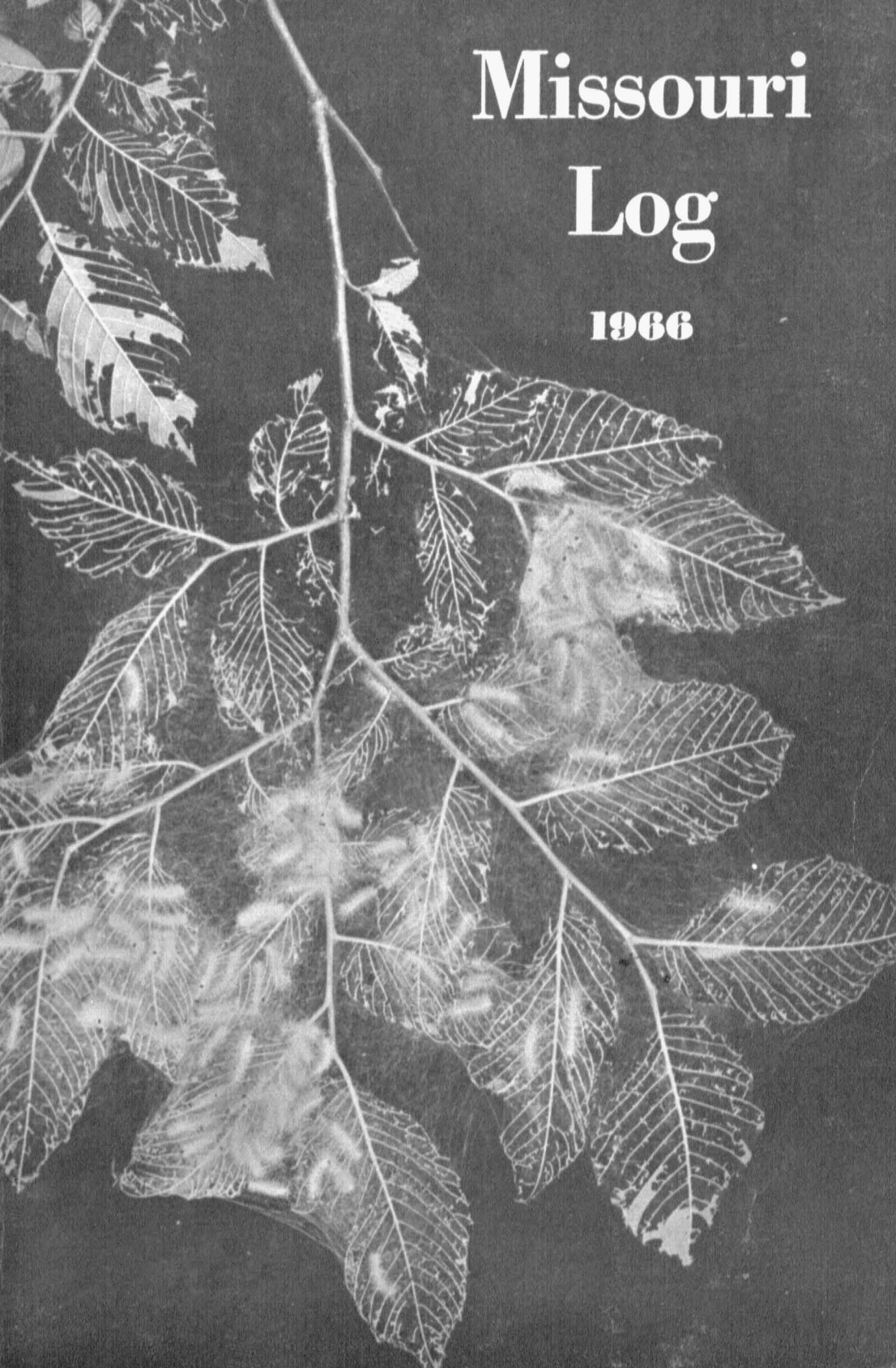


**Missouri**

**Log**

**1966**





# THE MISSOURI LOG

published annually

by



SCHOOL OF FORESTRY  
UNIVERSITY OF MISSOURI

Volume XIX

1966



DR. THEODORE W. BRETZ

# DEDICATION

TO THEODORE W. BRETZ who has contributed much to an understanding of some of Missouri's forest tree diseases and has stimulated the interest of both undergraduate and graduate students in forest disease problems, we dedicate the 1966 Missouri Log.

Dr. Bretz, who is a widely recognized authority in the field of forest pathology, first came to Missouri in 1943 as a pathologist with the United States Department of Agriculture. Prior to this he had received a Bachelor of Science degree in agriculture and a Ph.D. in botany from Ohio State University and a Master of Science degree in mycology from Iowa State University. His first employment in his profession was as an instructor at Texas A & M College. He assumed a teaching position at Missouri University in 1948 with the Botany department. In 1954 he joined the staff of the School of Forestry, becoming our first full time forest pathologist.

Professional improvement occupies a great deal of Dr. Bretz's time. He is an active member of the American Association for the Advancement of Science, Society of American Foresters, American Phytopathological Society, International Shade Tree Conference, and other scientific societies. In 1960, Dr. Bretz took a one year sabbatical leave for a Guggenheim Fellowship to study conifer plantation diseases in Switzerland and several other European countries.

One of Dr. Bretz's more significant achievements was his discovery of the perfect (sexual) stage of the oak wilt fungus. Subsequent research by another pathologist led to a reclassification of the name of the fungus that now bears Dr. Bretz's name—*Ceratocystis fagacearum* (Bretz) Hunt.

To cite his many other accomplishments, publications, and activities, would not add anything to the respect and esteem in which Dr. Bretz is held by the faculty and students of the School of Forestry. Those of us who have been acquainted with him in the classroom or know of his pioneering work with midwestern forest diseases, know that the *Log* could not be dedicated to a more deserving individual.

## FOREWORD

EACH YEAR in the United States and Missouri, both insects and diseases destroy more timber than our arch enemy fire. Few people realize this, and it seems that even fewer care. Therefore, we have selected this oft ignored subject of insects and diseases for the theme of the 1966 Missouri Log.

Our feature articles cover the insect and disease problem in Missouri and then take a broader look at Federal research in forest pests. Raymond Gass of the Missouri Department of Conservation discusses the insect problem in Missouri. Dr. Ted Bretz, to whom we have dedicated this issue of the *Log*, presents a review of the State's more serious pathological problems. Messrs. R. W. Brandt and R. J. Kowal of the U. S. Forest Service give us some insight into the insect and disease research program of the Forest Service at the National level.

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## Photo Credits

Credit for the photograph on page 2 of Dr. Bretz goes to Ghio Studio. Photos on pages 27 and 32 were supplied by the U.S. Forest Service. Staff photographer Tom Zolk, aided by Ron Lumb and several others supplied most of the pictures of Club Activities. The cover photo is by Professor Lee Jenkins.

# Report on the School of Forestry, 1965

D. P. DUNCAN

IT IS A DISTINCT PLEASURE for me to write this report on the School for the *Missouri Log*. As new arrivals, we have found the environment in the School on campus, and in Columbia to be most hospitable. By this time next year, I shall probably be saying the same thing about the State as a whole, but thus far haven't seen nearly as much downstate as would be desirable.

The School of Forestry has grown during the past year with an enrollment of 212 undergraduate students in residence during the fall of 1965. Although the proportion of the total enrollment in the two utilization curricula is smaller than desirable, these areas should show an increase in the near future. Dr. Westveld has visited the St. Louis, Kansas City, and Springfield areas, where he has talked extensively with high school counsellors, giving particular emphasis to the opportunities in wood products and building materials management and light construction.

At the graduate level, we have 19 students in residence working in forest soils, tree physiology, pathology, ecology, silviculture, management and forest economics. Five are Ph.D. candidates; the rest are working at the Master's level. This is an area where there will undoubtedly be substantial increases in the next few years. We have prepared an attractive announcement of our graduate assistantships and a graduate study brochure with which we hope to attract graduate students in greater numbers from throughout the country. The graduate program will attempt to fill two needs—that of the professional for additional broad training in land management, and that of the specialist for training in depth in one discipline within forestry.

The staff too is expanding. We have been able to interest Dr. Gregory Brown of the Oak Ridge National Laboratories in coming with us as tree physiologist beginning June 1. He will undertake graduate student advising, research, and some teaching at the senior and graduate level. Greg has degrees from Iowa State, Yale, and Duke University, has experience with Forest Service Experiment Stations and the State of Kentucky and has been a productive scientist at Oak Ridge. We are also looking for the best possible candidate to replace Fred Taylor in Extension. Fred left utilization and marketing here to assume a research position at Mississippi State. Once again, we are setting high standards on the assumption that strength of individual staff primarily determines the overall strength of the School. Hopefully, this position too will be filled by the time the *Log* is published.

Al Vogt has been added as an instructor, working with Brooks Polk in dendrology. Al is now nearing the completion of his Ph.D. Sandy Nash is on a 2-year leave of absence with FAO in India. His letters indicate that he is making progress in assisting that country with its inventory problems. Don Janes has come in from Weldon Spring to handle Nash's course work. Carl Settergren is at Fort Collins, Colorado, pursuing work toward his Ph.D. degree in forest hydrology. We expect to be able to take greater advantage of the opportunities offered by the Water Resources Research Center on campus when he returns. Jim O'Neil is still an active participant in School affairs, and is perhaps the most regular faculty attendant at Forestry Club meetings.



In terms of physical plant, field areas, and equipment, the School is also advancing. In spite of the fact that we only very recently moved into the new Agriculture Building on campus, space for forestry is inadequate. Increased staff and graduate enrollment, along with an increase in Forest Service personnel, finds us bulging at the seams. As a result, Dean Kiehl has appointed a committee to explore the need for a new forestry building or buildings on campus adequate to meet the needs both of the School and of the Forest Service Research Center. This will be a joint undertaking of the two organizations.

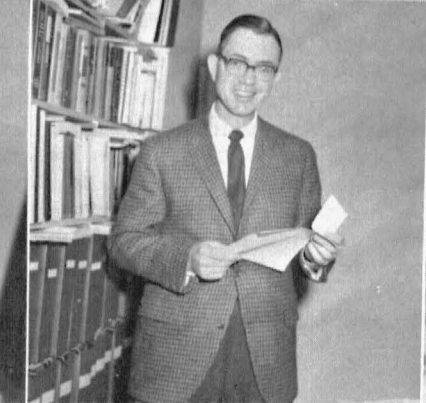
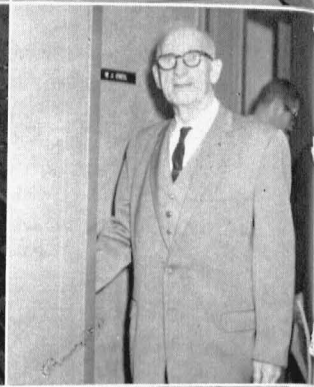
Ted Bretz is chairman of the campus greenhouse committee and should help us acquire badly needed greenhouse and growth chamber research space. The School has been provided \$25,000 of State money for improvements on the Forest, particularly aimed at facilities for watershed management research, but also providing other desirable additions. A small structure is also being built at Research Park for the School's preservation equipment.

The School's financial situation is better this year than at any time in the past due in substantial part to the availability of McIntire-Stennis funds. In addition, we have an assistantship in cooperation with the Soils Department in the field of watershed management. Next year, we will have two National Defense Education Act fellowships in forestry. The Development Committee of the Advisory Council reported at the fall meeting that the School had received \$7,300 during the past year in gifts and bequests for scholarships, loan funds, lectureships, and unrestricted use. Included were funds for the Benson Memorial Lecture, the Ferguson scholarship, the Columbia Ladies Auxiliary of the Home Builders' Association scholarship, and the capital funds for the Westveld prize in forestry for the best junior or senior paper in silviculture.

Staff salaries were increased quite substantially in total in the School this year, and this is perhaps the most significant financial improvement of all. Competition for highly qualified professional staff is becoming increasingly severe and with the rising enrollments and expanded funds for research, all forestry schools are hard pressed. Salaries, of course, do not account totally for staff movements, but they do play a significant role. We hope in all respects to keep Missouri in a truly competitive position for good staff.

Once again this year two short course conferences were held and both were very well attended, with 93 at the forestry short course and 84 at the tree service conference. Forest wildlife and legal problems were emphasized at the former, and physiological, insect and disease problems at the latter. Both were well received by those attending. At the Southwest Lumberman's Convention exhibit in Kansas City in January, the School's exhibit featured the activities and progress made by graduates in the field of merchandising. It is an interesting and striking documentation of the potential for such graduates.

We have received word of a number of important advancements made by School alumni in their professional and technical activities. This is good news indeed. In reality, of course, this is the ultimate measure of our School's success. I'd like to extend an invitation to alumni to stop at the School whenever the opportunity is available. Keep us informed of your activities!



## NEW DIRECTOR

ON AUGUST 1, 1965, Dr. Donald P. Duncan became the new Director of the School of Forestry, succeeding retiring R. H. Westveld. Dr. Duncan comes to us with excellent qualifications and a vast backlog of forestry and administrative experience.

Born in Joliet, Illinois, Dr. Duncan received his Bachelor of Science degree from the University of Michigan and also a Master of Science degree in zoology from that same institution.

Early employment included work with the Forest Service in the Shelterbelt Project in Kansas, flood control survey on the White River in Harrison, Arkansas, and nursery research at Brooklyn, Mississippi. He then went to Kansas State University where he was a forestry instructor in their Horticulture Department.

During World War II, Duncan served with the Ski Troops of the 10th Mountain Division in the Aleutian Islands and Italy. During the last six months in service he taught forestry at the Army University in Florence, Italy. He recalls that this was a most rewarding and interesting project because of the opportunity he had to talk with European foresters and see their forests and management practices.

After the war, he worked briefly as an extension forester in Kansas, and then went to the University of Minnesota for his Doctor's degree. While at Minnesota, he taught silvics, watershed management, recreation, and several other courses. He was also assistant director of the Minnesota Forestry School for about a year prior to coming to Missouri.

Many students may not have had the opportunity to meet and talk with Dr. Duncan as yet, unless they have had a problem of some sort. He plans, however, to do something about this in the near future. He enjoys teaching and plans to assume the instruction of some upper class course so that he can become better acquainted with the students. He would also like to resume some of his research activities, but is afraid other demands on his time will preclude this activity.

---

### The Faculty:

Row 1: R. H. Westveld, D. P. Duncan, K. E. Moore

Row 2: L. K. Paulsell, R. B. Polk, W. J. O'Neil

Row 3: D. Janes, J. M. Nichols, R. C. Smith

Row 4: A. R. Vogt, G. S. Cox, E. A. McGinnes

Row 5: J. P. Pastoret, J. H. Smith, L. E. McCormick

## FACULTY NOTES

THE PAST YEAR HAS SEEN a great deal of change and adjustment in the School of Forestry faculty. Retiring Dr. Westveld has been succeeded as director by Dr. Donald Duncan, former assistant director of the Minnesota School of Forestry. Dr. Westveld remains in a teaching and advisory capacity in the School.

Dr. Andrew Nash is on sabbatical leave in India with the F. A. O. of the United Nations. He is assigned as a consultant specialist in connection with an Indian Forest Inventory project. He is stationed at the Forest Research Institute, Dehra, U.P. India. Don Janes has come up from Weldon Springs to assume Nash's teaching duties.

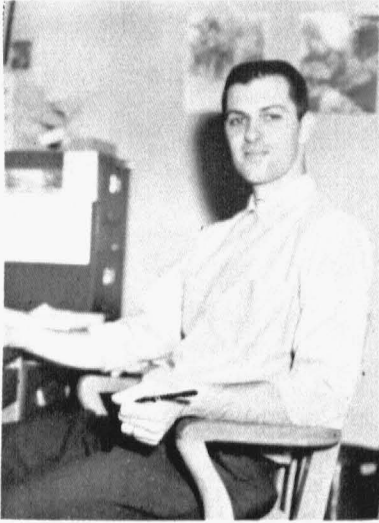
Carl Settergren is presently on leave at Colorado State University in Fort Collins, where he is working on his Ph.D. in Watershed Management. Al Vogt is now helping with dendrology instruction and expects to receive his Doctor's degree shortly.

Fred Taylor has left us for a position at Mississippi State, where he is Assistant Director of their Wood Products Laboratory. As yet, a successor has not been selected.

Staff meeting?



## *Doctor's Degree Candidate*



**ALBERT RALPH VOGT**

Affton, Missouri

B.S., University of Missouri, 1961

M.S., University of Missouri, 1962

Forestry Club

Society of American Foresters

Xi Sigma Pi

Gamma Sigma Delta

Sigma Xi

Westveld Senior Award

**Thesis: HORMONAL ASPECTS OF  
SPROUTING OF OAK**

## *Master's Degree Candidates*



**ALGIRD J. VALIUNAS**

Shrewsbury, Massachusetts

B.S., University of Massachusetts

Xi Sigma Pi, Forester 1964-65

Alpha Zeta

Society of American Foresters

Work Experience:

Massachusetts Department of Natural  
Resources 1963

Upton State Forest 1964

**Thesis: STAND IMPROVEMENT  
OF IMMATURE OAK**

# Master's Degree

---



**VERNON D. AMMON**

Mendon, Missouri

B.S., University of Missouri, 1965

Forestry Club

Xi Sigma Pi

**Thesis: THE IMPORTANCE OF THE SMALL OAK BARK BEETLE, *Pseudopityophthorus minutissimus*, AS VECTOR OF THE OAK WILT FUNGUS, *Geratocystis fagacearum***



**DAVID R. MILLER**

Kansas City, Missouri

BSF, University of Missouri, 1962

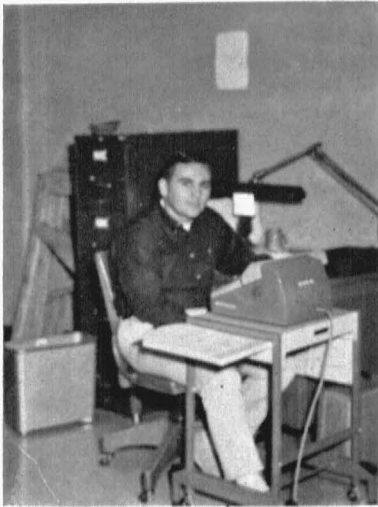
Society of American Foresters

Xi Sigma Pi

**Thesis: WATER BALANCE IN OAK FORESTS IN CENTRAL MISSOURI**

# Candidates

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## DAVID R. DEWALLE

St. Louis, Missouri

B.S.F., University of Missouri, 1964

Xi Sigma Pi, Forester 1963-64

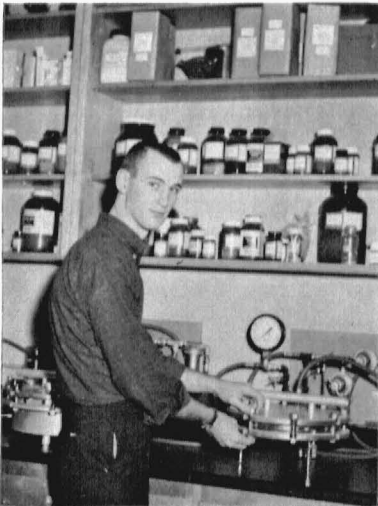
Gamma Sigma Delta

Alpha Zeta

Society of American Foresters

Work experience: U. S. Forest Service,  
Klamath National Forest; Yreka, Cali-  
fornia, Summer 1963

**Thesis: WATER BALANCE ON AN  
OZARK WATERSHED**



## DON A. WALTERS

Creve Coeur, Missouri

B.S.F., University of Missouri, 1965

Forestry Club

Society of American Foresters

Xi Sigma Pi

**Thesis: OCCURRENCE AND  
GROWTH FORM OF AD-  
VANCED REPRODUCTION UN-  
DER OAK STANDS IN THE  
MISSOURI OZARKS**

# Master's Degree

---



## LOY NEWBY

Dixon, Missouri

Forestry Club  
Society of American Foresters  
Xi Sigma Pi  
U.S. Army, 1957-59

**Thesis: CARBON UTILIZATION  
BY *Fomes annosus***



## JOHN W. CHESEBRO

Ellenville, New York

B.S.F., University of Missouri, 1964  
Forestry Club  
Xi Sigma Pi  
Gamma Sigma Delta  
Headless Axe 1963

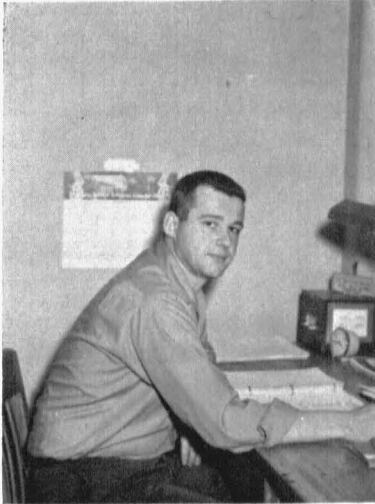
Work experience: USFS Lassen National  
Forest, California, 1963

**Thesis: THE CONTROL OF *Fomes  
annosus* AND THE EXTENT OF  
BOLE INVASION BY THE  
FUNGUS ON SHORTLEAF PINE  
IN MISSOURI**



# Candidates

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## DAVID B. DRUMMOND

Columbia, Missouri

B.S.F., University of Missouri, 1964

Forestry Club

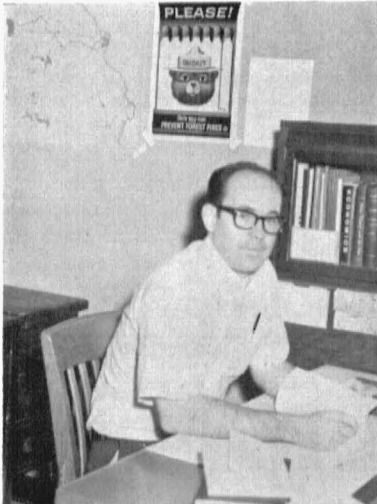
Society of American Foresters

Xi Sigma Pi

Gamma Sigma Delta

U. S. Air Force

**Thesis: SEASONAL FLUCTUATIONS OF AIRBORNE INNOCULUM OF *Fomes annosus* (Fr.) KARST**



## ROBERT E. NELSON

Licking, Missouri

Southwest Missouri State College 1958-60

BSF, University of Missouri, 1964

Society of American Foresters

American Forestry Association

Forestry Club

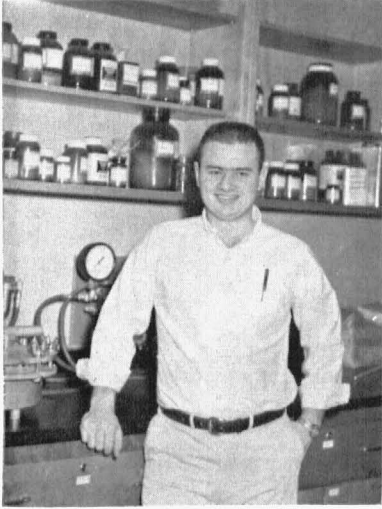
Work experience: Kansas State University

Monzark Tree Farm

Missouri Department of Conservation

**Thesis: PLANNING TIMBER STAND CONVERSION IN THE MISSOURI OZARKS UTILIZING LINEAR PROGRAMMING**

# Masters Degree Candidates



**GARY THOMAS CHRISTOFF**  
Cape Girardeau, Missouri

B.S., University of Missouri, 1965  
Forestry Club  
Society of American Foresters  
Xi Sigma Pi  
R. B. Potashnick Construction Co. 1961-62  
C.S.F.E.S., Carbondale, Illinois 1964

**Thesis: THE ROLE OF AUXINS  
IN WHITE AND BLACK OAK  
ACORN DORMANCY**

## THE OAK SPROUT

Hi, little oak sprout, how are you today?  
Tell me, what misfortunes have come your way?  
Was it a fire that stunted your roots. . . .  
Or was it a cow that munched your shoots?  
By a drouth you were parched, did you say?

The tiny sprout had a pretty story to tell. . . .  
It had grown from a shiny acorn that fell  
In forest letter, the seedling had sprung!  
Praises! For oak reproduction had begun.

But now, the sprout knew the end was near.  
It quivered and trembled and shook with fear.  
A cross-section for science was its lot,  
Because it had grown in Jerry's plot.

# Senior Class of 1966

## BREDFELDT, HARRY JOHN, JR.

Lombard, Illinois

Transfer from Wright Junior College

Forestry Club: '63-'64, '64-'65, '65-'66

Historian '65-'66

Society of American Foresters

Xi Sigma Pi: Secretary-Fiscal Agent '65-'66

Inter-Varsity Christian Fellowship: Treasurer '64-'66

Radio Club

Gamma Sigma Delta

Experience: C.S.F.E.S. Carbondale, Illinois summer '65

## BAER, JAMES ROBERT

Independence, Missouri

Transfer from University of Wisconsin

Forestry Club: '64-'65, '65-'66

Forester winter '66

Missouri Log: Circulation Manager

Society of American Foresters

Xi Sigma Pi

Gamma Sigma Delta

David Gwinner Scholarship

Experience: US Army

## CUTLER, ROBERT R.

Princeville, Illinois

Transfer from Southern Illinois University

Forest Products Research Society: Honorary Membership

Xi Sigma Pi

Lumber Dealer's Scholarship

Experience: U.S.F.S. Mammoth Lakes, California

Survey of Missouri Furniture Manufacturers

Caterpillar Tractor Company

## DEXTER, RICHARD A.

Rutland, Vermont

Transfer from Iowa State University

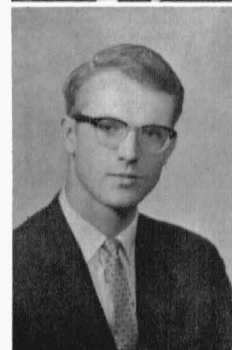
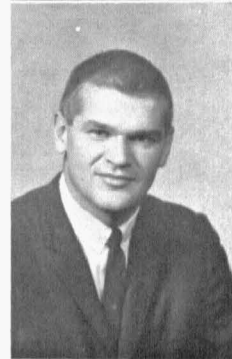
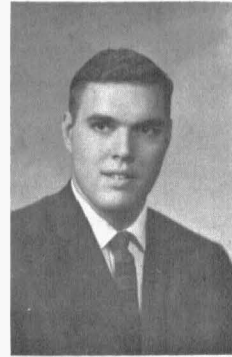
Forestry Club at ISU

Society of American Foresters '64-'65

Experience: TSI in Vermont private forestry summer '64

Land Maintenance at Mavanatha Bible Camp summer '65

TSI in Vermont private forestry summer '62





### **GIBSON, MARK C.**

Fort Lauderdale, Florida

Transfer from Westminster, Fulton, Missouri

Forestry Club: '65-'66

Society of American Foresters '64-'66

Phi Delta Theta

Experience: Clark National Forest, Rolla, Missouri  
summer '65

### **GLOCK, ROBERT WARREN**

St. Louis, Missouri

Forestry Club: '62-'66

Society of American Foresters '65-'66

Chouteau Grotto

Beta Sigma Psi

Experience: Boise National Forest summer '63 and  
'65

### **HALEY, WILLARD JAMES**

Slater, Missouri

Forestry Club: '62-'66

Forest Products Research Society '65

Xi Sigma Pi

M. S. A. Senator '63-'64

Agriculture Club '62-'64

Farmhouse

National Home Builders' Association Scholarship '63-  
'64, '64-'65

Curators' Award

Experience: ROTC Scholarship-stationed on board  
U.S.S. Coral Sea (CVA-43) summer '64

Stationed on board Naval Air Station Corpus  
Christi, Texas and Naval Amphibious Base Coro-  
nado, California summer '65



### **JONES, SHELBY GENE**

Troy, Missouri

Forestry Club: '63-'64, '64-'65, '65-'66

Secretary '65-'66

Society of American Foresters '64-'66

Student Union Commission

Red Cross Lifesaving Instructor

Tiger Squadron Drill Team

American Forestry Association

Sports: Intramural Basketball, Softball, Football,  
Handball

Experience: U.S.F.S. Boise National Forest, Garden  
Valley, Idaho

McDonnell Aircraft Corporation, St. Louis, Mis-  
souri

Waterfront Director, Camp Rising Sun, Lake  
Ozark State Park



**KELLMANN, HARRY J.**

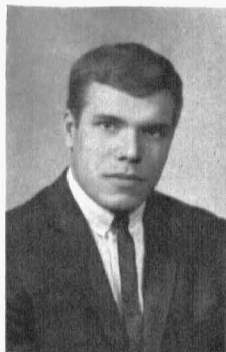
Creve Coeur, Missouri

Forestry Club: '62-'66

Society of American Foresters '64-'66

Sports: Intramural Football, Softball, Volleyball

Experience: Routh National Forest summer '65



**KIRBY, LONNIE RAY**

Columbia, Missouri

Forestry Club: '62-'63, '63-'64, '64-'65, '65-'66

Society of American Foresters

Experience: U.S. Forest Service summer '63 and '65



**KOCAR, GUY C.**

St. Louis, Missouri

Transfer from Central Missouri State

Society of American Foresters

Experience: U.S. Army—three years summer work as deck-hand and warehouseman



**LANDES, WALLACE H.**

Niagara Falls, New York

Transfer from Graceland College, Lamoni, Iowa

Forestry Club: '63-'64, '64-'65, '65-'66

Society of American Foresters

Experience: Titanium Alloys, two years summer work

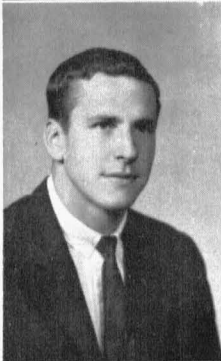




**LONG, RODERICK C.**

Manhattan, Kansas

Transfer from Kansas State University  
Society of American Foresters  
Experience: U.S. Army  
Eldorado National Forest, California



**LOWERY, ROBERT FRANKLIN**

Macon, Missouri

Forestry Club: '62-'66  
Ranger '65, Secretary '65, Assistant Forester '66  
Society of American Foresters  
Xi Sigma Pi: Ranger '65-'66  
Lieutenant Governor and Governor of Park House  
'65 and '66  
Xi Sigma Pi  
Alpha Zeta  
Missouri Federation of Women's Clubs Inc. Forestry  
Scholarship  
Experience: U.S. BLM Carson City, Nevada summer  
'63  
U.S. BLM Medford, Oregon ("O & C" Lands)  
summer '65



**MCHARDY, DAVID THOMSON**

Glendale 22, Missouri

Forestry Club: '62-'66  
Society of American Foresters  
Xi Sigma Pi  
Gamma Sigma Delta  
Experience: Plains Ranger District, Lolo National  
Forest, Montana summer of '63 and '65



**MILLIKAN, BILLEE CHARLES**

Morganfield, Kentucky

Transfer from Louisiana Polytechnic Institute  
Society of American Foresters  
Sports: Intramural Basketball  
Experience: Construction, M and W Co., Morgan-  
field, Kentucky summer '61-'62  
Louisiana Tech. Nursery '63-'64  
Williamsville Nursery '65

**NAPIER, DANIEL A.**

Jennings, Missouri

Forestry Club: '62-'66

Log Staff: Assistant Adv. Manager '64-'65, Adv. Manager '65-'66

Society of American Foresters

Xi Sigma Pi: Secretary Fiscal Agent '65

Gamma Sigma Delta

Richard M. Higgins Scholarship '63, '64

Sports: Intramural Basketball

Experience: Forester, Moss American Inc. summer '65

Sears-Roebuck Co. summer '63

U.S. Navy '59-'62



**ODELL, MARSHALL SPEIRS**

Santa Clara, California

Transfer from U.S. Merchant Marine Academy, Kings Point, New York

Forestry Club: '63-'66, Treasurer '64-'65, Forester '65

Log Staff: Business Manager '65-'66

Forest Products Research Society '63-'66

Xi Sigma Pi '64-'66

Westveld Sophomore Award '64

National Association of Home Builders Foundation Scholarship '63-'64, '64-'65, '65-'66

Experience: U.S. Army '60-'63

J. M. Nichols Ornamental & Exotic Tree Farms, '64, '65

University of Missouri Science Laboratory Instrument Shop '63-'66



**PAULSMEYER, JOHN DAVID**

Rolla, Missouri

Forestry Club: '62-'63

Society of American Foresters

Sports: Varsity Rifle Team, ROTC Rifle Team

Experience: Kootenai National Forest summer '63, Libby, Montana



**REHAGEN, CONRAD CHARLES**

Westphalia, Missouri

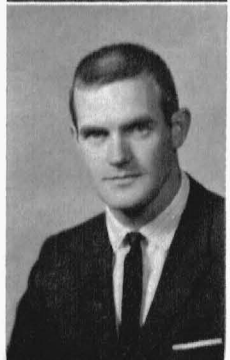
Transfer from Lincoln University, Jefferson City, Missouri

Forestry Club: '65-'66

Society of American Foresters

Experience: United States Marine Corps

Mark Twain National Forest, Winona, Missouri summer '65





**RIGGS, DAVID A.**

St. Louis, Missouri

Forestry Club  
Society of American Foresters  
Experience: Forest Service, Los Padres National  
Forest, California  
Forest Service Boise National Forest, Idaho



**SANTHUFF, CHARLES LEWIS**

Corridon, Missouri

Forestry Club  
Society of American Foresters '64



**SCHNURBUSCH, WILLARD JOSEPH**

Perryville, Missouri

Transfer from Southeast Missouri State College  
Forestry Club: '63-'64, '64-'65, '65-'66  
Society of American Foresters: '64-'65, '65-'66  
Experience: Missouri Army National Guard '60-'64  
Pacific Northwest Forest Expt. Station summer  
'65



**SHAMBO, WILLIAM FREDERICK**

Jackson, Missouri

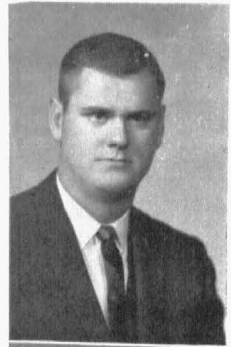
Transfer from Southeast Missouri State College  
Society of American Foresters  
Experience: Clearwater National Forest  
Northern Idaho Forest Genetics Center  
Supt. Priest River Experimental Forest  
Intermountain Forest and Range Experimental  
Station, Division of Forest Economics  
U.S. Army Reserves



**TEVERBAUGH, JOHN RALPH**

Salem, Missouri

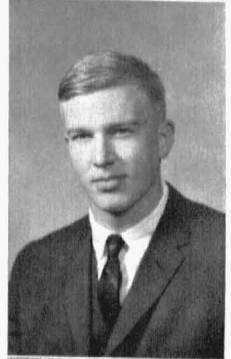
Forestry Club: '62-'63, '63-'64, '64-'65, '65-'66  
Society of American Foresters  
M. R. H. A. Board of Governors  
Army Cadet Officers Association  
Sports: Intramural Football, Volleyball, Softball  
Experience: American Metal Climax, Inc. summer '65



**WALKER, NELSON DAVID**

Kansas City, Missouri

Society of American Foresters



**WALTERSCHEIDT, MICHAEL J.**

Morrison, Missouri

Forestry Club: '64-'65, '65-'66  
Society of American Foresters  
Experience: Forrest Keeling Nursery summers '62, '63, '64



**WILLIS, JAMES ROBERT**

Leasburg, Missouri

Forestry Club: '62-'63, '63-'64, '64-'65, '65-'66  
Assistant Forester '65  
Log Staff: Asst. Advr. Manager '64, Assoc. Editor '65, Editor '66  
Society of American Foresters  
Xi Sigma Pi: Asst. Forester '65-'66  
Gamma Sigma Delta  
Westveld Award '62-'63, '64-'65  
Curators Award '62-'63, '63-'64  
Richard M. Higgins Award '64-'65  
Oliver M. Ferguson Award '65-'66  
Sports: Intramurals  
Experience: Lacey Nursery and Greenhouse summers '61, '62  
Kaibab National Forest summer '63  
Timber Inventory-Region 4 U.S.F.S. summer '65  
Missouri Seed Testing Laboratory

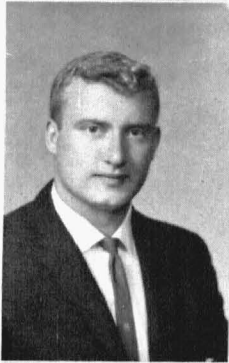




**WROBLEY, ARTHUR RAY**

Kansas City, Missouri

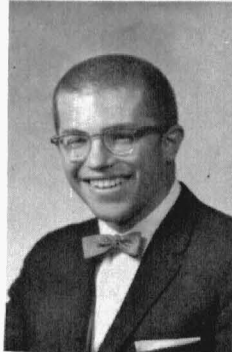
Forestry Club: '64-'65, '65-'66  
Society of American Foresters  
Xi Sigma Pi  
LaVerne Noyes Scholarship  
Experience: U.S. Coast Guard '58-'62  
U.S. Forest Service summer '63



**YODER, WILLIAM GALE**

Blairstown, Missouri

Forestry Club: '62-'63, '63-'64, '64-'65, '65-'66  
Society of American Foresters  
Xi Sigma Pi  
Curator's Award  
Marguerite Krueger Scholarship  
Sports: Freshman Baseball, Intramural Football



**ZOLK, TOM CHARLES**

LaGrange Park, Illinois

Forestry Club: '62-'63, '63-'64, '64-'65, '65-'66  
Log Staff: Photographer '65-'66  
Society of American Foresters  
M.R.H.A. Governor Price House '63-'65  
M.R.H.A. Treasurer Price House '65-'66  
Experience: Cruising & Marking, Coeur D'Alene National Forest, Wallace, Idaho summer '65  
Business Manager, Band Department '64-'66

**DAVIS, THOMAS ANDREW**

Webster Groves, Missouri

Forestry Club: '65-'66

Sports: Missouri Track Team '60-'61

Experience: U.S. Plywood summer '65

**GISI, DONALD V.**

Farmington, Missouri

Transfer from Flat River Junior College

Forestry Club: '63-'66

Society of American Foresters '64

Xi Sigma Pi

Experience: U.S. Forest Service, Mark Twain National Forest, Cassville, summer '64

**GRECCO, GARY JOHN**

Brooklyn 20, New York

Transfer from Nichols College

Forestry Club: '65-'66

Society of American Foresters

Alpha Phi Omega

Acacia Fraternity

Sports: Intramural Softball, Football, Basketball, Handball

Experience: Junior Forester R. S. Ballou & Company summer '63

**GREENSTREET, MILTON E.**

Festus, Missouri

Forestry Club: '65-'66

Society of American Foresters '65-'66

Experience: Tahoe National Forest summer '65

**KING CLYDE WILLIAM "BILL"**

Springfield, Missouri

Transfer from Drury College

Forestry Club: '63, '64, '65

Society of American Foresters

Xi Sigma Pi

American Institute of Park Executives

Alpha Zeta

Kappa Alpha Order

Margueritte Krueger Scholarship

Experience: U.S.F.S. Sawtooth National Forest, Ketchum, Idaho summer '63

Jackson County Park Department, Kansas City, Missouri summer '65

**NASH, GARY THOMAS**

Brentwood, Missouri

Experience: U.S. Forest Service, Gila National Forest  
Weyerhouser Lumber Co., Laminating plant,  
Cottage Grace, Oregon

# Disease and Insect Research in the United States Forest Service

R. W. BRANDT and R. J. KOWAL<sup>1</sup>

TODAY FORESTRY IN America faces challenges greater than any in its history. It is doubtful that even men of vision could foresee 40 or 50 years ago the tremendous demand for forests and forest products that now exists. The demand for timber, pulp and paper products, water and water-shed protection and forests for recreation and wildlife is growing at a staggering rate.

The need for lumber is expected to increase from the 1962 figure (Forest Resource Report No. 17, Timber Trends in the U. S.) of 37.3 billion board feet to 53.5 billion board feet by the year 2000. Pulpwood demand will rise from 52.9 million cords of 1962 to 141.5 cords in 2000. Recreation in the form of camping, hiking, fishing, and picnicking is increasing at a phenomenal rate.

In the presence of this demand there is heavy competition for land. It is expected that by the year 2000 over 50 million acres of forest land will be taken out of production for urban and industrial development, highways, airports, water reservoirs, power lines, parks and other special uses. An annual loss of timber growth of 12 billion board feet will result.

Thus, it is obvious that forestry must and will become increasingly intensive in the future. More and better timber must be grown on each acre of forest; millions of acres of land must be planted with seedlings from superior parents; forests must be managed intensively and scientifically to provide quality timber, water, wildlife and recreation. It is less obvious that the protection of forest resources from insects, diseases and animals is a very critical part of good intensive forest management.

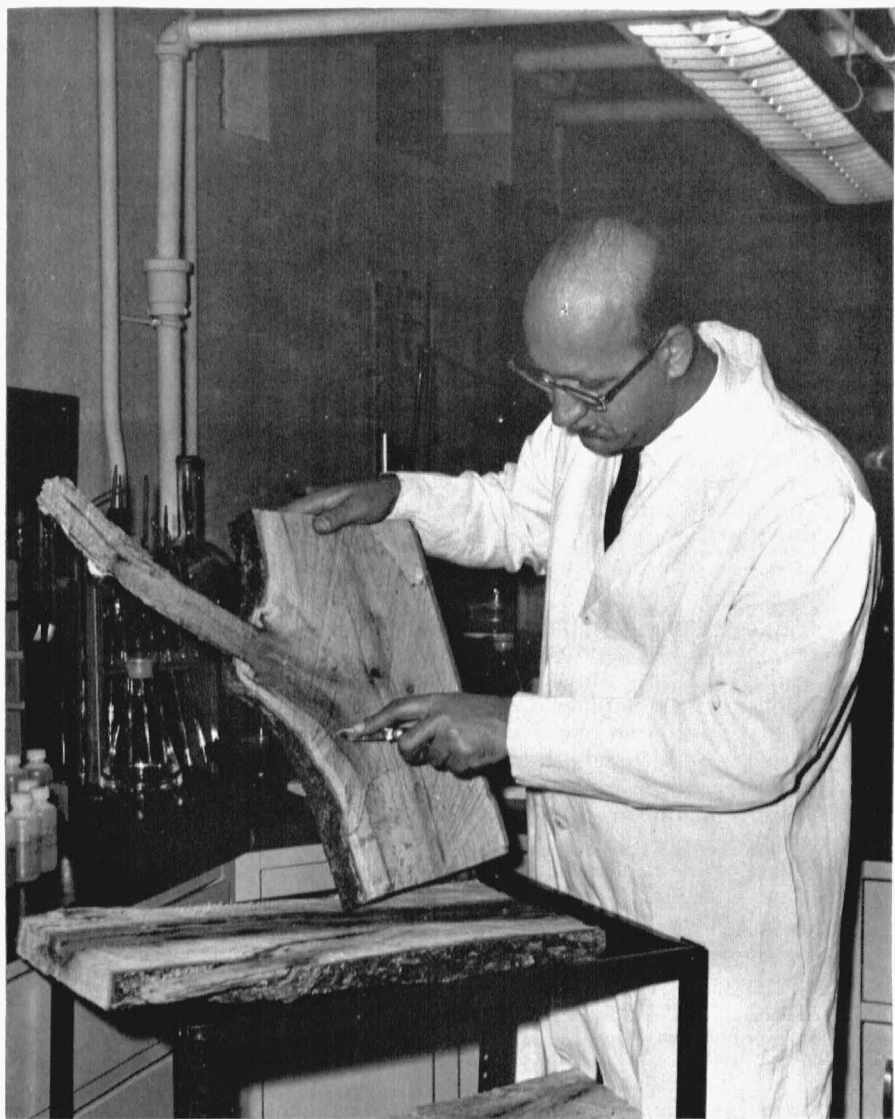
This paper presents a brief sketch of the U. S. Forest Service's disease and insect research program, its people and its role in reducing losses from forest pests.

## OUR RESEARCH PROGRAM

Forest Service research on forest pests in the United States is being done out of 9 Forest and Range Regional Experiment Stations at some 25 locations. There are currently 32 projects in research on forest insects and 23 on tree diseases. The total research effort in forest protection has grown considerably in recent years with the increased demand for and value of forest resources. With it has come greater emphasis in research on the biology and ecology of insect and disease organisms in relation to the environment with greater research in depth.

Forest disease and insect research projects are organized in several different ways. We have those built around a specific disease organism as in the case of *Fomes annosus* or around a particular tree as in our study of aspen. Some relate to areas of work as exemplified by our projects on root diseases and soil microbiology, native rusts of western conifers, wood decay, and white pine blister rust resistance. Still other projects are more general in that they may cover the diseases of northern conifers or bot-

1. Assistant Director, Forest Disease Research and Forest Insect Research, respectively. Division of Forest Protection Research, Forest Service, U. S. Department of Agriculture, Washington, D. C.



A researcher must often analyze a problem in terms of pathology, entomology and bacteriology as well as forestry.—U. S. Forest Service Photo

tomland hardwoods. Insect research projects are largely framed around the biology, ecology and control of a group of closely related insects such as the tree killing pine bark beetles or insects of similar habit such as defoliators. Certain projects give emphasis to specialized disciplines as for example, "Diseases of Bark Beetles" or "Physiology and Biochemistry of Forest Insects." Individual projects are subdivided into a number of studies with assigned priorities and specific objectives. The system remains flexible and current by way of periodic reviews, and a relative freedom to reorient old projects or to drop or start new ones.

In addition to its own research, the Forest Service supports the work of others through its program of cooperative aid. A Congressional bill, The Whitten Act, gives the authority for Forest Service stimulation of non-federal cooperation in forestry research. The cooperative aid program, as it is generally known, operates through the forest experiment stations and enables project researchers to work cooperatively with local university scientists and their students. The work so sponsored is a joint production with a project and the school or university department variously contributing equipment, supplies, time and manpower. Results are published jointly or separately through mutual agreement. Restriction on such cooperation is usually that imposed by limited finances and the requirement that the work must fall within the realm of authorized Forest Service research.

Under another law, P. L. 85-934, the Forest Service is authorized to make grants to non-profit institutions. The grants are made directly from the Washington Office, and to date, have been made only for basic research. Just recently the program has been less restrictive so both basic and applied proposals may be considered, but funding is largely dependent upon congressional appropriations. Needless to say, the Forest Service approves only those that add to the total research objective. Insect and disease research have been the biggest beneficiaries so far both in number of proposals approved and amount of money involved. At the same time these grants are helping to get the research job done, they also make it possible for graduate students and even an occasional undergraduate to work and train in some aspect of insect or disease research.

Under Public Law 480, the Forest Service has a number of insect and disease projects in foreign lands with so-called "soft-currency" countries. Money received in payment for agricultural commodities delivered to each such country is retained within the country and used to support basic research of benefit to the United States. Projects in foreign countries are selected to supplement and complement our own national program. We now have 23 insect and 11 disease projects in various countries of Europe, Asia and South America. Some projects are highly technical and very limited in scope while others are country-wide enumeration and descriptive studies designed to determine foreign insect and disease organisms that might prove harmful if introduced into American forests.

The Forest Service projects, cooperative aid and grant program, and the foreign projects are coordinated at the Washington Office level to prevent serious duplication of Federally-sponsored effort and perhaps even more serious gaps in our forest pest research program. Through attendance at national meetings and regional workshops, close contact is maintained with university researchers and state and federal control people. Research and control administrators are thus able to gauge the need for new programs or shifts in current program. Such meetings and contacts keep us fully aware

of who is doing what, and where, and how best can he be helped. This general awareness from above can be highly beneficial when a serious problem is met in the field or laboratory aspects of research or control.

#### OUR PEOPLE

Our researchers are, for the most part, scientists with a Ph.D. in some rather specialized field. Research on insect pests now demands not only well-trained entomologists, biologists and ecologists, but also peopole trained primarily in chemistry, biochemistry, zoology, microbiology, toxicology, biometrics, animal ecology or animal physiology. Any one or a combination of these disciplines may be needed to solve a particular pest problem. In fact the work is becoming so exacting that we often require specialization in the physiology, pathology and neurology of insects. A forestry undergraduate degree may be useful, particularly for research in insect ecology but forestry training for research in forest entomology is no longer so important as in prior years. Today, a man usually finds himself a member of a team of scientists, some of whom will have the forestry background necessary to keep the problem oriented to the needs of forestry and the forest pest problem.

In disease research, too, the research scientist needed for the job is becoming less and less a forester working in a sidelight of his forestry training but he may now be a pure mycologist, a plant physiologist, botanist, biochemist, nematologist, virologist, bacteriologist or a general plant pathologist. Teams have considerable place in disease research and the forester may find himself working hand and glove with the pathologist, chemist, mathematician and soil scientist on a field test of some new control procedure.

The specialist is the man of the present and the future in disease and insect research and it is conceivable that we will soon be thinking of the man trained to devote a lifetime to annosus root rot of slash pine, or one equipped only for research on dwarfmistletoe of ponderosa pine in the Black Hills of South Dakota. This situation will create a paradox in education: With increased specialization and the enforced narrowing of the educational program that is needed for such specialization, there will be a need greater than ever for the generalist; the man with broad training, broad interests and a keen insight into the relationship of insects or diseases in the forest ecosystem. The education of so many diverse specialists and the highly needed generalists will be a real problem to our educational institutions. The trend for the making of forest entomologists and pathologists seems to be one of increasing the spectrum and strength of basic curricula and making a brief smattering of the student's chosen field available to him in his junior and senior year. There seems, too, to be a great inclination toward a protection degree in graduate work. These moves toward the production of "jack of all trades, master of none" are questionable in the face of the need for more skills and greater abilities in both pest control and research.

Even with the best possible education, the research administrator, and the researcher in particular, must continue training beyond the formal college offering. Recent changes in operational—managerial concepts alone make this a necessity and added to these innovations is the great influx of scientific developments in techniques and equipment. The myriad of job-training, refresher course, workshop, seminar and symposium opportunities

were not meant to replace or even to reduce the effectiveness and completeness of the college program either at the undergraduate or graduate level. These opportunities were designed to keep the well-trained man in the competitive swim, keep him alert and desiring to move ahead. Many of our problems in pest research have a firm foundation now and are awaiting the skill and ingenuity of highly trained professionals for the breakthrough and the big payoff. The blockages we face will not be easily removed through reduced educational input in the form of joint curricula and replacement of formal coursework by workshops and symposia.

Interestingly enough, the level of education offered for our professional scientists would seem to fit to a "T" that needed by the kind of research technician needed on today's top priority jobs. Many of our technicians are college trained men—often with backgrounds in forestry, pathology or entomology. In some instances we could recommend that he be trained in "forest protection" but only if he is to be assigned to an overall protection program in research or control. Even at the technician level the fields of pathology and entomology are too different and too diversely demanding in background, knowledge and special skills for them both to be mastered by anyone hoping to make a real contribution to the job ahead.

With proper training the technician can assume considerable responsibility and can operate at a level where he can reap both financial and social rewards and not feel pressured to return for an advanced degree. There are undoubtedly some among professional ranks today who, with proper encouragement and reward, might have preferred to be good technical assistant to top drawer research scientists or control specialists. On the other hand, the technician does not need to resign himself to his technician's role if he desires to climb to professional rank. He can work for advancement through diligent study and informal training on the job to the point where he might be permitted or even encouraged to take formal coursework toward a higher degree. Government-sponsored training programs and liberal leave provisions are available to the technician as well as the professional.

#### OUR FACILITIES

Federal research facilities have come a long way since Senator Stennis of Mississippi delivered his "take the scientists out of the sheds" plea. A number of major forest science laboratories have been completed and others are under construction and in the short-range plans. Corvallis, Oregon; Berkeley, California; Delaware, Ohio; Athens, Georgia; and Durham, North Carolina, all have new and modern insect and disease research laboratories. As this edition of the "Missouari Log" comes off the press, the first construction activities should be underway for a major disease—insect research installation at Hamden, Connecticut. Other smaller laboratories are situated about the country where certain field problems demand near-constant attention, but the tendency is to group research specialists and research teams at or very near large university centers to give our people the academic—scientific benefits of university life.

#### PUTTING RESEARCH TO WORK

The end result of all research on forest disease and insects is to prevent, reduce or eliminate serious forestry losses. We in forest protection are trained to think in terms of timber and/or lumber and other wood product losses, but there is an ever-growing trend to think of the losses that are



accruing in recreational, social, and aesthetic aspects of our wooded lands. Today, with the mounting scarcity of high quality logs and lumber products and with an increased public awareness of the importance of trees and forests to our physical and mental health, the benefits from pest control increase. With every increase, the input of control effort and research that can be afforded to protect our forest resources can be increased.

Forest pest control is almost entirely dependent on the research organization for its progress and ultimate effectiveness. At the same time, the effectiveness of control is very much a measure of research accomplishment. Too often in the past there has been a gap between the level where researchers leave a problem and where pest control people can satisfactorily pick it up. This gap is rapidly being bridged. This is welcomed not only because it permits successful completion of major forest protection objectives, but also because it creates a greater understanding and appreciation of the problems faced by both research and control. The physical coordination necessary for such studies may be aided in the future by temporary assignment of a researcher to a control unit or vice versa. Creation of special, developmental units with experts enlisted for short periods from university and state organizations as well as from within the Forest Service might prove to be beneficial and even necessary for solving the more difficult transitional problems of the future.

What promises to be a far-reaching event in the making of insect and disease research results available to the forest land owner is the reorganization and strengthening of the area of State and Private Forestry by the Forest Service. The new State and Private Forestry organization is aligned to intensify the extension aspects of all forestry research. The Division of Forest Pest Control will remain in this unit and will be working more closely with state and local control organizations. Presumably, this alignment will bring both research and control into even closer contact with university and state people concerned with forest pests.

These contacts have long been excellent, but movement of our research locations to university centers, the trend to larger projects, and the government-wide encouragement of academic participation by its employees should make for even closer relations. We already see an increase in the number of our people and in the total time involved in consultation and advisory services at universities. More federal research people on campuses are being invited to become staff members, and in so doing they give courses, direct graduate students and their work, and render assistance in teaching laboratories and seminars. An added benefit normally existing in Federal assignments to universities is the opportunity for summer and/or year-round part-time employment of students for federally sponsored laboratory and field studies.

In these few pages we have attempted to illustrate in a general way the Forest Service program of research on forest diseases and insects. We hope that we have been successful in picturing the dynamic nature of this program and the challenges and opportunities that lie ahead for young scientists. We are optimistic that our researchers will make break-throughs and contribute toward the solution of many of our serious problems. But new problems will arise as man increases his pressure on the environment; as he changes the face of the land and puts greater demands on the forest and its products: timber, water, recreation and beauty.

These increasingly complex problems will require higher competence in

the young scientist of the future. The need for highly trained specialists will be great—but equally great will be the need for thoroughly but broadly trained scientists with a perceptive understanding of the complexities of the forest ecosystem and the interplay of specialties needed to solve these new problems for the benefit of man.



Considerable effort is currently expended on the search for effective control of the serious root rot fungus, *Fomes annosus*.—U. S. Forest Service Photo

# TREE DISEASES IN MISSOURI

T. W. BRETZ

THE FIRST RESEARCH IN THE UNITED STATES that focused attention on forest disease problems began in Missouri at the turn of this century. In 1899, the Mississippi Valley Laboratory for forest disease research was established by the U. S. Department of Agriculture at the Shaw Botanical Garden in St. Louis. One might assume, therefore, that much information concerning the tree diseases in this state would have accumulated over the years, so that today our knowledge of these problems would be reasonably complete. However this is not the case, for the Mississippi Valley Laboratory was short-lived. It was discontinued in 1907 and except for occasional disease surveys, little information on tree diseases was obtained in Missouri during the next four decades. In 1945, the U. S. Department of Agriculture established a forest pathology field station at the University of Missouri with the assignment of the writer to investigate a destructive disease that was killing American elms throughout the state. This re-activation of disease research by the USDA some 20 years ago, represents, in effect, the origin of our current interest and research efforts in the field of forest pathology. However, active participation by the School of Forestry in this field of research did not begin until 1954. Our total effort in terms of years and manpower in this aspect of forestry, therefore, has not been very great. As a result, our knowledge concerning many of the disease problems affecting the forest and shade tree species in Missouri is rather fragmentary, at best.

The number of native and introduced tree species that grow in this state is very large and each is subject to a wide variety of diseases. Fortunately, the vast majority of these are enphytotic in character and are generally of minor importance in terms of their destructiveness. However, diseases that are normally enphytotic may become epiphytotic and assume destructive proportions as a result of changes in silvicultural practices, climatic changes, the appearance of new and more efficient vectors, or because of some other environmental modification. Conversely, some of these alterations in the environment may work to our advantage at times, in that they may result in a disease becoming less damaging. The extent of our knowledge regarding a specific disease, therefore, relates directly to our ability to lessen the losses that it is likely to cause.

In Missouri, losses due to decay in standing timber exceed those caused by any other destructive agent. These losses are not the result of tree mortality but are due to the volume of wood lost in cull due to decay. All of our timber species are susceptible to decay by one or more species of wood destroying organisms. However, little or no precise information is available with respect to the identity of the organisms involved, or their relative importance. It is known that most of the decay in the butt logs of our trees results from the invasion of the stem by wood-rotting organisms that gain access through fire scars. Decay in standing timber progresses at a very slow rate, however, and the heartrots that presently exact a heavy drain on our timber resource reflect the abuse and mismanagement of many of our forests in years gone by. Heartrot losses will never be

eliminated, but as a result of the constant improvement in our forest fire protection measures and management practices these losses should decrease in the decades ahead.

In recent years we have become aware of a new forest disease problem in the state, namely, a fungus induced root- and butt-rot in shortleaf pine plantations. *Fomes annosus*, the fungus responsible, is believed to be indigenous to Missouri. The disease is epiphytotic in character and causes no appreciable damage in natural pine stands. However, it may become epiphytotic in shortleaf pine plantations, especially those established on old, abandoned agricultural fields. It is believed that the fungus most frequently gains entrance to a plantation through the invasion of freshly cut pine stumps exposed at the time of thinning. Once invasion has occurred, the fungus continues to spread through the plantation, killing trees in an ever-enlarging area. Because more and more pine plantations each year are approaching the age of first thinning, this disease will inevitably become an increasingly important problem in the state. Investigations are under way to develop methods that will decrease the losses due to this disease. In all probability the present management practices for plantation culture of shortleaf pine will need to be modified, perhaps drastically, if the losses from *F. annosus* are to be kept within reasonable bounds.

The most serious disease of oaks in Missouri is oak wilt, caused by the fungus *Ceratocystis fagacearum*. It is a vascular disease that causes a malfunctioning of the physiologically active xylem elements. Scattered oak wilt infections occur throughout the Ozark region of the state and the disease also affects shade tree oaks in some of our urban areas. Species belonging to the red oak group are highly susceptible to the disease and none has been known to survive infection. Members of the white oak group, on the other hand, show considerable tolerance to infection and many ultimately recover. Although new oak wilt infections appear each year, the incidence of the disease in Missouri has remained substantially the same for the past 15 years and it has not had any appreciable impact on our oak timber resource. This appears to be due to the fact that the vector (or vectors) responsible for disseminating the fungus is exceedingly inefficient. It should be pointed out, however, that the possibility of a more efficient vector becoming associated with the fungus exists, and should this occur oak wilt could quickly develop into a major disease epiphytotic. This represents, I believe, the real threat so far as this disease is concerned in our state. A number of insects may be involved in the transmission of the fungus, but none has yet been proved to be a principal vector in Missouri. Among these is the small oak barkbeetle which, because of its breeding and feeding habits, appears to be ideally suited to function in this capacity. Research is in progress to determine the possible role and importance of this insect in the spread of oak wilt in our forests. Until the method of fungus transmission has been definitely established, completely satisfactory methods for the control of the disease cannot be developed.

Among the major disease problems affecting our shade tree species are those which affect the American elm. This is due to the fact that elm has been the most widely planted shade tree in the state and because it is very susceptible to two lethal diseases. Elm phloem necrosis, a virus disease, has been responsible for the death of thousands of elms in Missouri over the past 25 years. The more highly publicized Dutch elm disease, caused by the fungus *Ceratocystis ulmi*, first appeared in the state about 15 years

ago. Today it is a statewide problem. The causal agents of both of these diseases are largely insect disseminated. The elm leaf hopper is the principal vector for the phloem necrosis virus and the vector for the Dutch elm disease fungus is the smaller European elm barkbeetle. The control of both of these diseases, therefore, largely depends upon the effective control of these insects. This can be accomplished through the application of DDT or methoxychlor to healthy elms, so as to prevent the insect vectors from feeding on the trees and inoculating them with the disease inciting agents. In the case of Dutch elm disease control, sanitation is also important. This involves the elimination of all material that provides potential barkbeetle breeding sites in the vicinity of the trees to be protected. Trees cannot be cured after they have become infected with either of these diseases, although many claims to the contrary have been made and widely publicized. Nor is there any scientific proof that any of the systemic materials advocated for the control of the insect vectors, or for the immunization of trees, are effective in preventing infection.

There are many other forest and shade tree diseases that are known to occur in Missouri. Some of these are important only in localized areas and others are damaging only in those years when weather conditions favor their development. It should be recognized, too, that there may be other diseases that we are unaware of, and the possible introduction of new diseases is always present. Therefore, tree disease problems will continue to plague us. As our forest management practices become more intensive and as the urban sprawl continues these problems will inevitably increase in number and importance. The future of forest pathology will remain a challenging one, indeed!

## Daily American Republic

POPLAR BLUFF, MO.

*"Southeast Missouri's Leading Daily Newspaper"*

Circulation—14,147

in Eleven Counties and 52 Towns  
in Southeast Missouri and N. Arkansas

*"Keep In Step  
With The Growth of Our Community"*

Mrs. JOHN H. WOLPERS, Publisher  
ROBERT M. WOLPERS, Editor

# Forest Insects in Missouri

RAMON D. GASS

Forest Pest Control Specialist  
Missouri Department of Conservation

FOREST INSECTS TAKE AN ANNUAL TOLL by damaging and killing trees in Missouri and throughout the United States. The activity of these silent creatures of the forest is not as dramatic as a forest fire, but they are always present. Insects may occur in tolerable numbers where little or no damage is done, or they may be present in unusually large numbers destroying millions of board feet of timber—for example, the southern pine beetle in the South. This is sometimes referred to as endemic or epidemic.

Frequently trees will be weakened as a result of drought or lightning which predisposes them to primary attacking insects. Once such a tree is weakened sufficiently, other insects may infest it, finishing the job that the primary attacker began.

The Missouri Department of Conservation entered an agreement with the U. S. Forest Service in 1962 to establish a Forest Pest Control Program to detect, survey, and control forest pests on state and private land. The program is designed to detect both insect and disease outbreaks and to hold forest losses to a tolerable level. Thus far the program has been successful in meeting this challenge. No large control operations have been necessary since no insect outbreaks have occurred on state or private land. Missouri has not had a history of a large number of outbreaks requiring control. We are nevertheless on the alert to detect and control new or introduced species should they become established. Several small control operations have been conducted on federal land in Missouri but none on state or private land.

How are our harmful forest pests detected? The Department's district and farm foresters are ever on the alert during travels through their districts. A glance out of their vehicle window or examination during a timber sale may reveal hardwood defoliation or a black turpentine beetle infestation which may well be on its way to becoming a full scale outbreak. An outbreak may be easy to control while it is still confined to an acre or two. Once it has covered several hundred acres, it may not be so easy. It is the job of the pest control specialist to investigate a report of an occurrence or infestation. If he feels it might become destructive and if this pest has had a history of tree destruction in the past, he might make a biological evaluation of the pest. This means making an intensive survey of the location, exact size of the area affected by the damaging stage of pest, control conducted thus far, estimate of potential for the next year and other facts which might reveal the present status of the pest with regard to damage potential.

## *Types of Damage*

Hardwood borers are the most critical forest pests in Missouri in terms of losses in log and lumber quality. Accurate figures are not available to verify damage estimates, but a conservative figure of at least ten per cent can be assigned to losses and degrade of growing stock. These pests usually

do not kill a tree but instead reduce quality by chewing channels of various sizes and shapes underneath the bark and in the sap- and heart-wood. The characteristic of each channel will vary with each borer. The ecology of each species is different just as with other organisms. Each has a definite life cycle. Knowledge of these details is valuable to one who contemplates control of a certain forest pest.

An administrative study was initiated in the spring of 1965, on federal land located on the Poplar Bluff Ranger District, to determine certain characteristics of hardwood borers on a variety of forest sites. Foresters and entomologists from the U.S. Forest Service and the Missouri Department of Conservation established 75 hardwood borer evaluation plots. Data were collected on each plot to learn differences in attack as related to such factors as aspect, basal area, species, site index and stand age.

Assuming that an outbreak is detected, the first step is to determine its extent and its damaging potential. A static population must be resurveyed annually to determine the status of the pest. Personnel of the U. S. Forest Service and Missouri Department of Conservation conduct an annual aerial survey of the densely timbered portions of Missouri to detect insect or disease outbreaks before they become damaging. An aerial survey complements ground surveillance during the normal growing season.

Damage caused by forest pests is of two kinds. One is the potential danger to trees while the pest is present. The numbers may be small but it still has the potential to build up to great numbers and cause serious damage. The other type of pest will occur in small numbers, remain static and not threaten living trees. Small pest numbers might suggest little damage and large numbers, serious damage. In Missouri, large numbers of black turpentine beetles in a thinned shortleaf pine stand may mean heavy damage, whereas one infested pine tree may indicate that populations are low and little damage will be inflicted. The Gypsy moth, a dreaded hardwood defoliator in the United States, causes serious damage each year. It has a terrific damage potential and a voracious appetite. A large variety of hardwood defoliators make Missouri their home, but very few do appreciable damage to our growing stock. Occasionally, however one of these defoliators will kill two or three million board feet. This type of outbreak has not occurred in Missouri since 1954.

Forest insects inflict damage to and kill forest trees in different ways. The hardwood borer tunnels in trees causing log and lumber degrade. The hardwood defoliator chews leaves and often weakens trees, predisposing them to attack by other pests. Repeated defoliation may and often does kill the tree. Pine defoliators chew needles, causing temporary defoliation. It takes several months for these bare trees to reneedle, so growth is temporarily disturbed. Repeated defoliation of trees growing under extreme situations may be weakened over a period of three to five years and die. Pine bark beetles kill trees by feeding on the cambium. If this growing layer is removed in a ring around the tree it will die. Usually bark beetle attacks are precipitated by a weakened condition of a tree brought about by a natural or artificial stand disturbance.

Once a tree is harvested it is still susceptible to attack by a variety of borers. Certain pests of stored wood products are able to thrive in wood dried to ten per cent moisture content and less. The powder post beetle, the old house borer and the carpenter bee are a few such pests. To safe-

guard against damage by these insects, manufacturers of wood products must treat their finished articles.

### *Insect Control*

At this stage it is up to the forester or entomologist to decide, by making a biological evaluation survey, whether the pest has the capability to inflict damage to the stand. If the answer is no, nothing is done; if the answer is yes, steps are taken to control the outbreak by 1) the introduction of an insect predator lethal to the pest 2) spraying with an effective pesticide which is lethal to the pest but harmless to predators, wildlife and man or 3) performing certain silvicultural practices to discourage infestation and damage. Questions that must be answered before control is undertaken are: 1) What stage of the pest is doing damage and when will it be most susceptible to the pesticide? 2) Can a predator or parasite be introduced that can effectively control the pest? 3) Is there a known predator that can be used to control the pest? 4) Will the insecticide produce a residuum with longevity to affect the pest, or 5) Will one application be sufficient or will more than one be required before the pest is brought under control? Or 6) Is there an alternative silvicultural control method? Before any control work is undertaken the pros and cons must be weighed carefully to avoid any mistakes in control approach or quantities of spray. After the decision to spray has been made, the public should be informed through an information and education program. This is important if large areas are to be sprayed. The public must be informed as to what the project is all about, what spray is being used, what pest is being controlled, that it is not harmful to man or livestock, whether it will harm the home garden or orchard and whether it produces a residuum lethal or damaging to man or livestock.

It is not the purpose of this article, nor is space available, to go into the biology or ecology of each insect causing significant damage to forests in Missouri. The discussion is confined to large groups of pests that may have an outbreak potential in our forests. The impact of one or a group of forest pests could be so great in the future that quality of raw materials could be damaged.

### *Insects of Hardwoods*

The logger and stave cutter are familiar with "worm holes" in logs and "pin worms" in stave bolts. Logs or bolts which are too "wormy" are left in the woods. The carpenter worm and red oak borer attack trees which are suppressed or injured by growing on poor sites. Occasionally a "brood tree" can be found which is suppressed and has a slight sweep or crook. Then numerous emergence holes can be seen on the top or underside of the bend. Such an abundance of attacks can be attributed to re-infestations of the same tree generation after generation. Because of the great number of borers and because of the wide distribution over the state, it may be some time before we can reduce damage to a tolerable level.

Hardwood defoliators are common in Missouri, but they are not causing excessive damage—that is, they are not killing large volumes of timber. This does not mean that native or introduced species could not become serious in 1967 or 1970, if conditions were right. Leaf chewing is minor, with very little of the leaf surface being removed. Leaf chewing begins soon after the leaf has unfolded from the bud. Since a part of the leaf surface is unaffected, the effect of defoliation on growth is minor. Feeding



by the worm or larvae usually continues through the growing season and ends with minor feeding in late fall by the devil's walking stick on hardwoods and grasshoppers on pine.

### *Insects of Conifers*

The black turpentine beetle and Ips beetle are common pine bark beetles on shortleaf pine in Missouri. Damage is usually light and spotty; however, there is always the possibility of ideal conditions existing for these pests to increase in number and become very destructive. To become infested by either the black turpentine beetle or the Ips beetle a tree must be predisposed to attack. This can be caused by a lightning strike, logging damage, soil disturbance such as compaction, or a change in soil water relationships such as a lowering of the water table or inundation. Once a tree has a certain number of pitch tubes per square foot on the main hole, death is certain. While the black turpentine beetle is killing the pine tree, Ips beetles attack, forming "Y" and "H" shaped channels under the bark. Here we see the role of the primary and secondary attacker. Ips numbers may build to a point where populations may move from one area to another where trees are healthy.

The Nantucket pine tip moth, a pine twig borer, is a common pest on planted shortleaf pine in Missouri. This pest produces four to five generations a year and has very definite cyclic patterns, making control difficult. Almost every plantation containing trees from 3 to 15 feet high is affected during early development. The results are unsightly appearance and temporary deformation of growth but little mortality. The loblolly pine sawfly, which is a pine defoliator, feeds during middle and late spring. Complete defoliation results where large numbers are found. The red-headed pine sawfly occurs during late summer and early fall in Missouri. Repeated defoliation by either sawfly often results in mortality. The vigor of the trees is reduced by a decrease in food production by the needles. When feeder roots fail to receive sufficient food, the tree becomes weak and dies. Heretofore, Missouri has not had a serious history of sawfly infestations. It is only conjecture what the establishment of large pure stands of pine will mean to future sawfly populations. The pine webworm, a minor defoliator, damages planted and natural seedling shortleaf pine. Growth is retarded in the seedling stage, but only in extreme situations are trees killed.

Environmental conditions for optimum activity vary for each insect. The powder post beetle and old house borer require wood with less than ten per cent moisture content. The favorite brooding place for powder post beetles is in porous wood such as dried hickory, ash or red oak. Paneling will often become infested with the powder post beetle. As a rule, kiln drying to ten per cent moisture or less will destroy most beetle eggs. Handle manufacturers are often troubled with the powder post beetle in their hickory handle bolts and also in turned handles in storage.

### *Summary*

The present insect pest situation in Missouri is favorable. Except for the hardwood borers, our forests are relatively free of destructive insects. Estimates of insect trends for 1966 suggest that the Nantucket pine tip moth is on the increase, as is the black turpentine beetle. The fall webworm caused heavy defoliation of roadside trees during 1965 and medium to heavy defoliation is expected again in 1966. Only time, moisture conditions, temperature and brood size will determine size of future insect populations and the resulting damage to our forest trees.



THE FORESTRY CLUB

## FORESTRY CLUB ROSTER

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<p>Banning, C. R. Baer, James Baer, Lawrence Baltz, Orland Behren, Gary Berger, Lloyd Biles, Larry Boarman, Dan Bredfeldt, Harry Brinkman, Kenneth A. Brockman, Paul Broers, Lonnie J. Brunk, Gary Bjugstad, Ardell J.</p>	<p>Isriael, David</p>	<p>Ragsdale, Rick Ralston, R. A. Reams, Ronald A. Rehagen, Connie Rhode, Phil Rhyne, Larry Rice, Douglas Riggs, David Robinson, Don Rowland, Jack J. Ruppert, Dave</p>
<p>Caughlan, Charley Chandler, Wayne Chesebro, John Christoff, Gary Clark, Larry Cox, Gene Cronin, Steve Crosby, John S. Crouse, Fred Curry, James</p>	<p>Jacks, Gary Joines, James R. Johnson, Gary Jones, Shelby Juttner, Adrain</p>	<p>Santhuff, Charley Schnurbusch, Willard Seidel, Kenneth Selle, Richard Shafer, John Shirley, Paul S. Sires, Les Sirkin, Rich Smith, Dr. Richard Smith, J. H. Strawn, Ronald Stryker, Bob Sweet, Perry</p>
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<p>Fakes, David Funk, Jim</p>	<p>Mackler, Len Matthews, Glen McAllister, Bill McHardy, Dave Meiker, Dennis Menke, William Michaud, John Millikan, Bill Miller, David R. Minear, Lyle Jr. Moore, K. E. Murray, Bruce Myers, Robert H.</p>	<p>Walters, Don Walterscheidt, Mike Wendes, Bill Westveld, Dr. R. H. Westfall, Steve Witeaker, Rich Willis, Jim Wilson, Jim Wilson, Steve Wuenschner, James E.</p>
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<p>Harland, James Harman, Mike Haseman, Bob Helton, David H.</p>	<p>Odell, Marshall S. O'Brien, Larry Ogden, Bill</p>	<p>Zolk, Tom C. Zorsch, Tim</p>
<p>Pastoret, James Paulsell, Lee K.</p>		

# FORESTRY CLUB

MARSHALL S. ODELL

Class of 1966

## FOREST CLUB OFFICERS

### *1st Semester*

Marshall Odell  
Jim Willis  
Bob Lowery  
Larry O'Brien  
Ron Lumb  
Bob Anderson  
Harry Bredfeldt

### *Forester*

### *Assistant Forester*

### *Secretary*

### *Treasurer*

### *Ranger*

### *Parliamentarian*

### *Historian*

### *2nd Semester*

Jim Baer  
Bob Lowery  
Shelby Jones  
Larry O'Brien  
Bill Houston  
Bob Anderson  
Harry Bredfeldt

*Faculty Advisor*—Mr. James P. Pastoret

THE FORESTRY CLUB started activities this year with the Freshman Dinner. Some 40 neophytes turned out to consume sloppy Joes and beans and to become acquainted with the Forestry Club and its functions and activities.

Plantation cleaning and initiation were again held on the same day, and the results were indeed favorable. Due to some slight oversight, there were more workers than tools at the plantation cleaning. But a few of the neophytes overcame this difficulty with the use of pocket knives. That evening, the club members gathered at Rollins Springs to initiate the neophytes. Led by Jim Wilson, the prospective foresters toured the hills above the park and visited several blanket parties. The names of 39 neophytes were placed on this year's tally scroll.

About the first week in October, the profits started coming in from the Forestry Club concession stand at the football games. It was a disappointment to many that the Club was allowed to sell only cold drinks and salted peanuts, but sell them we did. Though the profits were not as high as last year, owing to cold weather, the single game record was broken and a new mark established. In one game the Club made over \$100.00. To those who donated time and effort in running the concession stand, we all say "Thanks."

October 9 found a score or so of Mizzou Foresters competing against the foresters from SIU at the Missouri Wood Industries Show in Salem, Missouri. We came out second in the regular games, but took all honors in the canoe jousting. Those that competed in the canoe jousting agreed that this would be a very good regular conclave game.

A week later, about 16 loyal foresters journeyed to Cloquet, Minnesota for the annual Mid-western Foresters Conclave. Again we didn't place in the upper division, but neither did we come back empty handed. The bear-skin adorning the wall in Mrs. Davis' office attests to this.

The largest money making event of the year, the Christmas tree sales, was held the second week in December. About \$600.00 was added to the Club treasury through the efforts of a number of smooth talking foresters selling trees procured from Pea Ridge Forest, in Manchester, Missouri.

On the night of December 11, the Presbyterian Student Center was filled

with the laughter and music of the Paul Bunyan Bounce. It was indeed the highlight of the first semester for the Forestry Club. The Bounce itself was preceded by a buffet style dinner, which in turn was preceded by numerous parties. Frank Hamm and his band provided the dance music and set the atmosphere with real dance music. The entertainment was provided by the literary and thespian society of the class of 1966. A great deal of time and effort went into making this a success, and we of the Club are indebted to all who helped plan and execute the Bounce.

The speakers at the Club meetings this year include Dr. Duncan; Mr. Richard Behms of the Fine Hardwoods Association; Dr. Gates of the Missouri Botanical Gardens; State Forester, Mr. Osal Capps; and the Grand Old Man of the Forestry School, Mr. William J. O'Neil. We would like to thank all of these gentlemen for taking time out from their busy schedules to speak to the Club.

We are all looking forward to the Banquet, Field Day, and the Spring Barbeque. All of these events are to take place in the second semester.

Yes, the activities this year have been many, and most memorable. None would have been successful, however, without the hard work of several people—so to all the members who helped to make these activities the successes they were, Thanks from the entire Club membership.

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# Midwestern Foresters' Spring Conclave

BOB ANDERSON

THE CALM OF CAMP CLOVER POINT shuddered in horror on the morning of May 1, 1965 as eight forestry schools descended upon the camp for the 1965 Midwestern Foresters' Conclave. At 8:00 all of the schools piled onto the event field to try to win some of the prizes which had been donated by leading companies and manufacturers of forestry and sporting goods equipment.

The starting events were dendrology and the compass traverse. With quiz slips and pencils in hand the University of Missouri boys cleaned the slate by taking the first three places. Mizzou was real proud of Jim Wuenscher, Bill Vogt, and Jim Willis for taking 1st, 2nd, and 3rd. However, in the traverse Missouri had trouble and failed to score a point.

The rest of the morning Missouri was held scoreless in the chain throw, log rolling, and one man bucking. Our boys tried hard, but they just could not seem to meet the high standards set by Southern Illinois in the chain throw, Iowa in log rolling, and Purdue in the one man bucking.

After a hurried lunch, the schools converged again on the field with grim faces, and their goals set on one of the chain saws that would be given to the two top schools.

It appeared as if Mizzou was going to end up with no scores in the afternoon. They were held scoreless in match splitting, bolt throw, and two man bucking; then out of the crowd walked Ron Lumb with a mouth full of tobacco, and covered the target-paper to take first in the tobacco spitting contest. That lunch must have done something for Ron. The lunch also did something for some of the spectators, because after looking at the mess on the paper, they staggered away to watch the chopping contest.

Big Bob Lowery took his trusty ax in hand and made the chips fly in all direction for 2nd place in the chopping contest. In the canoe racing Mizzou was held scoreless. After their tiring day, the foresters converged on the mess hall for dinner.

After a very slowly eaten dinner the foresters adjourned to the recreation hall for the awards ceremony and entertainment. The prizes were given out with Purdue and Michigan Tech. getting the chain saws for 1st and 2nd place in the Conclave. Missouri gave them a hard race, but came out in 3rd place. University of Minn. received the bear skin for being last in the Conclave. After the prizes were given out, everyone headed for the ice cream social and later to his cabin.

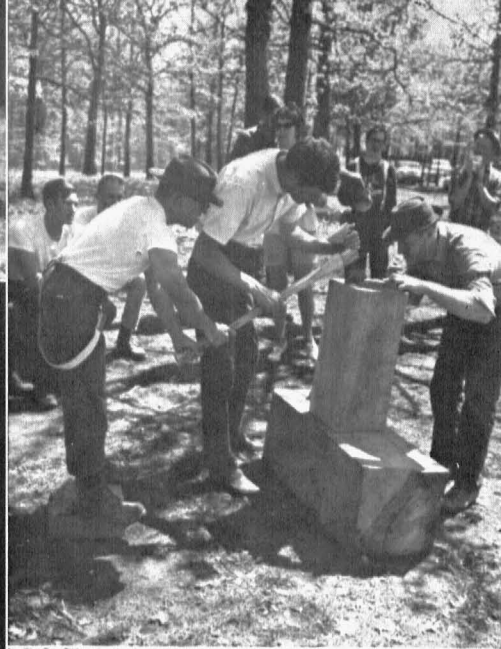
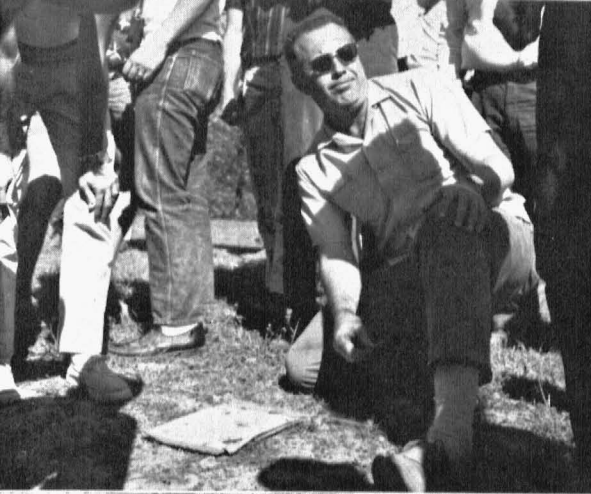
All in all, the 1965 Midwestern Foresters' Conclave was considered to be the best in a long time. Smokey Stephenson, Conclave chairman, and his committee are to be commended for a real fine job.

Compliments of

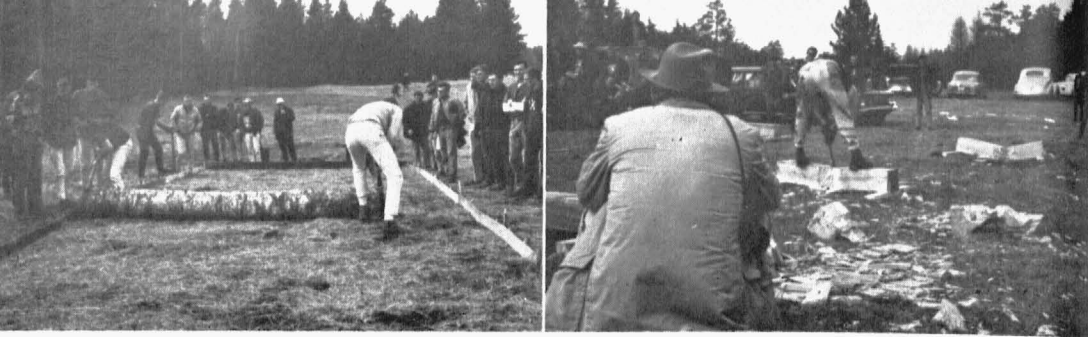
**ZALE'S JEWELERS**

Parkade Plaza

Columbia, Missouri



Top left: Lumb puckers.  
Center left: When's lunch?  
Bottom left: The chief?  
Top right: Just a little closer Smokey.  
Bottom right: The missing links.



Lets stop and analyze this; The end.

## Midwestern Foresters' Fall Conclave

LARRY O'BRIEN

ALL ABOARD! SEVENTEEN FORESTRY CLUB MEMBERS, along with saws, peaveys, axes, etc., piled into four automobiles and headed north. Destination—Cloquet, Minnesota where the University of Minnesota Forestry Club was to be host to the Thirteenth Annual Midwestern Foresters' Conclave. Our time of leaving Columbia was 9:00 P.M., October 14. Having the Conclave in the fall was new this year; previously it has been held in the spring.

We alternated drivers, and by so doing, were able to drive continuously, stopping only for gasoline and food. By mid-morning we were driving through the aspen and coniferous forests of Minnesota. Meanwhile, our attention was attracted to some yellow-needled sick-looking spruce, and since several of us were taking Forest Pathology, we stopped for a closer look. Much to the embarrassment of some past Dendrology students, the trees were not diseased and were not spruce, but tamarack which naturally lose their needles in the Autumn.

We arrived at the Cloquet Forest Research Center at about noon, and after locating our cabins, we drove to Cloquet for lunch and a "look around."

The next morning the camp was roaring with excitement. The contestants from the other forestry schools had arrived and the events were about to begin. Missouri Foresters were quite enthusiastic, but rather pessimistic about taking home prizes, because of 17 only three had ever entered a conclave event before and little practicing had been done. The contests were consecutively Dendrology, Traverse, Chain throw, Log Rolling, One-man Bucking, Match Splitting, Bolt Throw, Two-man Bucking, Tobacco Spitting, and special event, Pole Climbing. As the results of each event were posted neither Missouri nor the University of Illinois appeared in the fourth or higher placings which were required for points. The final tally showed the two clubs tied for last place.

That night prizes were given to individuals who placed third or higher in the various events. The three high scoring clubs; Michigan Tech., University of Minnesota and Purdue University respectively, each received a chain saw. Traditionally the club placing last receives a traveling bear skin.



Ron Lumb and a member of the University of Illinois Club flipped a coin for the skin. The question in our minds was who won the flip. Well, anyway, we got the bear skin. Although we had scored zero, it was generally agreed that Missouri took first place in the "Ice Cream Social" which followed.

Early in the morning we headed for Missouri. The most frequent comment heard on the way home was, "After the next Conclave we won't have this \*!?!\*%\* bear skin.

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Saturday afternoon bath; I'd even drink a Falstaff.

# Missouri Wood Industry Show

CHARLES CAUGHLAN

ON OCTOBER 8-10, 1965, the Missouri Wood Industry Show was held at Salem, Missouri. The purpose of this show was to acquaint those engaged in forest industries with new machinery developments which might assist them in their operations. The show evidenced the economic importance of the forest-dependent companies in the display of operating and processing equipment. The "fair" atmosphere and common meeting ground provided a stimulus to the exchange of ideas regarding advancements and new developments in the forest industry. The 46 exhibitors, composed of various companies and organizations from Missouri and nearby areas, contributed substantially in making the affair a success.

The University of Missouri Forestry Club, along with the Forestry Club from Southern Illinois University, and a husky chap from Michigan also played a part in this show by participating in various manly contests of a woody nature on Saturday, October 9. The contests were: log rolling, two man bucking, canoe jousting, chopping, bolt throw, tobacco spitting, and pole climbing. The events were won as follows: log rolling—a local team that made us youngsters look real bad, two man bucking—SIU and the chap from Michigan, canoe jousting—Shelby Jones and Jim Wuenscher, bolt throw—Ron Lumb, tobacco spitting—SIU, chopping—the chap from Michigan, and pole climb—SIU.

I believe that every Club member that went to the show had a good time and also learned something by seeing the exhibits and talking to various people associated with the show. Marshall Odell, in particular, learned something of the basic laws of physics while participating in the canoe jousting.

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Little Brushy Church Camp, 1968.

# Annual Bonfire Initiation

GARY BRUNK

Class of 1967

THE AIR WAS COOL AND CRISP that fine October night as a group, some quiet, some laughing, gathered around a fire at Rollings Springs. There were two groups gathered that night, but before the night was over, all became one. All became members of the University of Missouri Forestry Club, and this was the night of initiation, October 2, 1965.

One could tell the seasoned woodsmen from the neophytes. The upperclassmen talked of their summer jobs in all parts of the country, of being chased by bears, getting lost, fighting fires, and just goofing off. There was also some talk of a fine summer spent in the Oak forests of southeast Missouri near a town called Poplar Bluff.

The neophytes stood around the same fire that night. Some stood with their hands in their pockets, some laughed at the shadows in the night and some just stared into the glowing light of the fire. Then it happened. From a nearby hilltop came a long, low wail like that of a horn used to call hunting hounds. It was calling together the spirits of the forest and announced the official start of the initiation.

The neophytes were gathered together and then given an organized tour of the area by a fellow woodsman. They observed per cent slope of land, rock outcropping, water drainage problems, and among other things, blanket problems of sociology.



And if elected, I promise . . .



Wonder why they didn't invite us to their blanket party?

Then suddenly out of the night a large bright fire erupted a "Mayor-Whizzo" special. Within the light given off, one could see the King of the Woods, Paul Bunyan himself, standing tall with his guards. There was the Babe in the bare of the night, the Devil in all of his glory, and last but not least, the Old Man of the Woods.

The Old Man was called upon to give a short speech welcoming and explaining to the neophytes their responsibility to the Club and their profession. The neophytes then were ready to take the final step in becoming a member.

The Devil invited the neophytes to take a short chew while he inspected their initiation tokens closely for Wildlifer's names. They were then sent to the Babe for his final approval. That was the moment of true feeling.

Then after the last neophyte met the Babe's approval, a mighty roar went up and the University of Missouri Forestry Club became stronger. Silently the Devil, Babe, and the Old Man returned to the woods to reappear once again next year.

Hey you guys! How about some heat?

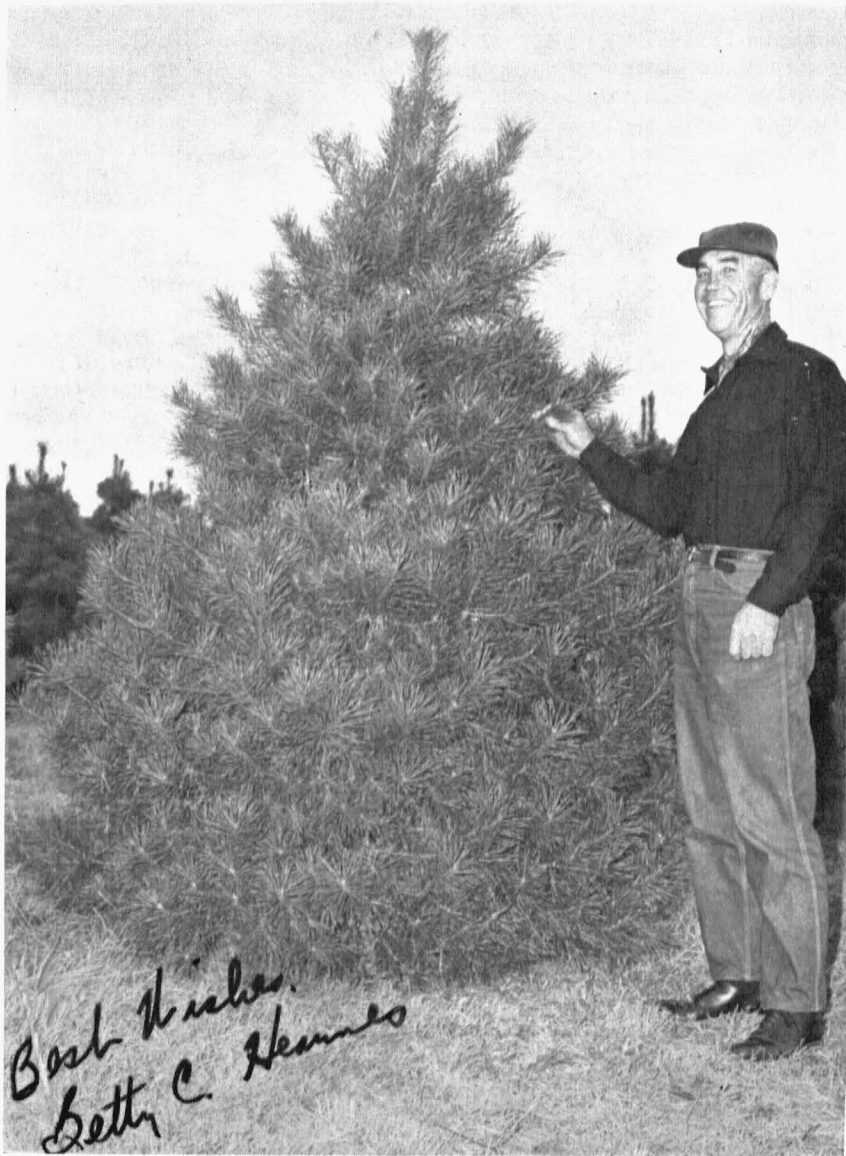
Maybe Devine will want you next year, son.



---

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# *Paul Bunyan Bounce*

DONALD GISI

DECEMBER 11, 1965 WAS A TYPICAL WINTER DAY here in Columbia, the temperature had reportedly dipped to a low of 50° Friday night. The activity at the Presbyterian student center on Hitt street started quite early as the decoration committee got into full swing.

As usual, vicious rumors were spreading across campus, originated I believe, by the wildlifers in an attempt to ruin the Bounce. They really out-did themselves this year. Here are just a few of the ones I heard: Did you know they put poison ivy in the corsages this year? They are calling the bounce off this year! Someone stole Paul Bunyan's pants! The Premiers are playing again this year! Did you know the coffee was spiked? They are going to have waitresses this year and they will be dressed in suspenders.

The annual Paul Bunyan Bounce is the social highlight of the year for the forestry club members, and it would take more than rumors to ruin it. The Bounce is the one time of the year when the foresters discard their old clothes, red hats, axes, saws, dendrology books, and other tools of the trade through which they have become well known on campus. Instead, they make a feeble attempt at trying to look natural in a suit and tie while escorting a real live babe (not the blue ox type). Surprisingly enough, they do a pretty good job of it.

The festivities of the evening were officially begun with a prayer by "Big Jim" O'Neil. It is pretty hard to imagine a Bounce without "Big Jim," isn't it? We'll see you next year Jim, same time, same place.

The big feed was the first event of the evening. This idea originated at the '64 Bounce, and it seems to be here to stay. I have always heard that foresters were supposed to be pretty hearty eaters, however, I guess all of the excitement of the evening must have affected their appetites. Not one person was reported to have gone through the food line more than six times. Poor showing guys. Cold turkey isn't that bad.

Probably the biggest surprise of the evening was the band. They were tremendous. Unless you attended last year's Bounce, you can't really appreciate how good Frank Hamm's band was. Whoever was on the band committee this year should be put there permanently. Thank you Frank Hamm for helping to make the Bounce a big success.

While the band was taking their first well deserved break, the queen candidates were introduced and the winner announced. This marked the second straight year that the queen was chosen by the students, and what a job they had. The queen was to be chosen from some of the finest fauna in Missouri. The lovely Mrs. Ray Valunis was chosen as queen of the '65 Bounce. She was, of course, escorted by her husband. Paul never likes to see a married woman be named queen, because he usually asks the queen out for the next weekend. Sorry, Paul, but from the way I saw your eyes light up, you must have been happy with the selection.

During the next band break the senior class presented the annual skits. As usual the skits consisted of the senior class poking fun (good natured, of course) at their beloved faculty. The main theme this year was unre-





Top left: Al Valiumas and Queen Rae.

Top right: Meanwhile . . . at the nursery.

Center: Oops! Sorry about that Ma'am.

Bottom left: What do you expect for a quarter?

Bottom right: Save the post oaks.

warded goofs. We had a big problem of trying to get 10 hours of material in a 15 minute show. This year we saw such notables as: J. P. Particleboard, Leaky Saulpell, J. M. Michelob, K. E. Less, R. B. Pokeberry, D. P. Punkin, and Cotton Jeans. We heard Dr. Punkin praise the enthusiastic undergrads and the dedicated faculty here at Mizzou. We all saw Leaky Saulpell completely disregard the warning on the pack. Of course, we were all very surprised to hear of J. M. Michelob's visit to Possum Trot Farm, a good public relations move I guess. By the way, I wonder if Wanita ever found Big Daddy Dutchfeld, I hear she was sure itching to see him. A chartered bus for lower Slobovia was waiting outside for the seniors; however, they decided to stick around for the rest of the night.

Like all good things, the Bounce had to come to an end. By midnight the hall was pretty well cleared. Even that loud, high spirited group in the back had departed. Paul was sleeping when I left. Too much excitement for an old man like him, however, he still had a big smile on his face. I'm not sure what he was thinking about, but it may have been a way of telling everybody that he was really proud of his men.

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## THE FIFTEENTH ANNUAL FORESTRY CLUB BANQUET

HARRY J. BREDFELDT

Class 1966

THE FIFTEENTH ANNUAL Forestry Club Banquet was held March 11 in the large ballroom of the Memorial Student Union. The evening's festivities began with an informal reception and chatting around the punch bowl. After the invocation, given by Professor Emeritus, W. J. O'Neil, a delicious meal of chicken cordon bleu was enjoyed by nearly 200 guests, faculty members, and students.

Following the dinner, the guests at the head table were introduced by Forester James Baer. The honored guests at the banquet were: Chancellor John W. Schwada and Mrs. Schwada; Dr. Jack Matthews, Dean of Students, and Mrs. Matthews; Osal Capps, State Forester of Missouri, and Mrs. Capps; Lee Fine, Director of Mo. State Parks, & Mrs. Fine; Henry De Bruin, Supervisor, Mark Twain National Forest, and Mrs. De Bruin; Warren Livens, Supervisor, Clark National Forest, and Mrs. Livens; Dr. R. H. Westveld, Director Emeritus and Professor of Forestry, and Mrs. Westveld; W. J. O'Neil, Professor Emeritus of Forestry, and Mrs. O'Neil; Dr. Donald Duncan, Director, School of Forestry, and Mrs. Duncan; Dr. Robert Campbell, Professor of Zoology, and Mrs. Campbell; Dr. Clarence Scrivner, Associate Professor of Soils, and Mrs. Scrivner; Dr. Philip Stone, Chairman and Professor of Entomology, and Mrs. Stone; Mrs. James Baer, wife of the Forester of the Forestry Club; and James Pastoret, Assistant Professor of Forestry and faculty advisor to the Forestry Club, and Mrs. Pastoret.

Shelby Jones presented the "Headless Axe" awards to Professor J. Howard Smith and William C. Yoder. This rather dubious honor goes to the instructor and student who make the biggest "goof-up" of the year. The committee for the "Headless Axe" award selected these two deserving gentlemen after many hours of deliberation over the many "goof-ups" of fellow foresters. By coincidence, both awards were presented for "goofing-up" during logging and milling at summer camp. Professor J. Howard Smith fell asleep in the sawmill with the headsaw running and was awakened by a thump on his hardhat. Bill Yoder felled a stately post oak which blocked Route KK and narrowly missed a fellow forester trying to remove bees from his pants.



The headless ones: J. H. Smith; Bill Yoder.

Carol Wood and James Bryan presented an excellent program of musical selections ranging from spirituals to Broadway musicals.

Dr. Donald Duncan announced the recipients of scholarships. They were as follows: Larry Biles, junior, by the Missouri Federation of Womens' Clubs, Inc.; William Yoder, senior, by the Marguerite Krueger Conservation Club of St. Louis; Gary Bing, junior and James Baer, senior, by the David and Gertrude Gwinner forestry scholarship; James Willis, senior, by the Oliver J. Ferguson scholarship; Robert Schultz, junior, and Robert Cutler, senior, by Lumber Dealers' scholarship; Stephen Green, sophomore, by St. Louis Hoo-Hoo Club; Dale Yelton, sophomore, by the Kansas City Hoo-Hoo Club; Willard Haley, senior, and Marshall O'Dell, senior, by the Home Builders' Association, and a new scholarship not yet awarded spon-

Carol Wood and Jim Bryan; Dean Matthews; Forester Baer.





Top Row:

Dr. Westveld and senior Westveld Award winner Willis.

Xi Sigma Pi award winners: Sirkin and Bredfeldt.

Forest Products Research Society award winners: Haley and Green with Mr. Pastoret.

Middle Row:

Green and Mr. Blumenkamp of the St. Louis Hoo-Hoo Club.

Dr. Westveld with Bing and Baer.

Biles and Mr. and Mrs. Gepford of the Missouri Federation of Women's Clubs.

Bottom Row:

Bill Yoder with Mrs. Bowman, Linda Kutschbach, Mrs. Brockman, and Mrs. Fitzwilliam.

Odell and Haley with Mr. Hicock of the Home Builders Association.

sored by the Ladies Auxiliary of Columbia Home Builders' Association. Many students not mentioned benefit from loans from the George L. Hawkins Senior Student Aid Fund and School of Forestry Memorial Loan Fund.

James Wuenschel, Forester of Xi Sigma Pi, made the senior award presentation to Harry J. Bredfeldt, and the freshman award presentation to Richard A. Sirken for outstanding scholarship.

Dr. Westveld made presentations of the Westveld awards to James R. Willis, senior, for high scholarship and service to the Forestry Club; to Wallace W. Chandler, junior, for high scholarship in courses other than forestry; to Frank L. Gordon, sophomore, for the greatest contribution to the Forestry Club; and to Dennis R. Knapp, freshman, for high scholarship.

James Pastoret announced the winners of the Forest Products Research Society awards for the outstanding students in the wood products field. They were: Robert R. Cutler, senior; Willard J. Haley, senior; Gerald L. Anderson, junior; and Stephen A. Green, sophomore.

Dr. Jack Matthews, Dean of Students at the University of Missouri, spoke on "My First 100 Years." He related many humorous events from his career as Dean of Students and made a few comments about our historical and contemporary university campus.



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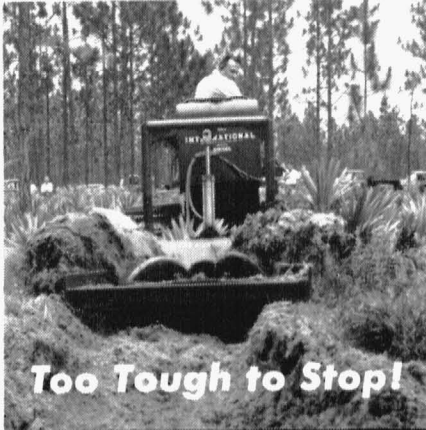
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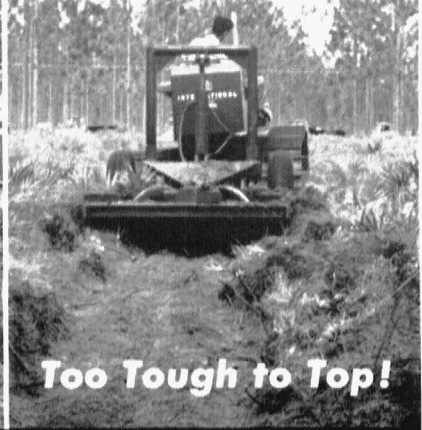
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from the Class of 1966



## **WESTVELD HONORED FOR SERVICE**

ON MAY 22, 1965, MORE THAN TWO HUNDRED FRIENDS, associates and alumni gathered at the Memorial Student Union to honor R. H. Westveld, retiring Director of the School of Forestry.

Dr. Westveld came back to Missouri in 1947 as Chairman of the Department of Forestry and became the Director with the establishment of the School in 1957.

The recognition dinner and program, billed as "An Evening with West and Amy," included entertainment, remarks and a number of presentations. Jean J. Madden, Field Director of University Alumni Activities, served as master of ceremonies. Professor Emeritus William J. O'Neil gave the invocation.

Entertainment included vocal selections by Harry S. Morrison, Jr., accompanied by Perry G. Parrigin.

E. A. McGinnes, Jr., made the presentation of a portrait of Dr. Westveld on behalf of the faculty of the School. The portrait will remain on display at the School. L. E. McComick presented a small version of the portrait to Mrs. Westveld.

Speaking on behalf of alumni of the School, James S. Berlin presented a volume of bound letters to Dr. Westveld. A number of alumni were present.

D. B. Mabry, Vice-President of the Moss-American Company and long-time friend of Dr. Westveld announced the establishment of the R. H. Westveld Prize in Forestry. The fund, contributed by friends and associates, will provide an annual prize of \$100 to the forestry student preparing the best essay on some phase of silviculture.

Brief remarks regarding Dr. Westveld's contribution to forestry teaching and research, to the state and to the University followed the presentations. Speakers included Osal B. Capps, State Forester of Missouri; Henry W. DeBruin, Supervisor of the Mark Twain National Forest; Elmer R. Kiehl, Director of the Missouri Agricultural Experiment Station; and Elmer Ellis, President of the University of Missouri.

Among those attending were Marinus Westveld, brother of Dr. Westveld, and Mrs. Marinus Westveld, of Asheville, North Carolina; Dr. Peter W. Fletcher, Director of the School of Forestry at Pennsylvania State University, and Mrs. Fletcher; Dr. Paul A. Herbert, formerly Director of the School of Forestry at Michigan State University when Dr. Westveld served on the staff there; and Clifford G. McIntire, former congressman from Maine and one of the sponsors of the McIntire-Stennis Forestry Research Act. Also attending were Mr. & Mrs. Richard E. Newberg of Detroit, Michigan, son and daughter-in-law of the Westvelts.

The many contributions and achievements by R. H. Westveld through a long and active career are well-known. Although he steps down from his administrative position, he continues in teaching and assumes other duties in line with his interest, enthusiasm and great capacity for work. We salute Director Emeritus R. H. Westveld!



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Little Brushy Church Camp, 1965

# Summer Camp '65

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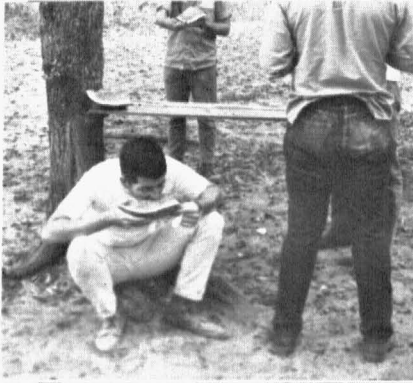
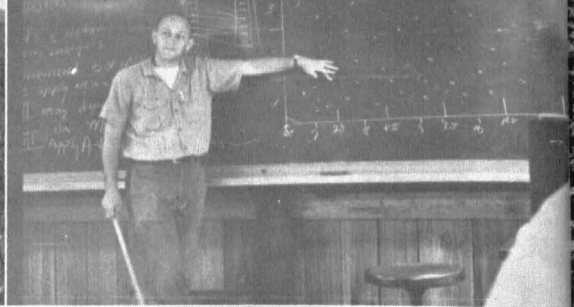
DEEP IN THE FOOTHILLS of the picturesque Ozark mountain range, nestled against the shores of Lake Wappapelo, vacationland for the whole midwest, is Musbach's Motel. This institution is often vulgarly referred to as the University of Missouri Forestry School Summer Camp. More often it is just vulgarly referred to. Here, for twelve glorious weeks, forestry students with two years of school, a two point grade average, and a II-S draft classification got too much sun, too many insect bites, and too many beans.

The first week of this sylvan summer school was devoted to dendrology. Under Mr. Polk's capable instruction we learned to call every tree by its first name. Last names were something else again. We also learned that somewhere in the process of evolution entirely too many species were allowed to evolve and that it is impossible to tell one species of red oak from another species of red oak.

Engineering and Mensuration, two of the most eagerly awaited courses in summer camp, were very much alike in one respect; they both showed us just how much paraphernalia you could carry into the woods. Mr. Moore passed out an equipment price list in Engineering just to make sure we carried it all back out. Jim Potter showed the most imagination in coping with the equipment problem by developing his system of "Potterizing." Briefly, this process consisted of buying an army surplus web belt and affixing to this belt any loose articles that are required, or might come in handy in field work. At his peak, Jim could accommodate two quart canteens, a hunting knife or hatchet, a machete, a staff compass, an abney hand level, a two chain tape and trailer, a first aid kit, two comic books, and a number of jawbreakers. The end effect of "Potterizing" is the forester's equivalent of an all purpose boy scout knife on two feet. Bill Shambo also exhibited a streak of originality during this period. He tried out a new point sampling method using his nose for a point and a window fan for a sample. He reported that the results were not conducive to further research.

In Silvics Carl Settergren taught us that the shortest distance between two points is overdrive.

In Silviculture we observed the effect of areas of high moisture concentration on form class. However, we could not convince instructors Paulsell



Top left: "This is one of our better 40 year old cottonwood stands."

Top right: "Would you believe five feet a year?"

Left center: No caption needed.

Right center: Give you an apple if you'll paint my fence.

Lower left: Beenee Weenee grins.

Lower right: I'm gung ho.



She's doing what?; Little Brushy craps championships, 1965.

and Janes that they should stop the bus so that we could conduct a more thorough examination of this phenomenon. This was unfortunate as it was the only such example of a well stocked swimming pool that we encountered all summer. It was during this course, on our field trip to Salem, Mo., that Don Gisi showed a strong preference for thick, sweet coffee. Almost syrupy, you could say.

Logging and Milling was perhaps the most interesting course, what with everyone trying to survive it in one piece. Everyone did make it in one piece, but the equipment did not fare so well. Crosscut saw handles, chain-saw bars, chains and recoil starter springs did not last long at the fantastic level of production our skilled fellers and buckers maintained. The outstanding student in logging and milling was Bill Yoder, who figured it would be faster and easier to load logs on the truck if you were to fell a tree across a county road, so he did. Unfortunately, Don Robinson was standing in the middle of the road recovering from an encounter with a swarm of bees. A little skillful running on Don's part avoided the severest test of hard-hat effectiveness yet devised.

Camp life itself offered a variety of interesting pastimes. You could play volleyball, pitch horseshoes, pick ticks off Mr. Musbach's dogs, twiddle your thumbs, or sleep. Bill Yoder opened a home for wayward cats, which gave a definite air to cabin four. A few of the troops, in what was probably an attempt to escape, started running up and down highway KK every night in what they claimed was a physical fitness program. Larry Biles

Bless these Beenee Weenees; At camp we made many new friends.



organized a softball team which enjoyed an undefeated (2-0) season against the Rombauer Rompers. "Crash" Milliken spent his spare time learning automobile body repair techniques after a Mustang backed into him while he was driving into Poplar Bluff, Cabin one, a decidedly offbeat group, decided to raise fungus tissue cultures in their idle hours. The fungus they cultured was *Ringus of fireus* (Kocar) McDaniel, common name Cabin One Rot, and family Itchyaceae. The only universally accepted form of entertainment was to spend evenings consuming ice cream at Ate's and Manley's ice cream parlors. In fact, the high point of the summer was an ice cream social at Ate's topped off with a scenic tour of Poplar Bluff.

By the end of the summer we were all out of money and insect repellent and had accumulated twelve hours of credit and a large store of canned beans, peaches and fruit cocktail. Everyone left camp with a lump in his throat (lunch), and with his accelerator pedal to the floor (so we could get back to Columbia quickly and resume our studies).

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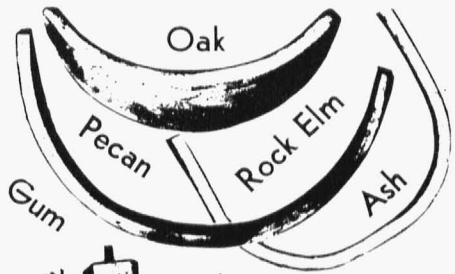
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International Paper Company's significant achievements in forestry research are outlined in a booklet entitled "Forestry Research — A Progress Report." If you would like to read more about what we are doing in this important field of work, a copy of this report may be obtained by request from: International Paper Company, Southern Kraft Division, Public Relations Department, P. O. Drawer A, Mobile, Alabama 36601.



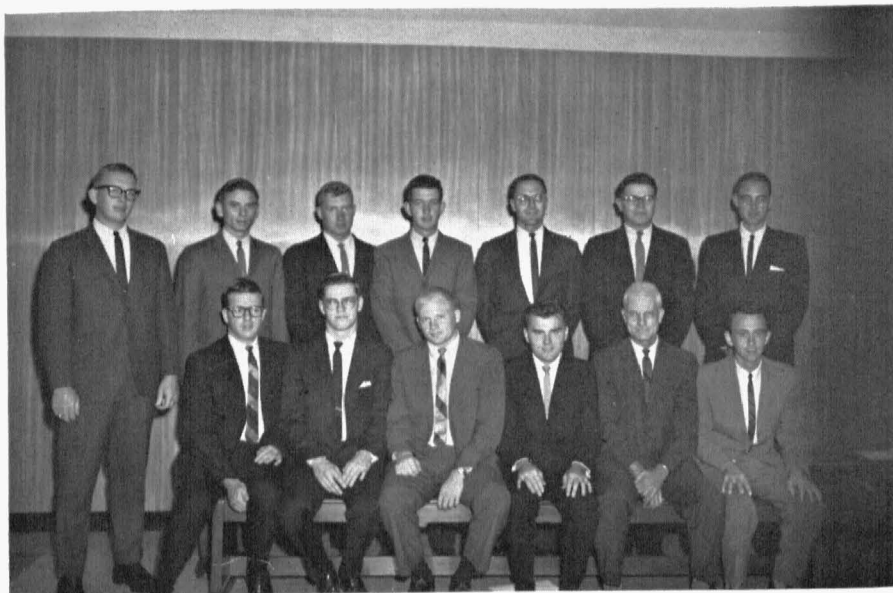
**INTERNATIONAL PAPER**

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The initiates.

## *Xi Sigma Pi*

JIM WUENSCHER

<i>Forester</i> .....	JAMES WUENSCHER
<i>Associate Forester</i> .....	JAMES WILLIS
<i>Secretary-Fiscal Agent</i> .....	HARRY BREFELDT
<i>Ranger</i> .....	ROBERT LOWERY

Tau Chapter of Xi Sigma Pi, national forestry honor fraternity elected and initiated 13 new members in the fall semester, 1965. Those elected were Vern Ammon, Gary Bing, Wallace Chandler, John Crosby, Robert Cutler, Don Gisi, Willard Haley, Bill Houston, James Joines, Bob McQuilkin, Loy Newby, Larry O'Brien, and Bill Yoder. Following the initiation the annual banquet was held at the Ranch House Restaurant where members heard a talk by Dr. Campbell of the Zoology department.

Jim Baer, Dave Miller, and Bill Vogt were elected to membership second semester.

Next year is Missouri's turn to be National Headquarters for Xi Sigma Pi. The following national officers were elected: National Forester, Gene S. Cox; Associate Forester, William J. O'Neil; Secretary-Fiscal Agent, R. H. Westveld.

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THE LUMBER JILLS were organized soon after the formation of the School of Forestry. Our function is largely social with emphasis on closer relations between the student forestry wives. Our goal is to stimulate interest in the profession of forestry.

In the course of a year, we are proud to say that our club has increased from 25-37 members, most of whom take an active interest in the group.

Our meetings and activities have been quite interesting this year. They have included a get acquainted party for the Jill's and their husbands; the showing of individual Jill's slides of many parts of the world; the traditional Christmas party at Mrs. Pastoret's home; Mrs. Barger, a beauty counsellor, speaking to us concerning make-up and skin care; Mrs. Duncan's presentation of the PHT's; the February pot luck supper; and the May picnic. It has been a successful year, and we thank our sponsor, Mrs. Pastoret, for her second year of assistance.

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# One Year Later

JIM WUENSCHER

THE 1965 GRADUATES OF THE School of Forestry have become well distributed across the country and through a wide range of jobs. Most have found work within the Forest Service, state or city conservation organizations, or have pursued a graduate degree.

## FOREST SERVICE

Norman Alley is on the Jessieville Ranger District of the Ouachita National Forest, Arkansas.

Jerry Decker is with the Forest Service on the Sequoia National Forest, Portville, California. Hope he's having a good time out there in Sierra Club country!

Roger Leonard stayed a little closer to home and is on the Winona Ranger District of the Mark Twain National Forest. His wife, Linda, teaches grade and high school music in Winona.

Jim Dyer is with the Forest Service at Salmon, Idaho.

## STATE AND CITY ORGANIZATIONS

Charles Allmon and Bill Payne are both employed in the Kansas City Park Department.

Cledith Davenport was married to Elaine Marie Ghilardi and is now with the Oregon Park Department, Florence, Oregon.

Royce Flowers, Gerald Ross, and Art Suchland are with the Missouri Department of Conservation. Royce is Farm Forester at Lebanon, Gerald is Farm Forester at Kirksville, and Art is at West Plains. Gerald was married to Sonya Kearney of Licking, Mo., on August 22, and Art was married on September 4.

Rich Slayton and Neale Teague both moved to Indiana where they are Service Foresters with the Indiana Division of Forestry.

## GRADUATE STUDY

Vern Ammon, Gary Christoff, Bill Vogt, Don Walters, and Jim Wuenscher all stayed at Mizzou to work on master's degrees.

Vern Ammon and Bill Vogt are working under Dr. Bretz studying the relation of oak bark beetles to the transmission of oak wilt. Bill married Anne Wigant of Claremont, California on December 23, 1965.

Gary Christoff is working under Dr. Cox on the physiology of acorn dormancy and germination.

Don Walters and Jim Wuenscher are both working under Mr. Paulsell, Don on a study of oak reproduction, and Jim on an ecological study of a virgin white oak stand.

Charles Denney is a graduate student in the Department of Recreation and Municipal Park Administration at the University of Illinois. He was married to Judith Crane on August 14, 1965.

Bob Roll is doing graduate work in wood products at Iowa State University.

Steve Barney stayed in Columbia for one semester to do graduate work in wood products. He left to find a job in the west at the end of the first semester.

OTHER

Bill Stephenson is in private industry as Assistant Forester for the Ozan Lumber Company (recently acquired by Potlatch Forests Inc.), Prescott, Arkansas.

Eugene McAdams is employed as an Office Salesman with the Spelts Lumber Company, Kearney, Nebraska.

Bill Eisele left the field of forestry to work as an Assistant Sanitarian for the New Jersey Department of Health in the Shellfish Control Program.

Richard Evans is in the Peace Corps in Peru, South America.

Bill Savage and Russ Stoewe are Second Lieutenants in the U.S. Army and Tim Schweighart is a Second Lieutenant in the U.S. Air Force.

Al Owen has met with singular distinction by becoming the smallest Marine in the history of the U.S. Marine Corps.

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## MANAGEMENT UTILIZATION TRIP

SHELBY JONES

FOR TWO INSTRUCTORS, chaperoned by thirty seniors, the first week of school was utilized for an excursion through the sunny southern section of Arkansas. Beards, boots, and haggard faces were styles of the day as these remnants from summer jobs gathered in front of the Agriculture Building for their long awaited vacation (?).

Enthusiasm generally runs high among any group of foresters and this group was no exception. The excitement in the air lasted almost all the way to Ashland, where the rigors of the trip took their toll and sleep ensued. Conversation was quiet with an occasional exclamation about the smooth and soothing ride afforded us by our "Golden Stingray." Our destination of Monticello, Arkansas was reached with only a minor incident which was a temporary loss of the Kansas delegation at a restaurant in Pine Bluff.

Our base of operations was the best (?) hotel in Monticello and from there we made one-day side trips to the U.S. Forest Service Timber Management Laboratory in Crossett, Ark., Georgia-Pacific Corporation in Crossett, International Paper Company in Fordyce, Ark., Potlatch Forests, Inc. in Arkadelphia, Ark., and Ozan Lumber Company in Prescott, Ark.

Alumni from the Missouri Forestry School assisted in making certain arrangements and guiding some portions of our tours. Jerry Davis (1954) arranged our lodging, John Ward (1951) guided a portion of our Georgia-Pacific tour, Bill Purcell (1950) arranged a tour of International Paper Company facilities as well as a free lunch, and Bill Stephenson (1965) met us for a tour of Ozan Lumber Company lands and wood processing facilities plus another delicious lunch.

Throughout our trip we were met with hospitality and courtesy by the many employees of the various companies. We viewed many processes of wood utilization in both the lumber and pulp factions of the forestry fields as well as operations in the field.

Balmy southern evenings were made bearable by a county fair which happened to be in town the same week. Not a small number of foresters became members of the "spit and whittle" club and spent their evenings sitting on the town square fighting off those notorious southern belles. Four members of the group became very interested in forestry insurance programs and spent almost every night on the campus of Arkansas A and M College attending lectures on the subject. Some lasting friendships with local residents were made in this connection.

The trip back to Columbia was as uneventful as the trip to Arkansas; however, thoughts of returning home caused a certain spark of excitement in the air and the journey north was enjoyed by all, especially the gang in the back of the bus.

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# ALUMNI LUNCHEON

DAVID DeWALLE

Class of 1964

EACH YEAR Xi Sigma Pi, the honorary forestry fraternity, provides a luncheon for the Missouri forestry alumni when they gather for their annual meeting on football homecoming. This year was no exception.

After the men had their meeting and the women their coffee, all migrated to the cartography room for the luncheon. Each year the luncheon becomes a larger affair. Next year we will need shift eating or Brewer fieldhouse. The new initiates served the luncheon and their help was appreciated.

The alumni were present in large numbers due maybe to an ulterior motive. The Missouri eleven was pitted against second-ranked Nebraska in one of the best games ever played in Columbia. You could never convince an alum that Mizzou didn't deserve that game.

In total this October 30 provided an attraction for everyone: Coffee, alumni meeting, alumni luncheon, and Tiger football.

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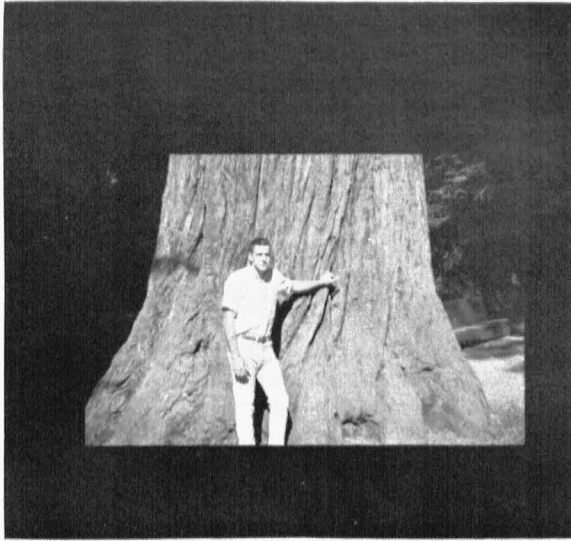
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## A Summer in Southwest Oregon

ROBERT LOWERY

THE SATURDAY THAT FINALS WERE OVER I once again set my course toward the setting sun en route to my second summer job with the Bureau of Land Management. This time I would be working on O & C Lands out of the district office at Medford, Oregon.

I found my work in Oregon to be very interesting. Basically it included everything involved in the selling of timber. The majority of the O & C Lands are still in old-growth timber and the Bureau is managing these lands on a sustained yield basis. With the large quantities of old-growth timber, much of which is over-mature, the management is still rather extensive in nature, primarily the selling of the over-mature volume.

The southern part of the district in which I was working is very dry during the summer months. Thus, management practices require selective cutting in order to insure reproduction of the two primary species, Douglas-fir and White fir. Incense Cedar, Ponderosa Pine and Sugar Pine are also found on drier sites, but are of minor importance.

My first week or so at work was involved in helping cruise a mature stand of White fir. This was the first time I had ever had to walk around a tree to measure its diameter. I also learned what a paint gun was—blisters! And that's not all, six or seven quarts of paint in a cruiser's vest can get rather heavy, especially at high elevations.

After cruising standing timber, I got a course in cruising "blow-down"—I didn't know when I was well off. Luckily that didn't last very long, but I got some more now and then throughout the summer.

The work that I enjoyed most was contract administration. Not just because it didn't involve much physical work, but because I got to know loggers and I tried to learn how to deal with them. This is one area where psychology can many times spell the difference between success or failure of your marking objective. One part of contract administration is similar to cruising blow-down, that is, marking "skinned" trees and trees with broken tops after the logging crews have been over the sale area. In addition, I was involved in line running. This is necessary because of the alternate section type ownership characteristic of the O & C Lands.

Posting and painting sale boundaries was another of my jobs. I was loaded with paint and posters, given an aerial photo with a grease pencil line on it, and was told where to be at quitting time. This made me feel like my boss had some confidence in me, at least in my ability not to get lost. And I never did. But who could get lost on a section of timber land that had been clear cut on all four sides? Clear cut pretty well describes the condition of most private lands in that area except that of timber companies. Most of these lands had been cut 20-30 years ago and are still, for the most part, lacking regeneration of any adequate degree.

Some of my work was laying out roads on the sale areas where I ran grade lines with an abney using backsights all the time—a little different than summer camp. Then the engineers run the "P" line, etc.

Bureau of Land Management offices are usually always located in the larger cities. The population of Medford was 24,000, so I wasn't isolated out at some ranger station miles from the nearest town. Through the people at the office I was able to meet many people in Medford thus maintaining a desirable level of social contact.

In Medford I shared an apartment with another summer employee, a logging engineering major from the University of Washington. He had a car, so we were able to travel a lot on weekends. Twice we went to his home in Puyallup, Washington, just outside of Seattle, and also spent one day at Mt. Rainier. The scenery is beautiful and the trees are big. While there I visited the University of Washington's Forestry Summer Camp near Mt. Rainier. The weather is cold and rainy there, the mud gets deep and the sun hardly ever shines. I wouldn't trade their camp for the one at University Forest. We don't have it so bad!

A trip to Crater Lake occupied another weekend and I would recommend that anyone who gets the chance go see it. Several times I visited the Redwood region of Northern California. These trees made most of the Douglas-fir look puny—the biggest one I saw measured about 19 feet dbh! Some of the other weekends took me to Oregon Caves, Mt. Shasta, World's Fair in Seattle, the ocean beaches, and other places of interest.

All in all, it was the greatest three months of my life and I hated to see it come to an end. I met so many people and did so many things that I wouldn't have been able to do had I stayed in Missouri!

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## The Chlorophyll Kid Rides Again

or,

## THE JOLLY GREEN GIANT EXPOSES THE SHYSTER

MARSHALL S. ODELL

Class of 1966

SUMMER JOBS, THEIR PICTURESQUE SETTINGS, and the adventures and misadventures of the people working these jobs are always timely topics for discussion at the proverbial coffee sessions. These also make good *Log* copy, since they serve to acquaint us with some of the various aspects of forestry and enrich and broaden our knowledge of geography.

I have taken it upon myself to deviate somewhat from tradition, in that the "vast knowledge" that I am about to impart to you is questionable, both as to professional enlightenment and geographic enrichment. If you are searching for either of these, you need read no further, but proceed directly to the office of any faculty member and there procure a list of selected readings with which to broaden your professional knowledge.

For the past two summer, I have been employed as a silvicultural researcher by a local ornamental tree magnate. Or, to put it in more digestible terms, I slaved away on the Christmas tree plantation of Mr. J. M.

Nichols. The job consisted of planting, pruning and spraying Christmas trees, and weed and brush control. To the uninformed this would appear to be both afforestation and reforestation, but it mostly seemed to me to be de-forestation, especially during the pruning season.

Before I go any further, I would like to clarify a few things. I am not a "bush forester," having never acquired the necessary training and knowledge. Also, this was a part-time job and thankfully so for the employer. As a restful respite from work, I was pursuing knowledge via summer school during both of these summers. The major species with which we were concerned was Scotch pine, although Jack pine, the various oaks, hickories and certain elm sprouts were conscientiously given their just verbal and physical abuse.

Pruning the trees was accomplished by whetting a modified machet to a razor edge (just like in wood tech.), and then diligently and systematically defoliating the trees in question. This operation is most favorably accomplished in late June and July. And anyone familiar with Missouri summer and not confronted with financial embarrassment is advised to seek a more enjoyable form of recreation. For that matter, it is advised (by me) that anyone capable of differentiating between a Scotch pine and a fishing pole do so.

Spraying of Christmas trees has been termed by many as a deceitful and crooked innovation of shysters. This criticism is rather unfair, insofar as spraying has become an economic necessity, especially for some strains of Scotch pine, namely the Austrian Hills strain. You can't sell people yellow Christmas trees, when traditionally, these trees have been green! Be this as it may, the spraying operation is best accomplished on a calm day; otherwise, the person spraying comes out looking like something undergoing photosynthesis!

Weed and brush control on a plantation is a tedious and troublesome job. A few minutes of inattention behind a power mower can effect the demise of a whole row of seedling trees.

The occurrence of spider mites and hail somewhat altered the normal routine for a day or so, and were the subjects of much conjecture. Dr. Stone can supply the reader with information about the former, and Mr. Nichols can hold forth on the latter. I add this for the benefit of interested, serious-minded individuals desirous of pursuing this matter further.

In keeping with the theme of this year's *Log*, I should like to dedicate this paragraph to a forest (Missouri type) pest. . . . The Mid-Missouri Grass Chigger, *Scratchus muchus* . . . which is in a class by itself when it comes to being a pest. I am uncertain as to what extent, if any, the chigger is harmful to woodlands and their crops, but there is no doubt whatsoever in my mind as to the havoc and torture these low-life varmints can wreak upon the human body!

No article such as this is complete without giving credit to other Missouri foresters who assisted in this activity. Among the more famous, or infamous as the case may be, are: Corneilus Rehagen; The Polish Count, Daniel Naperowski; H. Kellman Enterprises, Ltd.; Sir Wallace H. Landes; and Squire Gisi.

I should like to add in closing, that this last year was exceptional in that there were bountiful quantities of dewberries and blackberries all over the plantation. Also, this past summer marked the advent of females in the fields of trees! Who knows, maybe we can entice a few into the school!!!

## ACKNOWLEDGMENTS

THIS YEAR the staff of the *Missouri Log* would especially like to thank our many fine advertisers. We would hope that our readers would support them as they have supported us. We also would like to thank the Forestry Alumni Association and the School of Forestry for their support.

We were again given a big assist by the secretaries of the Forestry School who typed our articles. Mrs. Dan Napier should be voted *Log* sweetheart for her work on the voluminous amount of advertising correspondence.

We certainly appreciate the fine feature articles by Dr. Theodore Bretz, Raymond Gass, R. W. Brandt, and R. J. Kowal. The cover photo was supplied by Lee Jenkins, Associate Professor of the University Entomology Department.

Mr. Meriwether and the staff at Aircraft Press continue to gain our admiration and appreciation for their help and advice on the technical problems of the *Log*. Many thanks!

Many others have supplied pictures, articles, advice, and other help. Naturally, we can't list everyone, but suffice it to say that we really appreciate your assistance on this issue of the *Log*.

The *Missouri Log* Staff



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