PI-NE-TUM

Journal

of

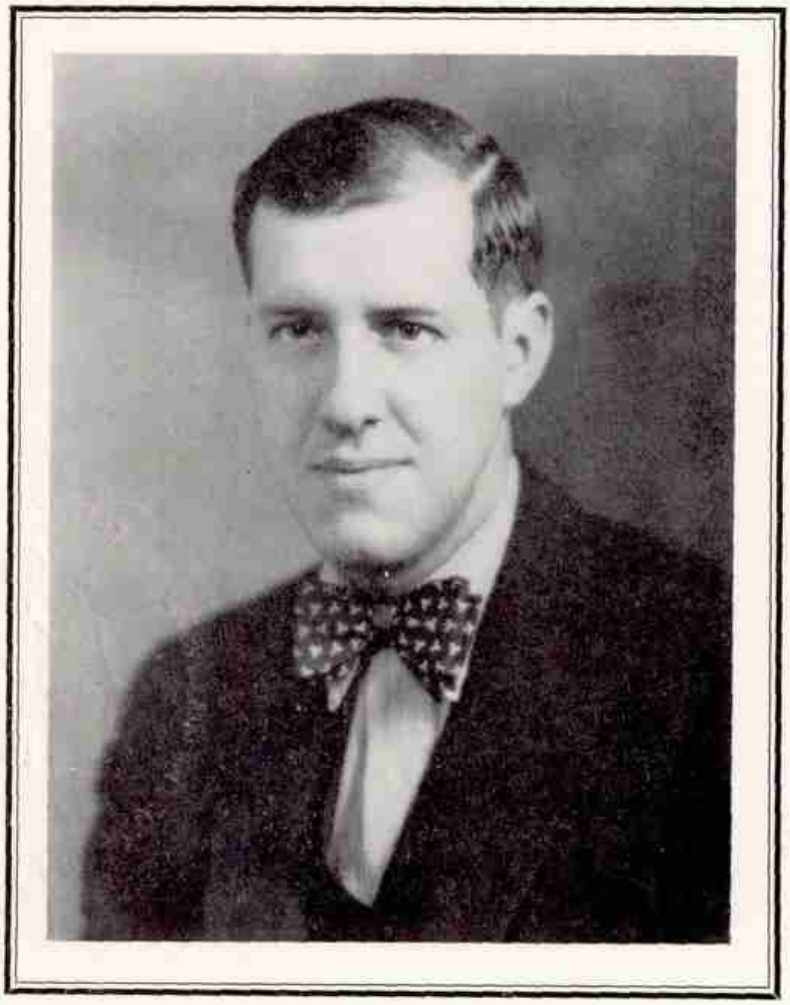
Forestry

N. C.

State

College

RALEIGH, NORTH CAROLINA



GEORGE KELLOGG SLOCUM

DEDICATION

TO George Kellogg Slocum, friend, counselor, and teacher of forestry students of N. C. State College, we, the staff of the 1938 PI-NE-TUM, fondly dedicate this fifth edition with the sincere hope that it can in a measure express our deep appreciation for the companionship, assistance, and source of emulation that he has given to us and will give to all forestry students.

FOREWORD

AS *in other years, the sole purpose of this pub*lication is to provide an annual by, and for, the forestry students of N. C. State College, both past and present. In accordance with this purpose, we are devoting, for the first time, a section entirely to the alumni. In doing so we believe that it will not only be of interest to the students and alumni, but will also make the PI-NE-TUM a more representative publication of our forest school.

As editor I would like to take this opportunity to express my appreciation to the faculty, alumni, and to my staff for the cooperation and assistance that has made this Fifth Edition of the PI-NE-TUM possible. My only hope is that this publication may continue the high standards of expression and purpose that have so characterized former issues.

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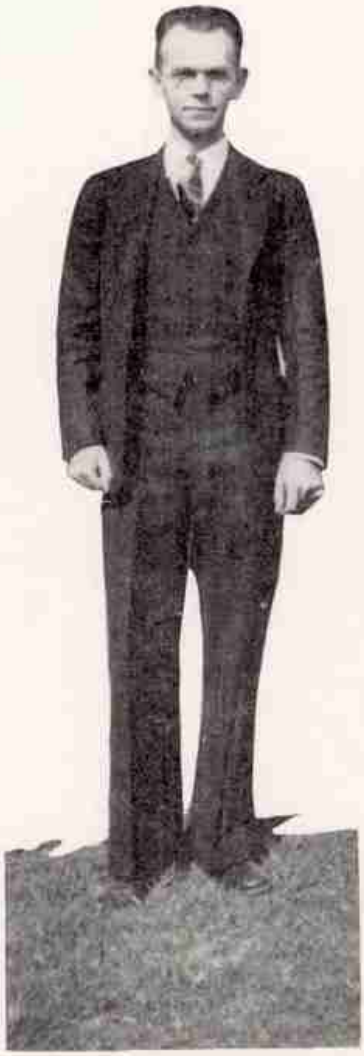
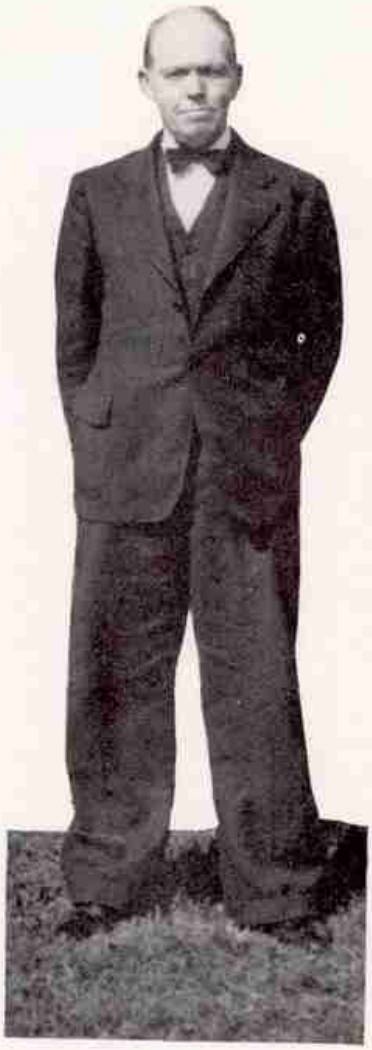
FACULTY

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



W. D. MILLER
A.B., M.F., Ph.D.

FACULTY



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A.B., M.F.

G. K. SLOCUM

B.S., M.F.

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Draper, N. C.

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J. S. Campbell

"J. S."

Franklin, Va.

Forestry Club; Military 1, 2, 3, 4; *Agriculturist* Staff.

W. Allan Campbell

"W. A."

Farm School, N. C.

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

Charles J. Cheslock

"Chesty"

Orbisonia, Pa.

A T P

Phi Eta Sigma; Monogram Club; Wrestling 2, 3, 4; Forestry Club.

Wilmer L. Colwell, Jr.

"Bill"

Washington, D. C.

Wrestling 1; Track 3, 4; Pi-ne-tum; Forestry Club, Vice President 4; Phi Eta Sigma; Alpha Zeta; Pine Burr Society; Phi Kappa Phi; Military 1, 2, 3, 4; Alpha Zeta Scholarship Cup; Agricultural-Forestry Council; Band 1, 2, 3, 4; Concert Orchestra 1, 2, 3, 4.

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Buffalo Ridge, Va.

Forestry Club; Transfer from Mars Hill.

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"Dillingbuck"

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"Dixie"

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PI-NE-TUM 3, 4; Transfer from Rutgers University; Forestry Club; *Wataugan* 3.

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"Doc"

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"Hayes-Barton"

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"Jim"

Charlotte, N. C.

Σ Π E

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"John Henry"

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"Rookie"

Red Oak, N. C.

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"Griff"

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K Σ

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R. M. HENRY

Russellville, Ark.

Σ N

Forestry Club; Inter-fraternity Council; Transfer from Arkansas Tech.

A. J. HONEYCUTT

"Honey"

Raleigh, N. C.

Λ K Π

Forestry Club; Basketball 1, 2, 3, 4; Monogram Club.

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"Jimmy"

Williamsburg, Va.

Forestry Club, Initiation Chairman; Military 1, 2, 3, 4; Dormitory President; Swimming Team 1; Transfer from William and Mary.

JAMES L. HUFF

Mars Hill, N. C.

Forestry Club, Rolleo Chairman 4; Camera Club; PI-NE-TUM.

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"Dick"

Raleigh, N. C.

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

V. V. KAREIVA

"Val"

Scranton, Pa.

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

HOWARD W. LULL

Asheville, N. C.

Forestry Club; PI-NE-TUM, Managing Editor 3, Editor 4; Publication Board 4.

THOMAS J. McMANIS, JR.

"Mac"

Pleasant Gardens, N. C.

Forestry Club.

W. J. MARSHBURN

"Sparrow"

Burgaw, N. C.

Forestry Club; Military 1, 2.

H. C. Martin

"Moose"

Roanoke, Va.

Forestry Club; Boxing 2, 3, 4; Pi-ne-tum 4.

Jesse P. Moorefield

Greensboro, N. C.

Forestry Club; *Agriculturist* 4; Pine Burr; Upsilon Sigma Alpha; Boxing 1; Rifle Team 4; Military 1, 2, 3, 4; Freshman Counsellor 4.

Robert M. Nelson

"Bob"

Chambersburg, Pa.

Forestry Club; Sigma Phi Alpha.

Edwin W. Ryder

"Ed"

Shippensburg, Pa.

A K Π

Alpha Zeta; Mu Beta Psi; Inter-fraternity Council 2, 3; Band 1, 2; Drum and Bugle Corps 3, 4; Military 1, 2, 3, 4; Pi-ne-tum 3, Business Manager 4; Publications Board 4; Forestry Club.

Clarence Bender Shimer

"Red"

Wilmington, N. C.

A Γ P

Forestry Club; Wrestling Team 1, 2, 3, Captain 4; Military 1, 2, 3, 4; Monogram Club 2, 3, President 4; Pine Burr, Golden Chain, Vice President; Freshman Counsellor.

G. E. Smith, Jr.

"Smitty"

Greenville, S. C.

Forestry Club, Historian 4, President 4; Grange 4; Intramural Dormitory Wrestling Champion (175 lb. Class 4.)

IVAN W. SMITH

Hendersonville, N. C.

Forestry Club; Monogram Club; Orchestra; Mu Beta Psi; Military 1, 2, 3; Tennis 1, 2, 3, 4.

NORBERT B. WATTS

"N. B."

Raleigh, N. C.

Forestry Club, Vice President 3; Blue Key; Golden Chain; Y.M.C.A. 1, 2, 3, Vice President 4; Military 1, 2, 3, Captain 4.

J. ATWOOD WHITMAN

"Ike"

Raleigh, N. C.

Forestry Club; Military 1, 2; Rifle Team 1.

WARREN W. WOODEN

"Woody"

Baltimore, Md.

Forestry Club; Monogram Club; Military 1, 2, 3, 4; Football 1, 2, 3, 4.

N. C. STATE COLLEGE FORESTRY CLUB

OFFICERS 1937-1938

Fall Term		*Winter Term*
PHIL GRIFFITHS	*President*	GEORGE SMITH
WILMER COLWELL	*Vice President*	JOE FRYE, JR.
ROY EAKER	*Secretary*	S. O. INGRAM, JR.
C. K. DALE	*Treasurer*	C. K. DALE
MAX DILLINGHAM	*Sergeant-at-Arms*	W. J. MARSHBURN

This year the Forestry Club has more than ever become one of the leading campus organizations. With a larger attendance, able direction under Phil Griffiths and George Smith and interesting programs, the Club enjoyed a successful year. Nor is it the concensus of opinion that the success was due to the reduction of dues from $2.00 to $1.00.

Among the interesting speakers of the year was Prof. Stevens from the recently organized Game Management School, Prof. Heck giving a fine philosophy for living, Prof. Slocum interestingly elocuting on guns, Paul Criss a representative of an axe company demonstrated wares and ways of his product; and student Mark Taylor lecturing on "How I Killed My Bear!"

Fine work by Frye, Huff, Dixon and Eaker resulted in winning first place with the exhibit entered in the Student Agricultural Exhibit division of the State Fair. An interesting skit with mountain locale was entered in the Stunt Night activities with Hartley, George Smith, and Huff among those trodding the boards. The annual Rolleo was well conducted and attended, with Seniors taking first prize.

The purpose of the Forestry Club is to promote the interest of the forestry profession, and to bring close coöperation between the students. This year as in others, the Forestry Club has well maintained this purpose.

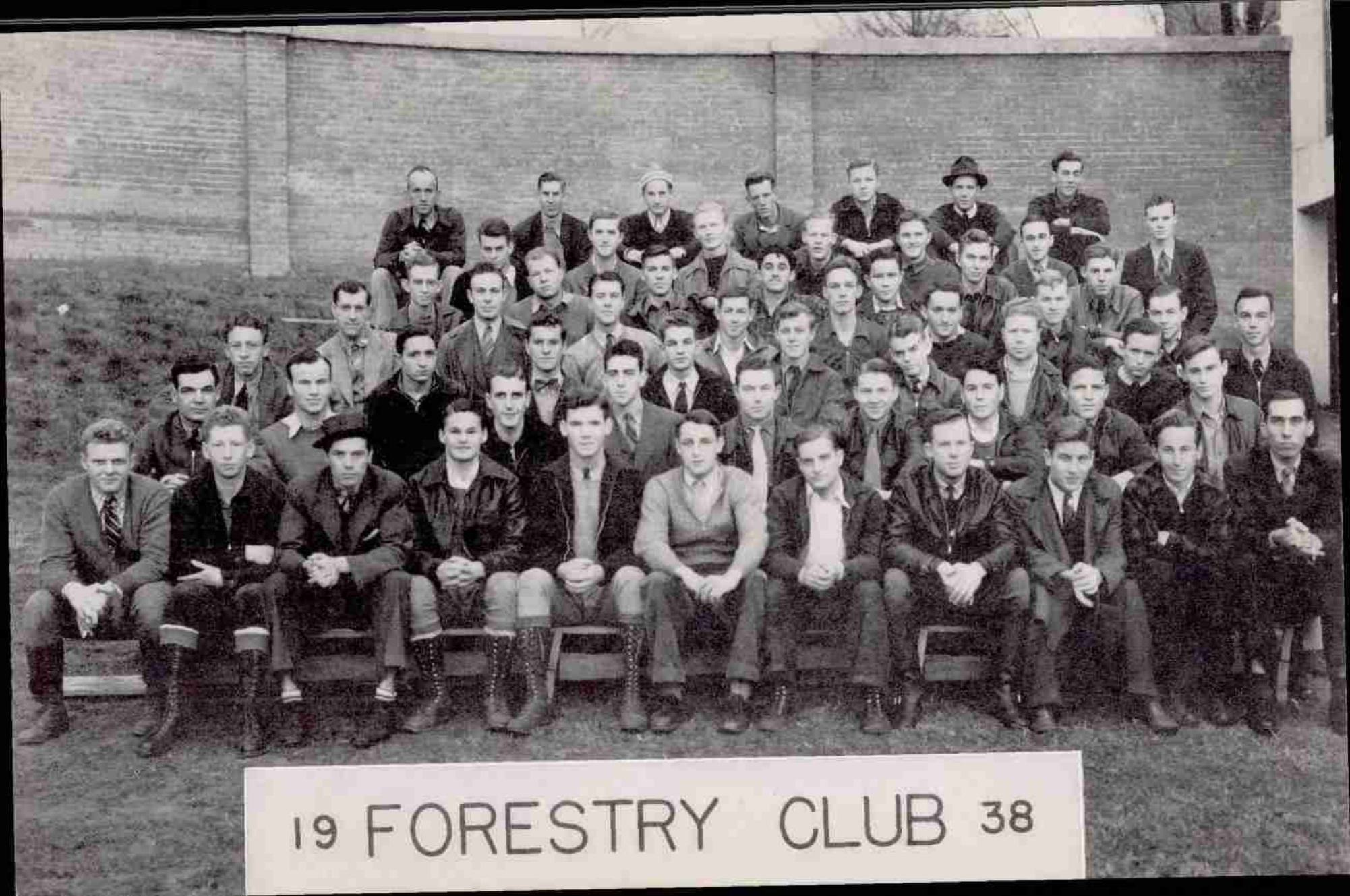
LOGGERS BALL

November 20, brought to this campus the third and largest Loggers Ball.

A fine looking group of lads and lassies tripped their fantastic to the rhythm of Jimmy Fuller and his orchestra amid the decorated surroundings of the Frank Thompson Gymnasium. Pine boughs and a colorful mixture of crepe paper composed said decoration, with a large log and facsimile of the club key as added touch.

Sponsors for the dance were: Miss Sue Hughes with Julian Farrior, chairman of the dance committee; Mrs. P. A. Griffiths with Phil Griffiths, president of the club; Miss Grace Betts with Wilmer L. Colwell, vice president; Miss Louise Boykin with Roy Eaker, secretary; and Miss Elizabeth Clark with C. K. Dale, treasurer.

Dr. and Mrs. Hofmann, Dr. and Mrs. Lenthall Wyman and Mr. and Mrs. G. K. Slocum were chaperones for the evening.



19 FORESTRY CLUB 38

ANNUAL CLOSED DANCE

The Forestry Club's annual closed dance was held this year at the Tar Heel Club on February 19. It was capably managed by the dance committee with Mark Taylor as chairman.

All of the forestry faculty and their wives were present except Dr. and Mrs. Miller, who were not as yet used to the latest addition to their family.

Music by all of the best orchestras including Benny Goodman, Kay Kyser, Horace Heidt, and several others, were available by means of the Alpha Zeta victrola.

During intermission a few skulls were fractured and other minor bruises, contusions, and smeared evening gowns resulted from the mad scramble to the basement for refreshments. But they were worth it.

A new record was set that night by "Amos" Butler, who danced with more girls in a shorter time than any other State College man we know of.

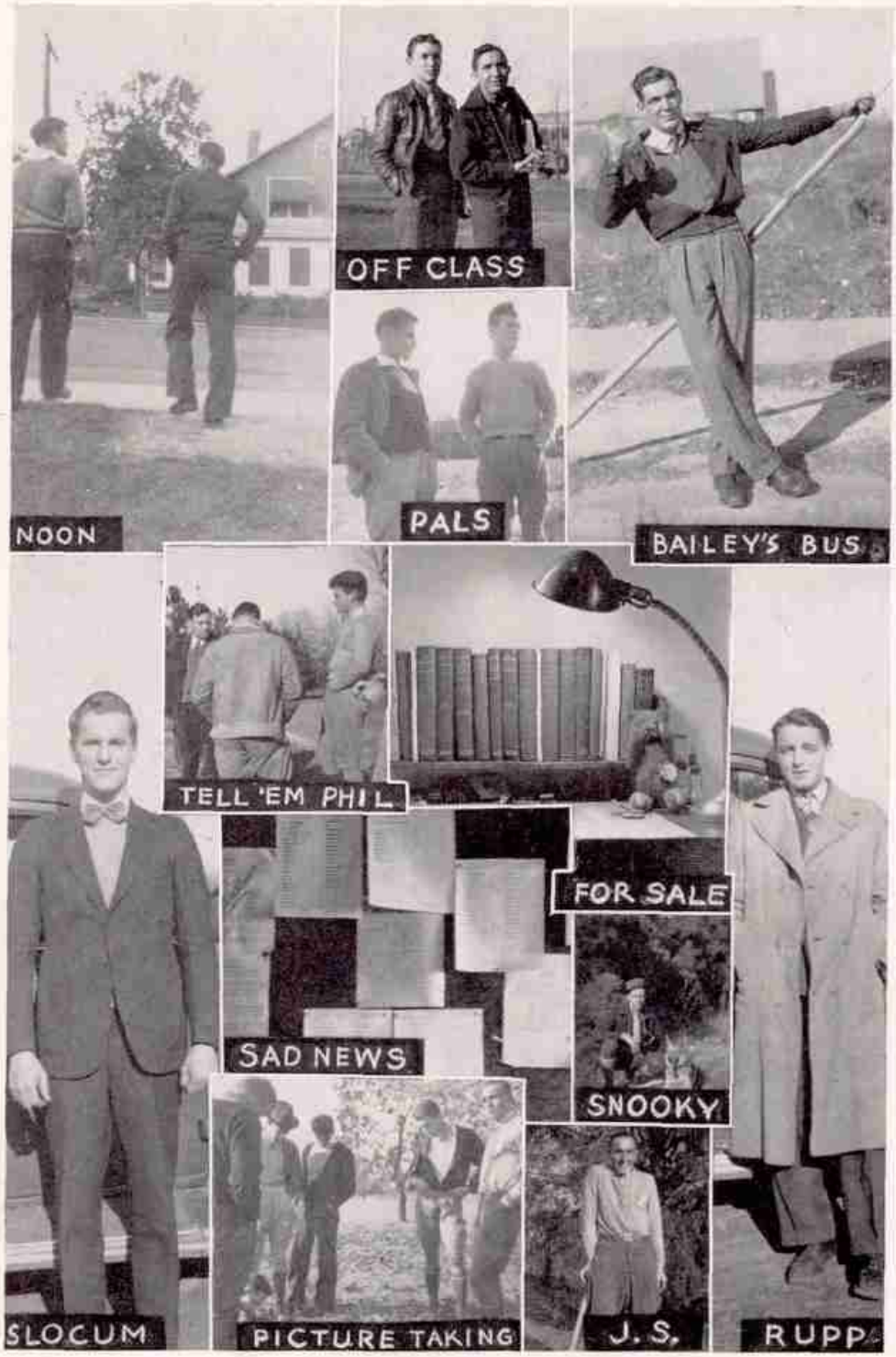
AGRICULTURE-FORESTRY COUNCIL

A major step in the advancement of the progress of the Forestry division was made this year in form of the Agriculture-Forestry Council.

Duties of this Council will consist of supervision of activities of the organizations in the school and allotment of money for the various activities and publications of the two divisions. The fee of $4.00 formerly paid into the budget committee by each Ag and Forestry student will now be handled by the council. The joint smokers held each year shall also be under the auspices of the council. The body has ruled that in the future no forestry student may become editor or business manager of the *Agriculturist*, however there will be a reporter on the staff from the Forestry school who will be awarded a publication key upon termination of a satisfactory period of service.

The council will be composed of the following members: president of the Forestry club, president of the Ag club, editor of the PI-NE-TUM, editor of the *Agriculturist*, dance chairman of the Forestry club, treasurer of the Ag club, treasurer of the Forestry club, Ag Fair chairman, and the faculty advisers of the two clubs.

The council has made definite progress towards bringing a better feeling between the two divisions of the Agriculture school.


NOON
OFF CLASS
PALS
BAILEY'S BUS
TELL 'EM PHIL
FOR SALE
SAD NEWS
SNOOKY
SLOCUM
PICTURE TAKING
J. S.
RUPP

Campushots

FORESTRY CLUB ROLLEO

ED SMITH, '39

The sixth annual Forestry Club Rolleo was held on Saturday, October 30, 1937 at the Hill Forest in Durham County. This was the largest and best Rolleo ever held, and its success was largely due to the efforts of "Jim" Huff. Huff was the spirit of the occasion, and he saw to it that there wasn't a dead moment during the entire day.

Besides the 125 State College Forestry students, there were present members of the faculty of Duke University and State College Forestry Schools.

The Rolleo was won by the Seniors with a total of 92.5 points. The Sophomores placed second with 66 points, with the Juniors grabbing off a close third with 65 points. The Freshmen brought up the rear with 25.5 points, but they scored more points than any Freshman Class in the past three years.

All of the events were hotly contested, and the upper classmen were about even until the Stunt and Quartet singing took place. It was in the Stunt that the Seniors won the Rolleo by taking first place, which counted 20 points. After showing up well all afternoon the Juniors went into a slump and allowed the Sophomores to take second place. The quartet had devoured too many "hot dogs" for supper and sounded more like yelping dogs than they did like four singers.

The most spectacular feat of the afternoon was the tree climbing contest for speed. The object of this contest was to climb a tree for about 25 feet and then to descend to the ground in the quickest possible time. "Mac" Daughtry of the Juniors got off to a slow start so he dropped to the ground when he reached the top of the tree. All of the other contestants had shinnied back down. "Mac" was the winner of the event.

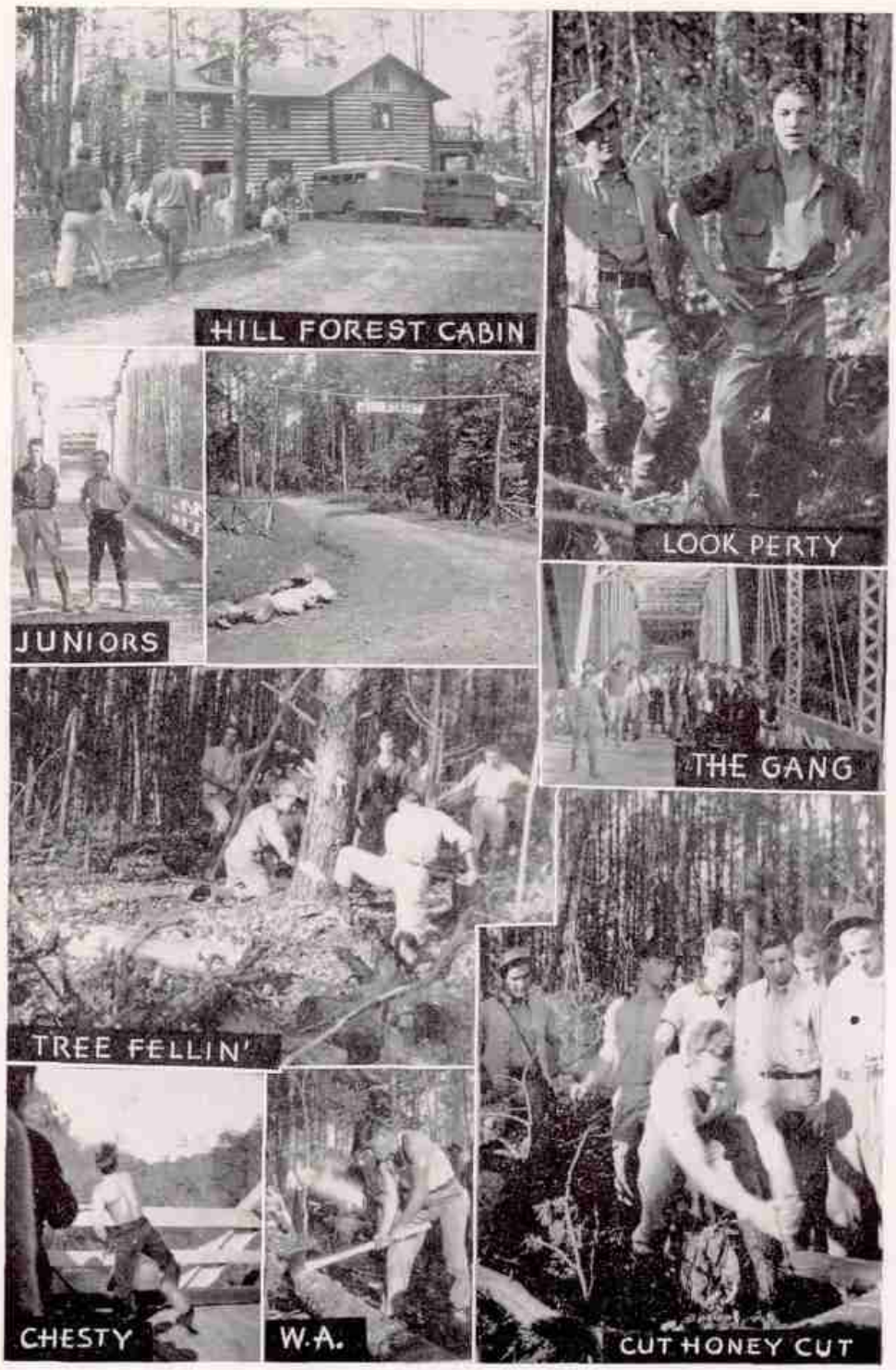
Bill Bailey and Chester Wright felled a 50 foot pine within 4 inches of the stake which had been driven about 50 feet from the standing tree.

The team of J. B. Bailey and Beasley won both the Diameter and Height estimation contests. The Sophomore team of Brake and Lee won over the Seniors in diameter estimation, and the Freshman team of Weisse and Moore tied the Seniors in height estimating. Both of these were upsets.

The following is a list of events and the winners:

1. Rock throw for distance—Cheslock (Senior).
2. Rock throw for accuracy—Honeycutt (Senior).
3. Tree felling for accuracy—Bill Bailey and Wright (Juniors).
4. Tree climbing with spurs for form—Whitman (Senior).
5. Log sawing for time—Hobbs and Honeycutt (Seniors).

—Continued on page sixty-four


HILL FOREST CABIN
LOOK PERTY
JUNIORS
THE GANG
TREE FELLIN'
CHESTY
W.A.
CUT HONEY CUT

Rolleo Day

VOLUME V 1937-1938

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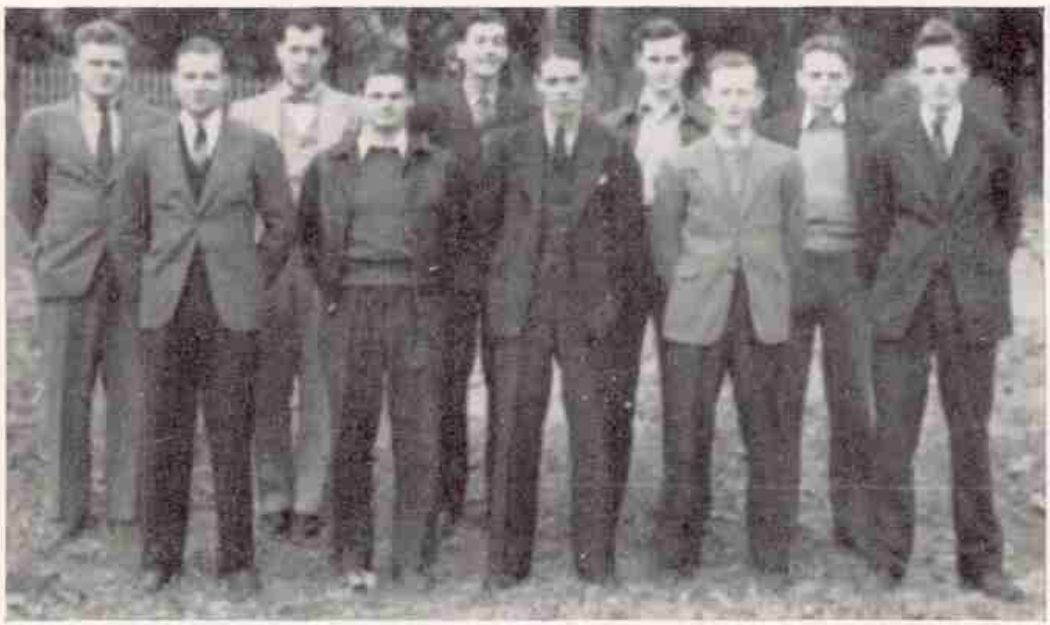
JOURNAL OF FORESTRY OF NORTH CAROLINA STATE COLLEGE



DIXON SLOCUM REEVES ATKINS RYDER
SMITH COLWELL EVANS MARTIN LULL

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FARM FORESTRY IN NORTH CAROLINA

J. P. MOOREFIELD, '38

To present an accurate picture of the value of forestry practiced on the farm, it is necessary to call attention to the fact that more than fifty per cent of the total farm area in North Carolina is listed as farm woodland.

Even with such a large part of farm land in forests there is a growing scarcity of wood for farm needs. North Carolina farmers are consuming fuel-wood at an almost unbelievable rate. In 1935 four and one-half million cords of wood were burned to cure tobacco, to heat farm homes, and for cooking purposes. This wood stacked four feet high and four feet wide would reach twice across the continent with nearly a thousand miles to spare. Individual farmers in tobacco counties last year were forced to purchase, in many cases, more than one hundred cords of wood. In some cases it was necessary to haul this wood as far as fifty miles to the farm.

What causes this meager supply of wood? Obviously, with destructive logging and careless cutting by the farmers and with no consideration for future stands, the productive capacity of farm woodlands has been so lowered that it will not adequately supply farm needs. Therefore it has been necessary to launch an educational program to carry directly to the farmer in the field, in order that he might begin to give thought to the proper care and management of his woodland, and also that he might utilize idle acres of land—to the end that he have sufficient forest products to continuously supply farm and home needs.

After listening to the preaching of the gospel of forest conservation for more than a decade, North Carolina has begun to awaken to its need for common sense handling of its important, yet so easily exhaustible resources—the forests.

In order to establish a pattern by which the farmer may best realize returns from that part of the farm in trees, demonstrations in cooperation with the county agents are placed with progressive farmers who see the need to conserve their woodland, and who want to know how this can best be done. Friends, neighbors, and tenants of the landowner are invited to attend and to actually assist with these demonstrations. At such meetings the discussion is led by the extension forester or county agent prior to placing the demonstration. The group under proper supervision actually harvests timber, plants idle acres or establishes fire breaks as the case may be. Data are then gathered, records kept, and each demonstration followed through to completion. Interest is necessarily keen because men attend of their own volition and each participates in the demonstration.

Thus the protection and development of North Carolina woodlands as a means of conserving the State's greatest natural resource is rapidly assuming a status of vast importance. The future of the state is inti-

mately connected with her soil, her water supply, and her timber, and these in turn are largely dependent upon her forests. A good growth of trees checks erosion, helps prevent floods, reduces the dangers of drought, and provides the timber and fuel wood so essential to our civilization. Our woods are a poor remnant of once magnificent forests. They have been "mined" without regard to future uses. Man took the best and left the crippled, poorer specimens to an inevitable fate.

The better management of timber stands includes the thinning of over-crowded woodlots, removing inferior trees, selective cutting of merchantable timber rather than cutting the entire stand, and leaving seed trees or replanting with better species. Control of grazing on farm woodlots also forms an important part of its successful management. Over-grazing has been prevalent in the Piedmont and mountain sections to a point where reproduction has practically ceased. Farmers in these sections are urged to keep their cattle out of the woods in order that the young seedlings that start can grow into trees.

In seeking to increase the farm timber supply, the extension foresters urge farmers to conserve their supply by making complete and efficient utilization of all timber cut, using only inferior trees for fuel, and refraining from cutting immature trees that will later grow into fine specimens. They also encourage the planting of worn out abandoned fields and non-profitable crop land. The rate of growth on the average farm, where woods have been neglected, is barely enough to provide the fuel needed on the farm. Yet farmers have been decreasing their capital supply by cutting and selling wood at a rapid rate.

One of the aims in extension work in North Carolina has been to arouse the public to a greater realization of the seriousness of forest fires. In the Piedmont area very few fires burn over more than an acre or two because the people are alert to stop them as soon as they are discovered. If this determination prevailed throughout all the counties in North Carolina there is no doubt but what the annual loss from fire on the farm woodlands would be reduced to a minimum.

When reforestation is left to nature the results are usually not so good. When a field has been clearcut, without any good trees left for seeding, it generally grows up in brush and inferior trees. The same is true of idle and abandoned crop lands. Through demonstrations, the extension foresters show farmers and others how timber may be cut so that provision is made for reseeding the cut-over areas, and how young trees may be set out where there are not enough seed trees.

Throughout the Piedmont and mountain regions thousands of acres of land have become, or are fast becoming, almost worthless as a result of erosion. Many fields have been abandoned as unfit for crop raising. The erosion control work consists of constructing check dams, logs and rocks in gullies, putting down mattresses of brush, waste hay, weeds or other material when necessary, and planting trees—especially black locust.

—Continued on page sixty-nine

Summer Camp 1937

SUMMER CAMP 1937

H. C. MARTIN, '38

As June 5, 1937, rolled around, most of the State College Forestry students gave a sigh of relief and headed for home, not so with some thirty-five of us. We heaved an extra sigh and with a couple of "This is about the last straw's," registered for summer camp which started on the 8th. After we had gone through the usual red tape and run the gauntlet of Dr. Metcalf's office to see that we were in good standing as to having our prerequisite work off, we were sent to the Treasurer's office where we were relieved of all financial worries for the time being.

The Profs for the summer were Slocum, Miller, Fontaine, Bramer and Tremble, the latter three taking turns at trying to teach us a bit of Surveying and Mapping, while Profs Slocum and Miller presided over seven of the ten weeks, their subjects being Dendrology, Mensuration and Silviculture.

The 3,600 miles we covered during the ten weeks was in our trusty forestry school buses, with Wayne Shelley, Monty (Red) Young and Mac Daughtry at the helm, ably assisted at all times by each member of the load. Extra steering wheels were often passed out on crooked or steep roads.

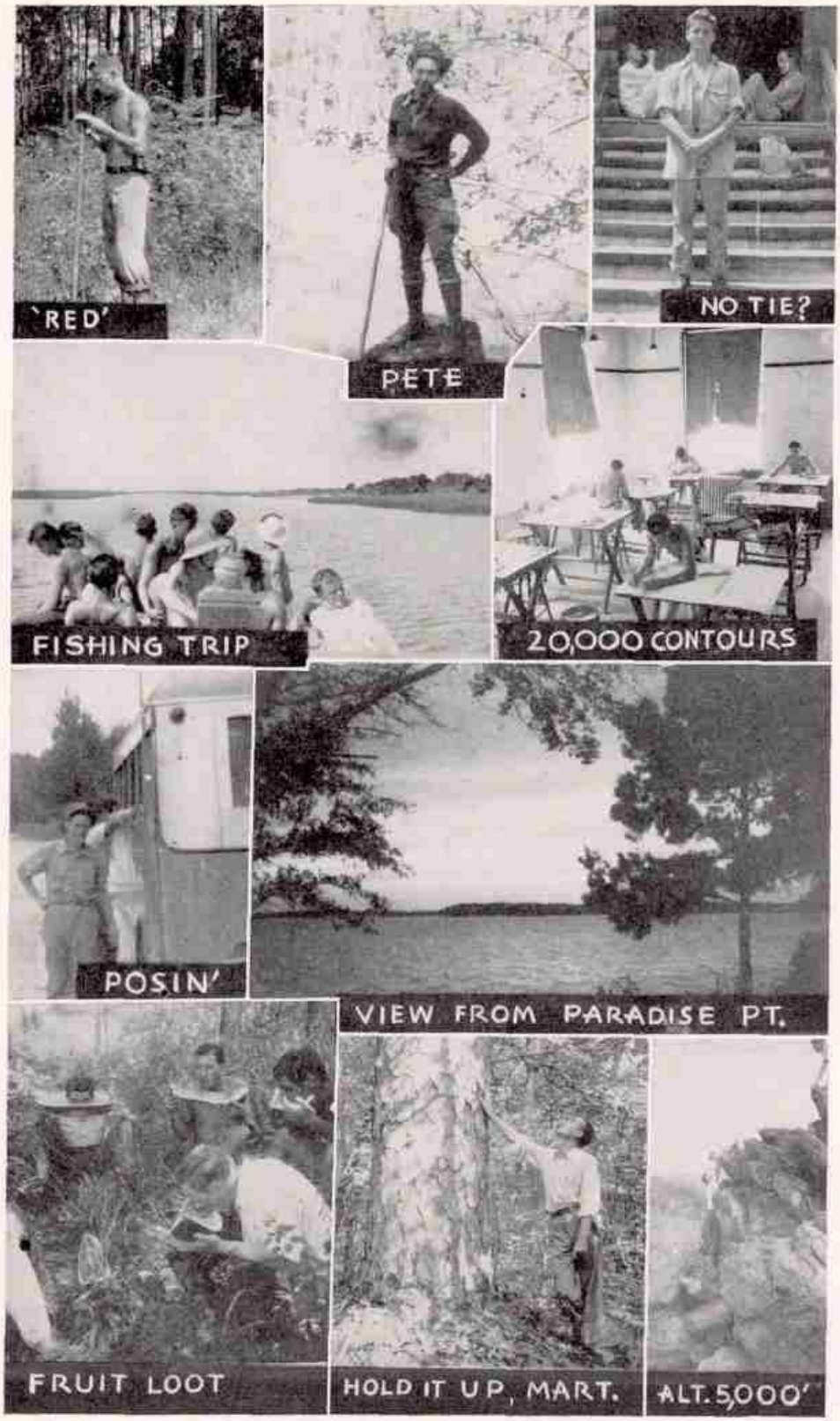
The total cost for the ten weeks ran about $125.00, with some spending a good bit more—depending on how often you went to town, etc.

As to clothing, most of the fellows had boots of one kind or another. Riding pants and long khaki trousers rolled about half-way up the shin (North Carolina style) were the leaders in this department. Shirts ran from none at all to some of the sturdier materials, with Amos Butler wearing white, starched dress shirts, which, of course, ran no risk of becoming soiled except on the back. Hats showed the greatest variety with Mac Bailey in a dashing army hat, Little Slocum, Easterling and others in white cloth hats with green eye shades, Perry Hughes, Lyons, Yeager and others following the example of Profs Slocum and Miller with Frank Buck helmets—a little subtle legging there; Huff with his battered felt—feather, nail and all; yours truly with a sailor hat which was very tiring on the ears; and many others, all coming under the general heading of "hats."

Blankets and personal articles completed our outfits. It is impossible to give in detail our many and varied experiences during camp. I will give you a few snapshots; each student has his own enlargements.

Dendrology

In the three weeks we spent attempting to learn how to identify 130 species of trees, we traveled from Raleigh to Boone and then to the coast. The first morning of summer camp we took in all the trees



Summer Camp Shots

on the campus, including those around Slocum's meadow. During the remainder of the week we took specimens from all the territory around Raleigh and Hill Forest. We would be introduced to the tree one day and then get it on a quiz the following day. We had 500 quizzes during the three weeks of Dendrology. These quizzes included the common and scientific name of the test specimen and, of course, your own name. As a rule, everyone got the latter right, which is more than can be said for the former two. There was quite a bit of original spelling on the scientific names but the Profs didn't seem to appreciate originality to any great extent.

We left Raleigh on Sunday for a week at Boone, where we stayed at Appalachian State Teachers College. Plenty of "gals" were in Summer School there—some of them ugly enough to scare cats off a fish wagon and others "mighty" pretty. Hughes, Smith and Page did rather well as the standout lovers with Henry rating the queen of the lot.

We had quite a time up there—went to Grandfather's Mountain one day. The scenery was beautiful and the nights nice and cool.

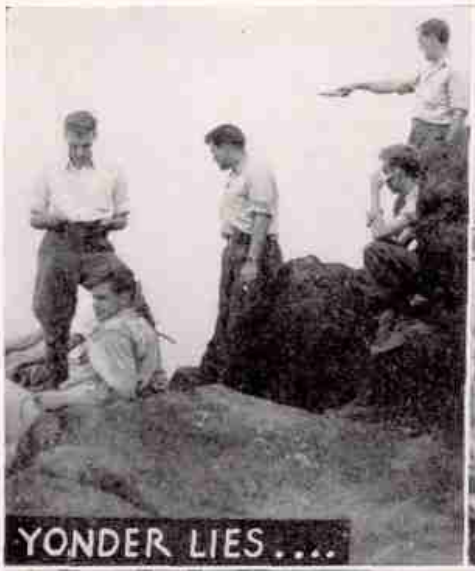
We spent our days tramping the mountains in search of untypical Dendrology specimens which the Profs had tied out in the woods just for our enjoyment. The Prof always went in front so as to remove anything such as fruit which might give the specimen away. This was one course in which there was very little lagging behind because the last one to get to a specimen had to identify it from the type of hole it left when plucked up by the roots.

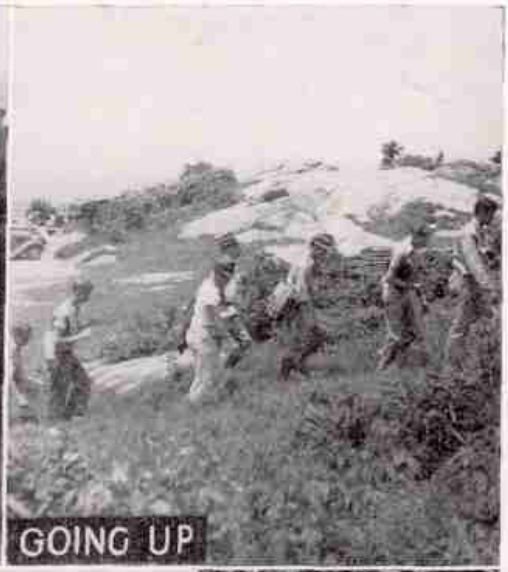
Some of the boys were all for quitting forestry and getting married there after we had spent a week of seeing the women working in the field while the old man sat on the porch and chewed eating tobacco. Old Zeke Trowbridge did get up energy enough to grab his family artillery and trail us to be sure we didn't find where his bottled delight was being made. Prof Slocum said those mountain "gals" might not work so hard if they were transplanted, so we left Boone—all single.

The only casualty of Dendrology took place on the coast when Red Young chewed a leaf of Poison Sumach to get that characteristic taste so as to identify it with greater ease. Well, as you see, we had Dendrology in three different types found in North Carolina—Mountain, Piedmont, and Swamps. We were never allowed to become over-confident, however; if too many identified the specimens correctly, the Prof would point out a tree in the distance and ask for its name. This usually stopped 100 per cent of us, roughly.

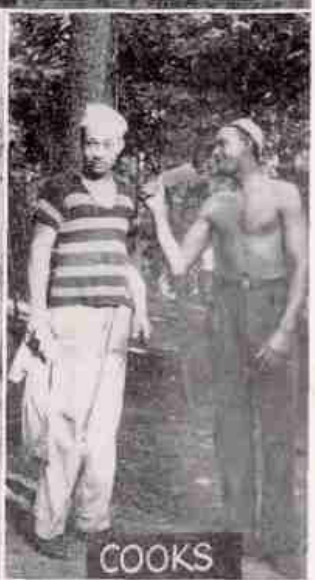
Surveying

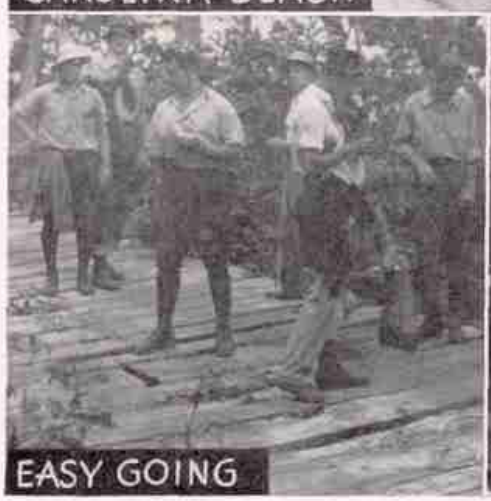
My account of this part of camp will be short, since it is painful to me to talk about it. We spent two weeks at Hill Forest taking Transit, Level and Stadia notes by the thousands and then spent a week back in Raleigh trying to figure them out so we could do two

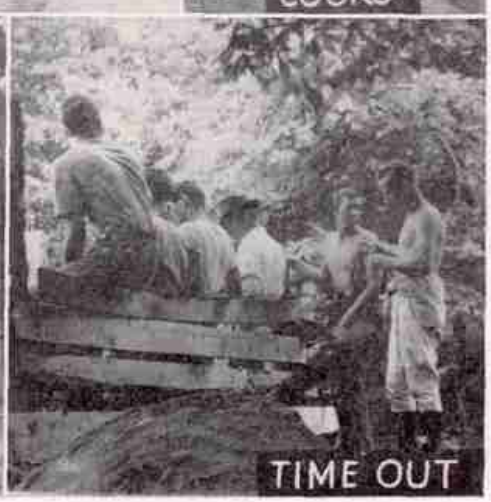

YONDER LIES ....


GOING UP


CAROLINA BEACH


COOKS


EASY GOING


TIME OUT

weeks' mapping in one week. The camp was divided into five crews and each night everyone had to sit up and copy everyone else's notes. We went to work between 7:00 and 7:30 a.m., and quit between 4:30 and 7:00 that afternoon. We needed lanterns to read the rods a few evening. Charley and Jack presided over the kitchen, with Dale and Henry doing the buying. We went to Durham two nights a week and that was quite a relief from Surveying. The swimming pool probably gave us more enjoyment than anything else at Hill Forest.

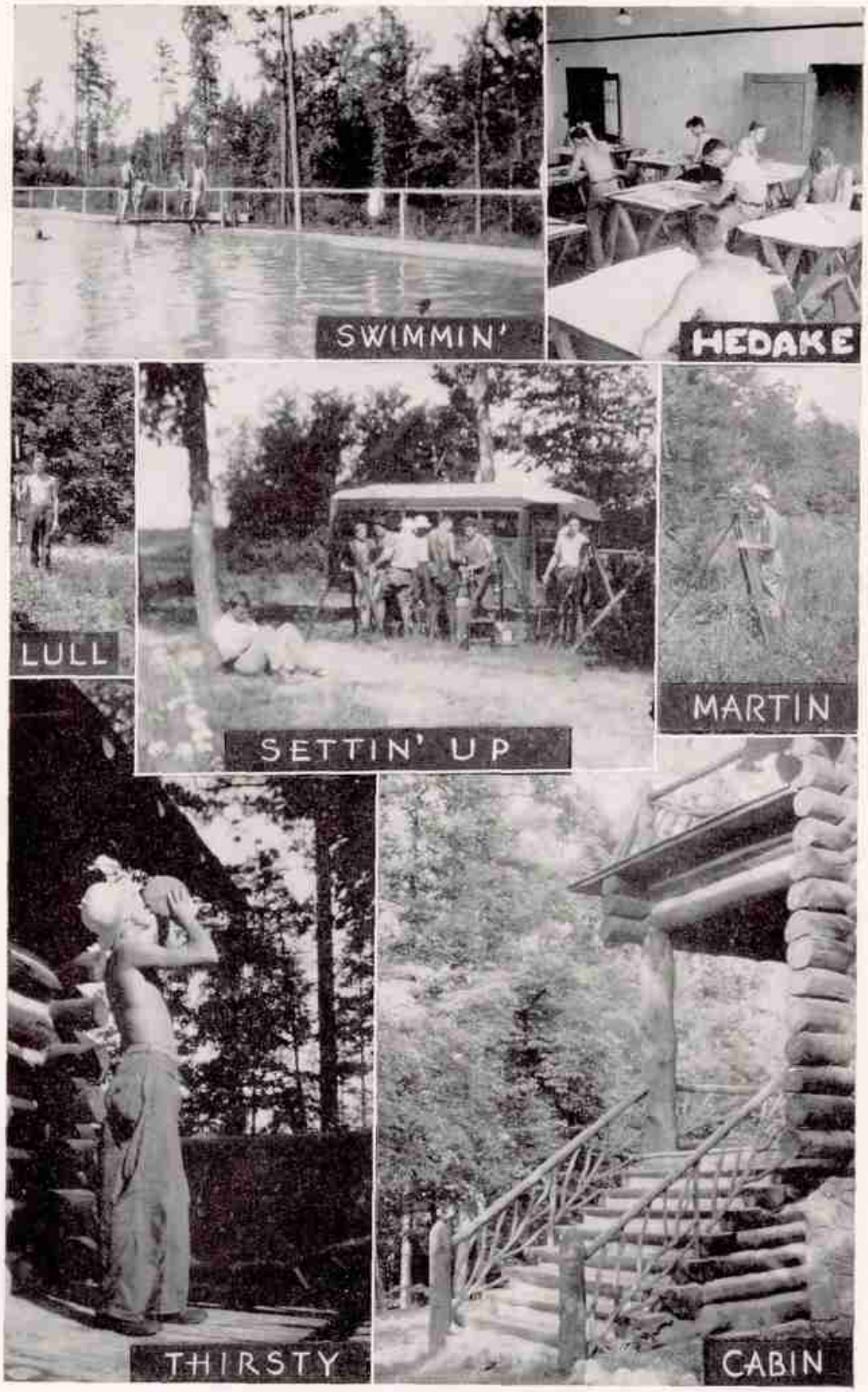
We spent a week drawing our maps of a section of Hill Forest from the notes we had taken in Surveying. The drawing was done in Raleigh, but we spent the nights at Hill Forest. You can figure that out for yourself, we couldn't get a satisfactory answer ourselves. I might also mention that it was rather hot that week. Did you ever try hanging over a drawing board eight hours a day, stripped to the waist and burning up? Well, it won't be long now; oh, your poor backs and eyes!

Silvics and Mensuration

With the exception of one week of Silviculture at Hill Forest as a sort of warm-up, these two courses were given on the coast. During the five weeks spent on the coast down near Jacksonville we got our big chance to shine with axes, cross-cut saws and fire rakes. Then, too, you get a dash of stem analysis, thinnings, growth studies, pulp wood operations and timber cruising; all of this work is done under water, of course. You have, no doubt, been informed that the 87,000 acres down there have been drained and, besides, it's only a swamp at certain times of the year. I have only been down there in the spring, summer, fall and winter, so I guess it drys up during the other season.

Well, once again I am getting ahead of myself. We left Hill Forest on a Sunday morning and arrived at our destination a little after noon. We were told that we would stay at Paradise Point. I looked the place over and as quick as a flash—well, in a week, anyway—that Martin brain says "This ain't no Paradise Point. It's just what the home folk up in the mountains call a 'hell hole'." Maybe the Hotel man just got his names mixed—not being a very good Bible student.

Well, we spent a week dragging a chain through a solid wall of green briars timber cruising for trees which Prof Slocum says are there, see? One afternoon, after a hard day of looking high and low for this tree, our party chief gets in a small clearing and sights a lonesome pine off in the distance. Well, you can imagine our joy 'cause we think we have won the contest and found that pine, for which expert work we expect the Prof to award us the jelly beans, to say nothing of the embroidered bicycle and barbed-wire underwear. So we set out at full speed to claim this rare specimen before any of



Surveying

the other crews wake up from their afternoon naps and share in the glory. After an hour or so we drag our weary, torn bodies up to the foot of a dead snag with green briars running up it so thick they look like foliage from a distance. Finally, after a week of such disappointments, the Prof decides maybe the fire of '34 got that tree or maybe there are timber thieves on the loose.

There was some fine timber around camp though. One nice stand of fourteen inch pines bordering on the watermelon patch was badly damaged the night two parties of fellows started off from the hotel for bed and happened to cross paths in said watermelon patch. It was a case of mistaking friend for enemy.

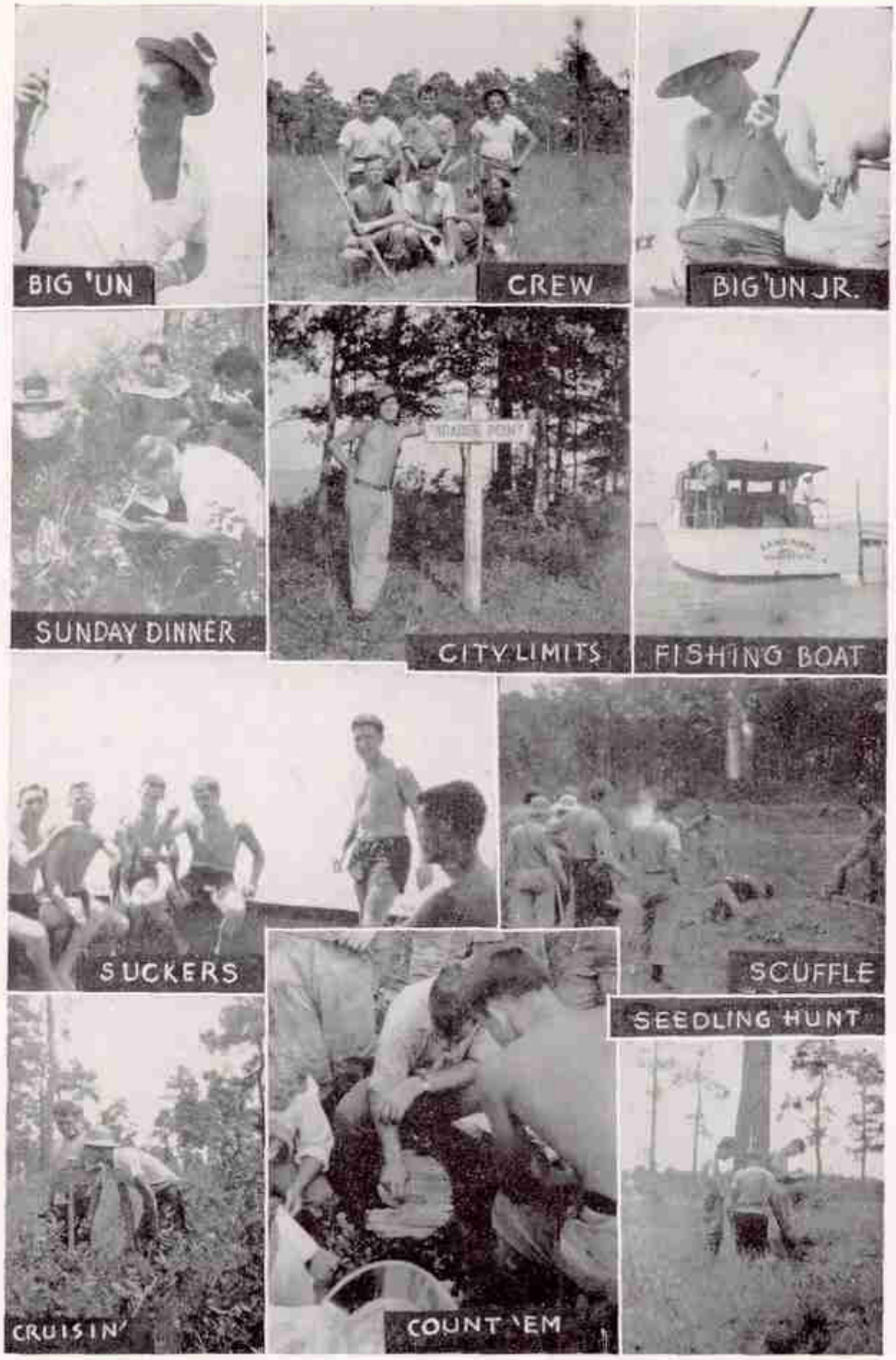
Camp was over August 14, but a few of us were so anxious to get home we left on Friday the 13th.

Glances

Hill Forest—a swell place to swim—surveying with lanterns—copying notes half the night and scratching red bugs the other half—Henry and Plummer taking turns praying and "cussing" for relief—Lull trying to figure how he got red bugs all over his back—Ed Smith talking at 4:00 a.m.—Prof Slocum with his "Off and On Boys"—The Prof seasick—Beasley, Plummer and Kareiva, G. B's (modesty prevents my giving the name of Number 1)—Dutchy Harris blowing his bugle so loud each morning that your pajama tops went up your back like a window shade—Huff's side hill gouger, with pictures—Lyons, Doc Eaker and Mac Daughtry leggers supreme—Huff's crew trying to get lodged trees down—they all laughed when C. K. Dale sat down for me to cut his hair but they were right I was no barber—results "Little Jesus" Dale, named by Woody Wooden—watermelon battles—Dr. Miller and Prof Slocum at Boone shooting gallery every night—the Prof catching Beasley resting under a bush—W. M. Bailey, best swimmer—J. B. Bailey, big words—Chester Wright, "Square Head" Johnson, Zip Slocum and W. M. Bailey, clique—Perry Hughes, trucker—Hartley, mule skinner—Mac McManis, muscle man from Pleasant Garden, the town that Greensboro is near—Easterling, bootlegger—Jim Huff and Shelley, tall tales—Joe Steele, big eater and horseshoe pitcher—Doc Eaker, suction pump—Ned Rupp, jockey on a nightmare—Joe Frye and H. Lull, regular guys—Snookie Evans, big noise—Cheslock and Wooden, grapplers—Yeager, silent, but swell—Profs Slocum and Miller, sheep in wolves' clothing (just a pose, fellows, they're really swell), I'll take my "A" now, boys.

Well, boys, after "cussing" and discussing camp for a few months, we have decided we wouldn't take $100.00 for the experience; wouldn't go through it again for $200.00.

For further information tear the lining out of Prof Bramer's Sunday coat and print clearly which graveyard you intend to make your home in—send the lining to me.



Paradise Point

GAME MANAGEMENT AT STATE COLLEGE

J. D. ATKINS, '40

There are five colleges in the United States that offer a full course curriculum in game management, and North Carolina State College is one of the five. A course covering four years is offered for the benefit of those students who want to make game management their profession. In addition, a course covering one term is offered for the benefit of students who want to study game management as a matter of general education or culture. Beginning with this year, a graduate course will be given.

Since game management is fast becoming important as a profession, the demand for trained men in that kind of work is growing rapidly. At State College a course was started in 1928, but it had to be dropped because of lack of funds. The course was again started at the beginning of the present school year (1937-38), and rapid progress is being made towards its permanent establishment.

A laboratory is being established in the Zoölogy building at the East end on the third floor. This laboratory will be used for studying food habits, life histories, and other problems. Approximately 200 samples of different kinds of wild and cultivated seeds have been collected and placed in the laboratory. These samples are used in determining foods which are eaten by seed-eating animals. Stomachs of animals are collected for comparison of their contents with the seed collections. Skins and skeletons of other animals are being collected for this work. The food and feeding habits of game birds, foxes, raccoons, hawks, owls and other predatory animals will be studied to determine to what extent they are beneficial to man.

Every two weeks a seminar is held, and they are open to all students whether or not they enrolled in the course. The seminars are used to give the students an opportunity to become familiar with as many plants and animals as possible in as many states as possible, and to give them an opportunity to become familiar with the political setup of game management as to progress and types.

In collaboration with the North Carolina Division of Game and Inland Fisheries, Department of Conservation and Development, the Game Management Department of State College is publishing a monthly pamphlet named *Wildlife Management in North Carolina*. This pamphlet has as its purpose the explanation of the various aspects of the new farm game program, which is being instigated by the Division of Game and Inland Fisheries and it attempts to bring field men, college groups, and land owners together in a common striving to further game management in North Carolina.

Mr. Ross O. Stevens, Associate Professor of Zoölogy at State College, and Biologist in the Department of Conservation and Development, is in charge of the instruction of students in this course. Professor Stevens has had very valuable experience in State and Na-

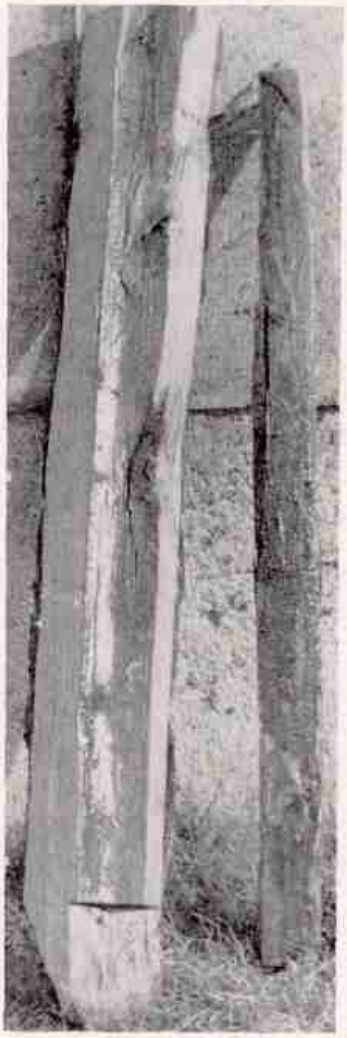
—*Continued on page ninety*

OUR "BELIEVE IT OR NOT"

R. C. EAKER, '38

After 31 years of silence, a loblolly pine on the Hofmann Forest revealed its well hidden secret. Little did Dean Riddick dream, when he marked a loblolly sapling as a witness tree in the 1905 survey that it would guard its secret so well and finally reveal it at such an opportune time.

The Hofmann Forest was surveyed in 1905 by the State and at that time instead of permanent boundary and corner markers being used, the corners were set with wooden pegs. With the fire going over the area every year the markers soon vanished. When the Forestry Division of N. C. State College took the property over it became necessary to reëstablish the boundary lines. Having approximately 360 corners to establish, the job proved a difficult one. The survey was made by a government engineer and the forest supervisor. Soon afterward several of the adjoining land owners made claim to timber on the inside of the boundary that they thought was a part of their land. In one case where the line could not be located, the adjoining land owner claimed 100 acres inside of the line surveyed by the Forestry Division. He based his claim on an iron stake by a stream back in the forest. There was no record of distance or course to this stake, but the adjoining owner was positive that it was the original line.



Proof

During the early fire season the Forest Supervisor was patroling the forest and came upon a man cutting a loblolly tree that was along the supposed original line. He was cutting this wood into four-foot lengths and splitting for use in tobacco curing. Since the tree was on the line under dispute the supervisor stopped to warn him not to proceed further until the boundary had been settled. While standing there talking, the farmer split a section of wood from the loblolly that he was cutting. The section split into two pieces along a pitch ring one of which showed three distinct marks of an axe put there by the surveyors as witness to the corner nearby. The tree had grown over smoothly on the outside and there was no indication that

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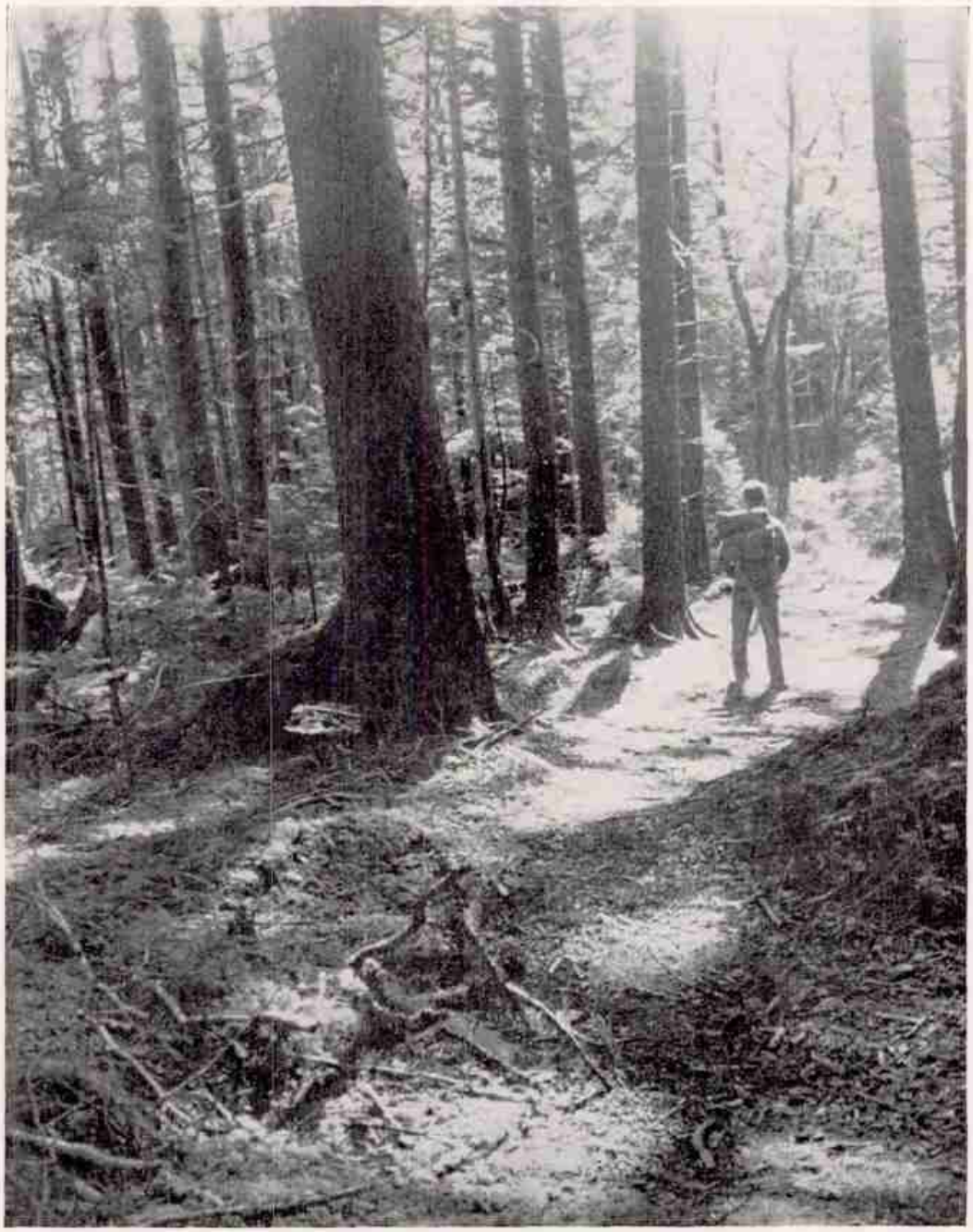


Huff

Virgin Spruce

THE BENT CREEK EXPERIMENTAL FOREST

H. W. LULL, '38

The Bent Creek Experimental Forest is operated by the Appalachian Forest Experiment Station, one of the twelve stations maintained by the United States Forest Service to study forest conditions and problems in the different forest regions of the United States. The Appalachian Station was established July 1, 1921 with headquarters at Asheville, N. C. Its territory comprises three distinct regions: the Appalachian and Cumberland Mountains from West Virginia to Georgia, the plateau region on both sides of the mountains, and the Atlantic Coastal Plain of North Carolina, South Carolina, and Virginia.

At the present time this station has five experimental forests and coöperating experimental forests. Perhaps the best known of these is the Bent Creek Experimental Forest located in Pisgah National Forest, ten miles from Asheville. Established in 1927, this forest at first contained an area of 1,042 acres. At the time of establishment the three-fold purpose of the forest was stated as: (1) to provide opportunities for the systematic development of silvicultural practice, (2) to bring a comparatively large area of forest land under close observation and record for the accumulation of data on problems of management, (3) by thus concentrating silvicultural experiments within a single easily accessible tract, to provide a means of demonstrating purposes and methods of management and forest research.

The experimental forest is representative of that to be found generally between altitudes of 2-3,000 feet in the Asheville Plateau. It contains a variety of types and sites and is mostly second-growth hardwoods and pine which came in after clearing for agriculture or heavy cuttings. Large amounts of excellent hardwood timber are at the heads of some of the coves, and there are many promising stands of hardwood growth. A large part of the forest, however, was found to be in very bad condition as a result of cutting, fire, and chestnut blight on nearly all the chestnut.

In 1935 the forest was enlarged to include the entire Bent Creek watershed comprising 4,800 acres. This addition provided excellent hardwood stands for forest management investigations, old fields for research in the rehabilitation of land, small streams, draining areas differing widely as to vegetative cover, for erosion and streamflow research, and facilities for growth, laurel eradication, plant disease, and insect investigations.

Investigations conducted by staff members of the experiment station on the Bent Creek Forest can be roughly divided into silvicultural and forest protection studies. A third important phase is the studies carried on by various coöperative agencies, namely: the Bureau of Entomology, the Bureau of Plant Industry, and the Biological Survey. The majority of research projects are still in progress, with data being periodically accumulated. A brief survey of the investigations

forcibly brings to mind the wide field they cover, and this article can afford only a brief summary of some of the work undertaken.

Among the first research projects instituted was the silvicultural cuttings made in 1930 and 1931, the purpose, to study the effects of the various cuttings on reproduction and volume growth. Five areas were cut over in the following manner:

1. Area clearcut with all brush and tree reproduction first being removed. The purpose was to learn what sort of reproduction will develop after an entire clear-cutting, as contrasted with the partial cuttings that were carried out on other areas.

2. Area marked for selective cutting, in which all trees of undesirable species, form or condition were removed.

3. Area cleared to stimulate ordinary, commercial practice, all merchantable trees were removed.

4. Unit untouched, used as a check area.

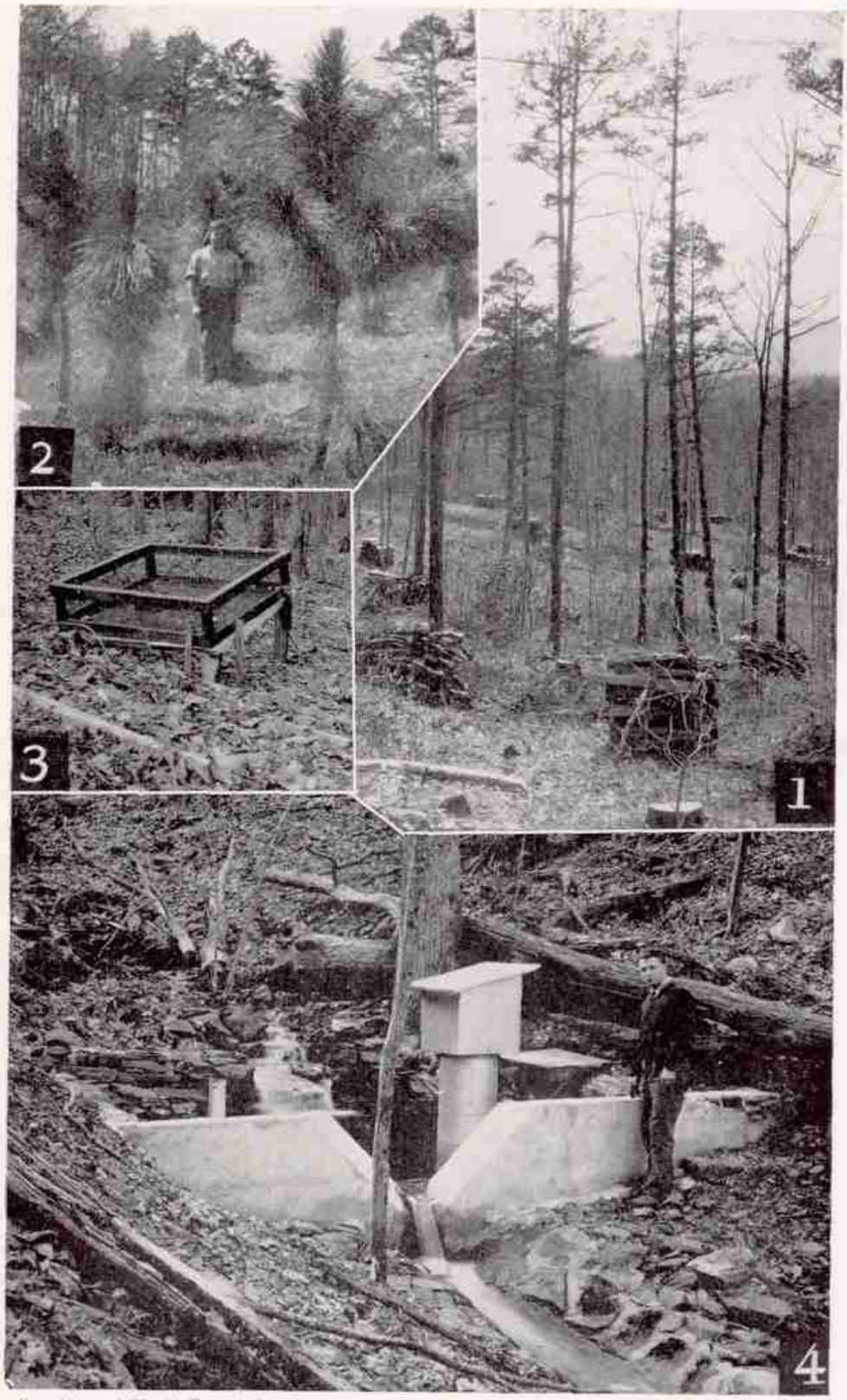
5. Second-growth stand of yellow poplar cut to encourage the extension of the yellow poplar by natural seeding into the area immediately below the stand.

6. Area cut to encourage proportion of chestnut oak in the stand. Periodic observations and measurements of the permanent sample plots established on each of these areas are still being made.

Later two additional units were established and sample plots laid out. One unit is a mixture of pine and oak. It is the intention here to convert the stand into pine standards over hardwood coppice (fig. 1). The other unit consists of a stand of over-mature maple and yellow poplar which was cut over, leaving only thrifty yellow poplar, to find out if such treatment will result in a new stand of that species.

The devastating effect of the chestnut blight gave the impetus for several projects. Plots were established to study the natural replacement of the blight killed chestnut. A knowledge of the nature, rate, and extent of the replacement of the chestnut by other species, and the rate at which the growing stock of the forest will be restored by the replacement species will be important in forming future management policies for many timberlands.

Besides these plots, three chestnut coves were selected and nearly clear-cut by removal of the chestnut acid wood. A study was started to compare the efficiency of planting and natural reproduction in restoring chestnut areas. Each area was divided into small squares and alternate squares were underplanted with yellow poplar. Other small plots were established, each surrounding a chestnut stump. The purpose, to learn the effect on other reproduction of the large clumps of chestnut sprouts that originate from the cut trees. Further experiments demonstrated that the removal of all except the most vigorous sprouts from the bases of stumps did not materially increase the growth rate of such sprouts, and because of the rapidity of in-



Courtesy of U. S. Forest Service

fection of sprouts by the blight at the present time such treatment is not suitable for the production of acid wood.

The effect of fire on mortality of trees, on reproduction, and on laurel eradication formed the basis for much work. A series of plots were established to compare conditions before and after burning. Before the controlled experimental burns detailed descriptions of the individual trees larger than 1.5 inches were made and reproduction on the area was checked. The check plots were again examined after the fire and results recorded. Periodic comparisons between the plots will provide data not only on growth but on continued reduction of growing stock, possible changes in type of reproduction and vegetative cover, the effect on soil, and other undesirable or desirable changes which occur as the result of fire.

Further controlled burnings were made in 1933 to study mortality. In these experiments fire temperatures were measured by spirals of fusible metal alloys suspended at heights of five, ten, fifteen, twenty, and twenty-five feet above the ground. Approximately 450 spirals were used in twenty-four set-ups distributed over the plots. Among the facts discovered was that at twenty-five feet above the ground, which is well into the crown of the average tree on the plots, temperatures equivalent to the boiling point of water were reached in 89 per cent of the set-ups. The effect of these temperatures on the crown is yet to be determined.

From data on forest fire wounds at the bases of various species of trees a correlation was found between area of charred bark and area of wound or killed cambium. Differences in the ratio of wound to external discoloration were found between species and size classes of trees studied. The purpose of this work was to measure specific differences between species in susceptibility to fire damage, and to devise a practical field means for judging the area of external discoloration of wound which will enable a reasonably close estimate of basal injury by fire appraisers.

The reaction of laurel to fire with aim in view of laurel eradication was studied. Results show that light burnings are not likely to reduce the density of laurel cover.

The factors influencing seed crops formed another research project. Traps (fig. 3) and open quadrats were established to study the periodicity of seed crops, the amounts and viability of seed produced by various classes or types of trees, and the effect of biotic factors on the seed crop.

The scope of the planting project in the Bent Creek Forest is limited to the testing of selected native and exotic trees for planting in this region. Fifty different species have been planned in plots varying in size, and containing six to three hundred trees. Survival of seedlings has been rather high, southern white cedar, slash pine, loblolly pine and longleaf pine (fig. 2) showing unexpectedly good survival. In the matter of growth, loblolly pine and southern white cedar, neither of which is a native to the mountains, excelled all other

species. It was also noticed that the western species are almost all to be found in the group having the slowest growth.

The results of seven years study of the progress of yellow poplar reproduction on burned and unburned clear-cut areas were compiled and published in 1931. Germination was at the rate of some 30,000 seedlings per acre on the burned area; on the unburned area at the rate of some 2,000 per acre. They almost without exception disappeared in the subsequent seven years. Conclusion reached is that root competition and shade are probably the primary cause of failure.

A study of sprouting correlated with the different seasons of the year was instituted at the forest to determine means of improving present methods of cleaning sapling stands. The sprouts resulting from cutting undesirable species should be reduced to a minimum and this study will aid in determining the importance of seasonal cuttings in reducing undesirable sprouting.

Another investigation dealing with the seasons is the study of the yearly cycle of growth from swelling of buds to dropping of leaves with records of time kept for time of leafing, flowering, and fruiting. This data to be correlated with timing of cutting for reproduction by seed and sprout, girdling, seed collection, and other silvicultural operations.

Plots were established in 1931 that will furnish information on the yearly variation in leaf fall, on how fire-damaged crowns affects the leaf litter, on the recuperation of crowns after damage, and on the rate of decomposition of litter on different sites.

An intensive study of the interception of precipitation by forest canopies was made at the Bent Creek Experimental Forest. Rain gauges were used to determine the actual amount of precipitation reaching the forest floor through the tree canopies. This is contrasted with gauges placed in open adjacent plots. All trees on the plots were equipped with a bole collar that collects all water coming to the ground along the tree boles. Three-year records were obtained for the following types: oldgrowth hardwoods, yellow pine hardwoods, mixed hardwoods with laurel understory, and oldfield pine.

Besides the silvicultural research several projects have been started in forest protection work. Of these, fire weather research is one of the most important. The purpose of this study is to be able to predict the varying degrees of forest fire hazard resulting from the combination of temperature, rainfall, humidity, wind, sunshine, and vegetative development. Once the information is accurately known, prevailing degrees of hazard can be fixed with assurance, and predictions can be made with reasonable accuracy.

Streamflow and erosion research were first started in 1932. Continuous records have been made of the amount of stormflow following each storm from various plots throughout the forest. From these plots, representing five cover types, stormflow was measured as surface runoff and also as subsurface flow at twelve inches (fig. 4). These

—Continued on page ninety

THE SCHOOL NURSERY

J. F. REEVES, '39

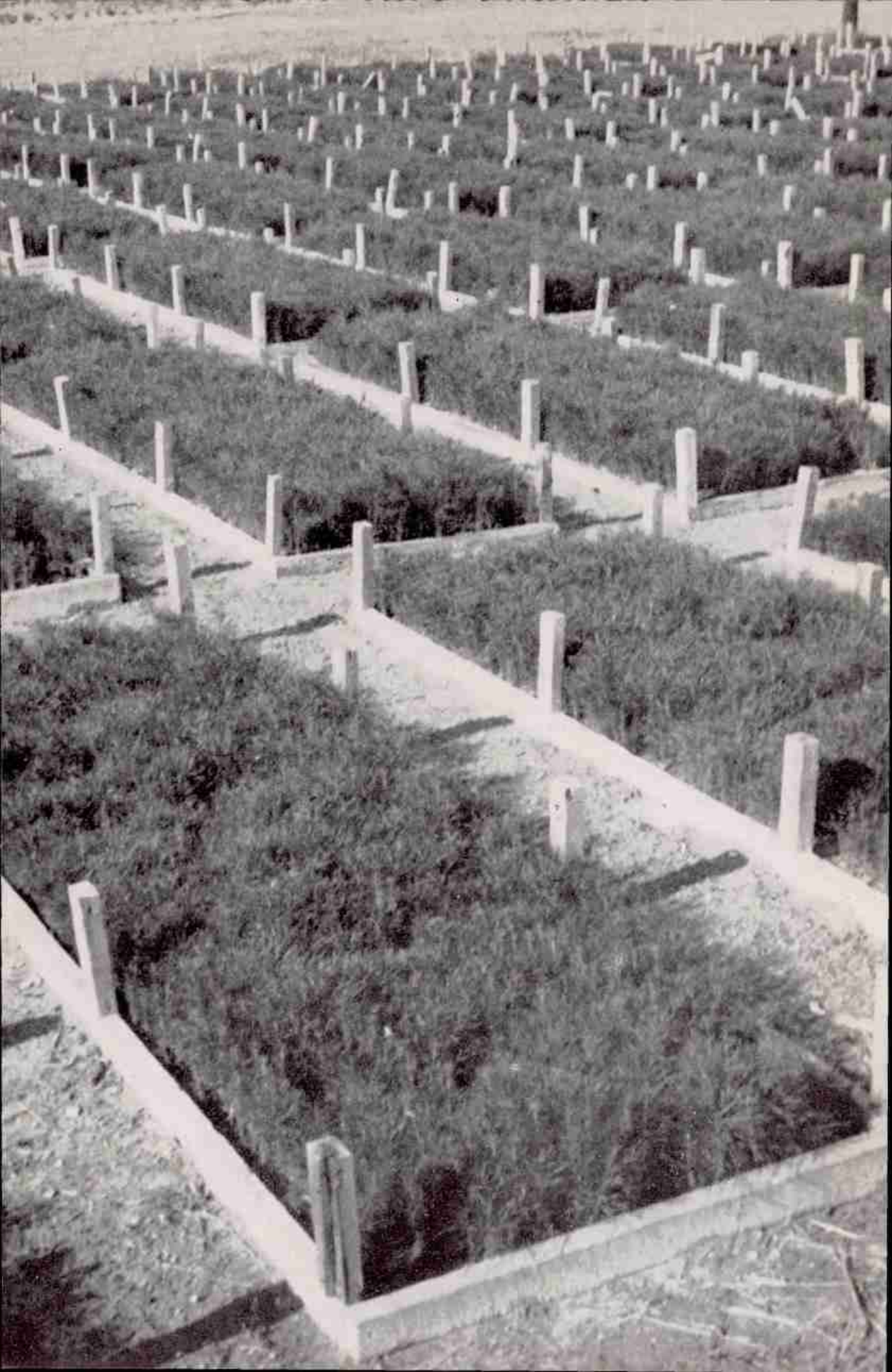
Although a majority of the forestry students have become acquainted with the school nursery, and the progress being made by that department, there are still many students who do not realize that we have one of the most complete and well managed seedling producing units of any Forestry School in the United States. Each year, thousands of healthy seedlings are produced for reforestation purposes.

In the spring of 1930, the nursery was begun under the supervision of Professor G. K. Slocum with a first year production of ten thousand trees. The next year showed an increase to 50,000 seedlings with an increase to 90,000 seedlings in 1933, and the following year over 200,000 seedlings were taken from the seed beds. At the present time the nursery, which has doubled in size in the past two years, contains more than 450,000 seedlings of loblolly, longleaf, and slash pine.

The nursery is now located behind the gymnasium near the Pullen Park Lake. Its progress this year has been somewhat hampered by its recent transfer from the new athletic field into its present and permanent location. There are 130 4x12 seed beds. In these seed beds the average number of pines (seedlings) produced per square foot is from 75 to 100. This plot when utilized to its fullest extent will produce more than one million seedlings per year. There are several transplant beds in addition to the seed beds which are much larger and contain a variety of species. In these beds of different species, the exotics are placed after having a year's growth in the seed bed. These species include Port Orford Cedar, Red Pine, Scotch Pine, N. White Cedar, and Exotic Oaks which are used in the arboretum.

The majority of the seedlings are planted on the Hill and Hofmann Forests belonging to the Forestry school. However, 150,000 seedlings were sold to the State Forest Service last year. Most of the loblolly and slash pine seedlings are sent to the White Oak Pocosin where experiments are being carried on for the purpose of determining proper spacing, and proper soil and light conditions for the growth of these species.

Perhaps it would be interesting to know how this work is carried on, who does the work, and where the financial support for the nursery is obtained. During the nine school months, the work is carried on by the governmentally employed NYA students of the college; and, although the number of these students has been decreased considerably, they still have complete charge of the work done during the school year. This year a one-hour elective course in nursery practice, under the direction of Professor Slocum, has been added to the forestry curriculum which not only gives the student a practical



knowledge of seeding and planting, and college credit, but provides additional aid in caring for and improving the nursery. Already there are thirty-five Juniors taking the course. Each student is required to put in two hours a week at the nursery, and by the end of the term he must have constructed a seed bed, prepared the soil, planted the seed, weeded, watered, shaded and, finally, graded his seedlings for field planting. He is also required to check the germinating bed for disease from time to time. The money which is taken in by the school for the seedlings sold, is used for weeding and watering of the beds during the summer months when the NYA students are not available.

A great deal of experimenting has also been carried on by Professor Slocum in determining the best kind of covering for the seed. Soil loam, sawdust, and sand loam have proved the most effective coverings for germination. The sand loam has been found to give the least resistance to germinating seed, but this covering tends to alkalize the soil, leaving the seedlings more susceptible to diseases. In the spring, when the soil is dry, the soil is worked for planting. When seeded, the beds are covered with tobacco cloth to keep birds out, and this cloth is left on the bed until the seed coats come off the seeds and the danger of destruction by birds is over. When the seedlings reach a certain stage, they are shaded for approximately one month, after which time they are exposed to the sun for the remainder of the year. After germination the main activities are to keep the beds free from weeds, and to furnish the bed with a sufficient supply of moisture. For watering purposes, the nursery is now supplied with hose, and automatic sprinklers.

The period requiring the most work in the nursery is in the spring from March through May, and usually additional help is provided by the school for these three "rush" months. During this period the seedlings to be used for planting, are lifted from the beds, counted, and graded according to the purpose for which they are to be used. They are then tied in bundles of fifty and heeled in until the time for shipment. In lifting seedlings, a great deal of care must be taken to keep the roots from drying out. When exposed to the sun or wind for only a few minutes, the tender roots will dry out and the percentage of survival will be lowered considerably. For shipping, the roots are either enclosed in moss or dipped into a mud solution, depending upon the method chosen for shipment. Enclosing the roots in moss cuts down the weight of shipment whereas dipping them in mud is a method used primarily for shipment in trucks. Unless planted immediately, the seedlings are heeled again at the point of delivery.

From beginning to end, the process of producing seedlings in our nursery is an interesting as well as an educational procedure, and it is the purpose of this article to promote this work and to encourage every forestry student in State College to take a more active interest in this all-important phase of forestry which is being carried on by the State College Forestry School.

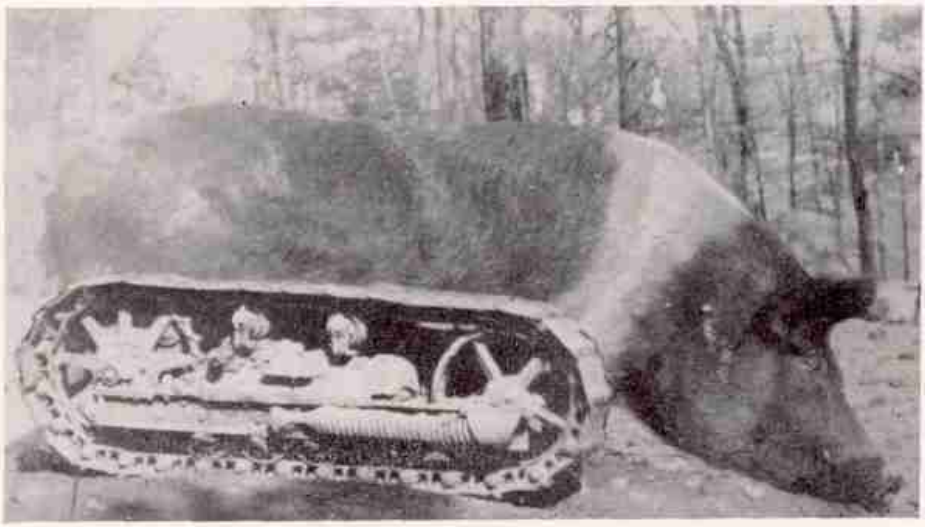
THE STORY OF THE SIDE-HILL GOUGER

J. L. HUFF, '38

"Why Great Gowd, son, this bench we're a ball-hooting off of now wouldn't make a log landing on the Big Bench.

"Big Bench? Oh, that's on the head of Spill Corn creek in Madison County, only h'it wasn't known as Spill Corn creek then. That's where the Side-hill Gouger first come from.

"Y'u never seen one? Well, tain't many as has seen one at that. Y'u see it was like this, we logged on the lower end of the creek nine years till we come to the head where the big bench was. Seven thousand acres on h'it, and as purtty a slope as I ever laid eyes on too, but by thunder she war five hundred foot above the bottom of the valley. The creek riz up thar and come over the bluff a roaring like the devil. Dandy timber up thar too."



"Wal—yes—the Bull of the woods had run more grade lines on that bluff than the cook could shake a cleaver at and not one of 'im but what would cost more to build than the timber was worth. Some allowed as how it could be ball-hooted off, but the bench war too wide for that. Others thought that a incline would work, but h'it war too steep. I'll be dad blasted if it didn't look like we wuz whupped f'r sartin when Ole Man Houzer allowed as he knew just the lick it was done by. Well sir, he took ten bushels of shell corn and graded around the bluff scattering it as he went. Three days later the wild hogs came out of the mountains and rooted a twenty foot right-of-way right up to the bench. Ever since then them hogs have been knowed as Side-hill Gougers.

"No, they ain't what you'd call ordinary hogs. You see they just lived on Spill Corn creek so long that they jist naturally adjusted themselves to the country. Some claimed as how they had some

tractor blood crossed into 'im some time or other, but I never took no stock in it. Come to think of it now there was some resemblance though.

"Why I mind one time when a greenhorn got lost up there on the bench. Long about sun down he crossed the trail of a bunch of them hogs. Well sir, he thought he'd come to a logging road so he took down it as fast as he could go. H'it war nearly dark by the time he come up with 'im. They say it made him so mad he jist set in and cussed himself right out of the woods and clean down to the settlement.

"No sir, the like of them ain't often seen in these here parts."

WORDS OF WISDOM FROM OUR FACULTY

"What you know when you get through college doesn't get you very far."

"Jeepers cats."

". . . . those are the things we must know."

"One thing is certain in forestry, they can't prove you're wrong—at least for 15-20 years."

"Rally round."

"The only place you can do things that don't pay is in the government."

"The buses will not wait."

"Any questions?"

"Next quarter we're going to crack down."

"His first words 'Beat Duke'."

"You must have a program."

"Class excused."

THE FUTURE OF THE PULP AND PAPER INDUSTRY IN THE SOUTH

W. L. COLWELL, JR., '38

The South has contributed to the United States a very generous part of the nation's wealth and prosperity in the timber industry. The forests of the South have been rich in their provisions of raw material for the lumber and pulpwood industry, becoming now the object of all discussion in the new programs of forestry. It is the vital concern of the South today for her future economy, that she insure a continuous supply of raw material for the continuity of wood-using industries. Because of favorable soil and climatic conditions, the trees are very rapid growing, and, if properly managed, they should form the nucleus for a continued agricultural, industrial, and social economy for the South.

The possible development of the pulp and paper industry in the South not only involves the opportunity to practice forestry on a sustained yield basis, but the working out of the economic problems of its own and its relation to other regions.

It is a good time now to go over the pulpwood situation in the United States, and consider how much pulpwood is consumed each year and what the future requirements are.

The last hundred years paper consumption has shown a very rapid increase, reaching a peak of 13 million tons in 1929. The depression has caused some decrease, but the present consumption is between 12 and 13 million tons per annum.

Around 1900, 83 per cent of our pulpwood needs were being supplied domestically, but up to 1938, there was an increasing reliance on imports from Canada, Sweden, and Finland, reaching a high of 57 per cent of imports in 1928. Since then the trend has lowered to our favor somewhat, and now 53 per cent of all pulp and paper requirements are obtained from foreign sources.

The reason for the nation's dependence on foreign pulpwood is the reliance on spruce wood. The Northeast has always depended on spruce for its sulphite and groundwood pulps for newsprint paper, so naturally that industry has been located where the raw material is. But as the wood supply diminished, new developments pointed out that other native species such as balsam fir, hemlock in the west, southern pines, and even hardwoods could qualify for the mechanical and sulphite processes. The rapid development of the sulphite process, using most any coniferous species, indicated the moving away from any necessity for spruce-fir-hemlock.

There has been much talk over the possibility of making the United States self-suporting in pulpwood, pulp, and paper. The Forest Service is vitally concerned in any program which would restore and maintain the productivity of the timber lands of the United States so that it can meet any future requirements that may become

necessary or desirable. As for the pulpwood situation, it has been estimated that 25 million cords annually is the total requirement for all kinds of pulpwood without dependence on imports. The Hale Report has suggested a possible distribution of future pulp production among the various regions, in case the requirements for pulp and paper be supplied without dependence on imports. In working this plan out, it was assumed that the existing mills could produce their quoted capacity, if the forests of the regions could supply their needs. Also due regard was given to the future growth, quality and accessibility of standing timber, suitability of species available in each region for the different processes and the total consumption for all purposes.

The following Table from the Hale Report illustrates this distribution:

TABLE 1

POSSIBLE CONTRIBUTION OF FOREST REGIONS TO PROSPECTIVE PULPWOOD REQUIREMENTS BY PROCESSES OF PULP MANUFACTURE

(Thousand Cords)

REGION	Total	For Mechanical and Sulphite Processes				For Sulphate Process	For Soda and Semi-chemical Processes
		Total	For Newsprint Paper	For Other Uses			
				Softwood	Hardwood		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
New England	3,250	2,600	1,000	400	1,200	150	500
Middle Atlantic	1,500	1,200	200	200	800	50	250
Lake	3,200	2,200	400	800	1,000	600	400
Central	500	500	.....	.....	500	.....	.....
SOUTH	7,500	4,000	2,000	1,000	1,000	3,200	300
Pacific Coast	7,050	6,000	2,000	4,000	.....	1,000	50
North Rocky Mountain	250	250	150	100	.....	.....	.....
South Rocky Mountain	250	250	100	150	.....	.....	.....
Alaska	1,500	1,500	750	750	.....	.....	.....
TOTAL	25,000	18,500	6,600	7,400	4,500	5,000	1,500

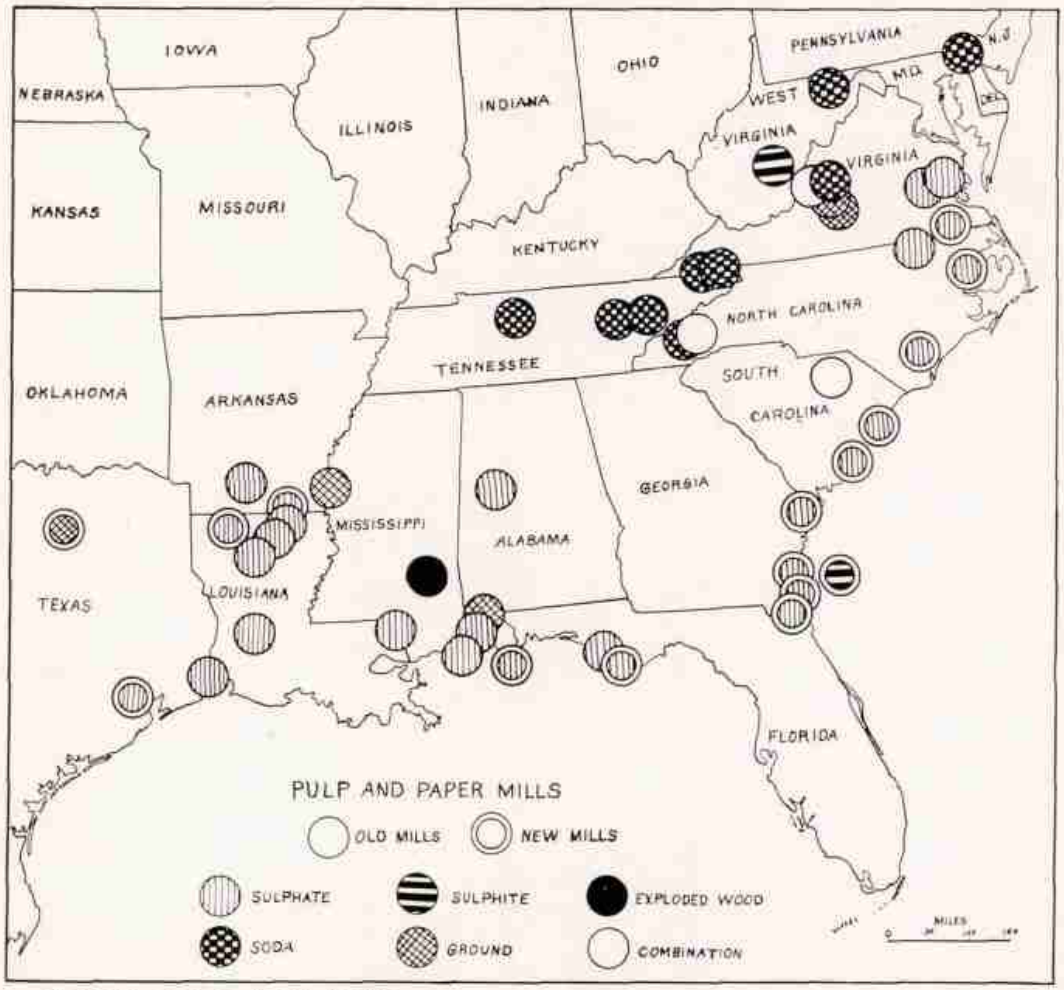
Notice particularly how the South and Pacific Coast regions must supply the largest quantity.

It will be interesting to note briefly just how the various regions are situated in their capacities of possibly supporting the future newsprint requirements. The newsprint paper is the most important single item in respect to pulpwood requirements, and is becoming more and more important, since it is practically a common item in all regions.

In the New England and Middle Atlantic states, prior to the depression, there was cut almost 2½ times the estimated current growth, almost exhausting the growing stock. This makes it hard

for the existing mills to survive on their own stock, therefore they have to rely on imports. The supply could be substantially increased by forest management, but low prices and high taxes prevent any extensive systematic planning for sustained yield.

The Lake States are producing timber below that of the capacity of their mills, but the future production is estimated to be approximately equal to the present newsprint mill capacity. Under proper forest management this production for newsprint ought to be maintained,



Courtesy of U. S. Forest Service

as the cut for hemlock for lumber and other purposes than pulp is likely to be decreased in the future.

Containing large quantities of raw materials, the Pacific Coast and Alaska Regions are capable of enormous expansion in the newsprint industry. Although the spruce and hemlock are very widely used for lumber, saw mill waste has been and can be used extensively for pulp. The type of commercial logging in the Pacific Coast States leaves large amounts of waste material in the woods. Because of the large size of the timber, the large amount of unutilized material left in

the woods, and the existence of active log markets, the possibilities of coördinating the pulp and lumber industries are tremendous.

The Rocky Mountain Region has large quantities of timber suitable for newsprint but most of it is too inaccessible to permit profitable logging and is too far from large markets. The timber is at a high elevation and is scattered in small patches, making it almost impossible to log. But, if necessary, it could produce at least 250,000 cords of newsprint.

Many rumors have been heard about the possible timber famine in the South. This has been so because of lack of accurate data. Of course, there have been a few scanty timber cruises and several estimates made on the Southern timber situation, but they have no reliable bases for their figures. Need for accurate information led to an extensive inventory of timber. The Forest Survey, a project in which the United States Forest Service is gradually securing complete information on all the forests of the United States, has been carried on in the South for several years by the Southern Forest Experiment Station. The timber cruise lines are run 10 miles apart, on which the survey crews measure the timber and take other important information on quarter-acre plots laid out every 660 feet. The lines are run through swamps, fields and towns regardless of ownership.

The territory is divided into 32 survey units, but to date only data for 12 survey units have been completed. The field work is almost finished, but the office work of computing and interpretative analysis is not yet complete.

The total area of the South is estimated to be 197 million acres, 63 per cent of which is still forested as shown in the table below.

TABLE 2

AREA CLASSIFIED BY GENERAL FOREST TYPES*

AREA SUBDIVISION	Acres	Per Cent Forested
Coastal plain pine	78,000,000	68
Delta hardwood	22,000,000	51
Loblolly-shortleaf-hardwood	85,000,000	60
Appalachian hardwood	12,000,000	70
TOTAL AREA	197,000,000	63

* From *Journal of Forestry*, March 1936.

To give an accurate description of the possibilities of forests of the South as a pulp and paper resource, it would be best to consider the data worked out in the twelve survey units. They contain a land area of 82 million acres of which 54 million acres or 66 per cent of the area is forested. These twelve survey units include only parts of the coastal forest but none of these units are included in the Delta or the Appalachian hardwoods regions. This area contains three forest

types, of which the longleaf-slash pine type covers 24 million acres; the loblolly-shortleaf pine type, 17 million acres; and the hardwood type, 13 million acres. It is surprising to note that this forest is mainly young growth. Seventy-six per cent of the forest area is occupied by stands of second growth; fifteen per cent of the area is old growth original timber, and nine per cent is clear cut. Another interesting fact discovered in the survey was finding that more farm land had been abandoned in the last five years than there was new land cleared for agriculture. Twenty per cent of the 82 million acres is cultivated land. These facts show that the South is really a timber country instead of a land of cotton, corn, tobacco, and cane.

The forest area in the twelve survey units contains 441 million cords or an average of 8 cords per forest acre. The volume was determined by including only sound trees five inches and larger in diameter at breast height. The full merchantable volume was recorded but no account taken of the limb wood.

Out of the total stand, 329 million cords are of pulping species, and it will be interesting to note that sixty per cent of the supply consists of trees twelve inches in diameter. These are mostly all second-growth trees and are comparatively free from excessive heartwood. This makes it possible for the development of a great newsprint industry, besides an expansion of Kraft papers, which is not restricted by the amount of heartwood in the timber.

The growth rate of the growing stock of 329 million cords in these twelve survey units is one-third cord per acre annually, or a total annual growth of 18 million cords. These data are from the stands as they exist today, so with better protection from fire and more intensive treatment of the growing stands, the annual growth can be greatly increased. In 1934 the drain from the forests in these twelve survey units was calculated, taking in the total amount of timber cut for all purposes including poles, piling, ties, pulpwood, fuelwood and wood used in other forms. This was found to be nine and one-half million cords, which looks very favorable in the direction of growth in excess of drain. The pulpwood industry is not limited to the amount of the annual growth, for the naval stores industry discards many trees amounting to 1,800,000 cords annually. The abandoned trees have an average diameter of 12 inches, with the damage limited only to the first ten feet of the butt section. It has always been a problem for the land owner of the naval stores region to get rid of his abandoned turpentine timber, before he could grow a new crop of timber on his land. So it looks as if the pulp mills promote the best opportunity for the land owner to sell his abandoned trees.

It must be remembered that these figures of volume, rate of growth, and area are computed from the twelve survey units—an area a little less than half of the whole of the deep South. This again brings to mind the tremendous potentialities of the southern forests if these figures are more than doubled.

Since the newsprint industry is almost entirely dependent upon

spruce-fir-hemlock and as these forests are now being quickly depleted, the possibility of using other species for this purpose is of very important concern. The newsprint paper constitutes one of the most important items in the pulpwood industry, and it is because of the above reasons that many are looking toward the South for the future supply of pulpwood for newsprint. Up to the present, there have been no newsprint mills established, but this may be due to economic reasons instead of technical difficulties.

The South is well situated in respect to other necessities such as sulfur and limestone. These supplies are found nearby and can be obtained at a much cheaper cost because of shorter transportation distance. Although the water supply is not so abundant as in Canada, cheap steam power can easily meet the power requirements, and there is a possibility of developing potential power sources in the Tennessee and Alabama valleys.

There have been many objections raised as to color, resin content, and coarse fiber characteristics, as to whether or not southern pines could be used for newsprint pulp. Since newsprint pulp is made from a combination of the mechanical and sulphite processes, only a wood that is free from resins, color matter, and of good fiber strength can be used. This can be solved easily in the South by a selection of heart-free pine, which makes excellent pulp for the sulphite method.

Recently, Dr. C. H. Herty, director of the pulp and paper laboratory of the industrial committee of Savannah, Georgia, found out that young second growth pines are relatively free from heartwood and resin and are of excellent color. Experiments were made on a laboratory basis, but Dr. Herty also conducted a mill test in which the material proved to be very favorable both technically and economically. Southern Pines are very susceptible to blue stain, but that can be effectively controlled by quickly using the wood after it has been cut.

Many operators in the South who are familar with southern conditions believe that one way of making a real success out of newsprint production would be to establish a connection between the sulphite-groundwood and sulphate mills. Since pulpwood comes to the mills in various types such as wood having low resin content, high resin content, heart-free or heart-containing, a selection system could be used, the sulphite-groundwood mills selecting the heart-free, low-resin content wood, and handing over the rejected wood to the sulphate mills.

Another very good suggestion is to substitute semi-bleached sulphate pulp for the unbleached pulp of the sulphite method. The only process that would then need a selection of wood would be the groundwood. An enlightenment to these possibilities has been the recent progress in the production of semi-bleached southern pine sulphite pulp.

Properly managed forests can produce a very good quality of pulpwood for newsprint purposes. Short rotations, and rapid growth by thinnings applied to the southern pine can produce pulpwood with little or no heartwood. Maximum yields can be obtained by lengthening the rotation provided ample growing stock is present. Although

lengthening the rotation may increase the percentage of heartwood, this will not seriously affect the value of wood for newsprint.

There is the question: "What about the timber industry in relation to the pulp industry?" It must be remembered that the rapid growing pines are also an asset in producing timber for sawlogs and places the South in a favorable situation to produce the bulk of the nation's sawtimber. Viewing the fact that the South has such an aggregate of forest industries with lumber maintaining the dominant position, it is not probable that the pulp industry would obtain a major role. In fact it is not desirable that it try to do so, for if it did it would be at the expense of the forest industries and would lead to a severe unbalancing of the industrial activity in the South. Through a proper system of forest management with pulpwood production integrated with the growing of high quality timber, the South can gradually place her forests on sustained yield with utilization at a high percentage.

We should learn a lesson from the Northeast, realizing that continuous drain on the forest resources without assurance for the future will only lead to an economic disaster. The growing stock of the Northeast has been subject to so much unrestricted cutting that the larger mills have moved to other regions leaving only the small, unreliable portable mills depending on the poor stock of the land owner. Is this helping the stability of a community?

Many new pulp mills are now, or will be built within the next ten years, mainly because they expect to secure a plentiful supply of pine wood at relatively low cost. The investments are estimated to be $100,000,000, using over 2 million cords annually. To the forest land owner, this means a market for thinnings, defective trees, tops of sawlogs, and poles. It means some 25,000 new year-long jobs in the mills and woods. To the state and local communities it will mean a more steady and broad basis for taxes, more permanent employment, and more business.

A mill properly established will need as much as one-half million acres of productive forest land properly managed. They can obtain their wood from land in their own ownership or from other owners. This first requirement, a properly managed forest, is what the South will depend on if it is to develop the pulpwood industry successfully. In connection with the pulp operations there is the opportunity to integrate pulpwood utilization with other forest products, such as sawtimber, poles, and piling, railroad ties, and turpentine for naval stores.

There are two or three simple management plans that work very well with southern pines. First, pulpwood can be grown in very short rotations, using all of the timber cut for the product. This will involve even-aged stands, where thinnings can be applied when the trees reach pulpwood size, then securing the final cut. Restocking can be done either by clear-cutting and planting, cutting in strips to allow seeding from the side, or leaving seed trees.

Second, pulpwood can be secured by the selection method in uneven-aged stands under short cutting cycles of 5 to 10 years. This method

—Continued on page eighty-six

FORESTERS IN THE SPORTS

DON C. DIXON, '38

WOODEN

Many of our foresters, not content with their laurels as bull shooters, knife throwers, and the like, give up their rowdy ways and set out to earn other fame in the world of sports.

In football, the foresters boast of one of Doc Newton's vest pocket guards, Warren Wooden. "Woody," as he is known, had an exceptionally fine season this yar capped off by a stellar performance against Duke in the final game. Despite his football, he boasts a B average in his studies. Although a senior, Woody is eligible for another year and plans to continue playing football and get his Master's degree next year.

TRAYLOR

Supplementing "Woody" in the line, we have two other foresters carrying on in the backfield. Don Traylor, junior, and Paul Lozier, soph, both saw plenty of action last year as reserves. We predict even greater things for this trio as they lead the 1938 Wolfpack next year.

* * * * *

In basketball, forester Adolph Honeycutt has demonstrated his ability as a performer on the hardwoods for the past two seasons. "Honey" earned his monogram last year and saw plenty of action with Doc Sermon's crack quintet this year.

CHESLOCK

SHIMER

CAMPBELL

GRIFFIN

In the other major sport, baseball, we brag of our future big leaguer in Billy Griffin, who will captain the apple tossers this season. "Rookie" started as a pitcher, but was shifted to the outfield last year so that his batting average could be made more effective. To aid Rookie we have one junior, who showed plenty of promise last year. Joe Steele saw action last year as a relief pitcher and is slated as a starter this year. Both earned their monograms last year.

* * *

In the minor sports the foresters also kept up the good work. In the present and in past years the foresters have dominated the mat. "Red" Shimer, a future forester, captained this year's squad and turned in an undefeated record this year, topping off his equally excellent records of his soph and junior years. Red is also president of the Monogram Club. Aiding Shimer was forester "Chesty" Cheslock in the 126 pound class. "Chesty" also turned in a superb performance this year, losing only two performances. W. A. Campbell was also on the squad at the first of the year and showed great promise, but an injury forced him out for the season.

ARNOTT

* * * * *

On the tennis court, Ivan Smith and Jim Findlay both handled their assignments with the experience of veterans last year. Both boys won their monograms last year and should be able to take several matches this year if they get back from the senior trip in time to enter in competition.

* * * * *

In the Manassa Mauler line we have two juniors who at the first of the year showed promise, but were not able to complete the season. "Moose" Martin in the bantam weight class showed promise, but a head injury forced him to hang up his gloves. "Windy" Arnot also saw action at the beginning of the season as a light heavy, but he also was forced to quit the ring.

Swimming is a relatively new sport here on the campus, but the men of the tall timber took to the pool as a duck to water. Bill Bailey has been a mainstay for two seasons, swimming in the dash events and the relay. Other men on the team included Dutchy Harris, Ed Smith, Ted Gerber, and Sol Feit. They did not hold down regular berths on the team, but showed signs of improvement and will make strong bids for Romeo's tank squad next year.

Due to the lack of a track (one is now being built) cross country has not flourished as well as our talent indicates. Sid Ingram and Pat Mattson, both "sophs," looked good last fall, but lack of experience kept them from placing. With this year under their belt they should give good accounts of themselves next year.

* * * * *

Sophomore Bill Brake earned a letter last year as member of the rifle team, and should continue to keep up his fine record for the following three years.

* * * * *

Unfortunately we do not have any members who play a sub-par game of golf. Several of our members may be found on the links frequently trying to break a 100. In event they do we will surely put them on the foresters team, if they do not make the varsity.

WHAT DO WE PLANT?

By HENRY ABBEY

What do we plant when we plant the tree?
We plant the ship, which will cross the sea.
We plant the mast to carry the sails;
We plant the planks to withstand the gales—
The keel, the kelson, the beam, the knee;
We plant the ship when we plant the tree.

What do we plant when we plant the tree?
We plant the houses for you and me.
We plant the rafters, the shingles, the floors,
We plant the studding, the lath, the doors,
The beams and siding; all parts that be;
We plant the house when we plant the tree.

What do we plant when we plant the tree?
A thousand things that we daily see;
We plant the spire that out-towers the crag,
We plant the staff for our country's flag,
We plant the shade, from the hot sun free;
We plant all these when we plant the tree.

APPLIED GAME MANAGEMENT IN NORTH CAROLINA

MARK H. TAYLOR, '39

The summer of 1936 was an eventful one for the freshmen in forestry who chose to spend their vacation as student enrollees in various CCC camps in North Carolina. It was my good fortune to be sent to the Pink Beds Fawn plant on the Pisgah National Forest and Game Refuge where practical game management is in progress.

It is situated about fourteen miles from Brevard, N. C. in the heart of the Pisgahs. The fawns are raised to meet the demands for deer to restock federal, state, and private game refuges. The warden in charge is authorized to issue permits to the natives of that section to capture the young deer. The fawns are captured when they are too young to run. From the time they are born until the age of seven or eight days their hoofs are soft, and, being naturally weak at that age, many are caught by the hunters. All fawns caught under permit are accepted for rearing, regardless of sex, so long as they are uninjured. If the fawns live until shipping time in September, their captors receive $3.50 for each fawn. In September they are sold at the standard price of $25.00 to cover the cost of feeding, etc.

The does bear their young in early summer, and it is then that operations begin at the fawn plant each year. When the fawns were brought in we exercised much care in handling them, because they were extremely timid and easily frightened. Each fawn was weighed and ear tagged with a numbered metal clip. From the time they arrived, case records were kept for each deer, and its progress was noted. Upon their arrival their new homes confronted them with a great change in environment. Whereas before they were totally under the care of their mothers, it was hard from them to become adjusted to living in small coops under the care of strangers.

Feeding the fawns required the milk of ten cows and two goats. Great care was exerted during and before each feeding to prevent contamination of the milk. The milk was strained, bottled and nipples were capped on. Then the milk was heated to body temperatures before actual feeding began. After each feeding, the bottles and nipples were washed thoroughly in soap and water, rinsed, and sterilized—the bottles with steam and the nipples with a disinfectant solution. The fawns were kept in small coops, until they became accustomed to the bottle. When they became sufficiently so, they were introduced to another pen. These pens, or "runs" as they were called, were ten feet wide and forty feet long. Here they were kept some two or three weeks until they became acclimatized to their new surroundings. When they got so tame as to be waiting at the gate at feeding time, or to come "a-running" when called, another change was rewarded them. They were turned into a five acre enclosure that furnished them a variety in their diet which they needed greatly, ample

forage, and also room for sufficient exercise. Here too, soy beans were planted which they seemed to relish.

Feeding took a great deal of our time, and as it was important that the fawns be fed four times daily, it put us to work on a rigorous schedule. The hours for feeding each day were 6:00 a.m., 12:00 noon, 6:00 p.m., and 12:00 midnight. It was necessary at first to feed each fawn about one-third of a pint of milk at each meal. As they grew older and larger we stepped up their quotas to about one-half pint per meal. When they began to forage for themselves, midnight feeding was abandoned first, and later the noon feeding was dropped from their diet.

An experiment with goats' milk proved to be fairly successful with six fawns. Another experiment that proved to be as successful as goat's milk or cows' milk was the use of evaporated milk at half-strength. This was more sanitary and much more economical. The use of this milk may possibly eliminate the services of cows at the fawn plant in the future.

From a report I received recently, the fawns raised last summer (1937) were fed evaporated milk exclusively, and had much less digestive upsets. Mr. Albert Lyday had charge of the plant last year and they considered it a successful year.

There are probably many who disapprove of this manner of game propagation. At the close of the summer of 1936 I disapproved of rearing fawns in the absence of their mothers. However, in considering the fawn rearing activities on the Pisgah National Forest, one must keep the general situation in mind. The general situation is this:

1. There was an over-population of deer on the Pisgah National Forest. Unless the herd was reduced in numbers, malnutrition and starvation would take a toll, especially of the smaller, young animals.

2. There was a scarcity of deer in other parts of the country and, therefore, a demand for animals for restocking purposes.

3. Trapping of adult deer had been quite unsuccessful and a high percentage of injury and death had been sustained during the operation.

4. Adult deer drift much more than fawns from the point of introduction, and some attempts to restock had failed on that account.

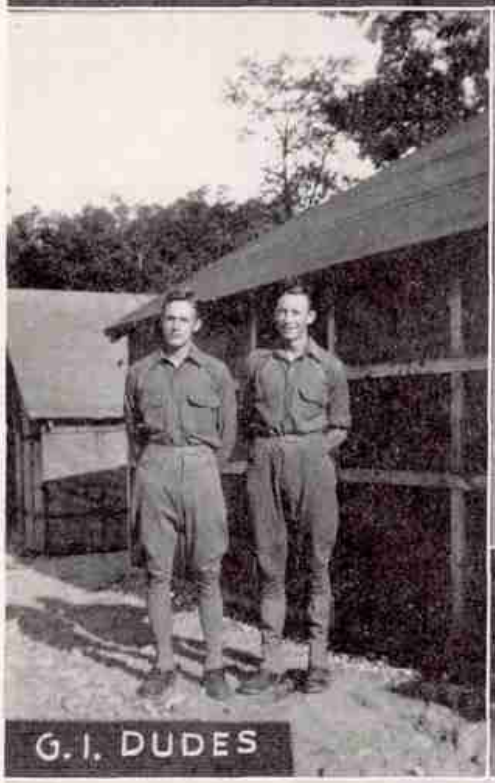
5. Fawns were easily caught and probably the losses sustained in raising then were no greater than the losses that occurred in nature.

6. The cost was moderate.

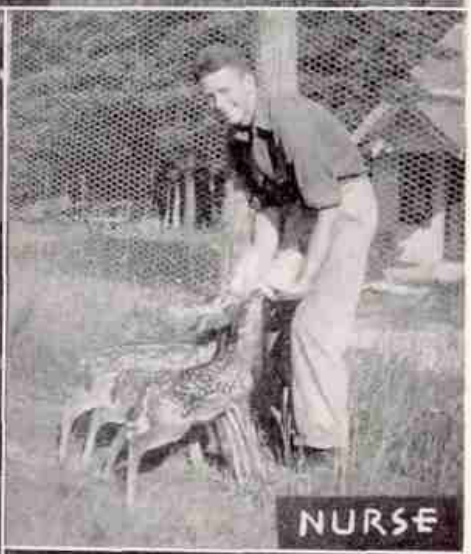
7. The methods of rearing fawns last year improved with experience causing an accompanying reduction of losses and an improvement in the stock.

There were other things beside feeding and milking to keep us working from fifteen to eighteen hours every day. A few fawns were sick a great deal of the time. There was indigestion or colic in a few, and quite an epidemic of diarrhea spread amongst the ranks because of the

FAWN GATHERING



G. I. DUDES



NURSE

ORPHAN

CAMP

sudden change in diet from the does' milk to cows' milk. However, such emergencies were met with all of the consideration that a human mother would give in the case of her sick child. In the medicine cabinet was kept an adequate supply of medicines such as castor oil, castoria, salts, paragoric, sleeping powders, antiseptics, and disinfectants.

There were two diseases that infected a number of the fawns, and we met with much difficulty in attempting to counteract them. One was similar to "lumpy-jaw" (Actino mycosis-bovis), a bacterial infection that is found occasionally in domestic cattle. The other was an unusual mouth infection; the symptoms were somewhat similar to a bacterial infection sometimes found in cows, more often in calves, called "necrotic stomatitis." We administered a treatment for the latter that an Asheville doctor recommended, and it checked the infection somewhat, but it was a puzzle as to what the causal factor was. There were a lot of puzzles that confronted us which were to be solved only by observation and experimentation.

Also at the Pink Beds was a small, cold-water, fish hatchery with ten thousand brown and rainbow trout fingerlings under the care of the warden. These were being raised to restock depleted streams in the Pisgah Forest. They required two feedings daily which consisted of an equal mixture of beef liver and heart.

After seven weeks at the Pink Beds I was transferred back to the CCC Camp, F-14, at Balsam Grove, under whose jurisdiction I had been working at the Fawn Plant. There I joined the force of five other State boys: Howard Lull, "Red" Walker, Hugh Forest, Leon Patrick, and Fred West. We worked under the direction of Mr. Ruff, game expert, of the Pisgah National Forest, and Mr. Leroy Stegeman, professor of game management and zoölogy at Syracuse University. We made a survey of the available deer forage in the forest. The purpose of this reconnaissance was to approximate the amount of available summer and winter forage and to find out how many deer the forest could support during the winter months.

Our work was distributed between three crews of two men each. We worked on a strip-chain basis; each crew working in a compass direction, parallel to each other and three chains apart.

After our bearing was designated, the compass-man, holding one end of the chain, walked ahead 132 feet, and set up a milacre plot. The other man in the meantime walked along behind, checking both sides of the chain and noting how much forage had been browsed by the deer on a tally sheet. The "follow-up man" also noted the presence of "animal sign" as being of "light," "moderate," or "heavy" intensity over the area. The feces seen of all carnivorous animals were collected and taken back to the ranger's station to be analyzed under a microscope by experts. If, in the feces of the bear collected, there were found plant seeds that were unable to be identified, they were planted in a small can of dirt. When the plant sprouted it was easily identified. The object of this study was to determine the diet favored by the carnivorous animals in the forest. Types of

—Continued on page eighty-five

PROGRESS REPORT ON THE HOFMANN FOREST

By G. E. JACKSON
Forest Supervisor

The following is a report of activities on the Hofmann Forest during 1937. In order not to have any repetition from last year this information is supplementary to the article published in the last edition of the PI-NE-TUM entitled "The Hofmann Forest."

Cattle: There are large areas of land on the Hofmann Forest, which at the present time return little or no revenue, but do produce reeds and natural grass that are palatable and nutritious to cattle. Since beef cattle are physically fitted for grazing such areas and require less attention than other domestic livestock, they are being tried out on the forest to study the value of native reed pastures for beef cattle.

JACKSON

This study started in June 1937. At that time a coöperative agreement was drawn up for a three year period between the Division of Forestry and the Animal Husbandry Department at N. C. State College. The object of this agreement was to study the value of native grazing; the length of period that native grazing could be carried on and the effect of grazing on fire control and the restocking of seedlings.

To start this experiment thirty-five cows, one pure bred Hereford bull, and eighteen calves were sent to the forest. Among these cows were four Angus and twenty-four Hereford from State College and seven Hereford, crossed with native stock from the Black Land Branch Experiment Station in Washington County.

This herd was pastured in the reed beds along Northeast Creek near the CCC Camp in order that they might be convenient for supervision from the Forest Headquarters. The bull was returned to Raleigh in August and in November the eighteen calves and eight cows were returned to the College to complete experiments that were already underway. Two cows were lost during the summer, the carcass of one was found, but no trace of the other has been found to date.

The twenty-five cows that were left on the forest were put in a new reed bed near U. S. Highway No. 17 on December 17, 1937. Two pounds of cotton seed meal cake was fed each cow for a while and then the amount was increased to four pounds per head.

In order to have the calves dropped in February, March and

CAMP HOFMANN

LOG LANDING

FIRE CREW

April the bull was allowed to run with the cattle only during May, June and July. The calves coming in these months have full benefit of the year's vegetative growth.

To make it possible to keep an individual record of each cow they are all marked. The system used is as follows: A notch in lower right ear equals one, notch in upper right ear equals ten; notch in lower left ear equals three and notch in upper left ear equals thirty.

The future plans call for increase in size of the herd and putting on a full time herdsman during 1938. The cattle are to be shifted to the Cypress Creek section where there are larger reed areas, plenty of available water and agricultural land for permanent pasture, barns, weighing scales, etc.

Coöperation was extended to local cattlemen again this year. Their herds consisted of ninety-nine head that grazed on the forest for two months; twenty-one head for four months and thirty-one head for five months. The rates were the same as for last year, i.e., twelve cents per head per month.

CCC Activities: Early in October 1937 the white company at S-65 was disbanded and a colored company from the Croatan National Forest was moved in. We regretted losing the old boys, but the new men took on where they left off and are carrying on the good work.

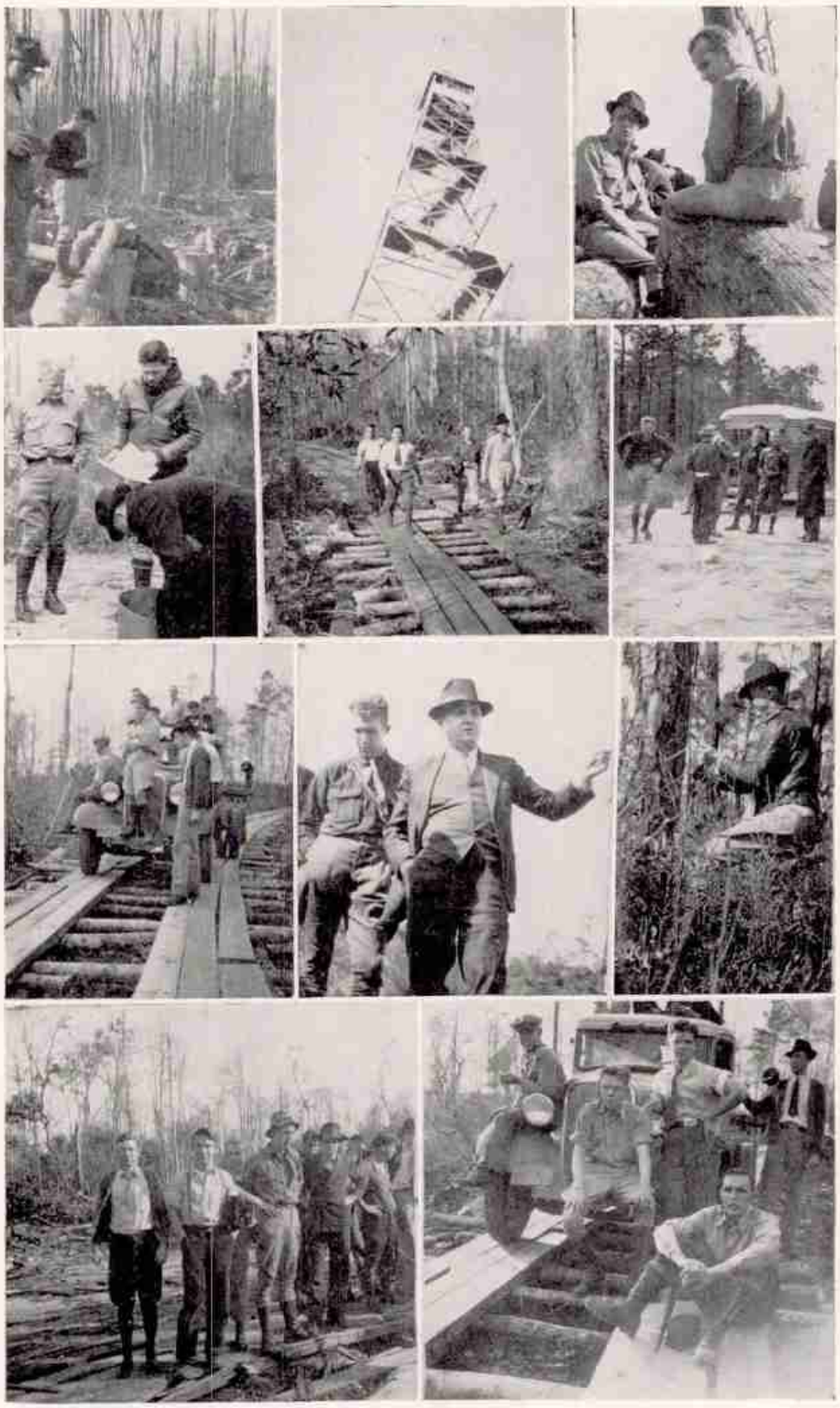
During the year the boys from the camp completed five and five-tenths miles of truck trail on or adjoining the forest. The road from the CCC camp across the property on the east side of the highway, a distance of three and five-tenths miles and two more miles on the Gum Branch end of the Quaker Bridge Road has been completed. In addition to the completed road, a truck trail was started along the abandoned Roper Railroad bed. The ties were removed and the roadbed disked and dragged so that it was possible to drive a truck in for a distance of seven miles from the Northeast end. Some drainage ditches and culverts will have to be put in before this road is completed.

During the past year 20,563 acres of the forest was cruised by the CCC boys, which leaves only one unit of approximately 7,000 acres not cruised. The entire forest has been type mapped. Type was taken as far as possible from the cruise sheets, but where these were not available new strips were run.

One hundred and seventy additional acres were cleared up and planted. Included in this planting were three one-acre plots of cypress and three one-acre plots of loblolly pine, spaced four by four feet, six by six feet and eight by eight feet respectively. The following seedlings were planted during the past season: 170,000 Slash Pine; 60,000 Loblolly Pine and 10,000 Cypress.

The CCC was called on to fight but four fires during the past year that were on or threatening the forest and put in only twenty-three man-days on this work. Improvements on the Comfort tower site

—Continued on page ninety-two



Seniors at Hofmann Forest

IN MEMORIAM

George Smedes Poyner

It is with deep regret that we report the death of George Smedes Poyner on November 21, 1937, following a long illness. George was a Sophomore in Forestry, and although he had been with us for only a short time, he had firmly established himself with his fellow students and the faculty. His passing was keenly felt by all his friends.

Wayne L. Stitt

We have just received word of the death of W. L. Stitt on March 23, 1938. Wayne was a member of the class of 1935 and his classmates and friends will read with sorrow of his passing.

He had been working as District Forester in South Carolina until ill health forced him to return to his home this winter. Wayne is the first of our graduates to be taken from our ranks, it is with deep sorrow that we report his loss.

"PINE TREE" EXHIBIT AT THE STATE FAIR

These Foresters of ours showed their metal again last October by winning the silver loving cup for the best exhibit in the Ag school at the State Fair.

The exhibit was put on under the capable management of Joe Frye, with Roy Eaker as assistant. The theme around which the exhibit was based was: "Mr. Pine Tree and the North Carolina Farmer." In the background of the exhibit stood a large Pine tree with streamers leading down to the many and varied products derived from the tree. Above each of the products was placed a check made payable to the North Carolina Farmer, for the annual revenue which he derives from that product. In the center of the display surrounded by a miniature forest was a moving shadow-graph of two men sawing wood. This feature attracted great attention making the exhibit one of the most popular at the fair. A very pleasing piece of landscaping showing an old logging road winding through the forest was used as a stepping stone for the rest of the exhbit.

Credit should be given those students who helped in this fine piece of work as well as to Mr. Wyman of the faculty who lent his invaluable aid and assistance in staging the display. The department is out to win the cup again next fall and plans are already being drawn up for the exhibit, so here is to the boys for the cup next fall.

Forestry Club Rolleo

—Continued from page eighteen

6. Tree climbing without spurs for time—Daughtry (Junior).
7. Log chopping for time—Bell (Sophomore).
8. Rope climbing for time—Colwell (Senior).
9. One hundred yard dash—Colwell (Senior).
10. Standing broad jump—Matson (Sophomore).
11. Tug-of-war—Seniors.
12. Diameter estimation—J. B. Bailey and Beasley (Juniors).
13. Height estimation—J. B. Bailey and Beasley (Juniors).
14. Fighting fire with water pump—Bill Bailey (Junior).
15. Running the compass line—Ingram and Simmons (Sophomores).
16. Axe throwing—Matson (Sophomore).
17. Fire building—Atkins and Matson (Sophomores).
18. Stunt—Seniors.
19. Quartet singing—Freshmen.

FOREST FIRE CONTROL IN NORTH CAROLINA

By WILLIAM LEE BEASLEY, JR., '39

The fact is well recognized that the greatest enemy of the forests of North Carolina is fire. It lowers the value of or completely kills standing timber; destroys reproduction; affects the fertility and moisture content of the soil; contributes to flood and erosion; drives away and destroys wildlife, its food and cover. Yet, as these fires are 99 per cent man-caused, they can be prevented.

The actual necessity of forest fire control has been recognized in the state for a half century but no active work toward this end was accomplished until 1915 when the first forest fire law was enacted. This law, with later amendments, has paved the way for the work that is now being done by the State Forest Service.

The administration of the forest fire laws and the developments of the forest fire control organization under these laws is a function of the Department of Conservation and Development. This department is headed by a director who is responsible to the Governor and the Board of Conservation and Development, consisting of twelve members, for the conservation and perpetuation of the state's natural resources. The Division of Forestry and the Division of Game and Inland Fisheries in this state department are both interested in the prevention of woods fires, the Division of Forestry being directly responsible for enforcing the forest fire laws and developing forest fire control. The Division of Forestry is headed by the State Forester who is in general charge of all forestry work in the state. The Assistant State Forester is in charge of forest fire control with headquarters in Raleigh, and the Forest Inspector is his assistant.

The forest resources of North Carolina vary with its three great topographic regions: The Mountains, the Piedmont, and the Coastal Plain Regions. Since no complete timber survey has been made of the forest resources of the state, only estimates are available. In 1926 it was estimated that there was in the neighborhood of fifteen billion feet of standing saw timber. It is not felt that the stand has materially changed in the past twelve years. Second growth is gradually replacing the old growth timber where fire control has been satisfactorily put into effect.

North Carolina ranked at the top of the list for many years in the number of operating sawmills. In the main, most of those mills were portable, and it was estimated that half of the output came from small mills. This condition still exists, although to a less degree. There are today very few sawmills operating in timber owned by the operators. The extensive and improved highway system, covering as it does practically the entire state and blocking up into small areas the timber stand, together with the reduction in size of logs available, has been responsible for profitable long-distance truck hauling so that the few remaining large mills secure their logs through the purchase of timber

from the landowners, and the logs are usually hauled to the mill by the timber producer. The sawmill that will be operated in the state in the future will undoubtedly follow this practice. When the timber owners who have been supplying this raw material in the past come to realize that much of their land is primarily suitable to the production of timber, and that a market is available for such products, the present practice will prove far superior to mills owning large tracts and practicing the old method of "cut out and get out," of clean cutting and then abandoned the lands best suited to timber production.

Interest in forest perpetuation is also being aroused through the increasing demand for second growth pine for pulpwood. It seems certain that the average landowner realizes more fully than in the past that his timberlands offer a permanent income if properly handled.

As soon as the idea of sustained yield can be instilled into the minds of these timberland owners, and they can be convinced that through proper action on their part the forest industry in the state can be stabilized, the lumber industry will again take its proper place, and forestry will be practiced in a more satisfactory manner.

It is the belief of the Department of Conservation and Development that the prime factor in the perpetuation of North Carolina's forest resources is proper and adequate forest fire control.

The state, through the Division of Forestry, coöperates with counties in which the timbered area warrants the establishment of a forest fire control organization. The state enters into a written agreement with the County Commissioners under which the county agrees to reimburse the state for one-half the expenditures made within the county for the actual cost of fire prevention and suppression up to a stipulated sum. These reimbursement payments by counties are made after expenditures have been made by the state. The county's appropriation is matched by an equal amount of state and federal funds. The basis for the county's share of costs is usually figured at a minimum of one-half cent per acre per year for the forested lands within the county and when matched, of course, represents one cent per acre. The funds so provided are used, in the main, in paying salaries and wages of residents of the county. A small part of these funds is used in the purchase of necessary tools and equipment, together with the construction of towers, telephone lines, etc. A very detailed and complete work plan is drawn up for each county annually and a budget prepared.

In organizing a county the County Warden is first appointed. He is a resident of the county, a taxpayer, a man well versed in woods work, and physically able to do hard work. He devotes his entire time to the work. He in turn recommends the appointment of such District Wardens and firemen as he and the District Forester deem necessary. Each warden appointed subscribes to an oath of office and is empowered to enforce all forest laws. These men are then supplied with proper fire fighting equipment and detailed instructions, and their work is inspected regularly by the personnel of the District Office and the County Warden.

—Continued on page eighty-seven

THIS YEAR

If anyone cared to count, he would have found 203 Forestry students last September 15 encountering the peculiar brand of red tape meted out to all students on registration day. Freshmen, as usual, outnumbered the Seniors two to one; the respective class roll call showing 73 Freshmen, 63 Sophomores, 29 Juniors, and 36 Seniors. The only new additions to the curricula included Slocum's idea of how to get work done at the nursery—Seeding and Planting Lab., For. 205, and the addition of a Game Management Course headed by Prof. Stevens, a course which proved a popular source of electives for both Juniors and Seniors.

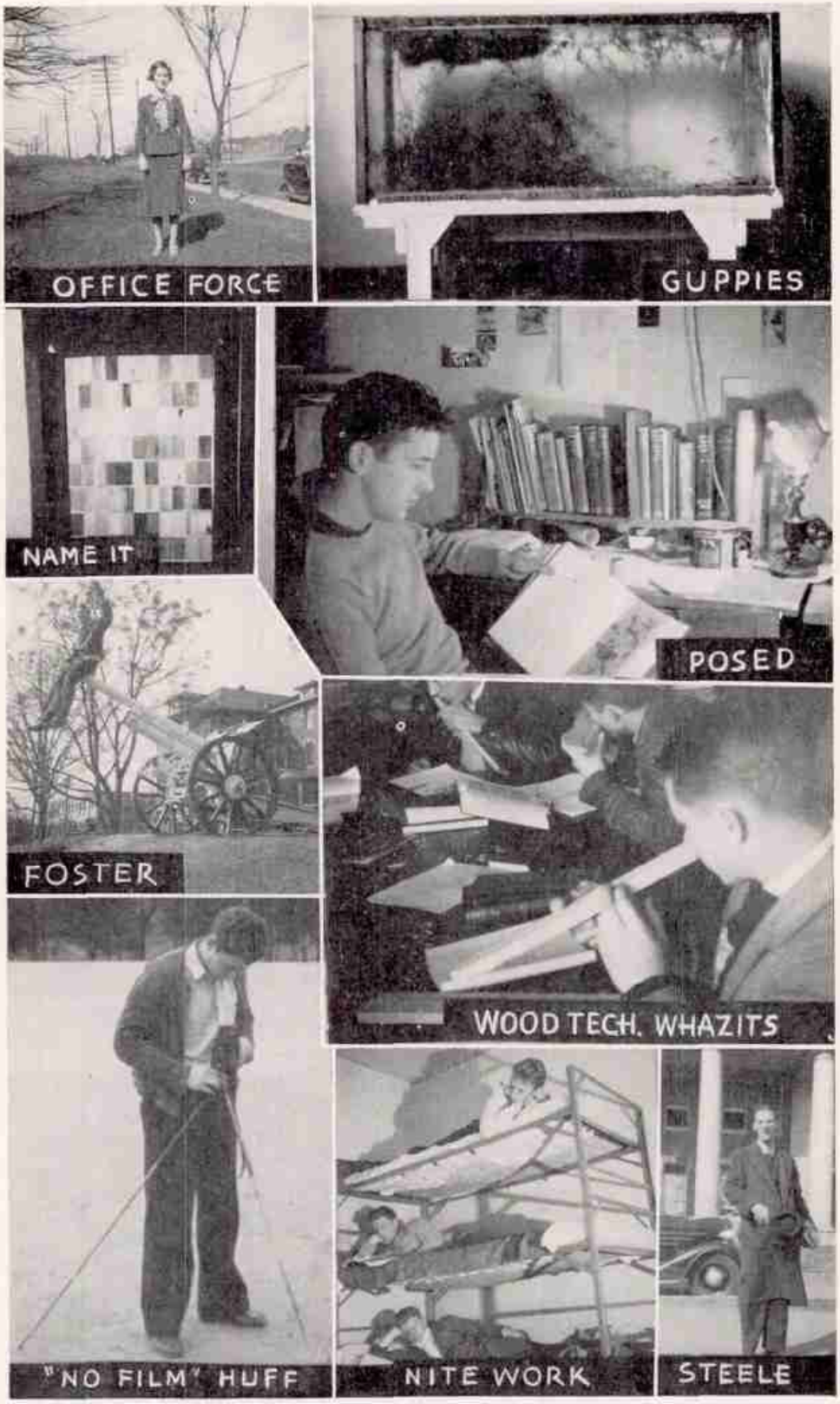
The Forestry Club on the evening of September 23 had, for its first meeting of the year, an overflow attendance, so large that another and larger hall was used for the rest of the year. Winning first place at the Student Agricultural Exhibit of the State Fair, sponsoring two enjoyable dances, conducting the annual Rolleo in fine style, and having an initiation with the only casualty one broken finger, were some of the major activities promoted by the Club. The last item is of particular interest due to the large number initiated, the club members too soon became arm weary.

Letters began to arrive from the youngest crop of alumni. The faculty was delighted when five wrote that they had passed the Civil Service examination, overwhelmed when twelve more wrote ditto. Wheeler, now at the University of Southern California, starred with an 85.

Additional copy was made throughout the first quarter by Wooden, Lozier, and Traylor mutilating stadium turf every Saturday for the Engineering and Agricultural schools of U.N.C.; by Moose Martin, king of liars—whose crown did not slip over his ears—winning the annual you-told-a-big-lie contest; by Dr. Miller's enlargement of family with flowers presented by the Senior Class and Forestry Club; by the Preservation trip November 5 and 6 to Charleston; by the recognition of the Forestry School by the S.A.F.; and by the establishment of the Ag-Forestry Council to establish friendlier relations between the two schools. Hear! Hear!

Came Christmas Holidays soon followed by registration, January 3, for the winter quarter. Our statistical fiend found only 20 forestry students missing. The total totaling 181 students. Among those missing: 7 Freshmen, 12 Sophomores, and 1 Senior.

With an unusually warm winter quarter, students managed to find their stormy going in the pursuance of such courses of erudition as Statistics, Dendrology, Surveying, and Finance. The Freshmen caught their first glimpse of the Hofmann Forest February 23 and 25, and with shiny boots and pressed breeches entered our region of high humidity. Shortly before the Freshmen trip the Seniors visited the Forest for data to complete a management problem. Said data was gathered, also gathered was further verification that this is the least



More Campushots

mild, gentle, or timid class that ever entered our portals. Addicted to horseplay—this trip provided good pasture.

January 14 found the Forestry Club holding a stormy election. George Smith polled the president's gavel and Sparrow "Walter" Marshburn was elevated to the rank of Sergeant-at-Arms. After 5 years of advising the Forestry Club, Prof. Slocum was officially elected Faculty Adviser.

Early spring arrived with Huff, Dixon, and Eaker attending dancing school; McManis turning Romeo; admonitions to "Snooky" to study hard; Atkins planning a trip to Washington; Ryder spending half his time traveling the road between Raleigh and Cary; and dreams being drum.

The holding of Civil Service Examinations was a source of conjecture and doubt to most seniors. A certainty after Dr. Hofmann's trip to Syracuse, and a disappointment with the final word that they would not be given.

Prof. Wyman announced the senior trip beginning March 23, and a two day visit to New Orleans was booked. Shortly afterwards examinations started with 48 Sophomores identifying a test specimen of spruce as hemlock, 29 Juniors worrying successfully about Statistics, and W. L. Colwell adding 6 more A's to his string.

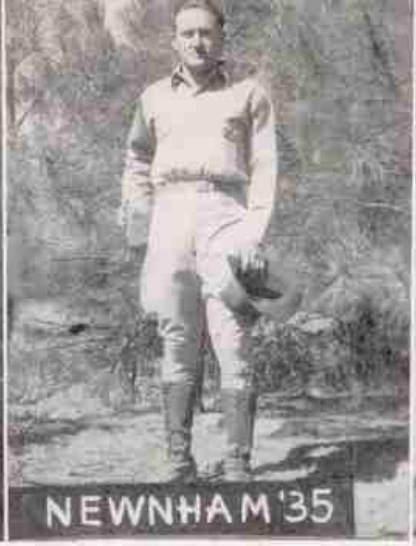
The writer comes to the present tense, the PI-NE-TUM is due at press tomorrow, Spring Holidays are in session, and only four more days before embarkation for the Senior trip. The gathering of material for PI-NE-TUM has been the cause of loss of more than a few hairs from the editor's head. Jim Huff, Colwell, Dixon, Atkins, Ryder proved valuable help. Gosh! we hope you like it.

Farm Forestry in North Carolina

—*Continued from page twenty-two*

Because farm woodlands furnish such an essential portion of the actual farm output, attention should be rightfully given to providing good conditions for the growth of trees. If properly cared for, the woods will furnish at all times a convenient supply of timber, fuel, and fencing for home use and at intervals will yield valuable material for marketing. If neglected or abused these woodlands are bound to deteriorate and eventually they may disappear all together. At the present time the majority of farm woodlands are in need of improvements, and if the owners of these lands will coöperate with state and county officials much progress can be made along these lines.

CZABATOR '35



NEWNHAM '35

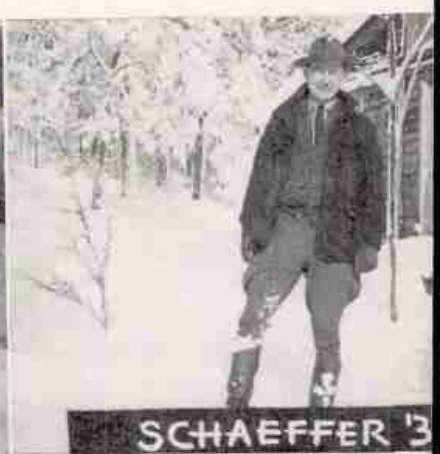
GRAVES

Alumni News Letter

G. K. SLOCUM

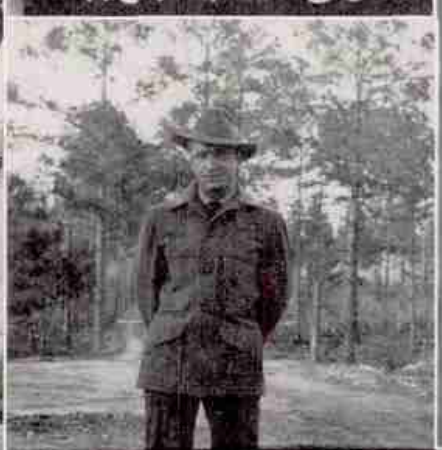
JACKSON '35

HOWARD '30



SCHAEFFER '3

PLASTER '34



CORPENING '34

CLARK '3

ALUMNI SECTION

1937

Volume 6

The *News Letter* is making its first appearance in combination with the Pi-ne-tum this year. As an experiment I hope that it will be a success, financially and otherwise. I will try and suppress my personal remarks as much as possible, and will give you the "dope" straight from each man as he replied to my questions. If he had nothing to say—he had nothing to say.

The Faculty will use this space to extend to each and everyone of you the best wishes for a happy married or single future, as the case may be. May your nights be long, your days short, your troubles small, and your pleasures great. (Enough of this baloney.)

J. V. Hofmann
Lenthall Wyman
William D. Miller
Geo. K. Slocum

1930

Barner, William B. Chief Forester, Farm Security Administration, 417 King Street, Northumberland, Pa.

"Same duties as on last year's report." Incidentally, Bill is still single.

Bittinger, C. A. Fayetteville, Pa.

"We have been in the 'Garden Spot of the World' since early last May. Mother passed away on September 23, 1937. We returned home when she was ill. I resigned from the Forest Service at that time.

"At the present I am driving a school bus here at home. Also picked apples and have a barrel of cider." (It ought to be good now! Got any gingerbread?)

"Our plans at present are to make our home here, but I shall try to find work in forestry in this general neighborhood.

"We were in the middle of the Ohio River flood last year. We moved people and furniture out of a small town called Galanda. We had a swell view of the flood from our fire tower.

"Violet and I each shot a turkey on November 1, and we are looking forward to a big deer season." (How did it turn out, Jennie?)

"Give my regards to the Gang."

Graeber, R. W. Extension Forester, State College, Raleigh, N. C.

"When December 31, 1937, arrives I will have completed twenty-six years in extension work—fourteen in Agriculture and twelve in Forestry. On December 24, 1937, I will celebrate the 25th anniversary of my wedding to Margaret Emma Shepherd."

The time has come and gone now, but it is not too late to wish the Graebers the best, and hope that we may be present to print congratulations twenty-five years from now on their Golden Anniversary.

HOWARD, H. E. Assistant Forest Supervisor, U.S.F.S., 209 S. Macomb Street, Tallahassee, Florida.

"I spent two weeks at training camp in Franklin, N. C., in June. Saw Cartwright and Royer there. Went through Raleigh, but was in too big a hurry to spend any time there.

"The 15th marked my 6th anniversary with the U.S.F.S., all experience being here in Florida. My work now takes me into all phases of N. F. administration and is more interesting every day.

"If the 'gang' comes to Florida again this year, I hope to get a chance to see them. I missed them last year. Anyway, we will do all we can to make thir stay here as comfortable and interesting as possible."

The "Hob" Howards have two children—Wayne (3½) and Hugh (2). Two *boys,* imagine.

MORRISS, D. J. District Ranger, U.S.F.S., Vilas, Florida.

"I have no change to report since last year. Is there any way that we can get up information on the 'gentlemen' who have consistently neglected to answer your roll call? As my contribution, below is a list *of those near here who may not reply."* (And didn't.)

"Norman R. Harding, District Forester, Florida F. S., Panama City, Florida.

"Howard A. Snyder, Supervisor's Staff, Fire Control Planning, Tallahassee, Florida.

"Henry G. Posey, Assistant Ranger, U.S.F.S., Andalusia, Ala."

"Good luck to all, and give my regards to Dr. and Mrs. Hofmann and the wife." Thank you.

The Morrisses have a new cherub—Joan Morris, 10 months 4 teeth old. Congratulations from us to you.

PIERCE, R. L. Camp Forester, Camp S-51, Pine Grove Furnace, Pa.

"I have been at Camp S-51 since January 1, 1937. I am on the Michaux Forest right next door to Mont Alto. I get over there quite often to the Research Institute. Buhrman is the Divisional Forester, and I see him quite often. Now and then I meet some of the fellows at forestry meetings."

Tubby is still single. Some gal will set her cap for him, and then we will see what we shall see. How about it, Tubby?

WEIGHT, F. F. Assistant District Forester, Pa. Dept. of Forests and Waters, Box 45, McConnellsburg, Pa.

"Not much news unless Junior, who is 18 months old, is news to some. I am having my fun in fire protection during a fall season. Some of you might show your faces around this neck of the woods."

It wouldn't be much use now as your spring season will be on, and I hear foresters like to put fellows with clean (?) faces to work with *a fire tool.*

1931

ALTER, N. B. District Ranger, U.S.F.S., Decatur, Alabama.

"Sometimes people pay good hard money for information. All seems well here. I am working with Ranger Wilson for awhile. The Class of '31 may remember him as the one who took us all up Curtis Creek to the pulp wood sale."

ARTMAN, J. O. Assistant District Forester, T.V.A., 81 W. Norris Road, Norris, Tennessee.

"I am still in charge of forest fire prevention education in the eastern half of the Tennessee Valley. Working in coöperation with the states some—planning their lookout systems.

"I liked the good news enclosed. Congratulations to you-all!"

The Artman heir, James Bailey, is now two years old.

FOREMAN, HARRY A. Junior Forester, Camp S-139, Greentown, Pa.

"I hunt, fish, hike, and am still in the Army. Have two dogs, no kids. Working on maps at present."

GRIFFIN, D. B. State Forester, Capitol Building, Charleston, W. Va.

"Still able to 'eke' out a living in the mountain state. Son, Larry, is now two years old."

I wonder if Larry will be the basketball player his father was. What say, Dan?

LOUGHEAD, H. J. Associate Conservationist, U.S.F.S., 23 Pickwick Road, Asheville, N. C.

"Not much information except that I was recently promoted to a permanent position at the Appalachian Station. I am working on Forest Influences, and at present I am in charge of Flood Control Surveys from the Station."

PHELPS, CHESTER F. Graduate Fellow, Wildlife Research, Box 648, Blacksburg, Va.

"Resigned my job at Yorktown, Va., September 1 to accept fellowship here at V.P.I. Hope to get a Master's in Wildlife Conservation, Game Management, or what have you. I should get through and have my degree about next August. They are working the heck out of me here, but I like it. I am supposed to have charge of a 3,000-acre game demonstration as a minor project. I am studying the winter survival of quail as my major work, and I am also doing some work with beaver, muskrat, deer, turkeys, and elk.

"I don't know any news, or haven't seen anyone."

"Phoebe" states very definitely that there are no new cherubs. His answer was so definite it was almost profane.

In answer to your inquiry, I also heard that Ernie Lemon had died. I know definitely that Anthony has passed away, but Bittinger is very much alive.

Shafer, C. Harold. Forester, Blue Knob State Park, Box 31, Bedford, Pennsylvania.

"I like my new assignment a lot. I am still with the N.P.S., but on R.D.P. work just now instead of E.C.W., etc. I had an interesting assignment during the summer on Mount Mitchell.

"Me and mine are fine. How are you and yours?

"There will be a new cherub in April. Will it be a boy?"

No, it will probably be a girl. She'll grow up and marry a forester, and then what?

Slocum, Geo. G. Assistant Professor of Forestry, N. C. State College, Raleigh, N. C.

I still have one wife, one child, one dog, and one car. I am still trying to pound some of the fundamentals into receptive and non-receptive neophytic foresters.

Grumbine, A. A. Timber Management Assistant, U.S.F.S., Gainesville, Ga.

"I had another management plan approved in Washington. Three more on the way to completion, and timber sales getting under way.

"Not much chance of getting married anytime soon. Am still not doing much good with southern girls." (Can anybody offer any suggestions that might help Art with his problem?)

"Congratulations to all of you on getting the School approved, and I hope that we succeed as well in the field."

Maxwell, A. H. Junior Forester, U.S.F.S., Marion, N. C.

"I am at work in the Division of Forest Management, Pisgah National Forest. Been on every mountain ridge and stream between Blowing Rock and Marion.

"I had the pleasure of using 6 undergraduates from N. C. State last summer, and I am fortunate to be able to say that they were a credit to the school."

Al, Mrs. Maxwell, and Albert, Jr., stopped by to see us in January, and I enjoyed my visit with them very much. I still maintain that Albert, Jr., looks like his mother.

Schaeffer, Geo. K. Assistant District Ranger, U.S.F.S., Box 335, Marion, N. C.

"I am still on the Mount Mitchell District of the Pisgah National Forest. Seems like all good things come to me on this District. I first became a cultural foreman here, then a project superintendent. I passed the J. F. examination here, received my permanent appointment here, and last I was appointed assistant ranger in April of this year.

"We have a spacious new office in the Marion Postoffice, a growing district with a portion of the old Unaka on the Tennessee-North Carolina line turned over to us, and an assistant ranger who is well pleased with his job.

"I hope to see the the seniors if they come through here on their trip this year."

The Schaeffers have a new cherub, Larry George, born March 31, 1937. We extend congratulations. George wants to know what you do when babies refuse to eat. If anyone knows, please tell George as I am still in the dark as to the proper procedure myself.

TILLMAN, P. W. District Forester, Box 152, Rocky Mount, N. C.

"I have been transferred again, this time to Rocky Mount. I like fire control work fine. I think that fire control has not had its share of publicity in proportion to other forestry activities of less importance. Everyone recognizes and admits that fire control is the most important phase of forestry work in the Southeast, yet much more is said about other forestry activities.

"I am very much pleased to learn that the old school has at last received its long merited recognition. Here's hoping the Southwest Region will receive the information."

WILLIAMS, LUTHER, JR. Agent for Security Life and Trust Company, Box 334, Route No. 1, Monroe, N. C.

"Last year this time I was working near Mount Airy, N. C., in Camp No. 4 and liked it very much. Along in November they started laying off some men, and I was cut off on November 27, 1936. Recently I was asked to represent the Security Life and Trust Company of Winston-Salem, N. C. I have just started with them, but have not received my license yet."

We all join in wishing you success in your new venture.

1933

CLARK, W. J. Junior Forester, U.S.F.S., Huntsville, Texas.

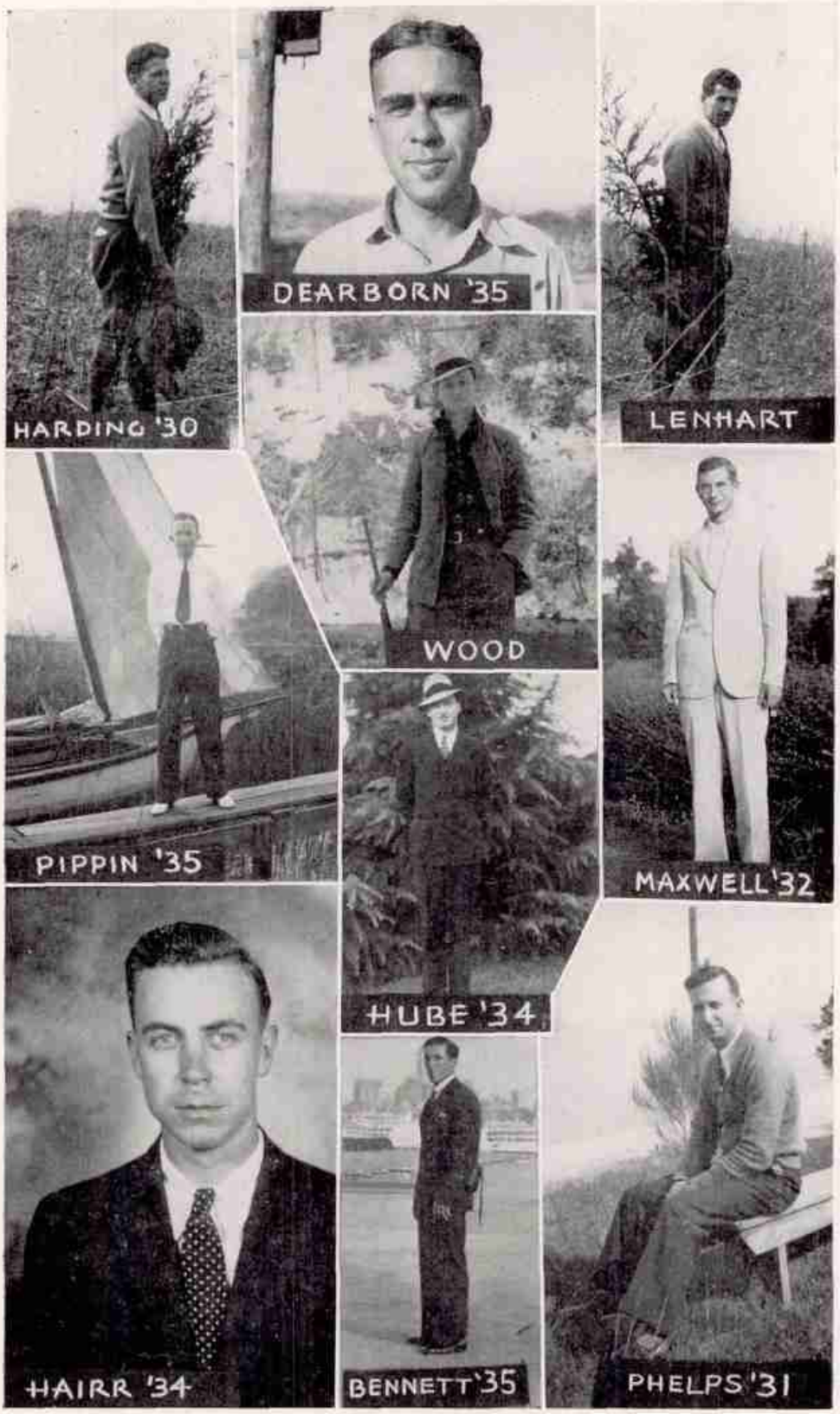
"Have Management Plan for the Sam Houston National Forest nearing completion. Will probably do some work on administrative studies of combined sawtimber and pulpwood sale before starting work on other management plans.

"I will enclose the four bits if I can borrow it from the wife."

You must have more authority or a greater art of persuasion than I have as I found the four bits enclosed. I haven't been able to get mine as yet.

CROKER, T. C., JR. District Officer, Box 248, U.S.F.S., Chillicothe, Texas.

"At the present time I am negotiating for a nursery site, cold and dry storage compartments as well as office and warehouse quarters in a larger town—Vernon, Texas. My district is to be increased to take in one more county making four in all."


HARDING '30
DEARBORN '35
LENHART
WOOD
PIPPIN '35
MAXWELL '32
HUBE '34
HAIRR '34
BENNETT '35
PHELPS '31

More Alumni

Last time I saw you you were going to raise bull frogs. How has your program turned out?

HAFER, A. B. Assistant Forester, T.V.A., 3408 Whitaker Place, Chattanooga, Tenn.

"The woods around here are full of squirrels and N. C. State foresters."

Hafer says he is still on the cherub waiting list.

PETTIGREW, G. W. Junior Forester, U.S.F.S., Box 345, Florence, S. C.

George was in to see us while on leave, and he did not know where he would be assigned when his leave was finished. I do not know just where he is at present. He is getting along fine, and extends best wishes to all.

WOOD, R. A. Associate District Forester, Clinton, Tenn.

"Who authorized you to buy a rubber stamp for your personal use out of alumni funds? I hereby call for a certified audit of all funds."

Dick's experience in nursery work should come in handy at this time as the Woods have a new addition to the family, Richard A., Jr.

Dick, Dot, and Dicky stopped in to see us during the holidays, and Dicky is just like his old man. He is making eyes at the girls already.

Putting all foolishness aside, we extend congratulations to you both.

1934

BARKER, W. J. District Forester, Arkansas Forestry Commission, Arkadelphia, Ark.

"I transferred from Mississippi National Forests to Arkansas Forestry Commission on April 1, 1937. The new work is very similar to that of district ranger with the exception of timber sales. Instead of this we have farm forestry.

"Marlin Bruner, extension forester here, enjoyed the last letter giving news of the boys in the 1931 class.

"Regards to all the boys, would like to hear from them.

"Congratulations to the School on being approved by the Society of American Foresters."

CHATFIELD, E. E. Peach Creek, W. Va.

"At present I am taking graduate work in Coal Mining at the University of Hard Knocks."

CORPENING, B. H. Lenoir, N. C.

"I have been unemployed since last July as far as income is concerned. This resting on the farm isn't so restful. I am feeling fine, though, and hope to find a job in the forestry line soon. Best wishes to all."

We return best wishes to you, and hope you find that job in your chosen profession.

Crow, A. B. Junior Forester, U.S.F.S., Marienville, Pa.

Crow was in Raleigh with the Mrs. last fall, and we had quite a visit.

I hope that you have kept from freezing to death this winter.

Doerrie, F. A. Manufacturing Chemist, 116 Central Square, Mt. Lebanon, Pa.

"I was down South the past summer to Texas. Saw W. J. Clark who is getting fat as a horse, but getting along with the Texas crackers. The climate seems to agree with him.

"I guess the old manufacturing game is in the blood. I cannot seem to get away from it. I have charge of a plant now, manufacturing Phthalic Acid. Most of my work is getting further yields from residues. I am doing research on products recoverable from sulphate liquors thrown away in the manufacture of paper pulp from Southern Pines. It's something entirely new. I cannot get away from forestry altogether, no matter what I do.

"Tell the rest of the 'mugs' of the class of '34 that I would like to hear from them."

Hube, F. H. Junior Forester, T.V.A., Camp Va.-3, Cleveland, Va.

"The hills are better than the flat woods, kid."

Hube was married to Miss Catherine Campbell of Jackson, Miss. When, he did not say. We wish them the best of luck in their new venture.

Smith, W. R. Junior Forester, U.S.F.S., Box 164, Franklin, N. C.

"Very happy and contented, and I don't know anything. Wasted one year in Louisiana, and I am glad to be back in North Carolina. At present I am working on a fire plan for the Forest."

This is the first that we have heard from "Smitty" in several years. He reports also that he was married on July 3, 1936. He was in Raleigh on his honeymoon and stopped by to see me when I was on a Chic Sale's construction job at the Hill Forest and missed him. Better luck next time.

1935

Boykin, W. E. Junior Forester, S.C.S. Project, 805 West Front St., Burlington, N. C.

"I am doing woodland management on farm woodlands these days. Would like to know where Walton Smith is at present." All right, look just above you and you will find out.

Comfort, C. W. Camp Forester, S.C.S. Georgia No. 6, Sparta, Ga.

In the line of information Comfort told an unprintable joke, so we can deduct from that that he is still the same.

CZABATOR, F. J. Graduate Assistant, Forestry Department, Box 62, State College, Miss.

"Not much information, but I hate to see this beautiful blank space wasted.

"Roberts, by the way, spends all of his time trying to figure out research problems for me. To date he has outlined 47, and I hate to refuse the man. I have started everyone of them. It's giving me gray hairs, and no doubt will lead me to an early grave if they don't *hang me before that.*"

DEARBORN, L. S. Nursery Foreman, U.S.F.S., Superior, Ariz.

"I want to know where Newnham is. I wrote him but he doesn't answer.

"I am 40 miles from wood, 50 miles from water, 10 feet from hell, God bless our home."

Read on and you will find your friend Newnham.

GARDINER, T. B. Camp Forester, Camp No. 15, Shipp Apts., Newton, N. C.

Gardiner has nothing to say along the lines of his regular work. He has one daughter, Katherine Branston, age 7 months. We extend congratulations to you both.

GRAVES, J. B. Junior Forester, U. S. Forest Service, Talladega, Ala.

"I saw Butch Crandall at the Alabama-Georgia Tech game in Birmingham. He is working for a private company and doing good.

"Please give my regards to everyone. I still think ours is the best department in the best college of all."

HODNETT, F. A. Camp Forester, S.C.S.-North Carolina Camp No. 20, Box 193, Ramseur, N. C.

"Just a few words to say I would like to see you and some of this year's class drop around sometime and see what the S.C.S. is trying to do in the Forestry line up in Chatham and Randolph counties. It is not very far from the old town, so come on up—sometime."

JACKSON, G. E. Supervisor of School Forests, Maysville, N. C.

"I am having a busy time down here on the Hofmann Forest. Cattle were put on the forest last June, and are proving satisfactory. The game program is expanding, and the CCC boys are still working on the forest. We have black boys here now. The cruise is completed, and we are working on a management plan. We still have some fires, but held them down during the past season.

"I see Jim Stingley and Charlie Pettit quite often, and also the students during summer camp and regular school work on the forest.

"Give my regards to all the follows."

Mr. and Mrs. "Eddie" are the proud parents of a young lady, Nancy Lee, born February 16, 1937.

NEWNHAM, FRED. Assistant Ranger, U.S.F.S., Jemez Springs, New Mexico.

"I have been on timber sale work, but I am now on district ranger assignment."

How about it, did you ever get your last year's *News Letter* and PI-NE-TUM, second copies of which were sent to you?

Fred was recently married to Miss Aileen Jenrette, Raleigh, N. C. We hope that the new Mrs. Newnham will enjoy the wild and wooly West. We extend greetings and best wishes for a happy future.

PAGE, R. H. Assistant Extension Forester, N. C. State College, Raleigh, N. C.

"Four bits enclosed." Talkative cuss, eh?

PIPPIN, JAMES A. Private Timber Cruiser and Surveyor, 418 East Second Street, Washington, N. C.

"I have been doing a lot of timber cruising in Hyde County. That is some swampy country. My work is fine."

Pippin finds his way through Raleigh every once in awhile, so we can keep tabs on him.

ROBERTS, E. G. Associate Professor of Forestry, Box 62, State College, Miss.

"I had an idea that teaching was sort of a racket—just sit and look wise. It isn't so. It is worse than going to school. Nevertheless, I like it."

WRIGHT, HARRY R. Junior Forester, U.S.F.S., Niceville, Florida.

"I am still single, always broke, and sleepy as heck just now. Have worked on all National Forests in Florida—every kind of work. Congratulations to the School."

I enjoyed your story. It sounded true to foresters' lives so I will believe it.

1936

AIKEN, W. C. Agent on White Pine Blister Rust, Holston Valley, Tenn.

"I was furloughed from the Cherokee when they received a big cut in funds at the end of September. I am hunting Ribes, so I get to see the country."

HILL, W. M. Assistant Carrier, Postoffice Department, Thomasville, N. C.

"Congratulations on your successful balancing of the budget.

"I am now connected with Uncle Sam as assistant carrier in the Postoffice. I have not, however, given up my forestry aspirations.

"I am anxious to hear from you and all the boys in the *News Letter* and PI-NE-TUM."

MASSEY, L. N. Transit Man, Carolina Power & Light Company, Raleigh, N. C.

Massey stopped by the office one day, handed me 50c, and told me that he was married. He was married to Miss Katherine Brooks, Raleigh, October 22, 1937. Congratulations!

Massey is connected with the Carolina Power & Light Company, and is helping to lay out rural power lines.

NEASE, ALLEN D. Project Forester and Game Technician, Wakulla Project, 610 N. Monroe Street, Tallahassee, Fla.

"I have received a promotion since I last wrote to you. I am in charge of all forest conservation, both forestry and wildlife, for the Wakulla Project—281,000 acres."

Nease is another of the boys who has recently taken the fatal step. He married Miss Marguerite Gehen of Tallahassee, Fla. We extend congratulations and best wishes.

PETTIT, C. C. Technical Foreman in Charge, State Forest Nursery, Clayton, N. C.

"I was transferred from the Pocosin to the Nursery in October. 'Believe it or not' I hated to leave the Pocosin. There is some mighty good hunting and fishing in Jones and Onslow counties.

"There is some interesting work going on at the Hofmann Forest. I believe that all the alumni should try to see the progress and development going on on the school forest."

SEARIGHT, JOHN L. Forestry Aide, Norris, Tenn.

"What has happened to Obst, Dazy Davis, Joe Matys, etc.? I am here on a year's appointment, terminating in May 1938. Then, from the looks of things, I will have to get on the WPA or go back to lithographing."

SEWELL, M. C. Cadet Engineer, c/o Scranton-Spr. Brook Water Co. 135 Jefferson Ave., Scranton, Pa.

Sewell was married September 25, 1937, to Miss Beatrice E. Boylan. Congratulations! He was through here October 1 on his honeymoon. As he says in his letter, "Sorry I did not have the chance to introduce you to the better half, but expect to get down that way again. When you get back up this way, don't forget I am here."

At present Sewell is running a water business, and intends, I believe, to make it his life's work.

SHUGART, M. W. Forestry Aide, S.C.S., Franklinton, N. C.

Shugart stops by the office every once in a while to renew acquaintances. He is still in the Soil Conservation Service, and is getting along fine in his work.

VASS, JOHN S. Pole Inspector, Reevesville, S. C.

"I seem to be getting along O.K. with my work, but down here in

the 'sticks' where I seldom ever run across any of the old gang. Business is not so good right now, but here's hoping that everything will soon pick up.

"Best wishes to all of you."

Vass was in Raleigh for the Duke-State football game, so we had a chance to compare notes.

WELSH, L. H. Tie and Lumber Inspector, Atlantic Coast Line Railroad, 2236 Riverside Ave., Jacksonville, Fla.

"Last July I resigned from the Southern Preserving Corporation at Charleston, South Carolina, to accept a much better position with the Atlantic Coast Line Railroad. Since being in this new work I have really been traveling, and have covered the senior trip several times.

"I have lost complete contact with all the fellows except Dixon, who is in Middletown, Ohio. My old pal 'Butch' Crandall cannot be located it seems. I am still pulling for the bunch, although I am down here among the Florida alligators."

1937

DAVIS, P. L. Assistant Technician, Appalachian Forest Experiment Station, Asheville, N. C.

Paul has been on the forest survey in the eastern part of the State, and at present is compiling data in the Asheville office. He has been in to see us several times, and says that he enjoys his work very much, even though it has been hard on clothes and disposition.

DAVIS, W. G. 202 6th Dormitory, Box 3250, N. C. State College, Raleigh, N. C.

"Race Horse" had been at the Appalachian Forest Experiment Station at Asheville until January when he was laid off. During the period of appointment there, he was doing timber management research and type mapping at the Tocca Experimental Forest in Georgia. In January he returned to school, and at present is doing graduate work.

DELPHIN, HENRY. 3007 W. 3d Street, Coney Island, N. Y.

"Coney Beach is a swell place to loaf in all summer. Since school has started and I am still loafing, I think about Raleigh and School."

EDGE, N. P. Fernandina Pulp and Paper Company, St. George, Ga.

"At present I am with the Fernandina Pulp and Paper Company. They started me off cruising which I did from September 13 until Christmas. After Christmas I was given a planting crew, and I am still at it. At night I get in a little fire fighting.

"You can tell those fellows in the senior class for me that they are now finishing up their last long holiday. Forestry is tough work, but I like it more each day."

Fox, C. A. 322 Sunset Avenue, Asheboro, N. C.

At present Fox is unemployed. He was in to see me the other day, but I was busy and did not get a chance to find out all of the particulars concerning the gentleman, so I can add nothing to the above statement.

Gash, W. D. Swannanoa, N. C.

"I guess I will have to keep on farming for a little while." Note—Gash is now with TVA.

Griffin, J. H. Flying Cadet, U. S. Army Air Corps, Randolph Field, Texas.

"I am still trying to fly. Doing pretty good so far. Have about 100 hours. I will graduate in July if not washed out before. I hope to end up in forestry where flying is needed. Good luck to all."

Heltzel, J. B. Superintendent, W. Va. State Forest Nursery, LeSage, W. Va.

"That Pi-ne-tum *News Letter* sounds good. Best wishes to all of you."

Henderson, T. B., Jr. Assistant Forester, Chesapeake Corporation, Box 105, West Point, Virginia.

"We are doing forest survey work at present on company owned lands—using aerial survey maps and sample plots. Hoping all of you are getting along fine."

Howerton, T. M., Jr. Assistant Technician, U. S. Forest Survey, Appalachian Forest Experiment Station, Asheville, N. C.

"I am getting along fine, and like my work very much. I have been on the Forest Survey on this region and have been seeing a lot of swamp country.

"I run across some of the boys now and then, but would like to know what all of them are doing. Regards to all."

Mac was married recently to Miss Elizabeth Graham, Black Mountain, N. C. We wish them the best of luck and much happiness.

Hurst, E. L. Motion Picture Operator, U.S.F.S., Winchester, Ky.

"Passed the J. F., and hope to get an appointment soon. I have 160 rural schools in Mountains of Eastern Kentucky where I show fire prevention pictures. I use a complete outfit—projector, generator, sound equipment, etc."

Matthews, C. M. Laborer, Texas-New Mexico Pipeline Co., Junction, Texas.

"I am now in the oil game. Queer, in a way, my getting into this instead of forestry. I am on a topographic party on a mapping job of several hundred miles with 5′ contours. We are on the location

ready for the first shot when the sun comes up in the morning and finish when the sun sets. We work every day in the week and on holidays. Prospects for advancement are entirely unlimited. I thoroughly enjoy it myself, and I am getting a real education.

"I trust things are running smooth back at School. Give my regards to all.

"I may have a bit of gossip later. She lives 80 miles down the road and owns a car."

MATTHEWS, J. A. Southern Pines, N. C.

"Have been into everything except forestry, and I am still hunting and hoping. I would like to get married, but my father can't afford it." Note—Joe is now forester with a WPA project.

NICHOLSON, R. L. Foreman, S.C.S., Graham, N. C.

"I am working with the S.C.S. My work consists of drawing maps of farms. The first map I draw is taken from a plane table map that has been drawn by a soils man in the field. These tables are enlarged and traced, and then prints are made from them. I find this work very interesting, but I would much rather be doing forestry work."

SPITALNIK, L. P. 560 East 158th St., New York City, N. Y.

"I am just waiting for something in forestry—impatiently! Give my regards to the Faculty and the boys. Here's wishing all of you a very happy and successful school year.

TROXLER, L. W. Assistant County Agent, Albemarle, N. C.

"I am working as Assistant County Agent in Stanly County, and my job deals mostly with laying off terraces and keeping the terracing unit in operation. I find time to take a look at some of the forestry here in the county, and consider doing some worth-while work in the forestry line. It is a good county for loblolly and shortleaf pines, and the people are taking quite a bit of interest in planting and stand improvement.

"I am enjoying my work here, and the people with whom I work are quite nice and make the work pleasant and enjoyable.

"If there is anything I can do or anything that comes up that you need technical advice on, don't hesitate to call on me."

WHEELER, W. H. 2611 Webster Street, Berkeley, California.

Bill is doing graduate work at the University of California. He is there on a scholarship and enjoys his work very much. He seems to be a bit awed by the size of the University, 15,000 students, after N. C. State, but we feel that he will be able to hold his own. Incidentally, Bill has sent me innumerable samples of various western tree seeds for our seed collection. Some of you other alumni might take this as a hint.

* * * * *

I hope that each of you alumni has found something of interest in the *News* this year. Do you wish to have it continued as a part of the

PI-NE-TUM, or do you wish a separate report? If we can give you the combination for 50c instead of a dollar separately, that ought to make up your mind.

This *News Letter* sounds more like a take-off on Winchell's Column than news of Foresters. Marriages and "Blessed Events" seem to hold the spotlight.

GEO. K. SLOCUM, *Sec.-Treas.*,
Alumni Association.

Applied Game Management in North Carolina

—Continued from page fifty-eight

animal feces collected were raccoon, fox, wildcat, skunk, and bear.

By the time the "follow-up man" had reached the end of the strip the compass man had finished work on the milacre plot. Here every bit of living vegetation was observed. The species of each plant was noted; the percentage of the plot each covered, and the percentage browsed by deer were carefully observed. An average of about seventy plots were recorded each day.

Many of these plots were plucked of all forage accessible to the deer. This was carefully collected in small bags and taken to the ranger's station. Here the grasses, herbs and leaves of each plot were weighed in their green state. After they had dried they were weighed again. From the loss of weight by dehydration we were able to estimate the weight of green summer grass and leaves lost during the winter months. The percentage of the area of plots weighed offered us a recourse to the total number of bales of dry winter forage in the entire forest area accessible to the deer.

Five large areas: The Pink Beds, Avery Creek, Turkey Pen, Big Creek, and Davidson River were observed during the survey. The last week of our summer's work was spent tabulating the notes taken in the reconnaissance. The five areas observed, offered us an estimated figure on a small percentage of the entire forest, and these areas were representative of the conditions that existed in the forest proper. From those observations we computed an estimate of the entire eighty thousand acre refuge.

There is an abundance of green and succulent forage favored by the deer during the spring and summer, but it was found through the survey that there were too many deer in the game refuge due to the limited supply of available winter forage. Two years ago a census was taken of the deer population over the 80,000 acre tract of forest land that the government has set aside as a game reserve. It was estimated that fifteen hundred deer could be killed during the past open hunting season by hunters. The hunts were well conducted by forestry officials this past two winters, and it is hoped that the subsequent thinning of the population will make possible a favorable balance between the number of deer and the available winter food.

—*Continued from page fifty-one*

will remove part of the stand at each cut, and growing stock is always present by a normal distribution of age classes. This method is especially adapted in the shortleaf-loblolly regions and possibly in the slash pine forests.

The third and last method is more suitable for the small timber land owner, and the farm lumber owner. The method is not managing the forest for a final product of pulpwood, but managing it for high grade lumber, poles, and piling. Pulpwood is produced as an intermediate crop, taken as thinnings or other improvement cuttings as a cultural measure for producing high quality timber products. At the present time markets in the South pay more for sawlogs and piling than for pulpwood. Therefore, pulpwood may be considered as a salvage crop.

Below is a table showing the possibility of growing southern pines on an even-aged basis, showing the amounts that can be removed from intermediate cuts. Under intensive forest management, yields better than below would be easily attained.

TABLE 3

ESTIMATED PERIODIC AND FINAL YIELDS OBTAINABLE FROM NORMAL EVEN-AGED NATURAL SECOND-GROWTH SOUTHERN PINE STANDS, ON AVERAGE TO GOOD SITES, UNDER SIMPLE MANAGEMENT.*

SPECIES	Site Index*	Possible Optimum Pulpwood Rotation	Possible Periodic and Final Cuts Per Acre at Different Ages								Total Yield Per Acre for the Rotation	Mean Annual Growth Per Acre Over the Rotation
			Age in Years									
			15	20	25	30	35	40	45	50		
	Feet	Years	Cords								Cords	Cords
Loblolly	90	30	5	5	10	20	..	..	..	..	40	1.3
Longleaf	70	50	..	..	5	3	3	5	10	20	50	1.0
Slash	80	30	10	10	10	20	..	..	..	..	50	1.7
Shortleaf	70	40	0	5	10	10	10	20	..	..	55	1.4

* Height of average dominant tree in stand, at 50 years of age.

Some mills obtain part of their pulpwood from their own lands and the remainder from other owners of timber lands in the locality. Other mills obtain their supply wholly from timber land owners, and farm wood lots. It is good business for the mills that are dependent in part on pulpwood supplies from timberland owners to require the owners to keep their timber lands in productive condition. This is done only in purchase agreements. This policy not only assures the mill a continuous amount of pulpwood, but it provides the timber land owner a good income from his standing timber. Prices of rough pine fuel-wood, delivered at the mill, are at present four dollars per cord. Prices are

expected to be five and five dollars and a half in the near future as economic conditions improve.

In order to have proper management it is vital to have a campaign of education that will enable every farmer and timberland owner to realize that his forest is a means of a steady income. It is up to the men engaged in educational work to assist in every way to help the farmers and timberland owners to realize the potential value of their forest crops.

Another essential factor for aiding a management plan is fire protection. About 1/3 of the area in the south is receiving reasonably good protection, and this puts the South far behind other forest regions in fire protection. The full coöperation of both private and public agencies is needed, and only by this means can the South establish a system of adequate fire prevention and control.

Since the South has the advantage of having rapid-growing timber, that is far from being exhausted, and having untold opportunities for business, it places her in an awkward position. The public expects the South to jump in and grab the opportunities before it is too late, and this is just what the tendency is. Good conservative planning must be done to be sure that the plants are properly located in respect to continuous timber supply, because if they are mislocated not only will capital be wasted, but the community stability will be lost.

It is up to the South to intelligently recognize her potential wealth, to carefully plan her program, and then cautiously proceed to carry out the plans for greater economy and prosperity.

Forest Fire Control in North Carolina

—Continued from page sixty-six

In addition to coöperating with counties, the state coöperates with individual timberland owners who have blocks of timberlands which they wish given special fire protection. This coöperation is on an acreage basis, and the rates depend upon the fire control problem involved ranging from one to five cents per acre. This sum is then matched by an equal amount of state and federal funds. These association areas embrace from thirty to one hundred and thirty thousand acres and the funds so provided are used in the employment of a full-time Association Ranger with a forest warden appointment which empowers him to enforce any of the state forest fire and game laws. Funds are also used for the purchase of special fire control equipment. There are at present fourteen protective associations active in the state, involving a total timbered acreage of 540,000 acres. The financial set-up of an Association Area differs from that of a protected county in that the coöperator's assessment is paid in full to the Department shortly after the beginning of a fiscal year. After being matched by state and federal funds, this fund is used in conduct of the association fire control work. There are eight full-time Association Rangers in charge of as many associations.

The fire control work in the state is headed up in the Central Office in Raleigh with six district headquarters in the field at the following named places: Asheville, Lenoir, Rockingham, New Bern, Rocky Mount and Fayetteville. Each of these six districts is under the direct supervision of a technically trained and experienced forester who has one field assistant and one office assistant. The field assistant, with the title of District Ranger, is a non-technical man, generally promoted from the County Warden organization.

At present there are fifty-eight salaried County Wardens, since fifty-eight of the state's one hundred counties are under state protection. The County Warden generally makes his official headquarters at his county courthouse.

During the fiscal year, 1936-37, there were sixty protected counties. Two of these, however, have had to be dropped due to lack of state funds to adequately match their appropriations. This same inadequacy of state funds has prohibited acceptance of the coöperation of several other counties whose local authorities desire to take advantage of State Forest Service protection.

The six districts previously mentioned comprise the following approximate areas of forest land needing state protection:

District	*Acres*
1. Asheville	1,840,000
2. Lenoir	2,302,000
3. Rockingham	3,522,000
4. New Bern	3,310,000
5. Rocky Mount	3,307,000
6. Fayetteville	3,889,000
Total	18,170,000

District 7 comprising fourteen counties in the Piedmont Region, has not yet been organized for fire control purposes. It has a forest area of about 2,170,000 acres, thus making the total forest area of the state needing state protection about 20,340,000 acres. The above areas, of course, do not include such federal owned lands as National Forest, National Park, and Military Reservation, which are directly protected by the Federal Government.

There are at present seventy-six state owned fire lookout towers in the state and about 750 miles of state owned telephone line used only for fire control purposes. One of these towers is of stone, three of wood, one a wood observatory, and the balance of steel. Fifty-three of these have towermen's houses built on the site, ranging from one room cabins at the mountain towers to five room houses in the Coastal Plain. Complete protection plans for the future call for a total of about 130 towers and 1,200 miles of telephone line for use of the State Forest Service.

Special fire fighting equipment, such as swatters, axes, long-handled shovels, cross-cut saws, railroad fuses for backfiring, lanterns, and other

standard miscellaneous equipment represents an investment of about $50,000.

The seventy-five lookout towers, together with the lookout house on top of Table Rock Mountain, represent an investment of approximately $100,000, while the fifty-three tower houses represent an additional $20,000.

The 750 miles of telephone line represent an outlay of approximately $112,000. Investments in trucks, tractors, trailers and fire line plows total $33,000, making a grand total of $315,000 invested in equipment and facilities for fire cotnrol.

The average monthly payroll for wardens, towermen, etc., is approximately $6,000 per month. This all goes to residents within the coöperating counties and does not include the administrative overhead in Raleigh and the six field district offices.

Of the 20,340,000 acres of forest land in North Carolina needing state protection about 13,500,000 are now being protected, or sixty-six per cent.

Through the effective work and quick action of this trained organization, the records show that in 1936, for example, the average fire in state protected counties burned only sixty-seven acres with a damage of $110. Whereas, the average fire in unprotected counties burned 1,100 acres with a property damage of $2,057.

The forest fire control program in North Carolina, while not perfected and still in need of increased appropriations, is doing invaluable work.

To give some idea of how our own state ranks with other southern states in forest fire control, the following statistics are given. Keep in

COMPARATIVE STATISTICAL DATA FROM U. S. FOREST SERVICE REPORT, 1936

STATE	Forest Area Needing Protection	Area Now Under Protection	Per Cent Total Area Under Protection	Per Cent of Area Burned 1935	States Appropriation for Fire Control	States Appropriation Per Acre on Area Protected
						Cents
Texas	22,845,500	6,971,820	30.5	.92	77,465	1.1
Tennessee	10,480,010	7,194,520	68.6	2.22	70,778	1.0
Louisiana	19,200,000	6,011,860	31.5	1.44	54,116	0.9
Florida	22,926,210	2,216,470	9.7	5.78	56,969	2.5
NORTH CAROLINA	*20,568,000*	*15,600,820*	*75.8*	*.76*	*43,080*	*0.27*
South Carolina	12,500,000	2,488,240	19.9	2.21	41,060	1.6
Georgia	23,100,000	4,813,760	20.8	5.92	22,546	0.47

mind the fact that the salary range for field employees is below that of the other states listed.

The following is a comparison between man-power and supervisory personnel in the following states:

State	*Supervisory Personnel*	*Protected area per man*
North Carolina	14	1,000,000
South Carolina	9	276,000
Georgia	11	438,000
Florida	15	148,000

Game Management at State College

—*Continued from page thirty-two*

tional Forest Departments and in the Department of Game Conservation and Development in North Carolina. He was selected because of his competence and experience.

Game Management is in its infancy and there is plenty of room for young men who want to work toward getting the profession on its feet. Opportunity should be very good for well trained men entering this profession in the next few years. At the present time employment may be had with the U. S. Department of Agriculture, with the State Game Department and with private game Preserves.

Our "Believe It or Not"

—*Continued from page thirty-three*

the tree had ever been injured. The three cuts on the inside were the exact markings made by the surveyor in 1905. The growth rings were counted and it showed 31 annual rings since the injury. This checked exactly with the 1905 survey. When the man claiming the timber saw this, he realized his error and dropped all claims to the timber.

By this coincidence, the pine tree was the silent witness through 31 years, and presented its case so convincingly that no further evidence was needed.

The Bent Creek Experimental Forest

—*Continued from page thirty-nine*

records and others will serve as a basis for interpreting the movement of stormflow from representative cover types within the region.

A study of the influence of burning away the litter upon erosion and surface runoff was also made. The plots consisted of two 1½ acre plots from which the litter had been raked annually, two ½ acre plots that were severely burned, and two control plots. These plots will be used for further studies of surface runoff and erosion. In the erosion control work most attention has been directed toward the

comparison of the effect of the forest and other vegetative cover upon streamflow and erosion conditions, and the influence of the vegetation upon the humus type coupled with the examination of the effectiveness of different humus types in governing absorption and percolation of precipitation and in protecting the soil from erosion.

Though at the present time coöperative work has been reduced, it has represented an important part of the research work carried on at the Bent Creek Forest. For instance, one coöperative agency, the Bureau of Plant Industry, made a study of bluestain fungi in pines attacked by the Southern pine beetle and showed that the death of the pine within a few weeks after attack by the beetle is largely influenced by the associated bluestain fungi. Tunnels made by the beetle are sufficient to kill the pines in time, but the immediate cause of death is the action of the bluestain fungi.

The Bureau of Entomology also made a study of the Southern pine beetle. In their work they injected poisonous solutions into the sapstream of healthy and of beetle-attacked trees for three purposes: (1) to find new and cheaper chemicals effective in the control of bark-beetles in infested trees, (2) to determine the possibilities of treating poles for rustic purposes before felling, so that the bark would not be destroyed subsequent to cutting, (3) to preserve the wood of bark-beetle-attacked and of healthy trees by protecting it from subsequent insect attack and decay.

The Biological Survey conducted a project designed to determine the influence of the smaller mammals on the reproduction of such species as the oaks and yellow poplar. Indications were, after intensive trapping, that they are a minor factor in the destruction of desirable reproduction, realizing at the same time the considerable fluctuation in the number of rodents over a period of years.

It was also found that fires had surprisingly little effect on the rodent population of any given area. Logging operations increased the rodent population due to the presence of slash as protective cover. This suggests a severe check of forest reproduction, and it may possibly prove necessary to pile and burn all slash.

Concluding, I would like to point out that this brief sketch includes only the research projects conducted on the Bent Creek Experimental Forest. This forest is but one of the five controlled by the Appalachian Experiment Station. This station is but one of the twelve throughout the United States. Each of these stations has its own problems peculiar to the forest region in which it is located. This type of research does not always reveal definite facts, nor are the facts revealed always applicable. In many cases one field leads to another, one result is obtained which only points to another important question, the net result obtained only through solving a chain of problems. Probably the basic foundation of all forest research is to reproduce, grow, harvest better trees in a shorter time. Thus the results obtained from the Bent Creek Forest, of the Appalachian Experiment Station, and the research stations throughout the United States can lead the way to better forestry methods—better forests.

—*Continued from page sixty-one*

near the West end of the forest included putting down a pump and the construction of a privy. A 120-foot wooden tower is being constructed adjoining the camp site.

Twenty-five miles of the forest boundary has been marked and permanent concrete corners set. Some of the lines under dispute have been settled and the rest of the lines under contention will be cleared up as soon as possible.

The eleventh period work plan calls for many additional truck trails and fire breaks on the forest. Included in this plan is the completion of the Quaker Bridge and Roper Roads; the re-construction of the Frank Mill Road across Cowhorn Creek near Gum Branch; the construction of a truck trail from Cypress Creek to the state maintained road South of Trenton. A combination fire break and foot trail is being set up from the camp to White Oak River, and another along the drainage ditch up Northeast Creek to the Roper Road.

Forest Fire Control: Forty-three fires were investigated during the past year and eleven of these were found burning on the forest. These fires burned a total of 322 acres, or an average of 29.2 acres per fire. The causes of these fires were listed as follows: Incendiary—five; brush burning—three; hunters—two and warming fires—one.

This record is a big improvement over the 1936 record when twelve fires burned an average of 2,188 acres per fire. This improvement is a result of a better detection system, more experienced fire fighters, accessibility and a more thorough program of public educational work. During the year 1,134 people were interviewed either on or adjoining the forest, 131 fire and game posters were put up and three people were tried and convicted for violation of the forest laws.

Game: Regulations during the past season allowed hunting on the forest during Saturdays of each week, with the addition of opening day and two extra days at both Thanksgiving and Christmas. During this period 56 deer and three bear were reported killed. No record was kept on the quail, squirrels, rabbits and other game taken. All of the sportsmen were impressed with the increasing amount of game on the forest and many of them complimented our program of regulated hunting.

Receipts from hunting permits increased approximately 25 per cent over the past year. A change in the open days next season is expected to attract more of the sportsmen. Apparently the forest is becoming over stocked with bear. In several sections they are coming out into the fields of the adjoining farms and doing damage to the crops. Several big bear hunts are on the program for next hunting season in order to keep the bear under control. Although the deer are increasing each year there are no signs of over stocking.

Logging: Three logging contracts were either terminated or com-

pleted during the year which leaves only three operations in progress at present. One of these is cutting the large tract of hardwood in Cypress Creek Swamp and taking the logs to Kinston, another is cutting out the unit East of the Highway and taking the logs to New Bern. The third is inactive at the present. An extension of time was granted the contractor to clean up his unit and he is waiting for favorable logging weather before completing his logging operations.

There is an increasing demand for fuel wood. Several tobacco farmers in the Comfort section are taking advantage of the large amount of wood left following the skidder logging in Cypress Creek Swamp and are obtaining all of their wood supply from that section this year.

Summer Camp—Plots—Etc.: During the summer of 1937 the students from the Summer Camp under the supervision of Dr. D. W. Miller and Prof. G. K. Slocum put in two sets of plots on the forest. The first set was put in along the canal near the CCC Camp in a stand of five year old Pond Pine sprouts. Plot number one was thinned to a six by six foot spacing. In plot number two the most vigorous sprout in each cluster was liberated which left the spacing as near as possible to what it was before the last fire burned through the area. Plot number three was left as a check plot. The average height of this stand at the time the plots were established was about eight feet. Re-measurements will be taken at definite intervals in the future.

The second set consisting of two one-acre plots was put in near Cypress Creek. These are in a stand of twenty-one year old Loblolly Pine averaging nine inches d.b.h. and from 45 to 50 feet in height. One plot was thinned to a spacing of approximately 15 by 15 feet and the other left as a check plot. The thinned plot contained 21.1 cords of peeled wood before thinning and 18 cords after thinning. The check plot contained 16.9 cords peeled wood.

A fire lane was put in around each set of plots by clearing and raking a ten foot strip. These lines are to be kept up in the future in order that the plots might be protected.

The students also did a considerable amount of stem-analysis work on Pond Pine during the summer. The trees were cut into five foot sections, the records were taken and the wood piled for use as pulp wood.

Stand maps are under construction for the cruised section of the forest. Separate maps will be made for merchantable timber, pulp wood and reed beds and young growth. This is the next step in a management plan for the Hofman Forest.

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ROCKLEDGE RAVINE

There's a tumbling, turbulent, splashing stream
That gallops along its way,
Through a wild ravine, in the forest green,
Where dryads and fairies play.

And many a wary old trout is there
And that's where I long to be
Merging softly in with the background dim
To pause and listen and see.

So I'll broil a trout as a sacrifice
On the rock that splits the stream
Then rest by the fire, where quaint legends are,
While I meditate and dream.

—U. C. Deike.