

JOURNAL of the

SCHOOL OF FORESTRY

North Carolina State University

1967

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Numerous individuals have contributed greatly in the preparation of this issue of the Pinetum. Special thanks go to those many persons who have written articles and contributed photographs; to Mrs. Frances Liles and Miss Edith Rose for their invaluable assistance in obtaining needed information and for their work on the alumni section; to Miss Judy Johnson, Mrs. Dell Cunningham, and Mrs. Vickie Miller who did much of the typing; and to Dr. R. C. Bryant for his guidance and work on the alumni section.





DEDICATION

The 1967 Pinetum is proudly and affectionately dedicated to Professor Hilliard D. "Doc" Cook who is retiring this year after ten years of dedicated service to and interest in his students.

FACULTY AND DEPARTMENTS



DEAN R. J. PRESTON, JR. Dean of the School of Fores-try and Professor of Fores-A.B., M.S.F., Ph.D., University of Michigan

DR. L. C. SAYLOR Assistant to the Dean, School of Forestry and Associate Professor of Genetics and

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DR. WILLIAM D. MILLER Professor Emeritus of Silviculture A.B., M.F., Ph.D., Yale University



DR. T. EWALD MAKI Schenck Professor and Head, Department of Forest Management B.S., M.S., Ph.D., University of Minnesota

THE FOREST MANAGEMENT DEPARTMENT IN 1966-67

During the current academic year the Forest Management Department has continued development of its program of instruction recognizing that education is a process, not a fixture. There now are available options in general forestry, forest biometry, business operations, watershed management, forest biology, outdoor recreation, and wildlife management, and the development of a new degree program in conservation to be administered jointly by the School of Forestry and the School of Agriculture and Life Sciences is nearing completion. Dual degree programs or dual majors have been developed in soil science, in entomology, and in wildlife biology. Students who experience no difficulty in carrying heavier course loads can qualify for the second degree in the respective disciplines in the regular 4-year program; average students would find it necessary to enroll for an extra semester or in some instances only an extra summer session to qualify for the dual baccalaureate degrees. The prestige or cash value of a dual major is not yet established in the "real world", but, unquestionably, such a program can enlarge a student's horizons and competence as a professional forester.

Several developments in course offerings have also occurred. For 553—Forest Photogrammetry has been uplifted from 2 to 3 credits and is open to students from Recreation and Park Administration, Wildlife Science, or any other discipline by consent of instructor. In brief, forestry pres-quisites have been eliminated to make it possible for students from other departments to take advantage of this course. PP 318 (cross-listed FOR 318) has been named Forest Pathology and scheduled so that the first five weeks are devoted to the study of biological deterioration of wood. Students in Wood Science and Technology will register for the first five-weeks period under a new course number, PP 319 (cross-listed FOR 319) for one credit. A new course, FOR 613—Advanced Topics in Silviculture will be offered in the fall of 1967 by Dr. Duffield. Dr. Namkoong is offering a course on Advanced Topics in Quantitative Genetics (FOR 612). Other occurses are expected to be developed, enlarging the opportunities for students to study in greater depth in certain areas of forestry.



Dr. RALPH C. BRYANT Professor of Forest Management B.S., M.F., Yale University; Ph.D., Duke University



KEITH A. ARGOW Instructor of Forest Recreation B.A., Colorado College; B.S., M.F., University of Michigan

The summer camp program is being revamped and modified, with major emphasis on mapping, mensuration, silves and dendrology. Improvement in housing, resulting from the construction of six 4- to 8-man units, is expected to greatly improve the condition for study, removing the basis for past student griping about the lack of necessary solitude for contemplation in the hours from sundown to sunrise.

plation in the nours from sundown to sunrise.

A flight for taking aerial photos of the Hill Forest in April has been arranged, and the new sets of photos are to be used, among other purposes, for assessment of the severe iee damage that occurred from the storm of

Friday and Saturday, February 17 and 18, 1967.

The new blometries section is getting underway under the direction of Dr. Bill Hafley, who has a joint appointment with Forest Management Department and the Department of Statistics. This section comprises Dr. Hans Schreuder and Benee Swindel of the Southeastern Forest Experiment Station and Mr. Sam Mercer, programmer for the School of Forestry as the other members of the 4-man section. Currently, their major effort deals with "least squares estimation of the parameters in some non-linear models commonly used to describe tree growth".

Several members of the Faculty have participated, or are going to par-

ticipate, in various ways beyond the walls of the Department:

Dr. R. C. Bryant is Chairman-elect of the Appalachian Section, Society of American Foresters. He is the current Chairman of the Membership Committee for this section, and will welcome assistance in enrolling worthy

prospective members into the ranks of the Society.

Dr. A. W. Cooper is serving as Chairman of the University Committee on Oceanography and Marine Sciences, and has been awarded a grant to study the ecology and present and alternative future land use patterns in the Dismal Swamps area of North Carolina. We are proud that Dr. Cooper was selected as one of the outstanding teachers in the University during 1966.



DR. JOHN W. DUFFIELD Professor of Silviculture B.S., Cornell University; M.F., Harvard University; Ph.D., University of California, Berkeley

Dr. C. B. Davey is serving to an ever-increasing extent as consultant in several states on matters pertaining to seed production-soil fertility interrelationships in connection with tree improvement, and on other matters concerning soil management problems both in nurseries and the forests.

Dr. J. W. Duffield will assume chairmanship of the Faculty Senate in the 1967-68 academic year. He is currently preparing a paper to be presented at the "Symposium on Man-Made Forests" in Australia in late April of 1967.

Dr. George H. Hepting has been named Adjunct Professor of Forest Pathology and Forest Management. This appointment now brings the total of Adjunct Professors in Forest Management to four.

Dr. J. O. Lammi has returned to the campus after a six-month assignment as a consultant to the Government of Turkey assisting the Turks in development of wood-products marketing. He also attended a 2-week symposium on remote sensing at the University of Michigan in June.

Dr. T. E. Maki returned in July from an academic year of study as a Fulbright Research Fellow at the University of Helsinki.

Dr. Gene Namkoong will present a paper at the quantitative genetics sessions of the IUFRO Congress at Munich, Germany in early September.

DR. WILLIAM L. HAFLEY Associate Professor of Forest Biometry B.S., Pennsylvania State University; M.F., Ph.D., North Carolina State University



JOHN W. JOHNSON Associate Director, Hardwood Research Program B.S., University of Michi-



Dr. Roy W. Stonecypher of the Southlands Experiment Forest, International Paper Company, has been named Adjunct Assistant Professor and will be presenting a paper at the IUFRO Congress in Munich in September.

Dr. B. J. Zobel is spending a two-week period in Brazil on consultation to various industries operating in that country. He is also co-author of a paper to be given at the IUFRO Congress in Munich.

Several international scientists are on the campus during the current academic year:

Dr. Mikailo Krstic of Yugoslavia and Dr. John Risheth of England are serving as visiting professors in Forest Pathology. Dr. Harry Greaves from England is on a year of post-doctoral study under Dr. Ellis Gowling who has charge of instruction and research in Forest Pathology. Dr. Kay von Wedel from West Germany is spending the current year in post-doctoral study under Dr. Zohel, Dr. Carl Olof Tamm of the Royal College of Forestry, Stockholm, will give two lectures on forest soils and sites on May 4 and 5, respectively, and Dr. Akira Kawana, University of Tokyo, will tell about forestry in Japan on Tuesday, May 2. Drs. Tamm and Kawana are participating in the program of the Forest Fertilization Symposium in Gainesville, Florida, April 18-22, 1967, where Dr. T. E. Maki will serve as one of the moderators.



ROBERT C. KELLISON Liaison Geneticist B.S.F., West Virginia University; M.S., North Carolina State University

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R. L. McElwee Director, Hardwood Research Program B.S., West Virginia University; M.S., North Carolina State University





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STEPHEN J. MADDOCK Assistant Professor of Forest Recreation B.S., University of Colorado: M.A., Harvard University: Ph.D., University of Michigan (pending)





DR. THOMAS O. PERRY Associate Professor of Forest Genetics B.S., M.A., Ph.D., Harvard University

J. H. ROBERDS Instructor in Forest Research B.S., M.S., North Carolina State University





DR. DONALD H. J. STEENSEN Assistant Professor of Forest Management and Wood Science and Technology B.S.F., Iowa State University; M.F., Ph.D., Duke University

BENEE F. SWINDEL
Instructor in Forest Management and Experimental Statistics
B.S.F., M.S., University of Georgia





DR. BRUCE J. ZOBEL Edwin F. Conger Distinguished Professor of Forest Genetics B.S., M.S., Ph.D., University of California

JOINT APPOINTEES IN FOREST BIOLOGY

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Associate Professor of Botany and Forestry
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Michigan



Dr. Ellis B. Cowling Associate Professor of Plant Pathology and Forestry B.S., M.S., State University College of Forestry at Syracuse University; Ph.D., University of Wisconsin





DR. C. B. DAVEY
Professor of Soil Science,
Forestry and Plant Pathology
B.S., New York State College of Forestry; M.S.,
Ph.D., University of Wisconsin







Dr. J. W. Hardin Associate Professor of Botany and Forestry B.S., Florida Southern College; M.S., University of Tennessee; Ph.D., University of Michigan



DR. C. S. HODGES
Research Associate Professor
of Plant Pathology and Forest Management
B.S., M.S., University of
Idaho; Ph.D., University of
Georgia



DR. GENE NAMKOONG
Associate Professor of Genetics and Forest Management
B.S., M.S., State University
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Carolina State University



DR. H. T. SCHREUDER
Research Instructor in Forest
Management
B.S.. Southern Illinois University; M.S., North Carolina State University; Ph.D.,
Iowa State University.

DR. ERIC L. ELLWOOD Head of Department and Professor of Wood Science and Technology B.S., M.S., University of Melbourne, Australia; Ph.D., Yale University



The Wood Technology Program at North Carolina State

Probably the least understood of the various forestry related professions is that of Wood Technology. It is not a profession with which the general public has much contact, and the total number of practicing wood technologists in the U.S.A. is comparatively small-probably totaling less than 2,000. Wood technology evolved, in comparatively recent times, as an offshoot from Forest Management programs, in response to the need for technical knowledge applied to wood utilization. The early programs in this field were essentially similar to those in Forest Management with the exception that a small percentage of time was devoted to courses in wood utilization. Currently, the mostly highly evolved programs in Wood Technology in the U.S.A. have very few professional courses in common with Forest Management programs, although the same basic sciences provide the basis for both programs. The emphasis too, has changed from one of concentration on general wood utilization to a more intense study of the nature of wood as a raw material resource and to a more quantitative approach to industrial processing and manufacturing.

The wood technologist's work is related to engineering and involves many of the same capabilities; but unlike the engineer, his training with specific reference to wood makes him particularly capable in applying the findings of wood science in such wood processes as machining, seasoning, gluing, finishing, and many others involved in the conversion of wood to a secondary material or product. His work frequently requires not only an expert knowledge in wood science, but also a good understanding of industrial manufacturing equipment and methods. He should be acquainted with the specification of wood materials to meet end use requirements, the channels of distribution, and the protection and safeguarding of wood in use.

The Department of Wood Science and Technology at North Carolina State University is responsible for two programs in the field of wood and fiber utilization, namely, Wood Technology and Pulp and Paper Technology. The Pulp and Paper Technology program is discussed elsewhere in this issue.



Dr. A. C. Barefoot, Jr.
Associate Professor of Wood
Technology
B.S., M.W.T., North Carolina
State University; D.F., Duke
University

Since the first student graduated from the program in 1950, some 200 students have graduated with baccalaureate or graduate degrees in Wood Technology. Over the last 10 years an average of 8 baccalaureate and 6 graduate degrees have been granted each year. This indicates the relatively high percentage of students that take graduate work in this field. It is also of interest to note that although the number of students graduating is small, our program at North Carolina State University is the next to largest Wood Technology program in the U.S.A.—New York State being the largest.

Recent surveys of programs in the U.S.A. show that in 1965, only 85 baccalaureate degrees were granted in the U.S.A. from some 28 schools which conduct programs in Wood Technology. The pitifully small supply of wood technologists, in the face of a rapidly growing demand by industry and government for these men, has created a seriously growing shortage of people skilled in a knowledge of wood and its utilization. There is every indication that the demand for these men will increasingly outstrip the supply in the future years. On the plus side, for graduates of these programs, the variety of job opportunities has never been greater nor have starting salaries and advancement prospects ever been better.

An analysis of the careers of graduates from the North Carolina State University Wood Technology program shows that 93 per cent of these men are still associated with the wood industry in the following categories:

Marketing, Sales and Service	29%
Technical Production Services	17%
Plant Management	23%
Research and Development	12%
Educational activities	7.%
Miscellaneous	12%

20.00

In recent years a new professional society for wood technologists has been eatablished—The Society of Wood Science and Technology—which now has a membership approaching 500. Recent graduates are urged to join this Society as a major means of maintaining communication in the profession and working towards advancement of its contributions.

ROY M. CARTER Professor of Wood Technology B.S.F., University of Minnesota; M.S., Michigan State University



ROBERT C. GILMORE
Assistant Professor of Wood
Science and Superintendent,
Wood Products Lab
B.S., Pennsylvania State
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Dr. C. A. Hart Research Associate Professor of Wood Technology B.S., Virginia Polytechnic Institute; M.S., Ph.D., North Carolina State University





Dr. R. J. Thomas
Associate Professor of Wood
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University; M.W.T., North
Carolina State University;
D.F., Duke University



ROBERT G. HITCHINGS

In Charge—Pulp and Paper Curriculum, Associate Professor of Pulp and Paper Technology

New York, College of Forestry; M.F., Duke University

Activities of the Pulp and Paper Curriculum 1966-67

This academic year in pulp and paper technology has seen the planning of the third floor addition for the Robertson Pulp and Paper Laboratory Building, a slight decline in the number of graduating seniors, an increase in the number of pulp and paper graduate students, the steady progress on the three-year cooperative paper industry study on the relationship between fiber morphology and kraft paper properties and last, but not

least, a search for a replacement for H. D. "Doe" Cook.

The third floor of the Robertson Laboratory will contain expanded facilities for teaching wood chemistry, additional offices for faculty, laboratories for graduate students, two additional constant humidity-constant temperature rooms (one especially designed for coated paper evaluations and two rooms in the existing basement floor will be altered to suit them for bench-scale coating application work. We are extremely hopeful that construction on these facilities will start during 1967 and the equipment, particularly, relating to paper coating, may be gathered together in an appropriate manner for the C. E. Libby Memorial Coating Laboratory, Presently, over \$30,000 has been received in cash donations or equipment to equip this facility.

Approximately, 17 seniors in pulp and paper technology will graduate during the year. However, the number available for immediate employment will be about two-thirds of these, since the interest in graduate study and the combined fifth year PPT-CHE program continue to grow. The numbers of employers seeking to interview the students is rapidly increasing and salary offers indicate a five per cent rise over what last year's graduates received.

The research program relating fiber morphology of lobbolly pine to the resultant kraft paper properties has completed most of its primary data collection and the next year will be spent correlating the data collected by the wood technology group with paper tests resulting from kraft digestions on over 24 trees collected from southern Georgia to northern Vizginia. Hopefully, the final results will have a meaningful influence on pine genetic programs, woodland management decisions, pulp mill operations and ultimately improve the economy and products of the Southern Kraft Industry.

One of the most difficult problems facing the pulp and paper technology curriculum this year is to seek a replacement for "Doc" Cook, who faces mandatory retirement under North Carolina State retirement regulations. We are seeking a man with an academic background, several years of paper industry experience and an interest in students that Doc has possessed in his 10 years at State. I do not know of anyone who has taken a more personal interest in each student's progress in his courses. Although, several persons have been contacted, none have had the attributes which are being sought. Incidentally, "Doc" will continue to live in Raleigh and will welcome visits from his "boys".

DR. WYN BROWN
Associate Professor of Wood
Chemistry
B.S., University of London,
England; Ph.D., University
of Uppsala, Sweden



HILLIARD D. COOK Assistant Professor of Pulp and Paper Technology B.S., Massachusetts Institute of Technology

CHESTER G. LANDES
Assistant Professor of Pulp
and Paper Technology
B.S., Ohio State University





RAY SMITH
Associate Director, Placement Center and Executive
Secretary of the Pulp and
Paper Foundation
B.S., North Carolina State
University



Dr. Alfred J. Stamm Reuben B. Robertson Professor of Wood Chemistry B.S., California Institute of Technology; M.S., Ph.D., University of Wisconsin

THOMAS I. HINES
Head of Department and
Professor of Recreation and
Park Administration
B.S., North Carolina State
University; M.A., University
of North Carolina at Chapel
Hill



RECREATION AND PARK ADMINISTRATION

Probably the most significant trend today in the rapidly expanding field of parks and recreation is tist trend toward professional education. It is this trend, more than all others, which brings professional recognition. Basic to preparation for any profession are the requirements of higher education of a specialized nature designed to fulfill specific objectives peculiar to that individual profession.

Today it is pleasing to note that the recreation profession is destroying the pseudo-opinion that its leaders can be a creation of by-products of other programs of higher education designed primarily to perform functions other than organized recreation. The recreation profession recognizes that its professional status is dependent upon curricula designed to fully

first of all its own special and unique needs.

More than all other factors, leadership determines the scope, intensity, and success of the service program of organized recreation. In this fidd where human relationships and values are highly evaluated, where practical, imaginative, and economic efficiency is expected, professionally trained recreators are absolutely essential. Today large amounts of monies are invested in programs of recreation, and the investor properly expects divided sixed dividends. To assure these dividends the wise investor seeks out and employs the professionall clienter of recreation.

With the growth of leisure, recreation has seemingly exploded upon our way of living. Ones, the agencies that were concerned with the promotion of recreation could be listed as few; however, today this scene has changed. From each level of government (federal, state, county, municipal), the private agency, commercial interests, business and industry, institutions, (including hospitals, penal systems, orphanages, homes for the aged), recreation interests are being requested and provided. Land and water management, farm interests, special interest groups, churches, camping, and the like have been affected by this recreation surge. Changes in government attitude favoring recreation and park interest are the products of the wishes of the general unbile.

A casual glance at parks and reveation quickly reveals multiple disciplines involved in the modern operation: Governmental organization, personnel practices and policies, programming, recreation finance, fee-charging practices and policies, areas and facilities, land management, planning, maintenance and operation, regional recreation concepts, office management, turn management, turns management, turns of the property of the provide the recreation services of today.

These "partners" of the recreator have an important contribution to make; however, too often their accomplishments are slanted towards their own fields of interest—and recreation becomes a by-product or at the best, a secondary function. However, if these contributions can be directed toward recreation goals, maximum benefits could be derived. The recreator is concerned with the act of planning, organized recreation, and directing organized recreation. To do so, he is dependent upon these "partners" for their specialized services, and with them the recreator can best solve the problems of leisure as it influences our modern society.

What are the characteristics of a recreation and park service?

 Recreation is people oriented. It has been defined as a worthwhile, socially accepted leisure experience that provides immediate and inherent satisfaction to the individual who voluntarily participates in an activity. A park is described as a piece of land or water set aside for the recreation of the people.

Organized recreation by striving to obtain its three objectives (enjoyment, enriched community living, and personal fulfillment) makes an unique contribution to society. No other publicly supported agency attempts to develop a phase of living for all individuals by estab-

lishing fun or enjoyment as a primary objective.

The purpose of a recreation and park service is to provide opportunity for recreation as warranted by the support of people.

4. Recreation and park services are ineffective and without properties of people are ignored. It would be similar to a lone without a family, or a school without sudents. Recreation and park services without people would be lifeless. Its only reason for being is human service. Therefore, human desires and actions indicate the extent and reasons for recreation and park services.

What are the Tools of Recreation?

 Land is a tool: Native land; land for outdoor sports and exercises; land for horticultural exhibits, gardens, buildings; land for parkways and scenic drives; and land that includes lakes and streams both native and man-made.

Structures are a tool: Gymnasia, wading pools, swimming pools, community centers, theaters, museums, the zoo, and the like.

Personnel—a tool: Management, administrative, leadership, maintenance, planners, researchers, clerks, security and others.

 A park is both a tool for supervised recreation and by itself, standing alone, an instrument of recreation.

The employer has the privilege and the responsibility to ask, "What should I expect of the graduates provided by North Carolina State University?" First, he should find an individual who possesses management skills management of facilities and resources to provide recreation and park services for human satisfactions; also the practitioner should find in this young graduate an individual who has indicated a preference to work in a certain setting: municipalities, industries, hospitals, parks, private agen-

cies, or commercial enterprises.

At North Carolina State, freshmen are permitted to enroll directly into a curriculum of their choice. The first two years include studies of a general and foundational nature coupled with orientation and introductory courses related to park and recreation. Competencies are developed in the biological sciences, mathematics, history and political science, sociology, psychology, English emposition, public speaking, and writing.

Excluding professional courses provided by the Department of Recreation and Park Administration, the student is required to complete courses in landscape architecture, landscape gardening, and research methods.

It should be repeated that the curriculum emphasizes the act of planning, organizing, and directing. Its focus is in the area of program and

facility management.

Administrative courses required of all students who are seeking a degree in recreation and park administration may be classified as follows: organizing and administering the recreation program, facility and site planning, budgeting, financing, organizational structure, personnel management, public relations, office management, park maintenance and operation, legislation, in-service training, and research problems. During the summer prior to the senior year, each student must complete a practicum off campus, an eight-semester-hour requirement.

Recreation and Park Administration Faculty

ALBERT R. CRAWFORD
ALBERT R. CRAWFORD
ALBERT R. CRAWFORD
B.S., Appalachian State
Teachers College; M.Ed.,
University of North Carolina at Chapel Hill

GORDON HAMMON
Assistant Professor of Forest
Recreation
B.S., New York State College of Forestry, Syracuse LATHAM L. MILLER
Associate Professor of Recreation and Park Administration
B.A., Wake Forest College;
M.A., University of North
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DR. ROBERT E. STERNLOFF Assistant Professor of Recreation and Park Administration B.S., M.S., University of Illinois; Ph.D., University of

Wisconsin

CHARLES C. STOTT

Associate Professor of Recreation and Park Administration

B.S., North Carolina State
University; M.S., Indiana
University

ADJUNCT PROFESSORS

Andrews, Ralph, Director
N. C. Recreation Commission
Raleigh, N. C.
Brendle, John Henry, Jr.
Dorothea Dix Hospital
Raleigh, N. C.

Hepting, George H. Plant Path.
U. S. Forest Service &
Asheville, N. C. For. Mgmt.

Asnevule, N. C. For. Mgmi
Jayne, B. A. WS&T
University of Washington
Seattle. Washington

Koenigs, Jerome W.
Research Triangle & For. Mgmt.
North Carolina For. Mgmt.
Kuhlman, Elmer G.
Forestry Sciences Lab.
& Research Triangle, N. C.
For. Mgmt.
Mgmt. Louis J.
For. Mgmt.

 Metz, Louis J.
 For. Mgmt.

 Forestry Science Lab.
 &

 Research Triangle, N. C.
 Soil Sci.

 Ripley, Thomas H.
 RPA

 U. S. Forest Service
 &

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 &

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 Smith, Walton R.
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VISITING PROFESSORS

Dr. Migailo Krstic Visiting Professor of Plant Pathology and Forestry Forest Research Institute Belgrade, Yugoslavia

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> R. G. Pearson Visiting Professor of Wood Technology Commonwealth Scientific and Industrial Research Organization Melbourne, Australia

WS&T

Dr. John Rishbeth Visiting Professor of Plant Pathology and Forestry Cambridge University England





EXTENSION FORESTRY DEPARTMENT

The Extension Forest Management program is designed to increase the growth and quality of wood fiber on forest lands, and improve the efficiency of harvesting techniques and equipment. All of the staff are engaged in general forest management activities to accomplish these programs. The Christmas-tree production and marketing program is continuing, with emphasis on cultural and managerial practices. Studies on bottomian hardwood management are being continued with individual and corporate landowners. A program has been initiated with the logging industry study and develop new technological and managerial skills that will increase efficiency in harvesting wood and the per capita fincome of those engaged in this segment of the wood industry. A program to promote safety in logging porations has been developed,

Two problems remain prominent in the forest and wood-based industries. These are the needs to improve operational efficiency to reduce the unit cost of manufacturing and marketing, and, the need to more accurately evaluate new processes and products as opportunities for profit improvement. To help solve these problems, the Extension Wood Products staff has concentrated its efforts on providing educational opportunities to managers and key personnel of primary and secondary wood-processing firms. Instruction was provided at 98 seminars, workshops and short courses with a combined attendance of 2,768. Over 50 radio and television programs were presented.

There were only two personnel changes in the department during the past year. On July 1, 1966, we added Thomas P. Fetters to the Extension Wood Products staff. Tom is a native of Michigan and a graduate of Michigan University. He served three years in the Air Force, and then came to N. C. State to get him M.S. in Wood Science and Technology. Ron Thomason resigned from our staff on December 31, 1966, to accept a position in industry in his native West Virginia.



FOREST MANAGEMENT EXTENSION

J. C. Jones, Head, E. M. Jones, W. M. Stanton,

W. B. Stuart, F. E. Whitfield



W. E. Keppler Head, Wood Products Extension



FOREST MANAGEMENT EXTENSION
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Joe Fanney Wood Science and Technology



Miss Elga Filton Forest Management



Mrs. Elizabeth Wilson Wood Science and Technology



Mrs. Pat Kennedy Mrs. Martha Holland Forest Management



Mrs. Lanora Goss Miss Cicely C. Browne
Forest Management



Mrs. Sheila A. Ferrari Mrs. Martha Matthais Forest Management



Mrs. Dell Cunningham Mrs. Vickie Miller Forest Management



Miss Nancy Roberts Mrs. Rusty Cottle Wood Science and Technology



Miss Hazel Adams Mrs. Margaret Burchette Bookkeeping



Mrs. Frances Liles Student Records Dean's Office



Miss Edith Rose Dean's Secretary



Mrs. Dorothy Honeycutt Pulp and Paper Technology



Miss Judy Johnson Forest Management



Miss Kennie Laney Wood Products Extension



Mrs. Inez Tucker Forestry Extension



In Wemoriam

Kalph Cane Duncan, Ir.

During the early morning hours of April 17, 1967, the Class of 1967 lost one of its most enthusiastic and well-liked members, Ralph Lane Duncan, Jr., in a tragic automobile accident as he returned to the campus. Ralph will long be remembered by his classmates in the pulp and paper technology curriculum for his quick wit and easy-going manner. A native of Spring Hope, North Carolina, he matriculated at State in 1963 with the aid of a Pulp and Paper Foundation Scholarship. He continued to justify this award by his academic record during the following three years. The residents of Lee Dorm will remember his spirited term as Athletic Director and the intramural sports staff will remember the cooperation "R. L." exhibited in making this program a success. In addition to his interest in campus activities, he showed a great deal of interest in helping his family and guiding his younger brothers.

Ralph will be sorely missed by his classmates, his teachers and his State friends, but the lives of all who knew him, have been enriched by his eager, keen and enthusiastic outlook on life.

SENIORS

EARNEST GEORGE ALEXANDER, JR .- Pine Bluff,

Arkonsas

Pulp and Paper Technology Theta Tau: Xi Sigma Pi: Phi Kappa Phi: Southern Engineer Staff; Pulp and Paper Foundation Schol-arship; Crown Zellerbach Scholarship. There are only two others that work less and make

the outstanding grades "Earn" has pulled out. Despite his stimulating sneezes in "Doc's" eight o'clock class he was appreciated for providing a study hall for the group, although he preferred the flick.



JEFFREY KENT AMIDON-Petersham, Massachusetts Wood Science and Technology

Forestry Club; F.P.R.S. Jeff is a true "Yank." You can tell without a doubt by his accent that this guy is from . . . southern Georgia. He takes his profession seriously, or is a guy with a wooden car just plain nuts?



PHILIP ARTHUR ARAMAN-Newburgh, New York

Wood Science and Technology Forestry Club: F.P.R.S.: Wood Tech Basketball

Team Unfortunately, "Phillie" is the type of guy you can't forget. Anyone who wears the same dirty "levis and sweatshirt" to every class will always stand out in a crowd. Do they teach you that at Smitty's College, Phillie? If you don't make it in Wood Tech, try selling your old shoes as water skis!





GIBBONS ASH-New York, New York

Wood Science and Technology

F.P.R.S.

Gibbons will be ready to retire when he finally graduates. If he loses much more hair nobody will hire him. Seriously, Gib has done well here at State and will continue to do so in his own sawmill located somewhere on the West Coast!



CLYDE O. BELANGIA-New Bern, North Carolina

Wood Science and Technology

Track and Cross Country

Clyde enjoys coming to class so much, he has become one of "Roy's Boys." If the girls don't come down from Virginia, he'll be in class tomorrow. He hopes to enter the imported woods business and will more than likely make it!



ROY ELTON BLACKWOOD-Raleigh, North Carolina

Forest Management

ROTC, Flight Program

Roy got several happy flight hours on Uncle Sam's "Fly Now Pay Later" plan.



STANLEY WAYNE BREWER-Plymouth, North Carolina

Pulp and Paper Technology

N. C. State Bands; Xi Sigma Pi; Fourdrinier Society—Sec.; Crown Zellerbach Award; Pulp and Paper Foundation Scholarship.

Considering the fact he spends most of his time in Plymouth, it is amazing that he gets any work done.



WILLIAM ARNOLD BROUGHMAN-Morsholl, Virginia

Pulp and Paper Technology

Alpha Phi Omega; AICHE: Fourdrinier Society; Xi Sigma Pi; Baptist Student Union; Pulp and Paper Foundation Scholarship.

One sentence describes Bill's attitude: "I don't give a damn!"



WILLIAM SANFORD CALLAHAN-Lynchburg, Virginia

Forest Management

Forestry Club, Secretary, Vice President; '65 Conclave, 1st place dendrology; N. C. State Marching Band; Rolleo.

We understand that Sally's wife is very appreciative of modern appliances ever since their firetower honeymoon. Where does Bill learn those jokes he tells?



DOUGLAS MICHAEL CHAPPELL—Candor, North

Forest Management

Forestry Club; Society of American Foresters

Doug is a good listener. A good listener is hard to find, "especially in the Class of '67."



DAVID A. COLEMAN-Hillsborough, North Carolina

Pulp and Paper Technology

Fourdrinier Society—Pres.; Xi Sigma Pi; Pima Award.

Color blindness seems to be his main attribute, at least as far as "Doc" is concerned.



HERBERT W. CRASE-Whitesburg, Kentucky

Forest Management-Recreation

Forestry Club; Society of American Foresters

Herb can answer most any question. "Well, you know."



CHARLES ALFRED CREIGHTON-Richmond, Virginia

Wood Science and Technology

Forestry Club; F.P.R.S.; A.U.S.A.; Intramural Football and Softball

"Critan," alias Sugar Cheeks, burned the road up to Roanoke Rapids for his senior project. Did you get some "meaty" information Charles? Charlie has paused for a semester to start a family! Good luck old boy, you'll get your own sawmill yet.



RALPH MADDREY CULLOM—Roanoke Rapids, North Carolina

Forest Management

Forestry Club

Ralph Cullum, "D.E."—the connoisseur of day-time television and contemporary photography. Ralph's wife is bound to be a good cook as evidenced by Ralph's profile. He is the proud father of a cute 3-year-old daughter.



JAMES PATRICK CUNNINGHAM—Durham, North

Forest Management-Biology

Phi Kappa Phi; Xi Sigma Pi, Associate Forester; Alpha Zeta; N. S. F. Undergraduate Research Participant; Varsity Rifle Team (Shooter & Information Officer); Gamma Sigma Delta Scholastic Achievement Award; Homelite Senior Award; 1966 Climate of Learning Conference Delegate; Forestry Club

A typical example of genetic variation.



NARAYAN CLANDRA DEKA-Sauhati, Assam, India

Pulp and Paper Technology

Taught chemistry in Medical College, Gauhati India. A man of many smiles he is probably the friendliest in the class.



JOHN SIDNEY DURHAM-Aberdeen, Maryland

Forest Management-Management Science

Varsity Soccer, '65, '66 (letter '66)

John's frequent appearances on the Dean's List are a prime example of the beneficial effects of frequent visits to the Scene.



TRAN LECURTIS FORBES-Shawboro, North Carolina

Forest Management-Recreation

Forestry Club; Army ROTC—Counter Guerillas & Flight Program; Most Valuable Intramural Player; Softball League; Freshman Baseball Team; Sports parachutist.

Baby Huey the paper boy! If Curtis's energy could be captured it would be the greatest technological advance since McCullouch's electric starting chainsaw.



DANIEL ALBERTO GAITON—Bogoto, Columbia,

Wood Science and Technology

Xi Sigma Pi; Alpha Zeta; F.P.R.S.; Legion of Mary; Latin Club.

Daniel came up from South America and showed us foreigners how to make the grades. He took time out to be a "good Joe." Daniel has gone home now, probably to start his own pencil factory.



DOUGLAS LEWIS HAMILTON-Pine Bluff, Arkonsos

Pulp and Paper Technology

Sigma Phi Epsilon; Fourdrinier Society.

"Bubba" interviewed and interviewed and . . . was hired by his uncle "Sam."



HOWARD WAVERLY HARRELL, JR.—Roanoke Rapids, North Carolina

Pulp and Paper Technology

Residence Counselor; Pulp and Paper Foundation Scholarship; Fourdrinier Society; Alpha Zeta; Intramurals; Xi Sigma Pi.

"Doc's" favorite, it is unbelievable that he hit a match on all four samples in one day.



LARRY HILLIARD HARRIS-Favetteville, North Carolina

Forest Management-Recreation

Forestry Club

Larry would have probably changed his major to Economics if Dr. Dyson hadn't left.



RANSOM VICTOR HINTON—Noshville, North Carolina Pulp and Paper Technology

Pershing Rifles; Marching Sgts.; Fourdrinier Society

Randy attends class regularly and is known for his expressions of mirth. Probably the best cracker barrel philosopher in the class, he is full of bull.





Pulp and Paper Technology

Editor of Agromeck; Executive Director U.P.; Board of Student Publications; Fraternity Study Commission; Athletic Council; Sigma Alpha Epsilon; Fourdrinier Society; Golden Chain Senior Honorary.

Among the organizers of "THE GROUP," Wells has contributed to the cooperate-to-granduate effort. His philosophical outlook regarding interviewing, plant trips, and salaries leads us to expect him to become President of the Company whenever he decides what the Company is.



JOSEPH HENRY HUGHES—New Bern, North Carolina Forest Management—Wildlife

Xi Sigma Pi; Forestry Club; Conger Work Scholar-

A true believer of scientific theory, Joe has new ideas on deer management—jack-lighting.



KENNETH M. JOHNSON-Fredonia, New York

Forest Management-Wildlife

Forestry Club; Conclave '65

Schaefer is always on the prowl from the seashore to the mountains. He should have stayed at the beach for all the studying he got done on Bragaw beach last summer.



LARRY RICHARD JOHNSTON—Charlotte, North

Forest Management-Watershed

Intramurals; Dorm Counselor; Forestry Club— Secretary, Treasurer; Editor '67 Pinetum; Xi Sigma Pi; Alpha Zeta; Homelite Award; Biltmore Work Scholarship.

Larry spent his ecology field trip studying the ecosystem encompassed by the walls of the Causeway Drop-In, Morehead City, North Carolina.



SHERWOOD LAWRENCE JONES, JR.—Raleigh, North

Wood Science and Technology

F.P.R.S.; Forestry Club, Secretary; Business Manager, '67 PINETUM; N. C. State Bands, Publicity Director, Vice President; Mu Beta Psi, Vice President

Um uh, um uh! Wonder who will replace "Short Roy" someday? Larry is majoring in reports and reports on reports. With mechanics and design in the same semester, no wonder he acts funny. Good luck to you and your June Bride!



JAMES F. KEAR II-Fernandina Beach, Florida

Pulp and Paper Technology

Editor of the TECHNICIAN: Sports Editor; Theta Chi Fraternity; Chancellor's Laision Commission; Sports Editor, Agromeck.

Not being around much, the "Phantom" became his name.



GAIL LEE KITTLESON-South Wales, New York

Wood Science and Technology

F.P.R.S.; Forestry Club

A "Paul Smith" boy who gave up his skiing to come South for an education. He must have done well because he is going back to New York to work as floor sweeper for "Carborundum."



WILLIAM DUNN LaROQUE-Kinston, North Carolina

Wood Science and Technology

Math Club; Monogram Club; Varsity Wrestling; Forestry Club, Program Chairman, Vice President, President; F.P.R.S., Vice President

"W.D." is one of those guys who stands out as a hard worker. He helped roll the log at the Rolleo and win the one and only event for the seniors. Bill's lifetime ambition has been to be a greenchain foreman. You'll make it. Bill!



RICHARD KELLY LOUDERMILK-Norman, North Carolina

Wood Science and Technology

Xi Sigma Pi; F.P.R.S.; Forestry Club; Y.M.C.A.

"Buttermilk" has decided to donate his brain to science. We understand that Richard is still hangin' around the same gal. Before anything serious develops, somebody oughta tell Brenda that he occasionally chews a little Red Man. Richard is going to do all right in the "real world."



WILLIAM DANIEL McGILL II—Lakeview, North

Forest Management-Management Science

Senior Forestry Senator—S. Gov.; Alpha Gamma Rho—Rush Chairman '66; Continental Can Company Forestry Scholarship; Dorm.-Floor Counselor '64-'66; Asst. Residence Counselor '66-'67; Society of Amer. Foresters

Dan "Red Man" McGill is the only man to be thrown in the pond at summer camp and come up smilling. With 14 hours of sleep per day and a nightly trip to Granny Grunt's, he managed to survive through summer camp.



RONALD B. McMILLAN-Rocky Mount, North Carolina

Wood Science and Technology

Forestry Senator; F.P.R.S.; Intramural Football I
"Mac" hopes to retire from the Navy and build a
pole-type boxing arena. Someday he hopes to challenge Clay, McAllian is a father now, but we don't
"Mac"?
"Mac".



LINO MACHADO-Managua, Nicaragua

Forest Management

Latin Club

A good man to have on the 406 timber inventory crew. He can estimate DBH from 4½ chains away, but sometimes he wanders off and says he is going to look for some flowers, or something....



REX BUDDY MANN-Candler, North Carolina

Forest Management

Forestry Club

"Stimey" was a charter member of the Granny Grunt Crew at Summer Camp. His idea of heaven is a guitar, brown bag, and a pipe full of Prince Albert tobacco. Stimey's brown bagging has slowed down since he tied the fatal knot.



RALPH HUNTLEY MULLIS—Myrtle Beach, South Carolina

Pulp and Paper Technology

Xi Sigma Pi—Forester; Alpha Zeta; Fourdrinier Society; Gamma Sigma Delta Scholastic Achievement Award; Pulp and Paper Foundation Scholarship.

Although he too found that Wild Turkey will "mess up your mind," The Institute of Paper Chemistry felt it wasn't messed up much.



KHAJA NAIMUDDIN-Hyderabad, India

Pulp and Paper Technology

Fourdrinier Society

Khaja certainly has the background for studying PPT with a B.S. in Chemistry, Physics, and Math from Osmania University in India.



DENNIS A. NECKER-Charlotte, N. C.

Wood Science and Technology

Alpha Phi Omega; Air Force R.O.T.C.; Arnold Air Society; Scabbard and Blade.

Necker, NO!! Don't drink all of the NaOH. Necker was the only one with his whole nightstand 1/32" off. And "Short Roy" said you were full of what? After six months, there will be a report due on "Why I Like the Air Force."



CHRIS EUGENE NIELSEN-Vienna, Virginia

Forest Management—Recreation

Varsity Men's Glee Club; Baptist Student Union— President '66-'67

Chris lost points with "Father" Bryant by spending the summer putting out fires.



GEORGE GIFFORD PEMBLE-Walden, New York

Pulp and Paper Technology

Alpha Gamma Rho: Fourdrinier Society

George will go far but nobody knows in what direc-



KURT JON PETERSON-River Vale, New Jersey

Forest Management

Forestry Club; Homelite Award '66

"Pete" is a hard worker who has modestly turned down a few honors; however, he can't turn down his good grades. He has also originated some unique phrases.



WALTER N. REED-Pine Bluff, Arkansas

Pulp and Paper Technology

Xi Sigma Pi-Ranger; Fourdrinier Society

Walter was known as the "prof" to the group.



SALAH ROUCHICHE-Algiers, Algeria

Forest Management-Watershed

Soccer Varsity Team; Latin American Club; Arab

Club.
Salah "the camel driver" Rouchiche. With Salah's
knowledge of dendrology, he will make an ideal
desert forester. As a freshman, Salah was the
owner of the finest beard ever displayed on the
N. C. State campus.



WILLIAM BYTHE SCHEIDER-Hilton Head Island, S. C.

Wood Science and Technology

Sigma Chi, pledge class President; Senior R.O.T.C.

flight training; Forestry Club.

Bill, how about doing your imitation of a Jap submarine for us, with sound effects? Bill is going to
be a helicopter pilot with Darbey's Rangers and his
home base will be Saigon. We'll mail you a postcard,



ROBERT CRAIG SCHOWALTER—Jackson, Mississippi

Forest Management

Bill.

Forestry Club; Xi Sigma Pi; Rolleo participant, '65 and '66

If Bob's technological philosophy is anything like his politics, he'll bring back the "misery whip" and mule logging.



PAUL ALTON SCHWAB-Knoxville, Tennessee

Forest Management

Alpha Zeta; Xi Sigma Pi; Forestry Club; Society of American Foresters

"I think that I shall never see . . ."



RUDOLPH T. SHEARIN-Red Oak, North Carolina

Forest Management

Forestry Club; S.A.F.; Talent for Service Scholar-

Rudy is a forester by trade but a businessman at heart. He will probably be the first one in our class to make a million dollars!



WILLIAM DWIGHT SMITH-Catonsville, Maryland

Forest Management

Forestry Club; Alpha Gamma Rho; Society of Amer. Foresters; Biltmore Work Scholarship; Lion's Club Scholarship

Bill came to the South because of the climate and is leaving because of the weather. Bill rarely misses a lecture even though he doesn't always have time to comb his hair.



THOMAS ALLEN TOMLIN-Georgetown, South Carolina

Pulp and Paper Technology

Fourdrinier Society; AICHE; Junior Forestry Senator; Pulp and Paper Foundation Scholarship; Xi Sigma Pi

Tom is also getting a degree in Chemical Engineering. He is going to graduate school in business administration—possibly at Carolina.



WILLIAM JEFFERSON WADE, JR.—Henderson, North

Forest Management

Forestry Club—President '66; Business Mgr. Southern Forester '65; Band—Publicity Officer '66-'67; ROTC—1-4; Brigade Staff; Association of United States Army; Scabbard and Blade; Society of American Foresters

Bill never misses his eight hours sleep per day from 8 a.m. to 5 p.m.—with short breaks between classes and during lunch.



RICHARD DENNIS WEIGEL-Rochester, New York

Forest Management-Recreation

Varsity Rifle Team; Inter-Dormitory Council; President, Sullivan Dorm; Forestry Club; Xi Sigma Pi; Alpha Zeta

Finally, a Paul Smith's terminal forester who will make it in forestry at State. With Rick's political pull he should be State Forester of New York in 5 years.



LARRY LESTER WILLIAMS—Hendersonville, North

Forest Management

Technician Staff; Union Gallery Committee; CCUN Program; Forestry Club; Work-Study Program

"L.L." tends to elucidate the obvious. If you don't believe Larry is an authority on forest soils and statistics, just ask him. "Typical Carolina Humility." Larry is a hard worker.



W. A. STEWART WRIGHT, JR .- Denton, Maryland

Forest Management-Recreation

Sigma Phi Epsilon Social Fraternity; Athletics Chairman; Varsity Soccer; Forestry Club; Intramurals, Big Four Field Day

Sandy has a different facial expression for every mood.

Graduate Students

Gradua	ite Students	
Forest Management	STATE	DEGREE
Argow, Keith Angevin Blair, Roger Lee Cole, Donald Eugene Cordell, Harold Kennth Del Castillo, Romulo A. Folsom, Reid Lamar, Jr.	Oregon Illinois West Virginia N. C. Philippines N. C.	Ph. D. Ph. D. M. F. Ph. D. Ph. D. Ph. D. Ph. D. Ph. D. M. S.
Del Castillo, Romulo A. Folson, Reid Lamar, Jr. Franklin, Edward Carble Gauger, William Henry Imam, Shah, All William Henry Imam, Shah, All William Kown Kang, Ke Won (decree only) Kaufmann, George J., III Kellison, Robert C. Ketchum, Daniel Conrad Kh, Herbert Jolien	Virginia N. C. E. Pakistan N. C. Korea Kentucky N. C. N. C. N. C. Virginia	M. S. Ph. D. Ph. D. M. F. Ph. D. M. F. M. F. M. S.
Kundt, John Frost Land, Samuel B., Jr. Lanta, Clark Whitney Murawski, John Stefan Nikles, Donal Garth (degree only) Quijada, Marcelino Rennie, John Charles Shelbourne, Cyril J. A. (degree only) Simons, Robert Whittaker Sluder, Earl Ray	Virginia Connecticut New York Australia Venezuela Ohio N. Rhodesia Fla.	M. S. Ph. D. Ph. D. Ph. D. M. S. M. S. Ph. D. Ph. D.
Sulaman, Asham Sulfan Usanis, Richard A. Welch, Richard Vanneman Woessner, Ronald Arthur	N. C. Iraq Connecticut Georgia West Virginia	Ph. D. Ph. D. M. F. Ph. D.
Soila Gregory, Jimmy D. Danielson, Robert M. Ike, Albert Jurgensen, Martin F. Losche, Craig	N. C. Washington Georgia New York New Jersey	M. S. Ph. D. Ph. D. Ph. D. Ph. D.
Fathology Amburney, Terry L. Basham, Grant Donne, John Fakir, G. Harry Kinloch, Bebun Kirk, T. Kent School, William H. Shain, Louis Show, Glenn	New Jersey Virginia New York E. Pakistan England South Carolina Louislana N. C. Mississippi Virginia Mississippi	Ph. D. M. S. Ph. D. Ph. D. Postdoctoral Ph. D.
Genetics Ledig, Fred Smouse, Peter Edgar Stock, David Allen von Weden, Kay	New Jersey California Ohio Germany	Ph. D. Ph. D. Ph. D. Postdoctoral
Ecology Gibbon, Edward Lee Glazier, Cynthia Hartshorn, Gary Mercer, Evelyn P. Nemeth, John	Virginia Georgia New Jersey N. C. N. C.	Ph. D. M. S. M. S. M. S.
Entomology Hunt, Thomas Norton McGraw, James Robert	N. C. N. C.	M. S. M. S.
Wood Science and Technology		
Ali, Mohammed Omar- Ayres, Joseph Edward Baird, Bennett Ray Bienias, Konald Marion Bienias, Konald Marion Campbell, Gordon Glen Gleaveland, John Adams	E. Pakistan W. Virginia N. C. Illinois N. C. Iowa N. C.	Ph. D. MWT M. S. M. S. M. S. M. S. Ph. D.

Fetters, Thomas Parker Gladstone, William T. Harris, Aubrey D. Holder, Charles D., Jr. Harris, Aubrey D.
Holder, Charles D., Jr.
Kelly, Myron William
Liu, Rou Hang
McNamara, William S.
McNamara, William S.
Parker, Homer Vann, III
Paz, Normita Massurbol
Salchuddin, Abdul B.
Smith, William Edmond
Taylor, Ray Starley
Tice, William Eddie
Wood, Roy Lyun

Unclassified Students Chen, Chi-Fon Smith, Wallace John N. C. N. C. New York N. C. Philippines

P.

Pakistan Wisconsin

Ph. D. M. S. M. S. Ph. D. M. S. M. S. M. S. Ph. D. Ph. D. M. S.

D.

N. C. Australia

Scholarships and Awards

PULP AND PAPER FOUNDATION SCHOLARSHIPS

FRESHMEN Cogburn, Kerry Patrick Dykes, Clarence Allen George, Richard L. Gore, George Rex Harrison, Ray Edward Haynie, Raymond Riley Hickerson, Gary Douglas Holland, Robert Eric Howard, Ernest Ed., Jr. Martin, Marcus L. Owen, Leon Wayne Peek, William Logan Reeves, John Blair Snellings, William R., Jr. Wade, William Hamilton

SOPHOMORES

Adams, William Cary Armstrong, William D. Brown, George Ronald Collier, Samuel K. Gardner, Charles S., Jr. Hickman, David Allen Lewis, Joseph Terrell Rogerson, Jerry Mack Shelfer, Jonathan W.

JUNIORS

Asheraft, David Lee Baily, Mack William Boggs, Joseph Wilder Johnson, Andrew Louis Johnson, Lawrence J. McLemore, Charles E. Respass, Johnnie D. Ward, Michael E.

Walker, William Edwin

SENIORS Broughman, William A. Duncan, Ralph Lane Harrell, Howard W., Jr. Mullis, Ralph H. Reed, Walter Neal Tomlin, Thomas A.

UNDERGRADUATE RESEARCH PARTICIPATION (National Science Foundation) Cunningham, James P. Henderson, James V.

CROWN ZELLERBACH FOUNDATION Allexander, Ernest G., Jr. Brewer, Stanley Wayne

CHAMPION PAPER Ammons, Dennis Allen

CONTINENTAL CAN COMPANY

Harper, John D. Henderson, James V. McGill, William D., II Norton, William R., III Nuckols, Andrews S. Shankle, George D.

STATE OF VIRGINIA

GARDEN CLUB OF N. C., INC.

Broughman, William A.

Cunningham, James P.

N. C. STATE MUTUAL HATCHERY ASSN. Rogerson, Jerry Mack PANTEGO RURITAN CLUB

Stoop, Henry, Jr.

AUBREY LEE BROOKS SCHOLARSHIP

Watkins, William Carroll

ATHLETIC AWARDS

Brookshire, Terry H. Combs, Freddie Wilson Ewaskiewiez, Boleslaw Mason, John Leon

CONGER WORK SCHOLARSHIP

BILTMORE WORK SCHOLARSHIP

Hughes, Joseph Henry Johnson, Sydney Russell Sharp, Danny Dale

Cunningham, James P. Houston, Carl Wayne Johnston, Larry R.

HOMELITE AWARD

Cunningham, James P. Johnston, Larry R. Peterson, Kurt J. FRESHMAN AXE AWARD

Wilbourn, James E.



David Arnold Coleman, senior in Pulp & Paper Technology receiving the PIMA scholarship award at the hands of Mr. Wyatt Shorter, Chairman of the Southeast Section of PIMA and Vice President, Union Camp Corp.



Stanley Wayne Brewer and Ernest G. Alexander, Jr. receiving Crown Zellerbach award, from Richard Loyst, Mill Manager of Baltimore, Ohio mill.



James P. Cunningham, Larry R. Johnston, and Kurt J. Peterson receiving the Homelite Senior Award from Mr. Russell Shrum of Homelite.



James E. Wilbourn receiving the Freshman Axe from Ralph Mullis, Forester, Xi Sigma Pi.

E. L. Demmon Award

Dr. Darrell Dean Nicholas and Dr. Roy Wesley Stonecypher were selected this year by the faculty as the sixth and seventh recipients of the E. L. Demmon Award for outstanding achievement in the field of research in forestry. Established by friends of Dr. E. L. Demmon, retired Director of the Southeastern Forest Experiment Station, this award recognizes and honors graduate students for research of high excellence.

Dr. Nicholas, now Technical Director of the Honolulu Wood Treating Company in Hawaii, received his award for his doctoral dissertation entitled The Chemical Composition of Softwood and Hardwood Pit Membranes in Relation to Permeability.

Dr. Stonecypher now a research geneticist with the International Paper Company at Bainbridge, Georgia, received his award for his doctoral dissertation entitled Variation and Heritability of Some Characters in a Natural Population of Loblolly Pine.

Dean Preston Receives Award

At the Governor's Conference on Forest Utilization held at Raleigh's Memorial Auditorium in October, 1966, and sponsored by the N. C. Forestry Association, Dean R. J. Preston received a special award from Governor Dan K. Moore for "outstanding service to forestry in North Carolina." In his presentation Governor Moore said: "The hard work and dedication of many people, in private industry and in public service, have gone into the building of forestry to its high place in North Carolina. The North Carolina Forestry Association has chosen this occasion to express its appreciation and gratitude to four men who have served the cause of forestry in our State with distinction over a period of many years." Others receiving the award were Fred H. Claridge, Dr. E. S. Harrar, and Don P. Johnston.

Proposed New Forestry Building



Progress Report for 1966-1967

By R. J. PRESTON, Dean

This has been a year of memorable progress for the School of Forestry which has involved new programs, new personnel, a major increase in student body and new facilities.

The forestry program has grown into a large, diverse and complex operation with a total annual institutional budget of well over \$1,000,000, nearly two-thirds of this coming from sources other than state appropriations. Student enrollment exceeds 600, and includes 76 graduate students, more than half of whom are working for the Ph.D. degree. Our teaching and research faculty number 48, with 18 holding joint appointments with other campus departments. Our extension faculty numbers 14, the largest forestry extension faculty in the country. These professional faculty are supported by 27 secretaries and technicians. In addition 13 distinguished scientists and professional workers hold appointments as Adjunct Professors, making a total faculty and staff of 102.

North Carolina needs a large and vigorous forestry program. Only two of the 50 states, Oregon and Washington, have forest based economies as large. Last fall in an impressive conference dealing with forest utilization and sponsored by Governor Moore, the Governor stated: "as forestry goes now and in the future, so in large measure will go the whole economy of the state". It is impressive that about one of every five Tarheel employees works in the forest industries and that these industries produce products valued at nearly \$2,200,000,000.

PROGRAMS

Of major significance was the transfer of the Department of Recreation and Park Administration into the School of Forestry on February 1, 1967, bringing into the School some 200 students and six faculty members, and combining the programs in outdoor recreation under one department.

Double major programs have been developed with the Department of Forest Management and the Departments of Zoology, Entomology, and Soils, under which students can receive Bachelor of Science degrees in Forest Management and in Wildlife Biology, Entomology, or Soils at the same commencement program by carrying approximately ten extra credits.

A third program involving the multiple use concept of renewable natural resource management has been developed in the field of conservation. Jointly administered by the Schools of Forestry and Agriculture and Life Sciences, this program plans to train generalists in the field of resource management. Conservation, in this program, is concerned with wise use in perpetuity not merely preservation.

A fourth program has been implemented this year which is significant development in the field of forestry education. This is a cooperative program in research and graduate training in Forest Biometry undertaken cooperatively by the School of Forestry and the Southeastern Forest Experiment Station. The four man team of biometrists is directly supported by the Research Triangle Computation Center's IBM 360/75 through a remote console unit in the School.

The School has developed real strength and wide recognition in several fields, notably tree improvement, hardwood management, wood-moisture relations and fiber pronerties. Another center of strength not so widely recognized is forest pathology. We believe that N. C. State can boast the largest educational program in existence in this area and the only one emphasizing both disease control and product deterioration. Dr. Ellis Cowling now has working with him Professor Kent Kirk and Visiting Professor John Rishbeth from Cambridge University, England, Visiting Professor, Dr. M. M. Kristi from the Forest Research Institute at Belgrade, Yugoslavia, and Dr. Harry Greaves from Imperial College, London, who is with us as a post dectoral fellow. Presently eight Ph.D. candidates and one Master's candidate are working for graduate degrees in forest pathology.

FACULTY

Professor H. D. (Doc) Cook retires this year after contributing greatly to the progress of our regional pulp and paper program.

Four members of our faculty received promotion in recognition of their contributions and abilities:

 Dr. L. C. Saylor, who holds a joint appointment as Associate Professor of Forest Genetics, was appointed, on a half-time basis, Assistant to the Dean in recognition of the added administrative demands resulting from the growth of the School.

2. Dr. Gene Namkoong, an authority in quantitative genetics assigned to this campus by the Southern Forest Experiment Station, was promoted

to Associate Professor of Forest Genetics.

- 3. Dr. R. J. Thomas completed his Doctor's degree at Duke University and was promoted to Associate Professor of Wood Technology. Dick has been doing significant research in the ultrastructure of wood and you have probably seen his electron micrograph of a pit membrane on the February 1967 cover of the Journal of Forestry.
 - Professor R. C. Gilmore, Superintendent of our Wood Products Laboratory, was promoted to Assistant Professor.

Six new full-time scientists and four Adjunct Professors have been added to our faculty this academic year:

- Dr. Wyn Brown, who received his higher education in England and Sweden, came to us from the West Virginia Pulp and Paper Company with appointment as Associate Professor in the field of Wood Chemistry.
- 2. Thomas P. Fetters has been appointed Extension Instructor in Wood Products.
- Dr. William L. Hafley, formerly with the Mathematical Research Division of Westinghouse Electric Corporation, joined our faculty as Associate Professor of Forest Management and Experimental Statistics.
- Gordon A. Hammon, following a distinguished career with the U. S. Forest Service, was appointed Assistant Professor of Recreation effective April 1, 1967, and will be in charge of the resource oriented curriculum in Outdoor Recreation.
- 5. Samuel Mercer was appointed Teaching Technician and Computer Programmer.

6. Dr. Hans T. Schreuder completed his Ph.D. at lowa State University and joined our staff as instructor in Forestry and Experimental Statistics. Four distinguished scientists were appointed as Adjunct Professor; this year, bringing to 13 the number thus serving the School through advice, instruction in seminars or short courses, working on graduate student courses;

 Dr. George H. Hepting, Principal Research Scientist with the U. S. Forest Service, was appointed Adjunct Professor of Plant Pathology and

Forest Management.

 Dr. B. A. Jayne, Professor of Forestry at the University of Washington and formerly of our staff, was appointed Adjunct Professor of Wood Technology.

 Dr. Thomas Ripley, Assistant Director of the Southeastern Forest Experiment Station, was appointed Adjuct Professor in Recreation.

 Walton R. Smith, Associate Director of the Southeastern Forest Experiment Station, was appointed Adjunct Professor in Recreation.

Two valued faculty members resigned from the faculty this year:

1. Dr. B. A. Jayne accepted a faculty position at the University of

Washington.

2. Ronald E. Thompson of our Wood Products Extension faculty accounted a position with industry.

cepted a position with industry.

On March 2, 1967, with the death of Mr. Goodwin, the James L. Goodwin

Forest of 1,122 acres in Moore County came to the School. One of the oldest managed forests in the State, this will be used as a field laboratory with income providing scholarships for forestry students.

It is hoped that construction on the new forestry building will get underway this summer. The architects' plans are exciting and the additional space is most essential. This building is pictured elsewhere in this publication.

The new student cabins and other improvements at the George Slocum camp on the Hill Forest have improved this facility.

Space does not permit a description of the large and impressive program in forest research. Last year this totaled \$865,000, of which \$145,000, or 22%, came from state funds, with federal appropriations also totaling 22%, and grants, contracts, and foundations providing about 56%. We are particularly proud of our cooperative regional programs in tree improvement, hardwood management, and fiber morphology.

The demand for graduates in all of our programs has reached an all time high, with many fine jobs going unfilled. Starting salaries continue to go up, and are at a level that is indeed impressive to those who gradu-

ated only a few years ago.

This has been a productive and progressive year. I hope you share with us the conviction that the School is moving toward high excellence and that it will continue to play an increasingly important role in the development of our profession in the state, region and nation.



Fred H. Claridge

About the Author

Fred H. Claridge was born on April 7, 1899, in New Haven, Connecticut. He graduated from Yale University with a B.S. in 1923, and the next year received his M.F. from the Yale School of Forestry. After a year of work in Nova Scotia, Canada, he accepted in 1925 a job with the N. C. Department of Conservation and Development as an Assistant Forester. From 1933-37, Mr. Claridge served as Director of the N. C. Civilian Conservation Corps. Upon his release from the U.S. Army in 1946, as a Lt. Colonel, Mr. Claridge was appointed Assistant State Forester, In December of 1951 he became State Forester and held that position until his retirement in July, 1966.

Forestry Observations in North Carolina

There is nothing more boring to the young forester than to hear an old timer tell of the old days, the fires he has fought, trees he has planted, the timber he has marked and comment on the inferior caliber of the present day recent graduate. This sur on the quality of the recent crops of graduates is unwarranted. He is not only better prepared, but in most cases, will withstand the test as well or better than those of the old days.

The temptation is too great, however, not to make observations gleaned from a number of years in public service in North Carolina. The young forester, be he in public or private employ, must first accept the criteria that he may never see the harvest of many of his efforts due to the time

element necessary to product a timber crop. This takes faith.

Undoubtedly, he will be at an advantage in locating the best fishing waters and the best hunting areas, but he will be pressed to find time to indulge. He will have to have what the politicians use in recommending a man—the love of the great outdoors. This love may diminish to almost the vanishing point after hours on the fire line or beating the brush to finish

a cruise or marking job; however, it must be there.

To illustrate, a few years ago the N. C. Forest Service employed a forestry graduate (not from N. C. State) who was well recommended. After about two weeks in eastern North Carolina, he wrote a lietter evidently wanting a transfer to some other location with the explanation he couldn't work in the woods alone; was afraid of snakes, and the country depressed him. He was asked to quit the next day. Somewhere along the line, he wasn't oriented. He didn't have, for want of a better term, the indefinable "love of the outdoors."

What are some of the highlights I see in the development of the North Carolina Division of Forestry, or more commonly known as the N. C.

Forest Service?

It must be kept in mind this progress is so interlocked with the schools, industry and private landowners, it cannot be successfully separated. The necessity of conserving space may justify the criticism of being too sketchy. It should be repeated, forestry efforts in North Carolina have involved many.

Wildfire occupied the stage for 20 to 30 years almost to the exclusion of all other forestry activities. Its control is a must for any timberland manager and indeed even for the research forces who may see efforts of years wiped out in less than an hour.

The control of forest fires has, from its primitive methods, evolved into a highly scientific program. This was not easily accomplished. The early years of the 1950's were critical. Efforts were un-coordinated. Friction between the public agencies, industry and the landowners mullified many attacks on the problem. The loss of upward to three percent of the area protected in one year precipitated a crists. Delegations waited on the Governor and there was considerable bitterness.

Fortunately, same counsel prevailed and from it came the statewide forest fire plan, probably the most progressive policy step in forty years. In this plan Federal, state, industry and landowners are committed to cooperation under the leadership of the N. C. Forest Service as the law requires. The plan is amended periodically

As part of the plan it was necessary to inaugurate the concept of the fire boss who has the responsibility of making decisions on a fire regardless of his administrative work. Thus all personnel are assigned jobs on a fire which range from cook to airplane pilot under one decision maker. They become part of a fire fighting team. There are three teams for relief on big fires. If you are a good cook, although a highly competent management forester, you may fing yourself in the rolling kitchen in North Carolina.

State Forest Tree Nursery, Morganton, North Carolina





N. C. Forest Service Tanker Planes Capacity 250-300 gals, each of Retardant mixture



No plan on paper becomes fully operative without training. This became almost an obsession in North Carolina, as well as in the other southeastern states who are bound together for mutual help under a compact authorized by federal and state law. Observers attending the training sessions are amazed at the cooperative spirit between the trainess attending from federal, state, private industry and landowners. It is imperative that the complicated coordinated use of sout and tanker planes, radio, ground forces, meterologists and other special skills, be practiced over and over again.

Brief mention must be made of the special effort to introduce modern fire fighting methods to forestry students. Although a number of people helped accomplish this project, mention should be made of two individuals; Dr. Ralph Bryant of N. C. State and the present State Forester Ralph Winkworth. These two conceived the idea to fill a serious gap in the forestry school's curricula relating to fire. Annually, some 120 forestry students from N. C. State, Duke, V-F.I. and Clemson are housed and fed at the Kinston Facility of the N. C. Forest Service. A field problem is conducted with students filling the fire organization positions, experiencing the strain of decision making, with the only thing lacking—the smell of smoke.

Space does not permit, except for brief mention, of significant developments over the years in forest fire control. The fire plow for eastern North Carolina, accepted reluctantly by old fire fighters; prescribed burning, accepted by most for pine lands, but hampered operationally by lack of experienced personnel; the two-way radio net with some 700 units linking towers, ground forces, airplanes and supervisory personnel into a unit; the fire plan mentioned previously; the airplane, both scout and tanker; the fire simulator for training; the forest fire weather predictions from the U. S. Weather Bureau; forest fire research, and above all, the determination that fire losses can be reduced.

What must be done to reduce the damage? A solution must be found to to control or reduce the number of fires occurring on the so-called blow-upon day; usually less than 10 days during the fire season. Of some 3,000 fires in North Carolina in a year, over 90% of the acreage lost and damaged done results from about 2 to 3 percent of the fires, occurring on blow-up days. This is a challenging problem.

There will probably be some justifiable complaint that too much emphasis has been given forest fire control; but before the finers arts of forestry can be practiced, it is a must.

After the protection from fire, insects and disease, what about the growing of timber crops? Here, foresters in North Carolina are faced with the seemingly impossible job of convincing some 200,000 owners of small woodland tracts to practice at least minimum acceptable practices. The management forester, either public, consultant or industry, must be versatile to solve the varied problems of the individual owner. The progress is slow and frustrating as there is no apparent panacea. This imposes on the forester the necessity of meeting people at their own level, talking convincingly and writing intelligently. If foresters in general are weak, it is in these attributes. The stimulating feature of this is the demands on technical skills and common sense as no two tracts of timber are allke in composition or owners desires.



Forest Fire, Wenona, North Carolina

Not as spectacular as forest fires, but equally as important, is the fight against insects and disease. For fifty years or more, the periodic severe damages for example of the southern pine beetle, have been recognized but only recently has any significant progress been made in its control. North Carolina, fortunately, set up the legal machinery for control efforts of forest insects and disease in 1953. This law provides certain action authority for the N. C. Forest Service. The remarkable part of the several control attacks on this beetle, mostly in piedmont North Carolina, has been the lack of the necessity for requiring legal action although several thousand landowners have had salvage and control measures undertaken on their properties.

One of the most intriguing and surely the most popular phase of forestry, from the public viewpoint, is the raising, distribution and planting of forest tree seedlings. There is no way to estimate the number of landowners who have become fire conscious and forestry oriented by the planting of a few acres in trees. Since the inception of the program in 1926 in North Carolina, seedlings have been produced for planting on 750,000 acres. The state now has four nurseries and an annual production of 40-50 million seedlings.

Under the outstanding leadership of Dr. Zobel of N. C. State, industry took the lead and the state followed in the tree improvement program. In this endeavor scientific know-how must be at a high level and the solving of problems of superior tree selection, grafting, seed orchard establishment and superior seed production is exacting, but highly rewarding.

Now, after an acknowledged inadequate summary of the activities of the N. C. Forest Service, some personal observations. For years foresters and the forestry profession have bathed in the light of public approval as crusaders against despoliation of our timber resource. Now much is being said and written about the loss of our so-called public image. This has come about through the critical voices of the preservationists, recreationalists, hunters and fishermen. Undoubtedly, there has been some dragging of feet in recognizing the importance of these groups and their claims on the use of forested areas. In the foresters endeavor to maintain an adequate supply of a basic raw material, he has to some extent overlooked the other uses; however, he still must not abandon the principle that we need an abundant supply of wood and should defend this principle even though it may be irksome to pressure groups when some ill-advised programs are questioned. There are opportunities for compromise which should overcome the accusation of being savdog or pulpwood foresters.

Forestry research has finally made significant strides after years of under-nourishment. The demand for trained research personnel is acute. The aphtitude for research is not a common trait. If this trait is not present, it is a mistake for the forester to accept the challenge even though the opportunities are most attractive. Remember, there will always be a pressing need for foresters of administrative and technical skills to put research results to work. This also requires considerable ability. Equally as important as a sound technical background is the ability to get along with people, and be able to talk convincingly and write intelligently. Much of this, by necessity, requires experience, but the opportunities for this experience are virtually unlimited.

Lastly, even in these days of protest and ferment, honesty, integrity and levalty are highly prized in an individual.



Odyssey in Finland

By T. E. MAKI, Schenck Professor of Forestry

The title of this essay perhaps suggests an exposition more homeric in scope than is intended or possible to develop here. I dimly recall that Homer's "Odysseys" chronicled the tortuous wanderings of Odysseus at the conclusion of the 10-year Trojan War. Odysseus (or Ulysses, if you prefer the Latin version) roamed 10 years after the War in his attempt to return to Ithaca (he was a Cornell man, no doubt), and during the entire time he encountered many adventurous situations and had numerous notable experiences.

My odyssey lasted less than a year. It was devoid of adventure, at least of the blood-chilling variety, and my experiences, though very stimulating and rewarding to me personally, could scarcely qualify as notable ones even if embellished by rhetoric to accentuate suspense and soften the truth. Moreover, unlike Ulysses', my odyssey was not preceded by the tempering influence and rigors of anything commensurate with the Trojan conflict; I was simply a fugitive from the paper wars of the Raleigh Campus. The editors of the PINETUM, however, apparently feel that posterity should not be cheated out of a report of my wanderings in the Finnish fen lands, so here follows my account of it in stark Grecian simplicity.

Why did I choose to go to Finland? Partly my decision was based on long-standing interest in developing acceptable forest production on organic soils with which I had made initial contact in my youthful days in the Lake States. It is an interest founded in the faith that peat and muck soils, despite serious trafficability problems at low latitudes, have abundant moisture (frequently excessive) and ample reserves of nitrogen (usually in immobile forms); when these are deficient in situ, they are the costliest to supply from external sources. It is still my belief that we stand a better chance of optimizing these essential factors of tree growth on peat and muck sites than on any other category of forest sites. In Finland 32 per cent of the surface is in peaty swamps, bogs, and surrounding heaths of predominantly paludal character. The Finns have at least sixty years of intensive study of forest production on such sites as is attested by the publication, since 1900, of more than five hundred research papers dealing with various aspects of peatland forestry. Thus, it seemed to me, Finland was one place where a forester might already find a backlog of know-how, experience, and a fount of wisdom concerning the potentialities for production of wood on peat.

Partly my decision to go to Finland was based on the fact that I possessed knowledge of the Finnish language, largely acquired through accident of birth. My father, in his teens, had left the Bothnian region of Finland in 1880, and my grandfather (from my mother's side) some ten years earlier. As a consequence, I was bilingual, though not necessarily in exact proportions, when I entered the first grade, and as you doubtless have heard, I am still trying to learn English. With this interest and background, in the summer of 1964 I applied to the Conference Board of Associated Research Councils for a grant to undertake study of peatland forestry in Finland. In March 1965 I was notified that I had been awarded a Fulbright Research Fellowship, Category A, to undertake research in the designated area with the University of Helsinki serving as my host institution. After brief stops in Copenhagen, Götbork, and Stockholm, I arrived in Helsinki on August 20, 1965, to begin a very fascinating period of study and travel that lasted till early June of '96.

My project concerned evaluation of water control and fertilization practices for forestation and tree growth improvement on peat lands, including such aspects as methods of classifying peatlands for forest production, the development of water control plans for such lands, the depth and espacement of ditches for securing proper water control or degree of drainage, the effect of water level manipulation on root development and stem growth of trees, the nutrient levels of different peat formations, the need for fertilizing in different peat types to trigger acceptable tree growth, and general facets of water economy and forest hydrology. In addition to observation and study, I conducted several small-scale studies, with generous assistance from the Forest Research Institute staff members and members of the Faculty of Forestry of the University of Heisinki. In due time some of the results of my studies and observations will hopefully ampear in our American scientific and professional journals.

I had the opportunity to learn much about the land and life in Finland while I traversed the fens from the Gulf of Bothnia to the Russian border and from near the Arctic Circle to the Gulf of Finland. As I had suspected, I found Finland to be a land of lakes, rivers, swamps and forests, with a surface totaling 130 thousand square miles, or roughly 2½ times the size of North Carolina. Sixty thousand lakes dot the countryside, and in some interior provinces 20 to 50 per cent of the surface is covered by lakes. Still there are some 75 million acres of land of which 65 million acres are available for forest growth, though only 50 million acres are currently classes as productive forset. The remarkable thing is that there is any productive forest, for a third of the country lies above the Arctic Circle.

Forest production is made possible in part by the ameliorating effects of the Gulf Stream which softens the harb, continental climate that "blows in" from the east. Conditions in this transitional zone are very favorable to both plant and animal life when compared with similar latitudes in Greenland, the Northwest Territories of Canada, Siberia, and elsewhere around the globe. Even beyond the Arctic Circle in Finland, the July temperatures average 60 degrees F, and the exceedingly long summer days (73 consecutive days of constant daylight at the 70th parallel) make possible the acceptable rates of tree growth, except or tundra sites.

Population pressures are still relatively light, with \$5 per square mile, or sees than have the present density of population in North Carolina. There are still large stretches of unspoiled countryside, and the delightfully long, bright days in summer, plus the excellent conditions for winter sports during 5 to 7 months of the year, depending on latitude, are making Finland widely recognized as wonderful for vacationing and tourism. Above the Artic Circle it is possible to acquire an early sun-tan by doing topless

skiing in April or early May in the long, warm, intense sunlight, and the hard-crusted drifts, and many (men) do go topless for this purpose.

Even a casual observer can scarcely escape noticing the importance of forests and the wood-using industry in the economy of Finland. Wood products still account for over 70 per cent of the total value of all exports. By any criterion, the Finnish forest products industry is large. The pulp and paper mill at Kaukopää is the largest in Europe, and until recently, the second largest in the world. In the production of mechanical pulp, Finland ranks fourth in the world, and in the production of paper, she ranks eighth.

Finland's projected allowable annual cut slightly exceeds 1½ billion cubic feet, about 41 per cent of this going into industrial cordwood, but 26 per cent still being used for fuel. In recent years, the annual production of industrial cordwood has been in the neighborhood of 8½ million cords, representing less than half the cut from a growing stock of almost 50 billion cubic feet occupying about 54 million acres. In contrast, round pulp-wood production in 1965 in North Carolina amounted to slightly more than 2½ million acres of commercial forest land, thus at a rate considerably below that of Finland. However, in Finland, since 1960 the total drain represented by all harvested wood has exceeded growth by about 14 per cent.

The growth-drain inbalance has stirred both government and industry into vigorous action to stave off a disastrous shortage of wood in the future. The present imbalance is considered to be not so serious as appears on the surface, because it involves large regeneration cuttings of slow growth species on off-sites, that are being replaced by more suitable species and more rapidly growing strains. The most comprehensive action taken to increase forest production is embodied in the MERA-Program which got underway in 1965 and mainly concerns measures to finance forest improvement work on many fronts. The details are too extensive to describe here, but vigorous action has been started, and goals are being attained, so the program appears eminently successful. Some of the achievements are already impressive. In 1965 the artificially regenerated area increased to nearly 300,000 acres; the target for ultimate seed orchard area is 9,000 acres; by 1970 the area of forest to be fertilized is expected to exceed a million acres annually; and forest road building is expected to increase from 860 miles in 1965 to over 1400 miles by 1970. No area of forest improvement is receiving more attention and effort than drainage and water control on peat soils. In 1965 the annual drained area exceeded 600,000 acres, but the goal set is an annual drained-area increase of 800,000 acres. By 1985, it is estimated that all economically drainable swamp land will be brought under some measure of water control. All these measures, and others, are expected to bring growth into balance with the continually growing drain in about thirty years. My own guess is that they will succeed in this effort. To witness how good and how much wood Finnish foresters have succeeded in growing on the rock, gravel, and peat of the Finnish countryside makes a forester from the sun-drenched, rain-soaked, boulderfree Southeastern United States feel very humble.

In my wanderings, there were many more observations that I made, and lessons that I learned, but I find it too difficult to say everything at once. However, I want to mention one more item which appears to loom large on the forest land management horizon, namely, MULTIPLE USE not only of forest land but water too. The impact of recreation and tourism is being felt along the length and breadth of the land. Advance planning for this impact has not been adequate, and foresters will face many knotty problems in the future. Nature conservancy devotees are raising their voices against wholesale drainage of swamps, pointing to probable destruction of favorable wildlife habitats and ultimate destruction of the species too. The nation as a whole understands quite well its stake in productive forest, with the primary objective of a sustained supply of raw material. Thus, it is possible to see commercial harvesting or thinning operations going on in church woodlots and on lake fronts used for recreation, without hearing shrill public outcries. These instances led me to believe that people have the capacity to develop a mature view about silviculture, at least in lands that have not been subjected to enlightenment by Sierra Clubs and like organizations. The lesson that silviculture need not be ugly, at least not ugly for long, is learned perhaps sooner in a nation such as Finland whose survival is so closely linked to continued maintenance of a productive forest, not just for the sake of an attractive environment, laudable as that objective, alone, can be, but for the potentiality of perpetual havesting of wood as long as the earth turns, the sun shines, and the rains come.





Testing of Wood-Plastic Combinations at N. C. State

ED AYRES and ROBERT C. GILMORE

The Department of Wood Science and Technology is currently involved in testing a series of wood-pastic combinations. Wood-plastic combinations, referred to as WPC in the industry, is a relatively new type of wood product. The current project is a co-operative one between North Carolina State University, and is supported by the Atomic Energy Commission, Much of the early work in wood-plastics was undertaken at West Virginia University, and is supported by the Atomic Energy Commission, Much of the early work in wood-plastics was undertaken at West Virginia University and because of their experience in this area, WVU was brought into the project to produce the wood-plastic combinations. North Carolina State's function in the project is to provide the wood specimens in closely matched sets of samples for conversion into wood-plastic, and then evaluate the WPC for resultant changes in a number of mechanical and physical properties. The Research Triangle Institute is to perform the statistical analysis of the data.

A wood-plastic combination refers to wood which has a plastic material formed within its structure. The first step in producing WPC is somewhat akin to a preservative treatment to poles and lumber. A vacuum is first drawn in a chamber containing the wood. Then a monomer (a liquid-like chemical compound) is flooded over the specimen. After the wood has been impregnated with the monomer, the samples are placed in another container and exposed to gamma radiation from a Cobalt-60 source in order to polymerize or solidify the liquid monomer into a plastic within the wood structure. Because of the use of gamma radiation in the polymerization process, wood-plastic combinations are sometimes nicknamed Atomic Wood.

Four species of wood were selected for this study on the basis of their commercial importance. The two hardwoods selected were northern red oak and yellow-poplar. Two softwoods, loblolly pine and eastern white pine, were included. All of the tests specimens were taken from the heartwood, except for loblolly pine. Since the heartwood and sapwood of almost all species react quite differently to the penetrability of liquids, special effort was made to restrict specimens to the heartwood or sapwood zones mentioned above.

Four monomer systems are included in the project in order to evaluate the effects of these monomers (each of which has different physical properties) on the wood-plasties combinations.

Extreme care was taken in selecting near perfect trees from which the test specimens were cut.



On a weight basis the monomer combinations are as follows:

(1) 100% methylmethacrylate

(2) 60% styrene and 40% acrylonitrile

(3) 88% methylmethacrylate and 12% phosgard(4) 80% ethyl acrylate and 20% acrylonitrile

The following tests are being conducted in the Wood Products Laboratory and associated testing areas:

(1) toughness

(2) static bending

(3) compression perpendicular to the grain

(4) tension perpendicular to the grain

(5) abrasion resistance

(6) transverse vibration (a form of non-destructive testing)

(7) hardness

(8) rate of dimensional change due to exposure to different humidity conditions

The ultimate aim of the testing is to determine if the wood-plastic combinations have better properties than wood alone, and if so, to what degree. With the knowledge developed from these various tests one will be able to more accurately determine the end uses or applications for which WPC is best suite.

Dr. Eric Ellwood is in charge of the work being done here at N. C. State. Mr. Robert Gilmore is responsible for supervising the preparation and testing of the specimens. Everett Morgan, machinist and maintenance superintendent, has fabricated a number of machining jigs and measuring devices needed in the testing work. Winborne McLaurin, laboratory assistant, has been involved from the very beginning of the project, assisting in the logging of the trees, sawing the logs, drying, machining of the specimens, and testing. Joe Fanney, electronics technician for the school, helped develop and assemble the equipment required for the vibrational tests. Ed Ayers, a graduate student, is working on sample preparation and is involved in many of the tests being conducted. Jim Hedgecock, another graduate student, has teamed up with Ed Ayers on some of the two-man tests such as static bending and compression perpendicular-tothe- grain tests. Larry Jones and Ron McMillan, seniors, worked also as a team on the compression testing until Ron graduated in January. Larry is continuing with hardness and tension tests.

This is just one of the many projects being conducted by the School of Forestry at N. C. State in an attempt to develop and evaluate new products for the wood-using industries.

Ron McMillan prepares a specimen for the abrasion test. Weight and dimension measurements were made on all specimens before being tested.





"We Papermakers Are A Cliquish Lot"

By H. D. COOK

And so we must seem to nonpapermakers. This is not because of any snobbish feeling on our part but, I believe, does come from a fraternal feeling among ourselves. We may even call ourselves "Papermakers" with defiant modesty which confuses the uninitiated who expect something glamorous like, possibly, "Paper Scientist," "Chemist in Paper Research" or "Chemical Engineer in Paper Production." "Papermakers" does seem to put us on the level with carpenters and mechanics and maybe we are foolishly introverted in that we are not disturbed by this conception.

The art or trade of papermaking started in the year 101 in China and slowly spread across the continents of Asia and Europe. Until only 150 years ago, it existed as a manual art, a skilled trade with it's secrets protected by Guilds, families, owners and Princes. The business was learned by apprenticeship, operated by journeymen and managed by masterpapermakers. Guilds were, in a measure, comparable to our modern unions. They were powerful socially and politically as are unions, but the membership was much more closely knit, more interdependent, more dependent on each other. They lived together, ate together, yes, and fought together when occasion required. Mechanization and the resulting growth of individual paper producers to their present overwhelming magnitude have destroyed the trade and guild organization but something of the fraternal feeling still exists. This is more truly so in the United States than in any other country in the world. Here, we meet together at our association conventions and become personal friends. We exchange technical information freely. We help each other. We visit other mills and welcome visitors to our mill.

Maybe this goes far enough in explaining our clannishness but it also may help us to keep our heads when all about us are losing theirs. We do not subscribe to jargons. We do have a technical vocabulary most of which has existed since hand made paper days but we do not, as a rule, use it to impress people and we do not manufacture words for the sake of confusing our audience. A Felt, in a paper mill is not a felt. It is the trade name for the fabrics used to carry the paper through presses and dryers. In the days of hand made paper, a Felt was a felt. Now, the only true felt on a papermachine is the paper itself. The use of these traditional terms is not ostentatious. Take "Couching" for instance. This is the operation of lifting the paper from the wire or mold. So it was in the old days and the journeyman who performed the operation was called the coucher. Now "Coucher" is a good French surname derived from a trade the same as Smith, Taylor, Fletcher or cook. There is just as much new in the paper industry as in any other staple industry but we will keep what of the old we find useful.

We suffer as the whipping boy for the social scientists, the self seeking bureaucrats in our national center of enlightenment who are building our Great Society and who present us as an example of Capitalistic Decadence filling the air with poisonous sulphur Oxides and robbing our water supply by withdrawing 50 million gallons per day per mill. This water is all returned to the river and, sometimes, in purer condition than when withdrawn, All of us who have worked in a sulfite pulp mill know that SQ, is not poisonous, irritating, yes, but not poisonous. There is no occupational disease associated with any pulp or paper process. From the very nature of our chemical processes SQ, must exist in smaller amounts from pulp mill stacks than from utility stacks. Our flue gasses are scrubbed by alkaline black liquor in Cande evaporators before release. Both of these gasses are, of course corrosive and they are just as corrosive coming from the stacks of other industries.

Well! This was not intended as a political dissertation.

This curriculum in Pulp & Paper Technology exists in the School of Forestry here as also in The College of Forestry of the State University of New York at Syracuse University and The College Of Forestry at the University of Washington, because we produce a product derived from wood. It also exists at the University of Maine in the Department of Chemical Engineering because Pulp and Papermaking must be classed as a chemical industry.

The principal reason that we are so prominent in Schools of Forestry is because the curriculum established at Syracuse University in the College of Forestry in 1920 by Prof. C. Earl Libby and conducted by him for 32 years was so successful that it's graduates became a strong influence in the industry. It has been, without question, the most successful undergraduate curriculum in this technology over so many years that other Schools of Forestry are inspired to offer their help in supplying graduates in their own areas. The success of the Syracuse school was due not only to the energy, application and inspiration of Professor C. E. Libby but also to the fact that, as a state school, it was tuition free to citizens of N. Y. State. During the depression years this free opportunity for college training in a rigorous curriculum attracted many more applicants than could be accepted. The school could choose its' student body and naturally picked the best candidates for admission. Once admitted, the highest standards of performance could be and were enforced. This sort of opportunity could and did turn out graduates of exceptional ability. It is hard to equal this performance today without the discipline of the economic conditions. We have no fear of privation now. All we have to do is demonstrate against it.

During the last of the thirties and through the forties the paper industry grew mightly in the Southeast. Dean Preston, seeking ways to make his School of Forestry most useful to this area began attempts to organize this curriculum here. Many of the executives of the new mills here were graduates of the Syarcuse school and were enthusiastic about the idea. Even though they were not actual graduates they knew enough graduates or knew enough about the graduates to be convinced that such a curriculum would be a great asset. They, urged by Dean Preston and led by Reuben B. Robertson, Chairman of the Board, Champion Papers, Inc., joined to

gether as The Pulp & Paper Foundation, Inc. with the objective of support to this curriculum. They now budget 880,000 per year for this purpose. Over half of this goes for undergraduate scholarships which attract students of unusual ability. Salary supplements and funds for equipment, supplies and services not furnished by the State of North Carolina are also budgeted.

Another break that we had was the fortuitous circumstance that Professor C. E. Libby became of early retirement age while Dean Preston and the Foundation were looking around for the right man to organize and head up the proposed curriculum. He was, without doubt the right man, a deal was made and he went to work on the problem in 1952. By 1954 had persuaded Robert C. Hitchings, a graduate of this curriculum in Syracuse who, after a few years in industry had joined the faculty in Syracuse, to come down here as the second member of our faculty. He is famous for three hour lectures.

The first real senior class was in prospect in 1956 and at least one more faculty member was necessary. Prof. Libby remembered Doc. Cook, The Sadistic Cynic of Syracuse, had once expressed interest in teaching. He had graduated from MIT in 1921 with a BS in CHE but he never used that fact to frighten anyone. He had spent 7 years in a research laboratory and 25 years in paper production in all capacities topped by three years as an independent consultant in the industry. He had held offices in the technical associations and civic organizations. He had published papers. He was considered academically respectable. Another deal was made. "Doc." is a brevet title carried since 1928 and bestowed on impulse of respect and affection, it is not "Doctor"!

The third member of our faculty, Chester G. Landes who joined us in 1990, was also a longtime friend of Prof. C. E. Libby. He graduated from Ohio State U. in 1996 in CHE and did graduate work at Brooklyn Polytech. After 8 years with the Mead Corp., he spent 3 years as papermaking superintendent for Pitchburg Paper Co., Pitchburg, Mass. twenty-two years before early retirement were spent in research development and technical service for American Cyanamid Co. He was operating as an independent consultant in the field of paper coating and addatives when he came to us and still carries on some of this work. He was chairman of the TAPPI Coating Committee. He has always been a tennis buff and in his younger days was the leader of a popular combo.

Dr. Alfred J. Stamm we have to share with the rest of our department of Wood Science and Technology. He is a truly distinguished scientist in the fields of wood and cellulose and physics and chemistry. He teaches wood chemistry from the point of view of a physical chemistry more result of the work of the physical chemistry interesting. He makes our graduate school respectable. Like begets like! His son, Alfred, is doing graduate work in plasma physics. Al came to us in 1959 from the Forest Products Laboratory, U. S. Forest Service, with distinctions as listed in "American Men Of Science" too long to reproduce here. After another school year he, too, will be lost to mandatory retirement. You will not find another scientist as distinguished, with all the powers of concentration and productivity expected of the profession, who will look up from his work with a friendly smile and answer your questions, be you a colleague or an undergraduate student.

A Forestry Mission to Turkey By J. O. LAMMI

Photos courtesy Col. George Spaur, U. S. Agency for International Development

A visit to Turkey for the ordinary tourist seldom goes beyond Istanbul, which is the largest city, the old Constantionple. To the forester, however, the visit should extend to the coastal mountain areas along the three seas: The Black, the Aegean and the Mediterranean. The magnificent virgin forests have remained undisturbed for centuries because they were inaccessible, thus with no men, no goats and few fires. These forests are now within range of development because new roads have been constructed. It is not likely that this development will end in destruction, however, because the Turkish Forest Service is well equipped by manpower and skill to practice good forestry, and the timber stands remain unattractive to goats and too far away for the villagers.

During the period July through December, 1966, I had the privilege of visiting some of the Turkish forests and talking to Turkish foresters as part of my duties as wood products marketing consultant under the auspices of the U. S. Agency for International Development (AID).

Turkey is destined to be the main local source of wood products in the Middle East. The forests are among the largest in this Region, nearly 27 million acres and contain at least 26.5 thousand million cubic feet of wood. The present fellings are way below the potential. As slow-growing old timber is felled and replaced by vigorous young growing stock it is estimated that the present (1965) industrial wood cut of nearly 86 million cubic feet and he increased to about 780 million cubic feet. Puelwood removals are now about 310 million cubic feet annually which will be replaced to some extent in the future by electric power and mineral fuels. Fuelwood cuts are largely from coppice and forest residues, therefore not destructive to growing stock.

Turkey's estimated future output of wood is greater than that of such well-known timber producing countries as Norway, Poland and Romania. The wood industries of Turkey are presently of very little importance in foreign trade despite the fact that the country urgently needs to expand it exports in order to make possible increased imports of foreign machinery as well as consumer goods. With only moderate increases in forest industry development, well within economic and technological possibilities, the foreign exchange earnings of the country can be increased by tens of millions of dollars. These earnings will be important for economic growth,

Turkish forester with typical beech logs.





Forest Service road construction.

for improving levels of living and, most of all, for expanding educational facilities in the country. The human resource is the most important resource of any country, to neglect it is to hold back scientific, cultural and economic progress. The human resource in Turkey needs the earnings which are possible from forestry; schools must be built to service thousands of villages where children are now growing up completely illiterate, school buses must be provided for countless other communities where children now are limited to only a few years of education, and elementary and higher education as well as technical training desperately need help.

Domestic use of wood has been very low, about half that of neighboring Greece, on a per person basis. Turkey uses less industrial wood than any European country in spite of its good supplies of high quality timber. The forests can be compared in appearance of trees and rugged terrain to the

U. S. Pacific Northwest.

The forests of Turkey can be the main sources of a new life in the entire Nation.

The visiting forester in Turkey will be impressed by the numerous interesting and unique tourist attractions, although travel will involve some rugged living far different from the comforts of western Europe and North America.

Istanbul is one of the great cities of Europe, and many will find it more interesting than famous centers such as Rome, Athens, Budapest, Vienna, Paris and London. Istanbul has the unique history and flavor of the Moslem capital of the Sultans. The mosques and harem quarters remain as historic monuments in their magnificent geographical setting overlooking the junction of Asia and Europe. The last of the Sultans, Mohammed VI, left the city in 1922. The city of Istanbul and its predecessor cities and villages on this cite on the Bosphorus have a recorded history back to 658 B. C. and evidence of settlement much earlier.

Istanbul has the only professional forestry school in Turkey. It dates back over 100 years, having been influenced first by French foresters and later by the German. The school now has a strong faculty with modern facilities and progressive ideas, many of these ideas having been developed from contacts with the dynamic forestry of northern Europe and North America. Istanbul has a number of forest industries and is a regional headquarters for the Turkish Forest Service. The capital city, Ankara, is located in the center of the Asiatic part of Turkey. The forestry headquarters and various international forestry activities are centered here. The U. S. Agency for International Development has a small forestry staff in Ankara, as does the United Nations Food and Agriculture Organization. The Forest Service is well-organized and has a professional staff of good foresters, One of its critical weaknesses, however, is the vulnerability of its Chief to the vagaries of political interference. During the past six years the Forest Service has had six chiefs, and, during that time the porition has been vacant for a number of months. The tenure of the chief is therefore less than a year, hardly time to get acquainted with his fellow workers. The policies of the Forest Service watter from the instability of its leadership.

The Forest Service owns and manages all commercial forest lands of Turkey, does all the logging and operates the largest wood processing plants. Indications are, however, that future logging and processing may

involve more privately-financed and directed operations.

The city of Ankara holds few tourist attractions comparable to those of Istanbul. The history of settlements in the Ankara area date back about 3500 years to the Hittites whose artifacts are still found in the vicinity and for which an excellent museum has been built. The Phrygians occupied the Ankara site about 1200 B. C., later it was part of the Lydian Empire. In 550 B. C. the Persians captured it and in the 4th Century B. C. surrendered it to Alexander the Great, Later occupants included the Seleucids, Galatians, Greeks, Romans, (25 B. C.) Persians again (620 A. D.), Arabs (8th and 9th Centuries, A. D.), Byzantines, Paulicians (871 A. D.) and finally the Turks (11th Century, A. D.), These early Turk tribes lost to the Byzantines, then came the Crusaders, more Turke, Mongols (14th Century), Turks, Scythians (1402) and finally the Turks again. This steady stream of conquerors marched across the plains around Ankara but the city developed appreciably only after it was proclaimed the Capital city in 1923 and Ataturk became the first President of the Republic of Turkey.

The city is in a broad, dry plain at an elevation of about 2000 ft. Some forest planting has been attempted in the suburbs but much of it suffers severely from the unsuitable site. After the first cool weather in the fall the city huddles under a dense blanket of sooty smog generated from

lignite, a soft brown coal used for fuel.

Outside the two large Turkish cities, Istanbul and Ankara, are many unusual tourist attractions, most of them related to the unique history of Turkey, the crossroads of Europe and Asia. Special mention can be made of the town, Tarsus, where Anthony and Cleopatra first met in the 2nd Century B. C. This may have possibilities for future development as a honeymoon resort now that Cleopatra's feat has been spectacularly recalled by the cinema.

Mt. Ararat is Turkey's highest mountain (16,900 feet) and a good possibility for development as a national park. We can recall that according to legend Noah failed miserably in initiative and judgment in his Ararat voyage, he could have conveniently eliminated some of our problems here the did not have to take all animals in pairs).

Many travelers will be surprised to learn that Turkey has the birthplace

Coniferous logs at sales depot.



and tomb of Santa Claus, (Antalya), although some doubt is cast on this claim by Italy's contention that the burial took place in the northeastern part of that country. My recent discussions in northern Europe reveal that many people have evidence that Santa Claus is not yet dead but operates a brisk enterprise in the Arctic area.

The Virgin Mary was born and died in Turkey and St. Paul preached his first sermon in what is now a Turkish village. Turkey is indeed a

Christian holyland within a Moslem country,

The need for the tourist to endure rugged living has already been mentioned. This stems from the shortage of tourist facilities and he rather primitive character of those that exist. Disinfectants and insecticides are relatively rare and sanitation is rudimentary. During the summer one has to be active and careful if he is to avoid swallowing specimens of the common housely with his food. Water is seldom pure, and bottled water comes from a nearby faucet and is "bottled" only for transport convenience. Diarrhea is a common disturbance, sanitary papers do not exist. Indoor tollets are usually small holes in the floor with inadequate flushing and a weak water supply in lieu of paper. A useful precaution is to carry a canteen and a generous supply of halazone tablets so that, whenever possible, the drinking and toothbrushing water can be adequately treated.

Travelers in Turkey and nearby countries should have the following inoculations: smallpox, yellow fever, cholera, tetanus, typhoid-paratyphoid, typhus, hepatitis and polio. They should carry a supply of paragoric and aspirin and be prepared for emergencies. The Turkish newspapers often

warn against bandits operating along back-country roads.

The forested areas have ferocious wild boars and wolves; as protection against the latter the sheep dogs wear spiked, broad, iron collars.

Most of the disagreeable aspects of work and travel in Turkey are in the villages and cities. A forester will appreciate and revel in the coolness, cleanliness, freshness and beauty of the forests. The environment, flora and fauna of the forests, will be friendly and familiar. The stately pines, spruces, firs, oaks and beeches, which are the main commercial species, will leave an unforgettable memory which will certainly persuade any forester to want to go back.

The School Forests

RALPH C. BRYANT

The Hill Forest was hard hit by a severe ice storm on February 17th and 18th, 1967. Particularly disturbing was the heavy damage in many of the Lobbolly plantations that have been thinned in the last few years. Salvage operations are now underway, and hopefully these will be completed prior to hot weather. Some six areas of insect attack were treated during the winter, mostly in overmature Virginia pine stands, and the potential for heavy losses from insects next summer is always present.

The six new student cabins at Slocum camp are finished and will be occupied this summer. We are hopeful that their use will create a better educational atmosphere for a strengthened undergraduate program.

The State Prison Department has cut approximately half of Hope Valley which will be flooded, and our seniors are working on a coordinating land use program for the area we will have left. Preliminary meetings with the Rural Rehabilitation Corporation are encouraging for our objective of enlarging the Hill Forest with funds from the Corps of Engineers for lands taken for the New Hope Reservoir.

There was no ice damage on the Schenck Forest. The Forestry Club continues their thinning project to finance the trip to the Conclave, which will be held in Georgia this year.

As you may gather, the work of the School forests takes considerable time and effort, and the work scholarship students have done yeoman service in timber marking, salvage operations, and surveying. Without them the job would have been almost impossible.





Ice damage on the Hill Forest.



Goodwin Forest Bequeathed to School of Forestry

Under a 1950 provision in the will of Mr. James L. Goodwin of Hartford, Connecticut, be bequeathed to the North Carolina State University Foundation a 1,122-acre forest tract in Moore County with the stipulation that income from this tract shall be used for scholarships for worthy students in the School of Forestry.

As early as December 31, 1949, in a letter to Dean Preston, Mr. Goodwin made known his intent to will this tract to the School. He stated then, in part, that he desired the property to be managed "for use of the forestry students . . . as an example of the forest conditions in the Southern Piedmont region and also as a forest where the most up-to-date conservative management methods can be used in eatthm and marketing the timber."

"I believe," he continued, "that forest can be used for recreational purposes as well as providing timber, and so I hope that trails and wood roads can be maintained for the use of the public as far as can be done without endangering the woods. . . . These are my wishes in regard to the property."

Today this property, named the James L. Goodwin Forest, stands as a living and growing monument to the memory of the man who was one of the pioneers in forest conservation in North Carolina. Mr. Goodwin, a forestry graduate of Yale University, acquired the property about nineteen thirty when the tract consisted mainly of wornout abandoned fields, patches of brush, and over-cut, neglected woodlots. In 1931 he entered into an arrangement with Mr. Colin Spencer of Carthage to develop the property so that it might serve as an example of what could be achieved through practicing forest management. This arrangement continued for 36 years, with Messrs. Colin Spencer Senior and Junior carrying out the needed operations, such as planting the open fields to pine, doing site preparation where needed for either natural or artificial forest renewal, making improvement cuttings, pruning the more choice crop trees to increase the amount of clear bole wood, providing necessary fire protection, and constructing utilization roads and nature trails, from income produced by the forest. The effectiveness of these silvicultural and management practices is attested by the data from successive forest inventories. A timber cruise in 1952 showed pine growing stock to have a standing volume of 1,713,000 board feet and hardwoods to equal 431,000 board feet. In addition some one and a half million board feet of timber had been harvested while the residual growing stock was being built up. The most recent inventory, made in 1962 by J. Atwood Whitman, indicates a standing volume of 4,493,000 board feet of pine, and 240,000 board feet of hardwoods, in addition to a harvested volume of 2,850,000 board feet during the ten year interval. These data indicate an annual rate of net growth and cut of sawtimber more than twice the rate currently achieved for all commercial forest land in North Carolina. Thus, Mr. Goodwin's faith in the productive capacity of the land and the forest has been clearly vindicated.

Mr. Goodwin died on March 2, 1967. Memory of his generosity to the School of Forestry will stay alive in the minds of students who will use the forest in field laboratory exercises in years to come, as classes of students in forest management have done since 1980. It will also be perpetuated through the efforts of the School to continue developing the property, already one of the oldest managed forests in the South, into a model of productivity and beauty. In so doing it will be fulfilling the wish and the vision of the man for whom the forest is named.



Progress Report on the Hofmann Forest for 1966

By: G. E. JACKSON, Manager North Carolina Forestry Foundation, Inc.

Forest fires and too much water were two of the main problems on the Hofmann Forest in 1935. The problems were the same in 1966.

A forest fire started at noon on March 30, 1966, and in five hours had burned 1,360 acres of Block 10. It ran a distance of three miles through the forest, jumping five roads, including the highway near the plantations. This fire was held to the initial run through the combined efforts of all the fredghting units in that locality.

The Weather Station at Deppe reported a total of 67.85 inches of rain for the year. More than 10 inches fell in each of the months of July and August. This compares with a total of 46.42 inches reported in 1965.

A new brick field office for the North Carolina Forestry Foundation, Inc., is now at the headquarters at Deppe. It has a fireproof vault and the managers records are now located on the forest.

Site preparation for planting was carried out on an additional 1,600 acres. Future plans are to increase this acreage each year until the forest is in a satisfactory productive condition. Forty miles of new ditches and 10 miles of new roads were constructed. Road and canal maintenance has become a major problem.

The cutting program continues at a favorable rate. Some hardwood was cut and the clean-up operation was carried out on the areas to be planted. A salvage cut was made in the burned area.

Other improvements were the salvage sale of the old green harn at Cypress Creek; the student camp on Cawhon Creek and the two old barracks on Highway 17. Fill-dirt was hauled in to the Deppe Ranger Station; the air strip was lengthened 1,000 feet giving a total of 3,800 feet of runway. The North Carolina Forest Service Region 1 Fire Training School was held on the forest in October. The boundary survey work was started, and about eight miles of lines were re-established and marked. The soil and stand mapping work continued and now covers about 50,000 acres.

The Hofmann Forest is the world's largest educational and experimental tract. Each year a number of distinguished guests visit the forest. The Board of Directors of the North Carolina Forestry Foundation, Inc., toured the forest operations when their meeting was held at Deppe in October, and the executive group of the Albemarle Paper Manufacturing Company visited the forest in May, Foresters from the Southeastern and Northeastern Forest Experimental Stations visited the forest during the year and the International Paper Company sent 56 foresters to view the forest. Foresters from Nicaragua and Pakistan were guests. Professional people from other paper companies and equipment companies made trips to the operations, Classes from the local schools came to the forest for observations and class work. These visitors were interested in all forest management activities, but primarily their interest was in drainage, logging, organic soils, and the weather station.

New office building at Deppe





The Forestry Club, '66-'67

By BILL WADE

The Forestry Club felled its way to new heights this year—with its pulpwood operation that is. Back in 1962 the Club started the show, and since that time we've been maintaining the Club treasury by selling pulpwood thinnings from the Schenck Forest. Kurt Peterson has really had his hands full as manager of the operation, but he's handled it all with the skill of a professional.

We displayed our ideas of how the State-Virginia football game should be won by entering a float entitled "Fell Virginia Timber" in the Homecoming Parade. Apparently, the judges were not familiar with forestry operations, but if a prize had been given for the most elaborate float costing the least amount of money I'm sure we'd have won it.

The annual Rolleo was as good as ever, although it could have easily been turned into a mud-slinging contest. Despite the mud, however, the Juniors emerged victorious, followed by the Sophomores, Seniors, and Freshmen.

The Club's programs were splendidly coordinated by Marc Staff and Kimball Russell. Dr. Maki, Keith Argow, and other professionals presented programs that were both informative and challenging.

Major constitution revisions played a large part in the business transactions of the fall semester. The constitution was last revised in 1956, consequently, many of the parts needed revision.





Loading pulpwood from the Schenck Forest





School of Forestry Open House



Bill Wade accepting chain saw from McCulloch Representative.





Forest Products Research Society

By RANDALL DAVIS

The Forest Products Research Society is a student organization of the Wood Technology and Furniture Manufacturing Curriculums. It is designed to help the students correlate their studies with the reality of industry.

FPRS invites speakers from different companies in the lumber industry to present programs. These speakers either relate and demonstrate how techniques explained in class are actually applied in practice, or they may introduce to the students new experimental ideas, products, and machines that are being introduced in the industry. For example, Loyd Cramer of Cramer Veneer Company spoke to the society recently on some completely new forms of veneer that were being worked on in England.

Each year the office of president is alternated between the Forestry and the Furniture students. A society such as this could not operate without an able advisor, and the faculty advisor for the FPRS is Professor Roy Carter.

We welcome visitors and are interested in enlarging our membership. Prospective members should contact Professor Carter as to time and place of the meetings.



Fourdrinier Society

By STANLEY W. BREWER

President—David Coleman
Vice-President—Charles McLemore
Program Chairman—Howard Harely
Treasurer—Ralph Mullis

The Fourdrinier Society, founded in 1957, is the official club of the Pulp and Paper curriculum. The society is named after one of the basic pieces of paper-making equipment, the Fourdrinier, a machine that is actually used to form the paper sheet.

The purpose of the Fourdrinier Society is to promote interest in the paper industry and to broaden the general knowledge of the students about this field. The society also promotes educational and social activities within the curriculum, and works toward improving and helping North Carolina State University. A curriculum club such as this can serve to let the students become better acquainted and also allow them to get to know their future instructors.

Interesting and educational programs are planned each year by inviting specialists from the pulp and paper field and related fields, such as chemical and machinery suppliers, to speak to the society. These programs introduce the students to the professional community they are preparing to enter.

There is also the annual spring picnic, complete with hamburgers, "drinks", and "unusual" entertainment.



Xi Sigma Pi, Mu Chapter

by JIM CUNNINGHAM

Forester: Ralph Mullis Associate Forester: James P. Cunningham Secty.-Fiscal Agent: James H. Ware Ranger: Walter Reed

XI Sigma Pi, national forestry honor fraternity, is again sponsoring the Senior Pienic for 1977 graduates and their dates. At this event, to be held May 14, an outstanding forester among the seniors outside of Xi Sigma Pi may be recognized. The graduating senior with the highest accumulative scholastic average will also be recognized. Last year Dennis Curtin received recognition as the outstanding senior outside the fraternity and John Adolph Heitmann as the senior with the highest G.P.A. Heitmann's name will be added to the list on the XI Sigma Pi Axe.

James E. Wilbourn received the Freshman Axe for the highest scholastic

average. Jim is a forest management major from Burley, Alabama.

Traditionally, most new members elected by Mu Chapter have been graduating seniors. This causes problems in continuing activities from one year to the next. The brothers decided to give more consideration to junior candidates this year: Eleven juniors and eight seniors were inducted.

The Forester has joined the presidents of the other student organizations in a Forestry Council, which will meet regularly with Dean Preston and other faculty members. We hope that both profs and students will use well this chance to work together. The School really needs such a direct exchange of ideas.

Brothers are participating in the high school recruiting program headed by Dr. Saylor. Some served as guides at the Forestry Open House, held in conjunction with the School of Agriculture and Life Sciences on October 22. Mu Chapter is now beginning a modest effort of its own to contact prospective students. Groups of brothers will visit high schools this spring to discuss forestry careers and curricula.

Summer Camp-1966

by HARVEY A. WADE and ALLEN I. PLASTER

Exams were over and we were all looking forward to anything except summer camp, However, everyone eventually gathered at Slocum Camp for nine weeks of rest and relaxation. But the faculty, under the direction of Dr. R. C. Bryant, made it a point to dispel any ideas of spending the summer under a shade tree.

Work crews were set up and the pleasant job of cleaning up began. Before the cleaning process had gotten off the ground, class schedules were organized. Intensive lectures in dendrology, mensuration, mapping, and other subjects kept everybody's head spinning, including the faculty's.

Field trips and exercises took up a large part of the days. Dendrology expeditions covered ground that any self-respecting mountain goat would fear but snakes loved. Mapping lines that, according to a faculty member, would not cross the river, crossed it at what seemed to be the deepest part. And silviculture exercises requiring rain were the victims of a drought. Well, at least the seedlings mortality rate was high.

"Operation Muscle," that one-day regression back to the days of slave labor, was a big success. However, blisters and sore muscles were the topics of bull sessions for a few days afterwards. Of course, there were those who managed to escape blisters and sore muscles by finding the water jug and volunteering to guard it.

A few projects took more than a day to complete due mostly to our mistakes. Mapping crews were often seen crashing through the brush with flashlights and cigarette lighters. And, on one occasion, a frustrated Indian caused quite a stir by shouting "FIRE!" in the early hours of the morning. People with Jars and nets were also seen rooting around in logs dancing (or rather, stumbling) through the fields after some wierd insect, or radding the "blue lights" which were scattered around the countryside.

There sure isn't any mud in Slocum ditch Now!



Ride across hell! Kennedy is behind the wheel.







Operation Muscle in action

Come on Dr. let's talk this over.

Other than these projects, the nights were ours to do with as we pleased. This usually meant trips into Rougemont to wash very dirty clothes or to sit on a bench and watch the cars go by. This is where the fire crew was when a fire drill was called. They returned to camp just in time to hear another crew appointed. Of course, there was always a bull session or card game going to pass the time instead of studying.

After six weeks or so at Hill Forest, we moved our happy little group to Kinston, N. C., for a fire school conducted by the North Carolina Forest Service. The three-day session was attended by forestry students from Duke, Clemson, and others in the area. Although the schedule was crowded and the lectures crammed with information, the session was well-organized and very informative. Kinston was a welcome change of scenery for us. Being a somewhat larger town than Rougement, it gave "Virginia" and the rest of the crew more room to operate in. There was also a volley ball "court" that would have seen some pretty good games if the players could have gotten their feet out of the mud. The school terminated with a practice fire in a drenching rain. In spite of the short time allotted and some bad weather, the session was beneficial to us all. We wish to thank the N. C. Forest Service for giving as the opportunity to attend.

After fire school, it was back to good of 'Hill Forest for a week of exams and preparations for the mountain portion of summer camp. And so it was good-bye Dr. Bryant and hello Dr. Perry. On July 14, Black Sunday to the good residents of Waynesville, the college crowd from N.C.S.U. School of Forestry rolled into this sleeping giant (?) of a city. There were no bands or dancing girls to great the wide-eyed newcomers, only starces of surprise at the group of well-dressed young men who seemed bent on making this their town. "Lover" Stan Bingham was the first to musk to be local girls sit up and take real notice. Later on, the armory dance was to be one of the most successful ever held.

Our trips to various sites of particular interest to foresters began with a long haul to the Great Smoky Mountains National Park. Here we saw bears "in the raw." That is to say, they were in their natural habitat and were about their natural bainses of molesting fourists. Later, our journeys led us to the Davidson River Project where we learned the types of tourists to be afraid of if we ever became rangers in charge of recreation areas. That same day we toured and had lunch at the Schenck Job Corps Center. Returning from this eventful day, we treated tourists from all over the country with our acrobatic abilities and bare stomachs at Sliding Rock. Our own Girl Watcher's Society was more than once treated to a stop for cokes at a certain service station and a quick glimpse of one of the more lovely products of the mountain folks. Everyone enjoyed to varying extens our excursions even though complaints of peanut butter and jelly sand-wiches were commomplace.

4-H Camp Schaub, our base camp, was a haven of rest and relaxation between trips. Every evening produced a new surge of energy in the bonetired travelers and softball would take over. Toward the end of camp, the dining hall was converted into a bug-swappin palace and any bugs still alive on their stake through the heart finally gave up the ghost. Exams came and signaled the end of another summer camp. Cars streaked for home and Lindsay finally managed to run down some poor mountain dog with his Yamaha.

Even though many complaints were heard during camp, we now realize that everything the faculty attempted to teach us was very worthwhile. And, as we seek to gain a deeper understanding of forestry, we will find that increasing amounts of what we learned will aid us in our endeavor.

Hey Brookshire—you say that rock is slicker than what?



Move 'em hell! We can't even pick 'em up.



1966 Wood Technology Summer Practicum

by

RONALD B. McMILLAN and CHARLES A. CREIGHTON

This year's summer practicum consisted of an initial five week session, one week of job orientation, and a remaining seven to eight weeks of summer employment.

The initial five week session was a joint effort between wood technology and FMM students. Therefore, the five week session was concerned with furniture manufacturing. Every student was to construct a night-stand of a given design. The first step in preparation for the construction was to complete shop drawings and a cutting bill under the guidance of Mr. Gilmore. Next came learning the proper methods of lumber seasoning under the "gifted" instruction of Mr. Roy Carter. Lumber was stacked, then the majority of it was cut into kiln samples. This part of the practicum was very helpful in determining moisture content, recording data, installing thermocouples, and learning kiln schedules; the only thing not covered was how to turn on the kiln.

Following drying, came machining into rough, then planed dimension stock. The 32 students were divided into two sections each of which were in turn divided into four crews. Each produced four night-stands from rough poolar lumber and mahorany veneer.

As the construction of night-stand continued, plant visitations began. The first plant visited was Quality Vener Company in Liberty, North Carolina, whereupon Richardson promptly went into action asking pertinent information about how many rolls of toiled paper were consumed over the fiscal year, and if all conveyor chains were properly oiled. From Quality Venere we proceeded down the road to a "blue chip" industry known as

How'd you like to have this crew running your plant?!









Damn, Van Note! That's Hot!

Liberty Chair Company. Following our Richardson guided tour of Liberty Chair we returned to Raleigh to prepare the beginning of a mountain of reports to follow. Next morning we were on the road again right back through Liberty to visit Dixie Furniture in Lexington. After what was truly a "red-carpet" tour, we returned to Raleigh and another report. Again the next day we returned to the piedmont to visit Thomasville Industries. By this time so much time had been spent on the bus that extra activities were begun such as poker, bridge, and a few "nice sights" in cars that passed below.

The next major part of the practicum was entitled Gluing. With the aid of the Borden Chemical Company's and Forest Prod. Lab's complete library of handouts, not to mention Gordon Campbell and Bill McNamara, we proceeded to learn the classification and structure of various glues. Along with learning about glues we also were introduced to plywood and particle-board manufacture by our two "girted" granducts students. Every crew was given a chance to express themselves in the art of glue mixing which several crews did with extreme skill in producing a nice fat, round glob.

Professor Carter was able to arrange more plant trips with the fringe benefit of more reports. To the piedmont again and a visit with Reliance Chemical Company with their new plastic moldings which are designed to eliminate Wood Technologist and their able professors. After an enjoyable lunch with Mr. Carter occupying the speaker's seat at the head table, we traveled not visit Henredon Fine Furniture. A few beer stops later we were in Raleigh to continue construction on our mountain of reports with some times given to night-stand construction.

The final part of the five week session was given to furniture finishing with Mr. Carter as head spray-gun operator. Now we were able to take our four weeks of construction on the night-stand and ruin it in fifteen seconds with the spray gun. If anyone was unable to ruin his night-stand with the spray oun, he had several more chances during the filling, glazing, and touch-up operations.

During finishing, Mr. Carter decided that Mac needed one more day of driving experience, and that we needed more report-writing experience. In order to get a full day, we left at 5:00 a.m. for South Boston, Virginia, and a visit with U. S. Plywood's particleboard plant. Since this was to be a very interesting trip, we could stay only half the day; the afternoon was spent with two more "blue chip" industries: Mebane Lumber Company and Walton Lumber Company. Following this, we returned to Raleigh for the completion of the five-week session, and the tearful parting of the WT and FMM students.

After a short Fourth of July vacation, WT students returned for a week of job orientation. During this week the extension staff left their office in the Shuttle Inn to express themselves before the eager students. We were briefed in lumber yields, economics, motion and time studies, sawmill analysis, with the added lecture on proper conduct by Mr. Carter. This one week was truly an informative one, and the consensus of opinion was that it was beneficial. However, every student was eager to begin their work, and at noon Friday the WT students left to make their mark on the wood industries from Michigan to Mississippi.

We cut our own lumber and veneer, glued our own panels, machined our own parts, and paid for our own mis-





See if you can make glue this time, and not putty.



N. C. State Awarded Best Sportsmen Trophy

By RICHARD C. PETERS

A rather weakly supported team of only nine Forestry Club members represented the N. C. State School of Forestry at the Ninth Annual Conclave of the Association of Southern Forestry Clubs. This traditional woodsmen's competition was held at Stephen F. Austin State College, Nacogdoches, Pexas, in April, 1986.

In total points the State boys finished a mediocre fifth out of nine, being beaten out of fourth place by one point by Clemson University. The team felt that it had been weakened due to the loss of a majority of the previous

year's champs at graduation time.

When all the pieces of wood had been chopped, sawed, rolled, burled, climbed, estimated, and felled, Oklahoma State was on top with three points separating the first three teams. Although State was far down the list with fifth place, the N.C.S.U. boys received one of the most respected awards at the victory banquet Saturday night. This was the Sportsmen's trophy, which is awarded to the team demonstrating the most sportsmanlike conduct during the conclave. It is voted on at a meeting of all the team captains at the end of the Saturday afternoon events.

It all started on a Thursday morning when nine pairs of blood-shot veys and one infallable pipe-in-mouth-advisor climbed into rented cars to begin a drive which covered nearly 1400 miles. Twenty-four hours later we arrived at S.F.A. The rest of the day was spent sleeping, obtaining exact directions to the women's residence halls, or meeting old friends made at

previous conclaves.

Early Saturday morning the work began. Following tradition, the technical events were first on the slate of activities. These included dendrology, d.b.h. estimation, timber estimation, pole classification, and wood identification. Unfortunately, this was the beginning of the downfall for the Champion State team. Senior Brain Fiscace was the team's only member good enough to place in a technical event. He placed third in timber estimation.

A man on his way up.



Careful, John



The afternoon events showed a little more promise with State showing a better record. State's momentum finally began when senior Dennis Curtin took a third ed. einschweing, and sophomore Rich Peters placed with the state of the state that the state that the state that the state team of the biggest surprises of the afternoon was the unmatched skill of freshman John Harper. He won the only first place honor for the State team at his specialty—speed chopping. State did well in the other "workhorse" event besides chopping. Sophomores Bill "gobutton" Rodgers and Bill "p?". Ewaskiewicz teamed together to capital "probutton" Rodgers and Bill "p?". Ewaskiewicz teamed together to capital "probutton" Rodgers and Rich Peters placing second in cross-cut sawing. Junior Larry Johnston won second place in battesting standing off tough competition in a "sudden-death" play-off. The afternoon's events were finished up with "go-button" taking second place in the traditional fire-fighting contest.

After the competition was over and the final scores tallied, everyone went to his respective tent for liquid refreshment and discussions about the days events. The entire group finally managed to change from their school-emblemed shirts to coats and ties. This was in preparation for a fine dinner, award presentations, and two informative after-dinner speeches. The first individual introduced was Dr. A. D. Folweller, Director of the Texas Forest Service, and the second speaker was Mr. Ed Cliff, Chief of the U. S. Forest Service who carried the greetings of President Johnson and Secretary of Agriculture Orville Freeman to the Conclave.

The State crew finally headed home Sunday morning after continuing the celebration far into Saturday night! Only now, there were ten pairs of blood-shot eyes and no infallable?23 advisor!!!!

Although the team did not continue its two-year championship reign over the Conclave, all the team members felt it was a most successful experience and are looking forward, with anticipation, to the Tenth Annual Conclave scheduled for the University of Georgia.













'66 Rolleo

by P. A. ARAMAN

A rainy, cool October day proved to be a great day for the 1966 Rolleo. Surprisingly, participants, honored guests, and sports fans came from everywhere wading through the mud for the beginning of the competition at 11:00 a.m. Coordinator for the Rolleo was Phil Araman. The judge for the events was Mr. "Mac" McLaurin from the Wood Products Laboratory. All classes, the faculty, and alumni were well represented. Junior Rich Peters was team captain for the Freshman. John Harper headed the Sophomore team while Marc Staff was captain of the Juniors and Bill Callahan led the Seniors.

Sophomore Bill Rodgers started the day off by winning the D.B.H. estimation. Speed chopping was cancelled because of prevailing weather conditions. Tim Goffin won the ax throwing for the sophomores. Top position in the knife throwing competition was won by sophomore Rodgers. Chain throwing, governed by a new rule—the best time of two—was won by junior Dave Noll. The fun then began with cross-cut sawing, which Peters and Staff won. The southern yellow pine cant used for this event proved to be a worthy opponent to the Senior team of Weigel and Amidon by exercting resin on their saw blade. The team was slowed down and had to exert extra strength to put the blade in motion again and again. The slah finally yielded, giving the team a time of five minutes plus.

Everyone then adjourned to the mess hall for some fine bard-brue, slaw, potato saind, and hush pupples being dished out by Mrs. Liles and crew. After a most filling meal, seniors Kurt Peterson, Larry Johnston, and Jim Cunningham each received a Homelite Scholarship for leadership and scholarship in forestry. Also for the first time in many years, a forest management student, James Wilbourn, was presented the Freshman Axe for having the highest freshman average in the School of Forestry. This award in previous years have usually gone to a Pulp and Paper student.



What blood?







You mean the seniors won this event?

Whether the meals were digested or not, the afternoon events began with bowsawing. The contestants had everything going for them; kerosine, a brand new blade, and strong arms. Rich Peters came out on top, winning by a small margin.

The contests then moved up to the mud bowl (volleyball court) for some pulp throwing, log rolling, and pole climbing. Pulp throwing was first with junior Allen Plaster having the longest throw of three tries. Seniors Bill LaRogue and Bill Smith used their heads and just won the log rolling event through an evil sea of mud, and freshman Gil Stephens scampered up the 25-foot climbing pole in an incredible time of 13.5 seconds for the weather conditions.

The wettest event of the day needless to say, was the fire fighting contest. The object of this event is, of course, to put out a fire. The fire is located in the mouths of the contestants, who are puffing on cigars. After five minutes of ferocious puffing and hard pulping, one very sick Jim George came out as the winner.

The final event of the day was the once dominated Senior event; the tugof-war. The Juniors ran off with this event and the Rolleo.

Also, a new contest was established at the '66 Rolleo. It was a chugging contest with the use of Pepsi Cola. An alumnus, W. Carrigan of Chesapeak, Co., West Point, Virginia, proved that experience counts and chugged the 10 ounces of Pepsi in a record 6.5 seconds.

One of our faculty members, Dr. T. E. Maki, also tried his luck in the chug-a-lug contest. Dr. Maki came in last, but he truely showed us why Pepsi is called the "sociable drink."

The '66 Rolleo may not have been the best, but it sure proved to be a very enjoyable day.



Honeymoon On A Lookout

by
WILLIAM S. CALLAHAN
Forest Management

After "biting the dust" on June 4th of last year, Pam, my newly-acquired wife, and I headed west for a honeymoon in a U. S. Forest Service fire tower in Montana. Our trip west took us through such places as the Great Smokies National Park, the Grand Canyon in Arizona, La Vega\$, the Grand Tetons, and Yellowstone Park. On June 17, we reported to Gardiner, Montana, just north of Yellowstone, where our summer's work began on the Gardiner Ranger District of the Gallatin National Forest.

After a week of Fire Guard School, we headed for the back country on July 2. Getting to Lookout Mountain Tower in the Absorka Wilderness Area took us 17 miles on a jeep smoke road and 8½ miles on horseback. On the 4th of July, we spotted our first smoke on which two smoke jumpers

were promptly put.

Our day began as I awoke before sunrise to check the drainages to the east for smokes before the sun blinded the area. After a hearty breakfast of flapjacks, bacon, eggs, coffee, and homemade bread, we checked in with Gardiner. Our daily duties included sawing and splitting firewood for our wood stove, hauling water one-fourth mile in two five-gallon backpacks and taking weather data, not to mention keeping a constant watch for any sign of smoke. Pam took over as serubwoman once a week with her fire, hot water, and serub board down at the spring.

With Pam working the weekends, I was free to fish in the lower country. Catching a 26-inch, 6-pound rainbow trout from a high mountain lake is a thrill every fisherman dreams of. By the end of the summer, Pam was tired of cooking fish. Other weekends were spent roaming the ridges for Indian arrowheads and artifacts, and collecting rare pieces of petrified wood.

Every two weeks, our grub and mail would arrive via packer and pack train. Occasionally, we would get a visitor or two, but most of our visitors (26 all summer) were the trail maintenance boys.

Pam spotted two more fires before the summer was over. One was 150 acroes in size and required 30 smoke jumpers—quite exciting. All the fires spotted were started by lightning.

The weather surprised us at times—mainly a snow storm on August 21; and being in that 15-foot square tower during a lightning storm is quite a hair-raising experience.

Throughout the summer we saw all kinds of wild game—mule deer, buffalo, grizzlies, elk, moose, coyotes, and golden-mantled ground squirrels, (we brought two home as pets).

On September 2, we left the tower and headed for home. Eight thousand miles and twenty-three states later, we reached home with a summer behind us that will stay in our minds forever.



Wood Industry in Colombia

b

DANIEL A. GAITÁN, Wood Technology

Veneer coming out of dryer

During the Summer period in 1966 I visited various wood industries in Colombia, South America, such as plywood mills, paper, hardboard and furniture plants. Hardwoods comprise the bulk of raw material for wood industries. The shortage of commercially available softwoods created a need for long fibers in the paper industries. One paper mill was using sugar cane bagasse for an equally good substitute in the production of fine writing paper. Another paper company, producing kraft paper, was combining hardwood fibers, old newspapers, and rags with softwood pulp imported from Finland to obtain suitable papers for rough usage. The plywood mills were similar to the mills I have seen in Central Eastern United States, with the exception of the log handling equipment which was larger, due to the size of logs.

As a general conclusion I will mention that the trip showed me the strength of the wood industry in Colombia and the large field for people working in Forestry.

JOE W. BOGGS Pulp and Paper Technology

During the summer of 1966, I had the privilege of working for the Georgia Kraft Company located at Rome, Georgia. My official title was Apprentice Process Engineer, but I was actually a process engineer's helper.

My main duty was to keep a period-long chart of the physical properties (Mullen, moisture, tear, size, etc.) of every reel of paper produced. At the end of a period, roughly equivalent to a month, I averaged and plotted the results for every grade of paper. I also averaged the results of the Mullen test for each reel of export liner shipped overseas.

Among other things, I conducted tours of the plant, checked the accuracy of the Mostitron against calculated moisture contents, and helped make river surveys to determine the dissolved oxygen level. I also assisted in setting up "check-tations" used for determining the SO, content of the atmosphere. One very interesting job I had was to help run trial cooks differing in percentage hardwood to determine the effect on yield.

All in all it was a very profitable summer both financially and educationally, and I'm looking forward to another summer at Georgia Kraft.



RUDY SHEARIN Forest Management

Unlike many of my classmates who went west for the summer, I migrated east. I worked in the N. C. Constal Plains with the snakes, chiggers, underbrush, and hot temperatures for a pulpwood and timber dealer. My assignments were varied and, I think, extremely helpful in furthering my education. Primarily, I was responsible for visiting forest landowners and promoting forestry in general and the company for which I worked in particular. Also, I assisted landowners by helping mark and cruise their woodlands for pulpwood and sawlog cutting operations. Finally, I had the responsibility of working with contract loggers and company longing crews to help them maintain production.

In my opinion, this summer job was very valuable in helping me obtain an insight into some of the problems with which many of us will be working when we leave N. C. State University.

CHARLES McLEMORE Pulp and Paper Technology

During the summer of 1968 I worked in the technical department at Continental Can Company in Hopewell, Virginia. My work was devoted to two research projects. One project was a determination of the yield of pulp from pine wood as related to the time in storage. The other project consisted of mixing hardwood and pine pulps in varying amounts, and testing the physical strength of handsheets made from each mixture.

To determine the yield of pine wood versus time in storage, wood was stored in the open air to simulate woodyard conditions. Every two weeks, for fourteen weeks, a series of four cooks were made from the special pile of lobility pine. For each cook a report was prepared stating the usual pulp tests and the percent yield, based on oven-dry wood charged to the digester.

Hardwood and pine pulp mixtures were refined in a laboratory heater with samples being taken every ten minutes. Handsheets were made from each sample and physical tests evaluated on each sheet. Beater curves were plotted for each mixture.

While working at Continental Can Company, I prepared my Summer Mill Experience Report and, in the process of doing so, learned a lot about pulping. All in all, I'd say it was a summer well spent.

Hot Shot Summer

by

CHRIS NIELSON Forest Management

I might as well start by saying that I reported for work on the Los Prietos Hot Shot Crew in Santa Barbara, California, right on time, but just after the biggest fire of the season (94,000 acres). Then, in what was expected to be one of their hottest fire seasons, I waited three weeks before being called on my first fire. Of course, the crew didn't actually just sit around and wait for it. There was grounds maintenance, shrub planting, tool sharpening, and painting, along with several kinds of hazard reduction and other miscellaneous work. By the end of that three weeks we were ready for a fire just for some action. As it turned out, I was out there seven and one-half weeks and was on six fires. All my fires were in California, but right after I left the crew went up into Oregon on a big one. Generally, the terrain was mountainous, the days hot, the nights cool, and food good, and the experience excellent.

JIM HEDGECOCK Wood Technology

This summer I worked at Carolina Builders Corporation in Raleigh. My duties included operating the fork lift, supervising, receiving incoming supplies, and selling. While there, I gave suggestions concerning their new plant which was completed in the fall of 1966.

I also learned many of the diversified building products carried by a large supplier.

Through comparing this large company with other building supply companies that I have been associated with, I gained valuable insight concerning the economics and management of such operations. Perhaps most noteworthy is the reduction of efficiency because of the lack of communication within larger companies. For example, special items or items returned for credit are placed in "Dark Corners" in the warehouse. The salesmen are not notified, consequently this inventory just gathers dust and occupies space. By building a new and more compact plant, Carolina Builders hope to eliminate this problem. Also incorporated into the design of this new plant are more efficient loading and unloading, greater utilization of warehouse facilities, more efficient inventory control, and room for future examsion.



MACK W. BAILEY Pulp and Paper Technology

During the past summer I worked in Jackson, Alabama, at Allied Paper Corporation's new pulp and paper mills. The mills in Jackson are Allied's first venture into pulp and paper production. Until the pulp mill in Jackson was constructed, Allied had used deinked pulp for making specialty papers.

The paper machine was first started up last summer. It uses the bleached, kraft puly from the 350-ton-per-day pulp mill. My job was to test the pulp of from this mill as it was prepared for the paper machine. I reported the freeness, pH, consistency, etc., of the pulp as it was refined and additives were introduced into it. For performing this task I was awarded the distinctive title of "wet-end tester."

The job itself was rather routine and allowed plenty of time for me to explore the new paper mill. The explorations permitted a first-hand view of the mill and helped greatly when the time came around for me to write my summer mill report. On the whole, the job was fairly good, I learned a great deal about a paper mill, and I was able to enjoy myself on a little bit of money—I was livings with my father!

President's Report

1967-1968

Dear Fellow Alumnus:

It is past time for the alumni of the finest Forestry School in the country to unite, strengthen, and expand its present program, and take positive steps to increase Association membership, projects, meetings, and areas of concern. The new facilities and the 40th Anniversity of the School will be upon us; and the alumni, as a group, should be prepared to play a major part in the dedication and anniversary ceremonies.

I suggested we as alumni concert out efforts and activities in support of the School of Forestry in the following broad areas:

FELLOWSHIP—The annual meeting at the Appalachian Section, SAF, is at present, the extent of alumni getting together. Increased fellowship might be widened through participation at the Rolleo, before a night football game (let's enter an alumni team), a get-together at Hoffmann Forest, and social periods at Homecoming and Alumni Week-end.

INFORMATION—The annual newsletter prepared by the Secretary-Treasurer has been an excellent news and information media and so has the alumni section in the PINETUM. Perhaps as our membership increases and more news about alumni comes in to the Secretary, a current periodic newsletter for alumni might be distributed. Current progress reports from Dean Preston would also be of considerable interest to alumni.

EDUCATION—Some have expressed an interest in the Alumni Association sponsoring technical sessions, seminars, workshops, and a technical newaletter issued by the School with alumni backing. Only through active participation and interest on our part can we expect the School to plan and give this type of assistance and instruction.

AS A VOICE—Only strengthening our membership, by providing periods of fellowship, by keeping our ranks informed, and by broadening our knowledge of current forest related concepts, can we step forward as a group and become the effective voice we should be in The Forestry School—past, present and future.

Sincerely,

Hugh M. Lupold President Class of 1959

Treasurer's Report 1965-1966

INCOME

105 members @ \$3.00	\$ 315.00
Contributions Slocum Scholarship & amounts over \$3.00 dues	241.00
	\$ 556.00
EXPENSE	
Postage for Newsletter & Pinetum	\$ 80.00
105 copies Pinetum @ \$2.05	215.25
Printing Newsletter	78.00
	\$ 373.25
STATEMENT OF ACCOUNTS	
Hofmann Loan Fund	\$ 2,500.00
Slocum Scholarships Beginning Balance	\$ 937.23
Added this year	182.75

\$1,119.98

Alumni News

1930

HOWARD, Harry E. U. S. Forest Service 1990.
Changed jobs and apartments in 1960. Find my work of evaluating Ferest Service programs very interesting. It gives me an opportunity to use our research, National Forest, and claste and private foreity programs in various parts of the U. S."

The Newsletter is a good 'sheet'—thanks. ORRINSS, D. J., U. S. Forest Service.

"It's a pleasure to receive your newsy newsletter, Ralph, We're grown accustomed to receipt of an account of such substantial progress as you report this year." 1931

ARTMAN, J. O., Tennessee Valley Authority.
"Still at the same old stand, writing and editing reports. Happy to report that my son, who is with the Virginia Division of Forestry, will be back at State come next September for some graduate work in forest pathology."

1932

COOPER, W. E., Virginia Foresta, Inc.

Stopped at a Ranzer Station on the Stanislaus Nat. Forest in Col. (while on my way
up to Yousemite) and met three young foresterri-one of whom was from N. C. State.
Forest his name but on checking the PINETUR I believe it was J. W. Howell '00. He
MAXWELL, A. H., N. C. Division of Forestry.

"Illic the format of the Hyrant Budge", ... openie news is the best kind for buy

foresiers . . . plugging away at oak wilt control, white pine blister rust, balsam fir woolly aphids, Southern pine bark beetles, et al."

CROKER, T. C., U. S. Forest Service.
"Alabama is headed for the top in forestry as well as football. Many N. C. Staters

here."

HAFER, A. B., Self-employed.

"Have a partner now—my nephew from Duke. There are times when school ties divide our interests but trees come first."

PETTIGREW, G. W., Consulting Forester.

CORPENING, B. H., N. C. Division of Forestry. LEDBETTER, F. H., N. C. Division of Forestry. PLASTER, D. C., USDA, Soil Conservation Service.

GARDINER, T. B., 138Da, Sul Conservation Service.

ACKSON, G. E. Consulting Ference
— Theorems is being made in the programs underway on the Hofmann Forest. Some of
the Pocosini areas are really extrine a face litting in the planting program. Margaret
first regards to the faculty and old grads.

First regards to the faculty and old grads.

1996

IKEN, W. C., USDA, Soil Conservation Service.

"Have finished 30 years as a bureaucrat and it looks like I will finish out my time here
in Auburn as State Woodland Cons., have 800 acres of woodland that is just right
to work on when I retire." Cons., 1937

HUBBARD, J. B., N. C. Division of Forestry,
"Same job ... same place ... saw Milton Henry '28 at AFA in Nov. He, too, has grown a bit older!"

SMITH, G. E. Jr., USDA Soil Conservation Service.

SMITH, S. Director of Student Housing, N. C. State University.

WTTS, W. Three, more high rise residence halls are presently under construction (9, 10, 12 stories)—housing is changing the skyline of the campus."

1939

BARKER, J. S., Jr., Timberlands Manager, Corbett Package Co. BEASLEY, W. L., Self-employed, Beasley Lumber Products. JOLLAY, T. M., Forestry Consultant (self-employed)

BELL, J. L., Equitable Life Assur. Soc. HARLEY, B. R., Turnell and Morgan Co.

CHAMBLEE, G. V., Forest Supv., Bladen Lakes State Forest,
"I always look forward to having the senior class visit us each year."
SPIRER, T. F., Colonei, USMC.

PRUITT, A. A., Champion Papers Inc.
THURNER, J. T., Gilman Paper Co., Manager Kraft Bag Division.
(Ed. note: Thurner attended PIMA meeting at NCSU 12/6/66 and dropped by School has a son at MIT.) 1943

ETHERIDGE, J. N., Self-employed, Etheridge Land and Timber Co.

HOLCOMBE, R. A., National Forest Products Association.
"Renewed acquaintance with many of the NCS staff and old friends at the Forest Products Research Society meeting this year. Regards to all." 1945

DORSEN, Robert, Robert Dorsen Inc. 1947 ROUSE, Douglas T., D. T. Rouse Co., Inc. ROUSE, Douglas T., D. T. Rouse Co., Inc. regards to faculty." with an informative newsletter—a splendid job, Best regards to faculty."

BLACKSTOCK, C. E., U. S. Tariff Commission.

This has been a big year for us. Our second son, Dean Reger, was boyn Feb. J.

This has been a big year for us. Our second son, Dean Reger, was boyn Feb. J.

Ton in June, I an now an analyst in the international trade of forest products."

ICARD, T. F., Leard, Merrill, Cullis and Time.

SIGTERR, E. N., Jake Roddill Assoc., Inc.

ALTMAN, J. A., American Pulpwood Assoc.
BOYCE, S. G., U. S. Forest Gervice
Stationary of the Control of the Con

program.)
DEATON, W. C., Carolina Power and Light Co.
LONG, S. H., Catawba Timber Company.
"Moved to Elberton, Ga. in August to organize new wood procurement and land anagement district management district.

YANTON, W. M., N.C. State University, Extension Specialist, Forest Management.

YANTON, W. M., N. C. State University States of Specialist, Forest Management.

WOODS, F. W., School of Forestry, Duke University.

YANCEY, T. E., Virginia Division of Forestry.

ALEXANDER 7. C. Nucel Incidence 1956
CANADAS J. F. N. C. Distance for energies.
EDWARDS, J. F. N. C. Distance for the Control of the Control

1051

ESTEP, E. M., U. S. Forest Service, SETEP, R. M., U. S. Forest Service. "Mixed to a new state and private forestry assignment at the U.S. Forest Products Maryland and Company of the Company of

1952

IGHES, S. M., Area Manager, Riegel 1982 Corporation, Weedlands Department, "An still in the Constal Point in the 18th Control Point north. An probably one of many who swore to forget the costal areas after a quarter in the Hofmann Forest lot an now covering an area which includes said "Intimitial area—and admit, however, and the control point of the Control Point JACKSON, J. V., Virginia Division of PHELPS, R. B., U. S. Forest Service. ROSS, V. R., Ross Associates.

"Finally heard from Jack Cornette, Still sounds and acts same as he did 15 years ago." 1953

BENNETT, J. W., U. S. Forest Service.
"Still here in the S. C. low country fighting the mosquitoes and swamps . . . still amazed at the searcity of remarks from everyone

at the scarcity of remarks from everyone."

CORBETT, K. M., Jr. Assistant Woodlands Manager, Louisians Forcet Products. Corp. CORBETT, K. M., Jr. Assistant Woodlands Manager, Louisians Forcet Products. Corp. Committee of Control of the Committee of Com

"Starting pre-forestry corriculum (2-year program) here this fall."
WHELESS, J. H., Union Camp Corporation.

"Have purchased a home in Asheville and continue to meet a lot of nice people here."
RAPER, C. F., Mortgage Loan Department, Travelers Insurance Co.
"Having just heard predictions for 1967 by CBS, NBC, LBJ, and SNCC, I am reminded
of that Lamous old hilbilly song 'Soop the World and Let Me Off—regards to all."
WildleHt, E. B., Gilman Paper Co, St. Marys Kraft Division.
WildleHt, E. B., Jr., U. S. Forest Service,

1955

COBB. F. W., Jr., University of California.

CRAMER, C. E., Cramer Veneers, Inc.

"My son just turned 2, expecting "sister" in May. I'm in veneer business with brother,

Lloyd.

HARDY, P. L. Jr., Consulting Forester,
HARDY, P. L. L. Jr., Consulting Forester,
HARDY, P. L. Jr., Consulting Forester,
HARDY,

HABRELL, K. T., U. 8. Forest Service. 1956
"Pen new on the Mudoc Nathanal Forest, Surprise Valley Ranger District, Cedarville, Calif., as Asst. District Ranger. Happy to hear of the great progress the closchool Franciscopies, and the service of the property of the prope

SWIFT, J. G., Virginia Division of Forestry.

HUDSON, S. T., Jr., County Forester, State of Vermont,

Oboth, S. I., 37, County Forester, State of Vermont,
Work as a county forester continues to be a challenge and proves to be varied and
interesting. The work load continues to increase with the advent of more and more
summer people buying land in Frankillo County in Vermont. TSI work is very popular
along with reforestation projects and timber sales, Woodland owners in the area
flat that that attain of timberland is becoming more of a burden with not much relief in

sight."

RELIEV J. S. U. S. Forest Service are now living near firsted. Tenn. This is our second year in the Job Corpus Frengman; my present job is Director of the Jacobs Creek center near Firsted. This is a 115-me, enter currently expanding to 168 men. We have recently superlisted a contract under the Manpower Development and Training Act to construct the properties of the Manpower Development and Training Act to constitute the Manpower Development and Training Act to constitute trouds on the National Provest area in NY Tenn." Province on the National Provest area in NY Tenn." Province of the National Province are consistent cross on each stocked coverage on the opportunity.

STEVENOVA, J. C., "Occurrence of the control of the Company. We have a coast to coast coverage on the operation."

We have a coast to coast coverage on the operation."

TSTRIXI, Z. A. H., Instructor, Abraham Baldwin Astricultural College.

TSTRIXI to encourage our students to attend N. G. Slate . . . most of the boys here go to the Univ. of Georgia since this school has part of the Univ. system."

EAKINS, T. A., Hiwassee Land Company. ERWIN, H. H., III. Captain U. S. Army. (Ed. note: Hamp is in Vietnam.) ROBERTS, J. P., Baker Weeks and Company.

1959

LIPPLID, H. M., Millión Forestry Co., 1998

New Addition to Intuly, Amy Shikabath, Nov. 18, 1966. Continuing to be active in industrial land use studies, hardwood sales and management, and mountain land management. Lock forward to showing some private forestry move in Jakelson Contry, extend our appreciation to Dr. Bryant for his time and contribution to the Association as Secretary Tensium? (Ed. note: Mac is the new Alumni association president and has many things in store MC NATT, J. D., U. S. Forests Products Laboratory.
"Our second child due in June. Terry is now two, Still enjoy the aport learned at State; soccer. Starting my 12th season as active player (counting freshman and varsity at State). Playing now in State Seccer League of Wisconain, Saw Roy Carter at Hodges Lab last.

SCANLON, D. H., III, Tennessee Valley Authority,

"My work is now with the tree improvement and forest influences branch of the forestry was a superior of the forestry disturbed by surface mining in the Tennessee Valley. A, U. S. Forest Service.

1960

BOST, R. M., Dake Power Company.

BRAKE, R. C., The Chesapeake Corporation of Virginia.

BRAKE, R. C., The Chesapeake Corporation of Virginia.

BRINKLEY, C. W., U. S. Porest Service.

"Jean and I, with our two sons, Jim and Chuck, moved to Downieville, Cal. in November, I'm working as Resource Assistant on the Downieville District of the Tahoe National

Forest: A. P., Champion Papers Inc. CHURCHILL, J. P., Champion Papers Inc. LOVIN, H. G., Catawba Timber Company. "Too rushed!"

LUCYLIN, III. 10. Communication of the Communicatio regaron.
MALLINGER, R. S., West Virginia Pulp and Paper Co.
(Ed. note: Through West Virginia's "Timber Topica", Charleston, we learned that
Scotty is now staff assistant for technical forestry, Wood Procurement Department.)

CUNNINGHAM, H. C., N. C. Forest Service.
"Another addition to our family—a girl. V
dogs . . , have difficulty feeding them all!" We now have three children and two large dogs . .

cogs . nave difficulty feeding them all?"
GAINES, G. S., Manchester Woodyards, Inc.
GRIMSLEY, D. L., Corps of Engineers, Kerr Reservoir.
GURGANUS, C. M., U. S. Forest Service.

GirgaAvitS, C. M. 'I'. S. Power Service.

"Newwleter was certainly begomed. Many things are marking progress in the school. A friend of mine says Gordon Hammon is top-sid Control."

A friend of mine says Gordon Hammon is top-sid Control.

A friend of mine says Gordon Hammon is top-sid Control.

A friend of mine says Gordon Hammon is top-sid Control.

Control. The friend of Control.

A friend of mine says and the says of th

Air Base.

"My work here at the Air Base in Japan is very interesting, due to the oddities and complexities of contracting with Japanese . . . I'll be following developments in the recre. ation program in the School with great interest . . on our 1965 trip across country to Calif. we experienced the overcrowded state of our parks, particularly those near the Calif. we experienced the overcrowded state of our parks, particularly those near the main highways . . parks in Japan are even more scarce and more used than U.S. parks."

parks."

(Ed. note: Regretfully limited space prevents printing all of Charlie's interesting and informative letter, as well as letters from other alumni, equally interesting.)

WATERS, J. E., Tidewater Equipment Corp. of Florida.

"Enjoyed the newaletter as usual!"

WELLIS, G. R., Assistant Processor, University of Tennessee.

"Best regards!

1962

BULLARD, R. P., U. S. Forest Service.
"Transferred from Region 5 to Region 8 last August."

"Transferred from Region 5 to Region 8 last August."
ECK, T. H., Union Camp. Corporation.
HENDERSON. G. C., Weet Virginia Yulp and Paper Co.
HIFFMAN, T. M., U. S. Forest Service.
ROBERTS, A. Y., U. S. Forest Service.
"Promoted to G8-9 Timber Management Assistant on the Dale District of the Umatilla

"Promoted to GS-5 Timber Management Assistant on the time states in the ASSISTANCE OF THE ASSISTANCE O

area.)

1963

ABIS, Lilia G., D-4. Jardine Terrace, Manhattan, Kanasa.

Old. node: Last Sept. Lilia returned to the U. S. with her three daughters and houland,
Old. node: Last Sept. Lilia returned to the U. S. with her three daughters and houland,
grant. An adding of the control of the con

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opproved the designation of the control of the cont

SMITH, R. C., U. S. Forest Service.

1964

BARTELT, R. T., (Lt. i.g.) U. S. Navy.
"Happily married, going to graduate school (business) and still programming for the
Navy. Rezards to all."

"Happing measures, and "The Happing Manager and Manage

"The first year nere mas uses the possible of Genetics, University of California, etc. HAMRICK, J. L. III, Graduate student, Department of Genetics, University of California. "Completed MS. in the School of Forestry here at Berkeley on the geographic variation in white fir (Ables concolor) and am now enrolled in a Ph.D. program in Dept. of SETLIFF

Genetics, E. C., Graduate student, College of Forestry, Syracuse University,
"Working on Ph.D. program under Dr. R. L. Gilbertson and Dr. J. L. Lowe in
mycology, Returned from Tanzania, East Africa, in July after having spent a wonderful
two years there working in forest pathology for the Tanzania Forest Dept. Those game
parks are really nice."

"Received M.A. degree in June—Married on July 19 to Priscilla Matthews, Springfield,

(Ed. note: Don is now working on Ph.D. program at Duke,)

"Vietnam has a great potential in forest products, even in the Delta country, Viginam has a great potential in forest products, even in the Delta country, Viginam has a great potential in forest production and processing prevent the forests from being a major part of the country. I trust you job me in support of our and continuous development of the forest resources in South Vietnam. Would enloy heating from some of the 'old game' sometime to try and restablish contact that is so continuing growth of the School." a veryone and a staceve vote of support for the DUFFY, W. C., Jr., U. S. Army.

FISHER, H. T., U. S. Coast Guard.

ISHER, H. T., U. S. Coëst Guard.

"Am now operations office a 180° busy tender in Portsmouth, Va. Quite an ex"Am now operations office of Chesapsake Bay and along the coart of N. C. and Va.
Berlings to attend the Rolleo but couldn't make it before noon so planned instead to
see State plany Southern Massissippi in Norfolk . . all planning in vain . . I spent

that Saturday out in the Chesapeake Bay dragging a buoy on position!" HARRIS, G. S., T. S. Coile Inc.
"I'm not letting any of these Georgia boys forget who won the Conclave in '64 and

'65 1 HARRIS, T. G.

ARKIS, T. G., Jr., U. S. Army.
"Am presently company commander (and until last week the only officer) of the
512th Engineer Company. I have 48 dump trucks, 25 GPs and 140 Koreans—interesting
voir. Pheasant hunting pretty good . . . act much chance to go. Hope to return to U.S. of June.

Inter to Tune.

"Certainy, appreciated receiving the Newsletter in Vietnam . . . the operations research
and business management was especially interesting . . . hope to hear more. Grow and I
are holding our own in Saigno but fast weakening to the 'evils' of the City! Regards

no all." C. Chengwale Corporation of Vigridis.

KINO, in at land and timber for anie on the enstern slores of Va., Md. & Del. Also doing a little management work. The Company has just built a physical plant here." IEEE, 7. C., Weel Virginia Phys and Paper Co., MAXWELL, G. H., U. S. Army.

MAXWELL, G. H., U. S. Army.

MAXWELL, G. H., U. S. Army.

STRICHMEN W. S. Southeastern Force Experiment Station.

SHOTWELL, J. P., Procurement Representative, Union Camp Corporation (Ed. note: Jin was released from military service in Nov.; accepted employment with

Union Camp in Nov.)

WANI, G. Q., Forest Service, Government of Jannu and Kashmir.

"Have been promoted to Assistant Conservator of Forests, Regards to everyone."

RAGWELL, Colin, Dicision of Forestry, Sixte of Kentucky.

The colin, Dicision of Forestry, Sixte of Kentucky.

The coling of the my issues well except in the case of hard versus soft maple ... for the first two weeks the hard versus soft maple ... for the first two weeks the hard versus of the soft of the soft of the soft of the hard versus of the soft of the s

ALUMNI DIRECTORY

	Class of 1930
W R Raynes	
C. A. Bittinger	Deceased
E. R. Chance	710 N. 6th St., Milwaukee, Wisc. 53203
T. C. Evans, MS '31 . R. W. Graeber N. R. Harding	6449 Primrose Ave, Indianapolis, Ind. 46220 Deceased 1710 N. 648 St., Milwaukev, Mee. 52334 Dir. Brometrias Serv. U.S. Forest Service. So. Bidg., 12th St. & Ind. Ave., Washington, D. C. 20005 Ga. Kart Co., Dir. Wood Precurement, Rt. S., Rome, Ga. 9016 Ga. Kart Co., Dir. Wood Precurement, Rt. S., Rome, Ga. 9016 Apt. 515 Crystal House, 1909 So. Eads St. Arlington, Va.
S. G. Hile H. E. Howard	Apt, 515 Crystal House, 1900 So, Eads St., Arlington, Va.
J. N. Leader D. Y. Lenhart D. J. Morriss R. L. Pierce, MS '31 H. G. Posey, MS '50	W. Va. Pulp & Paper Co., 230 Fark Acts. Narrolyvania 1532; W. Va. Pulp & Paper Co., 230 Fark Acts. Narrolyvania 1532; S200 Fort Foote Rd. Washington, D. C., 20022 (USFS) S200 Fort Foote Rd. Washington, D. C., 20022 (USFS) Dept. of Forestry, Auburn Univ. Auburn, Ala, 26830 Dept. of Forestry, Auburn Univ. Auburn, Ala, 26830 Folia Fleasant, Penn. 18326 40 Jackson Acad. Middlebown, N. Y., 19800 500 B. Rend St., Tamangan, Penn. 18227
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D. B. Griffin H. J. Loughead C. F. Phelps C. H. Shafer G. K. Slogum MS '22	Box 605 Front Royal, Va. 22630 399 Vanderbilt Rd., Biltmore Sta., Asheville, N. C. 28803 (Retlied) 204 Lakewood Drive, Richmond, Va. 23239 1233 Lehight St., Allentown, Penn. 18103
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G. K. Schaeffer P. W. Tillman W. H. Warriner Luther Williams	1612 Springbrook Dr., Decatur, Ga. 30033 2632 St. Mary's St., Raleigh, N. C. 27609 (NCFS) U. S. Forest Service, Jackson, Miss. 39205 Box 229, RFD 1, Monroe, N. C. 28110
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W. R. Smith	72 Hibriten Dr., Asheville, N. C. 28801 (USFS)
W. F. Bishop W. E. Boykin C. W. Comfort	Wood'and Ave. Merion, N. C. 28752 Box 267, Lillineton, N. C. 27545 U.S. Forest Service, Gulfport, Mies 39501 State Univ. of N.Y., College of Forestry, Syracuse 10, N. Y. 13210

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W. J. Bridges, Jr. Locke Craig J. W. Davis	500 Lee St., Franklin, Va. 23851 (Union Camp) % U.S. Consulate Office Belem, Brazil, South America Princeton Dr., Wilmington, N. C., 28403 (Exec. Dir. N. C. Ports
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J. B. Heltzel T. B. Henderson	Virginia Forest Service, Charlottesville, Vn. 22900 Rt. 1, Box 115A, Williamsburg, Vn. 23185 Unknown
T. M. Howerton, Jr. E. L. Hurst Clarke Mathewson, MS C. M. Matthews J. A. Matthews	Virginia Forest Service, Charlottesville V. 22000 Ret. 1, Box 115A, Williamshurz, Va. 22368 Rosen Vata Farras, Madison, Pla. 22340 (Continual) 8056 Goodview Ave. S.W. Roanoke, Va. 2473 8056 Goodview Ave. S.W. Roanoke, Va. 2473 Univ. of New Hampshire, Forestry Dopt., Durham, V. G. 8287 Box 62, Senthers Fibers, J. C. 82887 Linkowson
B. H. Mayfield % F. D. Mayfield	F. D. Mayfield, 1750 Boulderview Dr., SE, Atlanta 18, Ga. 30316 1750 Boulderview Dr., SE, Atlanta, Ga. 30316
C. P. Russell L. P. Spitainik	113 Nelson Dr., Jacksonville, N. C., 28540 224 Carriber Ave., Sallsbury, N. C. 28144 265 Mission Dr., Camartille, Calif. 2610, Box 610, Waterbore, N. C. 23179 (GPL)
J. Walsh W. H. Wheeler, Jr.	265 Mission Dr., Camarillo, Calif. 93010 Box 610, Wadesboro, N. C. 28170 (CPL)
J. A. Belton H. C. Bragaw	Unknown Deceased
H. C. Bragaw	Deceased

T. P. Commbell	DTV 9 Codion Bd. Possible, W. orang
W. A. Campbell C. J. Cheslock	RD 2, Sedley Rd., Franklin, Va. 05487 1915 Wigmore St., Jacksonville, Fila. 32206 Firestons Plantante, Archit Court, Orioda, Calif. 19453 Firestons Plantante, C. & Archit Court, Orioda, Calif. 19453 Firestons Plantante, C. & Borne, C. & Stewer, C.
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M. M. Dillingham	41 Park Lane, W. Asheville, N. C. 28806
D. C. Dixon	Lancaster, S. C. 29720
R. C. Eaker	1004 Bragg St., Monroe, N. C. 28110
J. W. Findlay	902 Edgemont Circle, Gastonia, N. C. 28052
G. H. Floyd	116 Pittman St., Fairmont, N. C. 28340
W. L. Foster	W. Virginia Pulp & Paper Co., Summerville, S. C. 29483
P. A. Griffiths	1400 Ridge Rd., Raleigh, N. C. 27607
R. M. Henry	2290 W. 36th St., Pine Bluff, Ark. 71601
A I Honoroutt In	266 Kilgore Hall, N. C. State Univ., Raleigh, N. C. 27607
J. B. Hubbard	3036 Churchill Rd., Raleigh, N. C. 27607 (NCFS)
James L. Huff	Maysville, N. C. 28555
V. V. Kareiya	2363 Ryrd St. Raleigh, N. C. 27608
H. W. Lull	Div. of Watershed Mgt., NE Forest Exp. Sta., Upper Darby, Pa 19082
T. J. McManis	1008 Watershea alge, Ne Fores Exp. Stat. Upper Darry, Pa 1008 Deceased 206 Surginer Rd., Rockingham, N. C. 28379 7517 Lansing Dr., Camp Springs, Maryland 9 % Robert B. Tucker, 809 Philadelphia Ave., Chambersburg, Pa.
Col. J. P. Moorfield	7517 Lansing Dr., Camp Springs, Maryland
R. M. Nelson, MF '3	% Robert B. Tucker, 809 Philadelphia Ave., Chambersburg, Pa.
If W Paulon	11 P. Palana Pt. Phinanakana Pana 17057
Col. C. B. Shimer	2709 Webb St., Raleigh, N. C. 27609
G. E. Smith	901 Sumter St., Columbia, S. C. 29201 (USDA, SCS)
I. W. Smith	Apt. A-1107, 1600 S. Joyce, Arlington, Va. 22206
N. B. Watts	Rt. 8. Box 183, Raleigh, N. C. 27607 (NCSU)
J. A. Whitman	11 8. Prince St., Shippensburg, Penn. 1722 27 901 Sunter St., Columbia, S. C. 20201 (USA), S.C. 37609 390 Vanderbilt Rd., Billmore Fovet, Ascelle R. N. C. 20201 (USA), S.C. 3804 Vanderbilt Rd., Billmore Fovet, Ascelle R. N. C. 2020, CKSC27 380 Vanderbilt Rd., Billmore Fovet, Ascelle R. N. C. 2020, CKSC27 Atlantic Sixte Fovetty Co., Cartinate S. December
W. W. Wooden	Deceased
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W. M. Bailey	Lynn Haven, Florida 32444
J. S. Barker, Jr	2406 Shirley Rd., Wilmington, N. C. 28401 (Corbett Pkge Co.)
W. L. Bensley	Beasley Lumber Products, Scotland Neck, N. C. 27874
C. K. Dale	Unknown
R. L. Esterfield	Unknown
W. G. Evans	265 Percet Aug. Athens. Tenn. 27202
C. D. Harris	P. O. Box 366, Lexington, N. C. 27292
H. J. Hartley	
D. P. Hughes Ted M. Jolley	1707 Broad St. Camden, S. C. 29020 (Consultant)
R. S. Johnson	710 King St., Laurinburg, N. C. 28352
J. V. Lyon	Unknown
C. L. Page	White Pond, S. C. 29854
C. H. Peterson	Johns Manville Corp., Jarratt, Va. 23867
H. W. Plummber, Jr	Unknown
J. F. Reeves	1831 Leavenworth St., Manhattan, Kansas 66502
H. R. Rupp	Unknown
R. W. Shelley	1263 Manle Ave. Riehmond Va. 23226
E. W. Smith, III	4616 Mason Dr., Boise, Idaho 83700
J. J. Steele	Box 152, Lenoir, N. C. 28645
I. J. Stoffregen	Route 1, Harrishurg, N. C. 28075
E. M. Walker	
C. N. Wright	224 McGhee Ave., Greenwood, S. C. 29646 (Wright Pulpwood Agency)
M. M. Young	232 Brandon Ave, Romonther, N. C. 28362 2328 Brandon Ave, Romonthe, M. C. 28362 3328 Brandon Ave, Romonthe, M. C. 28364 36 Johns Manville Corp., Jarrath, V., Lower, M. C. 28364 36 Johns Manville Corp., Jarrath, V., Lower, M. C. 28364 36 Johns Manville Corp., Jarrath, V., 28226 36 Maple Ave, Richmond, V., 28226 36 Johnson, B. C. 28364 Melhoner, M. C. 28364 36 Maple Ave, Richmond, V., 28226 37 Maple Ave, Richmond, V., 28226 38 Maple Ave, Richmond, V., 28226 39 Maple Ave, Richmond, V., 28226 30 Maple Ave, Richmond
	Class of 1949
J. D. Atkins	Unknown Box 332, Davidson, N. C. 28036 (Equitable Life Ass. Co.) Unknown Unknown Unknown Unknown
J. L. Bell	Box 332, Davidson, N. C. 28036 (Equitable Life Ass. Co.)
R. W. Brake, Col	Unknown
George Charconas	Unknown
R. E. Davis	Unknown
T. E. Gerber	444 North Wood Ave., Florence, Ala. 35630
W. E. Gibbins	
B. R. Harley	S. Central Ave., Warren, Penn. 18365
D. O. Hays	Dept. Comservation & Dev., Div. of Porestry, Raining, N. C. 21000

J. W. Hilton	Col. APO 238, New York, N. Y. 0922s (Air Foundation of Col. and Co
S. O. Ingram, Jr.,	. Col
M. M. Karlman	Unknown
R. M. King, Jr.	217 Sunset Lane, Panama City, Fia. 32401
C. D. Kunns	100 White Oak St., Rutztown, Fenn, 19500
P. T. Levies	Boy 12 Weightstown N J 08562
M. A. Matson Jr.	8813 Pinedale St. Norfolk 3, Va. 23503
J. F. Needham	329 Plyley's Lane, Chillicothe, Ohio 45601
J. F. Nigro	Millbrook, New York 12545 (SCS)
A. A. Novitt	Jr. Hdqs, USAFE, DCS Intelligence, New York, N. 1000 Deceased Johns Manville, Jarratt, Va. 23867 Unknown
Col. W. E. Odom,	Jr. Hdqs, USAFE, DCS Intelligence, New York, N. Y. 09633
Lee Purks	Unknown
L. L. Perry	Deceased
C. H. Peterson	Johns Manville, Jarratt, Va. 23597
Ernest Roberts	D to The Country of t
W. O. Ryburn	Ryburn Farm Equipment Co., Salisbury, N. C. 28149 (8811)
D C Cwancon	Boy 469 Newton N C 28658
A. S. Swanson	Ryburn Farm Equipment Co., Salisbury, N. C. 28144 (self) 211 N. Glenhurze Dr., Birmingham, Michigan 48009 Box 462, Newton, N. C. 28658 Class of 1941
D D Misses	Class of 1941 Stonehodge North Comply Conp. 06060
A W Decemb	B O Des 2150 Mallow Cts Manuella Tone 20100 (Charmen Chem Co)
P P Career	Unknown
G V Chambles	Bladen Lakes State Forest Elizabethtown N. C. 28337
P. M. Cromartie	West Lumber & Box Co., P. O. Box 870, Favetteville, N. C. 28302
E. H. Fricson, Jr	Old Neck Rd., Manchester, Mass, 01944
C. E. Gill	911 Gracelyn Dr., Blacksburg, Va. 24060
Michael Goral	2412 W. 104th Terrace, Leawood, Kansas 66206
B. T. Griffith	4450 Bit & Spur Rd., Mobile, Ala. 36608
F. J. Hartman	12701 Valleywood Dr., Silver Springs, Md. 20906
T. G. Harris	Class of 1941 P. O. Box 3168, Mallory Sta, Memphis, Tenn. 38109 (Chapman Chem. of 600 Haden Lakes State Forest, Elizabettionen, N. C. 25337 West Lomber & Box G. Golden, S. C. 25337 West Lomber & Box G. Golden, S. C. 25337 West Lomber & Box G. Golden, S. Golden, S. 2540 G. Golden, S. G. Golden, S. 2540 G. G. Golden, G. G. Golden, S. 2540 G. G. G. Golden, G. G. Golden, S. 2540 G. G. G. Golden, G. G. Golden, G. 2540 G. 2540 G. G
P. H. Lands	ovz mast Brash Rd., Ridgewood, N. J. 11227
R. H. Landon	710 Marion Lane Salam Va 04150 (Va Pomost Semilar)
Terro Lavino	110 Marion Lane, Salem, va. 24100 (va. Poress Service)
J E Melver Jr	P O Boy 50 Georgetown S C 29440 (Int Paper Co.)
W. C. Picket	433 Ridgeway Ave. Statesville, N. C. 28677
T. F. Spiker, Col.	8830 Camfield Dr., Alexandria, Va. 22308 (USMC)
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R. S. Dougias	202 Rigore rant, N. C. State Univ., Raising, N. C. 2700
Paul Cawlomeki	(Forestry Exten)
I E Hobbs	Edenton N C 27932
J. G. Hofmann	Box 145 Rosnoke Rapids, N. C. 27870 (Albemarle Paper Mfg. Co.)
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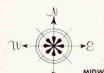


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