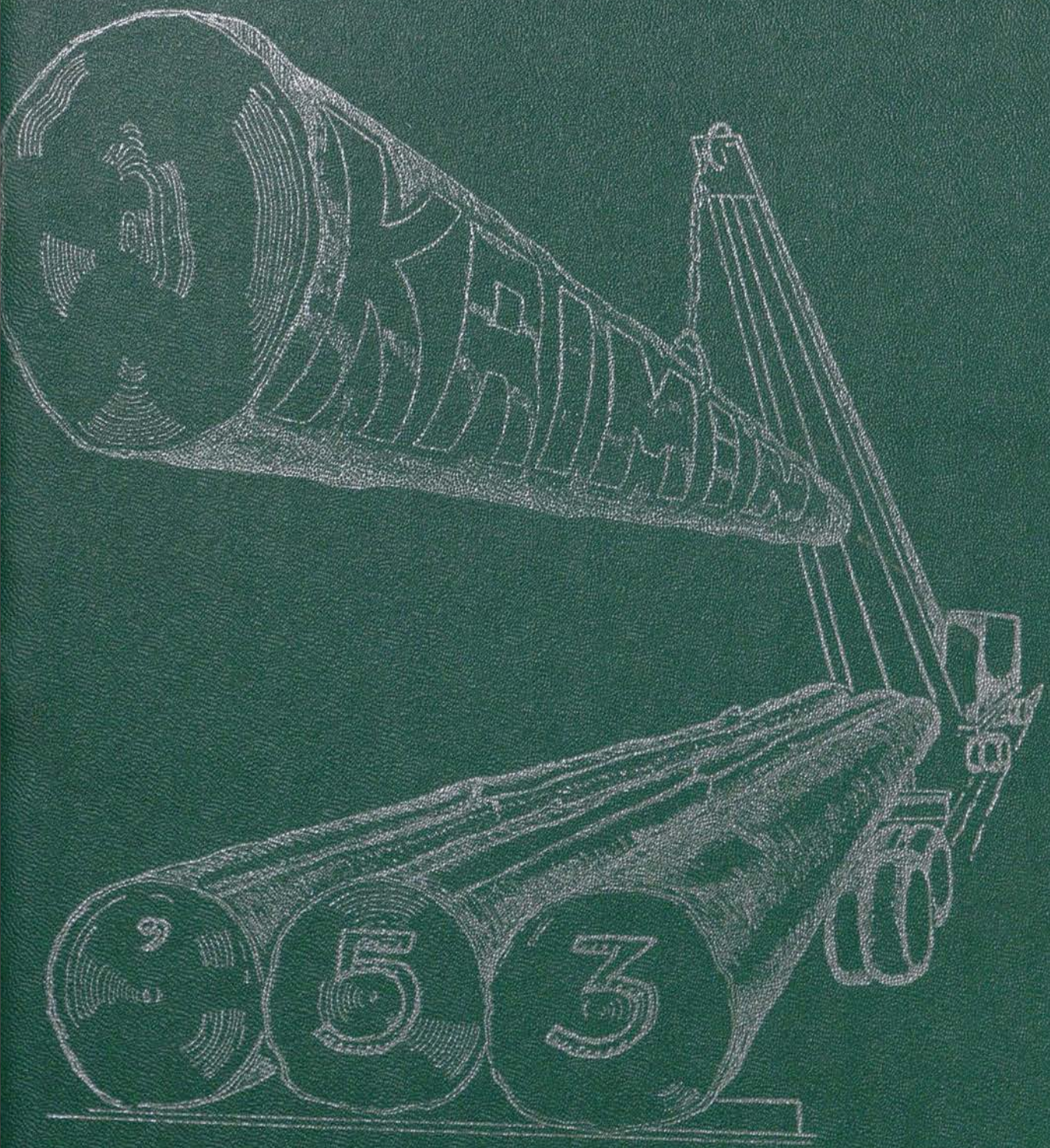
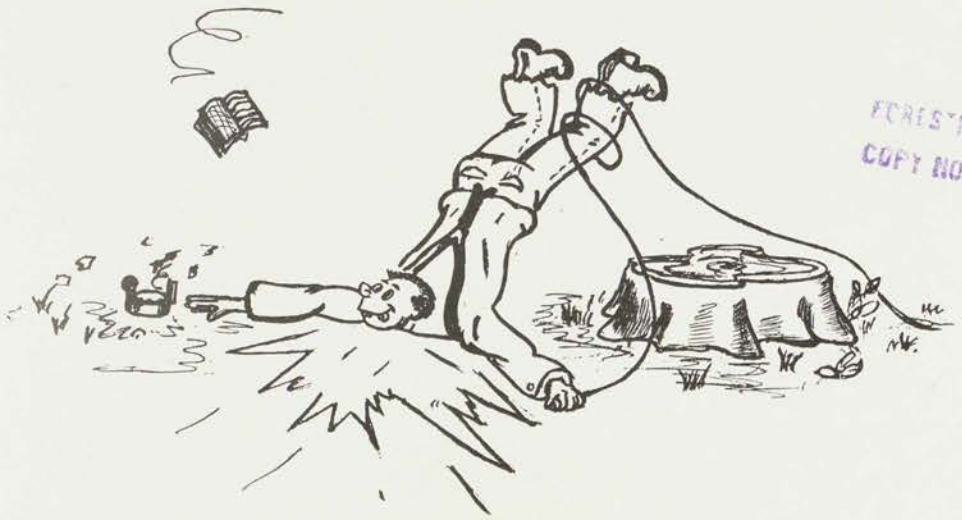
1-1-1953

Forestry Kaimin, 1953

Montana State University (Missoula, Mont.). School of Forestry. Forestry Club

FORESTRY



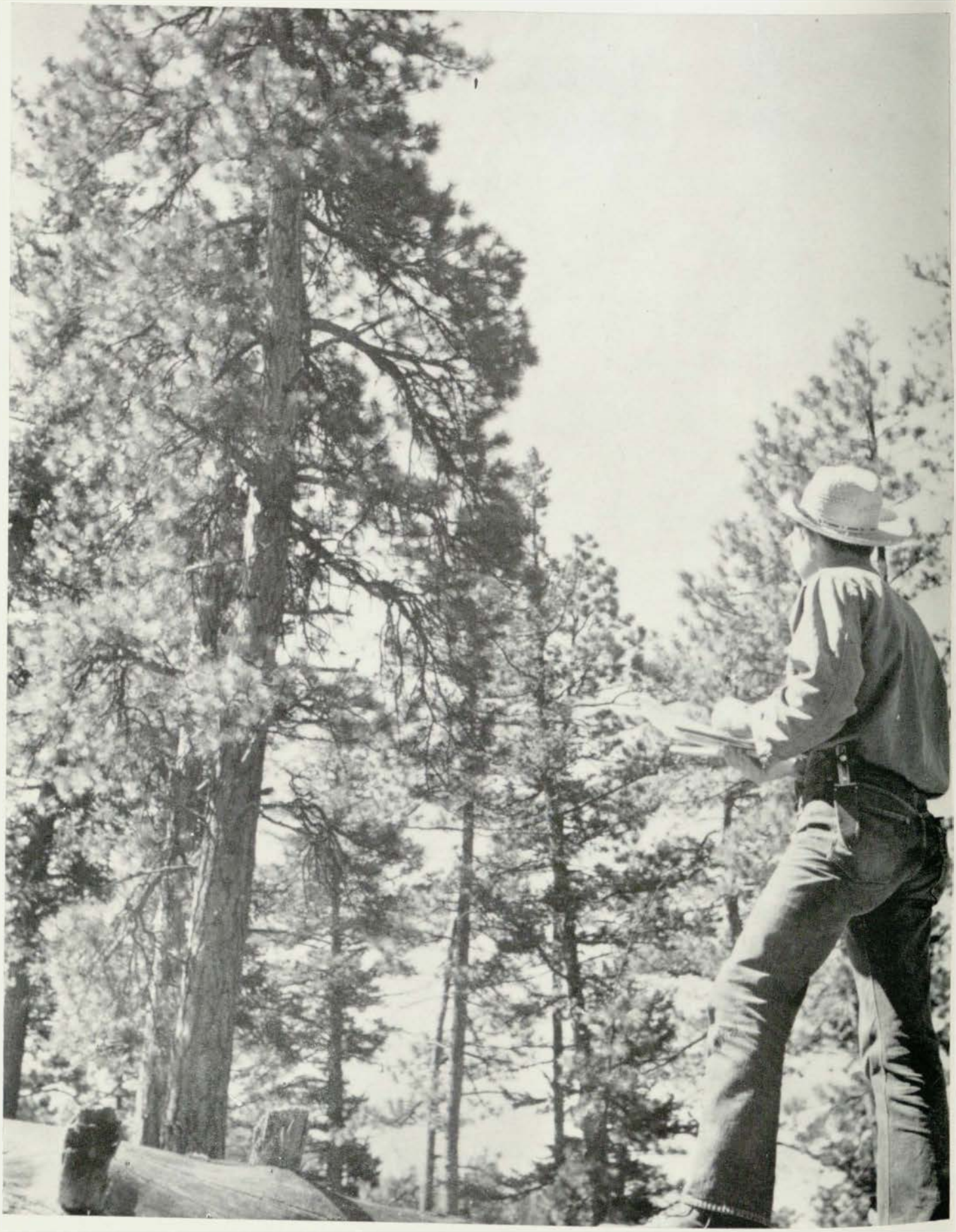


The

Stumpjumpers

present

Cover by Dave Owen



THE

1953

KAIMIN

Our Dedication:

To G. M. (Monk) DeJarnette, '22, who has faithfully served with great honor and admiration, the Montana State University and Forestry School, of which he is a loyal graduate.

Monroe will always be remembered by those with whom he graduated and by others that have come to know and work with him through his successful career as a forester. His unselfish manner is displayed in his professional work as well as his magnificent services at outside activities. Those who have sampled Monk's barbecued meat at Aber Day, Alumni Homecomings, and spring hikes, know that careful planning and hard work are a mark of his success. His services are always rendered unhesitantly, and always welcomed by the recipients.

To this outstanding forester and true friend, we, the students of forestry, humbly dedicate our 1953 Forestry Kaimin.

Foreword . . .

The publication of this year's yearbook brings to a close another year of activity for the Forestry Club.

Allen Hearst, taking over the presidency after Joe Muchel quit school, did a very fine job of carrying on the functions which make this club the most active on the campus.

As usual, many and varied fueds took place between the lawyers and the foresters, and "Bertha" was absent from her sacred place for a long while. The Ball was as big a success as ever, in spite of the fact that we could only hold it one night due to the drop in enrollment.

We of the staff are happy to present you with this record of this year's events.

KAIMIN STAFF

From left to right: Neil Peterson, advertising manager; Ralph Jaszkowski, assistant photo editor; Phil Hanson, business manager; Dick Johnson, circulation manager; Dick Faurot, editor; Bill Taliaferro, layout; Bill Overdorff, photo editor.

Faculty

1.

2.

Seniors

Club Members

Activities

Faculty

WILLIAMS, ROSS A.
Dean of Forestry School
Professor of Forestry
Survey of Forestry
Farm Forestry
Research Methods

SPAULDING, TOM C.
Professor of Forestry
Forest Economics
Utilization
Fire Control
Forest Policy

WATERS, CHARLES W.
Prof. of Forestry, Botany
Dendrology
Silvics
Forest Pathology
Wood Technology

BRUNS, PAUL E.
Assoc. Prof. of Forestry
Forest Management
Regional Silviculture
Silviculture

CLARK, FAY G.
Professor of Forestry
Measurements
Valuation
Forest Recreation
Forest Appraisals

PATTON, O. M.
Extension Forester

LEIDING, CALVIN A.
Grad. Asst. Instructor
Dendrology
Range Forage Plants

CECH, FRANKLIN
Nurseryman

BEATTY, BEN
School Forest

MOORE, KENNETH E.
Asst. Prof. of Forestry
Surveying
Mapping
Watershed Management

KRIER, JOHN P.
Asst. Prof. of Forestry
Soils
Seeding and Planting
Forest Problems
Research

MORRIS, MELVIN S.
Assoc. Prof. of Forestry
Range Management
Wildlife Management
Big Game Management
Regional Range Mgmt.
Range Forage Plants

WALBRIDGE, Thomas A. Jr.
Asst. Prof. of Forestry
Logging
Timber Mechanics
Forest Engineering
Aerial Photo Interpretation

CHESSIN, MYER
Instructor of Botany
Botany
Plant Physiology

KRAMER, JOSEPH
Assoc. Prof. of Botany
Botany
Plant Ecology

ETTINGER, MRS. HELEN
Librarian

DIETTERT, REUBEN A.
Professor of Botany
Botany
Morphology

MRS. GRACE DAVIS
Office Staff

MRS. MARGE WISE
Office Staff

Masters

AERIAL INVENTORY OF PONDEROSA PINE STANDS IN WESTERN MONTANA

Winsor Fernette

Purpose of study was to determine the economical and mensurational feasibility of cruising Ponderosa Pine stands on aerial photographs.

The problem involved preparation of tree-aerial volume tables by three different statistical methods. Volume being estimated on the basis of crown diameter and total tree height.

A method for determining site quality on aerial photographs was also devised by establishing a ratio between total height and crown diameter. It was found in this study that the higher the t ht/cd ratio, the better the site quality.

The area selected for study consisted of 94 acres of a typical Ponderosa Pine stand, located in the Piquette Creek drainage on the Bitterroot National Forest.

The test aerial cruise consisted of a 20 per cent representative random sample, using one-half acre plots, on aerial photographs of 1:12000 scale. The check field cruise was a 50 per cent systematic random sample controlled by the aerial photographs.

Total volume of the study area as determined by the aerial cruise was 1,746,859 feet, B.M. for Ponderosa Pine, and 32,586 feet, B.M. of Douglas Fir. Total volume estimate by the field cruise was 1,773,-324 feet, B.M. for Ponderosa Pine, and 57,064 feet, B.M. for Douglas Fir.

Analysis of the results of these two cruises reveals that eight chances in nine the difference is on accident of sampling.

Concluding that accurate aerial inventories are possible under some conditions. Limiting factors are stand characteristics, identification of associate species, and quality and scale of aerial photographs available.

SOME STUDIES OF AN UNDESCRIBED FUNGUS ON JUNIPERUS SCOPULORUM Sarg.

Wallace E. Eslyn

Rocky Mountain Juniper (**Juniperus scopulorum** Sarg), bearing black minute pustules upon their branchlets, were first observed by Dr. Charles W. Waters, of Montana State University, in the summer of 1946 along the Blackfoot River, 14 miles northeast of Missoula, Montana. Further observations have, since then, disclosed this fungus to be present in a number of other areas in western Montana, and in 1951 was also found at the Northern Rocky Mountain Experiment Station at Priest River, Idaho. The fungus was studied and tentatively identified as belonging to the family **Microthyriaceae.** A comparison of this fungus with known species occurring on numbers of the genus **Juniperus,** and closely related genera, indicates that it has not been previously described. As a result, an investigation was conducted by the writer in an attempt to classify, and set forth the life history of this fungus.

Since these studies were initiated, the fungus has appeared to be spreading rapidly. Junipers along the east shore of Flathead Lake, which have been under observation since 1946, were observed to be heavily infected during 1952. During that year in-

(Continued on Page 51)

THE CHEMICAL CHARACTERISTICS OF NATURAL LICKS USED BY BIG GAME IN WESTERN MONTANA

Dwight S. Stockstad

For many years certain soil deposits and springs have been utilized as natural licking sites by ruminants in many areas of the world. In the mountainous areas of North America, these natural licks occur on most big game ranges. In spite of the abundance and distribution of these licks and their extensive use by ruminants, their exact function in the biology of big game has never been satisfactorily determined.

Concentration of animals in lick vicinities have resulted in over-utilization of forage species in some of these areas and may possibly be a factor increasing predation, parasitism and disease of big game animals. Accordingly the research was designed to determine the following: (1) The mineral or minerals preferred by big game animals in various areas of Western Montana. (2) The chemical composition and properties of various natural licks.

Mineral cafeterias and soil impregnation tests were established in various areas of Western Montana on the assumption that selective use by big game animals would indicate what specific mineral was deficient or desired in their diet. Results of these tests showed sodium to be the preferred mineral.

(Continued on Page 15)

CLARENCE E. ALMEN

Clarence came to MSU from North Dakota in 1949. His summer work consisted of lookout in the Cabinet Forest, headquarters Guard in the Lewis and Clark, and assistant engineer for the B.L.M. in Wyoming. A member of Forestry Club, he played on the softball and basketball teams, and worked on checkroom and exhibition room committees for Foresters Ball. He is a Range Management major.

CLYDE D. BLAKE, JR.

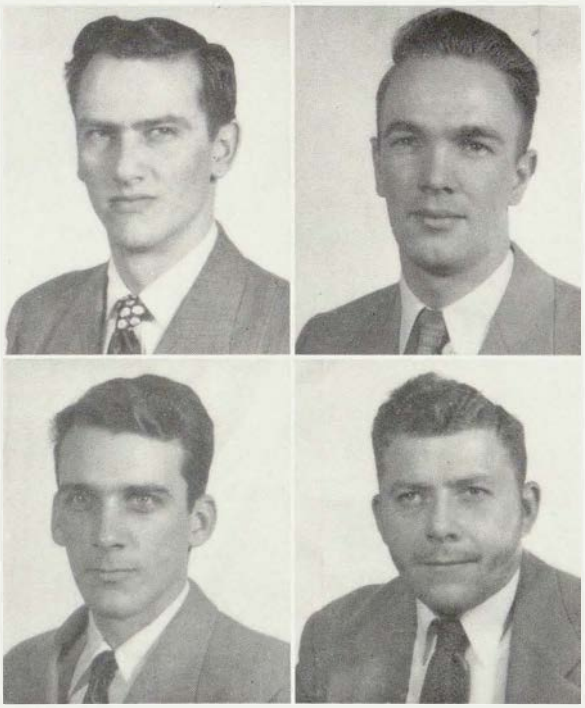
Clyde is a Forest Management major from Missoula, and has been active in Forestry Club for 4 years, being secretary in his senior year. He was assistant chairman of the doorway committee and was in charge of prizes the past year on the Ball. Clyde belongs to Theta Chi, Druids, and is active in other activities. Worked for the Forest Service in Savenac Nursery, planting survey, smokejumper and Spruce Bug Appraisal survey.

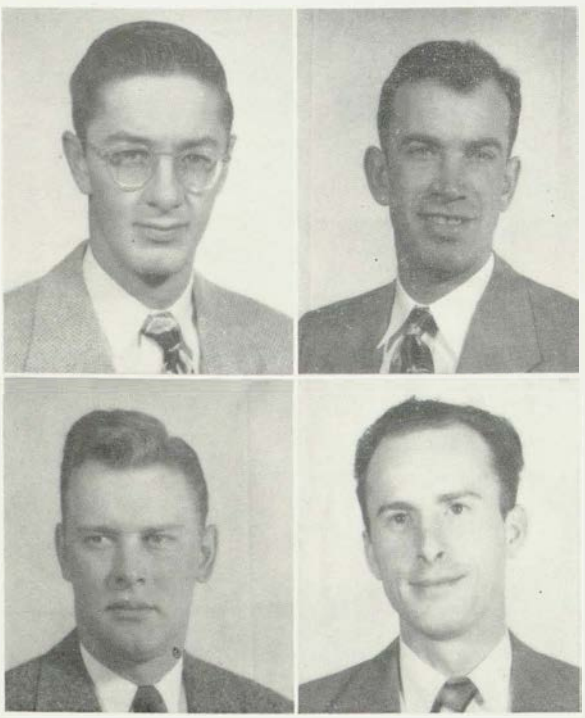
EDWARD R. BURROUGHS, JR.

Ed is a Range Management major from Dayton, Ohio. He attended the University of Dayton before transferring to MSU in 1949. He was active in the Forestry Club, and worked on the police, bar and special effects committees for the Ball. He worked for two years with the Forest Service and one year at the Forest Nursery at MSU.

BERNARD A. COSTER

Barney hails from Polson and is a forest major. He was an active member in the Forestry Club for 2 years, and has been a good worker on the Ball for 4 years. His summer work has been with the Forest Service on the Flathead Forest, working on Coram and Northfork districts.





WILLIAM H. COVEY

Bill has been active in school and forestry affairs, being president of the Club in 1952, a member of Druids 2 years, and was tapped for Silent Sentinel in 1951. The Forestry Ball has seen Bill work from the bottom of the gym decoration committee through the ranks to chairman and adviser. He is from Missoula and is a Forest Management major. His work has been with the Forest Service on the Kootenai for 2 years and smokejumper 4 years, and smokejumper squad leader the past 2 years.

MAX DOLATO

Max hails from Deonto Falls, Wis., and is a Forest Management major. He was on the publicity committee for this year's Forestry Ball. Max has worked for the Forest Service the past two seasons as a smokejumper here in Missoula.

NEIL A. EDSTROM

Neil is a Forest Management major from Two Harbor, Minn. He was very active on the Foresters basketball team for 2 years. Neil's summer work has consisted of cruising for J. Neils Lumber Company and as a forestry aid for the Forest Service.

CHARLES R. GANSEL

Charles is a Forest Management major and haids from Alma Center, Wis. He has been an energetic worker on the Foresters Ball for three years. Charlie has worked his way through the ranks in Blister Rust control work to camp foreman. He has worked the past three seasons on the Cabinet National Forest.

RICHARD J. HANSEN

Dick is from Oshkosh, Wis., and a Forest Management major. Was a member of Forestry Club 2 years, and active in Newman Club, Royaleers, and president of Alpha Phi Omega his junior year. Dick worked as smokechaser on Clearwater Timber Protective Assn. a year and camp boss for Potlatch Forest Protective district a year. The past 3 years worked in logging and out of the land department of Potlatch Forests, Inc., in Idaho.

ROBERT C. HAYES

Bob is a married man has two sons. He hails from Pittsford, Vt. He attended the U. of Vt. for 2 years, then came west. Bob has worked for 3 seasons on the Vermont Forest Service, and in 1951 timber cruising for J. Neils Lumber Co. He is a Forest Management major.

ALLEN L. HEARST, JR.

Al is member of Forestry Club, being vice-president in 1952 and president in 1953. Was a member of MSU Ski Club 3 years and Druids 2 years, secretary his last year. Foresters Ball Al was assistant chairman of chow and track committees. He is married and has a daughter. He is a Forest Management major, and has worked on the Cabinet Forest in Thompson Falls and Plains and now is an assistant ranger. He hails from Plains.

JOHN HECKMAN

John is a Forest Management major who has been on the ROTC rifle team 3 years, and "M" Club boxing tournaments 3 years. John hails from Arlington, Va., and has been active on ticket committees for Foresters Ball, being chairman and adviser past 2 years. His summer work consists of 2 seasons on Blister Rust control in Idaho, 2 seasons as smokejumper, 1 season on trail and telephone line maintenance in Idaho, and a season on timber sales for B.L.M. in Whitehall, Montana.

ARTHUR C. HOLZWEISSIG, JR.

Art is a Forest Management major hailing from Pasadena, Calif. He has been active in Forestry Club, being vice-president when Al Hearst was president. He was co-chairman of publicity committee and beard chairman for this year's Foresters Ball. Art was active in Alpha Phi Omega. He spent 5 seasons working in forest fire control on the Angelis National Forest.

ARNE J. JACOBSEN

Arne hails from New York City and belongs to Phi Delta Theta. Was president Corbin hall a year and member of Grizzly baseball team 3 years. Arne has been active on the Foresters Ball, working on decoration, bar and dining hall committees. He worked 2 years for Kristensen-Jacobsen as a plaster, and last season for Potlatch in Idaho. He is a Forest Management major.

DONALD K. JENSEN

Don hails from Hutchinson, Minn., transferring from the U. of Minn. He is married and has been active in this year's intramural basketball games. Don has worked on the chow committee for Foresters Ball. He worked last summer for A.C.M. as a lumber grader at the Bonner Mill. He is a Forest Management major.

CARL E. JOHNSON

Carl is a Forest Management major and has been active in Forestry Club, being a playing member of Athletic Board and held chairmanships of several committees; last year was junior delegate to Executive Board. Carl hails from Buffalo, Wyo. Member of Druids and Silent Sentinel. He played on freshman football team. Has been active in many Forestry Balls, being assistant Push a while last year. He has spent his summers working for Johnson Lumber Co. in Buffalo, Wyo.

JAMES W. JOHNSON

A Timber Management major from Billings, Jim was active in Forestry Club sports and worked on the dining hall committee for the Foresters Ball for three years. He worked on a lookout for the USFS in 1950 and for the Harper Logging Co. in 1951 and 1952.

RAYMOND W. KARR

Ray is a Forest Management major from Missoula. He has worked for the past 5 seasons on the Kootenai National Forest in Blister Rust Control. He worked his way through the ranks and is now a camp foreman.

DAVID T. KAUFFMAN

Dave has been active in the Forestry Club, being cook in 1952 and layout editor on the Forestry Kaimin. He was treasurer of Druids, and hails from Rocky River, Ohio. Dave has worked his way up through the special effects committee and was this year's Chief Push of Foresters Ball. He worked as lookout in Umatilla Forest and a smokejumper. Last season he was with B.L.M.

ROBERT W. KEMLER

Bob hails from Rochester, N. Y., and is married. He has been active in Intramural basketball, softball and footbail. He is a member of Newman Club and active in Forestry Club affairs. Bob worked 2 years on dining room committee, and is a Forest Management Major. He has spent 3 years working in enginering for Bureau of Public Roads.

CHARLES J. KNUTSON

Chuck is a Forest Management major from Noxon. He has played Intramural basketball. He has worked several seasons on the Cabinet National Forest and finally became dispatcher.

ROBERT M. LAKE

Bob is married and has one child. He is a member of the Phi Sigma Biological Society, and Kappa Tau senior scholastic honorary. He is a Range Management major, and worked for 3 years for the USFS in the Black Hills, and 1 year on the Lubrecht Experimental Forest for the school.

DONALD W. LANTZ

Hailing from Red Lodge, Don is a Range Management major, and has been active in the Forestry Club. He played on the football, softball and basketball teams, and a member of Druids. He worked on checkroom and doorway committees for the Ball. His summer work consists of fire guard on the Shoshone Forest and headquarters guard and alternate ranger in the Beaverhead Forest. He was co-photo editor for the Kaimin, 1952.

RICHARD T. MARKS

Dick hails from Kimball, Minn., and is married. He has played Intremural basketball for the Strips. He spent 2 seasons working for the USFS and 2 seasons for Anaconda Copper Mining Co. sawmill at Bonner.

CHARLES M. ROGERS

Chuck is married and has one child. He is a Forest Management major from Cincinnati, Ohio. He is a member of Theta Chi. Chuck has spent the last 2 summers cruising timber on the Lubrecht Forest.

JACK H. ROYLE

Jack, from Twin Falls, Idaho, transferred to Missoula from Evertt Jr. College in Wash. in 1950. A Range Management major, he is a member of Forestry Club, and he worked on the gym decorations and bar committee for the Foresters Ball. He worked for 4 summers in the Humbolt National Forest in Nevada as a forestry aid.

DAVID SALTSMAN

Dave is a Forest Management major from Missoula. He was bull cook, Kaimin photo editor last year, and program chairman this year. He was president of Druids. Dave worked through all the positions on the dining hall committee for the Foresters Ball. He has worked 4 seasons with the USFS.

EVERET E. SMITH

Smity hails from Frankfort, Ind., and is a Forest Management major. He was active in all Intramural sports for the Forestry Club. He has worked on the lighting, gym decoration and music committees for the Ball. Smity spent his summers working on a cattle ranch, B.R.C. 1950, and 2 seasons as a smokejumper.

GERALD STERN

Jerry, a Range Management Major from New London, Wis., transferred to Missoula from Oshkosh State Teachers College in Wisconsin. He also attended River Falls State Teachers College in Wisconsin. He worked on gym decoration committee for the Foresters Ball. He worked for White Pine Sash Co. in Missoula during the summer.

ROBERT W. STEINER

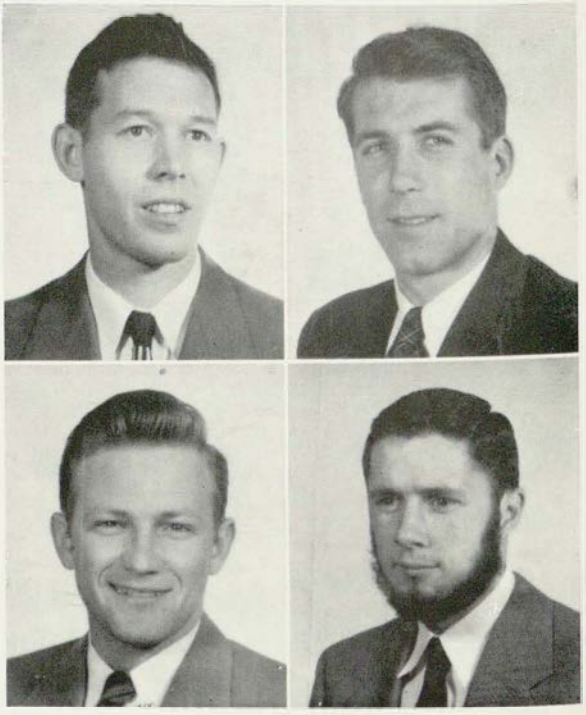
Bob hails from Pennington, N. J., and is a Forest Management major. He is married and has spent some of his summers as "a man of leisure" and the others he has worked for the Northern Pacific.

CHARLES N. SWAIN

Chuck is a Timber Management major from Johnson City, Tenn. He transferred to Montana in 1951 from the U. of Idaho. Before that he attended Tennessee State Teachers College. He was a smokejumper in 1951, and worked in Alaska in the summer of 1952. He worked on the doorway committee for the Ball.

DENNIS SWIFT

Denny is a Forest Management major from Madison, Wis., He has been property manager and active in Intramural sports. He has served on the doorway and wood butcher committees. Denny worked 3 seasons in Blister Rust Control, 1 season on lookout, and the last 3 seasons smokejumping in Missoula.



DOYNE L. TANK

Doyne is a Range Management major, and hails from Hetinger, N. D. He is a member of the Forestry Club, and has been active on Foresters Balls for the last 4 years, working with bandstand and exhibition room committees. He is a member of the Foresters Octet. Doyne worked 1 summer for the N. D. Agri. Expt. Station and 1 summer as headquarters guard on Beaverhead National Forest, and last summer he worked for the B.L.M. in Miles City.

DAVID A. WEISTANER

Dave is a married man from Missoula. He is a Forest Management major. He has spent 6 seasons with the USFS doing Blister Rust and White Pine Disease Stocking survey work, 5 seasons were spent on the Kootenai and a season on the Cabinet National Forest.

JOHN L. YARNALL

Another Forest Management major, Jack hails from Fanwood, N. J. He is a member of Scabbard & Blade, and has been active in the Forestry Club. He was senior delegate to the Executive Board, and last year he was one of the representatives to the Association of Western Forestry Clubs at Utah State. Jack spent many hours on the Foresters Ball, becoming chairman and advisor of the checkroom committee. He spent 1 summer on the Coeur d'Alene National Forest and last summer for Penn. State Foresry Department.

CHEMICAL CHARACTERISTICS OF NATURAL LICKS

(Continued from Page 10)

Chemical analyses of various properties and elements were made on one set of six samples from each of 18 natural lick areas. Three of these six samples were taken from actively used portions of each lick and three from the first foot of a normal soil profile near the lick area. This method of sampling was selected to facilitate comparison of "lick" and "non-lick" samples.

The average pH value of all lick samples was 8.37 and of the non-lick samples 6.72. No lick samples were found to be acid in nature nor were any lick samples found to have a lower pH value than the corresponding non-lick samples.

All lick areas contained more water soluble salts than the corresponding non-lock areas, and the average water soluble salt content of all lick samples combined was 1,248 parts per million as compared to 236 parts per million for the combined non-lick samples.

Calcium, magnesium, sodium, and potassium were found in fairly large amounts in all lick areas, while chlorine, sulphur and iron were present in smaller amounts. Phosphorus was detected in minute quantities in all but one lick area.

If the results of the chemical analyses are interpreted in light of the findings of the mineral preference tests, the evidence strongly indicates that big game ruminants in Western Montana are utilizing natural licks to obtain sodium.

CLUB

SENIORS:

First row, left to right: Dave Saltsman, Jack Yarnall, Doyne Tank, Max Dalato.
Second row, left to right: Dennis Swift, Jack Royle, Don Lantz, Art Holzweissig, Ned Burroughs.
Third row, left to right: Jim Pfusch, Dan Block, Clyde Blake.
Fourth row, left to right: Al Hearst, Everet Smith, Clarence Almen, Carl Johnson, Dave Kauffman.

JUNIORS:

First row, left to right: Bill Hummon, Bob Greenan, Dick Faurot, Bill Overdorff, George Stone.
Second row, left to right: Ted Reiger, Bill Taliaferro, Larry Helwig, Gene Kuhns, Russ Dahl.
Third row, left to right: Dan O'Rourke, John Hautzinger, John Lowell, Fred Schmidt, Don Wells, Jim Eakland, Neil Peterson, Phil Hanson, Ken Lippincott, Dick Joy.
Fourth row, left to right: John Hossack, Tex Hill, Jerry Wright, Frank Kirschtan, Ralph Hershberger, Martin Reed.

SOPHOMORES:

First row, left to right: Paul Bean, Jack Chamberlin, Don Williams, Zane Smith, Dave Owen.
Second row, left to right: Gary Tranberg, George Stipe, Ralph Jaskowski, Bud Hanson, Adrian Swensen.

MEMBERS

FRESHMEN:

First row, left to right: Glenn Freeman, Mac McPhail, Monte Brammer, Arne Royce, Libert Landgraf.
Second row, left to right: Fritz Wolfrom, Jim Mannion, Gary Seitz, Jerry Blair, George Grandy.
Third row, left to right: Jack Phelps, Jim Fawcett, Joanne Golden, Jean Campbell, John Prange, Mike Turnage.
Fourth row, left to right: Harlon Hays, Dick Johnson, Dave Scott, Dick Sandman, Jack Bolender.

Forestry Club

Fowler, Taylor and Greenan
"Living It Up"

Coffee Time

Association of Western Forestry Clubs Conclave at Logan, Utah.

Standing, left to right: Dave Saltsman, Jerry Taylor, Bill Overdorff, Elmer Herschberger and Dick Joy.

Kneeling: Dan O'Rourke, Bob Greenan, Joe Meuchel and Jack Yarnell.

EXECUTIVE BOARD

Seated (L-R): Art Holzweissig, Vice President; Allan Hearst, President; Clyde Blake, Secretary.

Front Row (Standing L-R): Phil Hanson, Business Manager Kaimin; Don Wells; Bob Greenan, Junior Delegate; Jack Yarnall, Senior Delegate; David Kauffman, Chief Push; Bill Overdorff, Photo Editor of the Kaimin.

Second Row (Standing L-R): Dick Joy, Treasurer; Ralph Jaszkowski, Sophomore Delegate; Fay Kiser, Athletic Manager; Dennis Swift, Property Manager.

Montana Druids

The Montana Druids, an honorary society, were a busy group again this year. The society is composed of outstanding juniors and seniors who maintain average grades and have an active interest in university and club functions and extracurricular activities. The groups works silently, but genuine accomplishments are made for the best interests of the Forestry School. Regular bi-monthly meetings were held in which all members participated to further the purposes of professional foresters and advance their interests in forestry.

The officers for the past year include: President, Dave Saltsman; vice-president, Clyde Blake; secretary, Al Hearst, and treasurer, Dave Kauffman.

Back Row (L-R): John Krier, Clyde Blake, Art Holzweissig, Phil Hanson, Fay Kaiser, Paul Bruns, Dennis Swift, Melvin Morris and Frank Chech.

Middle Row (L-R): Jerry Wright, Dan O'Rourke, Ross Williams, Thomas Walbridge, George Stone, Ralph Hershberger and Don Lantz.

Front Row (L-R): John Lowell, Carl Johnson, David Saltsman, Bill Overdorff, Al Hearst and Dave Kauffman.

John H. Lowell, this year's winner of the Silas Thompson, Jr., scholarship award.

The Silas Thompson, Jr., Award

In 1949, Silas Raymond Thompson, Jr., or Ray as he was known by his friends, and twelve other Forest Service personnel were killed in the Mann Gulch forest fire. Ray and six of the other men were students at MSU at the time.

Shortly after his death, Dr. and Mrs. S. Raymond Thompson established a scholarship in honor of their son. Since Ray was a sophomore at the time of his death, it was decided that the scholarship should be awarded to the most oustanding sophomore; outstanding not only in scholastic standing, but also in Forestry Club activities.

This year John H. Lowell, from Sioux Falls, S. D., was chosen the most outstanding sophomore of 1952 and received the $150 award.





Last year, due to difficulties in remaining an accredited forestry school, because of lack of field work, two new field courses were introduced into the sophomore cirriculum. They were a forestry field techniques course, and a field mensuration course.

In the field techniques course, the students gained experience in those phases of forestry which cannot be taught in the classroom. Some of the things which were learned were: How to run a snow survey, a method of reforestation, thinning operations, and logging operations.

In the field mensuration course, the students learned how to scale logs and cruise timber.

Both courses are valuable in experience for summer work.



Vegetative Propagation of Western White Pine

Charles W. Waters

It is likely that from time immemorial, man has possessed some knowledge of the art of propagating plants by vegetative means.

We know that as long ago as 300 B.C. Theophrastus described in detail the propagation of numerous plants by cuttings and grafts. However, according to Avery and Johnson(1) up to a decade or so ago, few, if any, improvements had been made in the technique of vegetative propagation during the past 2000 years.

Little or nothing was known concerning the physiological condition of the plant and the influence of such on its readiness to root. It was only known that if fragments of the plant, usually stems, were taken at favorable seasons, placed in a moist medium such as sand, peat, or even garden soil, roots would eventually develop. It was not until well into the present century that attempts were made to augment and hasten the process by the use of sugars, acids and other chemicals.

That the development of roots, buds and flowers are stimulated and controlled by definite "growth-substances" made within the plant was not clearly established until about 1935. Such discovery had its origin in the epochal work of Charles Darwin who in 1880 showed that certain influences are transmitted from one part of the plant to another and result in a definite reaction. These so-called "growth substances" or regulators were later recognized as definite chemical substances which are synthesized and transported throughout the plant, producing subsequent reactions. Such substances came to be known as plant hormones, phytohormones or auxins.

In 1935, Zimmerman and Wilcoxon(5) showed that various synthetic compounds could be applied to plants and bring about effects that are practically indistinguishable from those of naturally occurring hormones. Among the most common of these are indoleacetic, indolebutyric and napthalene acetic acids.

As a result of these discoveries, interest in plant hormones increased at an unbelievable rate and a survey of the literature discloses that during the period from 1935 to 1945 more than 150 scientific articles appeared giving the results of rooting experiments, using synthetic or hetero-auxins.

During this same period, several commercial rooting preparations made their appearance on the market; all more or less similar in that they contain one or more heteroauxins dissolved or dispersed in some inert medium.

So rapid has been the improvement in the technique of stimulating the development of roots on cuttings that many of the nursery-grown hardwoods and conifers are now propagated in this manner.

Investigations pointing to the possibility of perpetuating disease resistant parent stock by cuttings and grafting have and are being carried on in increasing numbers.

Deuber(2), Farrar and Grace(3), Thimann and Delisle(4), only to cite a few, have reported varying degrees of success in inducing rooting in cuttings of **Pinus strobus,** one of the hosts of White Pine Blister Rust. With the exception of Deuber(2), who reported a single instance of a very low per cent of roting of cuttings of one tree of **P. monticola,** one of the western hosts of the disease, no one has yet had success with this tree. It was with the desire to explore the possibility of developing a successful technique for this species that the writer initiated a series of cuttings experiments in the Autumn of 1951.

Since it has been the experience of practically all of the investigators in this field that the readiness of conifer cuttings to root diminishes with the increasing age of the parent tree, the first cuttings were made from 2-4 nursery transplants of **Pinus monticola.** These plants were obtained from the U. S. Forest Service Nursery at Haugen, Montana, through the kindness of Mr. Jim Augenstein and Mr. G. M. DeJarnette.

In all of the rooting experiments reported here, the cuttings were immersed in a water solution of the hormone for varying periods of time, rinsed thoroughly in water and placed immediately in the rooting medium. Since some of the hormones are only sparingly soluble in water, they were first dissolved in a small quantity of 95 per cent alcohol before adding the water.

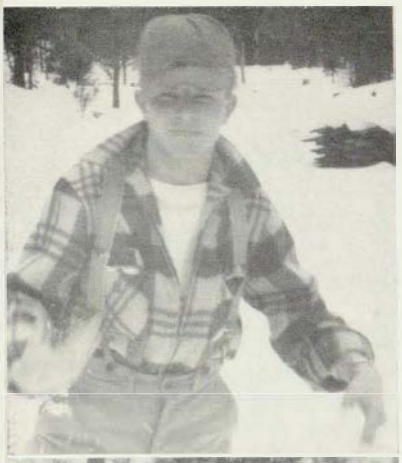
The rooting medium employed was a medium to fine textured sand. Various mixtures of sand and peat, as well as peat alone was tried, but, all factors considered, sand appeared to be the most satisfactory.

Two hormones were used in the preliminary studies; they were Indoleacetic and Indolebutyric acids. Controls with water were also run.

(Continued on Page 40)

Literature Cited

1. Avery, G. S., and Johnson, E. B. 1947. Harmones and Horticulture. New York, McGraw-Hill.
2. Deuber, C. G. 1942. The Vegetative Propagation of Eastern White Pine and Other Five-Needled Pines. J. Arnold Arboretum, 23:198-215.
3. Grace, M. H., and Farrar, J. L. 1950. Vegetative Propagation of Conifers. VI. Hormone Solution and Dust Treatments of Spruce Cuttings Propagated in Greenhouse and Outside Frames. Can. J. Research, C, 18:401-414.
4. Thimann, K. V., and A. L. Delisle. 1939. The Vegetative Propagation of Difficult Plants. J. Arnold Arboretum, 20:116-136.
5. Zimmerman, P. S., and Wilcoxon, F. 1935. Several Growth Substances Which Cause Initiation of Roots and Other Responses in Plants. Contrib. Boyce Thompson Inst. 7:209-229.



Thirty-sixth Annual
Foresters Ball

Dave Kauffman, Chief Push, got the Foresters Ball rolling early Fall Quarter by getting the fellows to turn out for tree cutting on Saturdays and Sundays. Hard work produced hearty appetities and Dan O'Rourke provided chow.

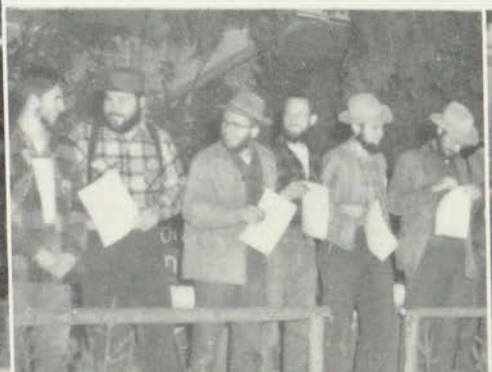
The Sunday night before the Ball, footprints of Paul and Babe appeared on the campus announcing the Foresters Ball. The first part of the evening was spent absorbing the friendly atmosphere of fellow companionship. By midnight the boys had achieved the "artistic" touch, so the job of track painting began. First came the mixing and distributing of the paint, and then the Foresters became absorbed in the delicate job of painting.

Another advertisement for the Ball was a convocation put on by the Foresters, with the theme centered around Paul Bunyan. Music was provided by George Stone, Don Wells, and Frank Kirschten playing guitars, and also by the barbershop singing of the "Old Foresters" octet. Practically everyone who went to it said that it was the best convocation of the year.

Wednesday night before the Ball, decorating began, and almost everyone in the Forestry School pitched in to help.

To get to the Ball, you had to pass through the roots of a huge 35-foot broken-top tree, with Paul and Babe peering around the trunk at the incoming crowd. The people were then subjected to "a frisk" by the police for weapons, etc. For an exhibition, an old-time logger's bunkhouse was built, and the boys in the cabin seemed to be enjoying themselves as much as were the people who were "living it up" on free Coke and orange, which, incidentally, was being served in the old frontier style bar.

At intermission time, awards were given out, and Bill Bethke was picked for first prize in the single person division of the costume contest. Then the crowd was treated to a line-up of gents who had grown beards for the Ball. Rolf Harmson, a Bus. Ad. major, was picked as No. 1 fuzz face, and presented with a Schick electric razor by the Beard Contest Chairman, Art Holzweissig.





Since the Ball is more or less a costume affair, most of the people dressed in "old time" outfits. Don Williams and his date were no different from the rest.

If a person got tired of the orchestra, he could go into the bar and listen to George pound the piano awhile.

Also for entertainment, Doyne Tank sang a solo, and the "Old Foresters" rendered a couple of numbers.

For those who got hungry, the "girl Foresters" were dishing up chow over at the Forestry Building. They were kept quite busy all night.

Although only Coke and orange were served, a few of the actors in school decided they had to add atmosphere to the barrom by posing in a very natural manner. All too soon, it seemed, the blue snow began to fall announcing the end of the dance, which was the "end" for some people.



Smoker

The Forestry School's 21,000-acre forest was shown to the freshmen and transfer students early this fall, by the Forestry Club at their Smoker. The object of this Smoker was to acquaint the new students with one of the many facilities that the Forestry School has within its use.

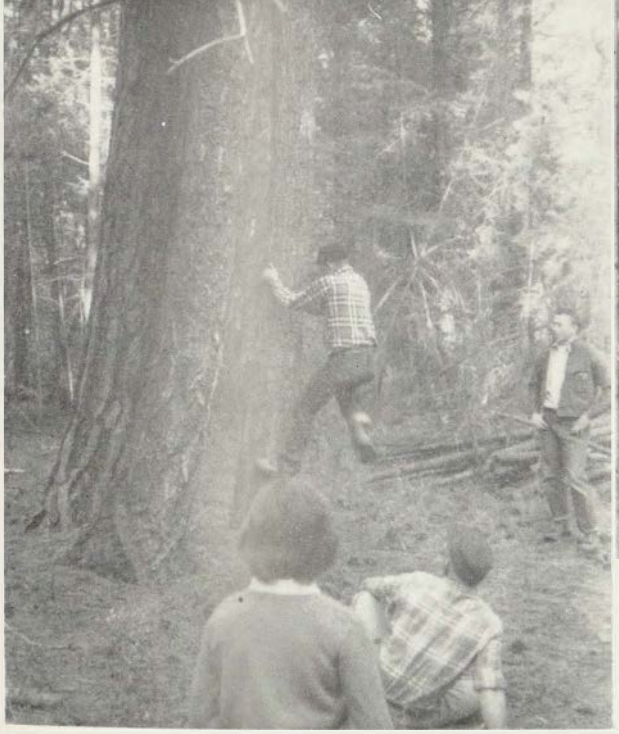
A touch football game, in which practically all the students participated, started off our afternoon of fun. Refreshments were served following the game. A few members of the faculty gave short talks on the history of the school forest and the uses to which this forest was being put.

Singing of many of the Forester's favorite songs ended our day of fun and enjoyment.

John Helterline, the first man to sign the initiation plaque, with Paul Bean.

Initiation

On a cold Fall night, shortly after school started, the prospective Forestry Club members turned out to be initiated. After a gruelling night of physical exercise, weary freshmen and transfer students were finally considered members of the Club.



Forester's Formal

The 1952 Annual Forester's Formal was held in the Montmartre Room of the Missoula Hotel. The best dance band in town was obtained, and that of course, means the Moon Moods.

Tables and chairs were placed around the edge of the dance floor which gave the chaperones a good place to sit when a fast number came up. There were quite a few faculty members present, and a feeling of friendship prevailed (just like in classes).

Everyone's Levi's must have been dirty 'cause everybody wore a suit.

The punch warrants mention. There was quite a crowd around the punch bowl all evening. Somehow I had the impression that the grapejuice was sour.

A few of the more distinguished members of the Forestry Club decided there wasn't enough room to dance, so they moved a coat rack. There was more room to dance even if the coats were on the floor.

Everyone had a good time — both faculty and students.

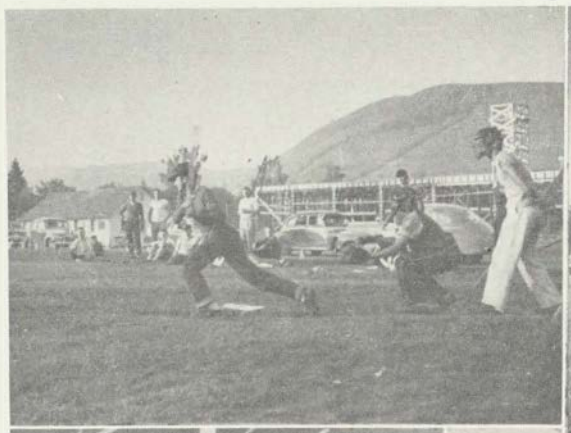
Fall Hike

The Forestry Club held its annual Fall Hike Sunday, October 26, at the picnic grounds in Pattee Canyon. It was a perfect fall day for our outing, and as a result there was a pretty fair turnout. Various contests were held, including log sawing, tree climbing and log chopping, and prizes were given to the winners. For those not taking part in these contests, there were other "less strenuous" activities, such as volleyball and horseshoes.

Following these activities "grub" was served — everyone filled themselves up with hot dogs, beans, cider, coffee and apples.

As night began to fall a cheerful fire was lit and we all sat around the campfire singing our favorite songs.

Everyone had a swell time and we're looking forward to the next Forestry Club outing.



Sports

The Forestry Club participated in six intramural events — touch football, volleyball, swimming, basketball, softball and track. Intramural skiing was not held because of a snow shortage.

Our best showing was in swimming where we placed second with four men entered.

Basketball and volleyball games were all close games — a 5 won and 8 lost in basketball and 4 won and 6 lost in volleyball. In football the club won 4 and lost 2.

Softball and track had good turnouts and should make a good showing.

Loan Fund

The loan fund has built up from the earnings of each year's Foresters Ball to the extent that this year it now contains $8,343.51. A person must be a junior or senior and a member of the Forestry Club to be eligible for a loan (up to $150). In the past many seniors have found it very helpful in paying for their spring trip. The loan is interest free if it is paid back by October 15 of the following year, but if not paid by then, 8% interest is placed on it from the date the loan was issued.

Seems there's something there that they're all after.

Swift and Smith competing.

Burling? Where's the log?

Spring Hike

Under the able leadership of Jerry Taylor, the Spring Hike again provided a good time for all present.

The day was officially opened with an exhibiton parachute jump by Dave Saltsman, Dick Joy, Dan O'Rourke and Danny On.

Following activities included a softball game and the forester's contests. Double man bucking, chipping, burling, and a greased pole climb were highlights of the afternoon. Denny Swift and Everett Smith made an attempt to double buck against a Titan chain saw, but lost out. The old class spirit was shown when the sophomores trounced the juniors in burling but lost in the tug-of-war.

A swell barbeque was made possible through the efforts of Monk and Hazel DeJarnette. Everyone had plenty to eat and compliments were paid for the dinner prepared.

George Stone led the folks in singing of our favorites around the campfire. After a full day's entertainment, almost everyone returned home having enjoyed another Club function.

Making firewood, Watson?

Looks like someone's going to get wet.

Advantages in Thinning Practice

Paul E. Bruns, Associate Professor of Forestry

Utilization of smaller sized material and the emergence of a young growth era in the logging industry of the Northwest have resulted in the commercial application of thinning to young growth stands. There is a general interest in the mechanics of applying financially successful partial cuts to such immature stands. An understanding of the fundamentals of thinning is needed if the forester is to gain the type of wood material expected by forest owners following such applications.

Thinnings offer a means to accomplish three main purposes. These can be discussed as follows:

(1) Salvage. The utilization plants normally lose much cubic-foot volume through natural mortality in young stands. Thus, a 38-year-old Eastern White pine stand has 828 stems per acre of 5.9-inch average diameter. Left unattended an additional thirty years, 372 of the weaker stems fell out (Hawley, 1936). Such loss is well anticipated by the periodic use of thinnings. Without thinnings, natural mortality represents a loss of approximately 25 per cent of the cubic-foot rotation-age volume in unmanaged stands. This is the same as stating that about one-fourth of the cubic-foot growth potential is wasted in unthinned stands.

(2) Concentration of growth potential. The growth potential of the site can be utilized by alloting area to a greater number of stems of relatively small size, or fewer stems of larger size. In board-foot utilization, management must concentrate the potential upon fewer stems per acre. This is best accomplished through thinnings. It is clear that the form of the volume is as important as the total volume of the stand.

Utilization in pulpwood and cubic-foot measures is on the rise. This trend is liable to cause a depreciation of thinnings as being of value in forestry. The more spectacular gains from thinnings result in sawlog forestry. However, quality is important in pulpwood values also, as in the relative volumes of bark and wood. It is likely that in any utilization of timber there will be an optimum in average diameter and individual tree growth rate. This optimum can be obtained through controlled thinnings. Yet in theory (provided stagnation does not set in) the unthinned stand should nevertheless be expected to exert the maximum pressure on the growth potential of the site.

However, this theory is not substantiated by records presented by Weideman (1951:64), of 108-year-old beech stands in which thinnings were made corresponding to light, moderate and heavy low thinnings as classified by Hawley (1946:234, "radical" application). The stands at maturity measured 584, 506 and 372 cubic meters to 2.8 inches small end; 174, 309 and 458 cubic meters had been removed in thinnings; therefore, total yields were 758, 815 and 830 cubic meters, respectively. The total yield of the light thinning was comparable to the yield of a natural stand since only dead and dying timber was removed. Such results suggest that decreases in total cubic-foot yields through thinnings are either due to (a) lack of experience in technique, (b) attempts to apply a technique dictated by economic limitations, or (c) a deliberate endeavor to gain a maximum of board-foot volume in large sized trees. The results may also be caused by the record covering only a portion of the rotation period.

(3) Financial Advantages. A return can be had from the stand at an earlier age. If there is a market for small material, a small profit may be made from early thinnings. If compound interest is taken seriously, even a small return in thinnings amounts to a high return by the end of the rotation. Crown thinnings in particular give early returns as the larger trees are removed. They are well adapted to species that can recover from partial shading and make rapid growth on release. Management is ready to apply thinnings only if a slight profit can be made thereby and there is some purpose to the type of thinning made.

Moderate and heavy thinnings have advantages in reducing growing stock per acre. This may show a lower capital investment in stumpage and may be of weight in considering taxation and risk in standing timber. Yet the growth percentage will be comparatively high on such thinned stands. Stands heavily thinned may have only two-thirds or less of the volume per acre at rotation age as unthinned or lightly thinned stands, as much of the capital has already been converted.

The larger sized trees from thinned stands result in less mill utilization waste. Logging cost is reduced as it varies almost directly with the number of pieces handled per unit measure.

There is a growing number of examples in the application of thinnings in the United States and Canada. Hawley (1936) has successfully thinned old field white pine originating in 1867 in New Hampshire. Comparisons are given on areas thinned six times with a 1905 volume per acre of 14,268 board feet as against an unthinned stand with a 1905 volume of 13,996 board feet. Total yield in 1935 was 42,680 board feet in the thinned as against 41,640 board feet in the unthinned area. The relative average diameter was increased from 9.3 to 13.2 inches through thinning. These particular stands were lost during the hurricane of September, 1938.

Commercial releases in the western United States recognizes that thinnings can start when the trees are 30 to 40 years old and be repeated at intervals of approximately ten years. Thinnings in such a young age class are still in an experimental stage in that area. The financial results of thinnings in this age

(Continued on Page 53)






Spring Range Trip

At 6:30, May 1, 13 range students and Prof. Melvin Morris set out for a 27-day trip of range lands in the West. Since there were fewer going on the trip, a bus wasn't used; instead, private cars and a university truck were taken.

The first major stop was made at Knoll Creek Station in Nevada. There's a big problem there with the control of halogeton. Since this is good stock-raising country it's important that control be effective.

On May 3, the boys pulled into the Desert Range Experiment Station. All grazing here was done by sheep. Studies were made of the vegetation and experiments in progress.

Reports say everyone really learned a thing or two from some one-armed-crooks in Las Vegas. I guess a few (darn few) came out ahead, though.

The fellows got a look at Santa Rita Experiment Station in Arizona. This is the oldest experiment station in the United States and was taken over by the Forest Service in 1915. A study of the layout was made and then off for the Ashburn Ranch. The ranch management was the best seen so far on the trip.

Next, up to Utah. Interesting observations directed by Prof. Morris were made on wildlife. It's a good thing the boys found a place to sleep inside May 21 because it snowed an inch and a half. I hear they took a break for a snowball fight.

Another phase of range management, watershed, was aptly covered in Farming, Utah. Some bad floods occurred here in 1923 in some of the canyons. Control and management methods were discussed and notes taken.

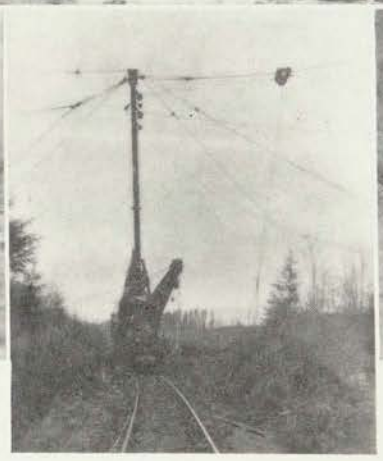
Some of the other places visited were Kaibab National Forest, Fishlake National Forest (Utah), Upper Snake Research Center, Utah State Agricultural College (Utah), Box Bar Ranch (Arizona), Roosevelt Lake (Arizona), and Southwestern Forest and Range Experiment Station.

After traveling about 4,000 miles, the range class pulled up to the Forestry School May 27.

Everyone had a good time, saw lots of interesting things, ate lots of dust, but most important of all they had a better understanding of our range lands and problems.








The Spring Silviculture Trip of 1952

At 12:30 p.m. on the twenty-seventh of March, 1952, the Greyhound bus left Missoula carring the 29 men and a girl of the senior class. This was the beginning of a journey that was to take them 2,177 miles through the northwestern states to observe different aspects of timber production.

Grand Coulee Dam was the first major stop where a tourist lecture was heard and a model of the dam and surrounding area was observed. This was followed by a tour through the dam.

Continuing on west the next stop was the Biles-Coleman Lumber Company. Here lodgepole is hauled into th emill in tree lengths where it is possible to saw logs up to 90 inches long. Much of the lumber goes into making casket boxes which must be 7.5 feet in length. A full day was spent here and consisted mainly of discussing the make-up and problems of the company. Biles-Coleman Lumber Co., at Omak, Washington, is the only major logging company in the area.

Monday, March 13, while in Seattle, Fred Prussing had an attack of appendicitis and was taken to the Virginia Mason Hospital. He didn't stay long though, for he joined the group the next day at Enumclaw.

During his absence the rest of the group was shown through the Vaight Creek Experimental Forst. This is a 230-acre tract jointly owned by the USFS and the St. Paul & Tacoma Lumber Co. Due to the immature age of the stands most of the progress on the forest is directed toward testing several theories regarding the thinning of second-growth Douglas Fir. The thinning operations are self-supporting with the thinnings going for 25-foot smelter poles, R.E.A. poles, fence posts, car stakes, and a few 8- and 16-foot logs.

At the Pack Demonstration Forest, LeGrande, Wash. Douglas Fir pogeny tests were observed. Seeds were brought in from widely scattered areas of the West and planted. None have done as well, though, as the native seed.

The St. Helens Tree Farm was a very interesting place. Jack Larson explained the organization of the Weyerhaeuser Timber Co. Forestry Department and the layout of the "farm" and a few of its problems in the morning which followed by a tour of the area in the afternoon. The following day the Longview division of the Weyehaeuser Timber Co. was toured in great detail.

The next point of interest was Timber Structures, Inc., at Portland, Ore., which is a wood utilization firm manufacturing, primarily, prefabricated structural timbers. This company is one of the largest of its kind and is known the world over.

At the Hebo Forest Plantation was seen the results of reseeding and planting of an area burned over in 1853. Mr. Barber, timber sales assistant, explained the various methods used in restocking the area.

At the end of a day's travel, Lewiston came into sight where was seen the Clearwater mill — the largest pins mill in the world.

The last operation seen by the class was that of Boville Operations of the Potlatch Forests, Inc., at Boville, Idaho. Mr. Ritzheimer was the host here and it was he who showed the class through and pointed out the importance of logging economics.

The following day (April 12) brought the class back to Missoula, arriving at 4:15 p.m.









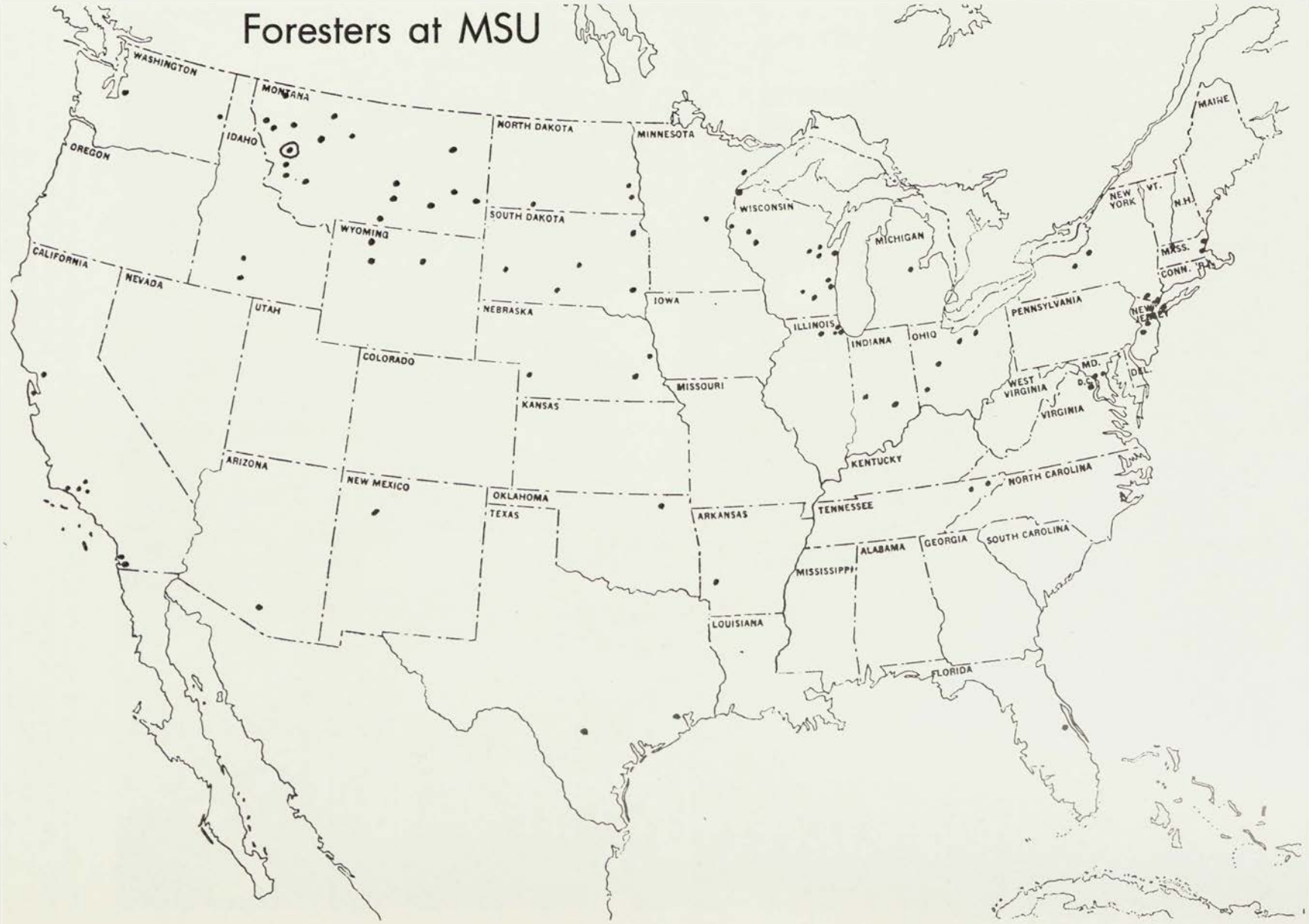





OLD TIMERS PAGE

1. Foresters Ball, 1934; **2.** Spring Trip, Circa, 1938; **3.** Jack Schmautz at Foresters Ball, 1947; **4.** Foresters Ball, 19??; **5.** Pre-Foresters Ball, 1939; **6.** Montana Delegation at Forestry Club's Conclave, 1939; **7.** Class of 1929 at Anaconda Copper Mining Co. Spring Camp, Greenough; **8.** Dick Robinson, '40, at Cedar Mt. Lookout; **9.** Foresters Ball, 1938; **10.** You guess, we don't know!; **11.** Spring Trip, 1937; **12.** Foresters Ball, 1938; **13.** At the Park, Circa, 1938; **14.** Forestry - Home Ec. Party, 1947.

Foresters at MSU



SCHOOL ROSTER

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Blair, Jerry, Fr., Wolf Point, Mont.
Blake, Clyde, Sr., 310 Woodworth, Missoula, Mont.
Blakely, Lawrence, Fr., 9837 Miloann, Temple City, New York
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Bolender, Jack, Fr., 556 4th Ave., Chula Vista, Calif.
Boyd, John, Fr., Hobson, Mont.
Brammer, Monty, Fr., Rt. 2, New Castle, Ind.
Bremickter, Gilbert Jr., So., 3141 Home Ave., Berwyn, Illinois
Brown, James, So., 229 S. Harmony St., Medina, Ohio
Brown, Robert, Fr., 921 High St., Chippewa Falls, Wis.
Burroughs, Edward, Sr., 2079 Rustic Rd., Dayton, Ohio

Calhoun, Donald, Jr., 4951 Lennox Blvd., Inglewood, Calif.
Callahan, Edward, Fr., 60 W. Tremlett St., Boston, Mass.
Campbell, Jean, Fr., Rt. 1, Orchard Homes, Missoula
Chech, Franklin, Gr., 800 Eddy, Missoula, Mont.
Chamberlin, Jack, So., 10 Chouteau, Missoula, Mont.
Chambers, Milton, Fr.
Coston, Charles, Jr., 111 Goucher Cir., Oak Ridge, Tenn.
Coster, Bernard, Sr., Polson, Mont.
Covey, William, Sr., 606 S. 5th E., Missoula, Mont.

Dahl, Russell, Jr., 113 Clinton, Hot Springs, Ark.
Dawson, Charles, Fr., Rt. 1, Midland, Mich.
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Dolato, Max, Sr., Ogonto Falls, Wis.
Dollan, Jack, Jr., 2156 S. 14th W., Missoula, Mont.
Dunning, Francis, So., 37 Lake, Missoula, Mont.

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Edstrom, Niel, Sr., Two Harbors, Minn.
Ely, Fred, Fr., Box 1613, Great Falls, Mont.
Eslyn, Wallace, Gr., 14 Powder River, Missoula, Mont.
Estex, William, Jr., 1 Silver Bow, Missoula, Mont.

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Faurot, Dick, Jr., St. Croix Falls, Wis.
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Fichtel, Wayne, Fr., 336 Weston, Auroia, Ill.
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Foster, Lewis, So., Meeteetse, Wyoming
Fowler, Frank P., Jr., Princess Gdn. Rd., Lanham, Md.
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Fredihing, William, Gr., 3301 Cameron Mills Rd., Alex, Va.
Freeman, Glenn, Fr., Box 621, Conrad, Montana

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Hanson, Phil, Jr., 308 N. Ave. E., Missoula, Montana
Hautzinger, John, Jr., 3065 S. 32 Ave., Omaha, Neb.
Hayes, Harlow, Fr., 634 Marshall, Missoula, Mont.
Hearst, Allen, Sr., Plains, Montana
Heckman, John, Sr., Arlington, Va.
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Hummon, William, Jr., Rd. 1, Columbia Station, Ohio

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Johnson, James W., Sr., 931 Grand, Billings, Montana
Johnson, Richard, Fr., 2014 N. Lamon Ave., Chicago, Ill.
Joy, Dick, Jr., 910 Manor Rd., Alexandria, Va.

Karr, Raymond, Sr., 644½ Rollins, Missoula, Mont.
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Kelley, Al, So., 87 West St., Greenfield, Mass.
Kemler, Robert, Sr., 56 Stratton Rd., Rochester, N. Y.
Kienl, Richard, So., 515 Rollins, Missoula, Montana
Kirschten, Francis, Jr., Box 203, Baker, Montana
Kiser, Fay, Sr., 45 Carbon, Missoula, Montana
Knutson, Charles, Sr., Noxon, Montana
Kuhns, Gene, Jr., 4851 N. 2nd St., Milwaukee, Wis.
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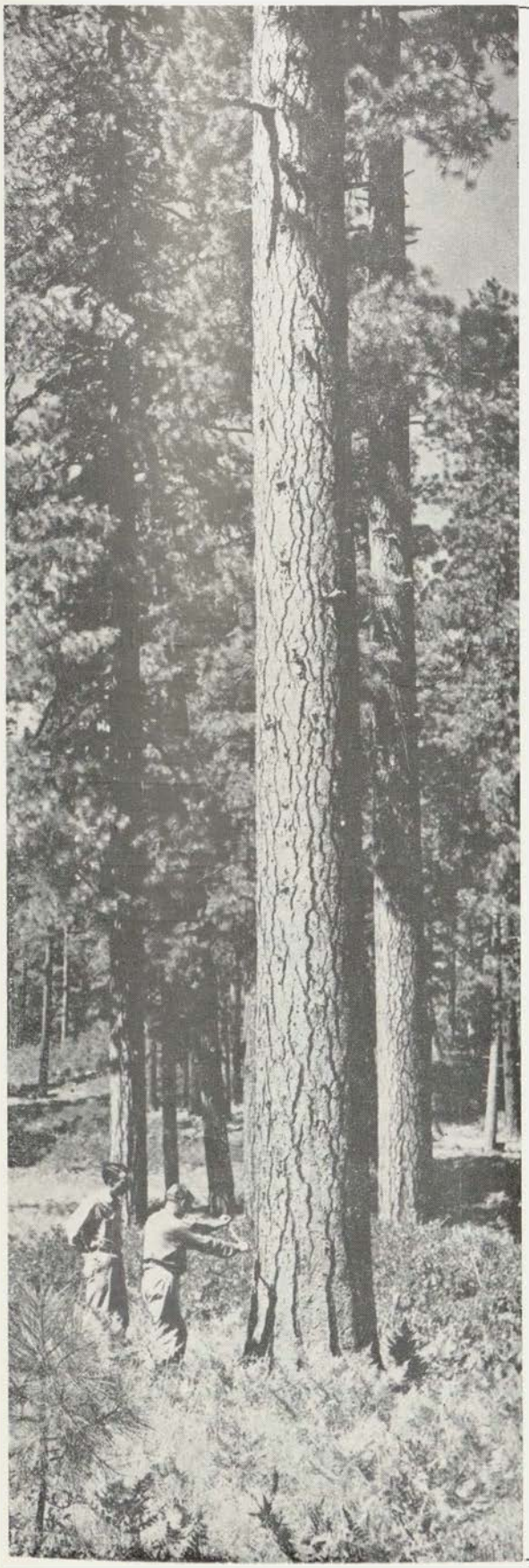

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VEGETATIVE PROPOGATION OF WESTERN WHITE PINE

(Continued from Page 21)

Table I gives the results of the series run with Indolebutyric, and Table II with Indoleacetic acid. The results with water controls are shown in Table III.

Several definite inferences may be drawn from these preliminary studies. It appears evident that both Indoleacetic and Indolebutyric acids increase markedly the incident of rooting in Western White Pine over the water controls.

Further, the close correlation obtained in the results with the two hormones when hormone concentration and time are considered, seem to indicate that moderate to strong hormone dips are most effective.

While the numbers of cuttings employed were perhaps not sufficient to be too significant statistically, the results were highly indicative and have served as a helpful springboard for further work. The results show that Western White Pine can be propagated by cuttings. It should be possible to improve the technique whereby rust resistant trees may be selected and regenerated vegetatively and thereby perpetuate a strain of rust-free trees.

Further work is in progress but much remains to be done before one can venture the prediction that the vegetative propagation of White Pine will aid materially in the control of the Blister Rust.

TABLE I

CUTTINGS TREATED WITH INDOLE-BUTYRIC ACID

No. of Cuttings	Cutting Date	Treatment PPM.*	Time (hours)	Rooting Days	Rooting Per Cent
60	Nov .17	50	24	95	4
100	Dec. 14	100	24	65	3
65	Nov. 27	100	24	95	1.6
56	Nov. 27	100	24	----	----
21	Dec. 2	200	4	71	25
36	Dec. 2	200	6	71	11
26	Dec. 3	200	12	76	26
26	Dec. 3	200	15	76	30
66	Nov. 25	200	24	97	1.5
70	Dec. 14	200	24	56	1

TABLE II

TREATED WITH INDOLE-ACETIC ACID

60	Nov. 17	50	24	95	6.7
77	Dec. 1	100	24	91	2.6
70	Dec. 1	100	24	----	----
25	Dec. 2	200	2	84	20
33	Dec. 2	200	4	84	20
26	Dec. 3	200	12	83	26
30	Dec. 3	200	15	83	20
50	Dec. 14	200	24	65	6
70	Nov. 25	200	24		

TABLE III

CONTROLS WATER

45	Nov. 27	----	1	----	----
50	Dec. 2	----	4	----	----
48	Dec. 3	----	12	----	----
30	Dec. 14	----	24	78	4

*PPM is equal to Mg. per Liter of Water

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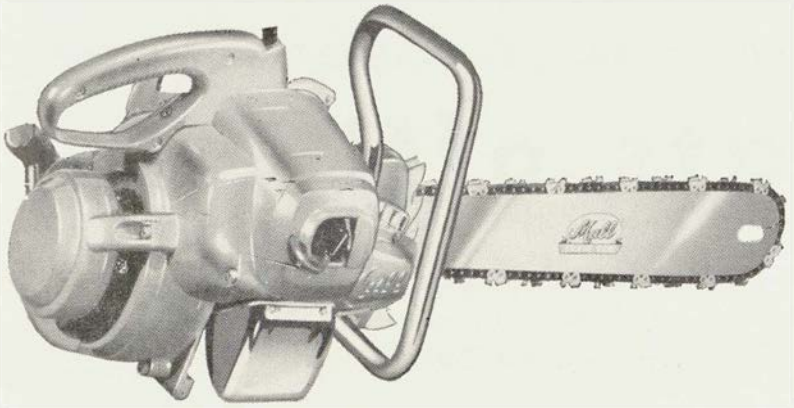

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SOME STUDIES OF AN UNDESCRIBED FUNGUS

(Continued from Page 10)

fections were found in other areas in which it had not previously been found. At the same time the incidence of disease has intensified in the old centers of infection. The number of infected trees has apparently increased as has the number of fungal fructifications found on the individual tree. It is interesting to note that during the past winter the fungus has continued to be active, germinating ascospores having been found frequently during this period. Following such a favorable winter is seems possible that a further increase in intensity can be expected of this disease.

Culture experiments have been conducted with various types of media and under varying conditions of light, temperature, etc. The resulting cultures have as yet not produced a sexual stage by which the fungus can be readily identified. Vegetative growth in culture has, however, been somewhat similar to the vegetative growth of the fungus in nature. Attempts to innoculate Junipers with this vegetative growth have so far proven unsuccessful. Further experiments are being conducted in an attempt to induce sporulation with the aid of ultra-violet light and the addition to the media of ground Juniper needles. Also, new cultures are continually being initiated.

Taxonomic inquiries and morphological studies will be continued until the thesis is finally drafted.

ADVANTAGES IN THINNING PRACTICE

(Continued from Page 30)

class by the St. Paul and Tacoma Lumber Company of Tacoma, Washington, in Douglas fir and Western Hemlock are sufficiently encouraging to warrant plans for an extension of thinning operations. The main products in this instance have been standard and smelter poles, and lumber. Car stakes, mine props and fence posts are secondary products. As much as 40 per cent of the volume can be removed without an appreciable reduction of growth.

Of thinnings in the South, a banker has said, "The new age of plastics is calling for more and more cellulose, the great source of which is tree growth. The size of the tree does not matter, although economy in handling dictates that the sticks of wood be not less than four inches in diameter. Here lies the opportunity to sell previously unmerchantable trees. Previously the landowner had to wait for nature to thin his stand because it was too costly to do it manually. Even in the South is would take 25 to 35 years to grow a small sawlog under those conditions. Now it is possible to thin young stands at regular intervals at a profit, and the growth of the remaining trees is more rapid. . . . Twenty to 40 dollars per acre for the first thinning at 15 years pays back the investment in planting, taxes and carrying charges, and nets a nice profit. This leaves 18 to 20 cords worth $50 to $70 per acre for future growth and additional profit." (Pellicer, 1951).

Silvicultural knowledge is one ingredient in accomplishing economically successful thinnings. Another is logging technique. The equipment and crew organization needed to thin economically will differ from that successful in older timber. The efficiency of logging is particularly important inasmuch as early thinnings, judged by immediate returns, are in themselves a marginal proposition. Thus the cycle in the Pacific Northwest has traveled from animal logging to cable systems and tractors of eighteen tons gross weight, and now back to horse logging in young growth timber with a maximum skidding distance of 500 feet.

Bibliography

Hawley, R. C. 1936—Observations on thinning and management of Eastern White Pin in southern New Hampshire. **Yale Univ. School of Forestry Bulletin 42.**

Hawley, R. C. 1946—**The Practice of Silviculture.** John Wiley & Sons, New York. 354 pp.

Pellicer, X. L. 1951—Forest conservation as an economic opportunity. **American Forests** 57 (11): 30-31.

Weidemann, E. 1951 — **Ertragskundliche und waldbauliche Grundlagen der Forst-wissenschaft.** J. D. Sauerlaender Verlag, Frankfust-am-Main. 345 pp.

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