check plot, adjacent, increased 14 percent in basal area during the same six years. In addition to studying the total fire damage as evidenced by growth on such sample areas, an attempt is being made to study the separate effects of fire such as soil deterioration, crown injury, basal bole wounding and root injury.



Camping on the Pisgah

You may hear a deer whistle and dash off through the brush, and if you are a little quiet you may see a buck, for the old boys know that the Bent Creek Forest is part of the Pisgah National Forest Game Reserve.

If you hear a shout behind you, don't be alarmed; it is the biologist after specimens for his collection of animals of the region. Considerable data have been collected on migration and food habits. Several birds hitherto not known to be here have been identified. Mice are being trapped to determine the effect of their food habits on the supply of seed—especially oak. Pop-

ulations of from one to eighty-four per acre have been found in different localities. Predatory animals are being trapped on the Bent Creek Forest to study the effect on game. All the stomachs are preserved for analysis of food habits.

The peculiar looking areas connected with spouting and catchment tanks are installations of the streamflow and runoff project. Their purpose is to determine the comparative effects of different types of vegetation cover on rate of percolation and absorption into the ground. On some plots recording instruments are making a record of rate of runoff simultaneously with intensity of rain.

If you present some larvae at the entomologist's laboratory one of the bug chasers will be delighted to show you their poisoning apparatus. They are searching for a practical method of controlling the southern pine beetle by injection of poisons into the tree. Dyes are mixed with the poison to show the penetration.

You have seen but a sample of the work done by the Station and the cooperating Biological Survey and Bureau of Entomology. It is distributed over Virginia, West Virginia, North and South Carolina, northern Georgia, eastern Tennessee and eastern Kentucky. Even if you were to see all of the field work in this region you would still have seen only about one-third of the work done. Data taken in the field must be organized—often tabulated, sorted and computations made. The conclusions must be carefully reached and the result prepared for publication.

OLD FOREST FIRE LAWS WERE SEVERE

According to Dr. Alfred Lawrence Hall-Quest, the Buddhists of Asia regarded starting fires in the forest an atrocious crime. Forest fires were used as texts for sermons. This was 400 to 500 years before the Christian era.

The Buddhists had various forms of purgatory for eight cardinal sins, and each had 16 subsidiary hells. The sixth of the eighth major division was known as "Tapana," reserved for those who set fires to forests. The punishment for this sin consisted of impaling the malefactor on sticks and burning them.