THE IDAHO FORESTER

Volume XXXIV - 1952

Forest Service Photo

"Go forth under the open sky, and list
To Nature's teachings."

—BRYANT

THE IDAHO FORESTER

Published Annually

by

THE STUDENTS OF THE SCHOOL OF FORESTRY

University of Idaho

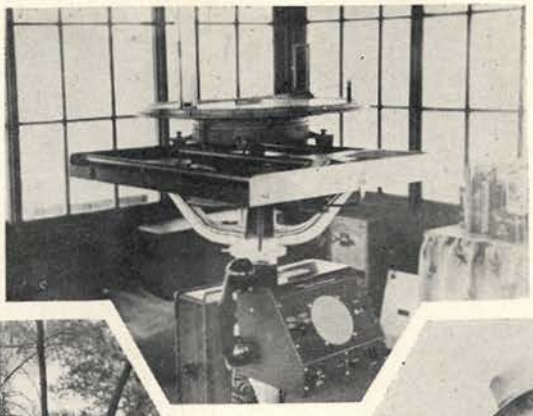
Moscow, Idaho

From the swirl of thoughts about volume tables, land management, and forest pathology, there emerges one thought which is uppermost in my mind as this thirty-fourth volume of the IDAHO FORESTER goes to press, and I would like to convey it to you, the reader. This publication is not the result of the efforts of any one individual, but instead it is the result of the combined efforts of the students, staff, and alumni of the University of Idaho, School of Forestry.

It was the hard work, enthusiasm, and never failing sense of humor of the students composing the staff of the IDAHO FORESTER that made up for a lack of training and of finances and thus made possible the publication of this magazine. The staff of the School of Forestry guided our efforts and helped to smooth the path. The unlimited cooperation of the alumni in supporting the decision, reluctantly made last year to put this magazine on a subscription basis made it possible for us to put the IDAHO FORESTER on a sound financial basis. Also the wives of the business, advertising, and circulation managers; Margaret, Helena, and Maxine, deserve to have their names included, for without them the staff would have needed to be twice as large.

It is my sincere hope that in the years to come this wonderful cooperation will not cease, but will increase, making possible the publication of an even bigger and better IDAHO FORESTER.

Editor



Recognizing the prestige which they have given the profession of forestry we dedicate this thirty-fourth issue of the IDAHO FORESTER to the

Men of the United States Forest Service

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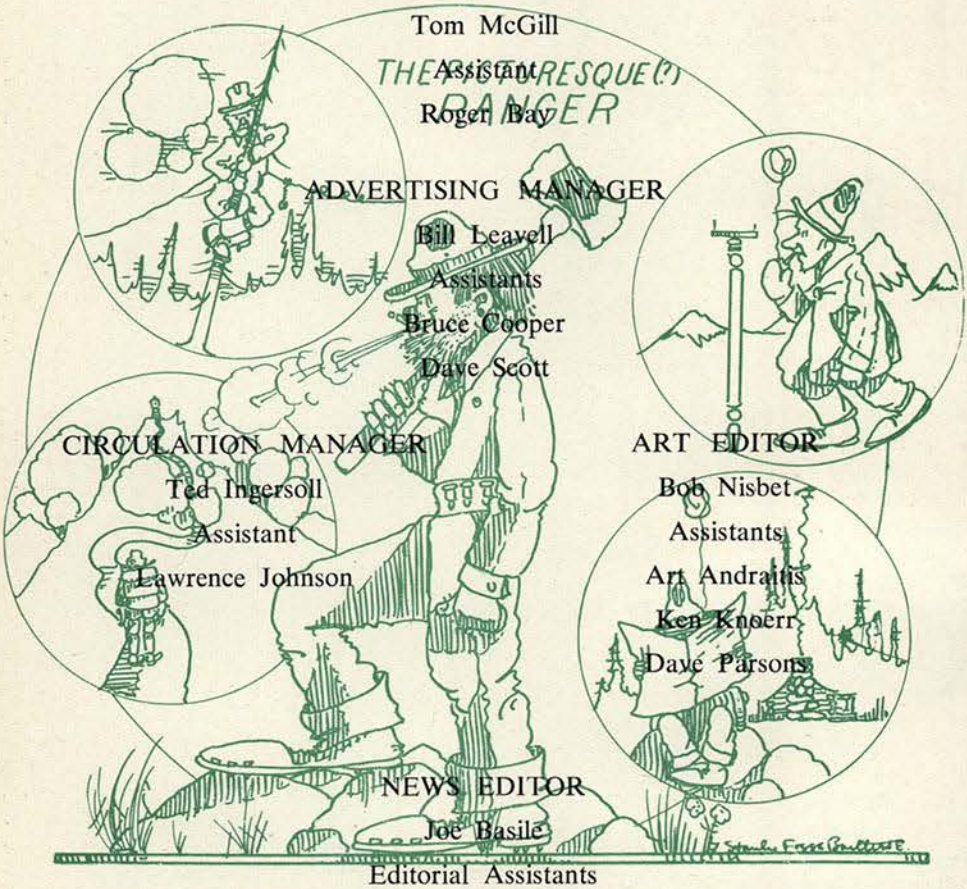

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FROM THE DEAN'S DESK

For a short time, one morning in February of this year, in company with Forest Supervisor Briggs of Burley, I was the guest of Mr. Ross Freeman of Idaho Falls. Mr. Freeman is the president of the city council and a real booster for the city. Within an hour's time he showed us the fine new high school, now nearing completion; several of the city parks; the development along the river; the several housing units newly built; and above all, the plantings of trees and shrubs, in which he takes so much pride. Supervisor Briggs gave me the history of the planting of some of those trees, in which he had a part. He was a young forest ranger and had just been assigned to Idaho Falls. During the first month there, Dr. Shattuck approached him and talked about planting trees in the town. Briggs agreed to assist and then and there the project took form. In one of the city parks, I was told the trees, in many instances, are truly monuments to Dr. Shattuck, and that one tree bears a marker to his memory.

Dr. Shattuck, nearly always, if not always, sought the aid of some one through whom and with whom he might work to accomplish his field plantings throughout Idaho. He knew he, alone, could not carry to completion any planting program or accomplish many of the lesser goals he set for himself in those busy years. Excellent public relations were valuable then, just as they are now. Seeing for the first time how the vision of one man had been fulfilled in Idaho Falls, I was prompted to tell you of the inspiration I received.

Not only in Idaho Falls does one see the results of the early work and devotion of Dr. Shattuck. Throughout southern Idaho there are windbreaks, shelter belts, small woodlots, small parks and roadside plantings that tell of his efforts. His was a very modest beginning. He had to cultivate public interest and secure participation, much as we do today in any new effort proposed. The extension foresters and the county agents are treading in his footsteps when they encourage planting of trees. Dr. Shattuck had long distances to travel under much more difficult conditions than we have today; funds were limited; he had heavy schedules, yet none of these diverted him from the goal he had for tree planting. In short, we have so much more to encourage us today that one is prompted to say—everything is in our favor.

Now I want Dr. Shattuck to speak to you, as quoted, only in part, from an article printed in the 1922 issue of the Idaho Forester.

"The present writer arrived in Moscow September 1st, 1909, having moved three thousand miles in order to take charge of this recently established department for the state of Idaho.

"Memory records the picture of the dust covered little town, as Moscow then was at the close of a long dry season, without one foot of pavement, either with no sidewalks, or more or less dilapidated ones made of boards mostly well worn and badly warped by the summer sun, the only bits of concrete walks being in front of the Hotel Moscow, the First National Bank, the David's Department Store. So much for Main Street. * * *

"The Forestry Department, as I soon learned, then consisted of one 7x9 office

(Con't on page 46)

THE FACULTY

Perhaps the first of the faculty members that the freshmen meet upon entering the school is Dean Jeffers. In addition to his teaching and administrative duties in the School of Forestry, the Dean is the Director of the Forest, Wildlife, and Range Experiment Station. This unit fosters research in the various fields of forestry. Dean Jeffers' favorite subject is land management.

It is through silvics that the sophomores are introduced to Merrill Deters. Along with teaching, Dr. Deters is conducting various experiments in the University's experimental forest on Moscow Mountain. During the summer he supervised a salvage logging operation in which 12 thousand board feet of insect-killed trees were removed from this area. Exclosure plots have also been established to study the effects of wildlife on the ecology of forest trees and on the development of seedlings. A study is now being conducted on the composition of farm woodlots in Northern Idaho.

Another instructor that the sophomores meet is Robert H. Seale, who teaches dendrology. Mr. Seale, who came from Farragut College, first started teaching at Idaho in September, 1949. After a year's absence, he returned in time to help with the activities at summer camp last summer. Next summer he will have the duties of summer camp director.

Assisting Seale is Arland Hofstrand. Arland is working on his masters degree in wood utilization, which he hopes to receive this year. His thesis problem deals with the shearing properties of laminated wood as related to the present method of cutting. In addition to his research work, Arland aids in the instructional program and grades tests and problems.

At summer camp last year, the students were under the direction of Professor Ken Hungerford. Ken is Assistant Leader of the Idaho Cooperative Wildlife Research Unit. He is doing research on the ecological management of ruffed grouse. This was the subject for his thesis for a Ph.D degree which will be forthcoming from the University of Michigan. Prof. Hungerford is busy in big game management, various university committees, and is the staff secretary. He teaches various wildlife courses and also fire control.

Mensuration, one of the principal courses given at summer camp, is taught by Professor Ernest Wohletz. He carries on his many activities on the first floor of the Forestry Building. His principal job is that of Associate Director of the Forest, Wildlife, and Range Experiment Station, and he is in charge of research and long range planning of the Station. One of the most popular recent publications, of which he is co-author, is a bulletin on "Cold Soak Wood Preservation." In the near future Ernie plans on visiting all of the experimental field plots that are being studied by various researchers. He has been active in securing funds for work on radio isotopes which are being used on studies of tree physiology. Besides mensuration, Ernie teaches biometry and forest economics.

Deters, Hofstrand, Wohletz and Seale

Sharp and Tisdale

In the junior year the students branch out into the various curricula or options. The range management option is under the supervision of Dr. Edwin Tisdale, who also directs projects in range research. Working closely with Dr. Tisdale is Professor Lee Sharp. One of the main projects is the effect of halogeton on range lands, and George Zappettini, a graduate student, is doing his major work in this field. Bill Pringle, another graduate, is studying the use of beetles in controlling St. John's Wort, or goat weed, on some of the range lands in northern Idaho. Another of Dr. Tisdale's projects is the study of the effects of grazing on cutover white pine land in the Clearwater area. The range plant herbarium, a relatively new project, is being developed to include many plants from all over the range area.

In the Forest Management curriculum, forest pathology is a very important course. Albert W. Slipp is teaching this course in place of Dr. Buchanan, who is in Liberia at the present time. For the last fourteen years, Mr. Slipp has spent most of his time on blister rust canker research. Most of his records of measurements have been transferred to the I.B.M. card system. Mr. Slipp has been put jointly in charge of these machines with Dr. Harvey of the Dairy Science Department. During the summer, Mr. Slipp's work takes him into many parts of northern Idaho to check his permanent plots. A paper is now being completed on canker threat.

The teaching of wood products pathology has been taken over by Dr. Ernest E. Hubert. This is "Doc" Hubert's minor duty, since most of his time is taken up by research projects. His major project is the pole blight disease of western white pine. This project has been active since 1948 and includes soils and fertilizer studies, inoculation, virus grafting, and disease progress plots of which a large number are scattered throughout northern Idaho and western Montana. These are checked yearly to determine how rapidly the disease is spreading. Fred Johnson, a graduate student, has been assisting in the field work. Another one of Dr. Hubert's projects is a study of the cold soak method of preserving farm timbers with pentachlorophenol. A new angle has been developed in the use of an oil-soluble fire retardant in the preservative solution.

Dr. William Ferrell is a forest soils specialist who is spending most of his time on the soils aspect of the pole blight disease. In the spring of 1950 he went to Oak Ridge, Tennessee for training in the use of radio isotopes, which are now being used in the pole blight research to determine the path of translocation streams in the tissues of healthy and diseased trees.

An enthusiastic leader in the wildlife department is Dr. Paul Dalke, of the

Hungerford, Dalke, Pratt and Burleigh

Slipp, Ferrell and Hubert

Idaho Cooperative Wildlife Research Unit. He is a professor of wildlife management and is teaching graduates in this field. Much of Dr. Dalke's time is spent on research of the ecological management of blue grouse in the Northern Rocky Mountain region.

Courses in fishery management are now being taught by Virgil Pratt. Mr. Pratt joined the faculty last year to introduce this subject. He is planning studies on the steelhead trout in the Clearwater River and other streams of Idaho.

Professor Thomas Burleigh is one of the men who spends all of his time on research. At the present time he is working on a distribution study of the birds in Idaho, on which very little previous work has been done. Mr. Burleigh plans to visit every part of the state to collect data on the distribution, abundance, and life history of all the native and migratory birds. As a minor project, he is working on an ecological study of the mourning dove and on the Wilson snipe.

Another full-time research worker is Dave Olson. Mr. Olson's project is the study of the best methods of slash disposal following a logging operation. There are many permanent plots set up throughout northern Idaho to study the rates of decay, effects of fire on forest soils, and the costs of disposal.

The busy man at the forest nursery is Frank Pitkin. His big job now is filling orders for trees from all parts of the state. He teaches forest planting to the seniors.

Vernon H. Burlison holds downs the job of Extension Forester. His duties take him into various parts of the state working with many people who have problems in forestry. He teaches farm forestry and two other courses to non-forestry students.

The expenses for the various research projects are met by appropriations from the state legislature, and from federal agencies. The Atomic Energy Commission has granted research moneys for the work on radio isotopes. We are fortunate in having this staff of well trained men to study the problems in the various fields listed under forestry. Their efforts are appreciated and certainly add greatly to the progress of forest and field management in the Northwest.

Burlison and Pitkin

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Joe

JOSEPH W. BASILE
Bayonne, New Jersey
Range Management

Joe's activities include serving as secretary and vice president of the Associated Foresters, secretary-fiscal agent of Xi Sigma Pi, news editor of the Idaho Forester, and member of Phi Eta Sigma. He has had experience with the National Park Service.

Ambition—to become a wildlife biologist.

BOYCE B. COFFEY
Hamburg, Iowa
Range Management

Boyce attended the University of Omaha and Farragut College before coming to the U. of I. He is a member of Xi Sigma Pi, and the American Society of Range Management, and has trail crew, lookout, and fire experience.

Ambition—Range work in the Bureau of Land Management, or the Soil Conservation Service.

Boyce

Crabation

WARREN F. CRABB
Chicago, Illinois
Forest Management

Crabation went to Loyola University and the University of Illinois before coming to the U. of I in his third year. He is a member of the Associated Foresters, and has been social chairman of the Newman Club. Blister rust control, brush piling, and smokejumping constitute his experience.

Ambition — To go into fire control work.

FREDRICK P. DE ROSE
Martinez, California
Wood Technology

Fred, a member of the Associated Foresters, has kept close to a "B" average at the U. of I. His experience includes surveying for the Associated Oil Company.

Ambition—A timber testing job.

Fred

Stumpy

DAVE G. FELLIN
Wallace, Idaho
Forest Management

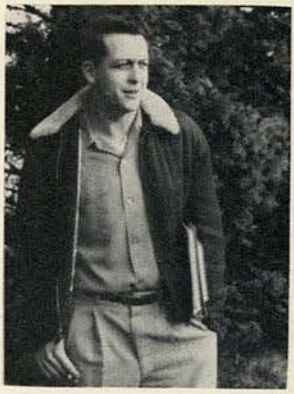
Stumpy is a member of the Ski Team, Ski Club, Newman Club, Associated Foresters, and the Idaho Forester Staff. Dave has also been president and treasurer of the Associated Foresters. His previous work includes blister rust control, and insect survey in addition to employment as a dispatcher and headquarters fire guard.

Ambition—Recreational aspect of Forest Management.

KENNETH A. FOUCAR
Cody, Wyoming
Range Management

Red-eye has been a member of the Canterbury Club, Vandal Riders, and the Associated Foresters, and president of the Vandal Riders. Ken has experience with the Forest Service as a Range aid, and smokechaser, and with the Clearwater Timber Protective Association as a lookout.

Ambition—To manage or own a ranch.



Red-eye

Gibby

NELSON C. GIBSON
Buffalo, New York
Wood Technology

Gibby used his training from Buffalo Technical High School to help him through Wittenberg College and then the U. of I. He is a member of the Lutheran Students Association, Lambda Chi, and the Associated Foresters. He has experience with the Bethlehem Steel Company.

JOSEPH G. HAUSSMANN
Old Bridge, New Jersey
Forest Management

Joe is a member of the Newman Club, and the Associated Foresters. His experience includes slash disposal, lookout, and headquarters guard.

Ambition—A career in silviculture and forest management.

Joe

Doc

ALEXANDER HEITMANN JR.
Berkeley, California
Range Management

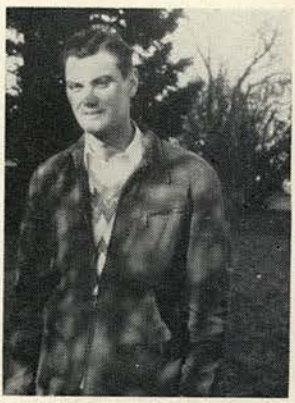
Doc is a member of the Associated Foresters, and has had various experience with the U. S. Forest Service.

Ambition—To become a range or watershed manager.

KENNETH E. HERMAN
Omaha, Nebraska
Forest Management

Hank attended the University of Omaha before transferring to the U. of I. He is a member of Xi Sigma Pi, and serves as Senior Class Representative for the Associated Foresters. Ken's experience has included gypoing posts and poles.

Ambition—To obtain employment in private forestry.



Hank

Ingy

THEODORE B. INGERSOLL
Orono, Maine
Range Management

Ingy was a member of the N.R.O.T.C., Eagle and Anchor, Scabbard and Blade, Associated Foresters, and Alpha Phi Omega. Ted also had charge of the wildlife exhibit at the Foresters Ball.

Ambition—To work for the U. S. Fish and Wildlife Service.

BEN A. JAYNE
Boise, Idaho
Wood Technology

Ben, a football letterman, has been a member of Xi Sigma Pi. He has logging and Idaho State Department of Forestry experience. Ben has been accepted at Yale for graduate work.

Ambition—To become a wood technologist.

Ben

Jonts

ROBERT A. JOHNSON
Superior, Wisconsin
Forest Management

Jonts, a transfer from Superior State College, is a member of the Associated Foresters and the Society of American Foresters. His experience includes work with Potlatch Forests, Inc., and smokejumping.

Ambition—a job in private industry.

KENNETH R. KNOERR
Wauwatosa, Wisconsin
Forest Management

Ken, a University of Wisconsin transfer, is a member of the Associated Foresters, Forester of Xi Sigma Pi, and chairman of the Idaho State Forestry Week. He has fire fighting, trail crew, headquarters guard, construction, and bug survey experience.

Ambition—An advanced degree, then professional forestry.

Ken

Bill

WILLIAM G. LEAVELL
Gooding, Idaho
Range Management

Bill, a member of the Associated Foresters, Associate Forester of Xi Sigma Pi, and advertising manager of the Idaho Forester, has still managed to keep a "B" average. He has insect surveying, Ribes contracting, and ranching experience.

Ambition — A position where hard work will bring advancement.

ROBERT E. LIEURANCE
Pocatello, Idaho
Forest Management

Bird-dog transferred to the U. of I. after two and a half years at Idaho State College. He is treasurer of the Associated Foresters. Shorty has blister rust, road surveying, cruising, marking, and fire suppression work for experience.

Ambition — To eventually supersede Lyle Watts as Chief Forester.

Bird-Dog

Duane

R. DUANE LLOYD
Pocatello, Idaho
Range Management

Duane completed two years at Idaho State College then transferred to the U. of I. He was president of the Idaho State Foresters and member of the Associated Foresters, Xi Sigma Pi, Blue Key, and Lambda Delta Sigma. Duane was the originator and chairman of the Idaho blood drives and general chairman of the 1951 Homecoming. He has been employed by the Forest Service and Pacific Northwest Forest and Range Experiment Station.

Ambition—To obtain an advanced degree.

Slim

JACK G. LORTS
Clovis, New Mexico
Forest Management

Slim went to Colorado A. & M. and Eastern New Mexico University before trying the U. of I. He is Ranger of the Associated Foresters, with experience as smokechaser, and pole blight survey crewman.

Ambition—Professional forester.

Carl

CARL P. McCRILLIS
Belden, California
Range Management

Carl, a member of Xi Sigma Pi, has kept a "B" average at the U. of I. He has had experience on the St. Joe, Plumas, and Beaverhead National Forests, and with the California State Department of Forestry.

Jack

JACK W. McFREDERICK
Salmon, Idaho
Wood Technology

Jack has been a member of the Associated Foresters. He has blister rust research and fire fighter supply experience.

Ambition—A job in the pulpwood intry.

Bill

WILLIAM E. NELSON
Sandpoint, Idaho
Forest Management

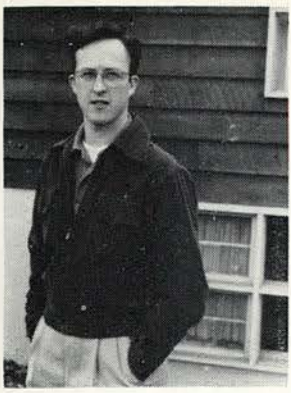
Bill is a member of the Associated Foresters and Xi Sigma Pi. He worked up to Blister Rust Camp Superintendent with the U. S. Forest Service.

Ambition—To obtain a diploma and use the knowledge attained in the best possible way.

Roy

ROY S. PEAIRS
Kellogg, Idaho
Forest Management

Roy is a member of the Associated Foresters and Lambda Chi Alpha, and has been house manager of the latter. He has experience in blister rust control, lookout, brush piling, insect control, stand improvement, and scaling.



George

GEORGE J. RACELY
Valentine, Nebraska
Range Management

George is a member of the Associated Foresters and Phi Gamma Delta. He has U. S. Forest Service, engineering, and farming experience.

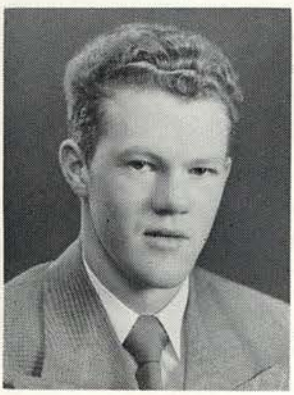
Ambition—To own and manage a stock ranch.

WILLIAM A. SACHECK
Southington, Connecticut
Forest Management

Bill spent some time at Connecticut Teachers College and Idaho State College before coming to U. of I. He is secretary of the Associated Foresters, and has bridge building, logging and surveying experience.

Ambition—To be a professional forester.

Bill



Slim

DEWEY D. SELLE
St. Maries, Idaho
Forest Management

Slim was active in the Associated Foresters during his stay at the U. of I. He has accumulated six years experience with the U. S. Forest Service in blister rust control work.

HERBERT A. SCHROEDER
Cleveland, Ohio
Wood Technology

Herb is a member of Xi Sigma Pi, Scabbard and Blade, Arnold Air Society, and the Associated Foresters, and has been treasurer of Phi Eta Sigma, and Pershing Rifles. He has isotope lab and field experience on the pole blight project.

Ambition—Chemistry fellowship for a master's degree with a minor in wood utilization.

Herb

Calm, Cool & Collected

JACK W. SHERO
Castle Rock, Washington
Forest Management

Calm, cool, and collected is a member of the Associated Foresters. His experience includes work on a trail crew, choker setting and truck driving for a logging outfit, and work with the U. S. Forest Service on a pole blight survey.

RICHARD P. SHERO
Olequa, Washington
Forest Management

Pappy is a member of the Associated Foresters. He has spent a few summers with Weyerhauser Timber Company in logging and pulpwod manufacture, and one season gypoing as a riggin' slinger.

Ambition—Fat wants to become a professional forester.

Pappy

Sully

JOHN D. SULLIVAN
Milwaukee, Wisconsin
Wood Technology

Sully has been president of Scabbard and Blade, Captain of the Army Drill Team, vice president of Delta Sigma Phi, and a member of the Associated Foresters. He has been lookout smoke-chaser, sawmill laborer, brewery worker, and cab driver.

JOSEPH J. THACKABERRY
Clinton, New Jersey
Range Management

Joe is a transfer student from the Utah State Agricultural College, and a member of the Associated Foresters of the U. of I. His experience includes insect control, road and trail maintenance, and lookout, all with the U. S. Forest Service.

Ambition—To become a land manager.

Joe

Bob

ROBERT L. TIDD
Albuquerque, New Mexico
Range Management

Bob, a member of Phi Gamma Delta, has been intramural manager. His experience includes interpreter (Mexican), fire suppression, and mill work.

Ambition—A good job and happiness

ROBERT T. VAN KLEECK
Broadalbin, New York
Range Management

Van attended various schools before coming to Idaho. He is a member, and was president of, Delta Sigma Phi fraternity. His experience includes advertising and insect surveying. Van plans to work for an advanced degree in forest, range, and watershed economics.

Van

HAROLD C. HUNTER
Manchester, California
Range Management

Hal, a baseball letterman, was a member of the Associated Foresters. He has varied experience with the U. S. Forest Service.

GRADUATE STUDENTS

THOMAS F. GILES, who graduated from the University of Idaho in 1949, is now on educational leave from the National Park Service, and is conducting advanced work in Fishery Management. Tom is from Pocatello, Idaho, and plans to return to the Park Service after graduation in June, 1952.

ARLAND D. HOFSTRAND, from Snohomish, Washington, who received his B.S. in Wood Utilization in 1950, returned to the University of Idaho to continue his studies. His thesis problem covers the strength properties of laminated larch. He will receive his master's degree in June, 1952 and plans to continue in research and teaching.

LEONARD W. HOSKINS will finish work on his thesis in 1952—Browse Utilization on the Pocatello Big Game Range—and will receive his degree in 1953. Leonard is from Wendell, Idaho, and attended the University of Idaho receiving his B.S. in Range Management.

FRED D. JOHNSON, from Chicago, Ill., received his B.S. degree at Oregon State College in 1950 in Botany and Plant Pathology. His thesis work at the University of Idaho deals with a histologic study of white pine pole blight tissues. Fred will receive his M.S. in Forest Management (Forest Pathology) in June, 1952 and plans to continue his work in forest pathology.

ROBERT W. LODGE is a resident of Swift Current, Saskatchewan, Canada. He was awarded a degree in Agriculture at the University of Saskatchewan. His work in Range Management at the U. of I. is concerned with soil and forage changes due to overgrazing. After graduation in June, 1952, Robert will return with his family to Swift Current to be employed by the Dominion Experimental Station.

CLAY Y. McCULLOCH comes from Durango, Colorado. In 1949, he was employed by the U.S. Forest Service on a range survey of Wyoming. Clay will receive his M.S. in Wildlife Management in 1953—his thesis covers a big game winter range study on the upper Selway River (Selway-Bitter root wilderness area).

ROBERT O. McMAHON received his B.S. (For.) in 1951 and is now working on a M.F. degree with a major in Forest Economics and a minor in Forest Management and Agriculture Economics. He has a teaching assistantship in civil engineering for the second semester of 1951-1952. Bob has seven seasons with the Office of Blister Rust Control, his last summer as Camp Boss. In 1948, he was employed as a timber cruiser in Oregon. Bob's home is in Spokane, Washington, and he received a B.S. (For.) degree from the University of Idaho. He expects to do further work toward an advanced degree.

WILLIAM L. PRINGLE has been employed for three summers by the Range Division of the British Columbia Forest Service. Bill comes from Kamloops, British Columbia, and received his B.S. in Agriculture at the University of B. C. His thesis, under a research fellowship in Range Management, is on goatweed (*Hypericum perforatum*) in Idaho. After graduation in 1952, he plans to return to Canada.

DUANE B. PYRAH is from Cary, Idaho, and received his B.S. in Range Management at the University of Idaho. Duane was employed for three summers in Glacier National Park and has spent one season in Alaska on the B. L. M. Range Survey. His thesis is on the sage hen and he will receive his M.S. degree in Wildlife Management.

PAUL E. STEEL comes from Charles City, Iowa, and is a graduate of the University of Minnesota with a B.S. in Wildlife Management. Paul has been employed as Assistant Biologist for Fish and Wildlife in North Dakota. After

receiving his M.S. degree at Idaho in Wildlife Management in June, 1952, he plans to work for the Refuge Division of Fish and Wildlife Service at the Tule Lake Waterfowl Refuge, California.

GEORGE ZAPPETTINI has been attending the University of Idaho on a research fellowship and has been working on the ecology and control of halogeton in southern Idaho. George comes from Reno, and received his B.S. in Range Management from the University of Nevada. He plans to work for the Bureau of Land Management at Burley, Idaho after graduation.

THE ASSOCIATED FORESTERS

By DAVE FELLIN

The Associated Foresters are just that; foresters united for a common cause, to promote good fellowship among its members and to enjoy the extracurricular activities concomitant with the preparation for a forestry degree here at Idaho.

The 1951 registration membership drive saw the foresters talking up big things to come; a banquet, a dance, a barbeque, and a statewide forestry week, even bigger than last year. Although the foresters managed to gather a large percentage of the forestry students as members of the club, the sharp drop in enrollment bit deeply into the purse of treasurer Bob Lieurance.

The first activity of the new year saw a big turnout for a field day and steak fry in the Meadow Creek area of the University forest. Students and faculty got together to exhibit prodigious feats of woodsmanship, along with a display of endless appetites, and again the students walked away with the prizes. However, the faculty took first place when it came to the final contest of the day—chow.

March 8 saw the boys again in operation as they danced and stomped to the music of Hugh Oriard and his orchestra at the Student Union Building. Del Vail and his most cooperative crew were responsible for the production of a wonderful Foresters Ball.

In order to keep the people of Idaho well informed, the Associated Foresters again undertook a large project which was handled excellently by Ken Knoerr. Forestry Week saw foresters traveling throughout the state talking to high school students and showing films on forestry and related subjects. Displays were erected as another way of expressing what forestry is and what it is doing in the state.

Assisting Ken near the end of the week, Don McManamon and his committee provided foresters with some good chow at the Foresters Banquet in the S.U.B. This is one occasion where the boys really go all out and show people that foresters are not always in levis, mocs, plaid shirts and mackinaws.

Howbert Bonnett was appointed editor of the Idaho Forester for 1951-52 and he and his crew have done an admirable job to produce a fine magazine of which the foresters are proud.

Continuing to sponsor functions of equal magnitude as in previous years, with a decreased enrollment and never dwindling prices, was not easy for the foresters, and it was only through the united efforts of the entire club that it managed to stay on its financial feet.

This year's officers were: president, Dave Fellin; vice-president, Joe Basile; treasurer, Bob Lieurance; secretary, Bill Sacheck; and ranger, Jack Lorts. The class representatives include Kenneth Herman and Kenneth Knoerr, seniors; Howie Chadwick and Kenneth Estes, juniors; Lawrence Johnson and Don Balser, sophomores; and Donald Schultz and John Hoyt, freshmen.

XI SIGMA PI

By KENNETH E. HERMAN

Xi Sigma Pi, national forestry honorary, is open to all students enrolled in forestry. As with any other honorary, it has set up certain qualifications as a basis for membership. These qualifications are as follows: (1) high scholastic standing, (2) promise of high professional achievement, and (3) a personality and character satisfactorily meeting the standards of membership.

Xi Sigma Pi had its beginning in the year 1908 at the University of Washington. In 1915, a new constitution was adopted which put the fraternity on a national basis. Since that time, fifteen new chapters have been added. Epsilon Chapter, which is the name of the one at the University of Idaho, entered the fraternity in 1920 as the fifth chapter.

Each year in the fall and spring, the prospective new members of the fraternity are informed by letter of their selection for initiation into the Epsilon Chapter of Xi Sigma Pi. The new members who received this honor in the fall of 1951 were Roger Bay, Howard Chadwick, Boyce Coffee, Warren Crabb, James Edlefsen, William Gleaves, Kenneth Herman, Arland Hofstrand, Fred Johnson, Duane Lloyd, William Nelson, Bill Pringle, William Schreck, Paul Steel, and Charles Wood.

The fall initiation was held at the Flat Creek Experiment Station in the University Forest on October 31, 1951. This was a well-chosen date as it was Halloween evening and the initiation lived up to the Halloween motto of "be prepared for anything." The initiation began at 2:30 p.m. and continued until past midnight. The evening meal, consisting of beefsteaks, was prepared by the initiates who had the feeling that it might be their last one.

Due to illness, Duane Lloyd could not be present at the regular fall initiation, so he received "the works" on Wednesday, December 5th in the Forestry Building.

In accordance with the motion passed at the meeting in February, 1952, the location of the spring initiation was changed from the Student Union Building to the Flat Creek Experiment Station in the University Forest. The new members who were initiated on March 28, 1952 at the Flat Creek Cabin are as follows: Ed Caswell, Ted Ingersoll, William P. Nagle, Elmer Skjeie, Leslie M. Steffensen, and Robert Van Kleeck.

There were numerous projects carried out by Xi Sigma Pi during the 1951-52 school year. One project which had its beginning in the spring of 1951 and was completed in the fall of 1951 was the mapping of Laird Park by Xi Sigma Pi members. This work was brought before Xi Sigma Pi by Dr. Buchanan on behalf of Dean Jeffers. Mr. J. J. O'-Connell of Potlatch had contacted the Dean and requested that the area be mapped for the Boy Scouts so that they could use this map to adjust their activities in accord with the layout of the area. Herb Schroeder drew the map and received high praise from the National Headquarters, Boy Scouts of America, for his fine work.

Other projects brought up and carried out by Xi Sigma Pi members are as follows: (1) placing of Christmas tree in front of the Forestry Building during the holiday season, (2) bringing of scholarship plaque down to the first floor of the Forestry Building and also bringing the plaque up-to-date, (3) bringing Xi Sigma Pi alumni directory up-to-date, (4) contacting freshmen forestry students and helping them in their school problems, and (5) handling of the high school program during forestry week.

The officers of Epsilon Chapter who conducted the activities of the chapter throughout the 1951-52 school year, and who deserve credit for work well done are: Forester, Ken Knoerr; Associate Forester, Bill Leavell; Secretary-Fiscal Agent, Joe Basile; and Ranger, Carl McCrillis.

FORESTERETTES

By MARGARET McGILL

In order to provide a means of getting together to promote acquaintanceship between women of a common interest, the Foresterettes were organized in the summer of 1951. This is an organization of the wives of forestry majors in the University of Idaho.

The first meeting on July 12, 1951, presented several problems to the charter members; election of officers, amount of dues, meeting place, frequency of meetings, and order of business. As with other new organizations, it took considerable time to settle all issues to the satisfaction of everyone.

It was agreed to meet once a month, and after meeting in various places, arrangements were made to use the recreation room of the Campus Christian Institute on the first Thursday of each month. A short business session opens the meetings and is followed by entertainment and refreshments. Members of the group alternately act as hostesses in furnishing refreshments and entertainment.

A movie showing various phases of the foresters' work and the logging and lumbering industries was shown at a meeting to acquaint the Foresterettes with the professional problems of their husbands. Other entertainment at the meetings has consisted of: the showing of colored slides, taken in Liberia by Bob Myers; bridge; bingo; and other games.

Activities which included the husbands were a pot-luck picnic in the city park, and a very successful Halloween Masquerade Dance in the Grange Hall.

Officers for the first semester were: President, Betty Jayne; Vice President, June Giles; Recording Secretary, Daphne Andrews; Corresponding Secretary, Betty Shero; Treasurer, Mae Schreck. Sec-

(Continued on page 25)

STEAKS IN '51

By DAVE PARSONS

On the dark, damp day of October 13 the Foresters took their annual trek to the Big Meadow Creek sports area for the sole purpose of devouring those traditionally delicious steaks and having one heck of a good time. These ends were quite satisfactorily accomplished, despite the stubborn efforts of one frustrated rain squall which kept returning, trying foolishly to make the hardy and undaunted bunch of foresters run for cover.

After everyone had gorged himself to capacity on steak, potato salad, baked beans, coffee, and ice cream so generously dished out by the buxom, beautiful, luscious, lovely hashers (ugh! Cruel reality, take thyself away!), the various contests began. First was the sawing contest, and nearly everyone took the opportunity to show his prowess, along with a good partner and a sharp (?) saw, against the seemingly unyielding complexion of an old cedar log.

Along about this time flashing blades, flying chips, and grunted cuss words gave evidence that the log chopping contest was underway. The white fir chips flew thick and fast (and sometimes not so thick and fast) as the determined wielders of the double-bitted axe sweated their way through the tough fir log, trying to beat each other's time.

What then appeared to be a mass pilgrimage to a Sally Rand performance turned out to be, in reality, the pacing contest held in the open field along the road.

The more adventurous ones next donned the climbing spurs in preparation for the conquest of the cedar pole which was erected last year for this purpose. Louie Spink made like a squirrel and ran up and down that pole in 8.8 seconds, the best time of the day. "Pappy" Shero created a little excitement when he nearly became stranded at the top. The reason, it was rumored, was because he couldn't get his paunch out far enough away from the pole.

Plugs of tobacco were freely distributed to both champion and non-champion

expectorators alike, as the fierce competition of the tobacco spitting contest got underway. The tension mounted and crystallized as many ferocious attempts proved disastrous to the spectators standing downwind of the contest. This competition resulted in chartreuse complexions for many of the participants.

Shortly after, a rope was stretched across Big Meadow Creek with a group of eager, determined foresters attached to both ends. On the given signal, both sides began their gasping, grunting struggle through the mud, busily engaged in the tug-of-war. The sophomores were matched against the seniors, the freshmen against the juniors, and the winners against each other. (It was discovered, surprisingly, that Big Meadow Creek, 24 inches wide, was deep enough for swimming.) The seniors claimed the victory, and for many obvious reasons (seniors, that is!) their claim was not seriously disputed.

Everyone, wet and muddy, was then ready for the last event of the day; the event that perhaps proves most interesting from the spectator standpoint—the log burling contest. Warren Crabb, the

galloping ghost of the millpond, proved to be quite a spectacle as he danced over the log, daintily clad in a pair of long johns and his typical foresters' sombrero. Jack Shero emerged from the icy water of the pond as the champion toothpick-twirler, and also took first place as the best all 'round forester. Second and third places were taken by Del Jaquish and Huntington Hatch, respectively.

After the brawl was over, all returned happily to the warmth and comfort of their domiciles, eagerly awaiting the next annual steak fry.

EXEUNT!

FORESTER'S BALL

By ROGER BAY

Dear Ole,

Ay yust vant to take vun minute to write this letter and tell yew and the boys at the logging camp about the vunderful time Ay had the night of March 8. Ya, it happened dis vay. Ay vass yust valking by the Student Union Building vhen Ay see dis-haar feller vot says, "Come on up to the Forester's Ball tonight." And before Ay could say, "Yust vun minute," he pull me haff vay oop the stairs.

At first Ay tank it vass going to be yust sumting awful. Ay vass tole to check my "corked" boots un dis-haar bottle at the door, and den it vass so dark and der vere so many beyootiful Kristmas trees all around the room—vhy Ay tinked that perhaps Ay vass yust dreaming. Den Ay vass rudely avakened vhen Ay vass almost knocked to the floor by all kinds of peoples going 'round and 'round the room. Ay tink dey vass dancing the Scottish or someting like dat. Ay can see for sure dis is the Forester's Ball because effery-vun iss dressed in Levi's and Plaids and haffing vun gude time dancing to the

musick of some yongster by the name of Hugh Oriad and his musick fellers vot come from Spokane.

And den dis feller vot pulled me up the stairs, he bane tole me all about the dance and how much hard vork it vass. Ya, he bane tell me the chairman vass Delmar Vail, who vass assisted very much by Dave Fellin. And den he bane say all the beyootiful decorations, the displays in the south ballroom, and the funny signs, vass organized by two yokers by the names of Bob Lieurance and Bill Sacheck. "Bird-dog" and "Satch" Ay tink he called them. Ya, and den he say that Larry Young had charge of the tickets and Dale Andrus had charge of the musick. And he bane say dat Warren Crabb did such a yumpin' yiminy yob on the publicity that efferyvun from dis haar yoint to China know all about the dance. Of course a gude Svede by the name of Bob Yohnson organized a band, "Yohnson's Yokers," vhich let efferyvun on campus know that Forester's don't know how to play musick but Ay bane tell yew dey sure put on vun gude ving-ding.

And say Ole, yew yust should haff been der for the intermission. Some yoker by the name of Yack Lorts put on a match in vhich a bunch of ladies tried calling their hoosbands or sweethearts. Ay'm tellin' yew, not vun of dem vood make a gude hog caller.

All kinds of peoples vass der, vun hundert un vifty couples or more. Vhy

Ay saw Dean Jeffers and his vife, Dr. Tisdale and his vife, Dr. Deters and his vife, Dr. Hungerford and his vife, Prof. Wohletz and his vife, and Prof. Seale and his vife. For a minute Ay tinked maybe it vass a faculty meeting or someting.

Ay yust vant to say vun more ting, Ole. Ay tink date from yoint efforts of all dose fellers dat vorked on the dance, they put on vun of de yumpin' yimmingest dances on dis haar campus. Ya, and yust tink, they had vun end of the dance floor decorated like Paul Bunyan's Cabin, complete vit Paul's still. But it vass yust empty!

Yor friend,

Svede

FORESTERETTES

(Continued from page 22)

ond semester: President, June Giles; Vice President, Daphne Andrews; Secretary, Mae Schreck; Treasurer, Lucille Myers.

Much of the credit for the successful first year of the Foresterettes and a vote of thanks goes to our inspirational advisor, Mrs. D. S. Jeffers.

Plans are being made for more and better social events under the leadership of social chairman Alice Mesko, and as many of these functions will be carried out as our budget will permit.

IDAHO
STATE FORESTRY WEEK, 1952

By KEN KNOERR

Forestry week, sponsored by the Associated Foresters, is designed to acquaint the people of the state with the value of their forest, range, and wildlife resources, and to make them aware of some of the problems involved in their management. It is hoped that with this awareness will come a desire to cooperate in working toward the conservation of our natural resources so that as a state we may derive the fullest benefit in goods and services from what we have.

This year's Forestry Week, the week of April 13th to 19th, was proclaimed as such by Governor Jordan. "The Future Outlook for the Utilization of Idaho's Resources" was chosen as the theme of the week because of some of the important changes that are occurring in the utilization pattern. With the establishment of pulp and paper mills, the leaning toward the use of permanent pasture lands, and the organization of the forest and wilderness areas on the basis of game management plans, the value of Idaho's resources has increased tremendously and the possibilities for a sustained yield of these resources is almost insured.

In order to present this picture to the people of Idaho, Forestry Week had varied aspects. To reach the young people, forestry students from the University gave talks to the high school students in the northern part of the state, and the foresters from Idaho State College contacted the high schools in the southern part. These talks presented the value and problems of forestry, and were illustrated by the showing of films. It was felt that if the people could be reached while they are still young and formulating their opinions, it would be much easier to make them conservation minded.

Another aspect of the week directed at the youth of the state was "YOUR FORESTS AND YOU," a contest for the 4-H, Boy Scouts, and F.F.A. members. This contest was initiated last year in the hope that if we could get the young people to carry out projects in forest, range, and wildlife management, we would produce adults that would practice conservation as a part of their everyday lives. The response to this contest was encouraging; thus this year we enlarged its scope and made it a permanent part of Forestry Week. The awards for the contest were announced at the annual Forester's Banquet, and the winners had their expenses paid to the University to participate in this banquet and in the Forestry Week activities.

During the week there were a number of activities on the campus to emphasize conservation. There were displays in both the School of Forestry and the Administration Building. Films were shown that were of general interest to the students while effectively putting across the idea of conservation. A faculty-student baseball game and competition with the WSC Foresters across the line added spectator interest to the week's activities. The real climax to the week, however, was the annual Forester's Banquet on Friday evening, April 18th, in the main ballroom of the Student Union Building. This year's principal speaker was Mr. James C. Evenden, head of the Forest Insect Laboratory, Couer d'Alene, Idaho. Awards were made to the winners of the Youth Project, and to Duane Lloyd, the outstanding senior in the School of Forestry.

To coordinate the activities of Forestry Week and bring the conservation ideas before as many people as possible, a comprehensive publicity program was carried on in cooperation with the University publicity and radio departments. Releases were sent out to all of the papers in the state and in the Spokane area, and two radio programs and numerous spot announcements were broadcast over the state radio stations. On the campus the Idaho Argonaut and radio station, KUOI, assisted in contacting the students.

As in the past, various organizations in the state cooperated in helping us put across the ideas of conservation and in making Forestry Week a success. Some of these were: the United States Forest Service, the Timber Protective Associations, the Idaho State Department of Forestry, the State Fire Wardens, and the various private forest industries. They helped us by talks to local groups and in setting up displays, enabling us to reach many more people than would be possible otherwise.

This, then, is the scope of the 1952 Idaho State Forestry Week. It informed the people of the value of their forests and helped them realize some of the problems connected with their management and utilization. But it was also of great value to the students who gained experience in their attempt to present forestry to the people. Finally it resulted in immeasurable good to the University and the School of Forestry thru the publicity and good will that was spread.

To the Forestry Week Committee; Bill Luscher, publicity; Roger Bay, youth project; Don McManamon, banquet chairman; Ken Herman, high school contacts; and Bob Nisbet, campus activities, I extend a sincere expression of thanks. Without their unselfish cooperation, Forestry Week would not have been a success.

Forestry Summer Camp

by Ken Estes

The increased activity around the Forestry Building each spring can only mean one thing. Those lucky (?) sophomores with a 2.0 or better average are going to summer camp to learn some of the finer things that make up a professional forester. The executive board is hiring a cook, the kitchen manager is buying food, and the equipment man is running around in a frenzy looking for tools that will be needed at camp. Miraculously enough, by the time finals are over, everything is ready to go.

We found our way to McCall in the rain which is always present at this time of year. Upon arrival at camp, we immediately set to work putting up the tents and stoves. The next day was spent making the camp livable, which consisted of furnishing the tents, putting up the electric lights, and cutting firewood to dry out the tents. The red pickup could be seen charging from the storage sheds to the tents with beds and tables and, in general, placing everyone's life at stake.

After a short tour around the peninsula to acquaint all of us with the various landmarks, we were introduced to the rigors of the forest surveyor by Prof. Sargent. By the time we got the roads leveled and the surrounding area pegged down, we knew just how deep all the swamps were and how many thousands of mosquitoes there were per cubic foot of atmosphere. It was during this course that Walt Naab showed how adept he was in finding the deeper holes in the swamps.

After surveying we were given a short breather on fire control. We got the Osborne fire finder set up and then went smoke-chasing. After a couple of wrong azimuths, the "fire" was found in an almost inaccessible pile of brush. The next morning was spent on a practice fire set by the smokejumpers.

After the first day of mensuration, small groups could be seen talking together on what had happened in the first six hours of lecture and asking themselves if they were supposed to be workhorses. The answer to that question was obvious in the next few days. After the first test was over, a few of the old nags, oops, pardon me, students went into town to raise their spirits.

The timber cruising exercise was interrupted by what is always a big event in McCall, the 4th of July. A few of the boys found it rather hard to get out of bed the next morning. However, once out in the woods, they got along fine. That is, they got along to the nearest tree.

As soon as everyone finished with the final tests in mensuration, the whole camp arose as one man and dumped Ernie in the lake. To avoid playing favorites, the rest of the instructors had to go in too, and then since a few of the fellows were wet, why shouldn't everybody get wet.

There followed the course in forest and range communities under the instruction of Ken Hungerford and Lee Sharp. One of the trips covered the study of fire succession. Apparently the only 60 year old burn in the area was the one many miles up a rough road and across the Upper Payette River. Some of the boys thought this would be a good chance to drown themselves while wading across the river, but the instructors were waiting downstream to fish them out. "Elephant Boy" Parker put on an exhibition by taking off all of his clothes so he wouldn't get them wet, but fell in with them anyway.

We were exposed to the subject of zonation on the trip to No Business Lookout. Many pictures were taken of the snowball fights, sliding on the snowbank, and the surrounding country. In our spare moments from these activities, we did a little work on the subject matter.

After learning the names of all the vegetation within miles of camp, we topped the Lick Creek summit and dropped down to the Salmon River for a day of wildlife instruction. No mountain goats were seen; however, good imitations were given by some of the more energetic fellows.

During the range communities course, there developed the famous Nagel-Sharp feud. This controversy came to a head after a day of cilpping grass in the hot sun on Eck's Flat. An argument came

up one evening a day later on how much the grass had grown since it was cut. They decided to go out to measure it, so they departed armed with a flashlight and ruler. There was a wager of a bottle of beer on the outcome. The results of the inspection were rather vague and it is rumored that they only got as far as the Forester's Club. The annual trip to the Circle C ranch was taken after a brief lecture on the proper questions to ask the owner, Mr. Campbell.

The day following the final exam in forest and range communities found us on the Rapid Creek fire. We were routed out of bed at two-thirty in the morning by the cheery voice of Seale. When roll call was taken in the trucks, one member was missing. Since it was the night after a final exam, the only logical place for him to be was in one of the clubs in town. Unfortunately, when we arrived, he had just ordered something to eat, so the cook put the meal in a bag and we were on our way.

It sure gets cold at night in McCall. It seemed to be near zero that night while riding in the back of the truck. The fire was started by lightning on one of the higher peaks uninhabited by even the most rugged animals. While we were walking up to the ridge, a plane dropped some smokejumpers near the fire.

On reaching the fire, we were told to open our C rations and to eat some-

thing before the plane returned to drop breakfast. As soon as the cigarettes were found, the non-smokers started an auction. That night we were issued sleeping bags and shown to the sleeping area, which was on one of the steeper parts of the mountain. During the night a couple of dozen Mexicans arrived and woke up the camp. The whole camp was awakened again about five in the morning with warning that the plane would drop the morning feed in half an hour. Two hours later the plane hove in sight. The man dropping the chutes was a pretty good shot, since he managed to hit the surrounding trees almost every time. That evening about half the students returned to McCall and the rest left the next day. Since the camp would be over in a week, the money from the fire was received enthusiastically by even those who were griping about having to fight fire.

Seale's logging course marked the beginning of the last week of camp, during which many trips were taken to mills and logging operations. One of the longer trips took us to Garden Valley to inspect Jack Morgan's logging operation. Incidentally there are 18 wheels on Morgan's logging trucks and his shoe size is 12½. This information was just thrown in for future use on a test.

It was on the way back from this trip that one of the major battles of the camp was fought. The lethal weapon was water from the canteens of the twenty-two passengers. It was all started when somebody decided to cool off one of his buddies. Within seconds two armies were formed with a firing line somewhere in the middle of the truck and the battle was in full swing. After the front half had captured all of the canteens of the rear, some one saw a small hole in Andrews' pants. In a flash he was wearing shorts. The fight was finally stopped because the driver was having trouble holding the road.

There was more activity around the camp the morning of August 3rd than had been shown at any time during the previous eight weeks. The final day was here at last. People could be seen dashing here and there looking for boxes in which to pack clothes and books. The tables and benches were taken back to the storage sheds and the larger tents were taken down. After about two hours, most of the work was done that had required the whole day to do at the beginning of camp. People loaded their cars and started out for a few weeks of work before school started again.

A person may wonder how such a large group of students could get so many things done and yet serve effectively on work details. The job of coordinating the camp was done efficiently by the three men on the executive board: Roger Bay, Bill Schreck, and Del Vail. Vail is a tranfer student from Idaho State. The best chow in the history of the camp was cooked by Mrs. Morris and served by Don McManamon, the kitchen manager. "Mac" handled all of the buying of the food and supervised the work detail. In his spare time he went to classes. He did a good job as is evidenced by the sizable refund check we got shortly after school started.

The man who developed the headaches in his effort to keep the equipment together was Phil Menges. All of the other jobs were handled by work details in which everyone participated.

Even though things seemed a little rough at times during the camp session, as we look back, we remember the swimming in the lake, the fishing trips in the high mountains, and the Saturday nights in town when we relaxed and studies were forgotten. We also remember, with appreciation, the instructors who had to put up with us. A vote of thanks is due Ken Hungerford, Chuck Sargent, Ernie Wohletz, Lee Sharp, and Bob Seale.

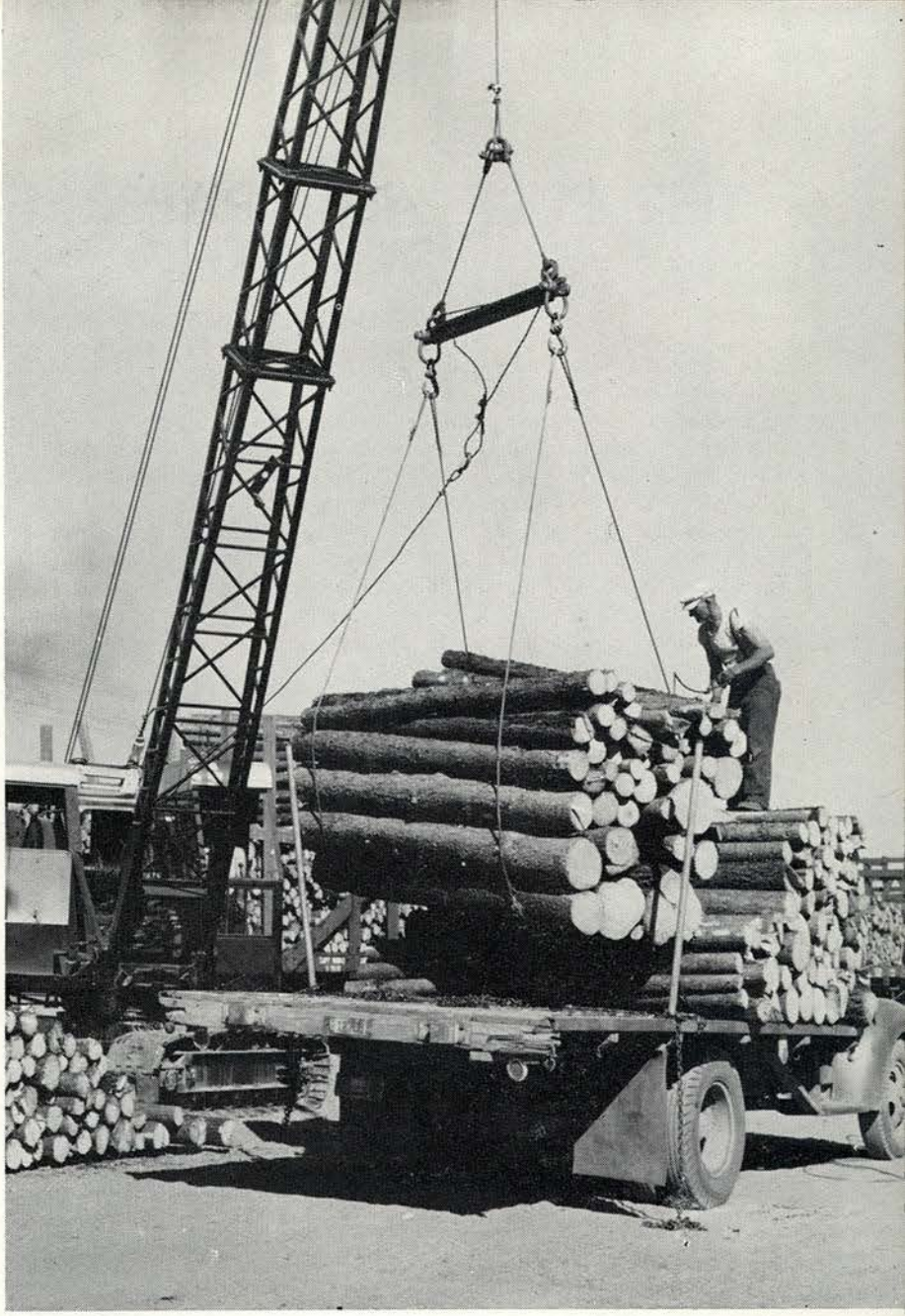


PHOTO BY "NEWPORT MINER"

FEATURE ARTICLES

THE PULP AND PAPER FUTURE OF IDAHO

By GEORGE M. JEMISON [1]

In 1951 Idaho's first pulp and paper mill went into production and touched off once more the debate that has waxed and waned around the foresters' hot-stove league for 35 years. Will we see a boom in pulp and paper production in Idaho in the near future? This topic has been talked about since 1917—lukewarm then but steaming and threatening to boil today. The subject is timely for good reason. The increasing demand for pulp, paper, and paper products has skyrocketed that industry into the Nation's sixth largest. It is well to ask ourselves how these national trends affect Idaho's forestry future. What is the pulpwood supply? Just what are the opportunities for and the problems associated with a local pulp industry? Questions such as these are important to all foresters and they demand sound and careful consideration.

The National Picture

At the risk of being classed as an "end-to-end" statistician, I would like to give a few important figures to show where we are headed nationally in wood pulp production. In 1951 we produced 16.5 million tons of wood pulp, 14 times more than we did at the turn of the century. Our 246 mills last year used 26.6 million cords of pulpwood, most of which was cut within our borders. Twelve years ago we used 10.8 million cords or only 41 per cent as much (table 1). Between 1945 and 1951 all manufacturing enterprises increased their investments in new facilities 280 per cent; the paper and allied products industry increased investments 425 per cent. In December 1951 the National Production Authority reported than in the year past it had approved certificates of necessity for new construction in the pulp, paper, and paper board industry amounting to $500,000,000. Another $500,000,000 expansion is contemplated in applications still pending. When and if these new facilities get into production a total of 4.5 million tons of additional pulp, paper, and paper board will be on the market.

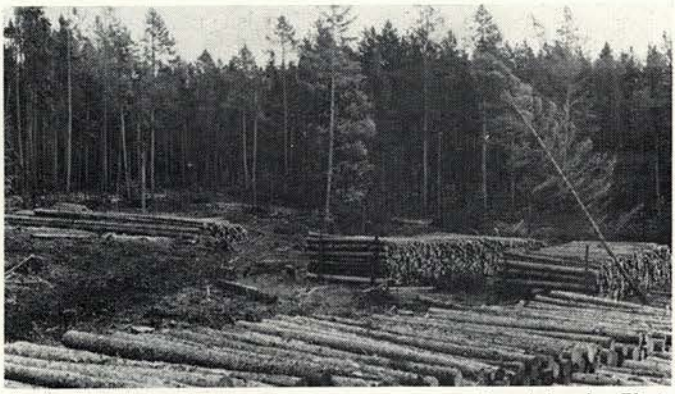
Who is using all of this pulp and paper? Is the market going to be glutted? In 1947 the world per capita consumption of wood pulp products was 31 pounds. Every one of us in the United States used 251 pounds that year. With only 6 per cent of the world's population, we use about one-half of the world's wood pulp output. Authorities disagree slightly but state that since you had breakfast yesterday morning there have been about 7,000 new paper users added to our population — about 2,500,000 per year. At the present rate of consumption it would

Table 1. Growth of the wood pulp industry, 1939 to 1951, in the United States.

Year	Number of mills	Pulpwood Consumption		Wood pulp production	Wood pulp imports
		Domestic Million cords	Imported Million cords	Million tons	Million tons
1939	194	9.7	1.1	7.0	2.0
1947	226	17.6	2.1	11.9	2.3
1949		18.2	1.7	12.2	1.8
1950		21.8	1.9	14.8	2.4
1951	1-246	2-26.6		2-16.5	

1- From "Lockwood's Directory of the Paper and Allied Trades" and other sources.
2- Preliminary report by Bureau of the Census, Department of Commerce.

[1] Director, Northern Rocky Mountain Forest and Range Experiment Station, Missoula, Montana.



Forest Service Photo

take roughly *five new mills per year* the size of the Idaho plant to produce pulp products for this increase in our population. But we are finding many new uses for paper, too. The Forest Service estimates that the pulpwood requirement in the United States for 1975 will be 50 per cent greater than that of 1950.

We are a people who enjoy an abundance of the things we use in our everyday lives. We are not and never will be satisfied with an economy of scarcity. So, *if our forest resource can stand it,* we can expect a continued increasing demand for pulp and paper products.

Where Does Idaho Fit In?

One may well wonder how the national situation and probable trends in pulpwood consumption relate to Idaho, a mountain state not many years removed from the "frontier" era and still with large undeveloped areas within its borders. Will the expected expansion of the industry take place elsewhere? Can we expect wood-wealthy neighbors to take care of our future needs?

From this armchair, it seems safe to predict that Idaho's timber resource does fit into the future pulpwood picture. This state and its neighbors constitute one of the last big areas of the country where there is still room for expansion. The pressure on the wood supply of other regions is great. Greater imports cannot be counted on too heavily. Westward shifts in population centers make future local markets look more attractive. And, finally, Idaho does have the timber to support a pulp industry. A more detailed look at each of these factors is illuminating.

The bulk of the current expansion is in the South, which processed almost half of the 26.6 million cords of pulpwood consumed in 1951. In the last year the National Production Authority has certified or has under consideration applications for 57 new pulp mills or expansions in the South. These represent $647,000,000 of planned investment and 6.5 million cords of new pulpwood requirements. Many of the new mills are being built on the prospect that future growing stocks will be greatly increased. In spite of the tremendous growth potentials of southern timberlands and the improvements in forest practices accomplished and planned for the future, there is little likelihood that much more room for expansion exists beyond that now planned. Furthermore, there are highly developed lumber, veneer, and pole industries in the South that strongly compete with the pulpwood industry for raw material. No large amounts of logging waste are available, as in the West, to meet expanding demands for pulpwood.

The Lake States and the Northeast have also seen expanding pulpmill facilities in recent years. Thirty-six expansions have been approved or are being considered by the National Production Authority. There, too, the saturation, point is near at hand. Better future forest management practices and the growth of plantations and other young stands will help meet the demands. But new mills and expansions are keeping

pace with the probable future yields. At present there is little existing timber locally available to take care of expansion. Some mills in the Lake States have for the past five years been reaching into the Rocky Mountain area for pulpwood.

About two million cords of pulpwood are now imported annually but we cannot foresee a great increase in dependence on outside sources for our needs. We already import 80 per cent of our newsprint, mainly from Canada. Rising standards of living which we hope for the rest of the world will place heavier demands on the resources of our friends and neighbors overseas.

The 1950 census showed that population centers—in other words, the paper products consumers—are moving westward. The upward trends are sharp and are likely to accelerate as power, industrial, and agricultural developments in the great western country continue.

The Pulpwood Opportunity in Idaho

The best resource statistics available for Idaho, modified somewhat by more recent studies[2], show that we have a net timber inventory on the commercial forest lands of 15,000 million cubic feet. This figure includes all sound material without bark, 5 inches or larger in diameter to a 4-inch top. When the forest survey is completed in Idaho it will probably show a growth approaching 400 million cubic feet annually. The yearly cut of sawtimber, especially of western white pine and ponderosa pine, substantially exceeds the growth. But there is a net surplus of growth over drain for all kinds of timber combined of about 200 million cubic feet.

Even if timber production is expanded in the years to come Idaho will still have an excess of growth suitable for pulpwood production. There are large areas of insect-killed lodgepole pine, much of which is suitable for high grade pulp. Low-grade timber and non-sawtimber trees make up large parts of the pulpwood inventory. Logging and mill waste from the lumber industry might furnish as much as 450,000 cords of wood per year. When all of these sources are included there is a large pile of raw material waiting for the pulpmills. Once we achieve a high level of management it will be feasible to log 180 million cubic feet or 2 million cords of pulpwood annually. That volume of wood is sufficient for sixteen 200-ton plants. Today we are still a long way from developing Idaho's forests to this intensity of management.

The utilization of any substantial fraction of the 2 million cords of pulpwood would create many opportunities to benefit the forests of the state and put dollars into the pockets of its citizens. A pulp and paper industry of the size that could be supported in processing even one-fourth of this material would employ 5,200 people. Associated service industries, trade, and transportation would add substantially to the wealth of the state.

Probably of greatest significance would be the door opened to better timberland management. It has been said that 90 per cent of the silvicultural problems can be solved whenever the land owner can sell what he grows at a profit. Utilization of white fir, Douglas fir, and hemlock would make the job of regenerating white pine and ponderosa pine much easier and surer. The harvest of mature lodgepole pine for pulp would remove the threat of insect epidemics in many places. In fact the cutting of the declining trees of all species would tend to keep timber stands vigorous and healthy. Marketable thinnings from young ponderosa pine stands would make stand improvement profitable at an early age and more and better sawtimber would eventually be produced. Utilization of the tops of sawtimber trees, jump butts, and other woods waste would reduce the slash disposal job and help solve that problem which today has reached critical proportions.

Problems

So far, I have sounded optimistic but, as with many things, there is a nigger or

2 Up-to-date forest resource statistics will be available for northern Idaho next year when a Forest Service re-survey will be completed. Figures given here are rough estimates, in many cases, based on the original 1937 survey and a 1945 reappraisal.

two in the pulpwood pile. Much of the pulpwood supply now lies in large inaccessible blocks on our national forests. Many of the access roads yet to be built are the most costly kind. Pulpwood, a low value product, cannot carry by itself huge investment costs in roads. How this obstacle can best be overcome remains to be worked out.

Large quantities of pure water are needed for the manufacture of pulp and paper. Idaho prides itself on its water supply. Pulpmills, unfortunately, produce waste products that can create a serious stream pollution problem unless proper consideration is given to mill location and the treatment of wastes. One 200-ton sulfate pulpmill produces organic wastes equivalent to the daily sewage from a city of 90,000 people. Fish life could be eliminated from long sections of streams if their flows were inadequate to dilute the pulpmill wastes sufficiently. However, Idaho probably does have several potential pulpmill sites where pollution would not be a problem if known waste reduction processes were used at the pulpmills. Careful study of stream conditions, water supply, pulpmill capacity, and methods of handling waste materials should definitely precede the establishment of an industry in Idaho.

The utilization of small products made possible by a pulp industry can benefit or harm the forest growing stock. Pulpwood thinnings have been noted to be highly beneficial. But if 20 or 30 trees per acre selected for thinning in a thrifty young pine stand can be marketed at a profit, so can the rest of the stand. Most of our better second-growth stands are highly accessible and the temptation may often be great to liquidate young timber. If we are to increase our future short supply of sawtimber growing stocks in Idaho, we obviously cannot convert potential sawtimber stands into pulpwood. This problem has been serious in other regions with a pulp industry. In Idaho, we have every reason to believe that a bountiful pulpwood harvest can be integrated with the production of higher valued timber crops if we set our minds to it.

A Forecast

Far be it from me to get my mental calisthenics by jumping at conclusions. It is especially out of character for a researcher to lack caution. However, I hardly feel guilty of the charge of guessing, when I take a fairly optimistic view of the pulp and paper future in Idaho. Our country is geared to plenty of everything, including paper. Demands are increasing to a point where other states will have a hard time meeting them. Idaho has a pulp timber backlog. We can plan intelligently to cash in on the benefits and avoid the problems associated with a pulp industry if we apply what we know. An orderly expansion is in the cards as I see it—five years, ten years, who knows? If properly planned and carried out, pulpwood production from Idaho's forests will contribute to the welfare of the state, the nation, and to the forests themselves.

Forest Service Photo

GRADUATES OF 35 YEARS AGO

The period of 1917-1952 has been an active one for forestry. New phases of management, new methods of fire control, more intensive utilization of wood products, better utilization of range resources are a few of the things that have evolved. Keeping pace with and taking an active part in these developments are our graduates of 1917. Their accomplishments point out what can be done when practical knowledge is united with "book learning" and give confidence to the graduate of today.

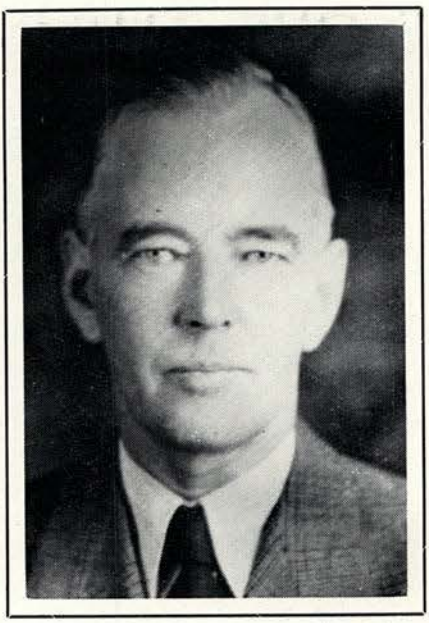
Kennel-Ellis Photo

DONALD HUBERT YATES entered the University of Idaho in the fall of 1913 from Whiting High School, Whiting, Iowa, and while at Idaho spent his summers working for the U.S. Forest Service.

Upon graduating and after preliminary training at the First Officers Training School at the Presidio of San Francisco, he served a couple of years in the U.S. Army in the First World War. Following the war he was employed for seven years in the land division of Potlatch Forests, Inc.

Finding he was more in the real estate business than in forestry practices, he, with the encouragement of his wife, entered the real estate business in Seattle, where he has been ever since.

He has been active in public service in Seattle and has been president and held other offices in many trade associations and civic groups. His more recent activities include: member of a draft board, president of the Seattle Rotary Club, and chairman of a labor dispute panel for the lumber industry during the Second World War.



HARRY ELOF MALMSTEN entered the University of Idaho as a junior from Washington State College in 1915. He spent two of his summers cruising timber in western Washington and one summer as a Student Assistant with the U.S. Forest Service in Utah.

Following graduation in 1917, he received his civil service appointment as Grazing Assistant and was assigned to the Great Basis Experiment Station in Utah. He remained there until 1924 doing work on range surveys and research. During this period he held appointments as Grazing Examiner and Associate Range Examiner. In 1924 he received an appointment as Assistant Professor of Forestry and Assistant Plant Ecologist in the Experiment Station of the University of California. In 1935 he resigned to accept an appointment as Regional Range Land Planning Specialist with the Resettlement Administration at Berkeley, California. In 1938 he was transferred to Washington, D. C., where he held a position as Agricultural Economist with the Bureau of Agricultural Economics. For the past few years he has held the title of Zone Conservationist and has been located in the regional office of the Soil Conservation Service at Lincoln, Nebraska.

He served with the armed services during World War I. In 1937 he married Olive Roof of Dayton, Ohio.

Malmsten is a charter member of the Soil Conservation Society of America and is a Mason, affiliated in Ogden, Utah. He plans to retire within another year, and to establish residence in the Northwest.

Other members of the class of 1917 are:

RUSSEL N. CUNNINGHAM — On assignment from the Forest Service to the Army in the Ryukyuan Islands.

VIRGIL C. MOODY — Technical Assistant in the Coeur d' Alene National Forest.

FRED J. RUCKWEED — Position and present address unknown.

WHAT ARE OUR ALUMNI DOING?

Many people wonder about the kinds of jobs that are available to men who graduate with a degree in Forestry. Although the opportunities are many, and there are various jobs being offered by private industry, the state, the U.S. Forest Service, or the Civil Service Commission, we do not learn about actual cases until someone tells us of their jobs. From the many alumni who visited the School of Forestry this year, the following occupations and localities were recorded:

U. S. FOREST SERVICE—

Bob Bates, '50 is working at the Coconino National Forest. He was married in November, and his home address is 38-C Clark Homes, Flagstaff, Arizona. We also heard from Bob Bohning in November. He's in Tucson, Arizona now, in charge of the Santa Rita Experiment Station.

Johnathon Wright, who also visited in November, is employed by the Tree Breeding Laboratory at the Morris Arboretum in Blue Bell, Pennsylvania. A frequent visitor is Dale S. Thacker from Grangeville, who is in charge of timber sales in this area.

OTHER CIVIL SERVICE—

Duncan Campbell, '39, was back here in January for a visit, and is with the Soil Conservation Service at Towner, North Dakota. Also employed by the Soil Conservation Service is Jim Kuechmann, who came down from St. Maries, Idaho, for Homecoming. Working for the Bureau of Land Management in Boise, Idaho is Ed Savaria.

STATE OF IDAHO—

Roger Gurnsey, State Forester, and Steele Barnett, Assistant State Forester, have visited us from Boise on several occasions. Another frequent visitor from Coeur d' Alene is Ernest T. Grover, who is in charge of state timber sales for northern Idaho. Lonnie Williams has been back a few times and is now the Farm Forester at St. Maries.

INDUSTRY—

George Root, '49, was up for Homecoming. George lives in Clarkston, Washington, and is presently employed at the Potlatch Lumber Co.'s pulp mill in Lewiston, Idaho. Leo Martin is now working for the Roseburg Lumber Co., in Roseburg, Idaho. Chester McCormick drops in quite often from the Potlatch Lumber Co.'s mill in Potlatch. Grant Potter, who is with the Diamond Match Co., also comes in quite often. John Ringdale is in Longview, Washington, now working for the Longview Pulp and Paper Co.

MISCELLANEOUS—

Vernon Ravenscroft is in business for himself now, manufacturing treated fence posts at Gooding, Idaho. Don Hazelbaker and Joe Vinshnik, from Sandpoint, dropped in during December while returning from cruising timber near Elk River. Larry Burgat came up for Homecoming from Yakima, Washington, where he's working for a seed company. Franklin Sheffler is an instructor for the Farm Veterans' Association in Lisbon, North Dakota, and A. C. Everson is teaching at the University of Arizona at Tucson. Russel Clonninger stopped in from Fortine, Montana, where he is employed by the U.S. Forest Service.

Idaho Foresters at National Meeting of the Society of American Foresters

Among the more than 1,000 professional foresters attending the Society of American Foresters 51st annual meeting at Biloxi, Miss., on December 11-15, were twenty-two Idaho foresters and their wives.

The foresters installed new officers, heard papers prepared by specialists in eleven technical fields, varying from silviculture to public relations, and saw forestry in practice on different land areas. They were guests on the 414,000 acre industrial tree farm of the Gaylord Container Corp., and on another field trip were shown applied forestry at the Harrison Experimental Forest on the Southern Forest Experiment Station and the Dantzler Lumber Co.

Mr. Charles Connaughton was in general charge of the program for the national meeting, and Art W. Nelson, chairman of the host section, was in charge of local arrangements. Both are Idaho graduates.

From left to right:

Row 1: Mrs. Marvin Marshall, Mrs. M. M. Lehrbas, and Mrs. Art W. Nelson.

Row 2: Marvin Marshall, L. S. Newcomb, R. E. Williams, Russell LeBarron, F. M. Cossitt, E. G. Wieshuegel, A. P. Swayne, Dr. W. D. Miller, Galen Pike, M. M. Lehrbas, Art Nelson, and John P. Krier.

Roy 3: Howard Johnson, I. C. Burroughs, G. I. Garin, Wm. C. Callender, Dr. R. E. McArdle, E. J. Jankowski, Charles Connaughton, Charles F. Sutherland, Joseph Crouch, and A. M. Sowder.

FORESTR

Lookout Tower on the St. Joe National Forest

Mule deer being fed alfalfa in southern Idaho.

Falling a white p
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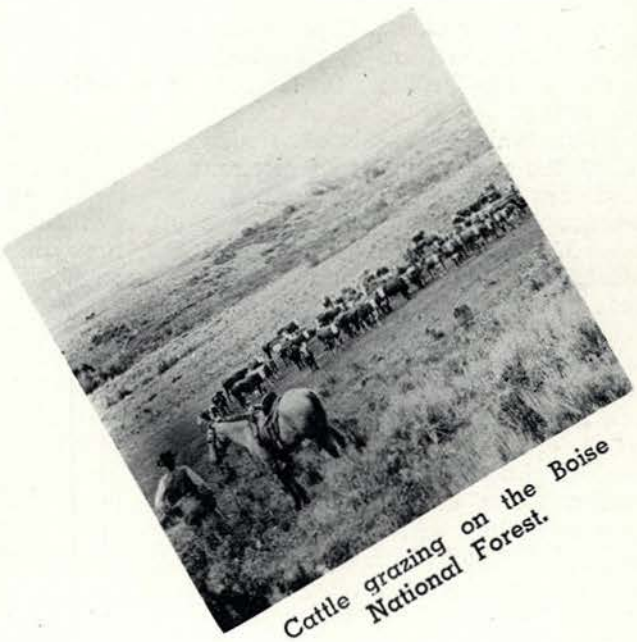
rest.

Hauling poles on the St. Joe National Forest.



Cattle grazing on the Boise National Forest.

Forest Service Photos

THE USE OF RADIOISOTOPES IN FOREST TREE RESEARCH

W. K. FERRELL[1] and E. E. HUBERT[2]

What Are Radioisotopes?

In this day of the atomic bomb it is heartening to know that the same process which produces the materials for the bomb also produces materials of great benefit to mankind. These materials are the radioisotopes of which we hear so much today. Before entering into a discussion of the use of radioisotopes in forestry, it might be well to discuss briefly the nature of radioisotopes and the method of their production. As you may recall from your chemistry training, all elements are composed of a mixture of isotopes. For any given element these isotopes have the same chemical behavior, although they have a different physical weight. That is to say, they have the same number of electrons and protons but they have different numbers of neutrons in the nucleus. For example, phosphorus 31 is the common form of phosphorus which we find in fertilizer. On the other hand phosphorus 32, the radioisotope of phosphorus which we use in our studies, contains the same number of electrons and protons but one more neutron. This difference is important because phosphorus 32, due to this extra neutron, is unstable and disintegrates throwing off a beta particle (an electron) which can be detected with radiation detection instruments, such as Geiger counters. Radioactive forms of the common elements are not found in nature, however, and in order to produce radioactive forms of phosphorus and calcium, for instance, forms of these elements or closely related elements are placed in an atomic pile, allowed to remain there for some time to absorb neutrons, and then removed. The atoms which absorbed a neutron while they were in the pile become radioactive. It is these artificially produced radioisotopes which are of particular interest and are used in science today.

Use in Forest Research

The primary use of radioisotopes in biological research, including forestry, is in tracer studies. The important points about radioisotopes are that they can be detected in extremely small amounts, and that they can always be distinguished from other non-radioactive forms of the same element which may have existed in the organism prior to the introduction of the radioactive form. As we have mentioned, radioactive and non-radioactive isotopes behave in precisely the same way chemically and the main thing which we need to guard against is the radiation injury to a plant by the radioactive material. The latter danger is usually handled by keeping the amounts of radioactive material to the absolute minimum.

The possibilities for the use of radioisotopes in forest tree research are very great. Often in the past, forest tree research was concentrated on studies of large stands of timber. The sample plot and the permanent plot have become the watchword of forest tree research, and rightly so. However, such an approach has certain limitations. To borrow and invert an old phrase, "Sometimes we have not been able to see the trees for the forest." Forestry has reached the point where we must begin to find out how the individual tree behaves physiologically. It is here that the use of radioisotopes will find a great new field of use. We know relatively little or nothing about absorption, translocation, and similar metabolic processes in trees. All of these subjects can be investigated readily with the use of radioisotopes.

1 Assistant Soils Specialist and 2 Research Pathologist, Forest, Wildlife and Range Experiment Station, University of Idaho.

Although studies with radioisotopes are relatively new, a few investigations have already begun using radioisotopes in forestry research. For example, one of the things which have intrigued foresters for a long time is the exact relation between the mycorrhizal fungi found on tree roots and the tree itself. Recently, Kramer and Wilbur, investigating the absorption of phosphorus 32 in mycorrhizal roots, found that these roots absorbed more phosphorus from the external solution than did the non-mycorrhizal roots. In Sweden, Melin and Nilsson showed that mycorrhizal hyphae can transport phosphorus in the form of phosphorus 32 into the tree. These studies are the beginning of a great number which will doubtless clarify the position of mycorrhizae in forest tree nutrition.

In studying the pole blight condition of western white pine in Idaho, we analyzed the foliage from a number of trees in pole blighted areas, some of the trees being pole blighted and some of them healthy. We found that phosphorus and calcium in particular had peculiar distributions in pole blighted trees. In the diseased trees the phosphorus was found to be higher than normal and the calcium lower than normal. This distribution pattern raised many questions about the physiology of these trees, questions which we believed could be answered only with the use of radioisotopes. Unfortunately the use of radioisotopes involves a purchase of considerable expensive equipment. However, the government officials who set up the Atomic Energy Commission realized that such cases would arise and they made provisions in the charter of the Atomic Energy Commission that the Commission support basic and applied research in fields outside the government involving the use of radioisotopes and radioactivity. Consequently we applied for and received a contract with the Atomic Energy Commission which allowed us to carry on our radioisotopes studies to determine something about the physiology of normal and pole blighted western white pine.

Field Studies

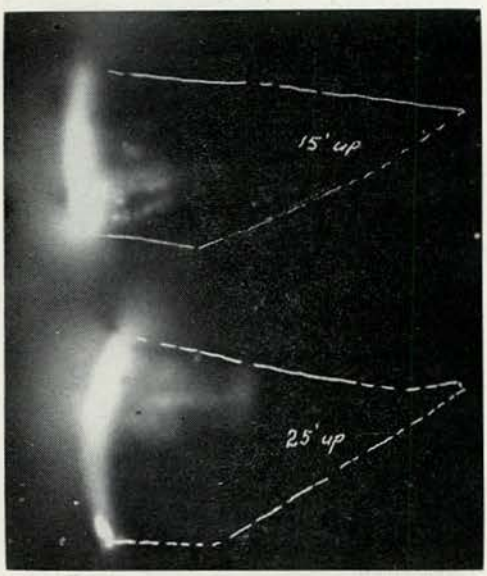
Our first studies were carried on in the field and with the cooperation of the U.S. Forest Service we were able to use stands of pole blighted trees on the Deception Creek Experimental Forest north of Coeur d' Alene. Our first investigations showed that normal root absorption method could not be used without considerable improvement so we decided to inject the materials directly into the trunk of the tree. To do this we attached a metal cup on to the side of a tree and nailed it on tightly, sealing the junction between the cup and the trunk with asphaltum. We placed the solution in the cup and then, below the solution level, punctured the trunk through the bark. The accompanying picture shows this operation. The radioactive solution consisting of either radioactive calcium or phosphorus, or both, was taken into the transpiration stream of the tree and distributed to the foliage in a normal manner. In order to find out where the materials were going and the rate at which they were traveling, we climbed the tree with the aid of a long ladder and sampled the foliage.

Method of injecting radioisotopes into living western white pine trees in the study of pole blight. The metal cup holds the liquid containing the radioactive material until it is absorbed by the tree.

This experiment was conducted on both healthy and pole blighted trees during the summer of 1951. The foliage gathered from the trees was returned to the laboratory at Moscow, dried in an oven, and ground up for analysis. Both phosphorus and calcium were extracted from the needles and the radioactivity determined with the aid of a Geiger counter.

The analysis of the phosphorus data has been completed and shows some interesting results. We have found, for example, that phosphorus accumulates in increasing amounts as one goes up the tree. This large initial accumulation high in the tree is at variance with the known distribution of total phosphorus in the tree, so we conclude that there must be considerable recirculation of phosphorus. Since elements in the xylem stream are probably deposited in largest amounts where transpiration is highest, our data indicates that the transpiration rate is probably highest in the upper crown of the tree.

The study of the rates of movement in the tree has demonstrated that the radioisotopes move more rapidly in pole blighted than in healthy trees. This we attribute most probably to the greater amount of transpiration in the pole blighted tree. We have found in the summer when conditions for high transpiration rates are good, it will take from three to five days for materials to reach the top of 75'-85' trees. In the fall it may take 15 to 20 days for such a movement.



Autograph of sections cut at 15 and 25 feet up from stump of a western white pine injected with radioactive phosphorus. This tree showed symptoms of pole blight. Intensive radiation is centered in the bark with fainter radiation in the sapwood area.

Autoradiograph Studies

Another method of recording the movements of radioisotopes in trees is to photograph the radiations emanating from tissues injected with these tracers. Six of the western white pines which had previously been injected with radioactive calcium and phosphorus, were felled at the end of the field tests to gain additional information on the translocation of the isotope solution within the trees. Cross sections of the trunk were cut three feet below and 5, 15, 25, 45 and 65 feet above the injection cups from trees showing pole blight symptoms and from apparently healthy trees. These cross sections were planed on one side to prepare a smooth surface, coated with tinfoil, and placed in contact with radio sensitive film.

When developed, these films showed a lessening of radioactivity in healthy and diseased trees from the ground to a point including the 45 foot section. The 65 foot section, near the top of the trees, containing a large portion of sapwood, showed an increase in radiation. In all cases radiation ended at the junction of sapwood and heartwood indicating no apparent translocation into the heartwood tissues. In general, the radiation in the phloem and bark of diseased trees was not as uniformly distributed, and was more intensive, than in the healthy trees. In the latter the radiation was more uniform and faded out in the sapwood area adjacent to the heartwood.

When autoradiographs were prepared from microtome sections (about 25 micons thick) cut from the cross sections, a greater differentiation in radiation between healthy and diseased trees was noted. The sections (transverse and radial) were examined under the microscope and compared with the corres-

ponding autoradiograph prints. In general, the tissues from diseased trees injected with calcium-45 showed more intensive radiation than those from healthy trees similarly injected. In diseased trees, the cambium, phloem and outer bark showed the most radiation which in some cases were intensified somewhat along the cambium and young phloem. A very bright line appears along the cambium area in sections from healthy trees and this is absent in diseased material.

Examination of the radial sections from healthy and diseased trees indicates a more even distribution of the isotope solution in the bark and xylem tissues of the healthy than in the diseased trees. New techniques for recording the radiations from microtome sections are to be tested during the coming year.

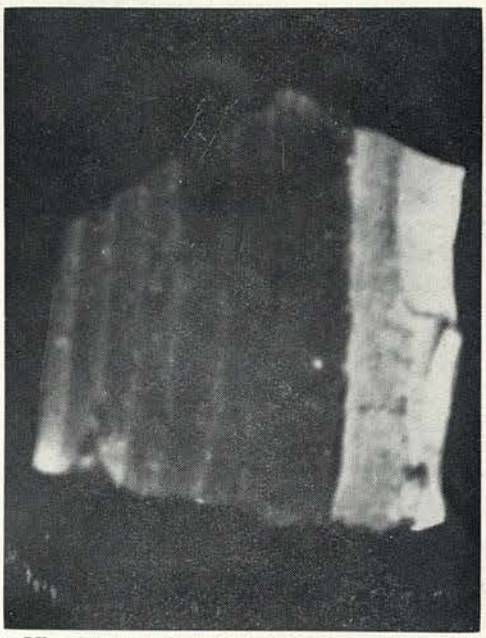
Greenhouse Studies

In the greenhouse, where a number of potted western white pines are being grown for experimental use, a series of inoculations were made on root spurs, stems and branches, with an equal number of controls. The inoculations were prepared by puncturing the bark with numerous stabs of a sterile needle, the punctures extending completely around the root, stem and branch with the object of obtaining lesions which completely encircle each one. The inoculum used was a pure culture of *Leptographium* sp. isolated from the root crown of a tree showing advanced pole blight symptoms. The inoculated bark areas were covered with layers of moist cotton and wrapped with masking tape. A few root inoculations were made using white pine branches artificially infected with *Armillaria mellea* (Val.) Quel., the shoestring fungus, and placed in the soil in contact with the roots.

When lesions develop on the bark of the trees inoculated with *Leptographium* sp., it is planned to make a series of injections into healthy and diseased trees with radioisotope solution in an effort to determine the effect that the infection may have upon translocation in the plant. A variety of devices are to be used in the injection and subsequent recording of the radioactive materials in the test trees.

Since infection by *A. mellea* is expected to be much slower in producing symptoms in the test trees, it may require considerable time and experimentation before radioisotopes can be used effectively in this series.

Should either one or both of the test fungi produce toxins which move about in the host tissues, the use of tracer elements will prove of value in demonstrating this fact. The work on this project has already disclosed the relatively rapid movement of solutions to the upper crown during the earlier period of the field tests and a subsequent movement downward as demonstrated by the increase with time of the concentration of isotopes in the needles of the lower crown. If toxins produced by fungi bear any direct relation to the characteristic dwarfing, discoloration and dying of the upper crown and the appearance of trunk lesions and resinosis in a pole blight tree, the study of isotope translocation in healthy and diseased trees should aid greatly in throwing light upon this phase of the problem.



Microtome section of western white pine bark and sapwood taken from a pole blight tree injected with a radioisotope solution. Note the heavy radiation from the inner and outer bark and less intensive radiation from the sapwood.

Note to Alumni

Old Morrill Hall looks about the same on the outside, but the inside is beginning to assume the appearance of the new Forestry Building. Those of you who remember when the building housed Agronomy, Agriculture, Dairy, and others in its nooks and crannies will be pleased to hear that the School of Forestry will ultimately occupy all the building. At present, the west end on the ground floor is occupied by Secretarial Training. Some of the boys think this is a good idea since this is the only chance they get to see a girl.

The remodeling has been a gradual process, and for the last couple of years the halls have been cluttered with various piles of stuff as the staff moved their "forty years gathering" from one office to another. New floors have been laid in some rooms, new floor covering laid in others; partitions have been ripped out and remodeled; and just the other day the "wheels" were discussing roof repairs for the portico. The old collection of laboratory specimens have been moved from their temporary (since 1935) place in the old Forestry Lab. building. They are now on the second floor of Morrill Ha— I mean, the Forestry Building, where two rooms were consolidated to accommodate them.

For the present, graduate students, and Range and Wildlife laboratories are on the fourth floor; Forest Pathology on the third; Range offices, classrooms, and the Forest Soils laboratory on the second; the Dean, Profs. Deters and Wohletz, Forest, Wildlife and Range Experiment Station office, Wood Tech. Lab. and the Secretarial Studies hold down the ground floor.

From the Dean's Desk

(Continued from Page 9)

on the first landing of the stairway in Morrill Hall, one office desk, one office chair, one other chair, and one professor in charge. In fact if there had been even one student the "oneness" would have been complete. * * *

"The Arboretum as we know it today was not to come into being without its birth throes and many set backs due to lack of funds, want of exact knowledge of seasonal and climatic conditions, trained assistance, etc. * * *

"The nursery and distribution phase of this tree planting work is not so readily appreciated because the results are so widely scattered and therefore harder to see and measure.

"Yet many Idaho homes in both towns and country, as well as many parks and streets, are much more inviting because of the vast number of thrifty seedlings sent out over the state each year. These are little appreciated at first, but like the arboretum, become more attractive each year. I meet these trees in all parts of the state and probably appreciate more than most people the splendid growth they are generally making as well as the beauty and value which they contribute to property either private or public. * * *

"It is the sincere wish of the writer, who counts Idaho as his home, that this work begun under great difficulties, now only memories, may have the support of all the good people in the state; and that as time goes on an increasing number may avail themselves of that aid which this project was inaugurated to give."

Trees are still being planted in Idaho!

D. S. Jeffers

Forestry or Horticulture?

By THOMAS S. BUCHANAN[1]

Liberia is a small, independent republic located on the west coast of Africa just a few degrees north of the equator. Being one of the few non-colonial territories on the African continent, and patterning its government and idealogies after those of the United States, it has become the first country on that continent to participate in a program of economic and social development under the assistance offered by the United States Government Point IV Program.

In rendering assistance to our neighbors, the first effort is to improve their standard of living. Fundamentally this means an attempt more fully to meet their basic food requirements and to increase their per capita income. That the source of the bulk of all food and wealth has its basic origin in the soil is no less true of tropical Liberia than of other parts of the world.

As a source of both food and income, tree crops are of paramount importance in Liberia. Among foresters, there is an inclination to think of tree crops being of importance only as a source of the raw material, wood. Many tree crops, however, are of tremendous value for reasons other than the wood they produce and this is perhaps as true in Liberia as in any country in the world. Such tree crops seem to exist in a "twilight" zone coming directly within the province of neither the forester nor the horticulturist. Foresters are perhaps the best equipped, by virtue of training and experience, to manage these various tree crops. For those interested in the unusual and to stimulate interest in a different field of activity for foresters, there follows a brief discussion of some of these "different" tree crops of importance on many millions of tropical acres and specifically in Liberia.

In the everyday life of the indigenous tribesman, probably no tree is more important to him than the native African oil palm (*Elaeis guineensis*). The fruit of this tree consists of an oily kernel surrounded by a hard shell which is in turn surrounded by a fleshy pericarp. The individual fruits approximate the size of an unshelled hickory nut but are borne in clusters sometimes weighing as much as 40 or 50 pounds. From the pericarp is extracted a fat and vitamin rich oil which forms an essential part of the peoples' diet. After extracting this oil for local consumption, the shell is cracked and the kernel removed. These palm kernels are exported by the thousands of tons and, in turn, the oil is extracted from them for use in food and soap manufacture. The leaves of this tree are also used locally in many ways, chiefly as thatch for roofs of huts.

Of even greater utility, but of lesser importance because it provides no basic food and is less abundant, is another native tree, the bamboo or wine palm (*Raphia spp*). The raffia of commerce is obtained from the mid-ribs of the young leaflets and piassava is obtained from the midribs of the mature leaves. (The next time you see a coarse, stiff-bristled scrub brush or stable broom you will be looking at piassava fiber.) The entire midribs of the mature leaves are used also as rafters for housing, for ladders, furniture and for various construction purposes and the leaves themselves provide the best thatch for the house roof. Split into strips, the midribs serve essentially the same purpose as the true bamboo does elsewhere; i.e., matting, lattice work, furniture, fish traps and many other everyday needs. From the fibers of the young midribs is woven a cordage of various sizes that may be used as we would string or rope, or woven into fish nets, rice bags, hamrocks, baskets, carpets, and even a crude

[1] Professor of Forest Pathology, University of Idaho on leave of absence as Plant Pathologist with the Office of Foreign Agricultural Relations, United States Department of Agriculture.

cloth. The terminal bud of the tree affords an occasional added delicacy to the diet in the form of "palm cabbage." To remove the bud for this purpose kills the tree, however, as does tapping the base of the terminal bud for palm wine which is used as a mild intoxicant and also as the source of a wild yeast.

The coca and chocolate of commerce is extracted from the seed of the cacao tree (*Theobroma cacao*). While not a native to Liberia, this tropical tree has been introduced with excellent success and thousands of acres of plantings are being added yearly. The cacao is a small tree, 25 to 30 feet high at maturity, and the fruit resembles a Danish squash very closely in both size and shape. These golden yellow fruits are borne on short stems directly on the trunk and larger branches of the tree. Inside each fruit are 35 to 45 cacao "beans" about an inch across, flattened, and brown or purplish in color. The manufacture of cocoa is a rather elaborate process, but even before the beans reach the manufacturing centers, they are given preliminary processing. After picking, the pods are broken open, the seed extracted and then fermented to remove the mucilaginous coating and stimulate certain enzymatic action. The beans are then dried before bagging for export. The fermenting and drying of cacao beans needs to be carefully controlled to gain the maximum salable volume from the harvested crop.

Throughout the tropics there are many species and varieties of coffee grown but only one (*Coffea Liberica*) is indigenous to Liberia. This coffee has a larger bean than most varieties and, when properly dried, roasted and ground produces a beverage of exceptional flavor. The coffee tree is also rather small, perhaps 15-20 feet high at maturity, and the berries are borne in profusion on the smaller branches. The fruits are the size of a small olive with two "beans" typically occurring in each berry. Like cacao, the best grades of coffee are also obtained only by carefully controlled fermentation and drying of the beans. Coffee of several different varieties is again being grown on an ever increasing scale in Liberia after a period of decline induced by a lowering of the market price.

In spite of the inroads made by its synthetic counterpart, natural rubber is a vital material in both our military and domestic economy. The tree (*Hevea Brasiliensis*) from which the bulk of the world's supply of latex (the source of rubber) is obtained is a native of tropical America but has been successfully introduced in many other parts of the tropical world. The first rubber trees were introduced into Liberia about 40 years ago and about 100,000 acres are now covered with orchard-like stands of this valuable tree. The rubber tree makes rapid growth, increasing about an inch in diameter per year for the first several years and tapping begins when the trees are 5 to 7 years of age. When properly done, tapping continues on an almost daily basis for an indefinite number of years.

In tapping, a strip of bark (not reaching the cambium) about 1/32 inch thick is removed and the outflowing latex is caught in a small cup. Each tapper is assigned a "task" of 250-300 trees and his day's work ends when each tree has been tapped, the previous day's flow of latex collected and carried to a central stations. What happens after that varies with the size of the operation. Smaller farmers merely coagulate the latex into cheesy blocks by adding formic acid and sell their product in this form to a larger processing plant. The larger operator goes further than this and processes the latex into crepe rubber sheets. The bulk of Liberian rubber is exported to the States in this form for final manufacture. Some products, such as foam rubber, must be manufactured directly from the liquid latex. In this case, the water content is considerably reduced, ammonia added to prevent coagulation, and the concentrate shipped in liquid form.

To clear the native "bush" preparatory to planting these various economic

(Continued on Page 78)

LEST WE FORGET

Since we, the class of '52, entered this institution four years ago, our number has greatly decreased. A few could not make the grade, others came to the realization that forestry wasn't for them, and some—because of the world crisis—were requested to take a recess from their studies to serve their country. To this latter group, and to the veterans of World War II, who are now back with us, the remainder of the class wish to extend our sincerest, heartfelt thanks for making it possible for us to complete our education on schedule. We also hope and pray that after this interruption, you who are now in the armed forces will return and start in again where you left off, so that, once again we may all be together, united in our profession.

A Forester

The Forester is an amateur woodsman with a college education. There are two classes of foresters. One class believes in keeping abreast of those broad dynamic movements of the present day that challenge the best efforts of the nation's thinkers. The other class fights fire, builds truck trails, plants trees, and wears old clothes.

Some foresters have offices, some live in cities, and some work in the woods. Lots of the foresters spend practically their entire lives in God's great out-of-doors. They love to hunt and fish. They would too if they only had time.

It used to be said that a forester's best friends were his horse and his axe. Today a forester has no need for a horse and he might cut himself with an axe. Years ago most every forester wore a big Stetson hat and carried a gun on his hip and a flask in his pocket. Nowadays big Stetson hats are worn only in movies, and you hardly ever see a forester carrying a gun.

An interesting thing about a forester's life is that he meets all kinds of people from hobos to multimillionaires. It is not uncommon for a forester to have the privilege of personally doing a millionaire tourist favors. However, there is no record of a millionaire ever doing a favor for a forester. But even if they don't make much money, it's nice, steady work, and they have lots of fun.

Another satisfactory thing about a forester's career is that he is his own master, absolutely independent and answerable to no one for his professional conduct. That is, except to his wife, ladies' garden clubs, sportsmen's associations, nature lovers, newspaper editors, and local politicians.

Forestry is a very pleasant profession because it is so easy to get ahead. Many foresters graduate from college with only a few debts and immediately get a job and a wife. In about ten years time, in addition to the same job and the same wife, they have more debts and five kids. That's why foresters are so happy.

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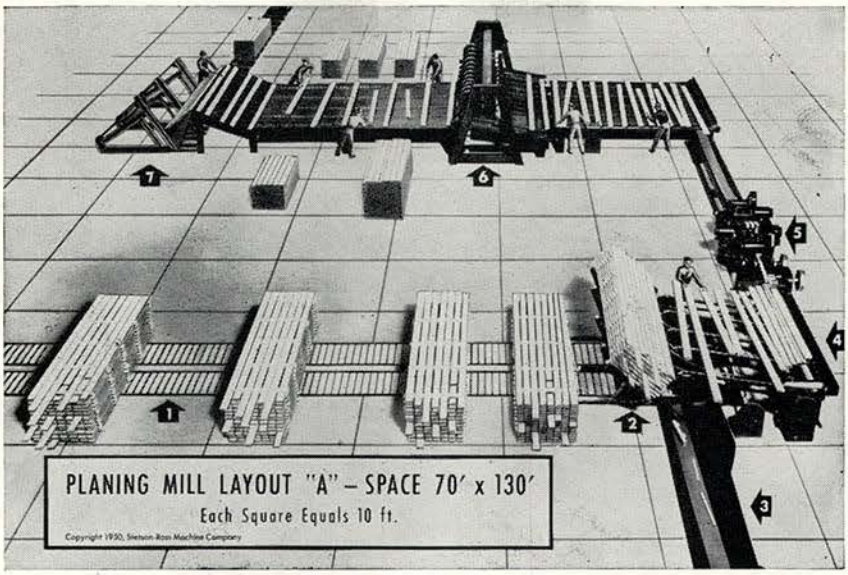

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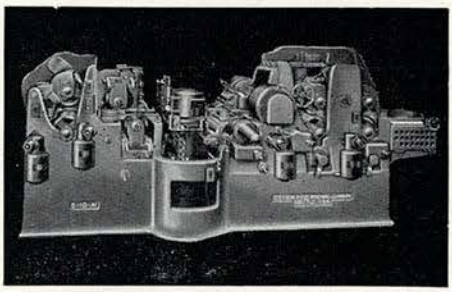

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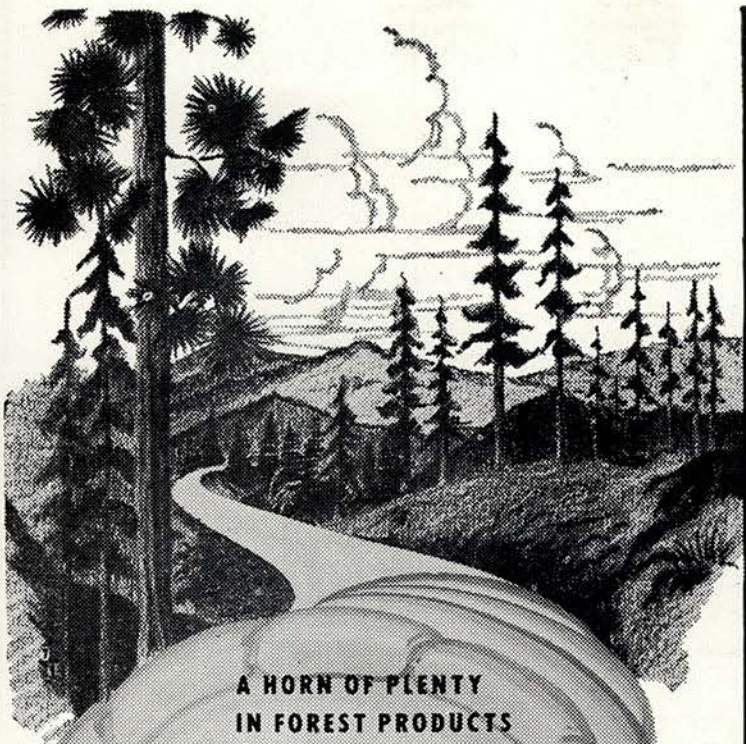

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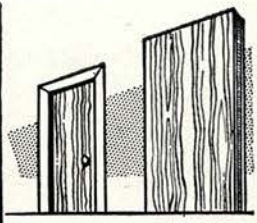

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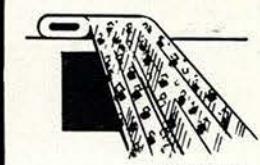

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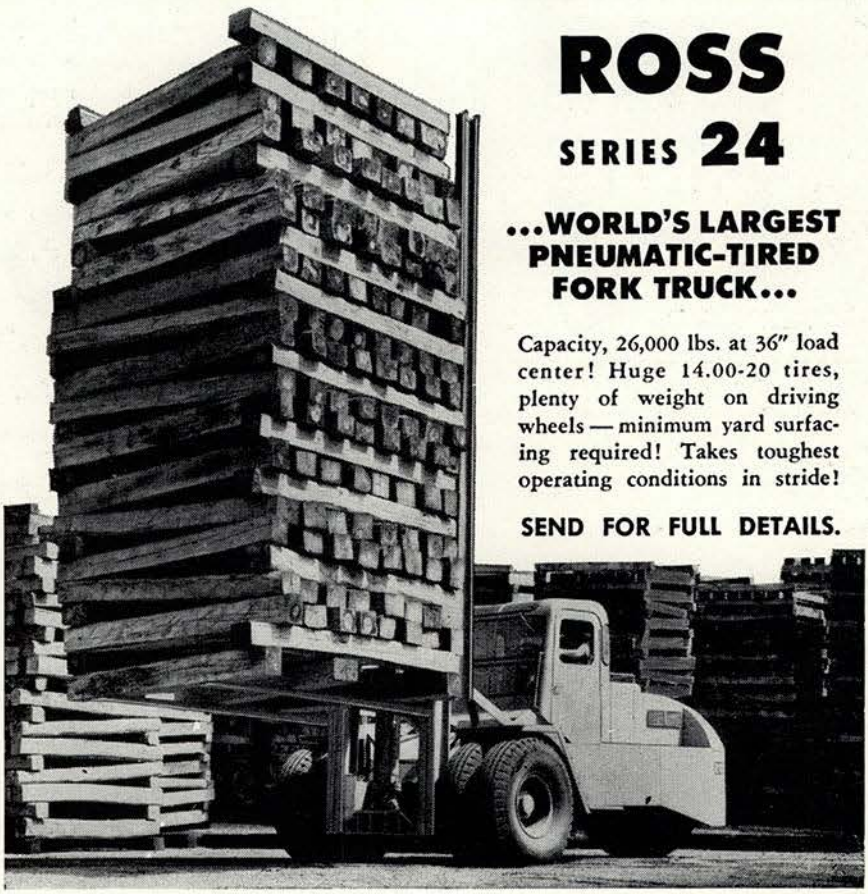

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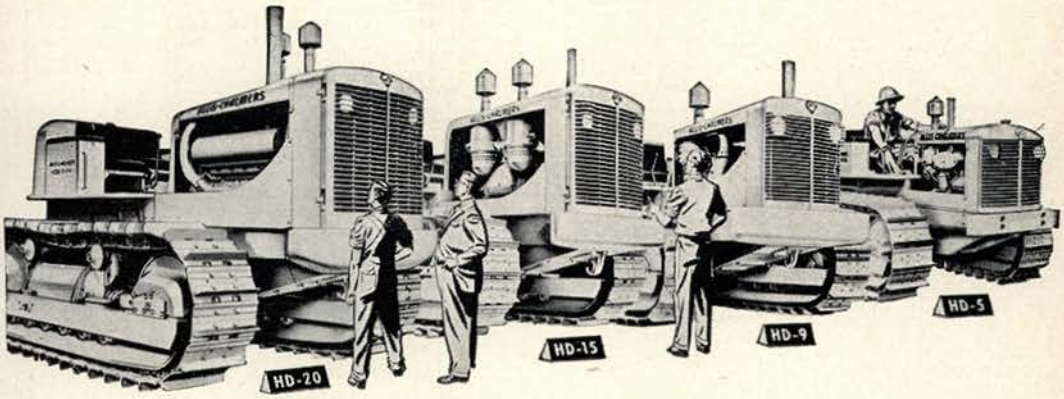

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Forestry or Horticulture?

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trees requires tremendous amounts of labor as does the later care of the trees and the harvesting and processing of their various crops. As labor becomes more and more scarce and hence demands higher wages, other means of bridging the gap between costs and income must be sought. Here is where the forester, with his training, experience and ingenuity comes into the picture. The opportunities for improved planting methods, better cultural practices, the selection and breeding of higher yielding strains, more efficient control of labor, improved harvesting, processing, grading and marketing methods are unlimited. No mention has been made of forestry in the usual sense but the value of the many tropical hardwoods is well known to all. As a separate enterprise, or merely as a side line to the clearing of bush for planting other tree crops, still another field of endeavor is open to the forester. If you like strange places, would like to avoid heating bills, and don't mind getting wet more than occasionally, you might give some thought to a career in this different kind of forestry.
