P·I·N·E·T·U·M

JOURNAL OF
FORESTRY OF THE
N.C. STATE COLLEGE

Fred J. Hartman

OUR CHARGE

Forester, tireless and loyal,
Wherever your work may be,
You're a forester, therefore keep safely
The charge that's entrusted to thee.
You are master—yet servant—of Nature;
Your work is for mankind at large.
May God in his heaven bless you—
You and your sacred charge.

—James C. Iler.

PI-NE-TUM

Journal

of

Forestry

N. C.

State

College

RALEIGH, NORTH CAROLINA

GEORGE WATTS HILL

DEDICATION

TO George Watts Hill, whose initial grant began the land program of the Forestry Division of North Carolina State College, whose financing of the Hill Forest made the program possible, and whose service on the Board of Directors of the Forestry Foundation has ever proven invaluable; we, the staff of the 1937 PINETUM, do fondly dedicate this fourth edition.

FOREWORD

IF this annual has a theme it might be termed "The Place of North Carolina State College in Forestry." Our object has been to present an accurate, human, interesting account of forestry activities at State College and of its graduates in the field. We hope that we have succeeded.

As editor I want to take this opportunity to express my appreciation to the faculty and to those alumni who through their excellent cooperation and assistance have made this Fourth Edition of the PI-NE-TUM possible. To my staff I extend my sincere thanks for their fine work. To those future editors I leave a hope that they shall be as fortunate as I; and a trust to carry forward better the ideals and purpose of this publication.

CONTENTS

BIOGRAPHICALLY SPEAKING . . .

DR. J. V. HOFMANN, B.S.F., M.F., Ph.D.

To include even a highly condensed version of Dr. Hofmann's major activities, since his birth in Janesville, Minnesota, would be impossible in these short, short biographies. High lights in his career would probably include the following facts: his participation in forest education in that he has taught public school, lectured at the University of Minnesota, acted as assistant director of Pennsylvania State Forest School, and is now director of the North Carolina State Forest School; his twelve years of field experience with the U. S. Forest Service as director of the Wind River Experiment Station covering Oregon, Washington, and Alaska; his bulletins and scientific articles on various phases of forest research that have been published; his many memberships in scientific societies. Dr. Hofmann married Miss Kenety in 1915. Results: one Boy Scout, and a wife who offhand cannot think of any eccentricities or aversions that her husband possesses. Dr. Hofmann's enthusiastic sponsorship, interest, and approval of the 80,000 acre area, belonging to the forest school, is well known to all students. To make this area more well known, Dr. Hofmann was instrumental in placing our summer camp there. Radiating energy, his time is well occupied between classes in Forest Management and Elementary Forestry, the school forests, Boy Scout leadership, hunting and fishing, Rotarianism, jobs for seniors, and his tall tales of taller timber.

PROFESSOR LENTHALL WYMAN, A.B., M.F.

A short resumé of Professor Wyman's earlier years would include a birth in Boston, Mass., and attendance at Boston Latin School where he took Latin. He entered Harvard in 1907. Six years at Harvard left him with an A.B., a M.F., and a job as Forest Assistant at the Alamo Forest, New Mexico. Successive transfers were to Fort Valley Experiment Station, Flagstaff, Ariz., and then to Missoula, Montana, as Forest Examiner in charge of insect control work. Came marriage with Miss Josephine Connor and then the war with Mr. Wyman again rating promotion in order named: private, corporal, sergeant, private. Shortly after returning to the Forest Service he resigned for warmer weather and Texas. At the latter, he was Assistant State Forester with part time teaching at the Texas A. and M. College. In 1921 Professor Wyman joined the staff of the Southern Forest Experiment Station as a research technician in the naval stores industry. There he wrote three major publications and many shorter articles on various phases of the industry. In 1934 Professor Wyman joined the Forestry Department of State College and now elocutes daily on Forest Finance, Logging, Lumbering, Forest Products, and Forest Appraisal. Miscellaneous: he'll show you his membership in hole-in-one club; Rotarian; Senior Member of S.A.F.; an Honorary Member Girl Scouts; thirteen year old daughter; likes cigars, chess; dislikes co-eds, senior trip.

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FACULTY

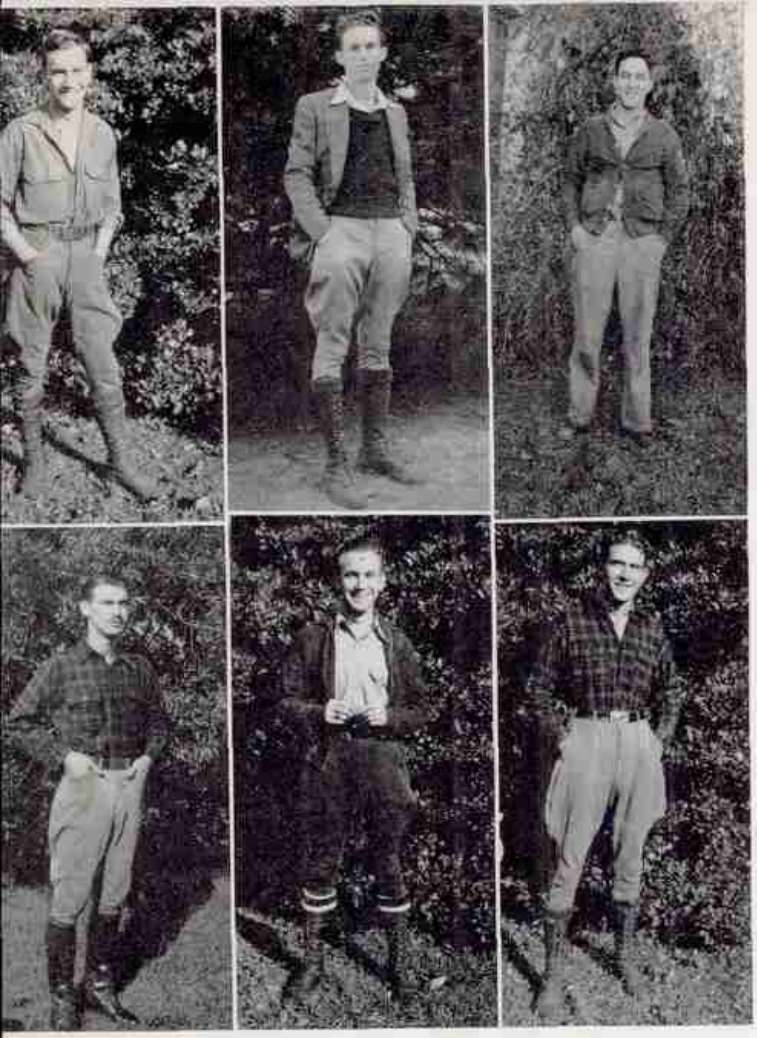
Dr. J. V. Hofmann

Professor Wyman

Dr. W. D. Miller

Professor Slocum

Mrs. Swicegood



SENIORS

BRIDGES

BRAGAW

CRAIG

J. DAVIS

P. DAVIS

W. DAVIS

William J. Bridges, Jr.
"Pea Willie"

Norfolk, Va.

Forestry Club; Wrestling 1, 2, 3, 4; Military 1, 2, 3, 4.

H. C. Bragaw
"Church"

Washington, N. C.

Alpha Zeta 3, 4; Student Agr. Fair 1, 2, 3, 4; Pi-ne-tum 2, 3, 4, Business Mgr. 3; *Agriculturist* 3, 4, Editor 4; Publications Board 4; Forestry Club; Military 1, 2, 4.

Locke Craig
"Lap Dog"

Asheville, N. C.

Forestry Club; Transfer from U. N. C.

James W. Davis
"Dazy"

McKeesport, Pa.

Forestry Club, President 4; Alpha Zeta 4; Transfer from Penn State Forest School.

Paul L. Davis
"P. L."

Waynesville, N. C.

Forestry Club 3, 4; Transfer from Wake Forest College.

William G. Davis
"Wee Gee"

Waynesville, N. C.

Forestry Club; Monogram Club 2, 3, 4; Alpha Zeta 3, 4; Track 1, 2, Captain Cross Country Team 3, 4.

HENRY DELPHIN

"Delph"

CONEY ISLAND, N. Y.

Forestry Club; Varsity Boxing Manager; PI-NE-TUM 4; Freshman Football.

J. M. DEYTON

GREEN MT., N. C.

Forestry Club; Transfer from Berea College.

N. P. EDGE, JR.

"Newt"

ROCKY MOUNT, N. C.

Forestry Club; Transfer from U. N. C.

CHARLES A. FOX

"Stumpy"

ASHEBORO, N. C.

Watauga Staff 2; *Agriculturist* Staff 4; Forestry Club; PI-NE-TUM 4.

W. D. GASH

"Catface"

SWANNANOA, N. C.

Forestry Club; PI-NE-TUM 4.

A. J. GERLOCK

"Sherlie"

MOUNT UNION, PA.

Alpha Zeta 2, 3, 4; 30 and 3; Forestry Club; Alpha Zeta Scholarship Cup; Phi Eta Sigma, President 2; President of Freshman Class; Basketball 1, 2, 3, 4; Military 1, 2, 3, 4.

DELPHIN

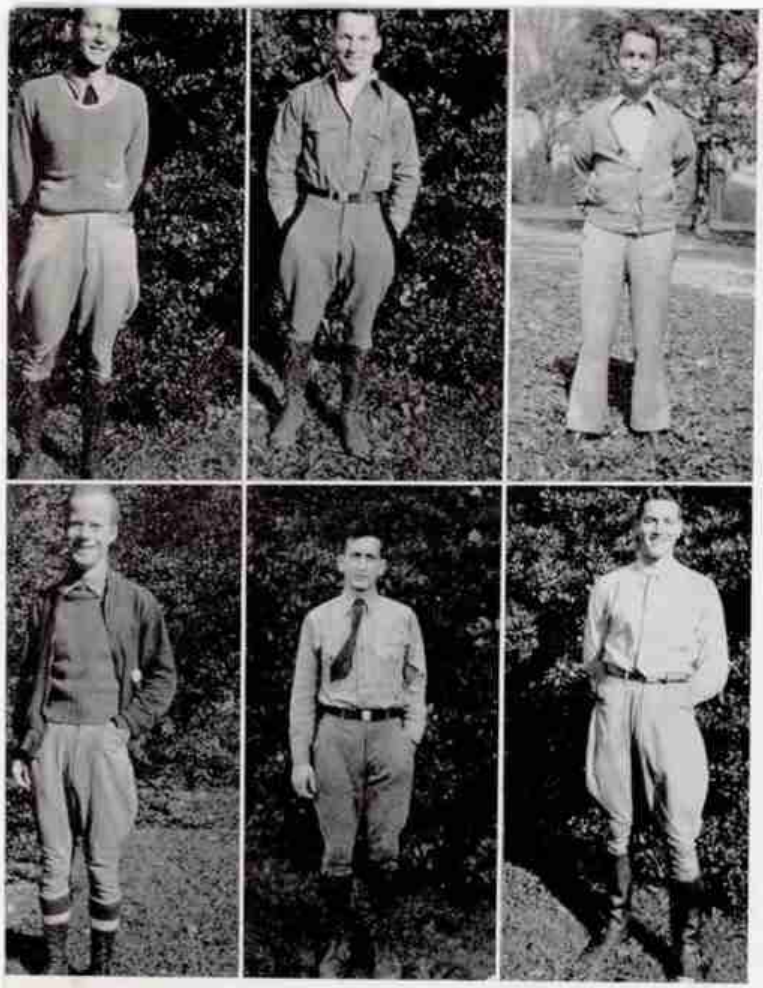
DEYTON

EDGE

FOX

GASH

GERLOCK



GRIFFIN

HEIN

HELTZEL

HENDERSON

HENDRIX

HOWERTON

JAMES H. GRIFFIN
"Jim"
BILTMORE, N. C.

Forestry Club; Football 1, 2, 3; Military 1, 2, 3, 4; Transfer from Biltmore College.

ALBERT F. HEIN
"Al"
BRONX, N. Y.

Forestry Club; Wrestling 1, 2, 3, 4; Military 1, 2, 3, 4.

J. B. HELTZEL
WARDENSVILLE, W. VA.

Forestry Club, Secretary 4; PI-NE-TUM 3, 4, Acting Bus. Mgr. 3, Bus. Mgr. 4; Military 1, 2, 3, 4; Publications Board; *Agriculturist* 4.

THOMAS B. HENDERSON, JR.
"Red"
WILLIAMSBURG, VA.

Forestry Club; William and Mary 2.

WALTER HENDRIX
"Walt"
ASHEVILLE, N. C.

Forestry Club; Transfer from Mars Hill College.

THOMAS M. HOWERTON, JR.
"Mac"
ASHEVILLE, N. C.

Forestry Club; Football 2, 3; Boxing 4; Transfer from Biltmore College.

Edward L. Hurst

"Lee"

Hubert, N. C.

Forestry Club.

Charles M. Matthews, A Γ P

"Charlie"

Albuquerque, N. M.

Forestry Club, Secretary 2, Vice President 3; Pi-Ne-Tum 1, 2, 3, 4, Co-founder 1, Editor 3, 4; Alpha Zeta 2, 3, 4; Phi Eta Sigma, Vice President 2; Student Government 2, 3, 4; Treasurer 3, Vice President 4; *Technician* 1, 2, 3; *Agriculturist* 2, 3; Pine Burr 3, President 4; 30 and 3; Blue Key 3, 4; Golden Chain; Social Functions Committee 3, 4; Publications Board 3, 4; Member of the (7).

Joseph Matys, Σ Π A

"Joe"

Clifton, N. J.

Forestry Club; Football 1.

Joseph A. Matthews

"Joe"

Southern Pines, N. C.

Forestry Club; Transfer from Campbell College.

B. H. Mayfield

"Ben"

Murphy, N. C.

Forestry Club; Transfer from Lincoln Memorial University and Western Carolina Teachers College.

Frank Mayfield

"Bear Chest"

Murphy, N. C.

Forestry Club; Transfer from Lincoln Memorial University and Western Carolina Teachers College.

HURST

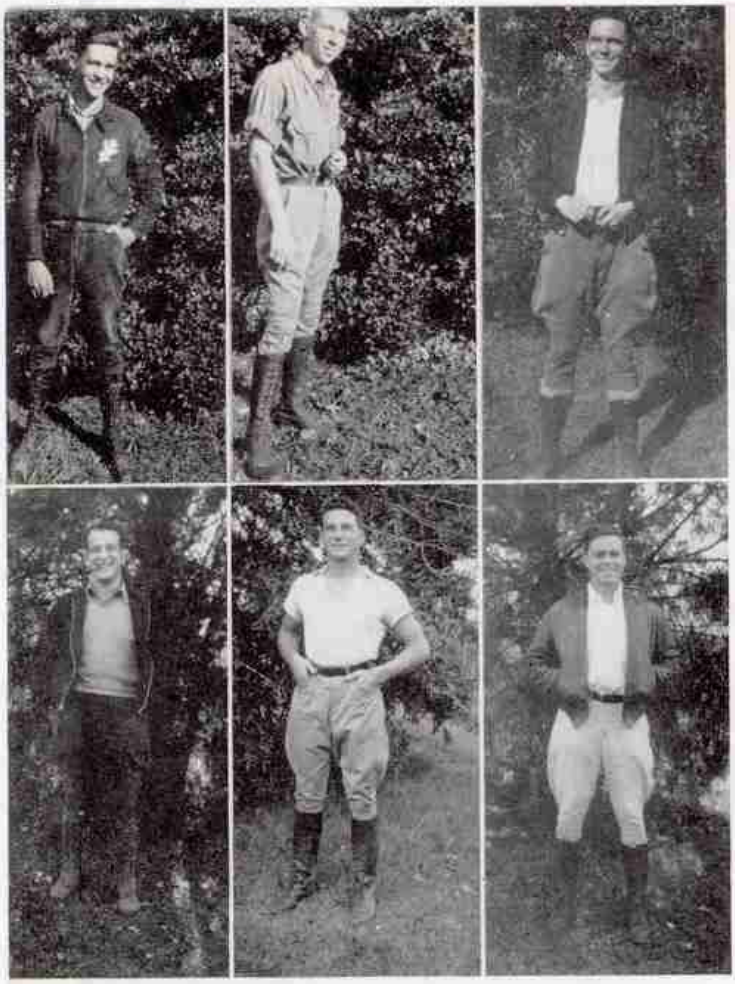
C. MATTHEWS

MATYS

J. MATTHEWS

B. MAYFIELD

F. MAYFIELD



NICHOLSON

ROACH

RUSSELL

SPITALNIK

TROXLER

WALSH

ROBERT L. NICHOLSON
"Nick"
GRAHAM, N. C.
Forestry Club; YMCA 1.

LOUIS P. SPITALNIK, Σ II A
"Lou"
BRONX, N. Y.
Forestry Club; Freshman Baseball.

H. O. ROACH
"Cocky"
LOWELL, N. C.
Forestry Club; Transfer from Lees McRae College.

LLOYD W. TROXLER
"Red"
ELON COLLEGE, N. C.
Military 1, 2, 3, 4; Wrestling 1, 2, 3, Co-captain 4; Glee Club 1, 2, 3; Monogram Club 2, 3, 4; Forestry Club.

CARROLL F. RUSSELL
"Fleety Belle"
HUBERT, N. C.
Forestry Club.

JOHN E. WALSH
"Jack"
BEACH HAVEN, N. J.
Forestry Club.

WARLICK

WHEELER

MATHEWSON

PAUL W. WARLICK, Σ Φ E
"Von"

ASHEVILLE, N. C.

Military 1, 2, 3, 4; *Wataugan* 1.; *Agromeck* 2, 3; Forestry Club.

WILLIAM H. WHEELER
"Bill"

CHARLOTTE, N. C.

Alpha Zeta 3, 4; Forestry Club, Secretary 3, Treasurer 4, President 4; Track 3, 4; PI-NE-TUM 4, Agr. Fair 4; Transfer from the University of the South and Georgia Tech.

CLARKE MATHEWSON
"Click"

RALEIGH, N. C.

B.S. at U. N. C., Graduate Student; Forestry Club; Wrestling Coach.

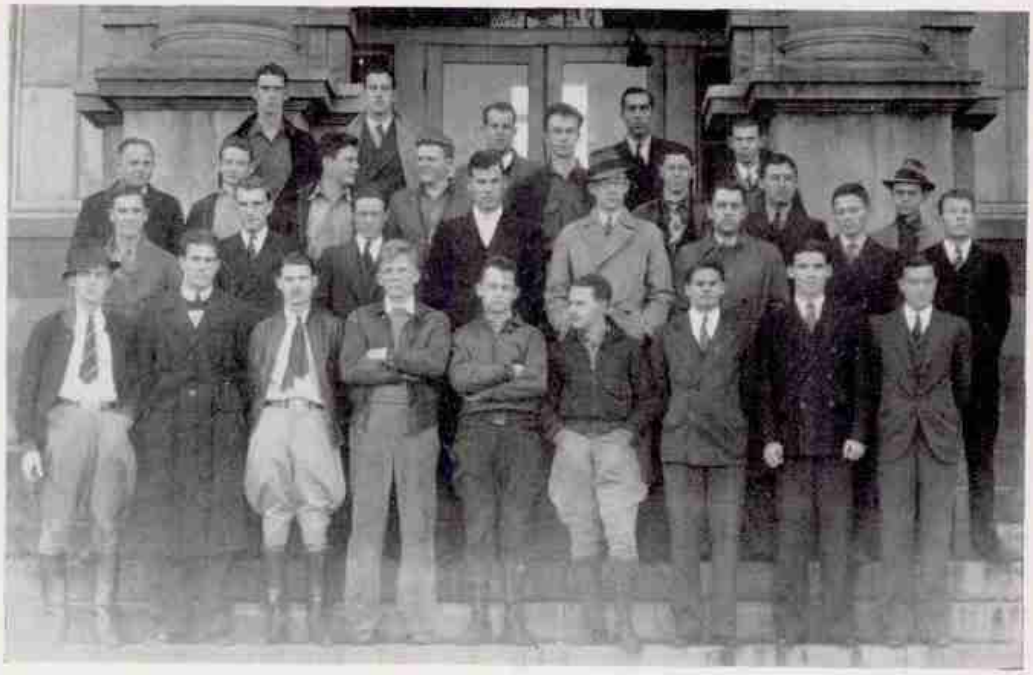
REGRETS

The call of chickens, and farm life was too great for Frank Leon Woodard, member of the Senior Class, and said gentleman deserted our ranks for the former field, the beginning of the Winter Term.

In all due respect to the chickens and the lure of the quiet country life, we regret his departure, for "Pop" as he was more often called had proven an active member of the Senior Class. Four years a member of the Forestry Club, managing editor of the PI-NE-TUM last year, Rolleo asset of the first order, head of the Forestry Exhibit at the Students Agricultural Fair, foreman of our crew at the 1936 Summer Camp were but some of his varied activities. It was also rumored that he had a system in certain games of chance. The editor can vouch for this.

Lots of luck to you "Pop," and don't forget the farmlot forestry.

N. C. STATE COLLEGE FORESTRY CLUB



OFFICERS 1936-37

Fall Term		*Winter Term*
J. W. Davis	President	W. H. Wheeler
N. B. Watts	Vice President	Ed Ryder
J. B. Heltzel	Secretary	N. B. Watts
W. H. Wheeler	Treasurer	Joe Frye
H. O. Roach	Sergeant at Arms	R. C. Eaker

This year the forestry club was able to extend its activities into wider fields, since a portion of the Ag Fee was alloted for its use. The additional income made possible a reduction of the annual dues, a corresponding increase in the number of paid members, additional equipment for the Rolleo, and increased better dances and other social activities.

Another important item added was the resumption of outdoor meetings. Weather permitting, these were held at least once a month at places of interest such as Camp Craggy or the Lead Mines. At one of these meetings the local representatives of the Liars Club competed with one another under the protecting cover of the trees and the surrounding darkness. After the evening's business was completed,

the meetings usually degenerated into a weiner roast. For these occasions, a book was made up of the familiar and original songs that had been sung at summer camp and on trips.

The Rolleo, Loggers Ball, Initiation, and Mid-Winter Club Dance, all of which are now annual affairs, met with great success. A design for a club seal was presented by a committee appointed for that purpose and was accepted. Twenty-eight club members bought pins or keys bearing this seal.

Since a much greater amount of interest has been shown in the Club's activities by the members and by the Forestry School as a whole, and since these activities have been on a larger scale than formerly; this year must be considered a banner year in the history of the Forestry Club.

LOGGERS BALL

The Second Annual Loggers Ball, held early last November was an even greater success than its predecessor, and proved to be the outstanding social event of the school year.

Held in Frank Thompson Gymnasium, the erstwhile foresters, discarding their accustomed back-to-the-woods garb and donning more acceptable attire, danced to the lilting strains of Jimmy Poyner's Band. The gymnasium was decorated in the school's colors—red and white—with Loggers Ball, spelled out in rustic letters, hanging from the orchestra shell.

Congratulations to Chairman Frank Mayfield and his committee composed of J. W. Davis, Joe Matys, Alex Fox, Bill Wheeler, N. B. Watts, F. L. Woodard, Ed Ryder, Roy Eaker, and Don Dixon, for their excellent work in throwing the dance.

Chaperones for the colorful occasion were Dr. and Mrs. J. V. Hofmann, Dr. and Mrs. W. D. Miller, Professor and Mrs. Lenthall Wyman, Professor and Mrs. G. K. Slocum, and Mr. and Mrs. J. S. Holmes.

MID-WINTER CLOSED CLUB DANCE

Once again the Tar Heel Club echoed to the sounds of shuffling feet, sweet music, and laughter as the Forestry Club held its annual closed dance there on the night of February 12.

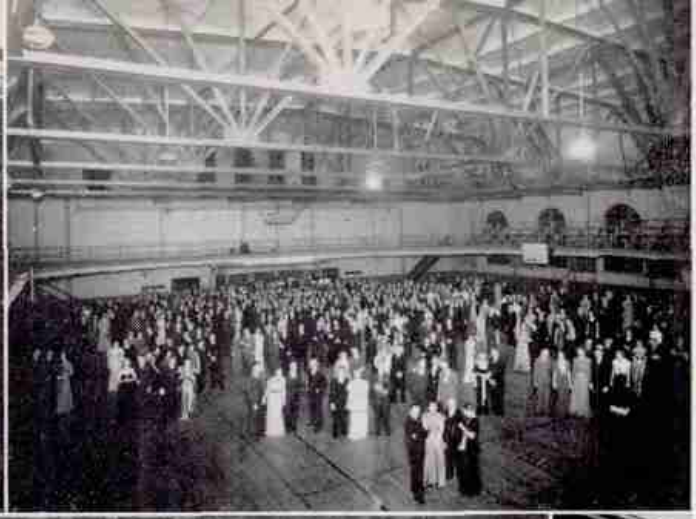
The fates were kind this year, and old man weather greeted us with fair skies (unfortunately no full moon) instead as with snow as of last year.

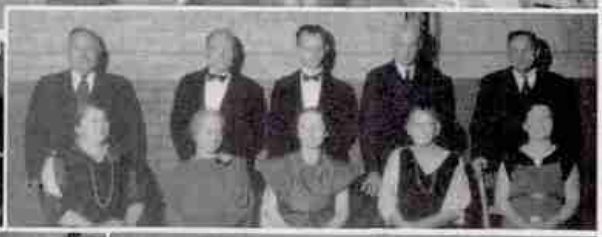
Due to the excellent work of the dance committee, headed by Junior Forester Ryder, the ballroom was attractively decorated in green and white paper, with pines furnishing a background. A roaring fire in the fireplace lent that added "woodsy" touch.

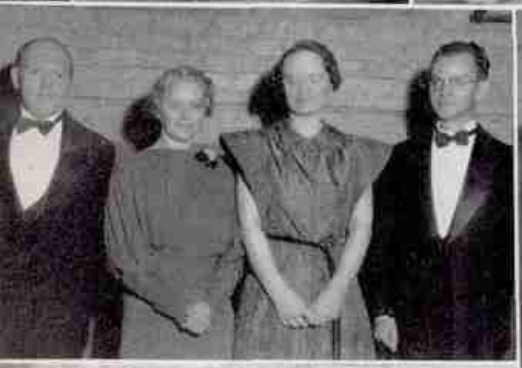
For those who didn't care to dance the game room on the lower floor was well equipped to handle the non-terpsichoreans. During intermission refreshments were served here.

A department bus, a Carolina Coach bus, and private cars carried said members and dates to the festivities.

CLUB



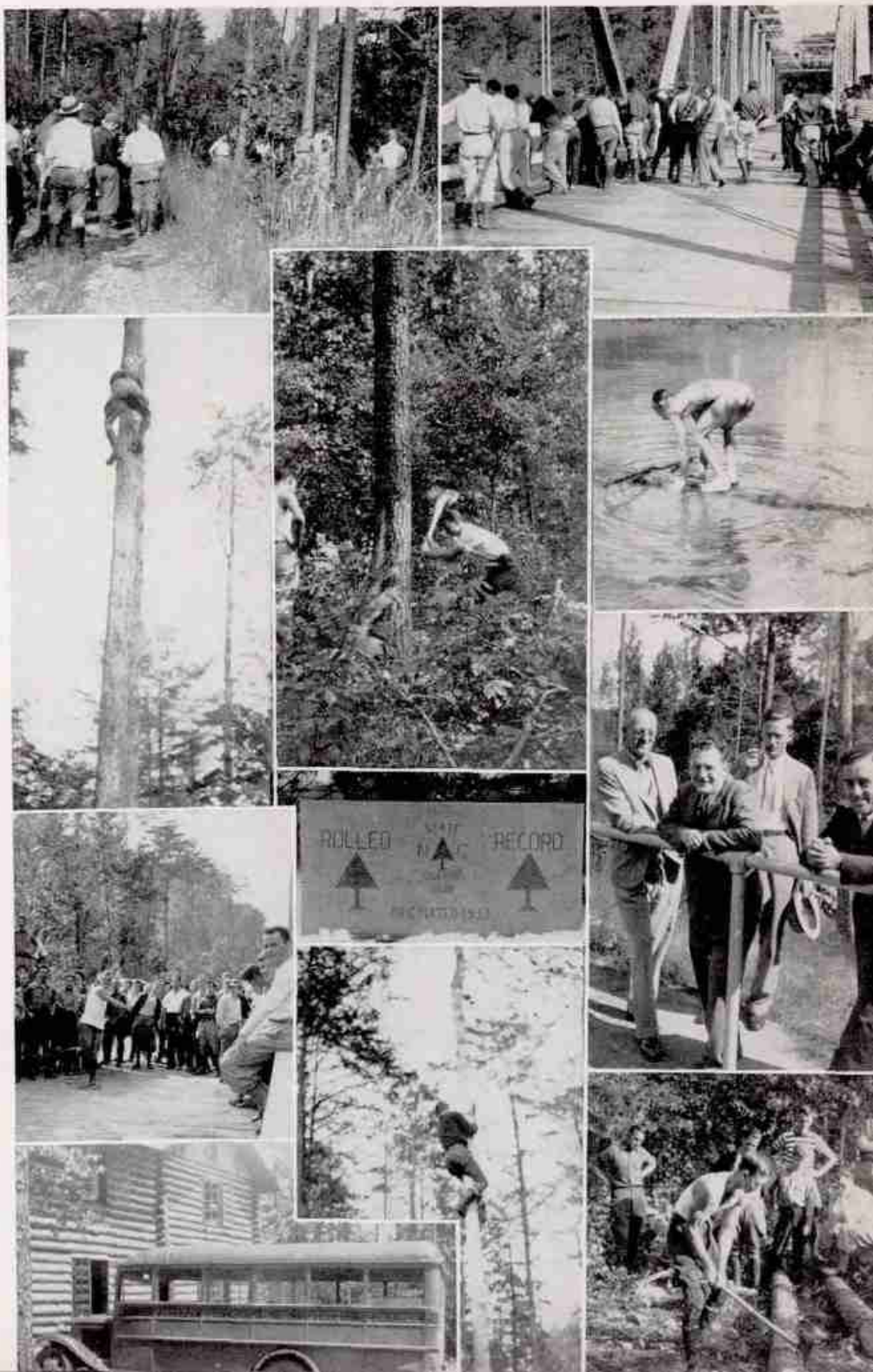




Where's Watts. . . . Logger's Ball. . . . Dance fixing. . . . Closed Mid-Winter's. . . . Dance Committeeman Dixon. . . . Tar Heel Club. . . . Chaperones for the "Ball." . . . Wyman and Miller and wives. . . . Prom Trotters. . . . Fair Exhibit. . . . They made our closed dance a success.

ACTIVITIES

Height Estimation. . . . Throwing for accuracy. . . . Don't slip. . . . Timber. . . . Shorts on the bias. . . . Make it long "Honey." . . . Record. . . . Duke guests. . . . Ways and Means. . . . Is it slippery Junior? . . . "Bunyan" Hartley deftly plies his trade.



FORESTRY CLUB ROLLEO

H. C. BRAGAW, '37

Since its beginning, five years ago, the Forestry Club Rolleo has been the big event of the year in the Forestry school.

This year's Rolleo was by far, the largest ever staged. Invitations were sent to various interested parties out over the state and a number of visitors were present. The faculty of the Duke Forestry School were among the honored guests. Unfortunately they had to leave early in order to see the Duke-Georgia Tech football game.

As in the past years, the forestry buses furnished transportation between the school and the forest, the last bus load arriving in time to allow its occupants to grab a hasty lunch and prepare for the afternoon's festivities.

The first event of the afternoon was rock throwing for distance and it was a marvel to behold, for even the poorest of the entrants threw his missile 150 yards and the best throw for the afternoon was around 175 yards. The honors for this event went to Locke (Lap Dog) Craig, who threw for the Seniors. The next event, a throw for accuracy, was also won by Craig. The aforementioned gentleman is a southpaw and hails from Asheville, N. C. It has been told that he did nothing but throw rocks at his neighbors until he was quite a large boy. This in some measure accounts for his rock throwing ability. In the wielding of the equine footgear, the sophomores were able to walk off with the honors under the able pitching of Evanson and Taylor.

Following these first events, the scene was changed to the opposite side of the river where the tree felling, wood chopping, and sawing contests were held. In tree felling the contestants had to drive a stake in the ground 50 feet from the base of the tree and then fell the tree as near as possible to this stake. All the entrants made a very good showing in this but the juniors took the event by grace of a well banked shot against another tree. In the sawing contest, Russell and Davis took first place for the Seniors by sawing through a ten-inch log in 21 seconds, and this was done with a dull saw. The Junior class finished second in this with Eaker and Huff pulling the cross cut. Troxler finished first for the Seniors in the wood chopping with Freshman Bell coming in second. Hartley took a well earned third for the Juniors.

In the hatchet throw, Troxler took first place for the Seniors by virtue of a perfect score, and Matson, a Freshman, ran a close second with only one miss. In the knife throw, Whitman took first for the Juniors and Nicholson a second for the Seniors. After watching these adept woodsmen perform with their weapons no one present had any desire to arouse their anger, for the throwing was done at a distance of over twenty feet and their aim was deadly even at that distance.

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INTERVIEW WITH TOM GILL

C. M. MATTHEWS, '37

Tropical Forestry is invariably a major item of conversation among senior foresters at State College. For four years I have seen the "bug" bite each succeeding class. It always reaches its peak in the early days of the last year, when the erstwhile foresters are still glib as to the positions (not jobs) that they are going to have when they graduate. Each vows that he is going to look into the question, but unfailingly their sources or their industry is not up to their expectations and the topic dies a slow, lingering death. The offer of tangible jobs (not positions then) in the last term rings down the curtain on tropical forestry.

Nor was I immune, the "bug" bit me; but I determined to find out what I could about this elusive field. So, it was with a great deal of satisfaction and no little excitement that I entered the famous, old Cosmos Club in Washington, D. C. last November to have lunch with Tom Gill, tropical forester, author, and adventurer extraordinary.

Tom Gill

Since I had not seen a picture of the gentleman I was wondering what sort of a person I was due to meet. I spied an erratic, odd looking individual with hair blossoming out in all directions, loudly talking and wildly gesticulating to another man, and thought with some trepidation, can this be Mr. Gill? He looked rugged and born to the out-of-doors. At this point a colored doorkeeper approached and asked my business. I told him I had an appointment with Mr. Gill. He pointed to a coat room and said: "Hang your coat and hat in there." I did as directed and when I walked back into the lobby I saw the Negro porter coming across the room with a tanned, pleasant looking gentleman in tow. It was Tom Gill.

His firm handshake and cordial, "How are you Mr. Matthews?" set me completely at ease and as we stood there chatting for a few

moments I was able to take stock of this well known figure in forestry.

Everything is subordinate to his vivid personality. His friendliness, his cheerfulness and ready, hearty laugh, his obvious thorough enjoyment of living, his interest in everything that goes on about him, and his boundless energy are apparent from the start. He is an excellent conversationalist, seemingly able to talk on any subject—we touched a good many while I was with him. When he talks, he speaks with his whole body. His blue eyes are intent to see whether you have caught his point, and if you haven't he notes it in an instant, and immediately seeks to clarify his statement through his wonderful command of the English language. He is about five feet eight or nine inches tall, of a sturdy medium build, decisive in his actions, tanned to an even brown, and the picture of health.

Following a few comments on the weather and such subjects he led the way upstairs to wash, continually keeping up a running conversation on everything from my trip from Raleigh to football. We then went down to dinner.

During the course of the meal the subject of forestry was dropped and he told me how he had come to write his stories for the *American Magazine*, some of his experiences in the World War as an aviator, his love of the West, about the trip he was going to take to Mexico this past January to finish collecting data for a new novel and also take care of some forestry business.

When we finished I offered him a cigarette, he laughed and replied, "No thanks. I like to smoke but I'm on the wagon." Working in an office as he did some years ago he had used three packages a day. Deciding that it was too much, he tried to cut down to one package a day with no success. Finally he made a resolution to smoke only after lunch. In a few weeks time he found that he was going to lunch at ten-thirty to get his cigarette, so he quit altogether.

Dinner over we went down stairs in the lounge and spent the next hour or so talking of tropical forestry.

Tom Gill would not advise one to go into tropical forestry. According to him, it is the most fascinating place on the earth and it is inevitable that once the temperate hardwood supply is exhausted, tropical forestry will come into its own. "It may come in your time or it may come in your children's time but until that time the future is questionable."

I asked him what companies were practicing forestry in the tropics.

To his knowledge there are but few American companies that employ foresters and these in the main are fruit and oil companies. The government does some work in Porto Rico but the personnel is under the U. S. Forest Service. Great Britain, Germany, and Holland are conducting logging operations but only on their own lands and they are using almost entirely their countrymen. The South and Central American Republics that are engaged in any forestry work whatsoever are using native men whenever possible and do not want foreigners.

Speaking about obstacles in the way of developing an American lumber operation in the tropics, he said, "Numerous obstacles have to be

—*Continued on page seventy-nine*

NURSERY WORK IN ARIZONA

L. DEARBORN, '35

To one from the Eastern United States, Arizona is thought of as a desert country where cactus and not much of anything else, thrives. The hills are covered with vegetation and in the winter, especially, everything turns green. It will not rain for six months and the saying is that anyone who attempts to predict the weather is either a fool or from another state. Growing on the hills fifty feet from me are those well known varieties of cactii, such as the giant cactus, the prickly pear, the so-called jumping cactus, and the barrel cactus from which cactus candy is made.

Other common vegetation includes catclaw, mesquite, palo verde, creosote bush, desert hackberry, century plants, bear grass, and coffeeberry.

In northern Arizona are the finest western yellow pine stands in the United States. There it snows in the winter. In southern Arizona there is sun all winter long and so fine a climate that many people come for their health alone.

In Region Three there are two range nurseries, each of which grows plants used in revegetating overgrazed ranges and in controlling erosion. The capacity of the nursery at Superior, Arizona, is approximately 750,000 barerooted plants and 75,000 potted plants.

We grow some of the best range and erosion grasses common to Arizona and New Mexico. Some of these are curly mesquite, vine mesquite, blue grama, hairy grama, side oats, alkali sacaton, sacaton, and buffalo grass. Common shrubs include bear grass, apache plume, mountain black locust, Arizona cypress, Aleppo pine, black walnut, desert willow, palo verde, and mesquite.

Everything is grown from seed, most of which is planted during the spring. The most successful transplanting is done along in February and March.

Grasses can be grown from seed in three months, ready to load out for field planting. In a bed four by fourteen we grow 2,000-4,000 grasses, barerooted. The following are the steps taken in preparing and planting a bed. First the soil is spaded up, and the lumps of dirt are broken up by chopping with a rake. The bed is leveled and checked with a carpenter's level. The beds are made about one-half inch above the foot-wide path. After the bed has been squared up the seed that is desired is either broadcast or sown in drills, and is then rolled. Sandy soil is used in covering the seeds and this is screened over the bed, covering the seed usually one-fourth inch deep depending upon the size of the seed. The bed is then thoroughly soaked with water to a depth of six inches.

From now on the bed must be carefully inspected to see that the corners and any other places do not dry out. Shades should be put up over the bed. Shades reduce rapid drying out and protect the young, tender seedlings from the scorching heat of the sun.

Usually in about four or five days germination takes place. Some

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VOLUME IV 1936-37

PI-NE-TUM

JOURNAL OF FORESTRY OF NORTH CAROLINA STATE COLLEGE

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LULL, MATTHEWS, DALE, SLOCUM, DIXON, WHEELER, EVANS

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J. M. STINGLEY, '35
District Forester

Organized in 1907 and having endured the rigors that attended pioneer forestry years, the North Carolina Forest Service is now firmly entrenched in the responsibility of forest fire protection over an area of fifteen million acres of forest land. This area represents approximately seventy-five per cent of the total forest area in North Carolina and is divided geographically into three forest divisions—the Mountain, Piedmont and Coastal Plains Regions. The activities of the Forest Service are largely centered in the Coastal Plains and Mountain regions due to the large percentage of forested land in these sections. The Piedmont area is an agricultural one and the forest acreage is relatively low.

Funds for operation of the N. C. Forest Service are obtained from five separate sources, as follows (1) appropriation by the State (2) federal funds (Clarke-McNary Law) (3) County appropriation (4) assessment of private forest landowners (as in protective associations) (5) a small per cent of annual revenue from the Game Division. An example of a typical County within the present organization will show how these separate sources of revenue are combined into one budgeted fund. The Board of County Commissioners in Blank County, North Carolina appropriates annually $1,250.00 for forest fire control. This fund is matched by the State Forester with state and federal funds giving the County an annual budgeted fund of $2,500.00 to work on. In the same County one or more private landowners owning forest lands that will aggregate 80,000 acres indicate that they desire even more intensive fire protection. These men have entered into a contract with the State whereby they will pay an annual assessment of 2 cents per acre on listed land. Their total of $1,600.00 per year is matched by the State Forester with state and federal funds and the combined fund of $3,200.00 is administered by the State Forester in fire protection work on the area. Such organizations are known as Protective Associations and are valuable assets in coöperating counties inasmuch as they provide double protection in areas of greatest fire danger. All funds used by the State Forest Service are administered by the State Forester. (Note: Such discourse on Finance is made with due deference to Prof. Wyman.)

Forest fire protection is regarded as the largest single item in North Carolina's forest planning. This is emphasized and backed up by the fact that in 1935, 79 per cent of all fires in the United States occurred in twelve Southeastern Atlantic and Gulf States. These States include North Carolina and because of conditions that favor rapid timber growth they are beginning to be recognized as the timber "bread basket" of the Nation.

North Carolina has no State Forests administered as such. However, prospects are favorable now, for the purchase of from 150,000 to 200,000 acres in several tracts for that purpose through federal

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THE SENIOR TRIP, '36 MODEL

BILL UTLEY, '36

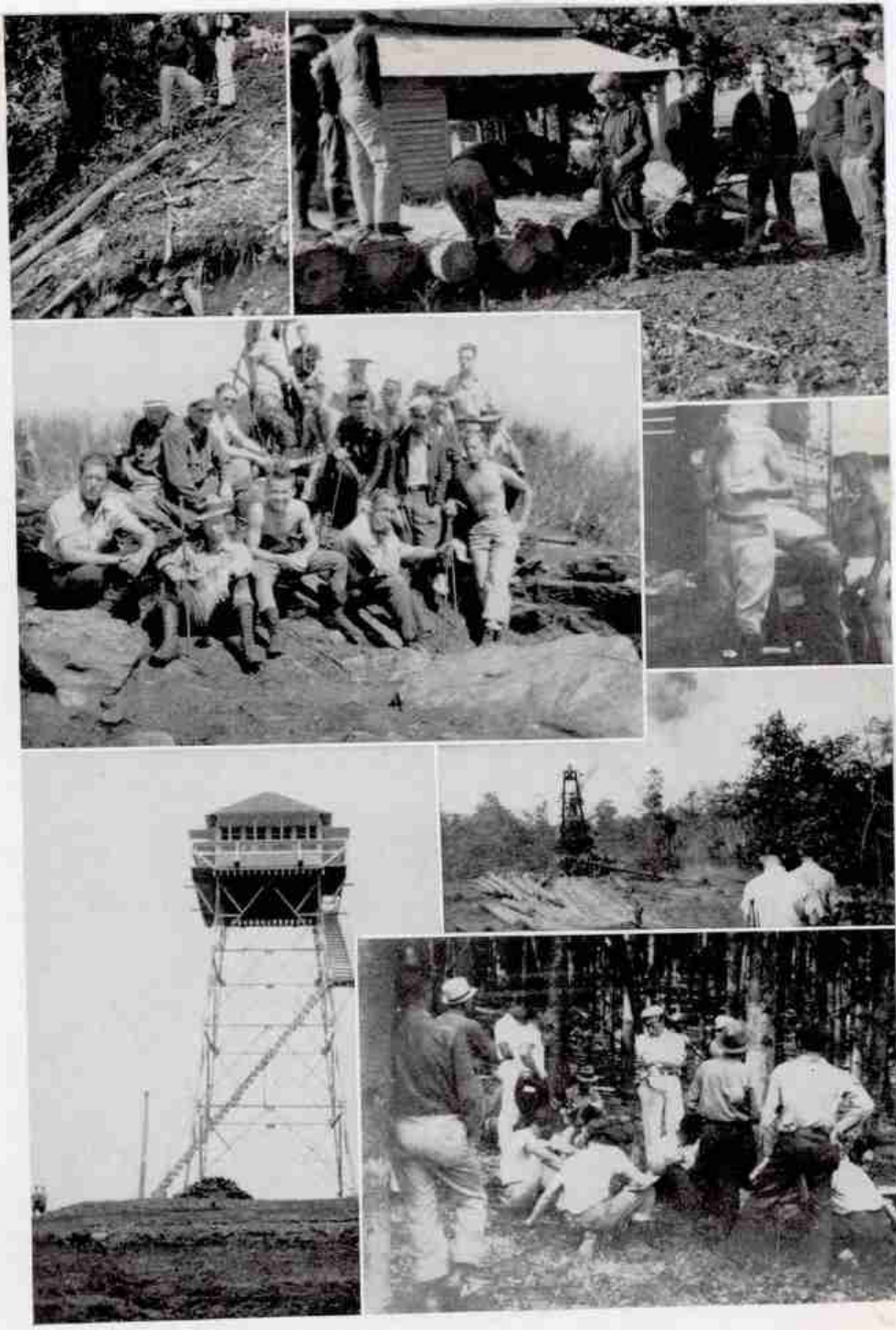
To all students of forestry the senior trip is the culmination of four years' work, and is looked forward to with a great deal of pleasure. For my part I would not take anything in the world for the trip I made last spring, but I can't say that I would like to make the same rounds again. During the first two weeks it is great fun to pick up every few days and move on to a new location, but five thousand miles in five weeks is just a little too much moving. The things seen and done by the boys on this trip are too numerous to print in a short article. The details would fill a good size volume; therefore, in my narration of events, I am going to review only those that were outstanding as I now see them.

We shoved off from Raleigh on the morning of the tenth of April. Plenty of enthusiasm, new clothes, and new boots were in evidence. Everyone was flush with money, so the desire to gamble was prevalent. The trip to Savannah was uneventful with the exception of a detour of several miles in order to cross a flooded river in South Carolina. Naturally several dollars changed hands in the various games of chance during this journey.

Our trip, as far as being an aid to our course was concerned, really began on the second day out. On Saturday morning we saw the laboratory of Dr. Herty, who is the one man responsible for the paper industry's new interest in Southern pine as a source of paper and pulp. Here we saw the processes and methods employed in the pulping of resinous pines of the South. We left Savannah about ten o'clock that morning for Brunswick, Georgia. On arrival we were shown the various steps employed by the factorage houses in handling resin and turpentine after distilling.

After our introduction to the naval stores industry we traveled on to Florida where the night and next day, which was Easter Sunday, were spent in seeing a good part of northern Florida, Ocala National Forest, Silver Springs, Penny Farms, orange groves, and many other sights of interest. Sunday night was spent on a boat landing at a lake near Starke, Florida, which is the former home of Mr. Wyman, who was the accompanying professor on the trip. At Starke, Monday morning, we were introduced to a phase of utilization which was new to most of us. We inspected a plant which was operated solely for the purpose of producing barrel staves and headings for resin and turpentine producers. Monday afternoon we jumped to Lake City for a four day stay.

The Department of Agriculture maintains the Olustee Naval Stores Experiment Station, Olustee Experimental Forest, and the Osceola National Forest at Lake City. While here we visited all of these places and saw the various activities carried on at each. We visited a cypress logging operation in the swampy area on the Osceola National Forest. It was on this trip that Nease fell off



THE SENIOR TRIP, '36 MODEL

the railroad and became somewhat chummy with a native (alligator to the unlearned).

While in Lake City a young lady friend of Johnny Vass gave a weiner roast for the crowd. Everyone had a big time including Bill Aiken who found a young woman in the crowd who lent an attentive ear to that well known Aiken "line."

Saturday we pulled up stakes and moved across to the west coast of Florida. We spent two days on the Choctawhatchee National Forest, where we were accommodated in a royal manner by H. A. Snyder, an alumnus of State. This area is the nearest approach to nothing in the way of supporting timber growth that I have seen. The land is covered by a low scrubby growth of blackjack oaks and an occasional longleaf pine. The soil is a very fine sand and as a result of the high winds from the Gulf, a very high fire hazard exists at all seasons of the year.

Monday we traveled to Pensacola where we saw the manufacture of turpentine, rosin, and synthetic wall board from top and stump wood of longleaf and slash pines. We left Pensacola shortly after lunch and journeyed into Mississippi, spending the night at Biloxi. On Tuesday we made the trip to the Mecca of the journey, New Orleans.

New Orleans is probably the most exotic city of the South. It is by far the largest town that we visited on the trip. After spending two weeks on the road, the promise of two days vacation in this place was highly favorable. On arrival in New Orleans most of us went to the Jung Hotel, which is one of the city's finest and newest hotels. We went staggering into the lobby, dressed in everything from hob-nailed boots to overalls, and asked for rates; the clerk, seeing our decrepit looking condition, agreed to give us very favorable rates, so most of us stopped here. As soon as we were settled, all of us, without exception, were out to size up the town and determine just how much red paint was going to be required to place a fairly decent coat on the city in two days' time. Most of the boys made a close estimate for they certainly did their share during the next forty-eight hours. Most of us spent the first day wandering around; the first night the same, except the wandering was done with deadly intent. Most any of the boys, including Johnny Vass, could tell you what a remarkable place the French Quarter was, the second morning (provided they arrived home that early).

Our main purpose in New Orleans, so Professor Wyman said, was to see the Southern Forest Experiment Station. The whole of the second morning was spent in observing the work carried on in this quarter, particularly the work on the Forest Survey; which at that time was being rapidly drawn to a close throughout the Southern Forest Region. The personnel of the Forest Service throughout our stay in New Orleans, and during the trip, gave to us of their time and facilities unstintingly.

Thursday morning we headed the Jeep and Jaboe wagons (the

busses being known by these terms now) northward up the river towards Baton Rouge. We made this detour in order to visit Mr. Hayes, formerly professor of silviculture at State College and now head of the Forest School at LSU. Unfortunately he was on a trip with some of his students. However, we did see Ed Roberts, class of '35, who is now teaching at LSU.

After Baton Rouge and the magnificent State Capitol of Huey Long, come Bogalusa and the Great Southern Lumber Company's operations. This operation is probably the largest and most extensive east of the Rockies. At the present time they operate two, four lead skidders, and maintain approximately sixty miles of main line railroad along with about ninety miles of spurs under construction at all times. The mill, when new, was capable of producing 300 million b. f. annually, having five head saws, and one gang saw. There is also a pulp mill for the production of kraft paper. A very high degree of utilization is carried on by this company, all material that is usable is converted into some article. That which is not of value for anything else goes to the fuel room to be used to operate the nine huge boilers which produce the electric power needed.

The Great Southern, in connection with the Southern Forest Experiment Station has for a number of years carried on experiments to determine the value of practicing Forestry on a large scale commercially. They have met with both failure and surprises in these experiments. Their object is to establish an industry that will maintain a static population, to supersede the old policy of cut out and get out. Production here is necessarily on a mass production basis; but if the idea of sustained yield is handled correctly there is no reason that this may be the leader towards new and better methods for the South in general.

In so far as social activities were concerned there were practically none while here, the boys were all recuperating after New Orleans. Our boys did play a few baseball games with the local CCC Camp, winning the series. Mr. Adman was the star pitcher, possibly you heard him speak of it. One error. D. C. Dixon scored with some little girl of the fair city of Bogalusa.

After leaving Bogalusa we had a decided change of scenery, jumping from the coastal area to the mountains. Chattanooga was the first stop. While here we were entertained at a weiner roast by more friends of John Vass. The boys left the next day with an extremely high opinion of the University of Chattanooga, especially the co-ed student body.

From Chattanooga to dear old Caroline, and believe me the old home state looked good. En route to Asheville we stopped over in Sylva and the Great Smokies for two days and visited the estate of S. H. Kress. We arrived in Asheville on Sunday and went immediately to our quarters at the CCC Camp at Bent Creek on the Pisgah National Forest. The next five days were spent observing activities of the Appalachian Experiment Station and the Game Management

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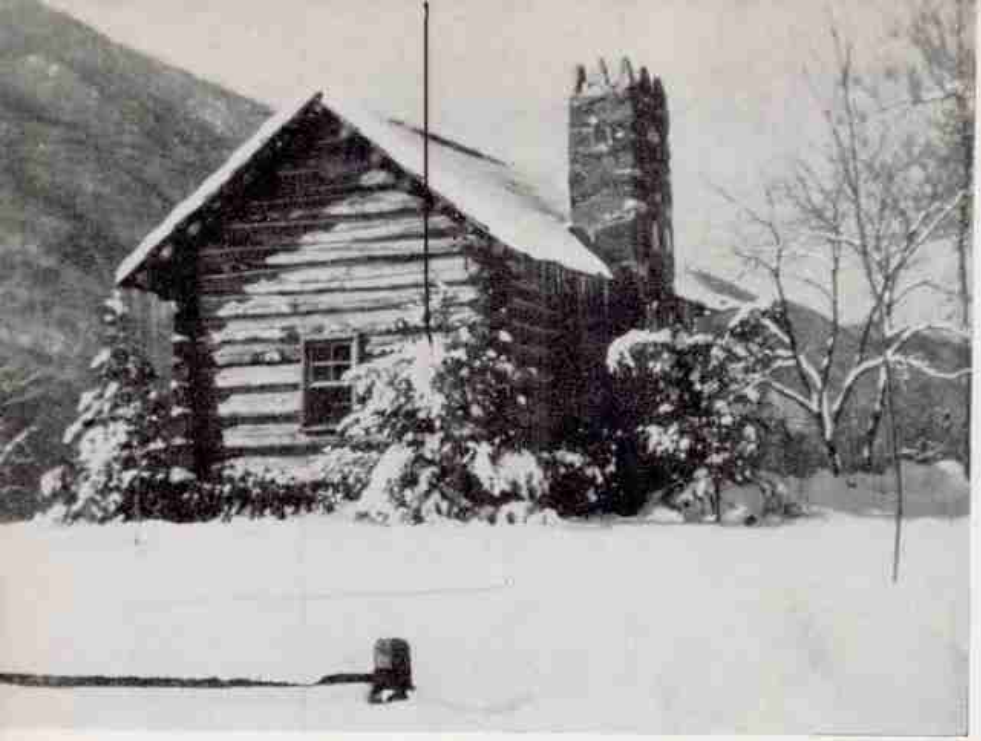


J. Huff

PI-NE-TUM PHOTOGRAPHIC CONTEST

Over one hundred photographs were entered in the first Pi-ne-tum Photographic Contest by the forestry photo fiends. Prizes were offered for photographs under the following general subjects: landscape or pictorial, humor or human interest, N. C. State Forest School activities, general forest activities. First prize in each division was $2.50; second prize, one year's membership in the NCSFC; third prize, an extra copy of the Pi-ne-tum. Judges were Mr. Slocum, Mr. Meares, and W. H. Wheeler.

Jim Huff won high honors by winning both the pictorial and human interest divisions. Huff's picture of Prof. Slocums' tonsorial exhibit when giving field orders to a summer camp crew, and his entry depicting a snow covered cabin merited him the first two prizes. Bill Bridges captured first place in the general forestry division with his series of snapshots of a pulpwood operation. H. C. Bragaw, camera enthusiast, won the school activity division.

Winners in each division were as follows: J. Huff, W. L. Colwell, Mark Taylor in the human interest; J. Huff, J. S. Campbell, W. J. Bridges in the pictorial; W. J. Bridges and L. E. Hurst in the general forestry division; and H. C. Bragaw, W. J. Bridges, J. S. Campbell in the school activity division.

First Prize General Forestry—W. J. Bridges. . . . First Prize Human Interest —J. Huff. . . . General Forestry—W. J. Bridges. . . . Third Prize Activity— J. S. Campbell. . . . Second Prize Pictorial—J. S. Campbell. . . . Second Place Human Interest—W. L. Colwell. . . . First Prize School Activity—H. C. Bragaw. . . . Second Prize School Activity—W. J. Bridges. . . . Third Prize Human Interest—Mark Taylor. . . . Third Prize Pictorial—W. J. Bridges.

THAT WILDERNESS BEYOND THE BLUE RIDGE OF WEST VIRGINIA

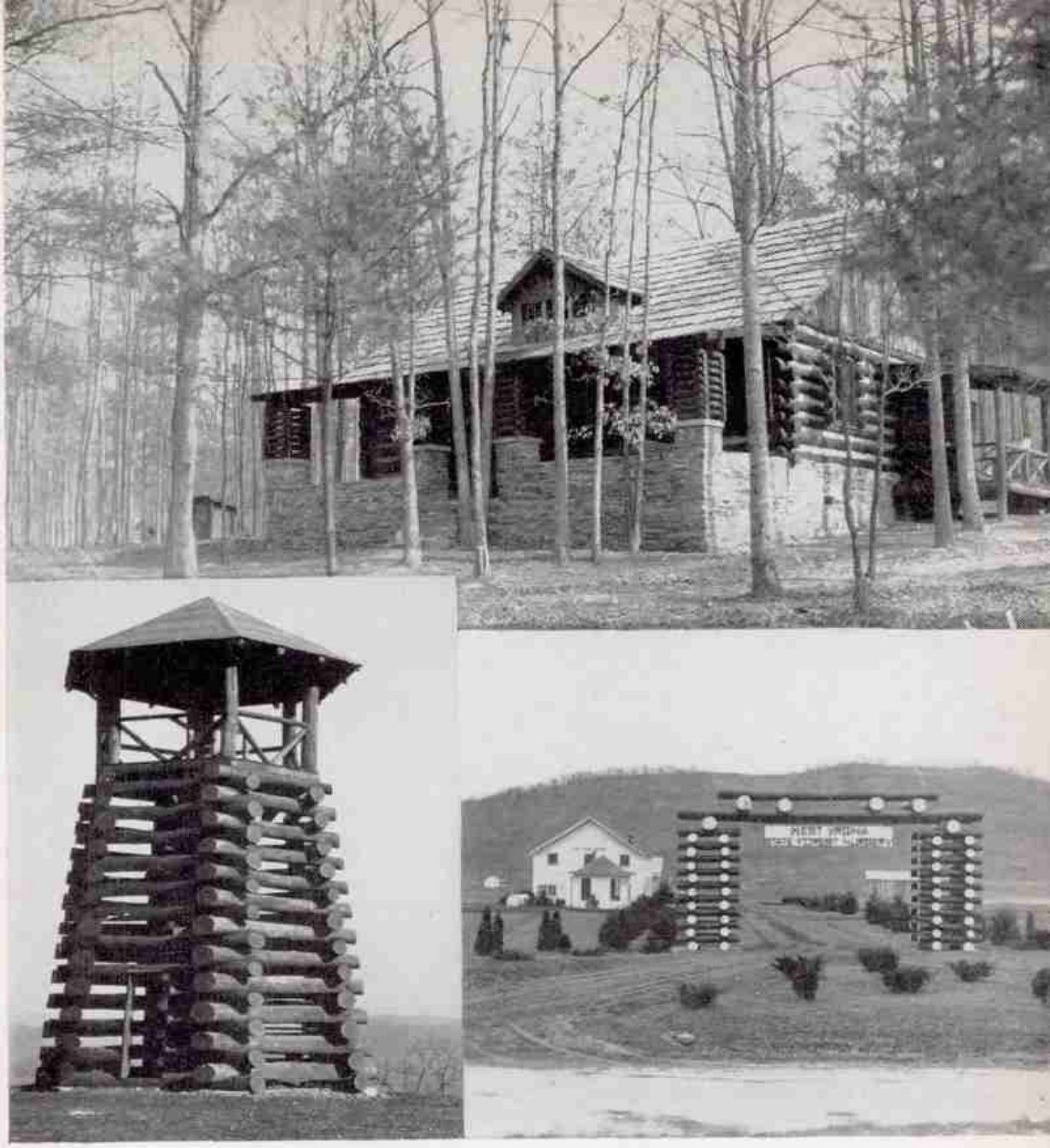
D. B. GRIFFIN, '31
State Forester

It is extremely difficult to write of my native State. If I praise or become sentimental, immediately I am accused of bragging or of attempting to be poetic. If I condemn, I am disloyal both to my home country and to myself. Besides, West Virginia has been dragged in the mud of destructive criticism long enough. If I try to present unbiased opinions, or attempt an impartial picture, I am only kidding myself, for just as the resident of coastal Carolina loves those never-ending stretches of pines, swamps and levelness, so am I at heart proud of West Virginia's hardwoods, twisting hollows, and rugged mountains.

Tourists passing through the State on various occasions have described it to me, personally, in the following manner: Said one, "It is surely and inevitably the land that God forgot; a haphazard, continuous upheaval of forsaken rocks and earth." Said another on leaving for his coastal home, "Unquestionably I have stood in the lap of the gods." Still another put it this way, "West Virginia? There is a basic sturdiness and romantic something in that wilderness beyond the Blue Ridge." I like the latter description, for in it there is a suggestion of strength, coupled with intangible mystery.

Standing alone one night, in the farmyard of my home seventeen years ago, I watched the crimson glow of a forest fire on the North Mountain skyline. Shortly thereafter a man in boots, breeches and Stetson hat galloped swiftly past on a horse, following the mountain road. Much later in the night, I saw that same red glow fade and become one with darkness. My youthful and unexpressed dream of that night was to be a forest ranger. Today, fortunately or unfortunately, depending on one's point of view, I happen to be one of a number of hopeful foresters in West Virginia, whose desire it is to play a sincere part in the bringing back for our own and future generations, that renewable natural resource—timber.

The State's greatest industry is at present, and will be for the next several years, coal mining. West Virginia's mines today produce a larger volume of bituminous coal than the mines of any other State in the country. But coal is an exhaustible natural resource. Once taken from the earth, loaded, shipped and used, it cannot be renewed, for it is not a crop. How long it will be before this supply is seriously threatened and perhaps exhausted now can be fairly well estimated. The economic welfare of many, in fact the very existence of thousands of our people, depends directly or indirectly on mining and the sale of coal. When this resource is threatened with exhaustion, or when substitutes for coal become popular to the point where coal mining is unprofitable—what then? Agriculture, aside from grazing and except in a few restricted small valleys, is an un-



West Virginia Seneca State Forest Recreational Cabin. . . . Observation Station overlooking Watoga State Park, West Va.—Elevation 3,100 feet. . . . West Virginia State Nursery—Annual capacity 3,500,000 trees.

profitable, up hill struggle because West Virginia, from the Potomac River on its northern to Big Sandy on its southern boundary, is a solid series of hills, ridges and mountains.

I firmly believe and am convinced that the future economic and social welfare of the State depends greatly on the wise use of her forests. This is nothing new or astounding. Every forester in all branches of the profession believes and will tell you the same thing about his particular State. He must do so to defend his position and to defend his cause. And he is right. Is it not better, however, to

use all means at our command to "drive home" to our people and to ourselves the values of our various conservation programs in terms of the present and the very immediate future? Sustained yield, permanent production of timber on a given area (call it what you wish) on the basis of saw log dimensions to my practical and elemental form of reasoning—is still clouded with too many "ifs," and still veiled in a distant, mysterious and theoretical future. One hundred and twenty year crop rotations do not sound very inviting to the sawmill operator, the mine operator, the farmer nor myself. Arguments spiced with management plans, and silvicultural terms do little toward convincing the hard thinking, practical minded landowner that forestry practice with sustained yield as a goal is a sound proposition. And so in West Virginia, because the public demands it, and because we believe in it, the Conservation Commission is endeavoring within its scope of funds available to promote and administer a program of conservation for the benefit and enjoyment of those people who inhabit and make their living in our hills today.

Forestry practices in the State were born some fifteen years ago of the realization by a group of coal operators that an acre of timber in southern West Virginia would not mine the coal under that acre. Furthermore, uncontrolled fires were ravishing thousands of acres of that same timberland, destroying potential mine props and ties. Without the aid of the State and Federal Governments, these same operators organized their own fire protection system, which was the forerunner of the State Forest Service.

Today, after the ups and downs that inevitably visit any new governmental agency, and after ten years of existence and effort by the Forestry Department, the conservation picture has radically changed. The Conservation Commission involves four separate, yet closely allied divisions: Game, Fish, Forestry, and Parks, all under the administrative control of one director. It is our contention that these fields of conservation must coördinate their activities harmoniously and efficiently in order to gain the desired results. In the administration of our State Forests, and in the protection from fire of 5,500,000 acres of privately-owned forest land, the State Forest Service carries out a major policy of game and fish propagation, stream improvement, and development of public parks. Increased numbers of fish in our streams and game in our woods and extended recreational facilities already have paid dividends in wholesome pleasure to a traffic-tired population on week-end holidays, and in financial returns to the State Forest Service itself. We propose to continue and expand this policy (or if you like, this type of forestry) to the very limit of funds available because the sportsmen and the average citizen alike who foot the bill demand that they be given the privilege of enjoying the fruits of a forestry program—they do not lean very heavily on the sentimental term—"future generations." And we believe they deserve recognition.

Fire protection will always constitute a terrific problem. From

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WITH THE RANGER IN THE WEST

GEO. K. BROWN, '30

The Arapaho National Forest was established July 1, 1908, by proclamation of the President, from areas formerly included in the Pike, Leadville, and Medicine Bow Forests. It was named from the tribe of Arapaho Indians who had tribal grounds in this vicinity.

The Dillon District was part of the old Leadville National Forest until 1930 when it was transferred to the Arapaho. The District had its beginning in 1905. During the first few years rangers came and went. In 1907, the ranger in charge was a man by the name of Blundell. He was a former cowpuncher with the ability to cuss and throw a diamond hitch. His salary was $60 a month and all horses, feed, and equipment had to be furnished.

There were no roads, trails, telephone lines, or other improvements. The ranger strapped on his six-shooter, lashed a bedroll, coffee and bacon on his pack horse and "pounded leather" for weeks at a time. He put out his own fires, he built his own trails, erected the ranger station, and bought materials from his own finances to paint it. His files consisted of an old shoe box, and his office, the living room of his dwelling.

The district today comprises some 200,000 acres of government land. it is managed by one full-time ranger with headquarters at the Dickey Ranger Station near Dillon, Colorado. The entire district is located within Summit County, Colorado, on the west slope of the Continental Divide. Geographically speaking, it is in the shape of a horseshoe with a spur running up the middle. The east and south sides are the Continental Divide; the west side is the historic Gore Range, the spur is the Ten Mile Range, and the mouth of the shoe is the Blue River valley. Altitudes range from 9,000 to 14,000 feet above sea level. The topography is very rough and rugged with hundreds of canyons, gulches, draws, and valleys. Practically every drainage supports a living stream.

There are two main, gravelled highways through the district. One runs north and south over Hoosier Pass and the other comes over Fremont Pass from Leadville and extends over Loveland Pass to Denver. All these passes are ordinarily closed during the winter months due to heavy snows.

Breckenridge and Dillon are the only two towns in the area with Breckenridge being the county seat. There are a few other small mining centers such as Frisco, Montezuma, Kokomo, and Tiger. Breckenridge is the largest town, with a population of about 250.

Mining and ranching are the main activities in this region. There are 20 cattle ranches of the smaller self-sustaining units. Each rancher runs from 50 to 150 head of range stock, owns around 160 acres of land, raises enough native hay to feed stock in the winter, and grazes the stock on the Forest during the grazing season.

Mining is the principal activity. There are 3,500 patented mining claims interspersed throughout the Forest, and 5,000 unpatented

claims. This has a decided bearing on the administration of the district. No timber can be sold from a patented claim, of course, or from an unpatented one without the consent of the claimant.

It is quite natural that ranger district activities in a region of this type are always both interesting and exciting. Maintenance of present, and construction of new improvements are, of course, an important part of any ranger's work plan. There are a permanent headquarters station, two temporary stations, fourteen miles of metallic circuit telephone lines, eighty-five miles of horse and foot trails, truck trails, fish retaining ponds, and public campgrounds to maintain at service standards. New improvements are added from time to time as the needs are justified.

A Ghost town on the Arapahoe—Robinson, Col. . . . The author riding range. . . . Winter sports at Hot Springs. . . . Hoosier Pass in January. . . . Dickey Ranger Station.

Fire prevention, presuppression, and suppression are major and prior activities. Prevention work demands lectures, slides, and motion pictures before schools, public gatherings, Lion Clubs, etc. A detailed fire sign plan is maintained and appropriate signs posted currently. Patrol along highways and contact with fishermen, tourists, campers, etc., is continued during summer Sundays and holidays. Detailed fire organization plans, contacts with coöperators, and maintenance of fire tool caches in the right place, constitutes the bulk of presuppression work.

During the past 50 years, at least one-half of the forested areas of the Arapaho has been burned over. But during the last ten years, there has been an average of only two fires annually with an average of three acres per fire. Actual fire suppression requires very little work on this district.

Wintertime is the call for snowscale readings and measurements. Total accumulated snowfall in this section averages approximately 240 inches. Depth of snows will average 50-90 inches with 20-30 inches of moisture content. The annual precipitation is around 45 inches. The last week in January, February, March and April sees snowshoe jaunts to the various snow courses and scales to secure representative snowfall data. From 20-30 miles has to be covered each day in order to reach shelter each night.

Timber sales are a major activity al-

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WHAT'S IT ALL ABOUT?

C. W. COMFORT, '35

While we're in the process of graduating from high school we find joy in the thought that soon we'll be out in the world and on our own and there'll be no more teachers and no more books. And then we graduate or think we have graduated. What really has happened is just another year of "larnin" finished. Then Bill and Mike, our best friends tell us that they are going to the University to study business or medicine, so we decide that we'll have to go to college just to keep up with the Jones's even if our pocketbook or our parents' pocketbook advise us differently. We don't really know that college costs money, high school didn't and what's the difference between high school and college?

But what to study? We don't like business, we would like to study medicine but then medicine takes so long and we remember how long those four years of high school were. Well, we always did like hiking and camping and Boy Scouts and things you do out of doors.

So forestry strikes our eye in our friend's catalogue and we decide to study forestry 'cause we think it's romantic like the secret service or "something."

So we go through our summer vacation and tell our friends that we're going to college to study forestry and they ask us "what's that" and we feel sort of embarrassed 'cause we don't know what to tell them it is.

So in September we get ready to leave for college. It's like moving to a new home. We take everything we own with us including our stamp album, and we'd like to take "Buddy" along too but we don't know if they'd like dogs at college. So we go around and tell all of our friends good-bye and we go to see our Aunt Mary and Cousin Jane and we kiss them good-bye and we enjoy kissing Cousin Jane. Ma cries and Pa shakes our hand and kisses us for the first time and tells us to be good and not to forget our manners and not to get too familiar with them college boys.

We're in college now, this is the life we think, and we start studying hard, much harder than we did in high school. We want to study hard now 'cause we're paying for it. In high school it was free and unappreciated. We eat our carrots and peas and spinach in the boarding house too; we have to eat those things now cause Mrs. Perkins don't baby us like Ma did. We can't get a second helping of dessert to fill us up in place of our spinach and squash. Gosh, won't Ma be surprised when she finds out that we eat all those nasty things!

We've been in college almost a year now and soon we'll be going home for the summer. We've had a grand time studying hard. We wonder how we missed going to all the movies and things that we used to go to at home. Oh, we'll have lots to tell when we get home: football games, initiations, dances, and just think we won't be a freshman any more.

So we finally get home with all our belongings and we kiss Ma and Pa and tell them how good it is to be home again. Then we remember how nice it was kissing Cousin Jane so we go to see her too.

And people still ask us what's forestry, and we still feel embarrassed because we don't know what to tell them. And now we go to dances and start dating girls and we feel pretty big. We think we're one of those college boys now but we're really not until we come home next summer.

So we go back to college again but we don't take our stamp album this time.

Well, we've finished our third year now and we smoke cigarettes and drink "likker." Ma is shocked at our smoking and she'd die if she knew that we're not her darling little boys any more. But Pa is wise, he was one of us once himself and he even shows us some of the knots in the rope and how to untie them.

And we still feel embarrassed 'cause we don't know what to tell them.

This is our last year and we feel like taking the Civil Service Exam for Junior Forester so we start cramming, but it's so hot and our mind is so full of the diversions from study that we learned in our four years of college. We remember that the exam is tomorrow so we start studying again. Then Joe comes over and whispers an invitation to an all nite party. So we go, as you might have expected. We're seniors you know!

So next morning we take the exam with a tight hat on our head. The exam is so long and the day is so hot and we're so tired and that dad blasted hat is so tight. Well, we've got an excuse for flunking the exam, which we did.

We're ready to graduate now. Ma and Pa comes to see us graduate and after we get our diplomas they get leaky eyes and tell us how proud they are of us. And then all of a sudden they ask us what is forestry and we tell them 'cause we think we know but we really don't.

Then we finally get a job in a CCC camp. We do a lot of work and we have a lot of fun and we meet a lot of people, a few of them are girls. But we're not serious about the girls because we don't want to be. We learn more about forestry and some more about girls. We become more serious about forestry and the girls too. And we begin to wish that we had paid more attention to forestry in college and less to the girls. We begin to like forestry more and more and one girl more and more and we finally marry that girl.

And now we start studying forestry in earnest because we don't want those future foresters asking us embarrassing questions.

Gosh, it's been a long time since we've seen our stamp album.

The dendrology class tearing across the field in quest of plums with that well known dignitary puffing up behind crying weakly "Save some for the Professor!"

MORE PICTURES. . . . Freshman Robinson. . . . Sawmill hunting. . . . Slocum's nursery maids. . . . "Looky what you have done to me." . . . Courage? . . . He lost. . . . "Wotta hell, freshman." . . . Expectant Reggie. . . . Book larnin'. . . . Religion and girls did this. . . . "I'm way up he'ar." . . . "I'm all ears, Dr. Miller." . . . Some call it mountain climbing. . . . Meditation (Carolina, Mary, Cope, Ga., Fanny). . . . Our Charles. . . . "Climb up on my knee, Sonny Boy!" . . . "Thufore—." . . . "Home James, and don't spare the horses." . . . "Smile sweetly, Ryder."

TWIG BLIGHT OF PONDEROSA PINE

FRED NEWNHAM, '35

Since the advent of emergency employment, in its various forms, men all over the country have been called upon to perform some rather odd tasks. Comparatively few people, however, know about one of the most peculiar of all of the New Deal's undertakings—Twig Blight Eradication. During the past four years, mainly in the summer months, some 600-1,000 men have been laboriously climbing and pruning hundreds of thousands of Ponderosa pines in an effort to check the ravages of this new disease. It is not only the actual labor that makes this project stand out as unique, but also the rather ingenious organization of the eradication work.

The Twig Blight Disease is a serious menace to Ponderosa pine, and every effort is being made to stop it while still confined to a fairly small area. The disease falls in the sporangium group, the spores entering through fresh needle scars during rainy periods and following the old needle trace into the wood. Here it produces a resining which stops circulation of food material, and thus killing the twig from the point of entry out to the tip. The spores of this disease are produced on the killed twigs, and so to prevent the spread of the disease these blighted twigs must be destroyed before they shed new spores and infect fresh needle scars. The killing of the twigs ceases soon after the growing period starts. This is due to the rising sap which kills the fungus, which in turn causes the disease to spread in the green bark but does not prevent the production of spores. No more dead twigs are found until the following winter or spring, and these must come from newly infested spots produced by spores which entered the fresh needle scars during the preceding fall.

Twig Blight was first observed in 1917. It is believed to be an imported disease. From 1917 until 1932 the disease increased at an alarming rate. The forests were taking on a brown hue in place of the normal green, due to thousands of dead twigs and "stag heads." For a long time, everyone attributed the killing of the twigs to drought. Finally, research men were called in, and after long study it was announced that a fungus disease was the cause. Control operations seemed financially out of the question until the coming of the CCC movement. Thus it was not until the summer of 1932 that actual eradication work began. Since then the trees have been gradually regaining their normal aspect, and it is believed that another thorough cleaning will practically destroy this new fungus. The center of infection is in the mountains around Prescott, Arizona; an area of perhaps 100,000 acres, extremely valuable as a water shed. Small outbreaks of the disease were also noted near Flagstaff, Arizona and Silver City, New Mexico, confined mainly to Ponderosa Pine reproduction.

In the eradication work every tree which shows an infection is pruned or cut. Areas are systematically covered, either section by

section, or, in unsurveyed land, by the use of such boundaries as ridges, streams, roads, or trails. The work begins at the extreme southern and western boundaries of the infected area, at the highest elevation and proceeds in a northeasterly direction. Prevailing winds are from the Southwest, so by using this method all new infections are discovered as the work progresses.

The present organization of the crews, which consist of 15-40 men, is a result of trial and error, and at present has almost reached the peak of effectiveness. Each crew has a compassman whose duty is to run parallel lines approximately 100 feet apart, marking each boundary with colored paper strips. These boundaries constitute lanes of work within which each crew does the actual eradication work. A different color for each crew is used so that confusion is eliminated.

The sub-foreman goes ahead of the pruners and tags every tree infected by the blight with a bright colored piece of cloth, indicating by flags of different hues whether a tree should be cut or pruned. These flags are always placed against the trunks of the trees on the side directly facing the crew as it works ahead. When a foreman comes up with a crew, he inspects the trees tagged to determine whether or not the flagging is correct. If the tree is to be pruned, a climber goes up the tree and cuts off all the infected twigs. He uses six foot pole pruners, cutting the tree from the top down and shaking all cut twigs to the ground. Once on the ground, he gathers up all the cuttings and stuffs them into a canvas sack. He then changes the tag to the opposite side of the tree, showing that instructions have been followed. Each crew has a man who burns the cut twigs, picking out good places for the pruners to empty their sacks. If a tree is to be cut it is felled by the axeman. All of the branches are burned and the trunk is peeled to prevent insect attack.

The man who tags the trees removes the tag after the tree is pruned or cut. By so doing he keeps a check on the trees for missed flags, and also checks on the thoroughness of the crew.

Of course, there are no "hard and fast" rules in the organization of a Twig Blight crew. Each foreman has to vary his line-up to suit his particular need. Sometimes there is no axe work for several days. A foreman has to foresee this and put his axemen to climbing until there are trees to be cut. While working in very sparsely timbered areas where there is plenty of oak brush, it takes more than one man to tag enough trees to keep ahead of a crew. He covers so much ground that it is impossible to double back and pick up the tags. In such cases the climber usually picks up his own tags.

Fortunately for the climbers, most of the trees in the Prescott area have many limbs near the ground. Large trees, clear of branches for the first 15 to 60 feet, are climbed with aid of spurs and ropes. Each crew usually has a special man to climb these trees. These men are called "high climbers," and use 12 or 15 foot pole pruners to reach the ends of the long branches. This "high climbing" is hard, dangerous

work, a man sometimes spending from four to six hours on a single tree.

It is absolutely essential that a very thorough job be done if the work is to be effective. Every effort is made to cut and burn all infected branches and not leave any on the ground or on the trees. Laboratory tests of diseased twigs left on the ground have shown that such twigs are able to discharge spores and produce infection in healthy twigs.

An area once gone over is not necessarily finished. It has to be gone over every year as long as blighted twigs appear. That has been one of the drawbacks in the control work. It was not until 1936 that the entire Twig Blight area at Prescott was covered in one continuous work period. From now on the eradication work should become lighter and lighter until eventually a small scouting crew will be able to keep the disease in check.

To many, this business about Twig Blight may seem remote and far-fetched, but to the people in the Prescott section it is a very real problem. Even the most skeptical person will admit that the work is "looking up."

BLACK '36 GOES TO THE TROPICS

To Arthur H. Black, graduate in forestry of last year, goes the distinction of being the farthest away from his Alma Mater and likewise the only graduate engaged in tropical forestry.

Art sailed from New York December 12 bound for the Firestone Plantations at Monrovia, Liberia to enter their employ. A radiogram to his parents on January 10 confirmed his safe arrival on that date.

A subsequent letter to the editor of the PI-NE-TUM in answer to several questions that were asked is printed in part.

Mt. Barclay, Liberia,
February 6, 1937.

Dear Chas.:

About the information you ask. I will give you as much as I can; but remember conditions are not uniform throughout the tropics. As to the future of tropical forestry there is no other field that has as many opportunities to offer as tropical work. There are a great variety of cultures to get into; rubber, timber, coffee, bananas, teek, oil palm, cocoa, copra, etc.

Working conditions are generally bad. You have as an average about 6 months continuous rain during the year and your operations are usually at a standstill during this time. Then too it is not like being at home where in case of machinery break-downs they can be repaired in short order. Here you make the best of things.

There is no training in the States that will especially qualify you for tropical work. Conditions are entirely different and the only knowledge obtainable is by experience. However, your training in

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THE ECOLOGY TRIP

D. C. DIXON, '38

When we enrolled in Ecology last fall the by-word of the course was Carolina Beach. For the benefit of the Frosh and Sophs who perchance to read this, it means we were entitled to a trip to Carolina Beach which is the much heralded annual event among the junior foresters. After a few weeks of intensive study, Dr. Wells pronounced us experienced Ecologists and set the trip for October 9.

The eventful day finally arrived. We loaded up our lunch and luggage and started off for the beach and the land of Pocosins which we had the fortune or misfortune of being exposed to the preceding summer. We were greeted with an intermittent barrage of rain and did not see Old Sol again until we were well on our way back to Raleigh. As we traveled along interesting comments such as "Old Field Associes," "More Mesic Conditions" familiar only to an ecologist were made of the scenery. Occasional stops were made (usually when it started to rain) so we could view formations first hand and make detailed notes. Unfortunately our valuable records of the trip were preserved from elements under the watchful eyes of Drs. Wells and Shunk.

The first stop was made to collect specimens of the rare Venus Fly Trap which grows only in the Wilmington district of North Carolina. After all that could be dug up and deposited in handkerchiefs or other pieces of wearing apparel were collected we proceeded merrily on our way. Many a future forester's room in 1911 Dorm is at present adorned with a dead Venus Fly Trap.

Burgaw, N. C., (no relation to Church as I found out later) was next on our itinerary. As we approached the hamlet all eyes were peeled ahead lest we should pass through the town without knowing it. The mud was fairly deep so that we were slowed down enough to get a fair view of the village. A brief stop was made for the "local boys who made good" to renew acquaintances, and make mysterious visits home presumably for financial reasons.

After the work in Ecology was completed we proceeded to Carolina Beach where we were left to our own doings. The main attractions were the local beer joint and a small store run by two members of the fair sex. Due to the over supply of masculinity a list of the boys' names was compiled for their convenience. The list soon contained such notorieties as Eddie Berlinski, Elmore Hackney, Ace Parker, Dan Hill, Jr., Connie Mac Berry and others. The boys were making good time until Doc Wells (Ikey to youse) arrived on the scene. The State College playboy proceeded to walk off with the prize. Our scene now shifted to the beer joint where he "strutted his stuff" for which he is so well known around State College. His exhibition of dancing was marvelous enough to cause Fred Astaire to sigh with envy.

The ladies' man of the crowd proved to be a dark horse, Lull. By turning his attentions on a young lady of the neighborhood he earned

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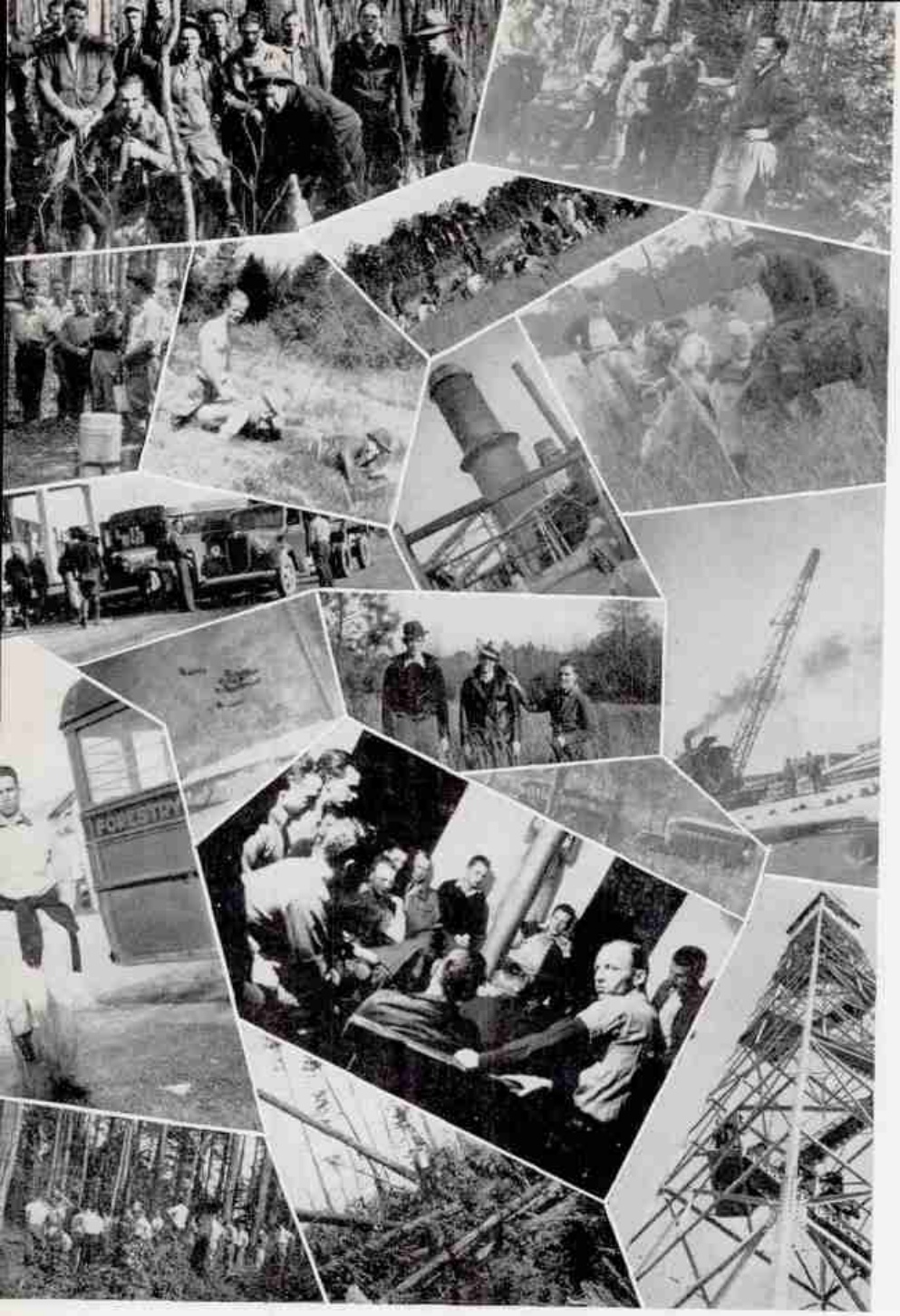

TRIPS . . . Look pretty boys. . . . What's so strange, Click? . . . Classes a la duke. . . . 'Tis a strange sight to see Red like this. . . . Watching the CCC work. . . . Taking growth studies on the Pocosin. . . . This way to the Roland Lumber Company. . . . Snap it Gash. . . . Crane at work at the Century yards. . . . The spots are seniors—from the tower. . . . Always time out for pictures. . . . Snake—Church—old clothes—'nuff said. . . . Swing it Red. . . . As we go rolling along. . . . Wait for us. . . . Up on down timber—Pop. . . . Looking up.

PRESERVATION TRIP

J. L. HUFF, '38

"Hey, Griffiths! there's a one-legged man pushing a wheelbarrow behind and he wants by. Step on that hurry rod. What do you think this is, a Sunday school picnic?" and another of Slocum's chaperoned tours was under way. Little did we realize, when the morning of November 17 dawned clear and crisp, what the day had in store for us. Here we were, rolling merrily along, bound to that quaint old city of Charleston bent on the legitimate business of inspecting a wood preserving plant. Not a hint of the forthcoming turmoil was in evidence.

Not a breath of air was stirring. The occupants of the bus sat quietly, enjoying the profound beauty of the passing countryside. A temporary holiday had been declared and a feeling of relief and gratitude pervaded throughout. My thoughts even wandered back to the school, and I felt pangs of remorse for the poor devils who had to attend classes on a day like this.

As my thoughts thus idly wandered, I became conscious of the passing of a considerable quantity of rather warm air. First it came in small puffs and then in increasing quantities. As time wore on it became warmer and increased tremendously in volume. A dull rumble, accompanied by occasional sharp staccato notes, was present. Upon glancing out the window it was with some surprise that I noted that no wind had arisen nor had the sun suddenly jumped to midsummer brilliance.

Upon investigation the hot air seemed to rise from the right front seat of the bus and quickly pass toward the rear, growing in volume as it passed each seat until with a mighty crescendo, it reached the back, only to pass upward and forward with increased speed. Oh! how this hot air flowed. Like a young tornado it charged forward and backward, crosswise and sidewise until it enveloped every occupant of the bus. Some of the boys had the audacity to lift their feet from the floor.

With all this hot air circulating it was small wonder that one of the tires, with a quiet sigh, gave up the ghost—a tire can stand only so much hot air—nobody was surprised when the second, and a little later, the third tire went flat. After eight hours of steady "bulling" the nineteen detached juniors finally flattened out like the tires.

By this time, we were well down on the Coastal Plain of South Carolina. Now and then we crossed great river swamps, filled with cypress and gums, all crowned with enormous festoons of gray moss, and in the center, black, lazy rivers with their great bass and occasional alligators. For miles and miles we passed through great pine woods, with open grass floors and occasional evergreen thickets. What a quaint country! What a mosquito country! A forester's haven if there ever was one!

And so we bumped to Charleston. Charleston, the home of the first

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IS THIS EXPERIENCE?

F. H. HUBE, '34

The old saying, "Start at the bottom and work up," invariably holds true as the best way of obtaining practical experience in any field. So let's start at the beginning of my work and follow through to the present.

The problem of employment or unemployment stared me in the face when I graduated from North Carolina State College in the early summer of 1934. I anxiously awaited the so-called "hearing" of an offer for a job. Some men were looking for a position; I wasn't so optimistic; I was looking for a job. Concurring with my highest hopes, the "hearing" came—"Report to Forest Supervisor, Franklin, N. C., immediately."

I reported to the supervisor of the Nantahala National Forest for duty, in white linens, three days later. I remained in white linens during the first week of field work; my trunk with my field clothes had been lost. Boy! I was off to a good start.

My title was cultural foreman and my work, supervision of crews of CCC enrollees on timber stand improvement, pine pruning, cleaning, thinnings and release cuttings in forest stands, and roadside and stream improvement.

I spent the greater part of August and September at Camp F-12, Rainbow Springs, N. C., on similar work. Boy! The moonshiners and rattlesnakes were ideal companions for that type of country. I often wonder how I escaped the fangs of both.

During October 1934 I was an invalid, the result of an appendectomy. Recuperation in those beautiful Virginia mountains was a "crip."

On November 1 I was transferred to the DeSoto National Forest. "Chubby" Warriner was with me; A. G. Shugart, "Bill" Barker, and "Grappler" Chatfield followed. Here in the flatwoods and grasslands, I found "Johnny" Kerst.

We were not disappointed a lot. We found what we expected—mud and muddy water. Yet, with the spring we consoled ourselves with the fact that it really wasn't so bad after all; in fact, we even like it now. This country offers so many opportunities for a young forester. He has the chance to see the development of a national forest from the bottom up and he also has the opportunity to work from the ground up.

My first work was on the Chickasawhay Purchase Unit which is now a ranger district of the DeSoto National Forest. The area was in its infant stages of development. Acquisition of land was still proceeding, telephone lines and roads were being constructed, and fire control was being initiated.

Location of plantation areas and firebreaks and planting surveys composed my job until planting season. On planting, I supervised the field work of a thirty-two man crew. The quota was set at an

average of 250 per man day and at the end of the first season, my camp planted 1,965,000 longleaf pine seedlings and averaged 450 per man day. This figure is very low, yet when the type of labor, inexperience, and existing working conditions are considered, it isn't the worst. All of us had to learn.

Fire fighting was inevitably a "pain in the neck." Fires were numerous and I was "green" with inexperience; however, I learned and liked it. It was a hard job—day or night, or day and night. To illustrate the characteristics of fire in these cut-over lands, this is a sample. A fire, set on a dry day with a strong wind, travels about as fast as a man can walk, disregarding roads, streams, and fire breaks less than a hundred feet wide. The "head" of the fire is a blanket of flame, commonly a solid blaze over a hundred feet wide, advancing in the shape of a "V." On such fires, rapid arrival of a large crew with plenty of water and pumps answers for quick control. Backfire is used advantageously. This is a sample of the extreme. Ordinarily, when the fire danger is not so high, a twenty-man crew can easily control a fire, using back pumps and fire flaps. Mop up work is tedious and must be done carefully to prevent the "unforgivable sin"—a break-over. March is the month of the highest fire hazard in this country.

In spring, following the fire and planting season, planting surveys were resumed. I was placed in charge of a "spike camp" which consisted of five junior foresters and forty-three enrollees, including the cook. We lived in tents and cooked out of doors. It was a great life. The "gang" cruised 70,000 acres and located 80 miles of control lines in four weeks. A description of this work may be interesting.

A planting survey crew consisted of four men, namely, a compassman, front-chainman—tallyman, rear-chainman, and a mapper. A day's work of six hours for a crew was one-half to two miles of control line or four to six miles of cruising. A township was used as a working unit. Control lines running N and S at intervals of two miles were located to be used as base lines. Cruise lines were run E and W between control lines and at intervals of ten chains. The strip-plot method of survey was used, running two cruise lines through each "forty," and tallying reproduction on four milacre quadrets at intervals of two chains. Thus a 10 per cent cruise was made of the area.

During the summer of 1935, I enjoyed a month's vacation partly in the Virginia mountains and partly in Eastern North Carolina.

Returning to duty, the remainder of the summer and during the fall I located the boundaries of areas to be planted and firebreaks to be constructed. Plantation boundaries and exterior firebreaks usually followed land lines; interior firebreaks were located to follow ridge tops and constructed so that they could be used for secondary roads for motor travel. Continued construction of this type of fire break is a distinct advantage to fire control in that it provides breaks from which to back-fire, and it makes practically all parts of the forest accessible to motorized fire crews. The administration of the forest is also facilitated.

The 1935-36 planting season opened in the first week of December but with a different organization. A CCC camp was used as the planting unit. I was placed in charge of all planting done by one camp. The field planting organization consisted of a junior foreman who assisted me in supervising the work; two leaders who jointly supervised the five assistant leaders, each of whom were in charge of a twenty-man crew; in addition, there were five truck drivers and a stockman-timekeeper. This made the planting unit a total of 115 men.

We established a mark to plant five hundred trees per man day average for the winter. The two-man, bar-slit method of planting was used. During the preceding winter, the per-man-day average was 450 trees; for the 1935-36 season the average was 650 trees; however, during the last month of the season the figure rose to 1,000 per man day.

People often wonder what the cost of planting with CCC labor might be. Naturally, the cost varies with species planted, the site itself, accessibility of the area, and also the cost of producing the seedlings. The cost of planting a 10,000 acre area, 6′x8″ and 6′x6″ spacing, with slash pine cost about $5.00 per acre.

The records of a plantation that are kept may be of interest. Briefly each lot of stock planted makes a separate plantation; the source of the seed of the stock is recorded so that one may compare the trees grown from seed of the various locations, such as South-Mississippi or Northern-Florida. The size of the areas, site description, species, age, and condition of stock, spacing and method of planting, weather conditions, and the cost of supervision, labor, transportation, supplies, equipment and seedlings are the major items kept on record. On lines located diagonally across the plantation a number of trees are staked: for example, 1,100 trees are staked in a 1,000 acre plantation. These trees are examined after the growing season of the first, third, seventh and tenth year to determine the survival of the trees planted. The first area I planted had a survival of 84 per cent.

Planting is a major project on the Mississippi National Forests. During the 1935-36 winter 20,000,000 pine seedlings were planted; during the present season 22,000,000 seedlings will be planted. To complete the planting program, it will be necessary to plant approximately 25 million trees each season for the next ten years.

On April 1, 1936, I was assigned to the supervisor's office at Jackson, Mississippi, as staff assistant to handle wildlife management, range management, and administrative studies. I still work in the capacity of staff assistant on that work.

My work for the past ten months has been the preparation of management plans for wildlife and grazing, the examination and analysis of data of administrative studies, and numerous reports which the work demands.

Range management plans are very difficult and, as yet, none are complete. Several plans have reached various stages of development, however, field action has not been initiated. The Forest Service has

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THE RESETTLEMENT ADMINISTRATION IN MARTIN COUNTY, INDIANA

W. B. BARNES, '30

The prime purpose of the Department of Agriculture Resettlement Administration's acquisition of 30,000 acres in Martin County, Indiana, is for the demonstration of correct land use on poor submarginal farm land. With this aim in view, this area is being developed for recreational, forestry and wild life purposes.

In 1934 the National Resources Board proposed the acquisition of this land through the Land Policy Section of the Agricultural Adjustment Administration. This agency made thorough appraisals and secured options on a large percentage of the proposed purchase area. Upon the establishment of the Resettlement Administration in 1935, all acquisition and development was transferred to this new Federal government agency.

Martin County is situated in the unglaciated knobstone region of Southern Indiana. The northern section of this country is characterized by narrow ridges, steep slopes and small valleys which are unfit for agriculture. Soil erosion has denuded hundred of acres. Continual grazing has retarded natural reproduction on the forested areas. The removal of the original stands of white oak, tulip poplar, walnut and other valuable timber trees has left the remaining forest land in a sadly depleted state.

The administration of the Martin County Development Project is under the direct supervision of a project manager. The development work is divided into two phases. The engineering department has charge of the construction of roads, impounding dams, fish rearing ponds, service and administration buildings, obliteration of farmsteads, and all other similar activities. The Forestry Department supervises stand improvement, fire hazard reduction, tree planting, timber harvest, fire breaks, biological survey, wild life conservation, erosion control and clearing and cleaning of reservoir sites.

Necessary development for labor is drawn from several sources. Farmers who have optioned land to the government are eligible for work provided they can show need of relief. A three hundred man work camp, composed of men of transient status, and WPA workers from adjoining counties form the nucleus of our labor source. Other WPA crews from Martin County are given daily transportation to the job. The total number of persons given employment on this project averages between six and seven hundred.

Flood Control

The 1937 flood in the Ohio valley exemplified the need for flood control at the headwaters of the tributaries emptying into the Ohio River.

The engineering department is now constructing a large impounding

dam on this project. When completed, it will form an eight hundred acre lake with a storage capacity of four and one-half billion gallons of water. Forestry activity on this job will consist of clearing and cleaning 312 acres of timber land below the water line. Approximately one thousand brush fish shelters will be built in the shallow portion of the lake, that is, in water varying in depth from eight to fifteen feet.

Erosion Control

There is a total of 1,500 acres of waste land, on which 4,000 small inexpensive check dams are being constructed for erosion control. Contour plowing and seeding with Korean lespedeza is greatly retarding the runoff on this eroded land along with the planting of 950,000 black locust on the gullied and sheet eroded areas.

Another erosion problem is created when these hill farms are purchased by the Resettlement Administration. With the abandonment of land many recently cultivated fields are subjected to severe erosion, consequently, it is necessary to seed in Korean lespedeza as a check measure.

Practically all of the 3,500 dams now completed have been constructed from boards and other material made available through the obliteration of buildings on acquired tracts.

Check dams constructed from boards taken from torn down farm houses. . . . Small sawmill as found on the Martin County Development in operation. . . . Deserted dwellings—often characteristic of sub marginal land. . . . Trees felled up to future shore line of lake. Looking toward spillway section of dam.

Forest Development

Twenty-five miles of fire breaks, twelve feet wide, have been deemed necessary for fire control. These fire breaks will be located along ridge tops where the grade does not vary enough to cause erosion. In addition to acting as fire barriers these cleared lines may be used as secondary roads.

Past timber cutting on this area has created a considerable fire hazard upon which work is necessary. Several hundred acres of old tree tops and other debris, caused by destructive logging, have already been cleaned up.

Timber stand improvement is an important phase of forestry work on this Resettlement area. During severe winter weather from three to four hundred men may be employed when other development work is at a standstill. Forty-six hundred acres have been completed out of a total of eleven thousand.

To more clearly understand the timber stand improvement work a summary should be made of the several timber types, typical of this Central Hardwoods Region and found in our forest tracts. On northern exposures one may distinguish the beech-maple type. White oak, red oak, white ash, beech and hard maple are the dominant species. The oak-hickory type, consisting of mixed oak and hickories, is usually found on ridge tops and some slopes. In narrow valleys may be found small stands of timber, belonging to the Pin Oak-Red Birch type.

The Black Oak-Scarlet type is by far the most common mixture found on the project. One may readily determine the cause of this distribution. When this part of Martin County was cut over by the timbermen, a ready sale was not available for the inferior oaks. The more valuable timber was removed, leaving these undesirable species to dominate the stands.

In many of the cut over tracts young stands of white oak, walnut, white ash, tulip poplar, hickory, and other valuable trees are coming back. Competing species such as sassafras, dogwood, redbud, black gum, elm, red maple, and inferior oaks are removed where they are crowding the desirable trees.

The blazing of trees to be removed is done by an experienced timber marking crew. This project is very fortunate in having resident farmers, who have sold or optioned land to the Resettlement Administration, available for this type of work. These same men who have devastated this area are now being taught the correct methods of forest management.

Last spring 1,500,000 forest tree seedlings were planted on the Martin County Development Project. Nearly 1,000,000 of this number consisted of black locust planted for erosion control. Tulip poplar, burr oak, sweet gum, various conifers and wild life food species made up the balance. Future planting will bring the total up to three million. A large percentage will be concentrated on the establishment of a completely wooded watershed above the proposed lake.

Considerable landscaping work needed around the service areas will require natural plantings with native trees and shrubs.

The large number of mature inferior oak present on the purchased area has made it necessary to harvest five hundred thousand feet. Much of this timber is overmature and is removed in connection with stand improvement work. Sawing of lumber is done by contract and practically all of the native lumber derived from this job will be used for project construction purposes.

The Resettlement Administration is in charge of suppression of all fires burning on or threatening optioned or purchased land. During bad fire weather a permanent fire fighting crew is stationed at the recently completed one hundred foot lookout tower. Project labor is used for fighting all fires.

Wild Life

One of the primary future uses of this Southern Indiana project is the establishment of a wildlife area.

In order to formulate a sound program, an estimate of existing animal and plant life must first be determined. The amount of natural food and cover, number of predators, and permanent water distribution in relation to the present amount of wildlife must be ascertained before any correlations or recommendations can be made for a sound game management plan.

A 100 per cent biological survey covering all of these requirements was initiated during the early project development days in Martin County. The survey has just been completed on twenty-nine thousand acres.

The work was done along the same line as a timber cruise. Five men were placed in each crew, two data collectors being located on each side of the mapper. By spacing the men twenty-seven yards apart, this crew could cover a "forty" in four lines or trips.

The completion of the biological survey data will furnish important information. A scarcity of game in any locality shows that some link has broken in the biological cycle or balance. This scarcity may be periodic or permanent. If forest fires, destruction of food or cover or other man made causes have necessitated the migration of wildlife this condition will exist permanently unless the area is restored to its natural state. A scarcity of water will cause periodic migration during droughts. To release game on large areas where there is a deficiency of many natural environmental factors is a great mistake. The area should first be restored by the replacement of a habitat necessary for the sustenance of the particular type of game and game birds indigenous to that locality. If game is released before this has been accomplished there will be a migration to more suitable land which results in overpopulation. Such a congested condition is often remedied by nature through a reduction by predators and disease.

Much thought and planning has been given to the problem of establishing an ideal area for wildlife. Good forestry practice must be correlated with good game management. A weed tree to a forester may be veritable gold mine to a wildlife expert, consequently, some happy medium must be reached by these two agencies. As this tract of land has been designated as a Forestry and Wildlife area it is the job of the Chief Forester to develop each, without prejudice or favor.

An example of this combination can be found in rules set up for forest stand improvement. Water beech, elderberry, witch hazel, hazel nut, wild plum, wild crab, spice bush, viburnums, crataegus, huckleberry, devils club, paw paw, all furnish wild life food. These should be cut only when some valuable timber specie is being crowded. Some root competition may result from these weed trees, however, these species are generally found as solitary trees or in scattered clumps and are desirable from a wildlife standpoint. Green briars, blackberry, raspberry, wild rose, dewberry and honeysuckle are valuable food and cover plants which seldom greatly retard the growth of young seedlings in this locality and should be left. Grape vines, trumpet

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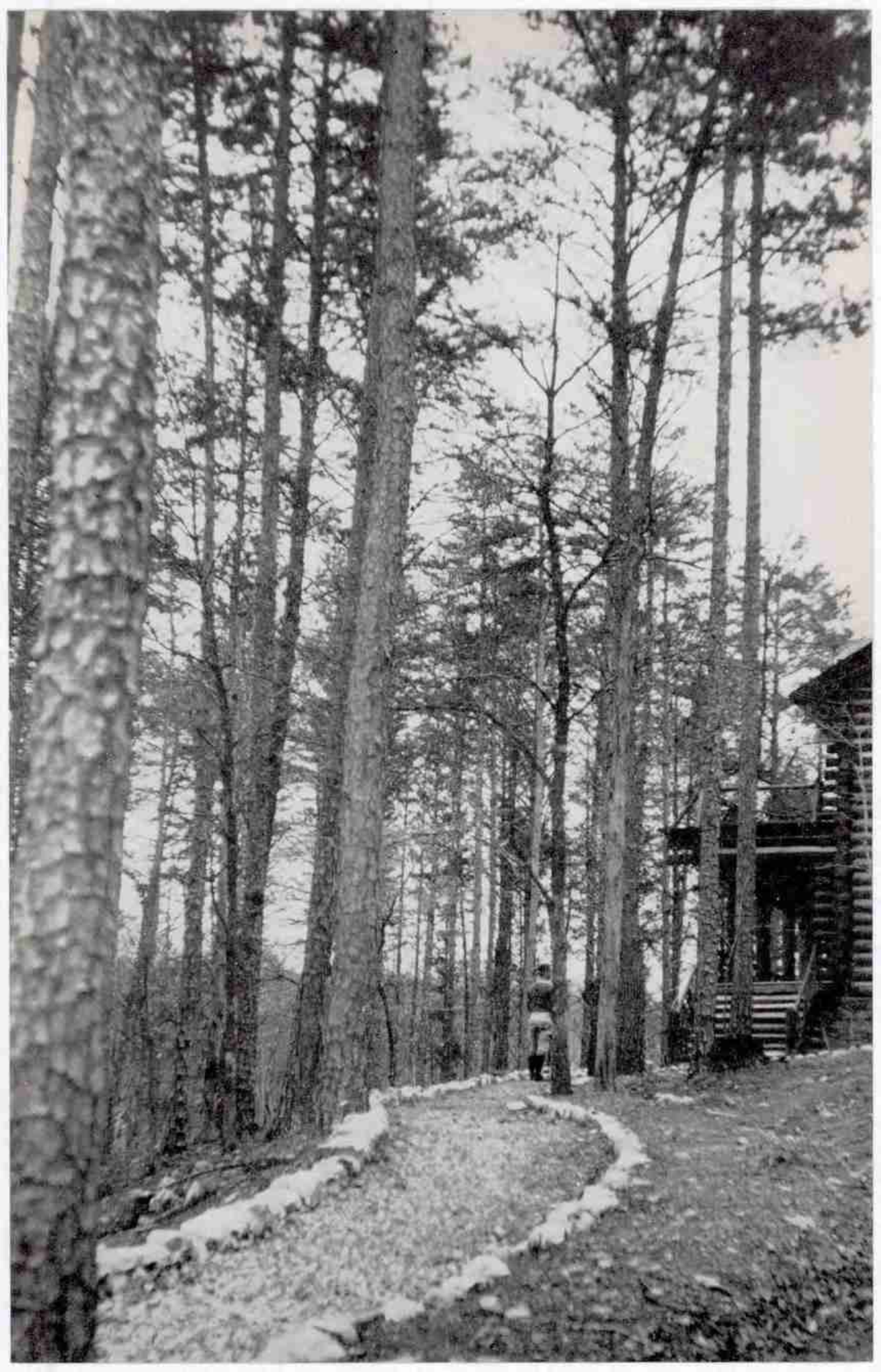


SUMMER CAMP, 1936

DR. W. D. MILLER

The first summer camp held for N. C. State College forestry students was opened on June 8 last year, with thirty-three sophomores enrolled for twelve weeks of field work. The juniors were scheduled to report for the last six weeks of camp. This was in accordance with the new plan whereby both sophomores and juniors would complete their field work in the one summer and the sophomores would be free to accept employment for the summer following their junior year. Future summer camps will be attended only by sophomores.

The first three weeks were spent in identifying trees in the field. The course started off with a walk around the campus and Pullen Park, but within the three weeks the boys found themselves examining trees on Swift Creek, at the old lead mines, on the Hill Forest, on Grandfather Mountain in western North Carolina and on the White Oak Pocosin in the coastal plain section of the state. Headquarters during the study of Piedmont trees were on the campus; of mountain trees, at Appalachian Teachers' College in Boone; of Coastal Plain trees, at Camp Hofmann near Jacksonville. The students were required to give the scientific name of each test specimen. Over one hundred and fifty woody species were introduced. A percentage of the grade was based on spelling, with the noticeable result that time was spent during evenings in spelling practice. Professor Slocum generously gave sweet gum and yellow poplar as test specimens in the Cypress Creek swamp. The trees were eighty or ninety feet high, and half the class missed the identification while the other half missed the spelling.

The second three weeks were devoted to surveying. The work started at the White Oak Pocosin, where the students had quarters in one of the CCC barracks at Camp Hofmann. At the end of the first week these barracks were taken over by a new contingent of CCC boys. The forestry camp was moved to the Hill Forest in Durham County, where it remained for the rest of the summer. In spite of the interruption and loss of time, the class completed the surveying and mapping of the area west of Flat River and south of the highway.

The camp roster was increased at the beginning of the second six weeks by the addition of the juniors. The Hill Forest "cabin" was taxed to the limit to hold sixty-four students, but by close utilization everyone was accommodated. Double deck bunks were set up in the front room and on the balcony as well as in the bedrooms. Meals were served in two shifts. The first shift was awakened by the sound of Hunter's bugle each morning at six, the second shift at six-thirty.

From the time the camp was moved to the Hill Forest, the students provided their own board, employing a cook and two helpers and buying their supplies. This matter was capably handled by the elected camp officers: N. B. Watts, president; J. W. Davis, treasurer; and

P. A. Griffiths, mess sergeant. A camp mail box was set up opposite the Quail Roost dairy and a large volume of correspondence went through it and the Rougemont postoffice. Transportation was supplied by the three school buses and the pickup. Several improvements were made around the camp during the summer.

For two weeks after the arrival of the juniors, work in mensuration was the order of the day, the juniors and sophomores working in separate sections. Practice was given in pacing and use of instruments. Two days were devoted to stem analysis, using the trees felled on a pulpwood operation. Two tracts of timber were estimated and typed. A growth study was made in Virginia pine and the data used in the office to make curves of age, height and diameter. A portable sawmill was visited and a count made of the boards obtained from logs of different sizes. An experiment was made to find the number of pieces of different sizes in a cord of pulpwood and, indirectly, the profitable diameter limit for pulpwood cuttings.

During the following two weeks, the juniors were initiated into the science of identifying and mapping soils in the field. Georgeville, Alamance and Davidson profiles began to feature in discussions and arguments. Soil maps were made of certain portions of the forest.

At this time the sophomores were taking work in silviculture, which included the laying out of three thinning plots and five trench plots, a reproduction survey, checking of survival in plantations and inspection of plots established in previous years. This completed the summer's work for the sophomores, who, it had been decided, were ineligible for the field course in soils.

The juniors, during the final two weeks, did their silviculture work, which was similar to that given the sophomores but was devoted partly to reëstablishment and remeasurement of old plots. As a result of the work of the two classes we now have plots of Virginia pine thinned to 4x4, 6x6, 7x7 and 8x8 spacing and ten trench plots and controls. Among the old plots checked over and put into condition are a tulip poplar weeding plot, a plot of understory dogwood released from overtopping trees, two sets of planting plots testing 4x4, 6x6 and 8x8 spacing and two thinning plots which had suffered some damage from storms and in which the boundaries were relocated to eliminate the damaged trees.

Work was plentiful, but extracurricular activities were not allowed to suffer from neglect. Two enjoyable dancing parties were given at the Hill Forest cabin. The formality of going to town was observed twice weekly, the main attractions being the lights of Durham and the medicine show at Rougemont. Preparations for a visit to Durham usually involved a shower bath with the Indian pump. Lloyd Troxler's "village choir" furnished music evenings and on special occasions. Other diversions included swimming in the millpond, target shooting, pitching horseshoes, collecting snakes and honey, making camp furniture and writing letters.

Instruction was in charge of the following men: Dendrology, Mensuration and Silviculture, Professor G. K. Slocum and Dr. W. D. Miller, of the Forestry department; Surveying, Professors James Fontaine and C. R. Bramer, of the Engineering department; Soils, Dr. C. B. Clevenger of the Soils department.

TO BEE OR NOT TO BEE

(Or a Stirring Story of Stubborn Stingers and State Students)

W. H. WHEELER, '37

Led by the bee-tree-locater expert, and loaded down with axes, saws, a veil and smoke pot, and Mr. Slocum, just to be sure that nothing was left behind, a party of four hopeful souls walked slowly along the muddy bank of the equally muddy Flat River late one summer afternoon. A large pan was among the things being transported and there was a look of grim determination on all the other pans in the party.

Suddenly the caravan halted and ears were cocked at different angles as if to locate something. "Yes, this is the one. See that bunch of bees up there, Slocum? No-o-o, not that one, you are looking at the wrong tree. It's this one leaning over the water. Boy isn't that a bunch of them, and I'll bet they are mad as the dickens." Just at this point Slocum let out a mighty yell and sailed up in the air yelling, "I'm stung, one of 'em got me" but he soon calmed down when he found that Bragaw had, in one of his playful moods, pierced his hide with a thorn just to see his reaction.

Having decided that the only way to get the honey was to cut the tree down, the work was started. The bee-tree was supposedly a well rotten old sycamore but the two sawyers soon found out differently, for it was almost solid and the sawing had to be done on a sloping bank. Two of the party started sawing the tree and another donned the veil and started the smoke pot going. Not to be outdone, our dear professor brushed around a bit and found a comfortable seat that offered good possibilities for a retreat and started giving instructions as to how the work should be accomplished. Everything was now ready.

Except for the heavy breathing of those pulling the saw, the drone of the bees, and the swish of the river, all was quiet. An air of expectancy filled the atmosphere. Then with a few warning cracks, the once mighty hardwood fell with a terrific splash into the shallow water of the river. Quick as a flash the bank was cleared of the would-be robbers, very soon, however the bees quited down so that it was safe to approach the tree again.

Now the real work began. The tree was in fairly good shape and Craig and Wheeler, sawing hip deep in water, found it a very hard job. Shirtless (the shirt having been donated to the smoke pot), with bees attacking by land and air, and further distractions from a certain individual on the shore, further prolonged the miseries of the two bee workers.

The work settled down to sawing a section, splitting it out, no hollow; another section, no hollow; but after an hour or so there was a welcome cry of "Hurrah we're inside, here's some honey comb. Oh hell it's brood comb, but we can let Slocum have that. No honey; let's saw another section."

There was another period of sawing, chopping, and ducking stray fliers, only to have one crawl up from the water and perform its deed of vengeance. The hollow soon dwindled to nothing, a lantern cast its baleful light on the scene, but still the prolific queen was ahead of the workers. There were many bees and the hollow had been large but there was only enough honey to whet the appetite for more.

IT WAS SEEN, HEARD, OR DONE AT SUMMER CAMP

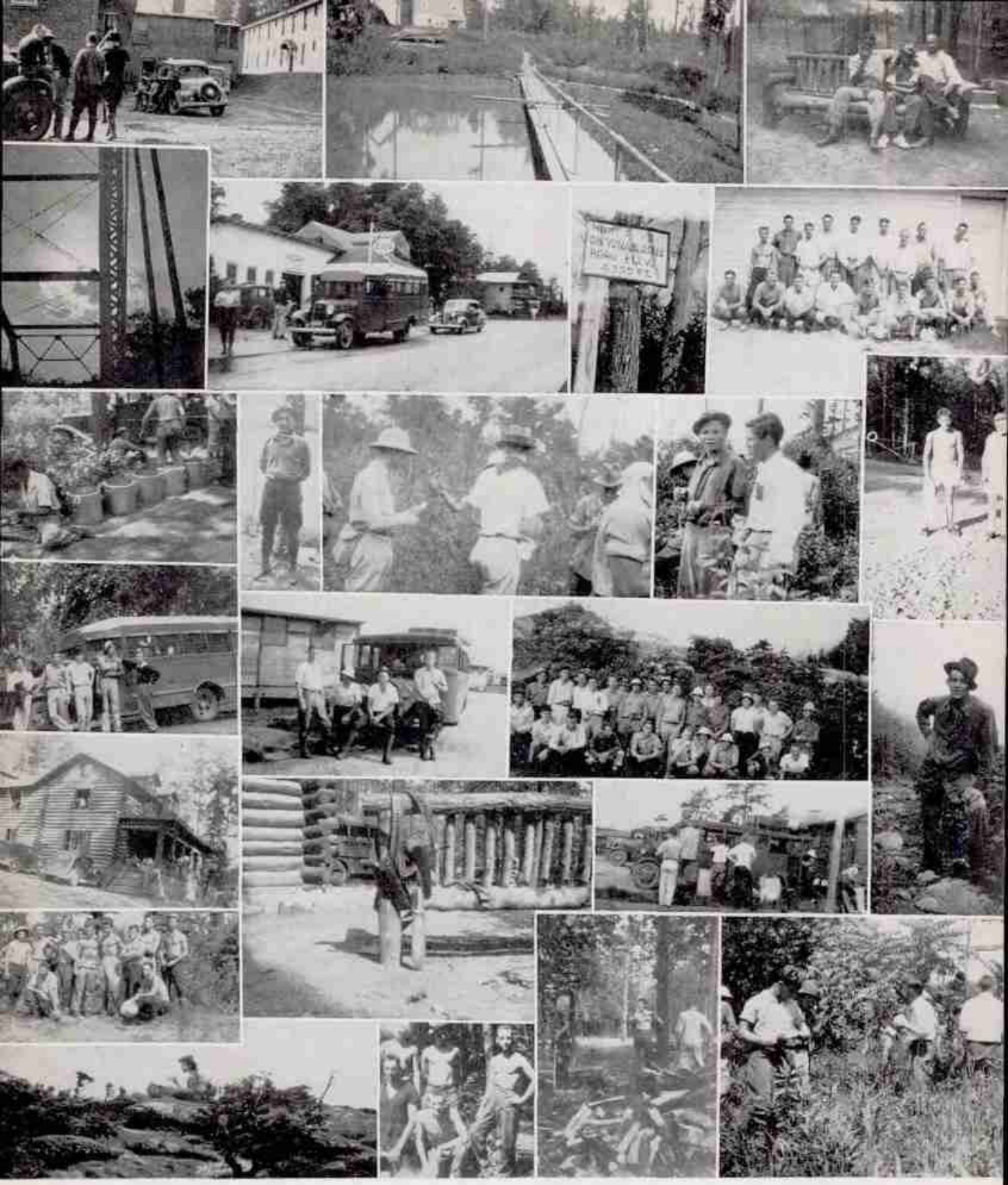
HENRY DELPHIN, '37

Not to be outdone by the other forestry schools in the country, Dr. Hofmann decided last year that his boys must also have one of those fine summer camps of instruction that one reads so much about. Accordingly, the Junior and Senior classes were the first to taste of this noble experiment.

There are some who still swear that the camps were just set up to get some work done that no one else would think of doing, and to harden us up for the rigors of our future lives—but all in all the classes as a whole are agreed that the venture is really worth while.

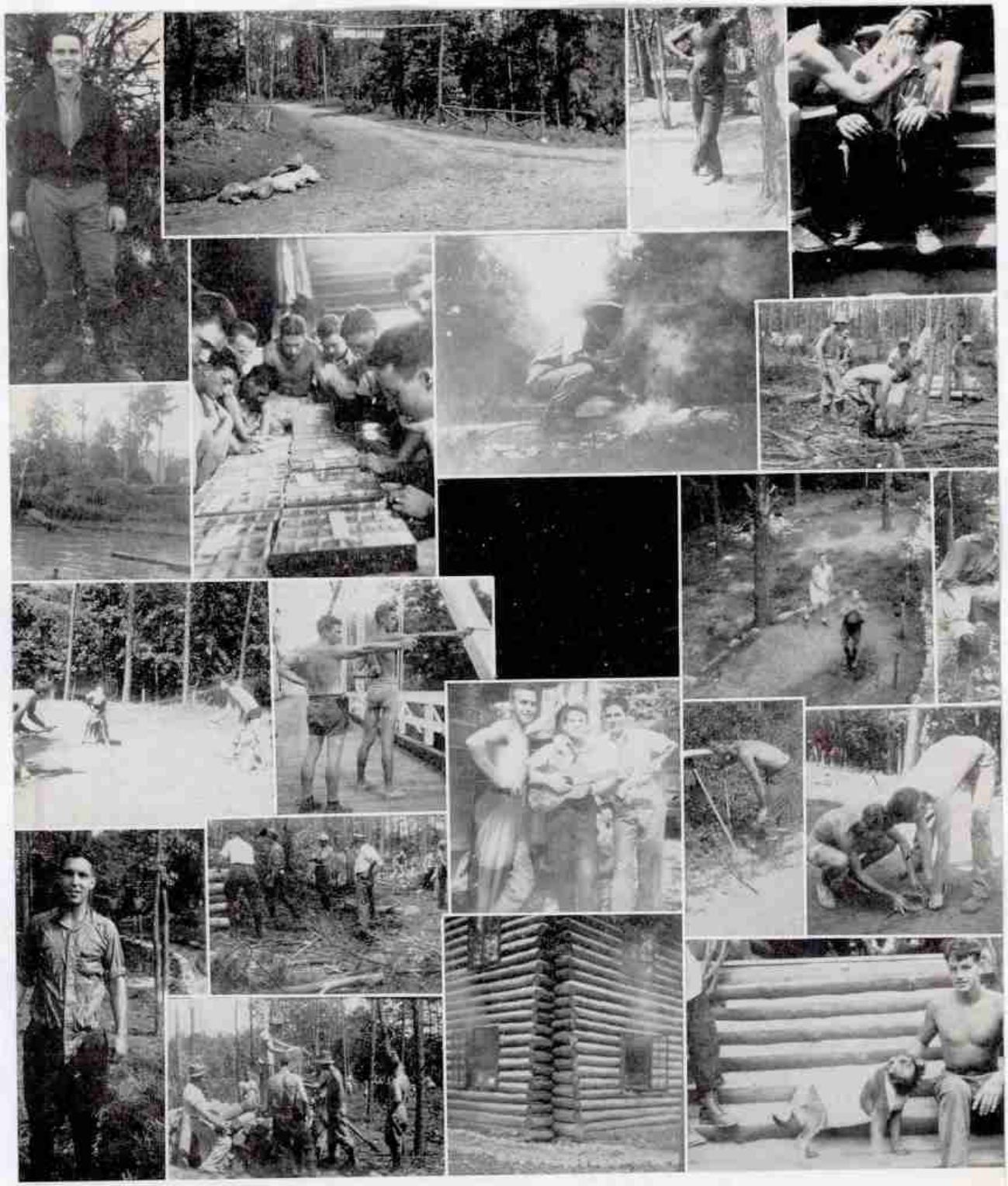
And of course the camp had other educational values other than forestry, this can be vouched for by no other than that mighty Lang Foster—who by merit of his great achievements at camp was nicknamed the "lush lush" boy. But to get back to the main idea of this literary massacre, we want to refresh in your minds some of the happenings at camp—"lest you forget, lest you forget."

The camp, as you know, was in several places—down by the sea, up in the mountains, over at Hill Forest, and in and over the pocosin. This gave the fellows an opportunity not only to see all the different kinds of plants and trees but to pass judgment on all other forms of life to be found in these regions . . . and judgment was passed quite often. Ah! that summer camp, will we ever forget it. It did strange things to people, just imagine our little Lang Foster as a man with a past—and Troxler, "So I puts down my guitar and picks up Pauline." . . . Dr. Miller singing bass in our after supper sings on the porch and that soulful look that would come on Paul Davis' face when he sang—and John Deyton spending all his spare time sleeping and Charlie Matthews doing the same by writing volumes to the little girl in the land of the Poco tempi. . . . Heltzel and his distinction as being the cutest bus driver— And the way Dazy Davis imbibed all eight of those milk shakes just to meet that little gal— Matys and his Chicago blonde up at Boone— Jim Belton, "Boy,



SUMMER

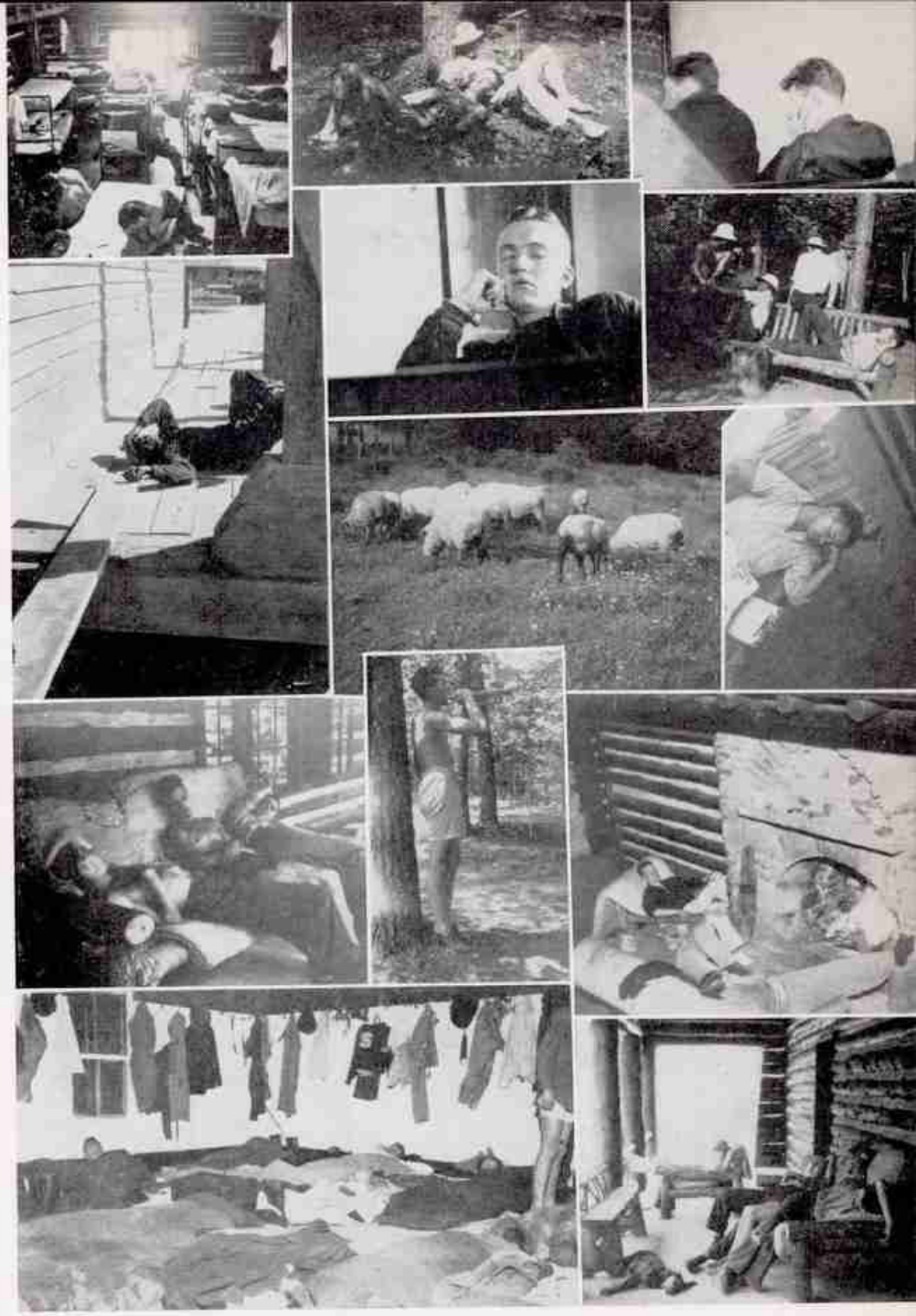
. . . Dendrology and Co-eds. . . . Crystal pool. . . . Kitchen crew. . . . Sundown. "Filler up." . . . Getting up there. . . . We have our picture taken. . . . Grub. . . . Peterson. . . . "Bring 'Em Back Alive." . . . Never hared of you." . . . On to Durham. . . . "What, no boots? . . . "Commissary department." . . . "N.B." . . . Home. . . . Heavy artillery. . . . Moving day. . . . "What a crew." . . . On top. . . . Stripped for action. . . . Wood detail. . . . Honor system. . . . Pop. . . Sixteen miles north of Durham. . . . Charley. . . . A close shave. . . .



CAMP

Before the splash. . . . "Soils ugh." . . . Smoking them out. . . . The last appearance of Nick's hat. . . . Fire drill. . . . Fire at will. . . . Charley and his helpers taking a bath in Flat River, using tar soap, at midnight. . . . Our Professor—(Mrs. Slocum, please note). . . . Bar-tender, sailor, lumberjack, . . . What will Mamma say? . . . Heavy supervision. . . . "In a quiet and country village——." . . . Plane tabling it. . . . "All right, it's yours." . . . Pulpwood. . . . Breakfast on the kitchen stove." . . . Reggie and her sponsor. . . .

that girl sure fell in love with me . . . you know I'm not conceited like most goodlooking boys;" and the way Mad Monk Moorefield drove the bus, or the bus drove him, we are not sure just which—Wheeler as the first to the "bull line" but losing out to Howerton as the heaviest eater with Colwell running a close second—Henderson as an authority on Field and Stream— Charlie Matthews winning the gold brick award and Perry Edge as unanimous choice as the most inert and constant "do nothing" of the camp —And that song of songs, "Maple On The Hill"—That oft repeated but not so popular phrase, "Take it out of the refund" with Slocum on the speaking end—Bragaw and his snakes and everybody and their yellow jackets, especially Red Henderson. . . . Wondering if a surface fire would destroy reproduction on "Bearchest" Mayfield—the graceful picture of Slocum pitching horseshoes in his underwear—The bean and sardine lunches at Jacksonville—Cheslock and his chair building mania and the light construction (eight men could easily move one of his chairs)—Hein and Davis sleeping (?) through the picture show and then demanding that they get their money back, they got the money—Dr. Miller and his uncanny luck at horseshoe pitching and Alec Fox as the best horseshoe man in the camp—Those seven card poker games with Woodard and Frank Mayfield always winning and Wooten just the opposite. . . . The first day quiz in soils . . . and then two weeks of the subject . . . that Iredell soil makes by far the best mud pies—The graceful way Jim could lean on a lamp post and that "Carolina" Bill Bridges. . . . The terrible and soul rending noise on the bugle that came every morning at six-thirty, though it seemed like the very middle of the night. . . . Fontaine's utter disgust with his surveying crews. . . . "Tool Box" Russel and "Monkey Wrench" Wooten never knowing where they got their names—Spitalnik wanting to know if Hubbard was "ale right" after he came floating back to camp from Rougemont—A voice from the night crying out, "Is there a place where there ain't no women?"—Hubbard breaking up Campbell's date by telling him to be ready to go out and help put out a fire in a few minutes and how Campbell kissed the girl five times before he found out it was all a joke—That an Indian fire pump makes a good shower bath if you have someone on the other end to do the squirting, providing of course the person isn't Bragaw—Delphin and his parodies on the popular songs—The beautiful view at Boone—W. G. Davis' struggle in the lake—"Cocky Roach" and his "hell yes"—The bed bugs at Camp Hofmann looking like miniature war tanks—And that farewell party at the Hill Forest Cabin, truly it was a night to make and break personalities—Mrs. Wyman wanting the recipe for the delicious punch, which by the way was made from spring water and 185 proof Rougemont white lightning. Spitalnik and his rules of etiquette—Bramer as the strongest—Matys and Huneycutt as the best amateur cussers—Mathewson as the puniest—Joe Matthews drinking most of the punch at the party—Wheeler as "Cotton Top"—Shimer's frog hunting—The medicine show at Rouge-



SLEEP. . . . Full house. . . . Soil mapping. . . . On class. . . . Dark sleep. . . . Eight o'clock class. . . . Gold-bricking. . . . Symbolic. . . . Joe. . . . Time out. . . . Taps—"like hell." . . . At peace with the world. . . . Sleep—dance hall style. . . . Siesta.

mont, cures anything from ingrowing toenails to hardening of the arteries. . . . Corns, dandruff, colds, headaches, and bilious spell gone in a flash with just one application of this wonderful remedy. Just rub a little "spiglox" on the outside of your shoe and the corn will disappear—a coupon with every purchase and a be-you-ti-ful diamont ring to the winner. . . . Thank you, my friend, and another soul made happy. . . . Those peaceful after-supper songfests on the cabin porch with Troxler, P. Davis, and W. Davis leading off—Charlie's good cooking—K.P.'s and the water buckets—Weeding the dogwood areas —Fumigating Slocum's room—Putting sulfur on pants to keep the red bugs off—Bramer and Fontaine's optimism in expecting the maps in on time—Putting in the stations on the maps—The extra special use of the buses on "town nights"—The fine coöperation of the Durham girls in making our stay in camp a pleasant one—Not a single fight among the boys—Brickhouse worrying about Buie's Creek—Huneycutt getting in the hornets nest—The refreshing dips in the dam and the baths in "mud river"—Rerunning survey lines—Farrior chewing the poison ivy by mistake—J. S. Campbell's poem in dendrology—Do you think we are far enough from Durham's water supply?—Jim Griffin complaining that Bragaw's rifle was always pointed at him when he woke up at night—Mildred and cross word puzzles—and last and not least, George "Chic Sales" Slocum and his ten hole masterpiece. And that my kind friends about winds up some of the high and low spots of the doings of the past summer both in and out of camp. Of course some of the minor details have been left out, but taking it as a whole you can get some sort of an idea of what took place.

The thrills the boys experienced with J. Moorefield as chauffeur.

The continuous kidding of P. Willie as a result of "Carolina."

Dr. Miller's discovery that an Indian Fire Pump can also make a good shower bath.

SIGHTS

Smoke pouring out of the kitchen window.

Cocky's profile in log rolling.

Miller instructing Nick in the use of the increment borer.

Miller's and Slocum's hunt for bedbugs after fumigation.

Jim Griffin's girl: The type of girl that you have to reach around and mark, then get on the other side.

Nickolson trying to explain something to Dillingham.

Ben Mayfield asking if the cypress knees were stumps that had healed over.

TO A BIRD DOG

LLOYD TROXLER

You're up in the morn when the air is chilled,
You get your gun and with excitement filled
You unleash your dog, and off through the sage
You look for the covey that you know is of age.

Your dog dashes off, there's joy in his soul,
As here in a ravine and there on a knoll
He searches hard for the Bob-white gay.
You might run into a simple stray.

Your hope dies down but over there
Is a big straw field and your bounty fair
Should be feeding close in there today—
And are still around if not scared away.

Your dog never stops but through golden hay
Back and forth he weaves his way.
He slows as he cautiously sniffs the air.
He moves on farther; he knows they're there.

He stops; his head slightly turns to the right.
His beautiful body is frozen in flight.
To his nostrils has come that burning smell
Of the feathered game, he knows so well.

Not a move, but the quiver at the end of his tail.
His jowls drip saliva and you know it's quail.
His right paw is raised; he leans to the fore.
They're there, he knows, and he moves no more.

"Steady boy!" and one step more,
Your heart stands still as you wait for the roar.
There's a pause—you wonder, will they go in the clear?
Then the feathered bombs explode in the air.

No time to think but the barrels are lined
On a roaring bird that's off to the pines.
There's a blast; he falls and hits the ground.
And the rest are gone with a fading sound.

"Dead bird, boy," and he's off to look
For the only bird from the covey you took.
He retrieves him with a bound of joy,
And you pat his head as you whisper "good boy."

To me there is no greater thrill
Than to see a setter on a point so still.
And your heart is full of a joyous pride,
As he stands ever ready, close at your side.

Those week-end trips to the beaches in "Click's" oil-burner and those delushious girls. Ask Joe Matys about his date with "Wide Eyes."

"GRANDMA"

or

From Young and Spry to Old and Bent

G. K. SLOCUM

We must consider Grandma from three stages in her career, namely, as a girl, an old woman, and now.

Grandma was born in 1929 and was adopted by a baseball team in Charlotte. Before she could begin her life work, the team went broke and she went back to the orphanage. Here she was located by Dr. Hofmann and Prof. Hayes who, intrigued by her innocent appearance and sturdy carriage, decided to bring her home to the Forestry School boys.

The boys fell in love with her at once, and the class of "31" posed with her for a touching picture. (They all look a bit "touched" don't you think?)

It was with the class of "31" that Grandma was initiated into the ways of foresters. It was from them that she learned about whittling, tobacco, close shaves, muddy feet, and above all, poker. She learned to gamble, and all through her life she would take a chance, even when down with pneumonia and only one lung was working.

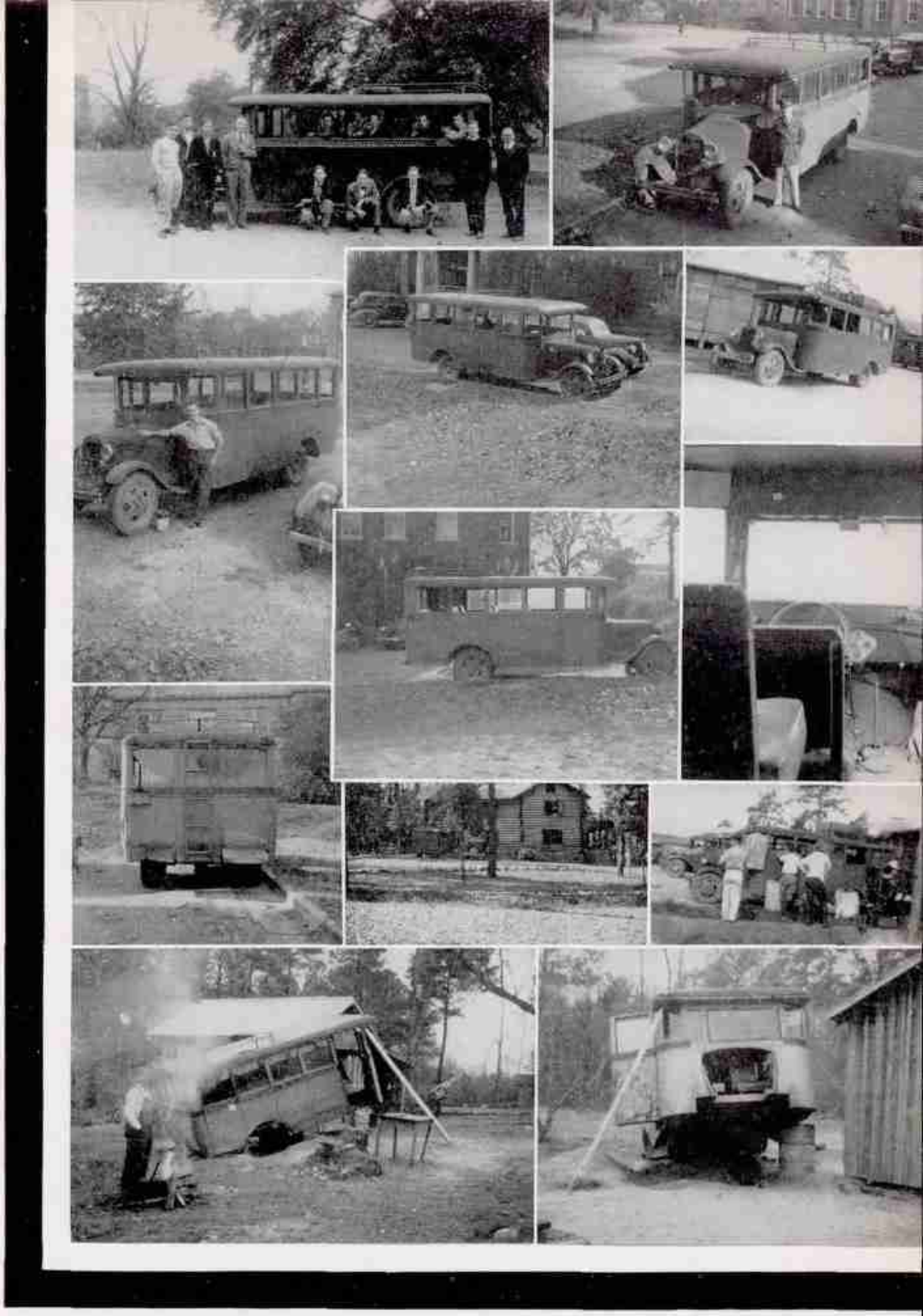
On the senior trip of "31" Grandma accomplished her most momentous feat. She, "Believe It or Not," climbed Mt. Mitchell, though not on high. This was in the days before the trail was widened, and even today she holds the distinction of being the only girl, of her type, to climb these dizzy peaks (with a dizzy load, I might add).

Grandma was also athletically inclined. She carried men of the various college teams, excluding the football squad, to many victorious meetings with other schools. The footballers did not care for her capricious ways.

In 1932 she made her last extensive trip with the seniors. She again toured the state, from the mountains to the sea, and showed the boys a swell time. No functional disorders had appeared and Grandma was in her prime.

In the Fall of 1932, Miss "Chevy Lay" appeared on the scene. The shock of seeing the affections of the boys transferred to the new "hussy," as Grandma called her, caused her to age rapidly. However, Grandma was still appreciated by the faculty. Due to her gentle ways and loveable nature, the little freshman were entrusted to her care. She performed her duties well, and frequently made longer trips with other classes. Her main love, the seniors, gave her no thought. They bestowed all of their affection on the new, beautiful, and unsteady Miss Chevy. This, I fear, is life.

Grandma, in 1933, was definitely considered an old woman. She could still kick up her heels, however, and show some of the younger gals a trick or two. In 1933 and 1934 a blow fell, from which she



A Good Old Gal . . . But They Done Her Wrong

never fully recovered. It fell her lot to carry CWA, FERA, NCERA and other Negro crews to their work on the Hill Forest. Never let it be said that she fell down on the job. She gritted her teeth, braced her back and did her best to carry on the good work, because she knew she was doing her bit to help in the development of the Forestry School program. After this assignment was over she returned to school and awaited her next big job.

Grandma didn't have long to wait and in 1935 an economic survey of Wake County was started. The county was covered from end to end and it was good old Grandma who carried the boys to their work. Sometimes they had to walk back, but she always got them to the job and that's what counts. Her experience counted on this job because she knew just what to do in the mud (she would stick tight and hope). This work made Grandma feel quite young again, but it wasn't until the summer of 1936 that she reached her second childhood.

Summer Camp! Fond memories and all those things. Grandma felt as a young girl again. At last, she would have her boys with her. Her joys were short-lived, when she overheard the prof say, "We will use Grandma for baggage." Although broken in spirit, her courage and determination were as strong as ever. Loaded to the point of collapse, she went to the swamp and thence back to the Hill Forest, and here she found work more to her liking. It was she who carried provisions to the boys in camp, and it did her old heart good to see those boys eat her food. This is characteristic of Grandmas everywhere.

Grandma's last trip was an ecology trip to the coast. When she returned it was definitely known that Grandma's days were numbered. Her sides were thin, her ribs showed, her pins were shaky, and her insides grumbled. A consultation was held, and it was decided that Grandma must go to make way for the new.

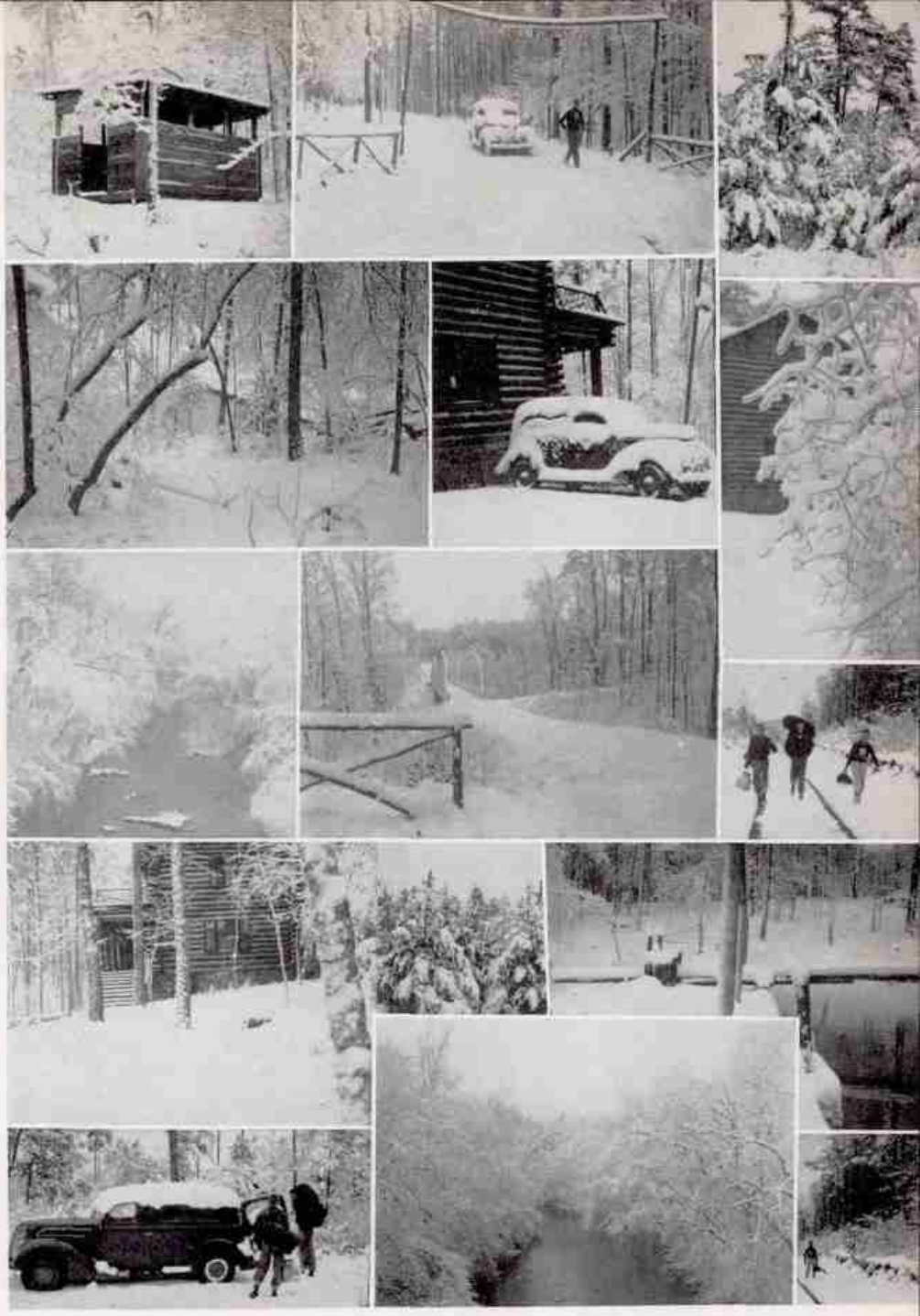
And now? Grandma was purchased by a colored preacher. She is going to carry colored folks to the little white church. Here she can sit in pious meditation during the service and think sweet (and not so sweet) thoughts of yesteryear.

And now that Grandma's tale is told, we take off our hats to a swell old gal. She gave her all to her boys and although cussed and discussed through her life, she was true blue. "She wasn't a phantom of delight," just a damn good bus. Grandma, we loved you.

LEFT

Due to ill health, and doctor's orders, Mrs. C. L. Newman, secretary of the Forestry Department had to resign her position at the end of the first term. It is with regret that we see her go, for since the department's organization in 1929, she has served faithfully and well. In her quiet, unassuming way, she always stood ready to lend a hand to those who asked assistance, cheerfully, willingly, and graciously.

Our best wishes Mrs. Newman, and our hopes for better health.



"WINTER AT HILL FOREST"

5

SPARSE ON THE RIDGE

"CLICK"

In a discussion of the management of my "crowning" crop, I might state at the beginning that the area is made up of stands characterized by a preponderance of overmature material and a noticeable lack of advance reproduction. I might also add that at the present time there is a tendency for the stand to be understocked, with certain portions of the area nearly denuded. For this reason my major problem in management is the establishment of reproduction.

Several systems of management have been tried, including the Swiss, German, French, and Austrian. However at present I have an Italian barber who seems to be getting results with an entirely new method.

All of the best silvicultural practices have been carried out with more or less success. Grade A thinnings were attempted at an earlier age when the stand was young and more dense. However, this practice was not practical because there was no market for the young material. The quantity produced from these thinnings was not sufficient for utilization either for hair brushes or stuffing mattresses; and besides it did not improve the esthetic appearance of the stand sufficiently to warrant the extra cost. However, pruning has been esthetically justified in this type of stand, especially around the ears. As no undesirable species have been noted in this pure stand, weeding has not been necessary.

Several cutting methods have been employed with a view to sustained yield and subsequent reproduction. The first effort along this line was in 1930 when the whole area was clearcut in the hope that stand would come back in a more vigorous condition. This met with partial success, but the depreciation, due to losses in esthetic value and erosion, made it desirable to maintain a good cover at all times. Clearcutting in strips has only been attempted once; that was during an initiation. A combination of the shelterwood and selection methods with a cutting cycle of two weeks has met with the best results.

Due to the failure of the indigenous species to establish reproduction, it has been suggested that the area be clearcut and planted with an exotic. One of the wild red hairs of the Troxler variety has been suggested for the experiment.

A DREAM?

A comfortable rumbling sound like the melody of a distant mountain stream tumbling merrily over the moss covered rocks; the feeling of complete relaxation in a large overstuffed chair in front of a crackling fire on a cold winter's evening; the rustle of wind thru the tall dark pines outside; at peace with the world, no cares, no worries. —Pines, PINES, who mentioned PINES? Huh?—What's that? Snoring! me snoring? Doggone it, scuse me Professor, I must have dozed off a minute.

THE HOFMANN FOREST

G. E. JACKSON, '35

The largest forest available for use by the Division of Forestry at North Carolina State College is the Hofmann Forest located in Jones and Onslow counties of Eastern North Carolina. This forest derives its name from Dr. J. V. Hofmann, Director of the Division of Forestry, who worked out the method for acquiring this experimental area for State College. It is through his untiring efforts that the forest is being organized, developed, and administrated for demonstration purposes. This forest which has had several different names in the past, such as the White Oak Forest, the White Oak Pocosin, or the School Forest of Jones and Onslow counties, is an unbroken tract of 84,000 acres of combined forest and open land.

In 1934 this tract became the property of the North Carolina Forestry Foundation, a non-profit, holding corporation, organized to acquire land for promoting forestry practices, preserving growing timber, and holding suitable tracts of virgin timber as object lessons in forestry, for the benefit of the Division of Forestry at North Carolina State College. A self liquidating plan was worked out by which the land was purchased and put under forest management. A minor portion of the gross income from this management is used for administration purposes, and the remainder is applied to the purchase price. Associated with Dr. J. V. Hofmann as Directors of the North Carolina Forestry Foundation are: Dr. Clarence Poe, President; Col. J. W. Harrelson, Dean of Administration, N. C. State College; George Watts Hill; R. H. Merritt, and T. L. Bland.

Description of the Forest

The Hofmann Forest lies 60 miles north of Wilmington and 25 miles south of New Bern. It is within the water shed of the White Oak, Trent, and New Rivers, with the White Oak heading directly into the forest. The Trent River is navigable as far as Trenton and offers an outlet by water for the forest products on the North side of the forest. U. S. Highway No. 17 and the Atlantic Coast Line Railroad cut through the Southeast portion and two abandoned road beds run through the interior. One of these is an old railroad bed, and the other is an abandoned state road.

The topography varies from flat in the interior to rolling ridges and streams around the boundary. The elevation varies from 32 feet on the extreme Southeast section to 66 feet near the Royal Oak corner on the West boundary. The principal drainage channels run North and South. Predominant timber species are Pond Pine (Pinus rigida serotina); Loblolly Pine (Pinus taeda); Cypress (Taxodium distichum and Taxodium ascendens), and Swamp Black Gum (Nyssa biflora). Timber trespassers have removed many of the stands in the past. Dense undergrowth, consisting of gall berry, wax myrtle, bay, and

huckleberry bushes interwoven with green briars, are found in the open pocosinal areas. Merchantable timber is found along the border of the forest; the heaviest stands being in the swamps and along the streams. This timber fades out towards the interior where only scattered stands of young growth and in places, open pocosinal areas are found.

The major part of the forest is occupied by pond pine at the present. The pond pine type will be greatly reduced by drainage, and the loblolly pine and longleaf pine types will be enlarged. Loblolly pine is found on the better drained areas and long leaf pine follows the sand ridges, some of which extend into the center of the forest. The wet areas where pond pine grows are underlaid with white and black sand at varying depths of three to eight feet. Hardwoods usually occur along the streams and at the head waters. The large cypress area at the west end contains trees six to seven feet in diameter at the top of the first sixteen foot log with a diameter of nine feet and over at stump height. Loblolly pines three to four feet in diameter at breast height and one hundred and twenty feet tall occur in this section of the forest.

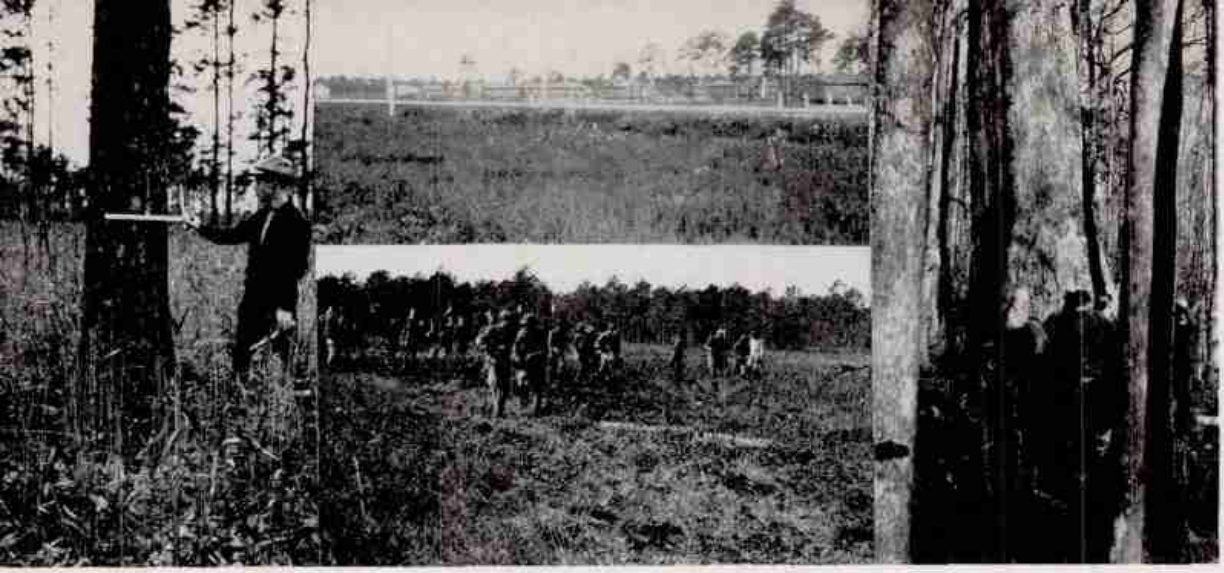
Virgin timber areas of cypress, loblolly pine, pond pine, longleaf pine, and hardwoods have been selected and reserved as permanent natural areas for study and general interest.

There is much interesting geological history pertaining to the formation of such pocosinal areas. Geologists advance the theory that such areas were created millions of years ago by a shower of meteors which fell upon the Coastal plains of North and South Carolina, striking the earth at an angle and thereby forming a saucer shaped cavity. Through the ages these craters have become filled with partially decayed vegetable matter in the form of muck. Upon entering such an area one conceives the idea of entering a low swampy section; however, a topographical survey shows the elevation through the interior several feet higher than the adjoining lands. Aerial pictures of these areas show this saucer shaped formation and the gradual migration of the Pine seedlings into them.

The entire forest was severely burned many times prior to 1934. Grazing has been practiced on a free range basis and an unlimited amount of hunting has been carried on both in and out of season because of the remoteness of a large portion of the area and lack of game law enforcement. Among the products of this forest are logs and lumber, pulp wood, cord wood, poles, post, veneer stock, and pine straw. Markets are found locally and in the adjoining small towns, but the larger portion of the products are marketed in New Bern, Kinston, and Wilmington.

Administration

Dr. J. V. Hofmann is the administrative head of all the experimental forests. G. E. Jackson is the supervisor and at present is devoting his entire time to the organization and administration of the Hofmann Forest. Fire wardens are appointed and paid on an hourly basis for the time they are on duty. The entire personnel of the local CCC



Pond pine in scattered pond pine type. . . Camp Hofmann. . . . Virgin cypress area. . . . Planting slash pine near Camp Hofmann. . . .

camp are assisting in the development of the forest.

The silvicultural policy recommends that the entire forest be cut over as soon as possible. This policy is necessary because of the over-matured timber depreciating in value and the advantage of making purchase payments. Heavy annual losses occur in the mature stands of pine from heart rot (Trametes pini) which destroys the heart wood of living trees. After the damage is done a fruiting body, in the form of a bract appears on the bole of the tree. This fungus bract is dark brown on top, yellowish brown and porous below. It is often possible to salvage one or more logs from an infected tree, in most cases such logs have a high percentage of clear heart wood. This disease is prevalent in pond pine because of the injury from repeated burning and the poorly drained site upon which it grows.

SALES: Six timber sales are underway at present with each covering a natural logging unit, with the forest boundary on one side and roads, streams, or the edge of merchantable timber on the other. A contract is drawn up for each sale, and a deposit of 1/4 the stumpage price is required before the contract is valid. Major points covered in such contracts are as follows:

All materials are to be measured, checked or scaled and paid for as it is taken from the forest. All logs are to be measured by the minor 2/3 log rule and sawed lumber by mill run scale.

Merchantable timber is any amount of standing timber that will scale one thousand board feet or more per acre under the methods of timber scale used in the contract.

A merchantable log is not less than 12 feet long, at least 7 inches in diameter inside the bark at the small end, and after deduction for visible indications of defects scales, 33 1/3 per cent of its gross scale.

Stump heights and top diameters are cut so as to cause the least practical waste: the stump not to be higher than 16 inches on the side adjacent to the highest ground. All trees and tops are cut so that the slash is on the ground.

The purchaser is authorized to build saw mills, camps, road and other improvements necessary in logging and manufacturing the timber, and he is required to do all in his power to prevent and suppress forest fires on and in the vicinity of his sale area.

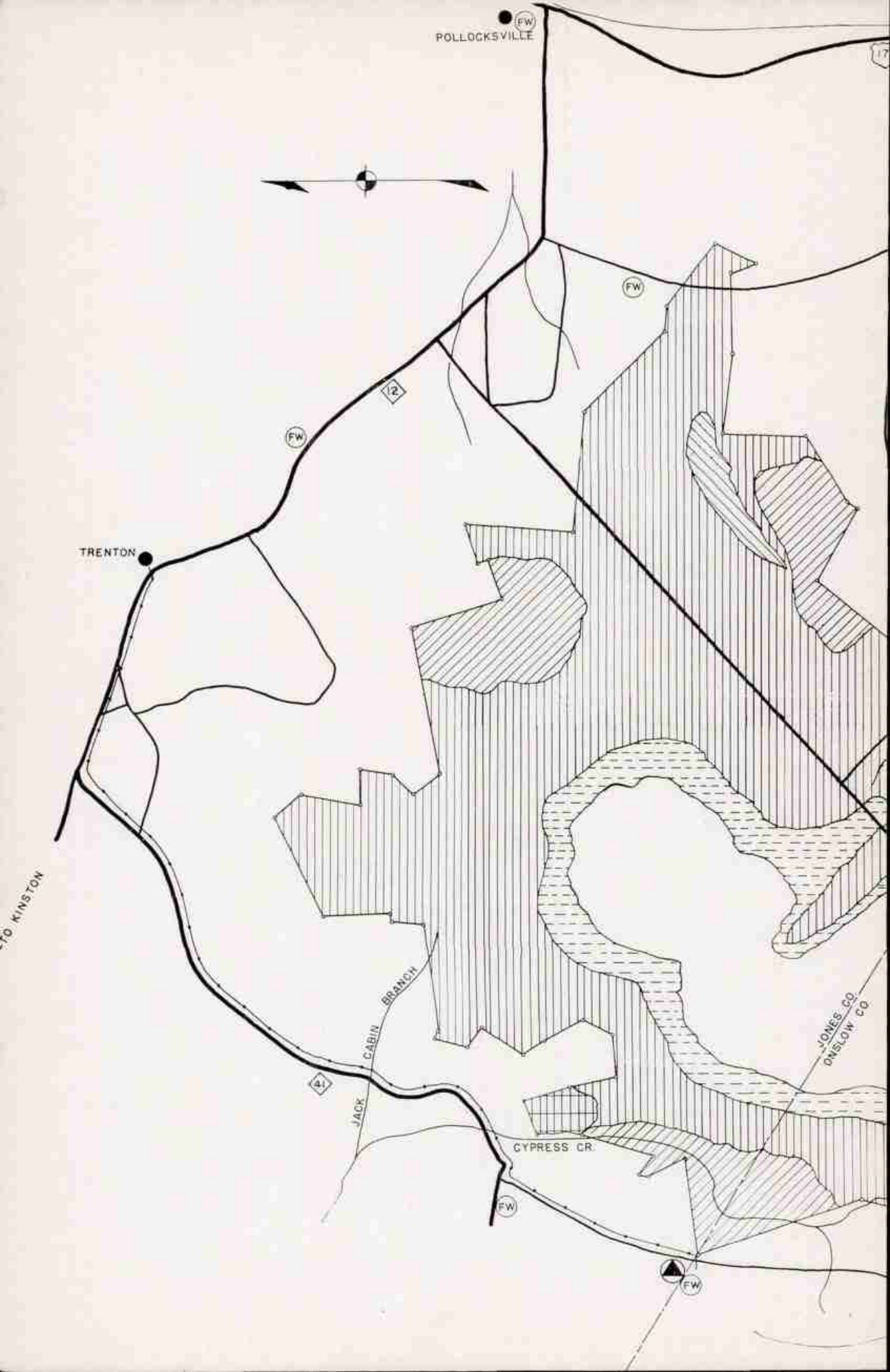
LOGGING: While logging might be possible the year around, usually heavy rainfall and snows occur during the winter months, which often causes cessation of logging operations due to wet soil conditions. Both white and colored labor is employed by the contractors with the local supply usually filling the demand. In most cases animal logging with high wheel carts is used in the scattered pine stands; however, a Caterpillar tractor, size 22, on one of the operations is proving very satisfactory because of the elimination of road clearing and the large load it will move. In the dense stands a skidder is used and the logs are pulled in, sawed into standard lengths, and loaded directly on to the truck, and transported to the mill. On one operation the logs are skidder-loaded, hauled 14 miles by truck, dumped into the river, rafted, scaled and floated to the mill 37 miles away. Plank roads are constructed in the logging units by laying cross ties, placing two 3x8's side by side, and spiking them down for each track. A mile of such road when properly constructed in swampy country costs approximately $800.00.

GAME: The Hofmann Forest is noted for its game and each year hunters come from far and near to participate in the big deer drives and bear hunts. The cover type offers a place for such game as deer, bear, squirrel, coons, opossums, rabbits, quail and turkey to thrive. Regulated hunting during the past two seasons has caused a noticeable increase in the amount of game on the forest. Deer is the most valuable game present. The forest is organized under the North Carolina Game Laws as a "Privately Owned, Public Hunting Ground," and each hunter is required to purchase a permit before entering the area and then return the permit and have his game checked at the close of the day's hunt. During the past season hunting was allowed only on Saturdays of each week because of the large number of men working in the forest. Reports show that 46 deer were killed during that period or 3 for each day that hunting was allowed. No signs of over stocking have been noticed and the only damage done has been by rabbits eating the buds of the young pine in the plantations.

GRAZING: The prevalence of large reed beds, open meadows and in order cases, dense undergrowth offers possibilities of an extensive grazing program. Organized grazing started last season under the grazing program as outlined by the U. S. Forest Service. The fee for cattle and horses ranging on designated areas is 12 cents per month per head and for sheep 4 cents per month per head. Local cattlemen claim that their herds can stay on the range from nine to eleven months each year under normal grazing conditions. However, experimental grazing is to be undertaken and a definite grazing program worked out.

LEGAL PHASE: Of the 92 miles of boundary line around the forest, at least one-sixth was under dispute when the North Carolina For-

—Continued on page seventy-four


POLLOCKSVILLE
FW
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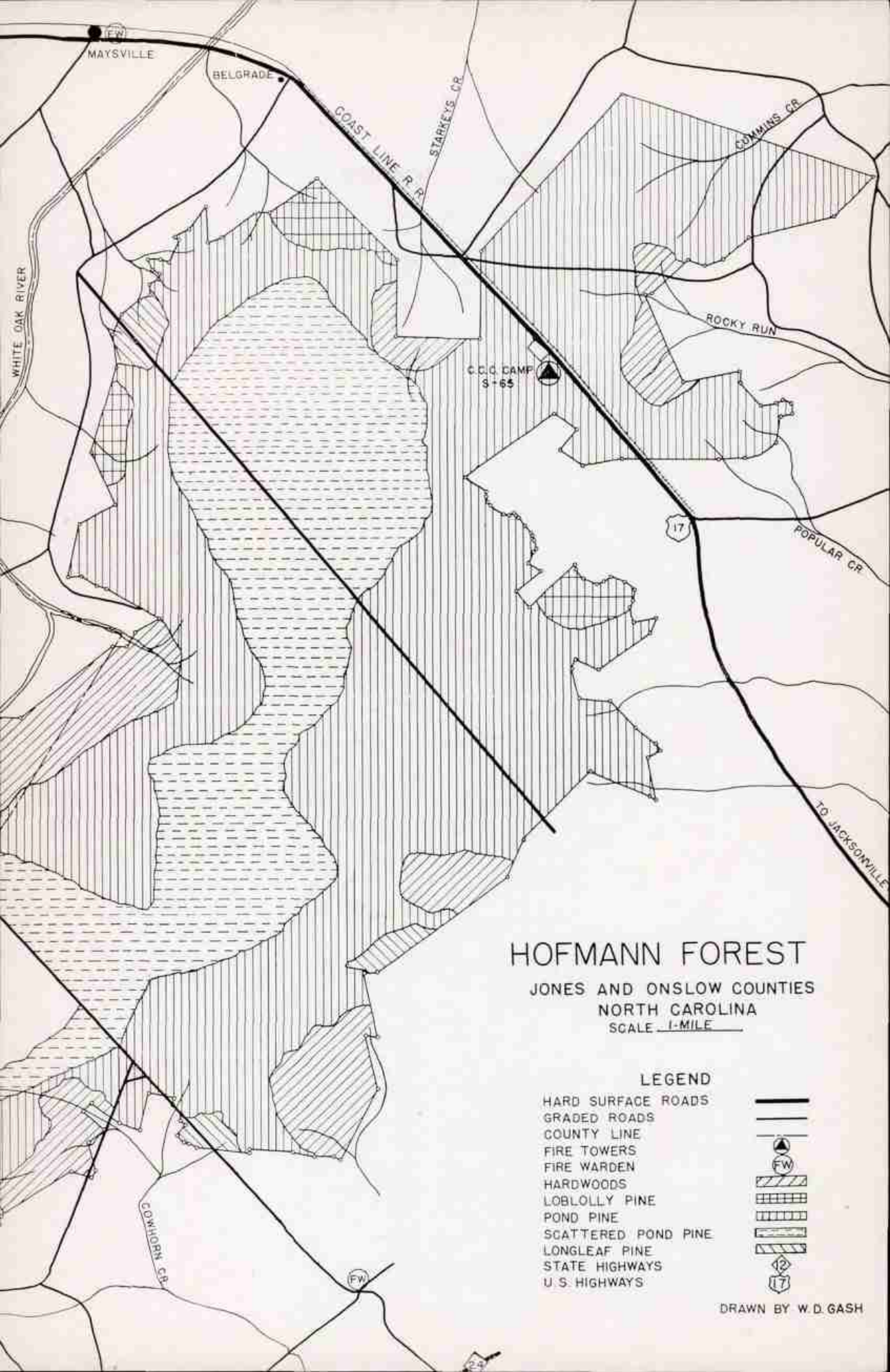

MAYSVILLE
FW
BELGRADE
COAST LINE R.R.
STARKEYS CR.
CUMMINS CR.
WHITE OAK RIVER
ROCKY RUN
C.C.C. CAMP
S-65
17
POPULAR CR.
TO JACKSONVILLE
COWHORN CR.
FW
24
HOFMANN FOREST
JONES AND ONSLOW COUNTIES
NORTH CAROLINA
SCALE 1-MILE
LEGEND
HARD SURFACE ROADS
GRADED ROADS
COUNTY LINE
FIRE TOWERS
FIRE WARDEN
HARDWOODS
LOBLOLLY PINE
POND PINE
SCATTERED POND PINE
LONGLEAF PINE
STATE HIGHWAYS
U.S. HIGHWAYS
12
17
DRAWN BY W.D. GASH

estry Foundation purchased the property. The overlapping grants are investigated to determine who has priority of title, if there is a recorded proof of a claim of legal transfers of title dating back to the original owners or grantees, and if the claim can be located on the ground the claimant is interviewed, and if he has a claim, an adjustment line is set up and agreed upon. The claimant then gives a quit claim deed to all property outside this agreed line. If an agreement cannot be reached, the claim is bought or settled in the courts. A local lawyer, usually the county attorney, is employed in such adjustments. Three timber trespass cases have been handled, two of which were settled out of court. An estimate was made of the timber removed and payments were made according to the regular stumpage price for such timber. A written permit is necessary before a person is allowed to cut cord wod or poles on the forest. To date 17 prosecutions have been conducted for the violations of the Forest Fire and Game Laws and 17 convictions have been secured. The local game wardens coöperate in enforcing the game laws and most of the game cases are handled by them. Local sentiment is to uphold these laws and less violation is expected in the future.

The forest coöperates with the North Carolina Forest Service in fire protection. It is listed as the State College Protective Association, and funds for fire protection are secured by the association furnishing an agreed amount each year, which is matched dollar for dollar from the Government Coöperative Fund for fire protection purposes. The Association Ranger is at the head of this fire fighting organization. He is assisted by local wardens around the area and the CCC enrollees from camp 65-S located on the forest. Each warden has a crew of four to six men that pledge themselves to fight fire whenever summoned. A fire warden has the authority to summon any physically sound male resident between the ages of 18 and 45 to assist in the extinguishing of fires, and there is a penalty if such service is refused.

All forest fires threatening, or those on the association property are handled by the association wardens. A 100 ft. steel lookout tower has been constructed on the Northwest end of the forest and a towerman is kept on duty during the fire seasons. Telephone lines connect the tower to the Jacksonville and Pollocksville exchanges. A steel lookout tower 120 ft. high is to be erected on the South end of the forest which will complete the detection system. During clear weather two of the Federal lookout towers on the Croatan National Forest are of use in detecting fires on the Hofmann Forest. Due to the absence of adequate fire breaks and roads a very high fire hazard exists, and dense undergrowth and large reed beds tend to increase the hazard. In the past forest fires have raged over the area and unestimatable damage has been done to the value of the forest. Educational work with the adjoining land owners is being undertaken through personal interviews, group meetings, and articles published in the local papers.

These have aroused much interest in fire protection. Control burning for protection has been practiced by the natives in the past, since up to two years ago there was no forest fire law enforcement in this locality. The old timers still insist that they must run a fire through their woodland during the winter months in order that less damage may be done by the inevitable summer fires.

Twelve fires occurred on the area during the past fiscal year, and burned a total of 26,261 acres. Most of the damage done was to young growth, game, and soil fertility. The cause of these fires are listed as follows: incendiary 7; lumbering 2; hunting 1; and miscellaneous 2. These fires occurred before there was any detection system and one fire had been burning two days before it was discovered by the forest officer. This fire continued to burn for 15 days, and covered 22,344 acres of the forest property and several thousands of acres of private land before it was stopped. This fire occurred during a period of no rains, and high wind. The best that the entire fire fighting forces could do was to hold it off the more valuable stands of merchantable timber and young growth. Backfiring was the only effective means of combating the fire. Since there were no natural fire breaks a line had to be cleared and raked before the backfires were started, and then only a few feet could be fired at a time because of the high inflammability of the forest cover and the terrific heat from the backfire. As a last resort 7 miles of the old Quaker Bridge Road was backfired to hold the flames from the other sections of the forest. Most of the fires in this locality are surface fires that tend to crown during the heat of the day because of the dense undergrowth. Direct fire fighting or the two foot method are applicable only in the more open areas. The most useful fire fighting equipment includes the 5 gallon spray pump, galvanized water buckets, fire rakes, and bush hooks. Crews of 5 men each prove the most effective.

Development

In August, 1935 CCC Company 430 moved into its present location. One of the major programs in the work plan for this camp was drainage. The forest as a whole is poorly drained and during the wet season, surface water is found on the flat, undrained areas. From the surveys that have been run, it is evident that drainage might be secured by the construction of the proper canals and ditches since the interior of the forest shows the highest elevation in that locality. Because of the topography, streams flow from the forest on all sides and during a dry period, this natural drainage lowers the water table well below the surface. Adequate drainage for forest growth could be secured by opening up these natural drainage channels and extending them into the interior. In order to carry out such an extensive drainage program, a survey and timber cruise is being made and maps constructed showing the cover type, elevations, and soil conditions. The type map is approximately half completed at present, and a traverse has been run along the outside roads, and along the highway and Roper railroad through the forest. Bench marks have been established

along these traverses. This type of survey is to be continued by running lines and establishing elevations at definite intervals throughout the forest.

The local CCC Camp has, up to the present time, devoted most of its time to the fire control program. The old Quaker Bridge Road is being rebuilt and the Roper railroad bed brushed out for a fire break. A road has been constructed from the existing road at the head of White Oak River to the center of the Quaker Bridge Road. The work program calls for thirty-five miles of plowed fire line besides the truck trails that are to be constructed. During the winter months CCC enrollees have cleared up, drained and planted approximately 400 acres adjoining the camp site. The species planted includes Slash, Longleaf, and Loblolly Pines, Tulip Poplar and Black Walnut all of which were grown at the College Nursery. Spacing plots have been established with 1-0 stock to determine the desired spacing of the different species in this particular type of soil. These plots were put in on the following spaces: 4x4'; 6x6'; and 8x8'. Plots have been put in to check the result of planting on burned and unburned areas. These plots have been replanted in order to have the necessary 100 per cent survival. This was accomplished by taking the seedlings from the outside border strip and transplanting them into the plots. This gives an even age stand on which to keep growth records.

The forest boundary as shown by the Blanchard survey of 1926 has been reëstablished. Concrete corners with a copper marker in the top of each have been constructed and will be set. The true line is to be marked by the two-hack method and then posted in order that it may be easily located by anyone near it. The plan to be followed in setting corners is to start at the Royal Oak corner on the West side of the forest and number each corner consecutively in a clock-wise direction around the entire forest. The use of blazes in marking the trails of hunters, loggers and others using the woods often confuses one in locating old line blazes. It has been found that the two-hack method is not used by anyone except surveyors in marking lines, and for this reason it is to be used for marking the boundary of the Hofmann Forest. A revised map is to be constructed after this survey is completed.

The collection of data for the preparation of a management plan is under way. Type maps and yield tables are being constructed and normals are being established for the different species. Fact-finding projects with maps and records of each are being carried out. The forest is divided into compartments and after the initial cutting cycle will be placed on a sustained yield basis. Experimental drainage in the plantations around the camp, resulted in the removal of the surface water and the stimulation of forest growth.

Permanent quarters for the students' summer camp are to be constructed on an area adjoining the local CCC Camp. This location is desirable because the forest headquarters are at the CCC camp and the students will have a closer tie with the forest activities.

Biographically Speaking . . .

—*Continued from page six*

DR. WILLIAM DYKSTRA MILLER, A.B., M.F., Ph.D.

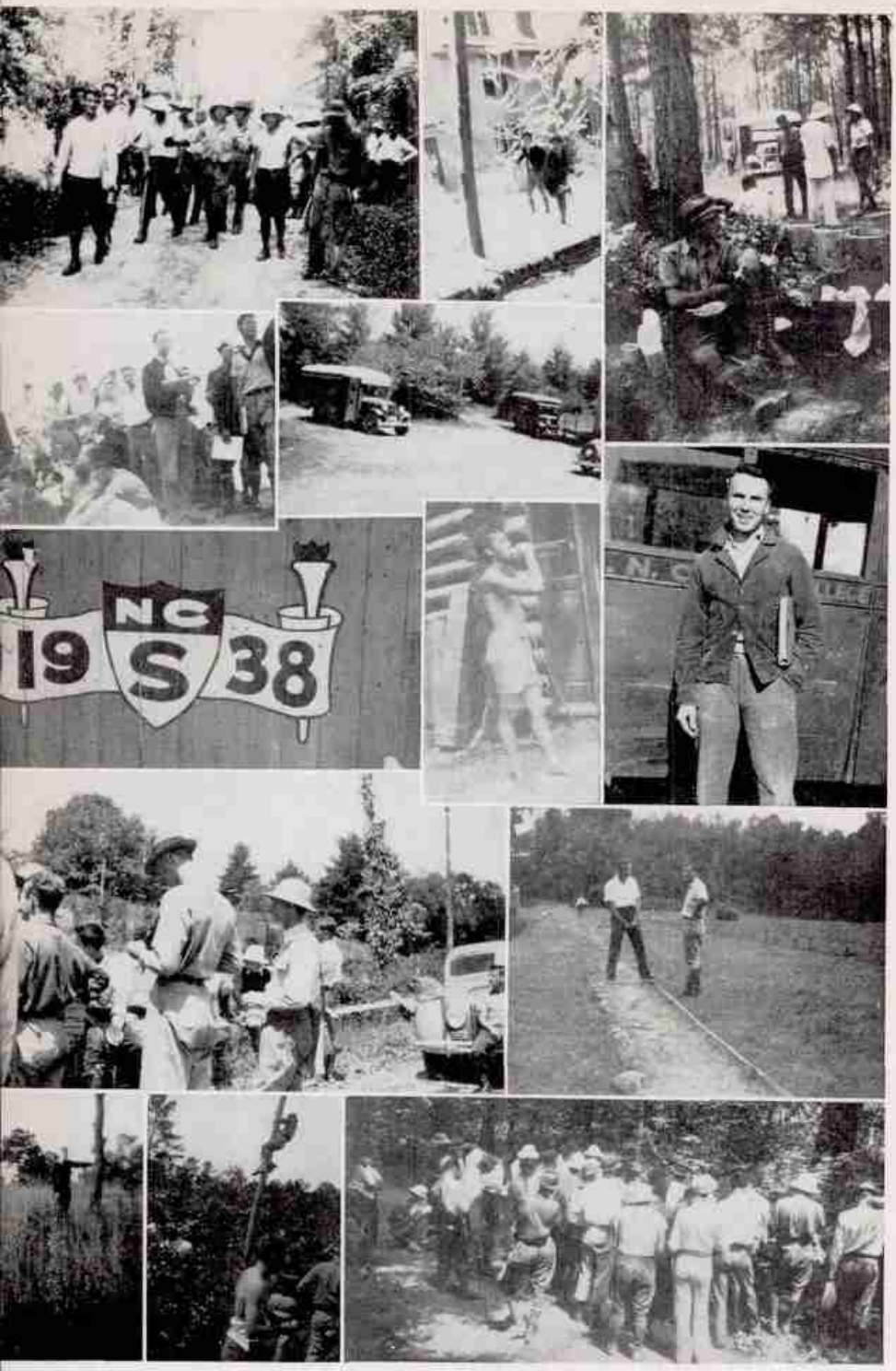
The early part of Dr. Miller's life was centered around Portland, Oregon where he was born, received early education, and attended Reid College. After graduating with an A.B. degree in political science in 1923, he was employed in newspaper work in Missoula, Montana. 1928 found Mr. Miller marrying Miss Catherine Ritchey of Missoula. He entered Yale University, from which he received his M.F. and Ph.D. in Forestry. His doctor's thesis was "The Effect of Weeding on Survival and Growth of White and Red Pine." Leaving Yale, Dr. Miller taught one year at Idaho before going to Arizona where he did stand improvement and sample plot work at the Southwestern Forest and Range Experiment Station. The sample plots were of no small size, three of them containing 400 acres. In 1934 he was back at the University of Idaho where he taught mensuration one year before coming to State College in 1935. At State he capably instructs the sprouting foresters in Silvics, Silviculture, and Methods of Research. How true it is we don't know, but rumor has it that the largest frog at the Hill Forest turned green with envy when he heard Dr. Miller's gentle bass voice instructing the juniors in silviculture.

PROF. GEORGE KELLOGG SLOCUM, B.S., M.F.

Professor Slocum also was born—Scranton his home town and site of early education through high school. Finishing the latter he attended Staunton Military Academy one year before entering Mont Alto Forestry School in 1927. He remained there two years, then transferred to N. C. State, receiving B.S. degree in 1931. With a teaching fellowship he continued his education securing his M.F. in 1932. His Master's thesis was "Seed Study of Loblolly Pine." Continuing his fellowship, he completed one year's work on his doctor's degree. In the spring of 1933 he entered the Forest Service working at Hot Springs, N. C. only to return to State in the Fall as instructor in forestry. Professor Slocum is a member of the S.A.F. and the Phi Kappa Phi honorary fraternity. Married to Miss Thelma Shank, he has one daughter one and one-half years old. Hobbies as every forestry student knows, is raising small fish of which he has 200, and raising small trees which number 400,000. In summer camp he rides his hobby of getting the boys up early. Only dislike—leg pullers.

MRS. G. M. SWICEGOOD, Secretary

The resignation of Mrs. C. L. Newman, due to ill health, left a secretarial opening in the Forestry offices which has been ably filled by Mrs. G. M. Swicegood. Not unexperienced on campus typewriters, Mrs. Swicegood has worked in the Registration Department, is the sister of M. L. Shepherd, former Y.M.C.A. Self-Help Secretary and now with the Extension Division. Adept at typing, stencil cutting, dictation, etc., a familiar figure at State athletic contests, Mrs. Swicegood has already established herself with the Forestry personnel.



JUNIORS. . . . "Lead on, MacDuff." . . . Winter sports. . . . First and last —Wooten. . . . "Where, Dr. Ikey?" . . . Transportation. . . . Class numerals. . . . "We love you, Hunter!" . . . "Lush lush." . . . Dendrologists. . . . "Aw hell, Professor." . . . The tree holder-upper. . . . Camp's that way. . . . Field work at summer camp. . . .

Forestry Club Rolleo

—Continued from page eighteen

A smooth poplar sapling was chosen for the tree climbing without spurs. In spite of the smooth character of the tree, however, the boys made very good showings. Bill Bridges climbed to a first place for the Seniors, and Shimer and Matson took second and third places respectively for the Junior and Freshman classes. In tree climbing with spurs, Dazy Davis took first for the Seniors. Whitman and Harrison came in second and third for the Juniors and Freshmen.

The Freshmen upset the dope of the afternoon by taking the height estimation contest. Matson took first place in this with Wheeler second for the Seniors. Campbell was first for the Juniors in diameter estimation. In rope climbing, Colwell climbed for the Juniors and took first place, and Bridges took second place for the Seniors.

Due to the very large crowd this year several of the events had to be left out because of lack of time. The tug-o-war, tobacco spitting, and smoke chasing contests were not held in order to get the boys back to school in time to see the football game that night.

Interview With Tom Gill

—Continued from page twenty

overcome before one can be put on a firm basis. First, there has to be a market developed for tropical products. Outside of using the mahogany, some rosewood, the British greenheart for piling and some others like balsa, quebrach, mangrove, and so forth there is little demand for the wood. No place in the world has so many tree species as the tropics. For such trees I have given, and some others, there is a demand, but unfortunately trees do not grow in pure stands as our trees in the United States but scattered over the forests. As a result you can not log economically a tree here and there using modern logging methods, and where your initial investment must be large as it must be here. To make such an operation feasible a demand would have to be created for all the products and that would mean research. To date few tests have been run on any of the tropical woods to get out the resins, gums, and oils in them. Mechanical tests have been run on a number of the woods by Japan. What possibilities there are in the products of these woods no one knows, but I believe that it is from here that the large future revenues will come.

"Another obstacle is lack of adequate surveys. The one I was on from 1927-1930 was inadequate as the depression called a halt to the activities. Contemplated plans called for the investigation of the wood properties. However, it is the most up-to-date survey of the area and though confined mainly to the Caribbean area it is generally applicable for the whole of the South and Central American Tropics."

"The biggest problem to a company going in there to practice forestry, is the necessity of securing their investment by an enormous amount of capital. Land is cheap—I know where you can pick up valuable timber land from 15 to 50 cents an acre—but that is only the beginning. Some of the governments have a habit of assessing companies owning concessions large sums of money, which can prove a heavy drain or even the ruination of an enterprise. The stability of

the governments are never sure and your position is never certain. If you come back to the United States and try to build up a market, cutting in on the trade of hardwood and fruit companies, it would not be long before they would have their lobbyists at work in Congress trying to place an import duty on tropical woods that would ruin you. Along this same line in building up such a trade, you would have to guarantee delivery of so much of a certain kind of lumber and that would be almost impossible to fulfill, cutting in the mixed stands you find in this country. Lastly, this is a land of graft and politics, where to get along a little 'palm greasing' is often essential." Citing an example, he told of the disposal of his aeroplane with which they had made their survey. "It was worn out but an army officer in one of the governments offered me 5,000 pesos for it. I accepted, and when the receipt was brought it was made out for 10,000 pesos. I endorsed it and gave him back the extra 5,000. That was his cut."

Commenting on methods and labor used in operations he said "Logging is carried on by man power and oxen though there are some railroads going back into the interior. Perhaps the longest is up the Orinocco several hundred miles where mahogany is being cut. Water transportation is used mainly. Logs are hauled to the river during the dry season and when the spring floods come are put in the stream. Some of the logs are whipsawed and the boards are hauled to the banks on the heads of the women. The heavy woods are lashed to balsa spars and floated down the rivers. Everything is crude and in the earliest stages of development. Labor can be had for little or nothing.

I asked Mr. Gill what he thought were the necessary qualifications for a person who intended working in the tropics.

"Average health," he replied. "No tendency to heavy drinking, the ability and determination to stick it out when you had to. Life is not easy down there. It might be months before you hear a word of English spoken. You may have to fight mosquitoes all night and go on the next day, and you have to become accustomed to sleeping in a hammock for it is necessary. Americans and Britishers with average intelligence seem to be better suited than other nationalities in taking care of themselves in the forest, possibly this is a hangover from the pioneer days. Salaries are not much but it is far cheaper living down there than in the United States. You do not need many clothes; food is cheap, and servants and houses cost practically nothing. You must possess the ability to get along with a childlike people, treat them kindly and obtain their trust. This is important."

In conclusion he stated, "There is no place in the world as variable as the tropics, what I have just told you is general for the whole area but I know of a hundred exceptions. What might be true for one locality is not necessarily true for another. I believe that the day will come when tropical forestry will have a future. If you are determined to go into the tropics; if that is where your interest lies, then hop to it, and you may be lucky and hit it right; but from my own personal opinion the future has not yet arrived."

Nursery Work in Arizona

—*Continued from page twenty-one*

grasses germinate in three days. Hard coated seeds take longer to germinate unless they have been previously treated.

As soon as the seeds germinate they must be watched closely for signs of damping-off. A whole bed will damp-off in a short while. Instant removal of the shades, and no more watering of the beds affected, will help in controlling this condition.

One of the worst pests of the nursery are the ants. Some kinds work in the daytime and some at night. Those that work at night seem to be the worst; often the ants from one anthill will strip several shrubs in one night leaving a trail of leaves in their wake. A tablespoon of calcium cyanide placed in the anthill after it has been dug out with a trowel will effectively stop most of them. It should be dug out four inches, deeper is better; straight down so that the ants can not climb out.

Birds will do a lot of damage if they have a chance, but by using a wire screen of small enough mesh the tender plants can be protected. Rabbits are another pest but are successfully kept out by fencing around the nursery.

Once in awhile a rattlesnake will come crawling in the nursery, but he goes out pretty fast if we hear him first. Scorpions—I have yet to be stung by one and have no desire—are common in and around the nursery. Centipedes—I saw one six inches long crawling around the bunkhouse—are very common. Occasionally a wind will come from somewhere and carry about ten shades across the field and break up a few more, but all in all it's a great country out here.

It is the "Devil's own country," a fellow said to me who had just come from Pennsylvania. Sure, and it looks like it, when you're just passing through; but stay here six months and you'll never leave.

The North Carolina Forest Service

—*Continued from page twenty-three*

aid under the so-called Fulmer Act and through the Resettlement Administration.

North Carolina has six State Parks, ranging in location from the Atlantic Coast to the Blue Ridge Mountains. The administration of these parks is a function of the State Forester and they are now being developed in coöperation with the National Park Service.

The State maintains one Forest Nursery which is in Johnston County. This nursery produces mainly pine and locust seedlings.

As stated before, forest fire control constitutes the major part of the State Forest Service activity. The fire control set-up is divided into the three geographic divisions of the State.

The Piedmont region embraces about 4,000,000 acres of forest land. Due to the large proportion of agricultural lands, intensive road systems, and easy topography, this region represents a comparatively easy fire problem.

The Mountain region represents a more difficult fire problem in

that the topography is rough and that a very large percent of all fires in that region are of incendiary origin. The Pisgah National Forest covers a considerable portion of the region and close coöperation in fire control is carried on with them by the State. Privately owned forest land in the Mountains amounts to about 4,500,000 acres. The Coastal Plain region extending from Virginia southward to South Carolina represents, by far, the area of greatest fire hazard in North Carolina. It is in this country that vast unbroken bodies of forest lands stretch for miles without roads or trails to aid in fire suppression. Wire grass ridges in the longleaf pine section will burn within a few hours after a rain and the bays and pocosins furnish a hazardous ground fire situation where, in times of drought, the soil will actually burn to a depth of several feet. It is in this section that highly specialized equipment is brought into play. Fire line plows and tractors are used on large fires. Pickup trucks equipped with Panama pumps and water tanks are in the possession of County Wardens. CCC Camps are rendering a valuable service in the construction of towers, telephone lines, and truck trails.

The State Forest Service is a division within the North Carolina Department of Conservation and Development. The State Forester is head of the Service. He is assisted in the Raleigh office by an Assistant State Forester, in charge of fire control, and a Forest Inspector. The State is divided into seven Districts, six of which are organized and are operating under the immediate supervision of the District Foresters. The Seventh District lies in the Piedmont Region and for reasons given above no fire control work has been undertaken there. Districts One and Two cover the entire Mountain region. District Three lies in the lower Piedmont and upper Coastal Plain region. Districts Four, Five and Six cover the Coastal Plain region.

In each District, the District office is located in a convenient town or city. The District Forester is a technically trained man and is responsible to the Central office in Raleigh for all fire control activity in the counties comprising his District. The average District at the present time contains ten actively coöperating counties. The District Forester is assisted by the Forest Ranger, a non-technical man, usually promoted from the County Warden ranks. A full time clerk-stenographer is employed in each District office. In each coöperating county a full time County Forest Warden is in immediate charge of fire control work and is directly responsible to the District office. Each County Warden divides his county into districts and appoints therein District Wardens who aid him in actual fire suppression activity and are paid by the hour while on duty. All towermen and smoke-chasers are directly supervised by the County Warden. Each Protective Association is in the hands of an Association Ranger, a full time man under the supervision of the County Warden. All Forest Wardens are ex-officio game wardens.

At the present time the detection system consists of seventy-four towers and seven hundred and fifty miles of telephone line.

With the total supervisory personnel, in the central office and in the District offices, consisting of fourteen men, it is evident that each man is responsible for the fire control work on about *one million* acres. It goes without saying that anywhere, anytime, that is a "whale of a job."

We who are in the field realize this fact and have found that fire control work may be tiresome as all hell but never monotonous. There is always work to be done and plenty of it.

The Senior Trip, '36 Model

—*Continued from page twenty-seven*

program on Pisgah, a phase of forestry that we had not encountered before. Of course the methods employed in studying and handling game are primarily in the experimental stages, but they are pointing the way to coördination of forestry and game production. We also visited the Biltmore forest and the work which was begun there by Dr. Schenck in the early days of American forestry.

From Asheville we traveled back into Tennessee to look over the work of the TVA. We were received in a royal manner at Norris and the personnel of the TVA did their best to show us the aims and activities of the vast experiment being carried on in the Tennessee Valley.

Mr. Gus Lentz was our host and if the boys failed to learn under his tutelage it surely wasn't his fault. Here we came in contact with the Soil Erosion work and since this has been in operation for several years they had some remarkable progress to show us.

From Norris we made a two day hop to Rainelle, West Virginia; stopping long enough on the way to see the plant of the Tennessee-Eastman Corporation at Kingsport. At this plant they cut all material which is suitable for lumber, the remaining going to the destructive distillation vats to produce chemicals which are eventually used in the manufacture of film and products of the Eastman Kodak Company.

Our first inspection in West Virginia was the plant of the Meadow River Lumber Company, a hardwood mill. This company is also practicing utilization to a very high degree; they even carry the use of their hardwoods to the point of manufacturing French heels for women's shoes.

After our visit to the logging and lumber plant we were taken in charge by Mr. Harberson, Assistant State Forester, and conducted over the parks and recreational projects of the state. This again was something new to us—the use of forest areas for recreational purposes. They are building up a wonderful system for the people of West Virginia and it is highly desirable that our own state do something on the same pattern. At the instigation of Mr. Griffin, State Forester, and through the courtesy of the owners of the Pocahontas Mine we were shown through the largest coal mine in West Virginia. This was a novelty to most of us and we thoroughly enjoyed the trip; also we saw the use of a very important forest product, mine timbers.

Our trip was now drawing rapidly to a close. We made only one more stop. Two days were spent at Statesville visiting furniture factories and other wood using industries of the Piedmont section of North Carolina. Saturday morning, May 10, we threw our duffle in the busses and headed for Raleigh. I think that the old boats ran better on this last lap than at any other time, for they really clicked off the mileage home in record breaking time. The Ford bus was the first to arrive in Raleigh.

In closing, may I pay my respects and those of the class of '36 to Mr. Lenthall Wyman for a well planned and well executed trip, and for the fine fellowship which he exhibited to us boys during the entire five weeks were were on the move.

That Wilderness Beyond the Blue Ridge of West Virginia

—Continued from page thirty-two

past records, West Virginia may annually expect from 800 to 1,800 forest fires. Fire suppression is a matter controlled by organization efficiency or inefficiency, and limited only by the amount of money available for this purpose. Over a period of some ten years the average area per fire has been reduced from 200 to less than 20 acres for the State as a whole. Fire prevention is another story. In spite of a rather large program of education through publicity, posters, motion pictures, contact work and prosecutions, if fire days prevail, forest fires will occur, and in numbers scarcely less than five years ago. The highly populated mining sections, inhabited by miner, Negro, or foreigner who does not own his home and garden but leases from coal companies, and who in turn has little sense of civic pride or responsibility, are responsible for 80 per cent of all fires. The job of educating these people along fire prevention lines is one that will continue to tax the best and the worst in all foresters of the State.

West Virginia is not and will never be a Utopia. There is far too much smoke, coal dust, and too many mine mules south of the Kanawha River for that. But who would want it so? Within its bounds are some of the finest, the sturdiest, and yes, some of the meanest people on the face of the earth; which recalls to mind a description uttered by a mountaineer fire warden after we had spent some forty hours together on the fire line: "It's the beatenest country in the world, Dan—West Virginia. Now you take mountain country any other place, and where's there's uphill, you are bound to find down grade sooner or later. But here in West Virginia—Lord, no, it's *all uphill*—everything."

With the Ranger in the West

—Continued from page thirty-four

though the last few years have been very slack and only 200 MBM to 500 MBM is marked and scaled annually. There are two large sales and about 20 small sales a year. Products are lumber, railroad ties, mining timbers and mining props. All marking so far as foreseen is done in the summer and fall so as to avoid impractical marking in the winter due to the depth of snow.

OUR FROSH

Timber types do not represent the complexity of situations as found in the East and South. There are only two major types here, the Lodgepole pine, and the Englemann spruce. The Lodgepole pine type makes up 80 per cent of the timbered types and is practically a pure stand with a few mixed species as Englemann spruce, Douglas fir, Colorado Blue spruce, Alpine fir, Ponderosa pine, and Aspen. The Englemann spruce type is a mixed stand of spruce and Alpine fir.

Fifty per cent of the Lodgepole pine type is an immature stand, while the remainder is mature and stagnant. The selection system of marking is the approved standard for this region. Immature stands grow very thick with stems per acre as high as 40,000 to 50,000 Considerable thinning practices have already been carried out by CCC and relief program workers. The stand is directly benefited by this improvement. Mature Lodgepole pine trees will average 16 to 20 inches in diameter breast high and three logs in height.

The Englemann spruce type is 95 per cent mature. This is the timberline type and is usually found between the altitudes of 10,000 and 11,000 feet. Incidentally, Paul Bunyan is the only man to ever carry on extensive logging and milling operations above timberline.

Timber growing in the Rockies can never compete with the South. The rotation is 160 years and the cutting cycle, 40 years for timber.

Grazing lands on the district are capable of carrying 1,200 head of cattle for a five months grazing season and 25,000 sheep for a three months season. The range is stocked nearly to capacity at the present time.

All cattle grazed are locally owned but most of the sheep winter on home ranches in Western Colorado and Eastern Utah. Grazing applications are taken in January and February of each year by the ranger who personally contacts all cattle applicants, discusses range problems, and makes feedlot counts of stock owned. Sheepmen are contacted by mail.

On May 16 the Forest cattle grazing season opens and cattle are counted on to their respective allotments. All allotments are inspected by saddle horse in May and again in October. July 1 the sheep allotments are open to grazing. All sheep are counted on at that time and then the ranges are rode by pack outfit during July and again in September. Range inspections are an important job.

Fish and game are plentiful. Most of the streams and high altitude lakes abound with trout. A fish stocking plant is kept for the various waters and from 75,000 to 100,000 fingerling Rainbow, Native, and Eastern Brook trout are planted each spring and fall. There are a number of recently constructed retaining ponds, also, in use where small fish can develop to a size sufficient to be able to survive in the rivers and streams. There are more than 400 miles of waters stocked with fish.

Deer, elk, brown bear, and an occasional mountain goat are the big game seen. Deer and elk find a protected habitat and winter feeding grounds in the Williams Fork State Game Refuge, where they can

be seen in herds of 500 to 1,500 animals. Detailed game management plans were initiated a year ago and now much is being done by the personnel of the Arapaho in the way of game counts and wildlife studies and observations. Last February and March, a deer and elk census was taken for animals that winter on the Arapaho and it was found that there were 9,000 deer and 2,000 elk on an area of about 100,000 acres. Another and more extensive big game census is scheduled to begin February 16. Motion pictures are to be taken and a number of bucks are to be captured, tagged with a Forest Service number and date, and then released. Any deer killed in season with these tags on, will be reported with tag numbers and valuable information about migration can be secured.

Small game abounds in plentiful numbers. The beaver is the most common of the smaller fur-bearing animals. Badger, mink, rabbits, and ermine are numerous. Coyotes are very thick, and an occasional mountain lion is seen.

Wild game birds are very scarce. There are only two species of bird found, the grouse, and the willow grouse or ptarmigan. They are very scarce and only on rare occasions seen.

There are many and varied forms of recreation to be found. Winter sports with its skiing and skating is becoming increasingly popular. Winter sports carnivals are held annually at several local communities around the Forest. Fishing and hunting are the major sports. Hiking, horseback riding, and pack trips find their share of enthusiasts. There are unlimited peaks to climb, varying from the easy to the hazardous and extremely difficult. Many of the peaks are over 13,000 feet and there are three over 14,000 feet in altitude.

Tourists, campers, picnickers, and visitors find it a delightful vacation land in the summer. It freezes the year round in this vicinity. Nights are always cool with at least two or three blankets being required for comfortable sleeping during the hottest night in July. Sheepskin coats are carried on the back of the saddle at all times. Below zero temperatures are not uncommon in the winters which are extremely long and severe. A local humorous story about the length of winter in this section is told as follows: "A tenderfoot politely asks a Swede tichack how long the winters were around here. The Swede shifts his snuff, 'I bane don't know. I only bane here 18 months'."

It is hoped that this brief and sketchy description has given you a few of the highspots in the work of a ranger in the West. There is no great difference between here and you, of the South. You have the CCC camps, the relief workers, extensive acquisition, clerical assistants, technical assistants, etc.; we have no assistants, only a few CCC camps, and no acquisition. When the horse needs shoeing, we shoe him; when the water works needs repair, we repair it; when we write to the supervisor, we type the letter, and when the neighbor's colt gets sick, we go and help doctor it.

But be it North, East, South, or West, when night comes, the ranger can write in his diary, a damn good day's work.

Black, '36, Goes to Tropics

—*Continued from page forty*

forestry does help considerable; that is, you know what is behind plant activities, why it does this and why it does that. Some knowledge of soils and pathology is also helpful and accounting is an absolute necessity.

As to the qualifications for tropical work the most important thing is that you be in good health and in no way be inclined toward a nervous temperament. Coming out to the tropics requires quite a bit of sacrificing, it means that you must forget all the good times at home and be willing to sit down in some God forsaken spot day after day all by your lonesome. Then after living through one rainy season you may change your mind about tropical work. Staying for any time at all in the tropics one is almost certain to get fever and it is necessary for everyone to take quinine. Some people find that quinine does not agree with their constitution and consequently they are placed in a very uncomfortable position.

I don't think it a wise policy to take a wife out with you in the beginning. Wait until you find out how the living conditions are and then it is an easy matter to have her sent out.

With forestry training your work would in all probability be entirely in the field. Field work is much more desirable in the tropics than office because you are not under a continuous strain, as you would be working with figures all day. The heat too affects you more in the office than out in the field.

Every company has its own rate of pay, length of contract, vacation periods, etc. Eighteen months in the tropics with a six months' vacation with pay (full) would be a good contract.

If I were you I would think this idea of going to the tropics over mighty damn well. The whole thing is this: if you go in for tropical work and after several years find that you don't like it or can't stand it, your time is wasted and the experience gained is not worth a damn to you at home.

Sincerely yours,

ARTHUR BLACK.

The Ecology Trip

—*Continued from page forty-one*

a nickname which fortunately, from his point of view, has not stuck. By the way, Lull, her mother wants to know what you were doing in a certain fishing boat in the wee small hours of the morning.

Many of the boys decided the weather was too bad and retreated to the shelter of the cabins or the hotel. The rest of us "he-men" decided to brave the elements with the dance pavilion as our headquarters. Jim Huff and myself with a blanket apiece decided to join forces for the betterment of both concerned. This proved to be an excellent idea, although I must say I did not relish the flavor of the sand and salt.

The trip from an ecological standpoint was a success, despite the precipitation. We finally arrived in Raleigh late Sunday afternoon in fine spirits, sadly lacking in sleep and our financial status at minus zero.

Preservation Trip

—*Continued from page forty-three*

cannon made in the Confederacy, the first rifled cannon in the United States made out of scrap iron of the first railroad engine in South Carolina, and all this in one gun. The home of old dates and one-way streets and darkies that don't speak English, of sailors, of dark alleys, of "Catfish Row." Among them we were loosed for the night.

Here I am getting ahead of my story, however. As this trip is an annual affair and our predecessors had stayed at the "Y" we spent the night there too. Now we might easily have been met with a "No Admittance" sign, but this was not the case by a long shot; they even seemed glad to have us. I guess there must have been some gentlemen in the former classes too.

For those of you who have been on one of Slocum's tours, the following is old stuff, but for the uninitiated, I want to explain his method of procedure for getting the boys out of bed in the morning to the starting place on time. If you are not there on time he simply loads up the bus and drives off without you. It is almost uncanny how a simple method like this is so effective.

Saturday morning started off as usual, with a flat tire. After this was patched the party journeyed out to the plant of the Century Wood Preserving Company. A treating plant is a complicated setup and it is no place to go around with one eye closed. For the next few hours we were going full steam ahead. The preserving processes were followed from the beginning to the end. Equipment was carefully examined and an inspection of the storage yard was made. Costs, markets, and aggregation were gone into. As we left the plant the only observation presented on the whole trip that met with unanimous approval was that inspection trips like this were thoroughly worth what they cost in time and worry.

Ordinarily the ride home is considered one of the necessary evils of an excursion of this type, but this one turned out altogether different. Two of the most unusual incidents of the whole trip took place on the homeward lap. The first was the fact that we had only one flat tire, excluding the sightseers in the bus. The second was the presence of a dog that followed us all the way from Charleston. At times it took the combined efforts of the whole rear seat to keep him away from the wheels.

P.S. A joyous time was had by all.

"Truth is such a precious article let us all economize in its use."
—Mark Twain.

—Continued from page forty-six

its policies and standard regulations which govern all work. Very little study has been made of grazing in the southern pine region up to this time; consequently, unusual care must be exercised in initiating this type of work. Progress is slow. The fact that knowledge of the value of the southern region's range is extremely limited makes it difficult to establish principles upon which the work must be based. The grade of livestock and the local grazing customs add complications to the problem of management. No one can say that it is an easy job. The present plans are to administer grazing on four of the five Missippi National Forests.

Game management at this time has not been started. The laws of the state of Mississippi do not provide for the establishment of Federal game refuges; this in itself has stalled efforts toward game management until the law is altered. Even if the law were changed or amended, the work would be difficult and slow. As a whole, there is very little land in Mississippi which has sufficient ground cover to permit immediate stocking of areas. Deer and wild turkey in addition to the many other native game species would flourish if the ground cover had not been so thoroughly devastated.

Another primary factor which will require considerable time and effort to control is illegal hunting, fishing, and trapping. Annual burning of large areas is a dominant cause of the sadly depleted population of game in Mississippi today. Everyone is willing to help, yet, so few do, and so many of the same people violate the laws and principles which they pretend to uphold. Fundamentally, man is yet the greatest obstacle to successful reëstablishment and conservation of our game as well as of other natural resources.

The present utilization of forest products in Mississippi is worth mentioning. Other than the production of lumber, ties, poles, and piling, cut from green timber, "utilization marches on" by using the stumps of slash and longleaf pine, top-wood which is dead, seasoned heart pine, and even pine needles. Rosin, turpentine, pine oils, and other distillate products are extracted from the stumpwood and top-wood. Fence posts and railroad ties are also cut from top-wood. A company in Hattiesburg uses pine needles. The needles are processed and used in the manufacture of mattresses, packing, and insulating materials. Much green pine of small size is used for pulp and masonite manufacture. The utilization of the longleaf pine includes roots, stem, and needles—to tell the truth, damn near all of it.

At present, I divide my time between a range management plan and an administrative study of controlled burning. This brings up the rear of the major experiences of this North Carolina State College graduate of the Forest School. At least, I would call it experience.

STILL MORE PICTURES. . . . A Pocosin highway. . . . "Quit bragging, Red." . . . "What fools these freshmen be." . . . New Mexico orchids. . . . Lumbering with "Wimpy." . . . Enter ye, and listen. . . . Posing. . . . Is this alive? . . . Looking for a pickup. . . . Size 32 CCC. . . . Dazy's friend. . . . Knock twice. . . . "Plumb the rod." . . . Feather beds. . . . Lumbering—Wyman plan. . . . It ain't natural. . . . Two-can—"then came the dawn." . . .

—Continued from page fifty

creeper, virginia creeper and bitter sweet should be removed from desirable species and left on weed trees which are not interfering with other growth. Sumac, dogwood, persimmon and sassafras form a temporary type. It is the first cover to seed in old abandoned fields. A few years later the better species will spring up, consequently this nurse crop will act as trainers. No stand improvement is done in this forest type until the desirable trees have reached a height sufficient to warrant a liberation cutting. This cover is a favorite place for quail, especially when it is bordering along the edge of a ragweed field. In severe winter weather sumac seed and sassafras buds provide much needed food for these birds.

In older stands some scattered den trees such as beech and black gum are left. If there is an overabundance of these trees, certain individuals with small tops may be retained and girdling used on the remaining ones. This will serve two purposes, that is, the limbs will gradually fall off thus causing little damage to standing timber. Dens which are located in the main body of the tree will serve their purpose for some years following stand improvement.

Lean-to game shelters, made from poles and leaves, may be used as combination shelters and feeding stations. These are always placed near the edge of wooded areas preferably on southern exposures. Approximately one half of the proposed one thousand have already been constructed on various tracts.

Cultivated food plots with a border planting of osage orange for emergency cover from hawks and other predators are needed, especially when all other land is being retired from agricultural purposes. Many field crops and grasses provide excellent food for wildlife during severe winter weather. Kaffir corn, short stemmed sorghum, feteritta, field corn, sunflower, millet, sudan grass, soy beans and cow peas may be combined in food plots of one acre size. Three hundred acres of such planting is planned for this area. Last summer one hundred and forty plots were completed and are proving a great help in increasing the wildlife population.

Small permanent ponds, in conjunction with these plots, will effect a continuous water supply. This will prevent migration, which often takes place where there is a deficiency in water or food.

The Resettlement Administration has a well planned land use program for this Martin County area. Timber may be grown profitably. Rapid water runoff can be checked by the forested hills, and floods retarded by an impounding dam capable of holding 4½ billion gallons of water. The wildlife enthusiast can pursue his favorite sport. Those seeking recreation may take long hikes, picnic in the rustic surroundings of a new shelter house or take a refreshing swim in the waters of a large 800 acre lake. All of this development work will demonstrate the practicability of retiring submarginal agricultural land and converting it to its proper use.

ALUMNI DIRECTORY

G. K. SLOCUM

We meet again, as usual, in the back of the book. Below you will find a list of forestry graduates of N. C. State. The addresses have been brought up to date as far as possible and, again, I ask that you notify us of any change of address, so that we can be sure and keep in touch with you.

There is one new class listed this year and we welcome them to these pages. The class of "'37" is this year's crop of budding foresters. They haven't "scratched" as yet, but they will when the "jiggers" start work.

CLASS OF 1930

Name	*Home address*
W. B. Barnes	Resettlement Administration, Shoals, Ind.
C. A. Bittinger	Rangers Office, Harrisburg, Ill.
G. K. Brown	Dillon, Colo.
E. R. Chance	Sun Oil Co., Marcus Hook, Pa.
T. C. Evans	400 Union Bldg., New Orleans, La.
R. A. Graeber	N. C. State College, Raleigh, N. C.
N. R. Harding	Dist. Forester, Panama City, Fla.
S. G. Hile	Dept. Highways, McClutchy Bldg., Upper Darby, Pa.
H. H. Howard	Olustee, Fla.
J. N. Leader	203 Ruth St., Sikeston, Mo.
D. J. Morriss	Vilas, Fla.
R. L. Pierce	851 Scott St., Stroudsburg, Pa.
H. G. Posey	Box 40, Montgomery, Ala.
H. A. Snyder	U. S. F. S., Camp Pinchot, Crestview, Fla.
J. W. Walters	Point Pleasant, Pa.
F. F. Weight	482 Fourth St., Pitcairn, Pa.
C. B. Zizelman	115 W. Broad St., Tamaqua, Pa.

CLASS OF 1931

N. B. Alter	Selma, Ala.
H. E. Altman	U. S. F. S., Big Fork, Minn.
J. O. Artman	901 Kennedy St., Fountain City, Tenn.
G. W. Barner	125 Chesnut St., Mifflinburg, Pa.
J. A. Brunn	Soil Erosion Service, High Point, N. C.
W. T. Buhrman	632 E. Washington St., Chambersburg, Pa.
J. B. Cartwright	U. S. F. S., Camp N. C. F-19, Highlands, N. C.
H. A. Foreman	Camp S-139, Greentown, Pa.
D. B. Griffin	State Forester, Charleston, W. Va.
H. J. Loughead	2451 Le Conte Ave., Berkeley, Cal.
C. F. Phelps	Colonial National Monument, Yorktown, Va.
C. H. Shafer	Pioneer Apts., Newport, Tenn.
G. K. Slocum	N. C. State College, Raleigh, N. C.
W. B. Ward	U. S. F. S., Greenwood, Ky.

CLASS OF 1932

W. E. Cooper.....217 Ashe Ave., Raleigh, N. C.
A. A. Grumbine.....U. S. F. S., Gainesville, Ga.
J. J. Kerst.....U. S. F. S., Jackson, Miss.
A. H. Maxwell.....Pisgah National Forest, Asheville, N. C.
F. J. Miller.....Licking, Mo.
C. G. Royer.....26 Pennsylvania Ave., Watsontown, Pa.
G. K. Schaeffer.....301 W. Court St., Marion, N. C.
P. W. Tillman.....Box 664, Rockingham, N. C.
W. H. Warriner..... Jr. Forester, Jackson, Miss.
L. Williams.....S. C. S., E. C. W. Camp 4, Mt. Airy, N. C.

CLASS OF 1933

J. C. Blakeney.....Lexington, Tenn.
W. J. Clark.....Box 44, Crockett, Tenn.
T. C. Croker.....U. S. F. S., Calvin, La.
A. B. Hafer.....80 Dale Rd., Norris, Tenn.
M. M. Riley.....Appalachian Forest Exp. Sta., Asheville, N. C.
G. W. Pettigrew.....Melville, La.
A. L. Setser.....241 Daylight Bldg., Knoxville, Tenn.
R. A. Wood.....Box 52, Clinton, Tenn.

CLASS OF 1934

W. J. Barker.....U. S. F. S., Holly Springs, Miss.
E. E. Chatfield.....Camp F-14, Gloster, Miss.
B. H. Corpening.....T. V. A. No. 36, Paris, Tenn.
A. B. Crow.....210 Earlham St., Crofton Heights, Pittsburgh, Pa.
F. A. Doerrie.....Apt. A, 120 Central Sq., Mt. Lebanon, Pa.
L. B. Hairr.....S. C. S., Wadesboro, N. C.
F. H. Hube.....U. S. F. S., Jackson, Miss
D. C. Plaster.....219 Hillcrest St., High Point, N. C.
C. T. Prout.....Camp Ga., S. C. S.-11, Buford, Ga.
A. G. Shugart.....Camp F-14, Gloster, Miss.
W. R. Smith.....U. S. F. S., Franklin, N. C.

CLASS OF 1935

H. F. Bishop.....State Foresters Office, Columbia, S. C.
W. E. Boykin.....805 W. Grant St., Burlington, N. C.
C. W. Comfort.....Ga. S. C. S.-7, Stevens Pottery, Ga.
F. J. Czabator.....Winton, N. C.
L. S. Dearborn.....Superior Nursery, Superior, Ariz.
J. D. Findlay.....Federal Bldg., Rocky Mount, N. C.
T. B. Gardiner.....Soil Erosion Service, High Point, N. C.
J. B. Graves.....U. S. F. S., Baton Rouge, La.
F. A. Hodnett.....E. C. W., Mt. Airy, N. C.
W. W. Hood.....610 Monroe St., Tallahassee, Fla.
G. E. Jackson.....Maysville, N. C.

J. W. Miller.....Albemarle, N. C.
F. N. Newnham.....Box 16, Montezuma, N. M.
H. W. Oliver.....R-1, Princeton, N. C.
R. H. Page, Jr.....N. C. State College, Raleigh, N. C.
E. G. Roberts.....Camp P-71, Springville, La.
M. W. Shugart.....S. C. S., High Point, N. C.
J. R. Spratt.....204 Federal Bldg., Lenoir, N. C.
J. M. Stingley.....New Bern, N. C.
W. E. Stitt.....District Forester, Aiken, S. C.
H. R. Wright.....Jr. Forester, Vilas, Fla.
J. A. Pippin.....418 E. Second St., Washington, N. C.

CLASS OF 1936

A. G. Adman.....433 Monaca Rd., Aliquippa, Pa.
W. C. Aiken.....Cherokee Nat'l Forest, Cleveland, Tenn.
L. K. Andrews.....Mt. Gilead, N. C.
O. T. Ballentine.....Varina, N. C.
R. O. Bennett.....1710 Carolina Ave., Wilmington, N. C.
A. H. Black...Firestone Plantation Co., Monrovia, Liberia, W. Africa
H. M. Crandall.....Room 328, Y. M. C. A., Portsmouth, Va.
D. C. Dixon.....Wood Preserving Corporation, Charleston, S. C.
W. M. Hill.....Route 2, Thomasville, N. C.
S. K. Hudson.....2316 Hillsboro St., Raleigh, N. C.
O. H. James, Jr.....Wallace, N. C.
C. S. Layton.....R-1, Greensboro, N. C.
L. N. Massey.....531 New Bern Ave., Raleigh, N. C.
A. D. Nease.....610 N. Monroe Sta., Tallahassee, Fla.
P. M. Obst.....1 Orchard Terrace, Union City, Conn.
D. M. Parker.....Sunbury, N. C.
C. C. Pettit.....Jacksonville, N. C.
C. G. Riley.....Pleasant Garden, N. C.
J. L. Seawright.....Mill Ave., Hatboro, Pa.
M. F. Sewell.....Box 85, Moscow, Pa.
J. E. Thornton.....Box 458, Hampton, Va.
W. H. Utley.....903 W. Lenoir St., Raleigh, N. C.
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"I think hot dogs are the things to take on weiner roasts."—Carroll Russell.

"I'm so happy for you."—Cocky Roach.

"If you do you'll clean it up."—Mac Howerton.

"Please, Doctor Poole, it's Spit-al-nik."—Louis Spitalnik.

"Can I interest you gentlemen in the Southern H. W. V."—Brantley Henderson.

"The maps should be finished by Saturday."—Bramer.

"I guess I'll have to take it out of the refund."—Professor Slocum.

"K. P.—K. P.—Who in the hell is K. P."—Senior Class.

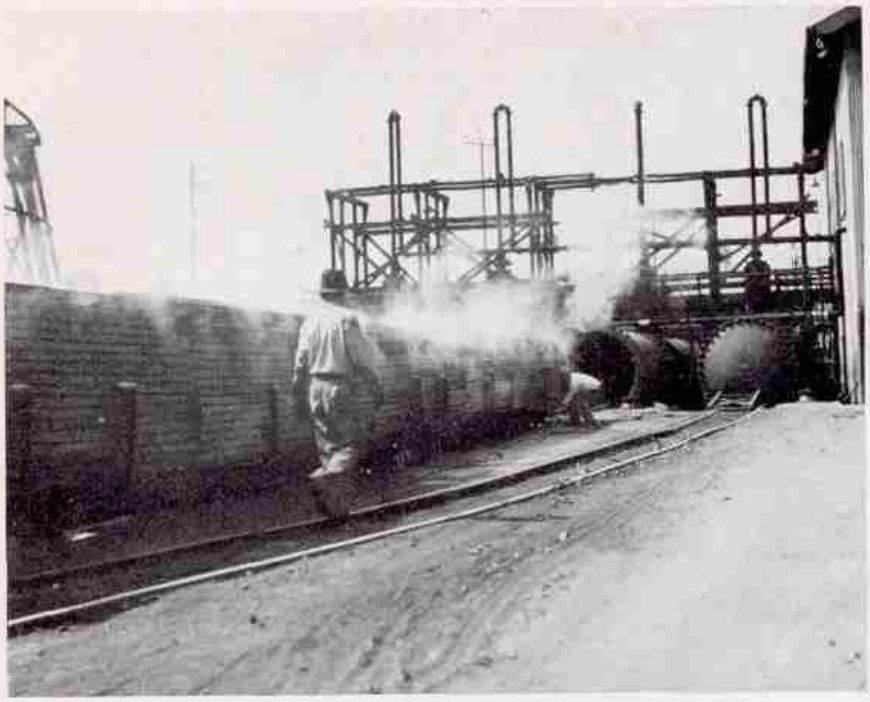
"What's so damn funny about that?"—Frank Woodard.

"So I puts down my guitar and picks up P———."—Lloyd Troxler.

"Say, professor, 'grandma' needs a new tire."—John Heltzel.

"How about bringing back a pail of water?"—Charley the cook.

"I went into Raleigh to have my head rubbed."—Locke Craig.



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SONG OF THE WILD

Some love the sound of tinkling glass
On tables set for kings,
But we have heard the pine knots snap
Where frying bacon sings!

Let others hear the orchestras
In restaurants of fame—
We'll listen to a coffee pot
Above an open flame!

No snowy linen decks our board.
We're dining mountain plan,
With soot upon our fingers from
A smoky frying pan.

Who cares for sobbing violins
And harp chords, sadly sweet?
Tall pines and laughing waterfalls
Make music while we eat!

—Gene Lindberg.

GIVING THANKS FOR TREES

ALETHA M. BONNER

God of the Forest, Gracious Lord,
To Thee we voice our thanks,
For trees that clothe the naked earth,
And guard the river banks;
That give so freely of their shade
To city park and street;
That shelter man from winter's blast,
And from the summer's heat.

We praise Thee for the oak's great strength,
And for the willow's grace;
We thank Thee for the purity
Found in the birch-leaf's face.
For singing trees, tuned with the wind—
These make our hearts rejoice;
For trees in poetry and art,
Our gratitude we voice.

—American Forests Magazine.