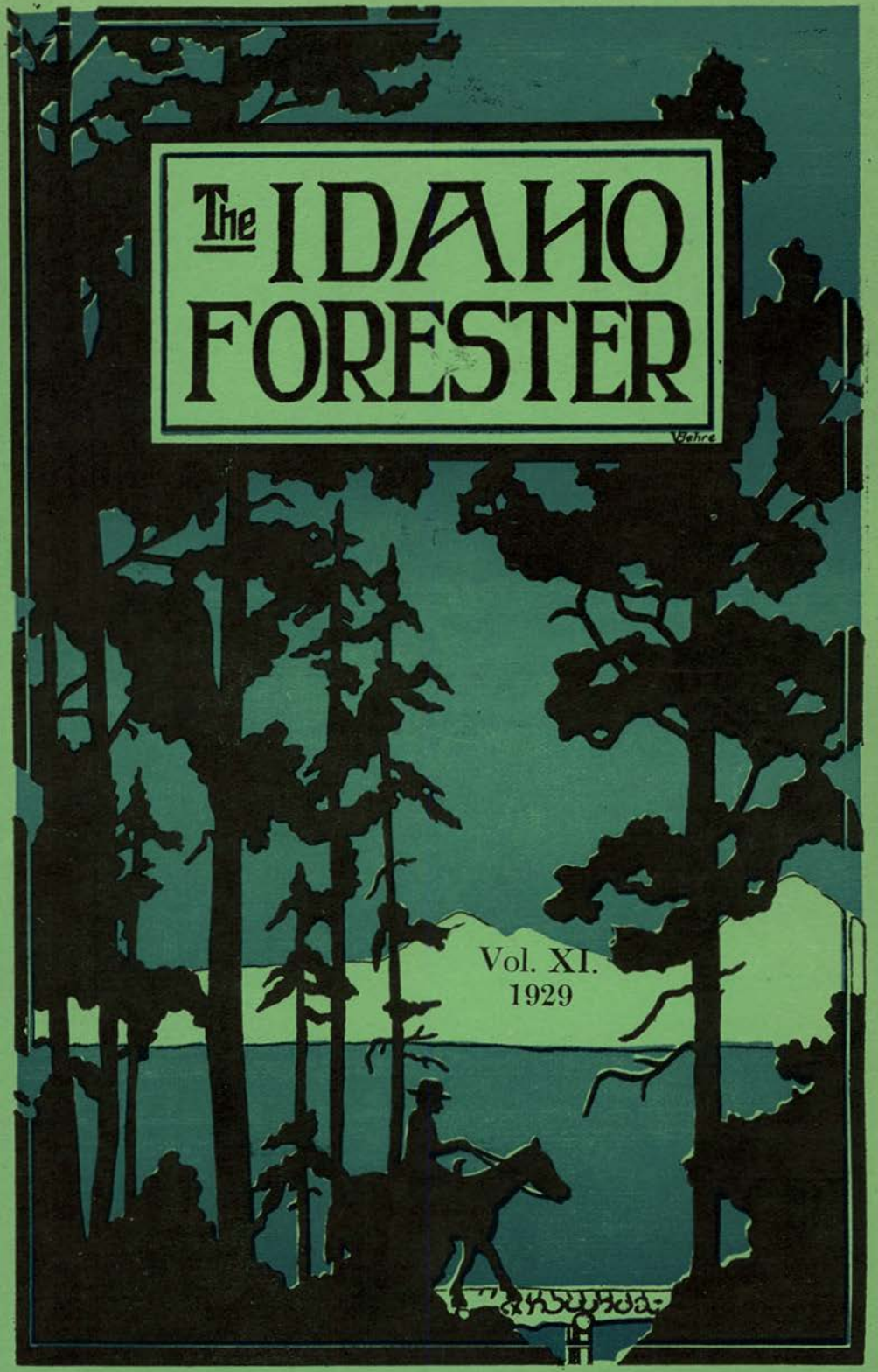
The IDAHO FORESTER



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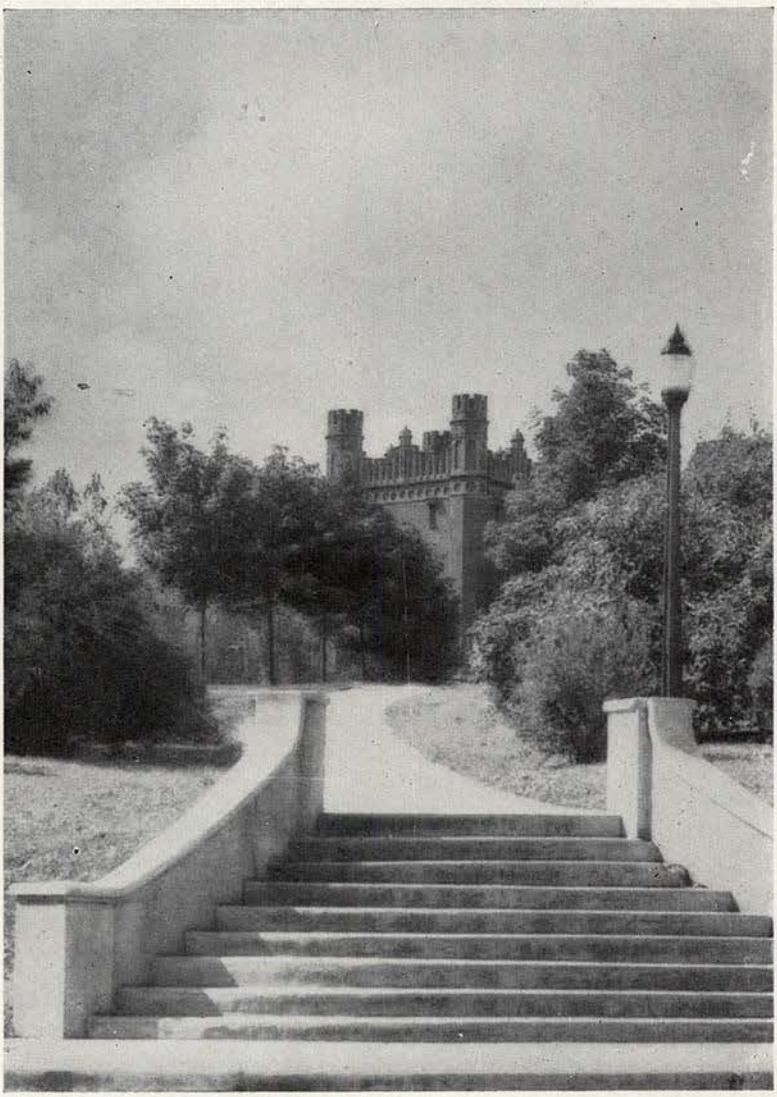
For the Twentieth Anniversary of the School of Forestry

Midst golden hills and silver peaks
A tiny seed was sown;
By faithful toil in fertile soil
A mighty tree was grown—

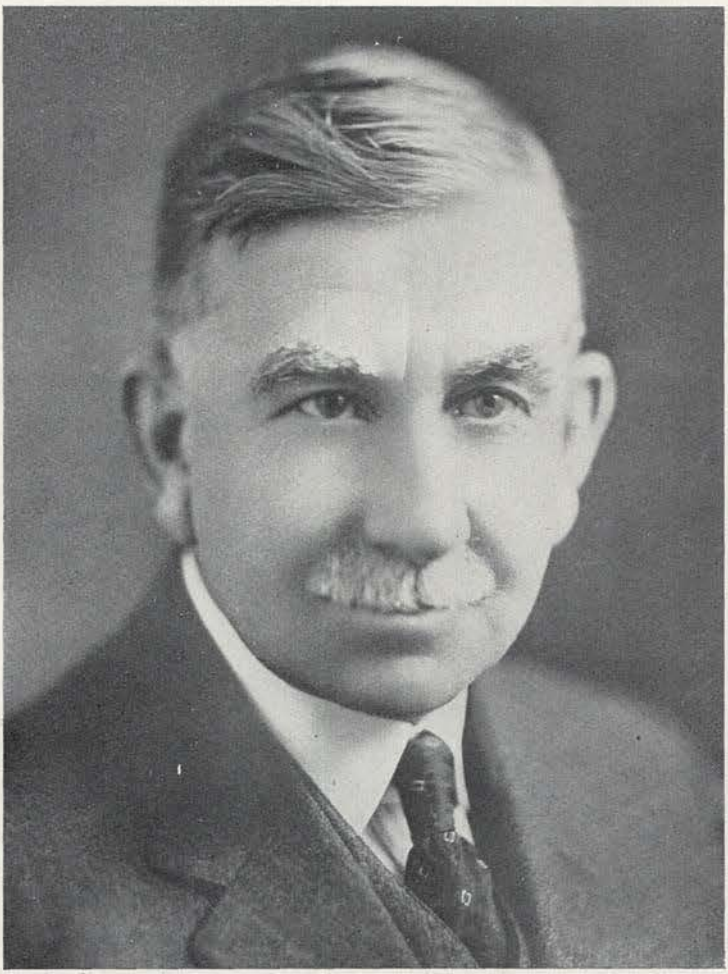
A noble tree that lived and gave
Its seeds of light to all,
Till barren sands in many lands
Grew timber straight and tall.

O, let the vision e'er be bright
For doers of good deeds,
For those who know that forests grow
From humble little seeds.

Stanley Foss Bartlett.



ENTRANCE TO THE UNIVERSITY CAMPUS



DEDICATION

To George M. Cornwall, friend, counselor, promotor of American forestry and eminent editor, we, the students of the Idaho School of Forestry, gratefully dedicate the 1929 edition of the Idaho Forester.

THE IDAHO FORESTER

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VOLUME XI ANNUAL EDITION

CONTENTS

THE FORESTER OF THE FUTURE

By GEORGE M. CORNWALL
Editor The Timberman

The editor of the Idaho Forester has very generously asked me to contribute an article for this publication. He has allowed me to choose my own subject, yet I find the task rather difficult. There are so many vital subjects which cou'd be very profitably discussed, that I am fairly bewildered as to where to make a start.

As I look back over my association with the lumber industry of North America covering nearly 50 years, I recall the first small lumbering operation I witnessed in Orange County, now renamed Lake County, Florida, in 1882. Here the darkies sang as their single-bitted axes bit into the yellow pine trees, rich in resin. I still recall the cadence of their co-ordinated and stimulated teamwork. The only thought held by the lumberman in Dixie was that the chief end of a lumberman's existence was to cut the virgin timber, market the lumber and, like the Arab of old, move his sawmill to a new setting. The apparently boundless limits of the timber area of the Lake States and the South, naturally inculcated this all-prevailing idea. The country apparently had a super-abundance of timber, and the land, in some cases, on which the timber grew, was more valuable for the production of food crops than timber—a good and sufficient reason for the apparent destructive tendencies of the lumberman. His school of economic thought taught him that ultimate profits were to be received from the decrease of the available supply of timber, rather than from its increased use.

The experience of New England, the Lake States and now the South, justified this presumption. But the basic reason for the earlier advances in stumpage values was first the high use value of the product and the proximity of the user to the forest and the absence of competitive building materials.

The writer will always feel indebted to the late Frederick Weyerhaeuser for his timely and always friendly counsel in discussing basic causes governing stumpage values, more especially in one conversation relating to the Inland Empire. On the back of a newspaper, he roughly sketched for me an outline of the boundaries of the United States and located the timbered areas, beginning with the New England coast and following on down to Florida. He then sketched the hardwood regions which now constitute the fertile states of Ohio and Indiana. He deftly located the Lake States of Michigan, Wisconsin and Minnesota, with the intervening prairie and grazing lands, extending from the eastern slope of the Rocky Mountains to the rich delta lands of the great Mississippi Valley, the greatest area of agricultural land in the world. He next led me across the Rocky Mountains to the headwaters of the Columbia River, which drains the great states of Montana, Idaho, Eastern Washington and Eastern Oregon, constituting the Inland Empire, rich in timber, agriculture and mining wealth.

The next geographic rampart encountered in this travelogue of timber distribution was the Cascade Range, west of which lies the Douglas fir region. Here Mr. Weyerhaeuser paused for a moment and turning to the writer said, "I do not think the Creator ever intended any of the common lumber of the Inland Empire to cross the Rocky Mountains. The upper grades can be transported at a profit, but we must find a market for the common grades on the western slope of the Rocky Mountains. Here is where Nature intended it should be used, for I never believed a fence post lasted any longer because you added 25 cents to its freight charge. We must bend our energies to developing the country lying west of the Rockies, putting water on the rich, thirsty soil, studying better dry farming methods, increasing our dairying possibilities and in every way stimulating and building up the agricultural wealth of this great territory."

I remember the extreme interest Mr. Weyerhaeuser evinced in the passage of a $50 000,000 bond bill being presented by Senator William E. Borah of Idaho, one of the foremost statesmen in America. This bill had for its purpose supplying funds for the completion of federal irrigation projects which were languishing for want of funds to insure their completion. He asked the writer to assist Senator Borah in securing the necessary support for his measure, so vital to the development of the Pacific Greater West. The late Speaker Joseph Cannon was opposed to the measure, but as all legislation is the result of compromise, his assent was finally secured, if I remember correctly, reducing the appropriation from $50,000,000 to $30,000,000. Then the next step was to get the necessary votes. A vigorous campaign was started among Southern lumbermen, pointing out the obvious need for developing the Pacific Greater West, so the fierce competi-

tive conditions which then obtained between Pacific Coast lumber and Southern pine might be tempered by building up a more considerable home market. The Southern lumbermen saw the force of Mr. Weyerhaeuser's logic and threw their influence for the Borah bill, which was finally enacted, and a number of major irrigation projects were hastened to completion.

The ambitious Columbia Basin irrigation project and the canalization of the Columbia River were also in his mind. These were visions of a statesman, as well as a master lumberman. Mr. Weyerhaeuser realized that "the proximity of the tree to the plowland," as he expressed it, was the basis of profitable lumbering.

Mr. Weyerhaeuser went so far as to declare that Nature had located the forested areas in the proper relation to food-producing lands and that when the balance was broken there were financial breakers ahead.

As we look back on the history of lumber in North America, what a challenge we see to our foresters to widen their perspective and study the economic laws which govern the production and distribution of timber products, keeping always before us that the use value of a product determines the transportation charge it may safely bear. The successful forester of the future must combine not only a technical knowledge of tree growth, but must also be able through a study of economics to determine with a fair degree of accuracy the possibilities for profitably marketing the product, whether it be in the form of pulp, plywood, treated or seasoned lumber. The opportunity for real service by the young forester to the lumber industry and the country as a whole was never greater than today. We are learning through the hard school of practical experience that we must blend the theoretical with the practical if the industry shall succeed.

The horizon of the lumberman is steadily widening. He has come to realize that the permanence of the industry depends upon growing successive crops of timber. He has therefore become interested in reforestation. The recent enactment of laws in Idaho and Oregon at this last session of their respective legislatures, which encourage reforestation through the imposition of a fixed annual land tax and a deferred yield tax, is a very forward step. California had already enacted similar tax reform. The Lake region and the Eastern and Southern States have also enacted tax laws to encourage reforestation by private owners. In this connection I quote the following, which recently came to my attention:

"A review issued by Franklin Reed, industrial forester of the National Lumber Manufacturers' Association, indicates reassuring progress was made during 1928 in commercial and industrial forestry. Reed finds that 260 timber land companies are interested in reforestation and that 165 of them are already conducting their operations under permanent industrial forest management.

"Reed points out that the nation-wide inquiry of the Society of American Foresters, now nearing completion, indicates a most gratifying advance over that reported by the Chamber of Commerce of the United States following its survey of commercial forestry in 1927.

"Shirley W. Allen, chairman of the committee on industrial forestry, of which Reed is a member, defining industrial forestry as 'the conscious effort to grow timber crops commercially,' thus eliminating much natural reforestation, summarizes the findings of the survey as follows:

Timber companies participating in industrial forestry 165
(Excluding California, figures for which are not yet available)

Second growth and virgin timber under permanent industrial forestry management, acres 8,550,000

Companies intensively studying adoption of industrial forestry 46

Number acres covered by foregoing study 2,309,238

Companies cutting conservatively and reserving trees below certain diameter.....29

Additional companies leaving seed trees.....12

Companies practicing selective logging.....7

Companies using special care to protect new growth 6

Companies making forestry thinnings.....26

Companies using foresters as foresters.....39

Companies using consulting foresters.....13

Companies making silvicultural research.....6

Companies planting commercially.....41

Companies fighting insects and diseases.....32

Companies adopting conservative turpentining 28

Companies carefully classifying their lands 10

Much credit should be accorded Mr. John Eddy of Everett, Washington, for endowing the Eddy Tree Breeding Institute at Placerville, California, which has for its object the increase of tree

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SOME REFLECTIONS REGARDING THE PROFESSION OF FORESTRY

By HENRY S. GRAVES
Dean, Yale School of Forestry

It is a happy reflection that today there exists in the United States a profession of forestry, vigorous, competent, and successful. For those of us who were on the ground in the early days the building up of the profession has been one of the most interesting of all phases of the history of forestry. We still are apt to speak of forestry as a new science and a new profession in America; yet the beginnings of the forestry movement date back over a half century and we have been training professional foresters for more than twenty-five years. Already we have a background of history, or experience, of tradition, that constitutes the foundation of our work.

I often think of the days when one could count the number of trained foresters in the country on the fingers of one hand. It was a handful of workers inspired by a vision of what forestry would mean to the country and by an unfailing faith in the principles that they were advocating. Today there is a body of several thousand well-trained men in the field; there are over twenty forest schools, a strong professional society, scientific forestry journals, and a technical literature of which we may well be proud. To the profession of forestry is due the credit for the accomplishments in forestry—the progress in developing and handling public forests, the advance in systematic fire protection, the research and educational work under way, the enlightened public sentiment, the initiation of a program of private forestry.

Distinctive Character of the Profession

We are fond of saying that our profession has a distinctive character. By this is not meant merely that the character of our work is distinctive and that the problems with which we are concerned differ materially from those of engineering, agriculture, or other professions. We refer rather to the characteristics of the profession as a whole. It would be a conceit to say that foresters are actuated by higher motives than members of other professions, for this would not be true. But there is certainly a solidarity about the forestry group that is distinctive. This results only in part from the fact that the numbers as yet are relatively small. The public character of the problems of forestry and the need of common action by various groups of foresters are the chief factors in unifying the profession and giving it a distinctive character.

Tradition is a powerful element in the spirit of an institution, of a profession, of a nation. One looks to history to explain the origin and development of the underlying motives that actuate groups of people, no matter how constituted. The profession of forestry was founded on a great principle, simple but no less powerful. The very obstacles met in forwarding that principle gave strength and solidarity to the body of men promoting it.

The early foresters were concerned first of all with a public undertaking. Effective forestry began with the activities of the Federal Government, in particular with the development of the public forests. The first need of trained men was for the Federal service. The profession was built up around the Forest Service. The early forest schools were occupied chiefly in training men for the Forest Service, and for a time the Government absorbed most of the graduates of the schools. As the state services developed and there was a demand for men in private work, the majority of new places were filled by those who had served with the Government. The spirit of the Forest Service was the spirit of the profession. It was Gifford Pinchot who gave the great impetus to the forestry movement, who brought about the establishment of the present system of National Forests, who set the high standard of devoted public service that has always characterized the Forest Service. The dominance of the public problems and the large proportion of men in public and quasi-public work have given a public service character to the entire profession.

Diversified Activities of the Profession

It is an indication of sound progress that the professional foresters are widely scattered throughout the country. It means that there are activities in different sections calling for men skilled in forestry. Every forester constitutes a pivotal point for the extension of interest in forestry practice. Every tract of land which is handled under forestry principles is an experimental or demonstration area that furnishes the basis for added knowledge of practical methods. The capitalizing of accumulated experience will be the means of forwarding the application of forestry.

Of special interest is the increasing diversification of the activities of the profession. Forestry touches a great number of interests. Our task does not begin and end with producing trees. We are responsible for making the forest of the highest service in every possible way. A system of forestry requires the administration of forest lands both for timber production and to provide the benefits that come from varied other uses of the properties. It requires the skillful exploitation of timber, well ordered manufacturing plants, and an organized system of distribution of forest products. All of this involves manifold activities touching many different industries and the general public interests. The profession of forestry is called upon to furnish skilled men to carry on practically every kind of undertaking relating to trees and forests, to land administration, to wood utilization, to transportation of forest products, and the subsidiary industries that depend on forests. Hence today we find foresters engaged in forest administration, in public undertakings promoting forestry, in teaching forestry, in research, in various branches of the lumber industry, in wood using industries; as experts in purchasing wood products for railroads, mining companies and other large users, in wood preserving plants; as city foresters and park superintendents, as tree surgeons, as landscape gardeners, as experts in wild life conservation, as topographic and highway engineers, etc.

At times some concern has been expressed because a considerable number of forestry graduates branch out into enterprises not directly concerned with forestry. Of course there is nothing abnormal about this. It happens in every profession. Some men find that they do not care for the forester's life; some are not successful; some have special opportunities outside of forestry which they cannot refuse. A score of reasons could be found for a change of life work. In point of fact, however, many of those who leave forestry take up work for which their training and experience have well equipped them. It is an easy transition from forestry to agriculture or stock raising or some form of engineering. I have yet to find the man who says that his forestry training and experience were a loss to him.

It takes a great many people working within a wide range of activities to carry on the work related to our forests and their products. The work is not by any means confined to technical foresters, though foresters by their training and experience may be well suited to take part in almost any enterprise that directly or indirectly concerns the forest. This may be illustrated by the large number of persons in the Forest Service who are not foresters by training. Thus engineers are employed for work in connection with with construction of highways, for surveys, examination of mining claims, for studies of water power development, and for directing the construction and maintenance of the telephone system; mechanical engineers, chemists, physicists, botanists, and soil experts are used in research; and there are many men with little or no technical training who take part in the work of forest protection and administration. Many of these men become extremely proficient in their work and are performing a very important part in the handling of the Federal forestry undertaking. Some of them acquire by their experience and study a knowledge of forestry that enables them to qualify as technical foresters.

Dependence of the Progress of Forestry on Scientific Knowledge

It is a fundamental truth that the progress of forestry and the character of its practice depend on the technical profession. In inaugurating forestry in this country it has been necessary to use many men who were not technically trained. Necessarily a good deal of the first work was of an administrative and protective character. The young men entering the profession from 1898 and the following years performed valiant service in this first work of organizing the National Forests. They had little time to devote to the details of silviculture and other aspects of a forest under a sustained yield management. It was a question of adjusting the boundaries of the forests, of outlining the units of administration, of setting up an efficient form of organization, of providing for fire protection, of adjusting claims previously initiated under the general land laws, of bringing the grazing under public control, of settling the disturbing question of argicultural settlement, of building trails, telephone lines, ranger headquarters, and of providing for a multitude of other practical questions in connection with the handling of the public properties. The necessity to build a competent personnel was one of the most urgent and also the most difficult, for there were not many trained foresters in the country. The very character of the problem of the public forests attracted men of high calibre, and around the technical nucleus there was built a service composed of able men who were actuated by the single high purpose of making the public properties of largest possible service to the country. If a technical man could not be found for an exacting post, a compe-

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OPPORTUNITIES FOR COLLEGE MEN IN THE LUMBER BUSINESS

By HUNTINGTON TAYLOR
Member Idaho Board of Education

(This very excellent article was written in response to a request from a student at Yale university for advice upon choosing a vocation. It has real interest for each one of us who would truly succeed.—Editor.)

You have asked me to write on "Opportunities in the Lumber Business for a College Man." What I have to say will be of interest chiefly to the fellow who has no definite work in sight and no clear idea of what he wants to do excepting the wish to take his part in the business world, and in doing this to select a business sufficiently broad in scope to permit of real accomplishment in proportion as his ability and conditions make it possible. We'll assume that the college man expects to go a good way in the business, if he goes at all.

There are certain underlying principles which apply to all business, and we may take it as an axiom that there are always "opportunities" in any large and basic industry such as the lumber industry. We're speaking now of the manufacturing and marketing of lumber as opposed to the wholesale or retail lumber business.

What Is the Lumber Business?

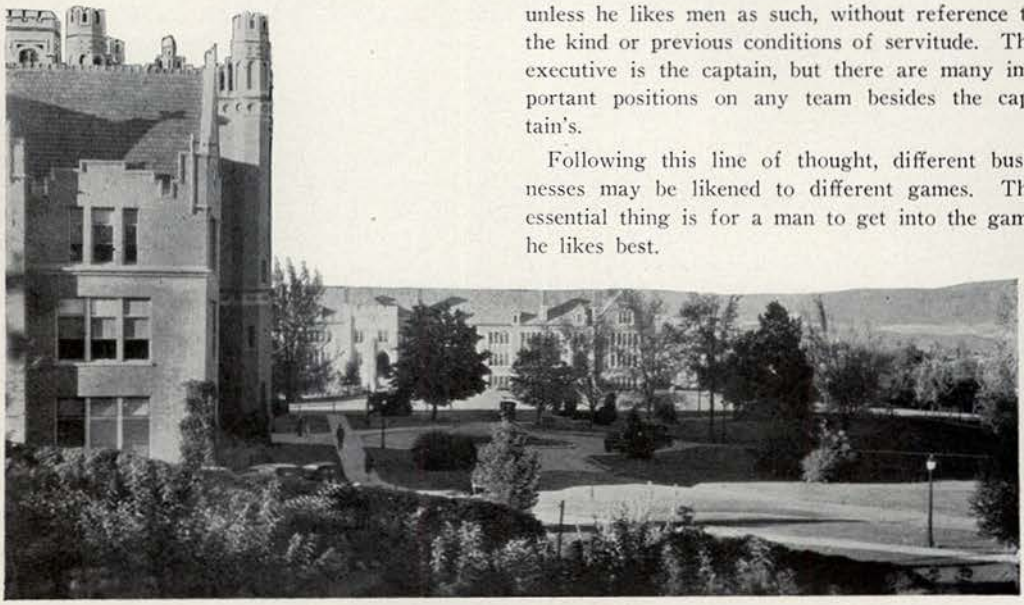
It may be cruising or estimating of timber, buying timber, logging, engineering (both logging and railroad), railroading (both construction and operating), dam building and river driving, manufacturing or sawing logs into lumber, grading and drying the lumber into shipping condition, shipping, selling, accounting, purchasing supplies for all the above, and so forth. And as labor is a large percentage of lumber costs, it means in the operating end all that goes with the handling of men and the so-called labor problem.

In some operations, all the above activities will come under one executive or manager. In others only part of them are necessary to get the timber to the sawmill, which being interpreted means that to be a good lumberman a man should be an expert in several lines, any one of which it would take a lifetime to learn, which in turn would indicate that the opportunities for the man who has the capacity should be ample. A good lumberman in this paragraph means a good executive.

A man may be an A No. 1 machinist and make a poor foreman. He may be an excellent salesman, but not a good sales manager. He may be a splendid technical or scientific research man in some line, and still have little or no executive ability.

To be a good executive, he must be able to handle men and he cannot do this successfully unless he likes men as such, without reference to the kind or previous conditions of servitude. The executive is the captain, but there are many important positions on any team besides the captain's.

Following this line of thought, different businesses may be likened to different games. The essential thing is for a man to get into the game he likes best.



LOOKING ACROSS THE UNIVERSITY CAMPUS

Because he may be a poor football player does not necessarily indicate that he will not be a valuable addition to the editorial staff of the "lit" or a good tennis player, but in general we may take it for granted that he will go farther in the game or work he likes than in any other for the obvious reason that his work is pleasure—not drudgery.

Some Looking for Romance

I have seen many college men start into the lumber business and tire of it. I have seen others make good. Some have gone into it because of the romance attached and have found that it took too long to get a "white collar job" which was what they really wanted. Some have been round pegs in square holes, and have made good when they got into the line of work they were adapted for.

Outside of the accounting department, whether it be learning grades of lumber or handling logs, the start must be as common labor. And conditions often make it necessary for a man to spend a longer time at that kind of work than he thinks ought to be necessary. It is apt to take him into camps, towns or small cities where he gets a chance to see the bright lights of the large city, but seldom. He should be sure that he will enjoy the "small town" life as opposed to the big city if he wants to go into the operating end of the game.

If he wants to go into the selling end, he has the same opportunities on the road, and later perhaps as sales manager, either at a mill or in one of the large centers, as any other business. But even then he must spend at first a considerable time working at the mill before he is sufficiently grounded in his knowledge of lumber to get a road job. Comparatively few men whose lives have been spent in and around large cities really enjoy this kind of work.

At this point, I cannot refrain from touching on one of the places where many college fellows fall down. I imagine this will apply to any industrial plant. He is accustomed to studying a subject from a text book. When he comes to learn lumber, he takes the grading rules and studies them as he would any subject he wishes to master. And in this his education will help him to learn more rapidly than the fellow he is working next to who has had less mental training and who learns by absorption rather than by application. But in doing this he is apt to think as important only the things he can study in this way and lose the broader vision of being and wanting to be a part of a large industry and an organization which has very definite aims. Thus, unconsciously, he assumes the attitude of one on the sidelines watching the game, that is, a spectator.

A good business organization cannot be built up out of spectators any more than a good baseball or football team can. The man who goes into it must, to be successful with the organization, throw himself into it and be a part of it. He must be willing to take whatever kind of work comes his way with the realization that any work which has to be done is necessary and that it is up to him to do anything he can to help out.

Automatic Promotion

Too many fellows, when they start in, are looking for a definite cut and dried proposition worked out by charts, whereby they progress definitely from one position to another automatically until they reach the top. There is no such thing in any large industry. The man himself does not know how far his ability may carry him in one department or another until he gets into the work.

Again, to the college man who is alert, the monotony of doing the same kind of thing over again sometimes makes him discouraged, forgetting that a certain amount of this is necessary to the man who would become a veteran. This may be illustrated by the difference between the veteran woodsman and the novice. The old-timer has a long distance to walk through the woods and, taking the walk as one of the necessary incidentals, goes ahead and walks without thinking about it. The novice wonders in a short time how far he has gone, then wonders how far he has to go, and before he is half way, has worn himself out with worry.

One other thought for the college man who starts at common labor, whether in lumber or any other industry. If he asserts the fact first that he has had a college education, or even unconsciously parades said fact, he is going to have a hard row to hoe both with the men and the foreman.

On the other hand, if he keeps that fact quiet and makes good by proving that he is as good or better than the fellow or men he is working with, and they find out he has had a college education (and they will), they will be all the more for him.

I have written too much and said too little. I was almost tempted to say something about where the value of a college education comes in such a business as lumber, but that is another question.

Two Classes Keep the Balance

The ideal organization, to my mind, is one built up in part of the college men who have gone into the game and made good, and in part of the men whose schooling has been in the school of expe-

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TWENTY YEARS OF FORESTRY AT THE UNIVERSITY OF IDAHO

By F. G. MILLER
Dean, School of Forestry

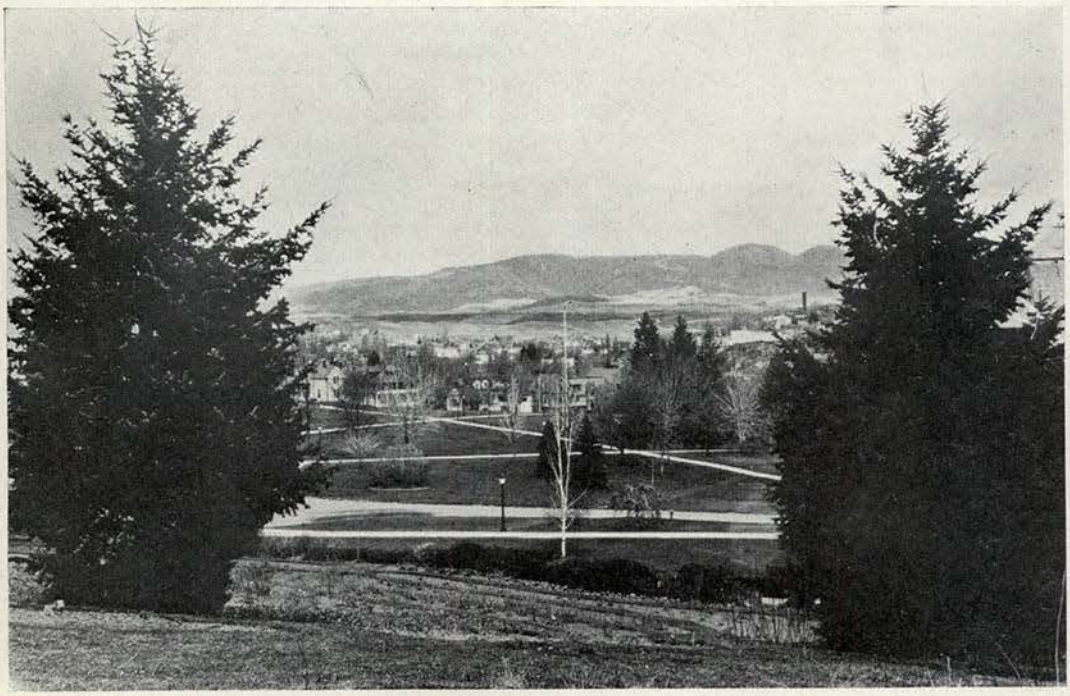
The School of Forestry, (then the Department of Forestry) was established in 1909, and it is, therefore, just closing its twentieth year. It may be of interest, therefore, to record briefly some of the developments which are more or less pivotal in the history of the School during this period.

Toward the close of the academic year of 1908-1909, the Board of Regents announced the creation of the new department and stated that it would be ready to receive students in the fall of 1909. Dr. Charles H. Shattuck, then professor of botany and forestry at Clemson College, was called as professor of forestry to head the new department. In the Idaho Forester for 1922, he writes most interestingly of the early struggles of the Idaho School of Forestry and gives a vivid picture of its history during the eight years that he was in charge. Due to his energy, ability and vision the School was carried safely through the uncertainties incident to the development of a new work and there was laid the foundation upon which has been built the School of the present. In this time the School had won the favorable recognition of the great lumber industry, which it was founded to represent, and its work had become favorably known throughout the state. The forest faculty had increased to a staff of four members, and the enrollment had been built up from a nucleus of eleven students the first year to a student body of forty, including eleven short course men.

Organization of the School of Forestry

Dr. Shattuck resigned in 1917, and the writer was called to succeed him. At that time, on the recommendation of the Commissioner of Education and the President of the University, the Department of Forestry was organized as an independent division to be known as the School of Forestry, thus placing it on a par with the other independent divisions of the University. On account of this reorganization and because of the profound effect the World War had on the School, the year 1917 may be said to mark the beginning of the second period of its history.

In order to help out in the labor shortage sit-



LOOKING ACROSS THE UNIVERSITY CAMPUS TO THE SCHOOL FOREST, 7 MILES DISTANT

OUR GENIAL FOREST NURSERYMAN,
C. L. PRICE

uation existing at the time, the opening of the University in the fall of 1917 was delayed until October. Naturally much concern was felt as to the effect the war might have on the enrollment. On October 5, the registrar's office gave the registration to the press as follows: College of Letters and Science, 222; College of Agriculture, 84; College of Engineering, 44; College of Law, 18; School of Mines, 9; and School of Forestry, 9; total, 386. A little later another long course forester entered, thus increasing the registration in forestry to 10. These 10 students together with six rangers who came in for the winter constituted the enrollment in forestry in the year of 1917-1918. The year following, the School shared in the sharp increased enrollment in the University due to the presence of army recruits on the campus, and the long course enrollment in forestry for the year reached a total of 40, although only two rangers applied for admission. The war over, the School has enjoyed a steady increase in attendance from year to year until now the yearly registration has become quite stable at approximately 100 in the four and five year curricula, about the average attendance of the forest schools of the country.

An outstanding feature of the enrollment from year to year is its cosmopolitan character. Students not only apply for admission from all parts of the United States, but each year several are present from foreign countries. For example, the current year, which is typical, nineteen different states and four foreign countries are represented in the enrollment.

School Quarters

The School has always been housed in Morrill Hall. Its quarters, at first consisting of one office and one combined class and laboratory room, have now been expanded to include sixteen rooms on the third and fourth floors. These comprise five laboratories, three class-rooms, library, instrument room, and several offices. The laboratories are devoted to work in forest products, forest pathology, wood technology, dendrology, silviculture, range management, mensuration and logging engineering.

Field Laboratories

The School has excellent facilities for field work, situated as it is near large areas of national, state and private forests, also important logging and milling operations. It uses two nearby sections of University timber land as field laboratories—one a section that has been cut-over, and the other still in virgin timber. The Forest Service makes available for the use of the School the Priest River Forest Experiment Station, and the School is within striking distance of large privately owned forests now under management.

Forest Nursery and Arboretum

The plan of growing and distributing forest trees at cost originated with Dr. Shattuck, and was put into operation in the spring of 1910. From the beginning Mr. C. L. Price has been in charge as forest nurseryman, and the success of the

IN THE UNIVERSITY FOREST

undertaking is due in a very large measure to his industry, skill and devotion to an ideal, that of public service.

The same year the nursery was started and as a background to it, the arboretum was established, and it now forms a most attractive forest border to the University campus. Here about 150 tree species are being tested to determine their adaptability for planting under Idaho conditions. This arboretum is winning fame, its success being known much beyond the state lines.

The forest nursery, at first comprising but a few acres, has now been extended to cover an additional twenty-seven acre tract adjoining the campus on the east. This extension, under lease for several years, has now been purchased by the University, thus giving the School some forty acres for its permanent use as a combined forest nursery and arboretum. This will make it possible to give the state adequate service for years to come in the way of supplying planting stock for ornamental purposes and for the establishment of windbreaks, shelterbelts and woodlots. Except in the distribution of ornamental stock, the School co-operates in this work with the Forest Service under the terms of the Clark-McNary Act.

Public Relations

The School during the entire 20 years of its existence has engaged in activities of a general educational nature calculated to inform the people as to the importance of the forests and the part they play in the economic life of the state, as it is realized that the forestry movement cannot advance unless the people are unitedly behind it.

In these campaigns, the School of Forestry has had the hearty co-operation of the various civic and business organizations of the state, but more particularly of the public schools, the lumbermen and the Forest Service. Unquestionably this public service work has played an important role in bringing about the forest policies which the state is now accepting.

A VIEW OF THE FOREST NURSERY AND ARBORETUM

An important service is rendered through correspondence growing out of inquiries relating to forestry matters, through timely notes and articles supplied the press of the state, and by public addresses. An informational service is offered covering wood and its uses. This service is available to those engaged in the logging and milling business and in the various wood using industries of the state as well as to any others interested in

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THE PART OF RESEARCH IN FORESTRY EDUCATION

By ERNEST E. HUBERT
Professor of Forestry

In the dawn of life man brought nothing of research value into the world and for ages little was added to this nothing. Equipment and methods enabling him to exist were evolved slowly and perhaps somewhat accidentally. Trial and error rather than experiment, as we know it, was probably the only method then used. Stone axes, arrows, stone chisels and clubs, wooden clubs, sling shots, skins of beasts for clothing and for shelter, the rubbing of sticks for a fire, these were the total results of ages of slow evolution.

There is tremendous progress to be recorded in tracing research from its early glimmerings in the far off stone age to its present, and to us, almost unbelievably extensive and indispensable practice and application. The forest now as in the days of the stone hammer plays an important part in the economic and spiritual part of a people. Then as now the forests were an indispensable resource furnishing the human race with many products, providing food and shelter and influencing moisture conservation for man-raised crops.

Two small pieces of wood furnished early man with frictional fire; a piece of curved wood formed the first plow; wooden timbers formed the first bridges and the first ships; and wood became the shelter material of the race. As progress continued through the development of new facts and new uses, we find in our own country, transportation developing, first upon the sturdy wooden wheels of the Conestoga wagon headed westward and following in its wake mile upon mile of shiny rails on a firm bed of wooden ties.

Forestry as a profession has in its care not only the mere economic and cultural use of the tree and its products but it has in addition a much greater trust, the obligation to keep pace with modern development and to foster the acquisition of knowledge and new facts through the channels of forest research.

Since the spirit of research may be symbolized by the question mark it is not out of place to ask —What is research? In education we must often build our concepts through definitions and research may be defined as an organized effort by the experimental controlled method to acquire knowledge or generic facts, principles or methods regarding natural phenomena. Again you may ask—Well, and what has research to do with an ordinary four year course in forestry? Let us show an investigative streak and inquire into the facts.

Forestry education may have two distinct objectives depending upon the point of view of those engaged in teaching forestry students the fundamentals of their profession. Forestry as a profession may, on the one hand, be visualized as merely a technical training fitting a man for the everyday routine practice of the growing and harvesting of trees and the utilization of wood products. This, the vocational type of forestry, due to its very nature may limit a man to the purely mechanical or employment outlook and may allow for little or no expansion of knowledge of cultural development or of an inclination toward investigative work. On the other hand, the forester's life work may be presented to him as a true profession with high ideals, an exactitude of method and procedure, provision for the broadening influences of cultural studies and with a distinct place in it for scientific research.

The progress of a profession is usually measured by its accomplishments, that is, by its service to mankind. Much of this service is judged by the amount and kind of generic facts, principles, or methods which are evolved through painstaking effort. Ultimately the rating of a profession is based upon its scientific works.

To those who would have us believe that all wealth is created by labor and that therefore a purely vocational point of view fits better the present day commercial spirit, Dr. Arthur D. Little replies:[2] "Wealth is the product of brains, and labor is productive only as it is guided by intelligence." Effort may be expressed in many forms and may have many uses but not all effort is properly directed toward maximum usefulness. Research is a necessary part of every industry or profession and to forestry it represents the blazed trail which leads to new professional heights.

As a source, then, of raw material to be used in the upbuilding of a professional spirit in forestry, forest research has a distinct part and as such is an essential and fundamental element in forest school curricula. The young men who leave our institutions of learning as prepared foresters gain new confidence, acquire a broader

and more encouraging viewpoint and are better fitted for their task if they have been given an insight into the part research plays in the development of forestry.

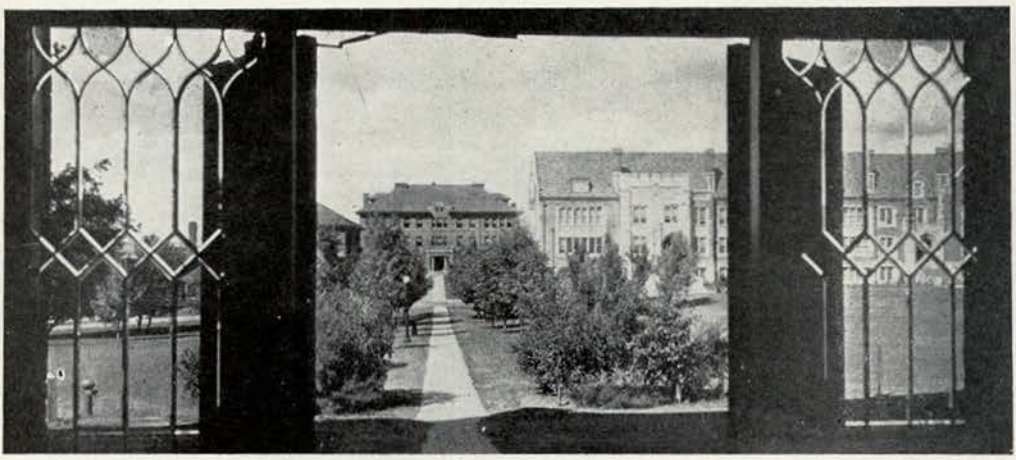
The attitude of seeking and sifting facts should be encouraged in our forestry students for, after all, the aim of education is to teach men and women how to think for themselves. The organized knowledge which we call science is advanced by men who, as Dr. Little expresses it, "have the simplicity to wonder, the power to generalize and the capacity to apply." If, through research work, we can instill in every forestry graduate the habit of wondering, the inclination to question and the ability to apply the facts which they have gathered, then we have fulfilled one of our principal duties as educators.

Aside from the stimulus to the student's creative ability and the more hopeful outlook he assumes as a result of contact with research work through his four or more years of instruction there remains his preparedness for forest research work when he enters the professional field as a worker. The practice of giving each student an opportunity to do research work is beneficial in two ways; first, it gives him an insight into the subject of forest research and teaches him research methods and, second, it is a means whereby special ability to handle investigative work is developed in the individual.

The rapidly increasing demand for new facts in forestry is forcefully brought to our attention by the remarkable expansion of investigative work in the United States Forest Service during the past few years and particularly within the past year. New experiment stations are being created and manned, expansion in forest products investigations has been steady, and the call for men trained in research methods has been voiced. Specialists are needed, and the specifications for eligibility to Civil Service examinations reflect the new tendency.

In the lumber industry, as well, we find a new trend; and, as in the case of many other large industries we find that research is being called upon to do its share in the development of the manufacture, sale and use of wood products. Chemistry, with a forestry background, is more and more finding its place in the solution of our utilization problems and plays no small part, for example, in the widely divergent studies dealing with the manufacture of rayon and the decay resistance of wood. The fact that most of the fundamental sciences are correlated in the solution of many of our forestry problems does not imply that foresters should leave all such fundamental research to the botanist, the physicist, and the chemist. On the contrary it should stimulate him into preparation for the successful handling of a research project involving these fundamental subjects. The forester must learn, through proper scholastic training, to solve his own problems and the door is held open widely for him by forest research.

(1) Hubert, E. E. Raising Our Standards. Jour. For. 25:571-573. May, 1927.
(2) Little, A. D. The Fifth Estate. Chem. Foundation Pamphlet 16 pp. reprinted from the Atlantic Monthly. Jour. Franklin Institute 198: 1924.



MORRILL HALL IN THE BACKGROUND, THE HOME OF THE SCHOOL OF FORESTRY

FORESTRY

By STANLEY FOSS BARTLETT

Ex-For. '26

To me, a layman, it seems that there is no nobler service than that which purposes to prevent wanton waste and undue destruction of forests. Such work planned practicably bids to give forests a fair chance to propagate naturally in this age of civilization. It is written that a few mortals shall protect the many from themselves: to such a service is the life of a forester dedicated.

The Maker was so thoughtful and generous; so great with no pretense of greatness in His creations, that man in gladness, greed or heedlessness seldom gives thought to His countless gifts. Man in his ultra-luxurious abode equipped and furnished with modern conveniences is prone to forget the source of his necessities and comfort.

Let us, in our easy chair by the heat radiator, snap off our electric light and regard some thoughts. If the bubbling moss-lined spring on the mountain side should cease to give forth its crystal purity, or if the summer rain and winter snow should fall upon barren and parched land instead of into the boundless reservoir of shady forest water-shed, our man-made reservoirs would be dry, our miles of water-system, numberless nickel-plated faucets, tiled and tinted porcelain bathrooms, and marble fountain nymphs would be useless—and we would be in dire distress without the simple liquid, pure water.

Let us remember that if the snarling red devil, fire, should creep up from a careless spark or dart from a flash of lightning and run roaring and unhindered through the living green forests of the land, the source of wood might be dangerously and permanently limited. Building, transportation, industry, and home-making would be crippled in such event. Also the possible destruction of the timberland which supplies the raw material for paper-making is worth serious consideration.

Imagine a world without water, wood or paper for any length of time. Such a plight is improbable, but a shortage of any one of these would be possible if no measures of conservation were practiced. Think of a world without paper—that everyday silent servant and messenger of knowledge. Incidentally forest devastation would mean the extinction of wild life, an unpleasant thought; while the aesthetic value of woodlands, especially in this day of gypsying, is inestimable.

We should not remain heedless of that unselfish, unsung servant of the people and monarch of the solitudes—the forester. The while businesses buzz, trains move, ships sail, cities roar and clank, mortals rush and toil and play, he, the guardian of the nation's greatest national resource, goes faithfully about his task. He may be climbing a rough mountain trail in a cold rain, riding over a sun-baked plain, or keeping faithful vigil in a lonely look-out tower above the clouds far from the last city's horizon, while steely lightning splits the black night and thunder shakes the mountains. Or perhaps he is battling a rampant blaze for the preservation of his own life and the lives of others, and for the preservation of the forests given to his care. He knows that these forests if protected and utilized systematically will furnish products for generations to come and still remain an endless supply. Much of his time is spent in performing less spectacular duties, such as surveying and mapping, planting, doing executive or research work. And only the forester can reckon the recompense of his calling.

Man has always been dependent upon the forests which have sheltered and fed him since he dropped from their branches and learned to fashion weapons of wood, to kindle a fire with two sticks, to erect dwellings of poles, logs, and later of sawn lumber. The woods gave him his dug-out canoe, boats, and ships to sail the seven seas, vehicles to span continents, and wing-ribs to cruise the heavens. Forests have been the friend of life since life began; they have been the foundation of settlement and the servant of progress; they are our most valuable gift from the Creator, or our greatest natural resource, if you will. They furnish us with thousands of feet of timber to supply our daily needs and still sweep from dripping cedar swamps to wind-torn timberlines. There is no nobler engagement than the study of them, their utilization and preservation—forestry.

CURRICULA OF THE SCHOOL OF FORESTRY

By T. G. TAYLOR
Assistant Professor of Forestry

A general survey of curricula development is always interesting, showing as it does the trend of the times and the influence of various people who have been the moving forces in changing and improving courses to the betterment of existing conditions. It seems fitting at this time to glance back over the twenty-year period since the establishment of a forestry department in the University of Idaho and to record in brief some of the various changes in curricula that have taken place within this school.

In the University catalogue for 1908-1909 appeared the first notice of the School of Forestry to be and here we find that in the first semester of the school year of 1909-1910 a collegiate course in forestry was to be offered and in addition a short course for forest rangers and other interested men who were unable to pursue a full college course. The department, headed by Dr. Charles H. Shattuck, was opened in the fall of 1909. It was at that time under the College of Agriculture.

Eighteen courses in forestry totalling fifty-four credits were listed for the sophomore, junior and senior years, the freshman year being common to the College of Agriculture. The total number of credits required for graduation was listed at 160, but the laboratory periods of those days were two hours in length instead of three as now. That this new course was rigidly prescribed may be seen by the fact that only two credits of electives were available to the students, who were required to carry never less than nineteen and more often twenty-one credits.

Our present forest seminar had its inception at that time, since we find one-half a credit allotted to this course each semester of the senior year. The thesis work was listed as four credits and was intended to encompass a working plan for some assigned timber tract. Special note was made of instruction in forest craft, a factor which is all too little considered in the present curricula of forestry schools. In this connection, we find that thruout the entire course the students were to be taught the ways of the woods, such as taking natural trail observations, observing game signs, packing, cooking, making and breaking camp, care of horses and camp equipment and simple remedies for colds and other ailments.

From Professor Shattuck's article in the 1927 Idaho Forester it may be seen that the field work was much more strenuous in those days than now, for then the students started to Moscow Mountain on foot at 6:00 A. M. and spent the day cruising in one to two feet of snow, returning to Moscow at dusk after travelling in all about twenty miles.

In 1912 the department broke away from the standardized freshman course prescribed for the College of Agriculture and listed its full requirements thru the four-year curricula, altho as yet we find no forestry subjects given in the freshman year.

Upon the transference of the Department of Forestry to the College of Letters and Science in 1913 comes the division of the forestry course into two curricula which are known as the general forestry curriculum and the lumberman's forestry curriculum. At this time also the factor of grazing makes its appearance with the inclusion in the general course of two credits in this subject. For the benefit of the lumberman's forestry curriculum, courses in mill machinery and logging engineering were added. Three forestry electives, namely, wood chemics, advanced timber physics and advanced forest management make their appearance at this time.

Altho we find in the original announcement of the forestry course that there would be a short course for rangers and other interested parties, it was not until 1915 that a course of this character was listed in the catalogue. In this later announcement, the ranger's course was noted as a three-year course to cover a period of five months each year from November 1 to April 1. The reason for this expansion was undoubtedly the increase in the teaching force, which now totalled three men. The year 1915 marked the introduction of forestry courses in the freshman year. At this time also we find a rapid increase in the grazing work in the development of two three-credit courses in this subject. It is often difficult to tell the exact status of development, since the number of credits as shown by the course description does not always agree with the number listed elsewhere.

The third curriculum of the Department of Forestry developed in 1916 and was known as the grazing curriculum. Its purpose was to prepare

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WHAT IS FORESTRY?

By FERDINAND W. HAASIS
Associate Professor of Forestry

What Forestry Is Not

Perhaps one of the best ways to arrive at a concept of what forestry is, is to consider some of the things that forestry is not.

In the first place, forestry is not protection from lumbering. There are, it is true, times when a forest should be allowed to grow without disturbance by the ax or saw, and in a few cases forests should be kept intact indefinitely. But, in general, the object of forestry is to raise tree crops for eventual cutting just as a wheat grower raises grain crops for their ultimate harvest.

To the minds of many persons, forestry means the planting of trees for the purpose of restocking land from which the original timber stand has been removed or for the purpose of afforesting areas not previously covered with trees. While such work is included in forestry and is, perhaps, one of its most spectacular phases, it is by no means all of forestry.

Forestry can be differentiated from horticulture and from arboriculture, tho at times the distinction is difficult to make. The management, for instance, of a stand of pine timber in such a way that maximum yields of turpentine and resin will be obtained, might well be looked upon as forestry, tho it is commonly referred to as "turpentine orcharding." Similarly, so maintaining a natural forest of rubber trees that a large yield of latex shall be procured, year after year, could be looked upon as forestry. If, however, rubber trees were set out, the management of the plantation would probably be considered a matter of horticulture.

On the other hand, the management of a planted stand of turpentine-producing pines would almost certainly be considered forestry. Why the difference? Probably because the pine plantation is looked upon as a producer of lumber as well as of resin while the rubber tree plantation is considered only from the standpoint of latex production. It is the same with an apple or pecan orchard. In both cases valuable wood is produced, but the plantation is thought of primarily as a source of fruits or nuts.

As *agriculture* denotes the care of fields (*ager*) so *arboriculture* signifies the care of trees (*arbor*). Hence forestry may be considered a phase of arboriculture, and it is sometimes so defined. Arboriculture, however, includes the care of shade and ornamental trees with which forestry is not concerned. Nearly synonymous with the term *forestry* is *silviculture*, the care of forests (*silva*). This word the British writers often spell *sylviculture*. (We have a similar spelling in *Pennsylvania*—Penn's woods or grove).

Forests have sometimes been considered primarily as hunting grounds, and interference with the game animals, by harvesting the wood, has been looked upon with disfavor. While the forest is of unquestioned significance in this respect, the game values are nowadays regarded as secondary and need not be dwelt on further in this connection.

Nor is it necessary to more than refer to the question of a hill farmer addressed to a forestry school student. In the course of an all-day topographic survey this student had stopped for a drink. While he was resting the farmer inquired of him: "Well, just what is forestry, anyway? Is it the science of logarithms?"

What Forestry Is

What, then, is forestry? Briefly stated, forestry is the raising of successive crops of timber on a given tract of land. In the case of a crop like corn the harvest is annual. The seeds are planted and the mature plants harvested all within the space of a few months. In the case of the forest, a number of years must pass after the germination of the seed before a wood crop can be harvested. The underlying principle in the two cases is the same. Both agriculture and silviculture are concerned with the growing of useful plants. The object of each is the obtaining of products formed by the physiological activities of living plants.

In the case of forestry, the chief product desired is wood. We can not well regard lumber as the main product because wood is used for many purposes not generally covered by the term lumber, such as posts, poles and fuel. In view of the fact that many forests are grown primarily to furnish raw material for paper and since as time goes on, more and more wood is being converted into rayon and pyroxylin, perhaps we should revise our statement and say that the primary object of forestry is the production of cellulose.

Forestry, like agriculture, implies the production of successive crops. Since most trees require at least 50 years to produce timber of a suitable size for harvesting (and many require a great deal longer) it is obvious that successive crops can not

be grown annually upon any very small tract. It is possible, however, to have many different ages represented on a relatively small area, a few trees being ready for cutting each year. More often an effort is made to have the trees on a tract ripening at longer intervals, every five or 10 or 25 years, for example. The principle is the same in both cases. The intent is to have the land continually producing timber, with harvests at regular intervals. Sometimes all the timber on a given tract is cut at one time, but still with the purpose of raising another crop in a definite number of years. In this case the trees are all of essentially the same age, usually within 20 years.

The raising of crops of perennial plants like trees for the purpose of producing wood has another aspect to be considered besides that of sustained yield. This is that in case the market happens to be poor in any given year when it was planned to harvest ripe timber, the cutting can be deferred for a year or two without harm to the particular crop and without seriously interfering with the forest. In this respect the wood crop has definite advantages over such plant products as strawberries and beans which, regardless of the market conditions, must be harvested promptly when ripe.

Besides the wood (cellulose) which the trees produce, there are various other returns derived from a forest. The stand itself furnishes a certain amount of protection—from flood as well as from low water, from erosion, from wind, from snowslides and from dune sand. It also serves as a shelter for game animals, forested areas in many cases being closed to hunting and, soon becoming overpopulated, serving as game reservoirs keeping up the supply in the surrounding country. The forest, too, has great recreational value, as is attested by the increasing number of visitors to our wooded areas.

In addition to the trees themselves, many other plants of the forest are used for one purpose or another. Often, for example, the forest is of major importance from the grazing standpoint, altho in some regions, e. g., the Southern Appalachians, with the improving of the grade of cattle the volume of forest grazing is steadily decreasing.

Then, there are to be considered various drug plants, the harvesting of which in some places constitutes a definite industry. Closely connected with this sort of utilization is the use of various plants or parts of plants for ornamental purposes. The galax and ground-pine of the forest understory and mistletoe are examples. In this category can also be included Christmas trees. These, of course, are not minor plants, but trees of the same kind as those grown for their wood. It has been questioned whether the harvesting of Christmas trees is really good forestry. As a matter of fact, the removal of such trees is usually a decided advantage to the remaining stand. But even if the primary purpose of the stand is the growing of Christmas trees, the management might still be considered forestry. It is certainly directed to the raising of successive crops of trees.

Sometimes the cutting of Christmas trees is looked upon as devastation. It must be kept in mind, however, that the Christmas tree has a definite esthetic value, and the fact that it is harvested relatively young is comparatively inconsequential. We can go around in circles here just as by questioning whether we should eat young frying chickens that might grow into larger chickens or whether we should eat the larger chicken that might lay eggs which would develop into spring fryers.

Other incidental forest products, obtained from the trees themselves, are tanning and dyeing materials, together with naval stores and minor gums and resins, such as Canada balsam, as well as edible nuts.

In addition to the purely silvicultural aspects, forestry nowadays is also commonly considered to include conservative lumbering and the utilization of forest products. Investigations, therefore, of the durability of various kinds of wood, of the strength of timbers and of the pulping properties of different species are all a part of forestry in the broader sense.

Conditions Necessary

There are certain conditions necessary for the successful raising of crops of forest trees and their accompanying plants.

First of all, the forest must be afforded protection during its period of growth. Measures must be taken to prevent the destruction of the growing crop by fire, by insects and rodents or by disease. Grazing must be so limited that the young trees will not be injured and, of course, if maximum profits are to be realized, theft of wood or other products must be guarded against. All of these conditions, it will be noted, run parallel with similar precautions necessary in the case of agricultural crops.

Secondly, as in agriculture, specific provision must be made for the new crop. In most agricultural work the crops are raised from seed, potato culture constituting one notable exception. A

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THE FACULTY

By HARRY I. NETTLETON
Assistant Professor of Forestry

Francis Garner Miller, Professor of Forestry and Dean of the Idaho Forest School, received his initial college training at the University of Iowa, from which he received the degree of Bachelor of Philosophy in 1900. After twelve months of study at Iowa State College, he was granted the degree of Bachelor of Science in Agriculture by that institution in 1901. He then spent two years in graduate work at the Yale Forest School and in 1903 graduated from Yale University with the degree of Master of Forestry.

While a student at Iowa College, he made a special study of the relation of the size of seeds to plant vigor. The results of this study were published by the Iowa Experiment Station. Research in the methods of treating forest tree seeds to hasten their germination was conducted by him while at Yale.

From 1901 to 1912, Dean Miller spent his summers on various projects in the United States Forest Service, his investigations during that period taking him into practically every state in the Union. These projects included tree planting in the Middle West, on which he published several reports. Later, in co-operation with the Forest Service, he made an exhaustive study of forest taxation in Washington. His reports were published by the Society of American Foresters and the University of Washington. He also compiled a report on the timber land grants made to the University of Washington. Since coming to Idaho in 1917, Dean Miller has conducted a number of studies on various phases of the forest resources of the state, the results of which are in part embodied in The Idaho Forest and Timber Handbook, which was published in 1927 by the School of Forestry in co-operation with the United States Forest Service. He is now occupied jointly with Professor T. G. Taylor in a forest survey of Benewah County, Idaho.

Dean Miller's college teaching experience began twenty-six years ago when, immediately after graduation from Yale University, he became Professor of Forestry and head of the Department of Forestry at the University of Nebraska, which position he held until 1907. From 1907 until 1912, he was Professor of Forestry and Dean of the College of Forestry at the University of Washington. In 1915, he took charge of the Department of Forestry at Washington State College, holding this position until 1917, when he accepted

THE NEW MEMORIAL GYMNASIUM

the leadership of the Idaho Forest School. His major teaching subject is forest management.

In addition to his other duties, Dean Miller has given a large amount of time to public service work since coming to Idaho. In 1919, due to protests on the part of the public against methods of timber cutting on state lands adjacent to Payette Lake, the State Land Board called for his services in settling the controversy. In 1920, the Department of Public Works sought his advice in a similar protest which the public had made against the cutting of timber at Heyburn Park. His reports resulted in a satisfactory settlement of the protests in both cases. He was the chairman of a state-wide committee which drafted and sponsored the Idaho Forestry Law. He also served as state chairman for Idaho of American Forest Week from the inception of the Week until its discontinuance the current year. He is a member of the Idaho State Co-operative Board of Forestry.

Dean Miller is a Fellow in the American Association for the Advancement of Science, and a

member of Sigma Xi, Xi Sigma Pi, Alpha Zeta, American Forestry Association, Society of American Foresters, and the American Association of University Professors. He is listed in Who's Who in America and in American Men of Science.

Ernest E. Hubert, Professor of Forestry, in charge of the Forest Research Laboratory, received his Bachelor of Science degree from the University of Montana in 1912. He specialized at that time in botany and forestry. Six years later he received the degree of Master of Science from the same school, specializing in forest pathology. Continuing his plant pathological work, Dr. Hubert received the degree of Doctor of Philosophy from the University of Wisconsin in 1923.

His field or research experience consists of one season of timber survey work for the Forest Service on the Deerlodge National Forest; one season of white pine studies for the Forest Service in Idaho and Montana; six months of drafting work in the Missoula office; five years of research in forest pathology for the Forest Service in District 1; five years of similar work at the Forest Products Laboratory at Madison, Wisconsin, and four years in charge of the Forest Research Laboratory at the Idaho Forest School, during which time he has specialized in pathological research.

While at the Forest Products Laboratory, Professor Hubert taught two years, specializing in utilization and pathology. Since coming to Idaho, he has taught classes in pathology, preservation, wood technology, dendrology, timber physics and seasoning, but the press of carrying on personal research and directing the research activities of candidates for Bachelors' and Masters' degrees has made it necessary for the administration to relieve him of much of his teaching load. He has inaugurated a new type of course, an orientation course in research called Forest Research Methods which is believed to be the only course of this kind being taught in forest schools of this country.

Dr. Hubert's name is listed in "American Men of Science." He holds the rank of Fellow in the American Association for the Advancement of Science, and in the American Phytopathological Association. He is a Senior Member of the Society of American Foresters and a member of the American Forestry Association, Wisconsin Academy of Science, Sigma Xi, Phi Sigma, Xi Sigma Pi, and the California Mycological Society.

Gerhard Kempff, Associate Professor of Forestry, came to the Idaho Forest School from the Northern Rocky Mountain Forest Experiment Station at Priest River, Idaho.

Professor Kempff completed a two-year Ranger Course at the University of Wisconsin in 1915, and received the degree of Master of Forestry from Harvard in 1927.

His field and research experience ranges over a wide scope of activities and subjects, beginning with two years of administrative and investigative seeding and planting work in the Wisconsin state nurseries and state forests. This work was followed by two field seasons as ranger on the Wisconsin state forests, and twenty months of park forestry work in the same state. The following five years were spent as District Ranger and Research Assistant at the Northern Rocky Mountain Experiment Station. In 1923 he was promoted to Junior Forester and later became Assistant Silviculturist at the same station. He accepted his present position in charge of field research at the Idaho Forest School in 1928.

Professor Kempff is a member of the Society of American Foresters and of the American Association for the Advancement of Sciene.

Ferdinand W. Haasis, Associate Professor of Forestry, was graduated from Rutgers College with the degree of Bachelor of Science (in Agriculture) in 1911. Two years later he received the degree of Master of Forestry from Yale University. In 1928 Johns Hopkins University granted him the degree of Doctor of Philosophy. Plant physiology was his special subject.

From 1913 to 1915, Dr. Haasis was engaged in miscellaneous lumber mill, forest nursery and general forestry work in Arkansas, Connecticut, Idaho and Massachusetts. The next two years were spent in forestry practice while employed by a Kentucky coal company. Two more years, from 1917 to 1919, were spent in military service. From 1919 to 1926 Dr. Haasis was engaged in silvicultural research in Arizona and in the Southern Appalachian region. Since his arrival at Idaho, Dr. Haasis has been engaged in research in the field of Forest Products.

While in the army, Dr. Haasis taught map reading. He also taught plant physiology for two years while at Johns Hopkins University. His present teaching subjects at Idaho include by-products, seasoning of wood, wood preservation, timber physics and field work in forest ecology.

Dr. Haasis is a Fellow in the American Society for the Advancement of Science, a Senior Member of the Society of American Foresters, a mem-

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LETTERS FROM THE ALUMNI

(To answer the question, "What does a Forester do when he gets out of school?")

To the Editor of the Idaho Forester:

Since leaving the School of Forestry in 1922, practically all of my time has been spent in some phase of forest work. Upon graduation I was temporarily in the employ of the Southern Idaho Timber Protective Association as fire guard. In August, 1922, I entered the Forest Service as Forest Assistant and was assigned to the Wyoming and Targee Forests on timber sale work. Here I was taught the rudiments of wielding a marking axe in lodgepole pine stands. Although marking timber was my major job, I was given the opportunity to assist in scaling and general supervision of the sale areas, and the training received was of value for more advanced work. During this period a lighter cut was made in lodgepole as compared to the present practice of removing a greater volume. More recent studies indicate that a heavier cut is the best practice in our lodgepole pine stands. The change in our marking practice in this type was brought to my attention when I returned to the Wyoming Forest in 1925 as Assistant Supervisor.

Prior to my return to the Wyoming Forest, I had been assigned to the Idaho Forest, with occasional details to other forests of Central Idaho for timber sale and timber survey work. It was during this period that extensive timber operations in the yellow pine type within the National Forests of Central Idaho were initiated. It was then necessary to devote a considerable amount of time to timber survey work in preparation for timber sales and management plans. Winter timber survey was then started in full force, so it developed that my major job during the summer period was largely confined to marking timber, scaling, and general administrative work on active timber sale operations. During the winter my efforts were directed toward timber survey in order to keep apace with the timber cutting and to gather data for management plans.

Forest management work required most of my time from 1922 to 1925, but I was occasionally assigned to various other activities where I might gain experience. After spending a year on the Wyoming Forest during 1925 and 1926, I was again assigned to the Idaho Forest as Assistant Supervisor. From this date to the present I have been engaged in general administrative work, being one member of a total permanent force of thirteen. My job at the present is to assist in the training of new men and in supervising the work on the Idaho Forest.

The Idaho Forest has a net area of approximately 1,738,000 acres. A large part of the Forest is more or less remote, which calls for extensive developments in order to administer the area and keep fire losses to a minimum. The season of 1928 was the worst fire year we have witnessed since 1919. Numerous fires occurred during one electric storm which taxed our protection organization to the limit, and made it necessary to follow up with a large number of temporary men, but in spite of our well organized protection force a few fires did considerable damage, burning over approximately 2600 acres. Owing to the extreme steepness of a large part of the Forest, it is a difficult task to control fires after they have a good start.

In addition to our fire problem, the Forest has an annual cut of 10,000,000 B. F. of saw timber and ties, and supports approximately 60,000 sheep and 3500 cattle and horses during the grazing season.

We have completed management plans for three working circles within the Forest, and have also started research projects by the establishment of permanent sample plots in the more important timber types. We have also made considerable progress in the preparation of intensive grazing plans and have launched into a grazing research program.

It is impossible to discuss all the various lines of work which confront us, such as land classification, land exchange, public relations work, etc. A part of the winter period is spent in summarizing the accomplishments for the past season and in the preparation of detailed plans for various activities, in order to be able to accomplish a greater volume and higher quality of work during the busy field season.

Owing to the varying lines of work and the new problems which confront me daily, I find Forest Service work very interesting.

J. W. FARRELL, For. '22.

To the Editor of The Idaho Forester:

This is in response to your request for a brief resume of my activities since graduation and in description of my present job.

The day after graduation I journeyed, in company with two of my classmates, to the rejuvenated metropolis of Pierce City, Idaho. In and around this place I spent seven months in the woods department of the Clearwater Timber Company. I was then summoned to Lewiston, Idaho, to take

charge of the drying operations in the mill which the company was building at that place. In preparation for this job I spent about six months in various mills in the Inland Empire and on the west coast.

Operation of this mill, said to be the largest pine mill in the world, began August 8, 1927. The cut runs from 700,000 to 800,000 feet per day of two shifts. The principal wood is Idaho white pine, but a considerable portion of mixed species, such as western yellow pine, Douglas fir, white fir, and western larch is cut. Practically all of the cut is kiln dried, and it is in this work and in the operation of the battery of seventy kilns that I am immediately concerned.

The kiln drying of number one and two common and the lower grades of common lumber on a commercial scale is a comparatively recent procedure in the lumber industry. Formerly it had been considered impossible or at least impractical, the usual method being to run a portion of the upper grades through the kilns and air dry the rest, including all common grades. However, in very recent years the kiln drying of common lumber, and in fact, of practically all lumber has come to the front, until kilns are almost a necessity in the manufacture of lumber.

Volumes have been written and many more will very likely be written on the artificial drying of wood, but still the fact remains that but little is known of the whys and wherefores of the action of wood when subjected to temperature and moisture. In wood we have a somewhat complex collection of chemical substances, and more particularly a very complex structure. Hence the action of individual pieces under the conditions of temperature and moisture is extremely variable. This fact is brought to my attention quite forcibly in the operation of this battery of kilns, when no two of them, even though on similar lumber, may be operated under exactly the same conditions of humidity and temperature.

At present the most practical and efficient method of telling how the lumber is drying is by constant observation of it while it is in the kilns. This of course necessitates entrance into the kilns while they are in operation, and accounts for the fact that all dry kiln men resemble, to a certain degree, a boiled owl. The biggest kick a dry kiln man gets out of life is to entice some poor unsuspecting soul to go with him into a nice warm kiln and then laugh at his exit. Various devices are being put on the market to eliminate this duty, but until the mechanical man is perfected, human flesh must submit to the ordeal.

The most discouraging part of a dry kiln man's existence is the disillusion that almost always occurs upon the second trial of a newly discovered kiln schedule. A dry kiln man is usually more or less of a pseudo-scientist, in that he is engaged in a certain amount of experimentation at all times. He experiments with various conditions of temperature and humidity, trying to determine the most suitable combination for each of the different types of lumber. It is when an experiment turns out to be successful that he is happieest, but a cloud of gloom usually settles upon a subsequent trial of the method used. We lay the blame on the variation in the type of lumber, or on the condition of the lumber, or the kind of weather, or the way it was piled, or the way the kiln was operated, any one of which may or may not be right. As yet no one can definitely say. Nevertheless, some day, somehow, someone will discover a correct method of drying lumber, and then peace and harmony will reign with the dry kiln men.

H. Z. WHITE, For. '26.

To the Editor of The Idaho Forester:

Having received a request that I write a theme (freshman foresters should know what that means) of five to eight hundred words regarding the duties of a land agent as it relates to my personal experiences, I shall start out by trying to define such a character. The dictionary states an agent is not the prime actor, but only an instrument or factor acting under orders.

My definition would run about as follows: A land agent, acting under orders, is, was, or should be, an embryo cruiser, engineer, lawyer, mathematician (for tax purposes), doctor (gall specialist), politician (for various purposes), realtor (you have to prevaricate, too, if you sell stump land), logger (up to the snuff chewing stage), scaler (cheat stick artist), cedar pole inspector, and if you still have some idle moments accept various details such as secretary-treasurer of a timber protective association, an active commercial club member, and if your time is still not fully occupied you should not be a land agent, as his brain capacity is supposed to be taxed with these duties.

I may describe my own duties as follows:

Almost one of my first jobs after leaving the University was that of cruising, and although not now actively estimating, I still make a rough cruise or examination of some of our more important timber sales or purchases. I find it is

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COMMENTS ON VOCATIONAL FOREST EDUCATION

By E. G. WIESEHUEGEL
Assistant Professor of Forestry

As a result of the recent discussions on Forest Education in the Journal of Forestry (1), (2), (3), (4), even the most reticent among us are signifying interest and energetically imposing upon our colleagues an indication of our satisfaction or dissatisfaction with present systems of education in our forest schools. The feeling seems to be particularly prevalent that a one or two year vocational course in forestry is now recognized as a necessity for any one of the following causes, the premises of which are herewith briefly summarized for the purpose of discussion.

That certain men on account of low inherent capacity are incapable of absorbing the instruction given in the academic school and a special type of training is therefore necessary for their convenience. That the present schools either by virtue of their organization, curriculum, location or other reasons are unsuited to, or at least do not train men of the above type and that it would take special schools to develop men to fill the annual demand for vocationally trained employees. If we concede that such schools are needed and that its graduates will fill a distinct place in our present economic life, it is assumed that such conditions must benefit the forestry profession in general. That we are putting too many technical foresters on the market, and for their training have too many forestry schools of college grade. Therefore we also have too few vocationally trained men in the profession, as there is a particular demand for *cheap* foresters and this demand could be supplied from the vocational schools (1 p. 432). That the demand from the lumber industry and from the other employers of foresters for men with this type of training is insistent and will remain so. That the expense of founding such schools will be justified by the results obtained. That men graduating from these vocational schools will be satisfied to stay in the subordinate positions for which they are trained and for which the schools are to be founded, and that men will be found who will be willing to spend two years, after high school or after experience in the woods, to prepare themselves for jobs paying $1500 to $2500 per year, as one author suggests (4 p. 763).

Indisputably men of the type mentioned above exist, and even find their way into the present forestry schools of professional rank, culminating in their inability to absorb the training given and as a consequence resulting in disgraceful failure in their eyes and in the eyes of their fellowmen. This is certainly a most deplorable situation and all educators probably feel the need for schools that can develop men of low inherent ability for

DENDROLOGY LABORATORY

their proper niche in the world. In our schools of forestry we too commonly have among the students a limited number of men for whom vocational training would be more suited and they consequently fail in their studies and are branded as failures by their classmates. Something should be done to accommodate such students and fit them for their life's work; but in the Forestry profession, which is new and numbers only a few thousands among its members, I wonder if it were not more desirable to have such men prepare themselves for other work rather than have the profession spend large sums of money to found forestry schools to take care of the demands presented by these unfortunate individuals. They are so few in number among our students that it hardly seems that the expense is justified, in so far as the demand at present is for substantial and aggressive leadership, and their training might be cared for in other and cheaper ways probably just as successful.

The feeling seems prevalent that our present forest schools do not graduate men qualified to fill the demand for vocationally trained foresters and that for this reason special schools are needed for the job. From my immature experience I have noted that it is natural to have a gradation of students with various capabilities, from the best to the poorest, or at least down to those who just try to "get by" and learn as little as they can, but still try to absorb enough forestry in their four years to obtain their degree. Such men on account of lack of interest, enthusiasm, imagination, diligence, and inherent limitations are evidently unsuited for high executive positions, and foresters in general know that there are many such among the graduates of the present day forest school, and also among the present practicing foresters of the profession. Therefore, if these minor positions are to be filled by vocationally trained men, what are we going to do with the present graduates of forestry schools for which no administrative or research future is assured, and who are suited only to the rank and file? Surely, to obtain the best men for the profession, we must have numbers from which to choose, and it is natural that the misfits will fill the lesser positions or drift to some other line of work. The demand for men in forestry today is for men at the *top, leaders, research men, experienced educators.* The bottom is so crowded by mediocre men that some of them are as a consequence going into other fields of endeavor, or are holding positions because of priority only, and on this account may possibly attain positions of importance at some future date to the detriment of the profession.

This brings us directly to one of the points mentioned above. Can we truly say that we have too many forestry schools when there is still such an insistent demand for leaders in forestry? Surely the leaders come, or *should* come, from the professional forestry schools and, although the flotsam and jetsam from such schools floods the market for the lower technical positions, many of these men with a few years' experience will be far better enabled to fill such jobs as are opened up by industrial forestry than will the man with only two years of vocational training, because of the four years' contact at the forestry school.

I also raise the question of exactly the place the vocational man will hold in the profession. Will he be thrown into competition with the professional forester in the lesser positions? Judging from the present trend, more and more professional men will of necessity take over jobs of this sort not only as a training ground for their future responsibilities but as a testing or proving ground of their administrative qualifications.

It has been stated (1-p. 432, 2-p. 752, 4-p. 763) that men from the vocational schools will fill a separate and distinct niche in the world of forestry according to the present demands of the lumber and forest industries which want men with certain qualifications, the primary one seeming to be that he be satisfied to receive only mediocre compensation for his work.

I sincerely feel that this is the crux of the desire, on the part of employers of foresters, for vocational schools, and that such schools will result in a flood of "cut-rate" foresters that will reduce materially the price level for the services of the profession as a whole. Therefore, is it not necessary that we foresters bind ourselves to maintain the highest possible professional standards and to allow only those men to call themselves foresters and be allowed to practice as such, who can answer the technical qualifications that are expected of the best foresters today? Can you find men in the medical or legal profession who are allowed to practice medicine or law lawfully who have had a two years' smattering of instruction in their profession? In fact can we say this of any profession whose ideals and standards are high and hold the respect of the American people and the American employer? Rather than lower our professional standards to admit the hailing of two-year men as professional foresters, would it not be a more laudable attempt to raise the nec-

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A STUDY OF THE RELATIVE ACCURACIES OF VARIOUS HYPSOMETERS WITH THE TRANSIT AS A STANDARD

By CAREY C. BENNET, '29 and WELLINGTON SEYMOUR, '30

Introduction

Whenever the question of height reading instruments comes up, each cruiser, forester or engineer will laud the merits of some particular instrument. Each will claim that a certain one is by far the most accurate; yet when called upon to prove his point he will list vague generalities and give no direct proofs. Opinions differ widely and, so far as the writers may determine, no one has made an attempt to compare the relative accuracies of all the hypsometers used in this study.

The Object of the Study

The purpose of this thesis is to compare the accuracies of various height-reading instruments with the transit as a standard, in order that recommendation may be made as to the best one to use henceforth. A second purpose is to study the results obtained in this comparison and to try to advance logical conclusions for any marked tendencies which are observed.

Apparatus Used

The apparatus used in this study consisted of the following:

One light mountain transit and tripod	Gurley make
One Forest Service Hypsometer	K & E make
One Topographic Abney Level	K & E make
One Klaussner Hypsometer	K & E make
One Faustmann Hypsometer	K & E make
One Topographic trail tape	K & E make
One 100 foot steel tape and spool	K & E make
One hand lens	K & E make
One Jacob staff	K & E make

The Abney Level and the Faustmann Hypsometer were fitted with a ball and socket attachment in order that they might be used with the Jacob staff for greater accuracy.

METHODS

Field Work

The field work consisted of obtaining heights of trees or objects with the different instruments. This work was carried on during the month of June, 1928, in timbered country adjacent to Moscow and Potlatch, Idaho. This was accomplished by setting up and leveling the transit in a position which commanded several objects to be measured. The horizontal distance to each of these was obtained by use of either the 100-foot steel tape in case of nearly level country, or with the topographic tape in conjunction with the shots taken with the Abney level for corrections when the gradient was other than gentle.*

These distances were recorded on the data sheet. One man then read the vertical angles on the transit to the top and bottom of the object and recorded these for future computation of heights.

The heights of the objects were taken and recorded with the instruments studied. The topographic Abney level was operated at one, one and one-half or two chain distances (chain of sixty-six feet) from the object, depending on its size and accessibility. The Faustmann and Klaussner hypsometers were operated at any convenient distance since they are independent of this factor. The distance was usually in one, one and one-half, or two chain units. The Forest Service hypsometer was operated at one hundred-foot units of distance. After these data were recorded and all objects in the immediate vicinity of the transit had been measured, the apparatus was moved to a new locality and the same procedure followed.

Office Work

The first step in the office work was the computation of heights from both the vertical angle readings of the transit and from the horizontal distances. This was accomplished by use of latitude and departure tables.* The total height of each tree was recorded on the data sheet as it was computed.

The next step was to compute the error for each instrument and tree separately. This was accomplished by the algebraic subtraction of each height, taken with each hypsometer or level separately, from the computed transit height for that tree. This was recorded in the error column as a plus or minus error.

The per cent of error was figured by dividing the error by the transit height of the tree and multiplying by 100. Care was taken to preserve the algebraic sign of each figure, and since the per cent of error was computed for each tree and instrument, it was recorded on the data sheets.

As the array of heights taken covered a large field, the writers grouped these items in height classes of ten feet each. Those heights which fell between 56 feet and 65 feet, inclusive, were

*Calkins, H. A., and Yule, J. B. *The Abney Level Handbook*. U. S. D. A. Forest Service Bulletin, 1920. pp 19-20.

*Carey, Austin, *A Manual for Northern Woodsmen*, third edition, Cambridge Harvard University Press. 1925. pp 214-219.

grouped in the 60-foot class. Other heights were handled similarly.

All percentage of error of all heights taken with each instrument were then grouped under their respective height classes. The next step was to separate the positive percentages from the negative percentages. As the general run of percentages of error was small for all instruments, any error of over ten per cent was ascribed to personal factors and not to any inaccuracy of the instrument. Indicated errors of more than ten per cent were therefore thrown out of the columns.

These columns of percentages were averaged algebraicly for each height class and the values plotted.

Curves were drawn through both harmonized and unharmonized points. Values were read from these smoothed curves and incorporated in Tables II, IV, VI and VIII. A final figure (Fig. V) was made on which all the curves were plotted for the purpose of comparison only.

The curves in general show a marked tendency to greater accuracy at approximately one and two chains heights (66-132 ft.). This can be accredited to the fact that most of the readings were taken at one and two chain distances from the tree and that the greatest accuracy in any problem based on right angle triangulation comes when the two legs of the triangle are equal. The curves show this tendency for the 66-foot height class. If the work had been carried to the 140-foot height class, the inclination of the curves show that this tendency would be apparent here also.

The Klaussner Hypsometer shows very accurate work for small heights and for only one height class, 90-foot, was the average error greater than one per cent. All averages are negative. This instrument is the most accurate and shows less variation by height classes.

The Topographic Abney Level, although it shows greater variation by height classes, is a very desirable instrument to use for small height

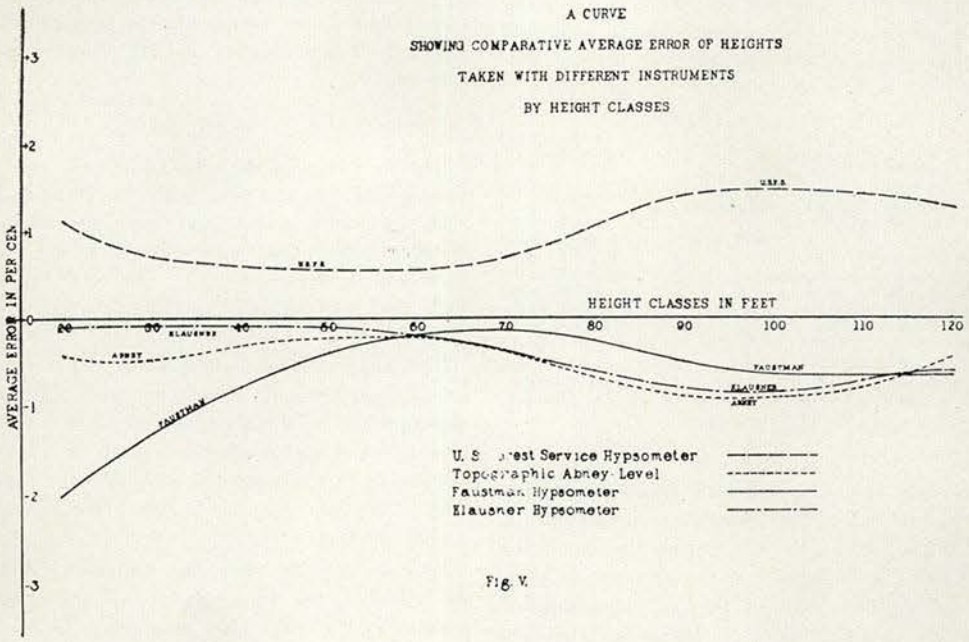

Fig. V.

Conclusions

The curves and tables show in general that the average error of all height classes is under one per cent for all instruments. The average error of all height classes taken with each instrument is as follows:

Klaussnor Hypsometer -.42 of one per cent.
Topographic Abney Level -.54 of one per cent.
Faustmann Hypsometer -.72 of one per cent.
Forest Service Hypsometer -.97 of one per cent.

measurements. The chief argument in its favor is the ease with which it can be operated. The biggest objection to it is that only trees up to one hundred feet in height may be measured at a distance of one chain. Here also the error is negative.

The Faustmann Hypsometer shows the greatest variation in errors by height classes. For small

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THE IDAHO FORESTER

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WITH THE EDITORS

AS WE HOPE

To the Reader: We hope that you enjoy this issue of The Idaho Forester. We think that it contains some very worthwhile articles as well as bits of news and happenings, some of which will interest everyone. If you like the publication, pass it on to someone else interested in forestry, whom you think might like it.

To the Contributors: The high standard maintained by The Idaho Forester is chiefly due to the fact that its contributors are from among the best. We hope that each of you this year feels that the publication is worthy of your contribution, and we take this opportunity of thanking you for the time and effort accorded us.

To the Advertisers: We hope that you are pleased with this publication as an advertising medium and will feel that your money was well spent.

Twenty Years

Twenty years ago, some far-sighted individual established a forestry curriculum here at the University of Idaho. Undoubtedly, there were those who laughed and scoffed, "To think, we waste our time training men to take care of a bunch of trees, when every hill and valley is covered with them." The science of forestry in America was then in its infancy. Twenty years have seen a few courses grow to a School of Forestry with scores of courses and three distinct curricula. It has seen a faculty grow from a one man staff to one of seven members. It has seen an enrollment of students grow from a bare handful to one of about a hundred. Twenty years has seen an extension forester added to take care of farm forestry in the state. It has seen a nursery established to assist in forest extension. It has seen the field of forestry grow from one of a few elemental problems to one embracing more subject matter than can be assimilated by any one individual. Twenty years has seen close to a hundred young fellows come, study and go, as graduates, out to raise "that bunch of trees" that *used* to grow on every hill and in every valley. Somehow, the School of Forestry has furnished men who were needed. The scoffers have disappeared.

Today, a benign lumber industry which has been in America ever since the first colonists landed turns to technical forestry, about thirty years old, and says, half in earnest and half jesting, "Well,

what can you do for us with all your learning?" The answer? Behind us are twenty years of growth and expansion, ahead lies another twenty years of even greater promise.

Developing an Organization

A chemist, standing before a shelf laden with bottles, carefully measured parts of all of them into a test tube. He viewed the contents of the tube; it was merely a mixture of substances. He shook the tube, thoroughly mixing these substances, a dull red liquid resulting. The chemist frowned; evidently the results were dissatisfying. He examined the liquid more closely and found dark specks mixed throughout — some substance wasn't entering into the change. He set about separating the black specks out; analyzed them and found that they were particles of one of the original substances. That substance took no part in the change, and darkened the color of the whole. The chemist took another test tube and measured in all the ingredients except the one, shook the tube, and lo, a beautiful, clear color appeared. So, was a crimson dye developed.

To prepare a dye required the thorough mixture of all the ingredients. To make a strong organization requires the thorough inter-mixture of all its members. The Associated Foresters was created for the purpose of making a good School of Forestry, so that, in turn, every member could be a good forester. The School has always prided itself on the fact that it takes men from all states and communities; that it takes men from this town and that, from this group on the campus and that, puts them together for four years and turns out good foresters. The Associated Foresters does the mixing.

The useless specks in the first sample of dye ruined the color. The useless members in any organization are its detriment. They hold back those who would go on, retard any concerted action and by their lack of spirit create unfavorable opinion on the part of outsiders. A good forester *must* understand and work in an organization, for he works in one of the most highly organized products of nature—the forest.

The Associated Foresters needs the support of every student; it needs your whole-hearted support in every event it sponsors, and, last of all, it needs your dues to carry on its work. The Associated Foresters is the dye. Don't be the speck that ruins its clear color.

Graduates Receive Scholastic Recognition

It is gratifying to note the scholastic recognition given graduates of the School of Forestry by the leading universities. This is evidenced by the fact that for several years past the Yale University has been granting scholarships to our men to continue their studies in forestry. The current year, for example, three of our graduates are doing post-graduate work at Yale under scholarships in forestry and one at the University of California. The coming year at least two have been given scholarships to continue their forestry studies at Yale, one at the University of California, and another at the University of Stockholm, Sweden.

A Word for the Retiring Officers

These pages would not be complete without some token of acknowledgment given to the officers who have served the Associated Foresters for the past year. Few of us realize the time and energy it takes to successfully fill one of those positions. It may sometimes seem as if such an office were simply an honor bestowed upon certain lucky individuals. It is an honor, in a way, to be thought capable of leadership by your fellows, but to prove not unworthy of the trust requires the use of plenty of good old-fashioned elbow grease. The Associated Foresters were indeed lucky to have for officers such fellows as those retiring. That they have carried out their duties to the best of their ability is witnessed by the fact that every event attempted turned out to be a huge success. Granted that much of this was due to the splendid co-operation from everyone, but the Associated Foresters all realize that much credit is due the officers. So, to the retiring officers, "We thank you, and wish you 'light packs and short trips.'

The New Office of Ranger

The newly created office of Ranger has its possibilities. The general opinion is that a Ranger gets all the dirty work from shooing hungry bruins out of his lettuce patch to finding out "why'n heck" they sent canned peas instead of peaches on the last grub order. The Associated Foresters have no lettuce patch (except before finals, when it's "let-us pray"), but they can keep a Ranger busy. According to definition, his duties will be to arrange programs, feeds, find transportation when needed, etc., and, if he has time, to make sure that T. G. Taylor has enough co-eds in his course, "Our Trees and How to Know Them." Yes, the Ranger will be a busy man. However, joking aside, the office is one which can go a long way towards making meetings and events more interesting, and it should prove a welcome addition to the other offices.

The Annual Barbecue

The final event of the Associated Foresters' calendar was witnessed at the annual barbecue. Shortly after noon on May 4, the enthusiastic foresters were packed into trucks and cars and whisked away to their favorite meeting place, Felton's sawmill, where they immediately proceeded to renew class rivalry in the shape of log chopping and log bucking contests, tug-o'-wars, relays and obstacle races, and, in general, every sort of contest that one could think of. True to form, the seniors proved their disputed supremacy by taking the meet with a score of 32 points, thus winning the honor of holding the silver cup for the coming year. The freshman class followed second by scoring 23 points, while the junior and sophomore classes tied for third place with a score of 22 points each.

The greatest event, however, was the typical lumberman's meal, a barbecued quarter of beef, buns and all the accessories, and it is not necessary to say that the gang was not backward about "coming to get it." When the shadows began to fall, the trucks were summoned to duty, and the happy lot returned to the campus in plenty of time for "dates"

AT THE BARBECUE

The Barbecue Cup

The annual barbecue has always been the scene of much keen rivalry in the various contests on the program. This year even more was added by reason of the cup offered as a prize to the class making the most points. The cup was a joint purchase by Epsilon chapter of Xi Sigma Pi and the Associated Foresters, and makes a welcome addition to the clubroom. It stands about twenty-four inches high, with the donors' names engraved on it and space for engraving the name of the class winning it each year. The prize is to remain in the possession of the winning class each time until the succeeding barbecue, when they must defend it or lose it to their betters. Heretofore, the only incentive to the winners has been the satisfaction of nursing their wounds and bruises in public. Now that there is such a prize, it is thought that bruises "will be worn much larger." If proof is needed that the prize is an incentive, witness the fact that a bare handful of Seniors this year took it away from a field of some sixty or seventy.

SAWING CONTEST AT THE BARBECUE

The Annual Smoker

On the whole, the annual smoker proved to be rather amusing in more ways than one. Whether or not the Junior and Senior classes had their heads together when they planned their "skits" still remains an unsolved mystery, but the "profs" got it in the neck twice. It isn't necessary to say that the laughs did not have to be provoked.

Some good boxing and wrestling matches were donated by some of "our boys" who are athletically inclined. By far the best boxing match was put on by Burton and Farmer (the original clowns) on roller skates. They were so funny they nearly killed themselves laughing. The sole music for the evening was evolved from a Hawaiian guitar by a wee "red-head" of unknown origin. Cigars and cigarettes were in evidence

throughout the evening and a fitting climax to one of the best get-togethers of the year was capped by "hot dawg" sandwiches, doughnuts and coffee.

The Annual Dance

The annual dance given on November 16 was a "blistering success" as our friend the Englishman would say. The whole gang was there and those who couldn't dance or weren't fortunate enough to get a date came anyway and kept time to the music with their feet. Nettleton played "quite the sheik," and the duty of head chaperon could not have been better performed. The display of beautiful guests would indicate that the boys have excellent taste. Who says a forester is a *back-woodsman?*

The decorations were all that any true disciple of Paul Bunyan could wish for, but, of course, pains were taken to get trees sufficiently small to eliminate the need of "No Parking" signs behind them. The bison's head on the wall (it was really Babe, the Blue Ox) served as a pleasant reminder of the days of the great Paul. And the poor Ox! He was tossed, and thrown, and torn limb from limb; it was evident enough that he was everywhere. Could he be reassembled, he would probably resolve into everything from hidden vanities to secret ambitions. Of course, the music was par excellent. Well, it's all over now and we all had a memorable time at this, the premier social event of the season.

Survey of Forestry Education

To complete a constructive study of the program for forestry education in America, a study which has been under way for several years, the Board of Trustees of the Carnegie Corporation has appropriated the sum of thirty thousand dollars to the Society of American Foresters. This appropriation will enable the Society committee to round out the study to a full and comprehensive survey of the whole subject of education in American forest schools. The committee is headed by Dean Henry S. Graves of the Yale Forest School.

Fred Morrell Promoted

Fred Morrell, since 1920 District Forester in charge of District 1, which embraces northern Idaho and Montana, has accepted an appointment as chief of the Branch of Public Relations in the Forest Service, and has removed to Washington, D. C. He will have charge of the co-operative work now under way between the Forest Service and various of the states, some thirty-eight in all, in the matter of forest fire protection and forest extension.

Another Famous Campus Tree

The Idaho campus has recently come into possession of another famous tree, an offspring from the historic Mulberry Tree beneath which Lord Cornwall surrendered his sword to General Washington at the close of the Revolutionary War.

The tree was planted May 11, 1929, under the auspices of the Eliza Spalding Warren Chapter of the Daughters of the American Revolution, Mrs. F. B. Laney presiding. Speakers of the occasion were: Governor H. C. Baldridge, Stanley A. Easton, Mrs. J. E. Babb, and President F. J. Kelly.

The tree was planted near the groups of the three Presidential Trees, one a Colorado blue spruce planted by President Roosevelt, another a Port Orford cedar planted by President Taft, and the other a red oak planted by Vice President Marshall.

FIRE SACRIFICE

Have you seen the snarling demon
Curling, licking, scarlet tongues
'Round the sighing boughs of spruces
Where the swaying mosses hung?

Have you seen a ramping crown-fire;
Felt fitful, fiery breathing;
Heard its roar in belching pitch-smoke,
Seen the heavens dun and seething,

Starred with sparks but full of horror,
Bannered with flame-flails lashing?
O, there's Hades in the forest;
Crying trees—dead bodies crashing!

Have you seen charred acres stretching
Out across the wastes of land,
Where the long winds come dole mourning,
'Mong the gaunt tree ghosts that stand

Clutching with gnarled joints, e'er weakening,
Barren stones where snow and rain
And the crinkly heat of summer
On the naked earth has lain?

Sacrifice of life and beauty
Given of the Maker's Plan
For a dim Immortal Reason
To the carelessness of man.

Stanley Foss Bartlett
The Northern.

THE ASSOCIATED FORESTERS

By FRED KENNEDY, '29

Officers 1928-1929

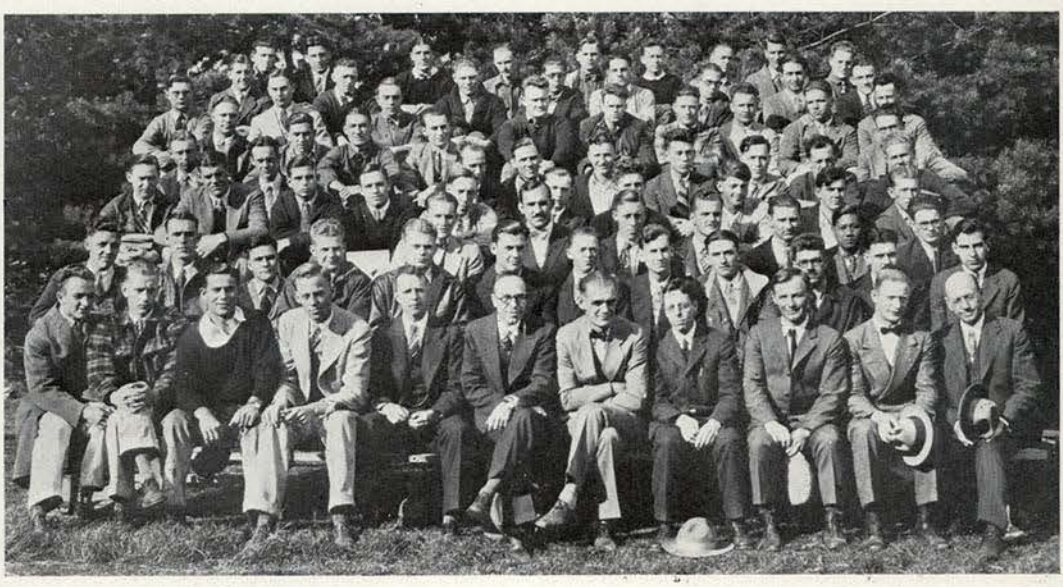
Fred Kennedy .....President
William Krummes .....Vice President
Charley Langer .....Secretary-Treasurer
Howard Sargeant .....Publicity

When a freshman registers in the School of Forestry, the first thing that greets him is a freshly painted sign, "Have you paid your Associated Foresters' dues?" This is accompanied by several hard boiled embryo foresters who insist that it is absolutely necessary "to pay 'em" before the Secretary of Agriculture will consider him for the position of U. S. Forester. Thus, the frosh is introduced to the Associated Foresters.

The Associated Foresters is a club composed of the students and faculty of the Forest School. The primary objective in organizing this club was to make possible a closer fellowship among forestry students by conducting a definite social program each year. This program consists of many things important in a forester's life; an annual dance, smoker, barbecue, banquet, and feeds, all of which are discussed elsewhere in this publication. These activities, of course, entail frequent business meetings, where each one is entitled to "practice in public speaking" by getting up and expressing his opinions.

Besides the purely social activities of the group there are others which are intended to broaden the student's fund of knowledge about his profession. Whenever prominent men in the field of forestry visit the campus they are obtained to talk before the association. Such occasions afford the student an insight into what comes after his four years at the School. Also, the Associated Foresters help to maintain a club room and library where its members may study or "swap notes" at all times. This is furnished with reference books and current issues of the leading trade magazines as well as magazines of sport and travel. The publication The Idaho Forester is another activity sponsored by the Associated Foresters.

These are the aims and activities which justify the Associated Foresters as a group; fellowship, social development and a broader education. As to its success, most any senior will say that he will never forget associations and acquaintances made through the club.



THE ASSOCIATED FORESTERS, 1928-29

THE THIRTEENTH ANNUAL BANQUET

By F. W. HAASIS

On the evening of April 1st, the Associated Foresters and guests, to the number of 140, gathered at the Blue Bucket Inn for the club's thirteenth annual banquet. This dinner was so timed as to make possible the attendance of members of the Society of American Foresters who had come to Moscow for a meeting the same day. Both Dr. F. J. Kelly, President of the University, and Mr. I. W. Jones, Assistant President, were among the guests. During the evening vocal and instrumental music was furnished, notably a number of solos by Mrs. H. I. Nettleton. These included Joyce Kilmer's "Trees" and other appropriate forestry songs.

Mr. Fred H. Kennedy, President of the Associated Foresters, presided as toastmaster. Among the speakers were State Senator Chris Hagan and State Representative A. H. Oversmith.

Mr. Hagan spoke of his entire sympathy with technical study in general, said that he believed the people of Idaho were in favor of a forestry research program, and explained how the bill for the experiment station had failed to pass at the recent session of the State Legislature, largely because of its being considered together with another bill of a quite different nature.

Mr. Oversmith's talk was on the state's new reforestation law, just passed, of which he was one of the authors. He explained some of the benefits to be derived from the application of this law.

Supervisor Kenneth Wolfe of the Selway National Forest spoke on State and Federal co-operation in forestry.

Professor C. W. Chenoweth, of the Department of Philosophy, urged the foresters to strive to find more in timber stands than something to cruise. With a background of several summers' experience as a temporary employee of the Forest Service he discussed some of the esthetic aspects of forestry work, under the general head of "Keeping the Game in the Forest." He said: "If forestry means to you only doing your work well, then you will draw your salary, and that is about all. *But,* if forestry means some of these other things besides, then you can consider your work a success."

President Kelly was the last speaker, his subject being "By-Products of a College Education." Drawing a parallel between forest by-products and the things incidental to college, and lameting the fact that Professor Chenoweth had somewhat anticipated his own remarks, he said: "You do not come to college to get an education, but to learn to live."

WOOD BY-PRODUCTS

By W. D. HUMISTON

"The lumberman of the future will need to be as much of a chemist as an expert on timber," said W. D. Humiston in a recent address before the Associated Foresters.

Samples of "synthetic lumber" were placed before the foresters by Mr. Humiston, assistant general manager of the Potlatch Lumber Company, to illustrate the changing conditions in the industry, and the remarkable experiments being made with cellulose, the essential constituent of trees and other plant bodies, were hinted at.

Mr. Humiston had a paper wash cloth made from wood, which will withstand boiling. The synthetic lumber was made from sugar cane, some from cornstalks and some from sawmill waste exploded like popcorn or puffed grains and then compressed. He spoke of one large and prosperous plant making synthetic lumber in Minnesota, located in a region which from the standpoint of the average lumberman did not contain a single merchantable tree within a radius of 100 miles.

Chemistry Has Big Role

Chemistry will play an important role in the utilization of tamarack, a common Northwest wood species so heavy that freight on it makes cutting almost prohibitive, it was pointed out. From this wood can be extracted a valuable carbohydrate, galactan. After this material, which accounts for most of the excess weight, has been extracted, the remaining wood chips can be made into synthetic lumber, he believed. Used this way, he felt that tamarack will show a surprising profit instead of the present unsatisfactory income.

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Mr. Humiston recently made an extensive eastern trip at the request of his company to study work in closer utilization of cellulose. Dr. Gerald L. Wendt, head of the department of chemistry and physics of Pennsylvania State College, told him the woods of the Inland Empire forests, northern Idaho, eastern Washington and western Montana, were altogether too valuable to use merely for lumber and fuel.

Great Future for By-Products

On the strength of work being done in use of cellulose Mr. Humiston expressed his belief that there is a great future in the various by-product industries, the utilization of purified and modified cellulose and of chemical derivatives, distillates and extractives of wood.

The work of the Du Pont company, which has 1200 products, most of which are based on cellulose, is particularly interesting to the forester who sees the place chemistry is to play in the industry, according to Mr. Humiston. This company has a staff of 1200 chemists and spends annually $2,500,000 on research.

Mr. Humiston also told of experiments being made with cellophane, a cellulose product, by the bureau of plant industry, United States Department of Agriculture. Cellophane has been used as a preservative coating for sweet potatoes, the potatoes being dipped in a solution of the material which, on hardening, forms a thin transparent coating. He thought this method of preservation might be used for the apples grown in the Northwest, to take the place of the present individual wrappings of paper.

SENIOR REPORTS

Bennett—"I doubt very much if I shall come back next year. The Dean and Prof. Taylor have both spoken to me about it. They urged me not to return."

Balch—"I am entering that great school of hard knocks where lectures are given by the boss and shot-gun quizzes are but memories of a four-year detour on the road to experience."

OTTER KEENE GUERNSEY
Balch, Illechevsky, Kennedy, Wendle, Krueger, Bennett

Guernsey—"I am now working on a new thesis problem. The subject is: 'Can Two Live as Cheaply as One?'."

Illichevsky—"There isn't enough manual labor tied up in research work. I am going back to fire-fighting, for it is the work I love."

Keene—"I play a percentage game. Sit back and wait for the breaks. Now that I've got one, here I go."

Kennedy—"Somebody once said, 'Laugh and the world laughs with you; weep and you weep alone.' I guess I'll sing 'All by Myself in the Moonlight.'"

Krueger—"Now down in California we have trees over 500 feet high and . . . !"

Otter—"I came to college with a crusader's complex. My shield bore the legend, 'Save the dear trees.' Now I am the forest's prime evil."

Wendell—"I am running a control on Bill Guernsey's problem."

XI SIGMA PI

By A. P. BALCH

Xi Sigma Pi, national honorary forestry fraternity, was organized at the University of Washington in 1908. Epsilon chapter was established at the University of Idaho in 1920.

The objects of the fraternity are, "to secure and maintain a high standard of scholarship in forest education, to work for the upbuilding of the profession of forestry, and to promote fraternal relations among earnest workers engaged in forest activities." To be eligible for membership in Xi Sigma Pi, a student must not only have obtained a high standard in scholarship in an approved school of forestry, but he must also show an active interest in forestry work and have the true forester's spirit.

In order to promote scholarship, Epsilon placed a bronze tablet in the hall of the Administration Building. Upon this are engraved each year the names of those students in each class who have obtained the highest averages. Those who have been so honored thus far are:

1922—James W. Farrell, senior; Russell M. Parsons, junior; Arthur M. Sowder, sophomore; Paul M. Harlan, freshman.

1923—Albert S. Daniels, senior; Ralph S. Space, junior; Paul M. Harlan, sophomore; Floyd W. Godden, freshman.

1924—Rogers G. Wheaton, senior; Robert P. McLaughlin, junior; Floyd W. Godden, sophomore; Henry C. Hoffman, freshman.

1925—Ralph S. Space, senior; Warren H. Bolles, junior; Galen W. Pike, sophomore; William W. Mitchell, freshman.

1926—Warren H. Bolles, senior; Galen W. Pike, junior; Charles A. Connaughton, sophomore; George J. Illichevsky, freshman.

1927—Arlie W. Toole, senior; Charles A. Connaughton, junior; George J. Illichevsky, sophomore; William T. Krummes, freshman.

1928—Charles Fox, senior; George J. Illichevsky, junior; George Jemison, sophomore; Fred Newcomer, freshman.

The chapter is closing its second year as grand chapter, with the following members as national officers:

Harry I. Nettleton.....Forester
Arthur M. Sowder.....Associate Forester
Wallace M. Saling.....Sec.-Fiscal Agent

Upon these has rested the national business of the fraternity for the last two years.

A series of informal dinners were given this year at which short papers were read and live topics discussed by the members. Everyone voted them a huge success.

On April 22, the second semester pledges were initiated. The customary "feed" was given to the members at noon, followed with initiations in the afternoon, and at night the old members "buried the hatchet" with the initiation banquet. Everyone agreed that it was a great day.

New members for the fall semester were: F. W. Haasis, instructor; Charles Genaux, graduate student, and Fred Kennedy, '29. Second semester members were William Krummes, '30, and Arthur Buckingham, '30.

Officers of Epsilon chapter for the year closing are: Prentice Balch, forester; George Illichevsky, secretary-fiscal agent; E. G. Wiesehuegel, assistant forester, and Dr. E. E. Hubert, ranger.

Some Reflections Regarding The Profession of Forestry

(Continued from Page 7)

tent non-technical man was given the responsibility. Meanwhile the forest schools were established and an increasing number of technical men were brought into the service. The stimulus of the Government work resulted in larger efforts by the states, and private owners, too, began to see in forestry something of practical service to them. Just as in the Government service the first work in the states and private forests was in considerable part carried on by non-technical men.

These were the beginnings. The existence of a body of technical men has been responsible for the development of the science and the practice of forestry. The non-technical man has played an important part in this development but it has been in association with the professional forester. The efforts of men who have not the basis of scientific knowledge carry the work of forestry only to a certain point. That which can be accomplished through sheer executive ability and the application of common sense, through the use of empirical methods and rules of thumb, may be well done by

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the practical man who has little knowledge of the science of forestry. General organization and administration, fire protection, popular education, and other activities are today being handled, in many cases admirably, by men who can claim no special knowledge of the scientific side of forestry. But the time comes when without the aid of science progress stops.

There is a good deal of popular delusion on this point, especially in this country where fire protection, legislation, public relations, forest improvements and the like are still dominant activities. There is a prevalent idea that with adequate fire protection little more is needed to secure an adequate perpetuation of the forests. Some have said that fire protection is eighty-five per cent of forestry. That is a very misleading idea. One might rather say that fire protection constitutes more nearly one hundred per cent of the basis for forestry practice, for without it little can be accomplished. The needs of this country will not be met merely by fire protection. I hope that the time will come when we can show by statistics the limits of production of the materials we need and the limits of the general service of the forest that can be expected from a policy restricted to protection alone. The sum total of production under a policy of protection only, will be greater than today, but the curve of progress will flatten out in a line far below what is urgently needed to satisfy the requirements of the country. Here is where science comes in to point the way to the development of methods of silviculture that will increase production, increase the quality of the products, better protect our soil capital, and otherwise enable the forest to render its proper service to the nation.

This means two things: first, research and experiment; and, second, the ability to interpret and apply in practice the knowledge obtained by research. Both research and the practice of silviculture require technical knowledge. In point of fact the two can not be separated. The attempt to divorce theory from practice always fails. The best research man is the one who knows the practical problems of the field. The best practical forester has a scientific and technical background and can interpret the results of research. The most effective progress is made when the practitioners are themselves by observation and trial adding to scientific knowledge and the special research men are so closely affiliated with the practitioners that there is mutual sympathy and help. A technical profession with common aspirations and ideals, imbued with an appreciation of science as a basis of its undertaking has the opportunity to build on solid foundations and to make its efforts count in erecting an enduring structure that will serve best the needs of the nation.

A New Era for the Profession

The profession of forestry has gained recognition. First of all, scientific men in other fields are recognizing forestry as a branch of learning parallel with other descriptive sciences. Thus Yale University and several other institutions have accepted forestry as a field appropriate for the degree of Doctor of Philosophy. The interest of the National Academy of Sciences in forestry is a further evidence of the place of forestry among the sciences. This recognition has come primarily through the work of various distinguished American foresters. On the economic and industrial side foresters are being called in to aid in solving business problems in a way that is very significant. In short, forestry is finding its place in science, public affairs, and industry.

We are truly entering a new epoch in forestry. The widening field of activities, and the general recognition of the profession are causing a constantly increasing demand for men qualified by ability, training, and experience for positions of responsibility. The opportunities for well equipped foresters are broadening, not narrowing. But the demands for ability on the part of the forester, for natural aptitude, educational background, and experience, are becoming ever more exacting. Natural aptitude for supervisory work, research, teaching, or business is essential for success, but that aptitude without a knowledge of forestry, is not sufficient to meet the requirements of the new era. This places a heavy responsibility upon the forest schools to afford the best possible educational facilities for students. It furnishes a pressing incentive to the student to make the most out of the available educational facilities in order to enable him to prepare himself to take advantage of the opportunities for employment and service which lie ahead of him.

THE SENIOR FIELD TRIP

By OTTO KRUEGER '29 and REX WENDLE '29

In spite of a heavy downpour of rain, a more or less cheerful group of seniors gathered at Morrill Hall on Sunday morning, October 7, 1928, to begin the trip through the Coeur d'Alenes. Those making the trip were Prentice Balch, Carey Bennett, Edward Keene, Otto Krueger, Fred Kennedy, George Illichevsky, Floyd Otter, Wellington Seymour, Rex Wendle, Professor Nettleton and Dean Miller.

The first stop was at Honeysuckle Ranger Station where a week was spent with Professor Nettleton, Dean Miller and Forest Service officers in charge. Monday was spent in inspecting logging operations of the Winton Lumber Company's camp near the station. Fluming, power chuting and brush disposal were some of the features. Tuesday the class was divided into crews and conducted a residual strip survey on an old logged over area. This was to determine the nature of the reproduction under different methods of handling hemlock disposal. On half of the area the hemlock had been girdled at the time of logging, and on the other half, nothing had been done with it. A comparison of data showed that hemlock reproduction was coming in much slower on the girdled area.

Wednesday a reproduction study was made of an area which had been clear cut in strips. The cutting was done some years ago, so it offered a good chance to determine the stocking since logging. The clear cut strips ran across contours, so a series of mil-acre strips taken with the contours gave an excellent estimate of the restocking. It was found that the clear cut strips were seeding in very satisfactorily. The next day was spent on stem analysis. A current cutting area of the Winton Lumber Company, which was near at hand, afforded an excellent opportunity for this.

Friday was spent at scaling on a landing, with the government scaler to check and explain the technique of correctly handling different defects and rots. Saturday morning was given over to more scaling. Then, after dinner, everyone shouldered his pack and hiked the eight miles to the camp of the Ohio Match Company on Burnt Cabin Creek. This area is rather unique in that to log it entailed building about twenty miles of railroad across a divide, but a fine large body of white pine was thereby made accessible. Here the work was under the leadership of Professors Taylor and Wiesehuegel and the Junior Forester in charge of the sale. The first day was spent on time studies of power loading, and chuting with horses. The class scaled each log and followed it through with a watch, getting detailed information on the length of time required in each stage of its handling. Tuesday was given over to practical experience in marking in western white pine type of timber under the direction of the Forest Service officer in charge of the sale. Here the stand was mostly white pine and the policy was to leave about ten seed trees per acre. Inferior species were not marked for cutting unless they were sound and then only a few were taken, the plan being to leave the bulk of them until some later date when they will undoubtedly be more valuable.

Wednesday a pathological study was made on hemlock for the purpose of determining the correlation of outside appearances with the extent of rot (principally that caused by Indian Paint fungus) in the tree. Such a correlation is valuable when marking timber for cutting. This study entailed the use of axes and saws, and it is rumored that a few blisters were raised. The afternoon was used for an inspection of a sanitation project on the logging area. The problem here was to determine the best method of disposing of hemlock which is inclined to take over a site after logging.

Thursday a permanent sample plot was laid out on an old cutting and data collected for an ecological study. The next day everybody boarded the speeder and headed for civilization. At Coeur d'Alene an inspection was made of the Rutledge Timber Company mill, which is one of the most modern in the region. This completed the trip (except getting home) and everyone seemed to be anxious to get back, in fact, a few were *very* anxious. Possibly Saturday night dates had something to do with it.

THE JAM-BREAKER

Seething waters and swirling logs—
A jam—and the clamp of peavey-dogs.
A tumble, a break, a rumble and roar—
A bit of humanity borne before.
High in the spray on a rearing log,
He poses calmly with peavey-dog.
A flash of color, the plaided clothes—
He's out where the tranquil water flows.

Stanley Foss Bartlett
The Literary Digest

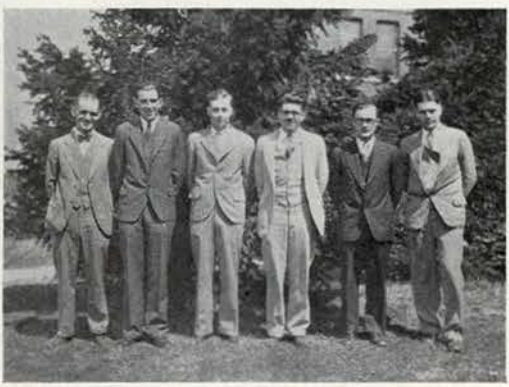
THE GRADUATE STUDENTS

By A. G. SHARP

There are six forestry students taking graduate work at Idaho this year, five of whom will take their master's degree this June.

Charles M. Genaux received his bachelor's degree at the Pennsylvania State Forest School in 1924. After graduation he held a temporary appointment as Forester in charge of the Pennsylvania State Nursery at Mont Alto. Mr. Genaux came West three years ago to assume the duties of instructor in forestry at Washington State College, where he remained until last fall. In June he will receive his master's degree in forestry. His thesis is A Study of Sap Stain Fungi in Western Yellow Pine and Western White Pine.

Paul D. Kemp received his bachelor's degree in 1926, also at the Pennsylvania State Forest School. From then until last fall he was employed as a junior forester on the Washakie National Forest. Mr. Kemp secured a leave to come to Idaho on a research fellowship and intends to return to the Service this June. His thesis is Some Effects of Kiln Drying on the Durability of Western White Pine.



Wiesehuegel, Sharp, Woods, Kemp, Saling, Genaux

Andrew G. Sharp is a graduate from Cornell University, where he received his degree in forestry last year. He will take his master's degree in forestry here on a fellowship in June, having completed work on a thesis entitled, Some Effects of Kiln Drying on the Durability of Western Yellow Pine.

Wallace M. Saling is well known to Idaho students, having graduated here last year. Last summer Mr. Saling was engaged in experimental work at the Northern Rocky Mountain Experiment Station. In the fall he secured leave of absence to come back and take his master's work. His thesis is on The Effect of Blue Stain on Penetration and Absorption by Preservatives.

Erwin G. Wiesehuegel is another "old resident" at Idaho, where he has been an instructor for the last three years. Mr. Wiesehuegel graduated in forestry from the University of Michigan in 1922 and prior to coming to Idaho engaged in forest work under a junior forester appointment on several western forests. He will receive the master's degree in forestry in June, having completed a work on The Diagnostic Characteristics of the Woods of the Genus Abies.

Edward W. Woods graduated in science and arts at Washington State College last year. He entered Idaho in January and plans to take the required two years in order to get a master's degree in forestry.

THE ASSOCIATED FORESTERS ELECT

The last meeting of the Associated Foresters for this year was held May 8 in Morrill Hall. Miss Herma Albertson of the botany department gave a short talk on her experiences in Yellowstone National Park, where she has acted as ranger for several years. Interesting data pertaining to the park and anecdotes from her experiences while handling park tourists gave the Foresters a delightful half-hour. This was followed by the election of officers for the coming year. These are:

Charlie Langer ..... President
Arthur Buckingham ..... Vice-President
Doren Woodward ..... Secretary-Treasurer
Holt Fritchman ..... Ranger

Those elected for the staff of the 1930 Forester were:

William Krummes ..... Editor
Howard Sargeant ..... Business Manager

To these men the Associated Foresters pledge their hearty co-operation for the coming year in keeping the organization one of the best.

MOSCOW MEETING OF SOCIETY OF AMERICAN FORESTERS

By ARTHUR M. SOWDER
State Extension Forester

The second Moscow meeting of the Northern Rocky Mountain Section of the Society of American Foresters was held in Morrill Hall April 1st. Dean Miller (Vice President of the Section) presided. At this meeting there was an attendance of 80 men, 41 members and 39 students.

Members came in from all parts of the Inland Empire. Of the Selway National Forest staff, 11 out of the 13 attended. Other National Forests were well represented, as were the lumber industry, the Idaho State Forestry organization and the Office of Blister Rust Control of the U. S. Bureau of Plant Industry.

The chief topic discussed at the meeting was the problem of planning for and ensuring sustained yield. The first speaker was Mr. R. E. Irwin, Assistant General Manager of the Potlatch Lumber Company, who read a paper on "Sustained Yield as Applied to the Holdings of the Potlatch Lumber Company." Mr. Irwin pointed out that sustained yield involves many problems and that different holdings will require different methods of solution of these problems.

Mr. C. L. Billings, Assistant General Manager of the Clearwater Timber Company, had been scheduled to give an address but was unable to be present. His place was, accordingly, taken by Mr. E. C. Rettig (Idaho '19), Land Agent of the same company, who read a paper on "Sustained Yield." Mr. Rettig, also, referred to the dependence of sustained yield upon a large number of different factors, both human and other.

After the scheduled papers had been delivered, Dean Miller called upon a number of other members of the Society for brief talks. Mr. C. K. McHarg, Supervisor of the Coeur d'Alene National Forest, led an informal discussion on the application of Idaho's newly passed forestry law. Mr. Gerhard Kempff, Forester to the School of Forestry, described the new brush-burning torch which he has been developing.

Opportunities For College Men in the Lumber Business

(Continued from Page 9)

rience and who have gone into the game and made good.

Each has something the other has not. Each recognizes in the other a man who has made good irrespective of odds or previous training and between them they keep a balance which is good for the organization as a whole. But whether or not he has a college education, he must have initiative and the desire to do or he will not go far.

Webster defines opportunity as "a time or place favorable for executing a purpose," and illustrates it by the following quotation from Bacon: "A wise man will make more opportunities than he finds."

The lumber game, to the man who gets in but is not adapted for it, will seem rough, lacking at times in certain refinements, full of hardships and a drag on his spirit. To the one adapted for it, it is a glorious game in spite of its troubles, and he would rather be in it even at a less material gain than in most or any other business.

It is impossible in a short article to cover much more than generalities. I have not attempted to speak of the courses of vocational education which are being worked out in many plants, of the attempts by the industry as a whole to work toward tangible bases which will recognize ability when shown. Neither have I spoken of the other problems, such as the forestry problem which includes fire fighting, organizations for which have been for many years highly developed, especially in the west, and many other of the problems connected with the industry.

AMONG THE ALUMNI AND FORMER STUDENTS

Anderson, B. A., M. S. (For.)., '28.
"Andy" is junior forester in the office of Blister Rust Control. He is to be in charge of a large eradication crew on the north fork of the Clearwater this summer. His address is 618 Realty Building, Spokane, Washington.

Bartels, Harry E., Ranger, 1928.
Harry is an electrician and linesman in Fort Apache, Arizona, and wants to hear from some of the fellows he knows. Address him at Fort Apache, Arizona, Box 11.

Bartlett, Stanley Foss, Ex-For., '26.
Bartlett says he is doing commercial art work on his own hook at present, having just finished two years with the social service division of the Great Northern Paper Company in northern Maine. His present address is 1 Walker street, Portland, Maine.

Baumann, Herman, '24.
Mr. Baumann is forester to the California Fruit Growers' Supply Company of Susanville, California.

Beals, W. F., '26.
Beals is district forest ranger on the Harney National Forest in South Dakota with headquarters in Lauzon. He was married last August. Congrats, Wilford. Address care U. S. F. S., Lauzon, S. D.

Bedwell, J. L., '20.
Mr. Bedwell is assistant pathologist in the Bureau of Plant Industry, office of Blister Rust Control. He is in charge of reconnaissance on federal and private lands. He expects to enter Yale Forest School in September as a candidate for the doctorate degree. His address is 618 Realty Building, Spokane, Washington.

Bolles, Warren H., '266.
After graduation Mr. Bolles was on the Idaho National Forest. In September 1928 he entered Yale University to work toward a master's degree in forestry. Mr. Bolles was voted to membership in the Yale Chapter of Sigma Xi. Permanent address, McCall, Idaho.

Buchanan, Stewart.
With the Bureau of Plant Pathology, U. S. Department of Agriculture, Portland, Oregon. He will return to school in the fall.

Burroughs, I. C., '27.
After receiving the degree of Master of Forestry from Yale University in 1928, Ike took an appointment on the Boise National Forest till the first of this year when he transferred to the Texas State Forest Service, where he is serving in the division of forest protection.

Cochran, Allan R., '28.
"Al" recently was awarded a scholarship in Yale University to work toward the master's degree in forestry, so he will be in New Haven next fall. This last year he spent as ranger on the Olympic National Forest in Washington.

Cochrell, Albert N., Ranger, 1922.
Mr. Cochrell is assistant forest supervisor on the Kaniksu National Forest. His address is Newport, Washington, care U. S. F. S.

Connaughton, Charles, '28.
"Charlie" has been compiling timber survey data in the Boise office of the Boise National Forest this winter. Writes that he is going to take his J. F. exam in 1930. Address, Boise, Idaho, care U. S. F. S.

Cazier, S. Edwin, Ranger Course, 1926.
Cozier is with the Forest Service at Big Piney, Wyoming.

Cruz, Eugenio de La, '26.
Mr. Cruz secured his master's degree in forestry at Yale in 1927 and returned to the Philippines. He is now forester in charge of land classification work in the division of forest land and maps, Bureau of Forestry, in the Philippine Islands. His address is Manila, P. I., care Bureau of Forestry.

Cummings, Lewis A., '25.
Mr. Cummings has been on leave of absence from the Forest Service this year to attend Yale University. He writes that he worked on the Nebraska National Forest last spring planting trees. Cummings was married September 11, 1928. Address 523 Elm Street, New Haven, Connecticut.

Cunningham, Russell H., '17.
Mr. Cunningham is Clarke-McNary Law Inspector in District 1 for the U. S. Forest Service. His address is Missoula, Montana, care U. S. F. S.

Daniels, A. S., '23.
Daniels is chemist to the Southern Pacific Railroad in Texas and Louisiana, doing wood preservative work. His address is Box 19, Southern Pacific Building, Houston, Texas.

Daugherty, Charles I.
Mr. Daugherty is a forest ranger on the Challis National Forest. "Chuck" is another of the fellows who has taken the fatal step into matrimony this year. It all happened last December. Address Clayton, Idaho, care U. S. F. S.

Davis, Robert, '28.

"Bob" is a forest ranger on the Wyoming National Forest, assigned to a tie-sale. Bob says, "I am very busy on a research problem, 'The Study of the Wood Nymphs.' The solution of this problem will be the salvation of all forest rangers." He is occupied also in the making of management plans. His address is Daniel, Wyoming, care U. S. F. S.

Decker, Arlie D., '13, M. F. Yale, '17.

Mr. Decker is in charge of cedar pole production and sales for the Potlatch Lumber Company. He comes down to see us quite regularly. His address is care Potlatch Lumber Company, Potlatch, Idaho.

Doyle, Ivan, '26.

Since graduation, "Ike" has been in the employ of the Clearwater Timber Company. He has been cruising on the Company holdings this winter. His address is Pierce, Idaho, care Clearwater Timber Company.

Drissen, John P., '21.

Drissen is deputy supervisor of forests, U. S. Indian Service, Yakima Indian Reservation in Washington. He gives his address as Toppenish, Washington, care Yakima Indian Agency. He was a recent caller at the School.

Ellis, F. G., '28.

Ellis is a ranger on the Fremont National Forest in Oregon. Writes that he is all topside and open to any reasonable proposition. His address is Paisley, Oregon, care Forest Service.

Farrell, J. W., '22.

Mr. Farrell is assistant supervisor on the Idaho National Forest. His headquarters are at McCall, Idaho.

Favre, C. E., '14.

Mr. Favre received his M. S. in Forestry from the U. of I. in 1915. He is now forest supervisor on the Wyoming National Forest. His questionnaire reads, "Enjoy forestry work immensely. Have large timber sale and grazing business on this forest." His address is 1021 Cedar Avenue, Kemmerer, Wyoming.

Ferguson, Ray S., Ex. '22.

Ferguson is forest ranger on the middle fork district of the Selway National Forest. His address is Kooskia, Idaho, care U. S. F. S.

Field, W. D., '26.

Walt is assistant land agent for the Clearwater Timber Company with offices at Lewiston, Idaho.

Fenn, Lloyd, '26.

Mr. Fenn has been practicing law at Kooskia, Idaho. For several years he has been a member of the state legislature.

Folsom, Frank B., '22.

"Transferred from Colville National Forest, Republic, Washington, to Deschutes National Forest, Bend, Oregon, as senior ranger. Married in 1924; have two daughters," reads his questionnaire. His address is Box 79, Bend, Oregon.

Fox, Charles E., '28.

Charlie is teaching biology in the high school at Lewiston, Montana. Writes that he is enjoying his work immensely. Address 614 Pine Street, Lewiston, Montana.

Gatley, Howard Albert.

Gatley is scout executive, Boy Scouts of America, at Kenosha, Wisconsin. Formerly in same work at Terre Haute, Indiana. His present address is 6025 12th Avenue, Kenosha, Wisconsin.

Gerrard, Paul H., '23.

Gerrard is assistant supervisor on the Clearwater National Forest with headquarters at Orofino, Idaho.

Godden, Floyd, '27.

Floyd is ranger of the Lemhi district on the Salmon National Forest. He writes, "Married last December. Happy? You bet!" His address is Lemhi, Idaho, care U. S. F. S.

Green, E. G., '27.

"Long" is in business in Moscow. He likes the town so well he just can't leave it.

Gregory, Charles, '28.

"Spike" is with the Washington Water Power Company at Spokane, Washington.

Guernsey, William.

"Bill" is with the office of Blister Rust Control in Spokane. He is to be in charge of an eradication crew on the Clearwater this summer. Address 618 Realty Building, Spokane, Washington.

Gustafson, Carl A., '26.

Carl is studying for the master's degree in forestry at the University of California this year. He is greatly pleased with his work there.

Hammond, G. M.

Mr. Hammond is vice-president and assistant general manager of the Bowerman Lumber Company, Glendale, California. His address is 1622 No. San Fernardo Road, Glendale, California.

Hatch, Alden B., '28.

Hatch will graduate from Yale Forest School in June with the degree of Master of Forestry.

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Curricula of the Forest School

(Continued from Page 16)

students for all lines of grazing work with the Forest Service and with livestock companies. In accord with this new curriculum, the grazing courses were expanded to include eight credits in this subject. As yet, however, the freshman year was not common to the three different curricula. The standard of thesis work was raised to include practical work which the student performed either in the field or laboratory.

The year 1917 is an important date in connection with the development of the forestry curricula, for it was at this time that the Department of Forestry was organized as a separate School. Professor Shattuck had resigned and was succeeded by Dean Miller. Further expansion is in evidence in the role of two new courses, namely, a four-credit course in wood technology, which seemed to be more a combination of forest pathology, wood preservation and forest products than its title indicated, and a two-credit course in farm forestry.

A common freshman year was inaugurated in 1918 and the title of lumberman's forestry curriculum was changed to the more accurate appellation of the logging engineering curriculum. The first correspondence course, Lumber and Its Uses, was started at this time. The following year marks a period of expansion in forest products work as shown by the addition of courses in wood preservation and by-products. A course in advanced dendrology was also added. The course in wood technology was changed to a study of the characteristics of wood.

Beginning in 1920, the ranger course was reduced to a two-year curriculum instead of a three-year curriculum as hitherto. Another factor of interest was the combining of all courses in silviculture into one course of six credits to be given in one semester. That this scheme was not practicable is apparent from a perusal of the announcement book for the following year, where we see this subject given in two separate courses.

In 1922, the ranger course suffered a further reduction, being given in one year's time with terms extending from October 16 to June 20. The second term was especially planned for men who could not leave their regular work for more than the winter period.

The factor of public relations receives consideration in 1923 with the offering of two courses open to non-forestry students. The ranger course becomes further reduced to the twelve weeks period from January 5 to March 27 preliminary to its final appearance in 1928, its discontinuance being due to the fact that there was no further need for a course of this character.

In 1925 the undergraduate courses in silviculture and mensuration were expanded from six to nine credits each by the addition of much needed material. The year 1926 marks the addition of a new member to the School of Forestry staff, increasing the teaching staff to four. This year also marks still further expansion in graduate work in the field of forest products. The development in graduate work in this field is most encouraging, and it will be the policy of the school to lean more and more strongly toward work of an advanced educational nature.

The faculty was further increased by two members in the fall of 1928, thus giving the forestry school a full staff of seven men, one of whom is devoting his entire time to research work. The curricula of the School of Forestry underwent some revision again this year, some courses having been combined and others reduced so as to make room for more courses designed for training in citizenship. The curricula at present allow more electives than formerly. However, they are still quite rigidly prescribed and undoubtedly will have to remain so unless there is a change in the civil service examinations or new fields of work are developed for forest school students.

Letters From Alumni

(Continued from Page 22)

much easier to talk or discuss matters or shape up a sale or purchase after having gone over the land personally than to try to picture the matter from the cruiser's report.

Engineering is involved. It consists principally of running out boundary lines, some drafting with now and then a little contour and topographic work added in. Practically all of my engineering duties can be performed with a staff or box compass, chain and a set of drafting instruments.

A knowledge of law would be a very helpful addition to a land agent's equipment as he is continually confronted with abstracts, deeds, contracts, assignments and divers other instruments. Hardly a day passes but I have to confront our attorneys with questions, some of which are rather simple to the distinguished men of law, but others cause them to delve deeply into their bound volumes of knowledge and then come out gasping for air with an explanation that only another attorney can understand, and the second attorney soaks you fifty dollars for his translation from Latin to

Greek. In the meantime the poor land agent just floats helplessly along and in order to appear wise nods his head in approval once in awhile. "Law is wonderful."

Mathematics play a large part in taxation and the land agent is continually up in the air trying to figure a way to save a penny or a nickel from the fiendish tax, which works on the same principle as the proverbial "wolf at the door." Taxation is one of the principal studies of a land agent and occupies a fair portion of his time, or should.

Our problem in Idaho the same as elsewhere is how to keep the cost of taxation within reasonable bounds. We have before us the picture of a county or counties the valuation of which is made up largely of timber land, and as the timber is cut the valuation of the county decreases and the tax rate increases until the two curves intersect each other in adverse directions, and the lumber company is then confronted, if financially able, with being a good sport and bearing an unjust tax burden, or, if not financially able, doing the next thing and fading out of the picture, providing tax relief cannot be granted. Lumbering cannot be compared to the "Scotchman riding in a pay-as-you-leave-bus—he's riding still," but must pay as it goes or be kicked out. This is just a small problem for the land agent (call him tax agent if you will) to worry over and try to solve. However, he is not alone in this respect, as it is continually before the management and directors and should be in the minds of all individuals, as the welfare of a state's industrial wealth indicates in a large measure her general condition of prosperity.

In order to fill this position a land agent should be able to diagnose sick cattle, horses and more specifically the mentality of humans. It has been my good fortune (sarcasm) to add M. D. (meaning mental depression) after my name, and whenever a cow or horse browsing within 20 miles of our mill has imbibed too freely of the steam coming from our dry kilns or in their mad flight for a good time consumed more water than the law allows from the Clearwater River, in which we drive logs, I receive a call, and taking my little black bag, make a hurried trip to the sick chamber and endeavor to console the bereaved human mourners as best I can.

In handling such cases the doctor has to use prescriptions which cannot be filled at all drug stores, but must prescribe the same treatment to the mourners as the mourner insists on forcing down the throat of the doctor, which is a simple little soothing syrup composed of "Gall and Bluff." You must realize, of course, that an overdose usually reacts as seriously as no medicine at all, and it is up to Dr. Relieve-'Em-Quick to know when he has administered the proper amount of the healing laxative; otherwise the mourner is apt to prescribe his own remedy, which you can rest assured will make a thoroughbred out of a cayuse and a highly bred milch cow out of a scrub.

Some of the lumber companies sell cut-over land for agricultural purposes. However, we, as yet, have not made a practice of selling any of our cut-over land; hence I have really nothing to prevaricate about.

I have to pick up or put in between 15 and 20 million feet of logs per year, and to properly handle contractors a man should be first a good logger, a financier, a certified public accountant, a diplomat, and last but not least, *"hard-boiled."*

A knowledge of scaling is quite important and well worth having in your bag of tricks.

I pick up a small amount of cedar poles, but have to confess that my knowledge of cedar poles is confined to the printed sheet, meaning that I have had very little practical experience handling cedar.

The other positions enumerated in my original definitions, such as secretary-treasurer of timber protective associations, commercial club work, etc., of course require time if you take part in such things, and with the former it is sometimes forced upon you, and if so, unless the major portion of the work can be delegated to others it will require a lot of attention.

One duty not enumerated here but which has fallen to the land department of our company is that of acting in a rough way as company forester. The company with which I am connected is working on a management plan and is actually carrying out a rough one which will be elaborated upon if our studies and experiments prove satisfactory. I might state that we are grasping in the dark for a sustained yield operation and hope our search will not be in vain.

In closing I might state that so far what rough work we have done in our management plans has largely fallen on the land department, which is composed of Walter Fields, an Idaho graduate, and myself.

I hope, after having read this, I have convinced you that a land agent really has considerable of a place to fill even though "only an instrument acting under orders," and if you find one wandering around with a vacant far-away stare in his eyes don't molest him, as he will come out of it as soon as his superiority complexes (taxation and con-

tractors) loosen their hypnotic influence upon him.

E. C. RETTIG, For. '19.

To the Editor of The Idaho Forester:

You ask for a bit of a letter about the activities of your humble servant, and with the responsibility cast back upon your head, I make haste to reply. What do I do? Hmm! Now, let's see. Gott in Himmel, what don't I do? Do you realize what an explosive question you have asked? Never, unless you are practicing for a life of henpecked marriage, ask a ranger what he has to do. You'll be overwhelmed and downtrodden by his effusive and long-winded method of answering. Once I asked an erstwhile district ranger of the Southwest, who now holds a more responsible position in the Service, what he had to do in the early days when he administered an area amidst the pinons and the sage. His answer: "Oh, I rode up the purple canyons and listened to the eagles scream." Those days, alas, are gone forever.

But to attempt to make a reply to your query. We, amid the historic hills of scenic Central Oregon, are blessed with a multitude of roads. Likewise, we are damned with the task of maintaining them. So, in the spring and fall, our graders tear up and lay down quantities of pumice soil. There are problems of drainage to be worked out and superelevation to be gained, and we attempt to "work over" the old roads, the while we construct new ones.

Most years each ranger district hereabouts has one or more new road projects. Enter our little friends, the Abney and the compass! With preliminary and location surveys, equipment to be "shaped up," labor to be secured and supplies for men and machines to be obtained, the die is cast. There's work at hand, and—of course—particularly for the ranger.

There is the demon fire. Somehow he seems to be around most everywhere. My particular bailiwick is provided with the services of two lookouts, five "smoke-chasers" and much telephone line to cope with the redhead. We also are assisted by a Justice of the Peace, who is mostly favorable. And so we play a pleasant game of "put-and-take." Either lightning or some playful being takes the liberty of starting a fire; we put it out, and providing the violator is human—and that we catch him—we take him to "The Judge." The past year we handled nearly fifty fires, in and out of our own domain, the largest of which reached some twenty-six acres in size before it was slaughtered.

Grazing in this district is mostly by sheep. Inasmuch as nearly all of the herders—and owners—are one-time denizens of the Emerald Isle, our force speaks Gaelic during July, when the sheep are coming on the range. Feed is principally browse, and largely bitter-brush. The past season saw much of it taken over by the festive tent caterpillar; we are, therefore, in the position of an eye-witness to a little war. Will the bugs or the "bleaters" win? Quien sabe?

There is another type of forest work developing rather rapidly in this region; it is recreational. On the eastern flanks of the Cascades lie several beautiful lakes, which have been known and used for years. Of late, considerable development in the way of summer homes has taken place for the use of those who can while away a part of the summer. For the more transient travelers, three summer resorts and one pay camp are under permit to serve their needs. Beside the attendant work, the increased fire hazard caused by increasingly more recreationists keeps the ranger and his force busy.

Other special uses are many and diversified. They range from the small trapper's cabin and packer's pastures to a proposed pumice "mine" and highway maintenance camps and various public utilities. The main line of the Southern Pacific R. R. traverses the district; the recent extension of the Great Northern R. R. from Bend south to a junction point with the first-named road, inside the district, also crosses a portion of it. Clearing for a right-of-way of the Pacific Tel. & Tel. Co. through the Crescent district, a portion of the trunk line between Bend and Klamath Falls, was just completed. These things all take their modicum of labor.

In the spring and fall and between the times when major activities occupy most of our attention, an opportunity is afforded to catch up on the "loose ends" of land examination, boundary posting, equipment repair or other of the multitudinous things that are to be done. The year wears on. Comes the snow. Then King Boreas keeps the realm to himself. The ranger gets a chance to renew acquaintance with his family; to have the barber take the pine-needles out of his hair, and to report on the few things he and his force have accomplished and the many they failed to do.

The blame is all yours—you asked for this. As Dr. Schenck would say: "Helas!"

C. C. OLSEN, For. '26.

The Forester of the Future

(Continued from Page 5)

growth through hybridizing and selection. Experiments with exotic species are also being undertaken at the station in an endeavor to develop fast growing trees for the reforestation of America's denuded lands. The possibilities in this direction are apparent in New Zealand and Australia, where Douglas fir and Sitka spruce grow much more rapidly than in their own habitat.

In Europe, investigations have been carried forward by foresters, to discover why resin is present in certain species and absent in others. The question of maintaining an adequate supply of naval stores is becoming recognized in the United States. This suggestion is merely thrown out to stimulate thought along this line, and to show the wide latitude for investigative work open to the technical forester whose bent runs along this particular channel.

There is need for other tree breeding experimental stations in North America. The Inland Empire appears a most excellent location for the establishment of such an undertaking. It is to be might endow such a laboratory to supply the necessary information on which to predicate the suc- the Scriptures, "the harvest is ripe, but the laborers are few."

What Is Forestry?

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forest crop, also, is often raised from seed; but in many cases the sprouts coming up from the cut stumps are depended upon for starting the bulk of the new stand. When a forest is started from seed, this seed generally reaches the area by natural agencies, such as gravity, wind, and rodents. Occasionally direct artificial seeding is practiced, the seed being either scattered broadcast on the snow or ground, or planted under a layer of earth. Where artificial reforestation is practiced, however, it is customary to plant small nursery-grown trees upon the area which is to be forested.

Another necessary condition to successive tree crops is that each tree in a stand shall have suitable growing space, neither too great nor too small. Here, again, we see a certain similarity between agriculture and forestry. In agricultural practice, there are certain spacings which have been found satisfactory for producing large crops; and it has also been found necessary to take positive measures to check the growth of competing plants (weeds). In a young forest stand it is sometimes necessary to remove weeds, and in older stands which have reproduced naturally it is often considered good practice to remove trees of inferior species ("weed trees"). In addition to this, however, as the trees of a forest stand increase in size, it is highly desirable to give them an increasing amount of room, even tho it is necessary to cut trees of the best species. It is in such cases that the removal of Christmas trees is of definite silvicultural value. Here it may be noted, too, that the practice of thinning is not peculiar to forestry, but is also a recognized procedure in vegetable gardening and floriculture.

Finally, one of the most important conditions for the practice of forestry is the insuring of sustained yield. This may be effected in various ways. Sometimes the entire crop of a forest stand is harvested at one time, and a new forest started on the land. At other times small patches or strips are so cut, and the operation repeated at intervals until the entire stand has been harvested. It will be seen that these two methods differ chiefly in degree. In either case clear cutting is practiced. When individual trees are removed here and there thru the stand, as is often done, the ground is kept continuously covered with forest.

From the economic standpoint it may sometimes be desirable to remove an entire timber crop without making provision for a future crop. Under certain conditions such a practice would be entirely justifiable; but it can not be considered forestry.

Land to Be Used

Whether a given tract of land shall be used for forestry or agriculture or suburban developments is largely an economic problem. There is some land upon which agriculture is impossible or hazardous but upon which timber can be grown to advantage. On the other hand, there is land which is eminently suitable for agricultural crops, but upon which first class tree crops can also be grown. In such cases, it may sometimes be advantageous for the owner to raise the tree crops rather than the field crops.

From the economic standpoint, another very significant factor in determining whether or not tree crops shall be raised is the matter of taxation. Because of the frequently long-deferred returns from forest crops, if annual taxes are high it can easily be seen that the raising of a forest crop may constitute an excessive burden for the owner.

Type of Crop

Altho ultimately, forestry must be concerned only with stands established under human control.

for some time to come there will be forest management of virgin stands or of second-growth forests springing up without human guidance.

In the virgin stand, growth has usually reached an essentially static condition. Young trees are continually springing up, but only as space is provided by the elimination of older trees. In such a stand there are many old, defective, and partially decayed trees which the forest, from the standpoint of wood production, would be better off without. Forestry, in such a stand, will concern itself with the elimination of these poor trees.

In a virgin forest, too, and in ordinary second-growth stands also, there are often species of relatively small economic value mixed in with those of greater value. In such stands forestry will often involve the selection of the more desirable species and the gradual reduction in number of the less valuable ones. Which species shall be favored and which discriminated against will depend upon the conditions obtaining in each individual case. Sometimes a stand will be managed primarily for pulpwood production. Sometimes durable trees will be grown for poles, posts and ties; at other times faster-growing but relatively non-durable species will be raised, with the intention of giving the wood a preservative treatment before it is placed in service. Again, there may be unusual local needs which must be supplied, as by raising persimmons for spindles.

In time, the selection of species will undoubtedly be augmented by the development of improved strains. Indeed, a start has already been made in this direction by the Eddy Tree Breeding Institute in California. The interest that is being taken in this phase of forestry is indicated by the fact that a recent issue of the JOURNAL OF FORESTRY contains three papers dealing with forest genetics and the source of forest tree seed.

Amateur vs. Professional Forestry

From what has been said in the preceding discussion it is obvious that forestry is not a thing which is the exclusive property of trained foresters. Very often excellent forestry is practiced by persons who have had no forestry training at all. Some years ago there came to the writer's attention a tract of timbered land in Tennessee covering a couple of hundred acres which had been in the hands of the same family since 1827. This private forest had supplied timbers for the house and other farm buildings, fuel, and ties for the neighboring railroad. There had not been a fire in the stand for 30 years. The land had never been cut clean and when trees were felled, care was taken to avoid injuring the young growth. Altogether, this was an excellent example of forestry—the continuous production of forest crops—practiced by private owners in a county where state and federal forestry organizations were almost unknown. Wherever there is a purpose to raise wood crops and where intelligent measures are taken to this end; then forestry is being practiced. The auspices under which the work is done are immaterial.

JUNIORS GO ON FIELD TRIP

While this is going to press, the Junior class is in the field on what will be, in the future, an annual Junior field trip. Heretofore the Seniors have had an annual trip covering several weeks. This year the trip was changed to the Junior year and it is planned hereafter that each Junior class shall spend a month in the field.

Eighteen Juniors this year took their final examinations early and left Moscow May 19 to be gone the remainder of the term. Those making the trip were Arthur Buckingham, Lowell Farmer, George Fisher, Holt Fritchman, Franklin Klepinger, William Krummes, Charles Langer, Howard Sargeant, Wilfred Stanley, Frank Wilmot, Doren Woodward, Harry Whiting, James Hockaday, Darwin Burgher, B. W. Woods and Clarence Stowasser. During the trip, the work will be under the supervision of five faculty members, H. I. Nettleton, F. W. Haasis, E. G. Weishuegel, T. G. Taylor and Gerhard Kempff. They will take turns in the field in order that field instruction may be given in all branches without discontinuing classes at school.

The first destination of the crew will be the headquarters of the Clearwater Timber Company, 12 miles out of Pierce, Idaho. This region is the scene of extensive logging operations by the above company and affords an excellent opportunity for practical study. The company has recently adopted a new diameter limit cutting plan and much of the work done by the class will be relative to this. Plots will be laid out on which different systems of marking are used, with the idea in mind of determining their effect upon the growth of the residual stand. Such a study is of primary importance in determining the correct marking system to use. Time studies on logging operations will also be conducted. The data collected on such studies are used to determine the costs of the various operations. The class will also make a collection of forest insects to be used for study

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A Study of Relative Accuray of Various Hypsometers

(Continued from Page 26)

height classes this reaches almost three per cent. For heights of sixty feet or more the instrument is almost as accurate as the Klaussner or the Abney Level and the same general trend of the curve can be noted in the case of these other two instruments. Here also the error is negative.

The Forest Service Hypsometer, unlike the others, shows positive errors throughout. The general trend of the curve is similar to the trend of the others if they were inverted. Its average error for all height classes is greatest.

In general, any of the instruments studied are as accurate as the results of the average field problem, in which height measurements are taken, merit.

TABLE II.

HEIGHTS TAKEN WITH THE TOPOGRAPHIC ABNEY LEVEL BY HEIGHT CLASSES

Height Classes in Feet	Average Error in Per Cent
20	—.45
30	—.45
40	—.33
50	—.25
60	—.27
70	—.41
80	—.71
90	—.89
100	—.90
110	—.80
120	—.45
Average error in per cent for all height classes.	—.54

TABLE IV.

CURVED VALUES OF AVERAGE ERROR OF HEIGHTS TAKEN WITH THE U. S. FOREST SERVICE HYPSOMETER BY HEIGHT CLASSES

Height Classes in Feet	Average Error in Per Cent
20	+1.10
30	+ .74
40	+ .60
50	+ .55
60	+ .55
70	+ .70
80	+1.03
90	+1.35
100	+1.45
110	+1.41
120	+1.25
Average error in per cent for all height classes.	+ .97

TABLE VI.

CURVED VALUES OF AVERAGE ERROR OF HEIGHTS TAKEN WITH THE KLAUSSNER HYPSOMETER BY HEIGHT CLASSES

Height Classes in Feet	Average Error in Per Cent
20	—.15
30	—.09
40	—.07
50	—.11
60	—.21
70	—.40
80	—.62
90	—.78
100	—.82
110	—.72
120	—.62
Average error in per cent for all height classes.	—.42

TABLE VIII.

CURVED VALUES OF AVERAGE ERROR OF HEIGHTS TAKEN WITH THE FAUSTMANN HYPSOMETER BY HEIGHT CLASSES

Height Classes in Feet	Average Error in Per Cent
20	—1.97
30	—1.33
40	— .80
50	— .40
60	— .20
70	— .16
80	— .28
90	— .51
100	— .75
110	— .79
120	— .78
Average error in per cent for all height classes.	— .72

Twenty Years of Forestry at the University of Idaho

(Continued from Page 12)

the forests and the products derived from them. Inquiries are answered regarding the identification of woods, the properties and uses of woods, wood preservation, diagnosis of decay and stain in wood, detection of early decay and other defects in wood products, lumber yard sanitation and the diseases of trees.

Forest Research

The School of Forestry has also recognized from the beginning an opportunity to render service to the state through forest research, and so practically throughout the twenty-year period a number of research projects has been constantly underway. A wide range of projects both in the field and in the indoor laboratories has been covered in this time, and a considerable volume of material has been published.

At first, the time the members of the forest faculty had for forest investigation was very limited, as the teaching loads were heavy. However, as the faculty has grown in size it has been possible to give more and more time to this very important phase of the School's program for the

advancement of forestry in the state. At the present time, one member of the faculty gives all his time to field investigations. Each of two others gives about three-fifths of his time to research, mostly on indoor laboratory projects. Each of the other four is able to devote about one-third time, including the summer season, to work of a research character. The plan of allowing each member of the faculty more or less time for work of an investigative nature not only enables him to keep in touch with the industry, its problems and its progress, but to do better teaching than would otherwise be possible.

Alumni

The school has graduated eighty-two students. Two of these, Oscar Fred Carlson and Homer S. Youngs, made the supreme sacrifice while serving in France in the World War. Of the eighty living alumni seventy-six per cent is directly engaged in some phase of forestry work. In point of the number employed, the federal government lays first claim on the graduates, and the lumber business second. Three graduates are in the employ of states, four of forest schools, two have been called into important posts in India and one into the Forest Service of the Philippine Islands.

Of the graduates, three took only their master's degree here, having received their undergraduate degrees elsewhere. Three others returned later for the master's degree at the University of Idaho, while seven later graduated from the Yale Forest School with the master's degree, one from Oregon Agricultural College and one from the University of California. One graduate is a candidate for the master's degree in forestry at the University of Idaho this year, one at the University of California, and three at Yale University. Now that several universities in this country offer the doctorate degree in forestry, it may be expected that a number of our students will take advantage of this opportunity. In fact two plan to enter the Yale Forest School next fall as candidates for this degree.

Faculty Changes

Dr. Shattuck handled the work alone the first year after the School was opened. The second year Herbert A. Wadsworth assisted as a teaching fellow, and in 1912 Professor I. W. Cook, a graduate of the School of Forestry, University of Michigan, was called as instructor in forestry. Professor Cook was with the School seven years, advancing in that time to the rank of associate professor. He resigned in 1919 to enter commercial work. Mr. A. D. Decker, '13, became instructor in forestry in 1914, and served in that capacity until 1917, when he resigned to accept the headship of the department of forestry at Washington State College. Mr. Homer S. Youngs, '15, was made instructor in forestry in 1915, but left his post in the University in 1917 to enlist in the World War.

Mr. Harry E. Schmetler, a graduate in forestry at Cornell University, succeeded Mr. Decker in the fall of 1917. He served for one year as instructor in forestry, when he left to enlist in the war. He was succeeded in the fall of 1919 by Dr. Henry Schmitz, who was with the School for six years, passing up through the ranks in that time from the position of instructor to that of full professor. He resigned in 1925 to become chief of the division of forestry at the University of Minnesota. The same year that Dr. Schmitz joined the faculty, Professor C. E. Behre, a graduate of the Yale Forest School, was called to succeed Professor Cook. Professor Behre served the School four years, first as assistant professor and later as associate professor. He resigned in 1923 to take up research work in the Forest Service. Meanwhile Mr. John B. Taylor, M.S.(For.) Michigan University, and a member of the Forest Service, supplied in the winter of 1920 as instructor in forestry, and Mr. Clarence Watson was added in 1921 as a fourth member of the forest faculty, remaining with the School six years, when he resigned to enter the Yale Forest School as a candidate for the doctorate degree.

Professor Harry I. Nettleton, formerly instructor in forestry at Oregon Agricultural College, succeeded Professor Behre in the fall of 1923, and now has the rank of assistant professor. Dr. Ernest E. Hubert, who took his doctorate degree at the University of Wisconsin, followed Dr. Schmitz in 1925 as professor of forestry. Mr. Erwin G. Wiesehuegel, who had his undergraduate work in forestry at the University of Michigan, joined the forest faculty as a fifth member in 1926. He had been a member of the Forest Service for a period of four years. Professor Thornton G. Taylor, who took his master's degree in forestry from Yale University, and who later became deputy supervisor to the Wasatch National Forest, followed Professor Watson in 1927, as assistant professor of forestry. In September, 1928, two new members were added to the faculty, one Associate Professor Gerhard Kempff, who took his master's degree in forestry from Harvard University in 1927, and the other Associate Professor Ferdinand W. Haasis, who graduated from Johns Hopkins University with the

degree Doctor of Philosophy last June.

Forestry at the Southern Branch

An important development of forestry at the University is the organization of a two-year curricula in forestry at the Southern Branch. Under this arrangement students may take the work of freshman and sophomore years there and graduate in two more years at the University at Moscow.

Comments on Vocational Forest Education

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essary educational standards for the professional forester from four to five years?

At the present time it is claimed that we are placing too many professional foresters on the market, and, therefore, some authors have taken for granted that we have too many forestry schools of college grade. This does not necessarily follow, since most forestry schools are located so as to particularly dominate the forestry practice of given regions and offer various curricula for specialization in different lines, so that the student desiring to become a logging engineer would not select the same school as one desiring to become a wood technologist or forest pathologist. There always seems to be ample room in the profession to absorb the higher types of men emanating from our forestry schools and the over-production of foresters gives the profession an opportunity to select the best from among them. Those remaining unfortunates who can not fit into the profession satisfactorily then drift to other lines of endeavor or fill those subordinate positions for which the vocational graduate is intended. Furthermore it is felt that these men will be better fitted to fill the few jobs requiring vocationally trained men, since they will have obtained the broader concepts of the job and will realize its relative importance in the field of forestry, thereby giving them a certain satisfaction, in their accomplishments in the so-called subordinate positions, which the vocationally trained man will not experience.

Despite the fact that it is intended that the vocationally trained men feel satisfied to stay in minor positions, it is entirely possible that many men will take such a course as a short cut to a forestry job. Some very intelligent and capable minds will be attracted by this opportunity and will chafe under the yoke of a subordinate position just as will a technical forester. If they do not, they are certainly not the type of men that we desire or need in the forestry profession.

It is also doubted whether the demand from the lumber industries and other employers of foresters for men with vocational training is sufficient to justify the establishment of special schools and whether we could not better carry on this work through the junior college idea or possibly leave the vocational portion of a forester's training to the employer. This is done in many business institutions today and is being practiced to some extent by the Forest Service through its ranger schools and rangers' and supervisors' meetings.

It is true that in Europe there are institutions which particularly train men for these subordinate positions, but we must remember that their forestry practice at present is very intensive and that where we have one man to approximate'y 150,000 acres, Europe employs one forester to every 8000 acres. In other words on a given area they would employ at least 18 men to our one, and naturally approximately 15 of these positions would be subordinate in character and could be satisfactorily held by men with a vocational education.

The lack of opportunity for the vocationally trained man is well illustrated by the abandonment of so-called ranger courses by several of our western schools. It seems that these vocational courses failed to attract the desirable type of forester in a sufficient percentage to make the course worthwhile and in addition, in many cases, these men were unable to hold down a present day forestry job satisfactorily even after being placed. Perhaps the fault lay in the quality of instruction received, but from my meager experience I believe that insufficient knowledge was imparted to them during their period of study to make them useful to the profession.

One author states that the lumbermen are not convinced of the need of a forester on their payroll and feels that they might find it possible to employ some of these vocationally trained men as woods foremen and local bosses. In fact, the crux of the whole problem seems to be that foresters as a group *have failed to sell forestry* to the lumbermen. The $15,000-$20,000 salaries suggested by another author (4) are certainly not impossible for foresters in executive positions with private lumber companies and should have been attained long before this. However, the fault must lie with the forester as much as with the lumbermen, for in order to justify the payment of such a large salary, he must show that he can produce a proportionate income from his forest capital. Furthermore, why should lumbermen employ foresters

when they can obtain technical information, supposedly suitable to their need, free of charge from the Forest Service and from State institutions? Is it any wonder that lumbermen fail to value advice and information which they obtain free of charge? If we can show the lumber industry that we can be of dollars and cents value to them, *and if we insist on their paying* in proportion to the help they receive, I feel that the old question of low salaries for foresters will not only be settled, but the advance of industrial forestry will progress more rapidly.

In conclusion, let me briefly sum up those points which I believe unfavorable to the establishment of additional vocational schools of forestry in the United States at the present time, and please do not feel that I am an alarmist on this subject but rather merely desire to shake some of the hibernating members of our profession from their desultory lassitude in dealing with questions so vital to the best interests of forestry.

1. Vocational training, if demanded, can be taken care of by a two-year sub-professional forestry curriculum at present recognized forest schools or by the employer.

2. That, if there is an over-abundance of professional foresters (which I doubt), by turning out a bunch of two-year men, we will flood the market still more.

3. This will lower the general salary level for the whole profession.

4. That there is not a sufficient insistent demand for vocationally trained foresters to justify the establishment of new schools for training such men.

5. That the expense of founding such schools will be prohibitive and that this money would be better spent in improving the forestry schools we now have.

6. That it is against human nature for a competent man to feel satisfied to remain in the subordinate position to which he is fitted by vocational training.

Literature Cited

Graves, Henry S.

(1) Some Considerations of Policy in Forest Education. Journal of Forestry, XXVI, No. 4:430.

(2) Vocational Training in Forestry. Journal of Forestry, XXVI, No. 6:749.

Murray, Carleton Gordon.

(3) The Student Looks On. Journal of Forestry, XXVI, No. 4:454. Herbert, P. A.

(4) Comments on Forest Education. Journal of Forestry, XXVI, No. 6:762.

RESEARCH ACTIVITIES IN THE SCHOOL OF FORESTRY, 1929

Research work in progress at the School of Forestry during the first part of 1929 follows very closely the previous report given in December 1928 and includes the following main projects and investigations:

A Forest Survey of Benewah County, with Dean F. G. Miller and T. G. Taylor in charge, will be continued this summer on cut-over and burned-over lands. Preliminary reports on this project have been presented before various technical forestry organizations by Dean Miller.

The problem of slash disposal in charge of Mr. G. Kempff has been followed persistently this winter and spring with very favorable results. Satisfactory progress has been made in the development of an improved design in the ignition torch used on logging areas for starting the fires in brush piles. The speed and efficiency of handling this phase of brush disposal have been greatly increased.

The report, in bulletin form, of the study made on residual timber stands in Northern Idaho by H. I. Nettleton will be prepared for publication the coming summer.

Mr. E. G. Wiesehuegel has completed his study on the characteristics of the wood of various species of true firs and has developed a key for the identification of these woods. The major work will be published at a later date and the sub-projects developed during the study will be continued. The field project which Mr. Wiesehuegel is conducting on the growth of western yellow pine in the Winchester, Idaho, region will be continued this field season. This study when completed should furnish some valuable data on the rate of growth of this species following logging.

A bulletin, "The Cause and Control of Decay in Buildings," Univ. of Idaho Bulletin No. 2 of Volume 29, by Dr. E. E. Hubert, was issued in Januaray 1929 and has had a wide distribution, the National Lumber Manufacturers' Association having contracted to purchase a separate edition for special distribution. This bulletin is of special interest to home owners, builders, contractors and architects who desire more information on the proper use of wood in buildings.

The Department of Commerce bulletin, "The Sap Stains of Wood and Their Prevention," by

E. E. Hubert, is now in press and will be distributed within the next few weeks. This publication covers the principal loss-producing stains found in lumber and other wood products and presents methods of prevention. The bulletin is fully illustrated with 39 cuts and half-tones and includes considerable new data on particular phases of the sap stain problem.

Other projects in charge of Dr. E. E. Hubert follow: Match tests of kiln dried and air dried Idaho white pine stock and of blue stained and clear stock have been completed this winter with the aid of the new impact machine. Long-time durability tests on Idaho woods are still in progress and two new laboratory methods have been developed for use in decay resistance experiments. The results of these methodological studies are being prepared for publication. The tests to determine the effectiveness of blue stain preventives have received a new stimulus through the development of improved laboratory methods and new chemicals are now undergoing test. A special stain preventive compound for which a patent has been granted to Bateman and Hubert is being tested for use on wood products which come in contact with food materials. End coating tests conducted in the logging areas last season show the effectiveness of the end-coating mixture in preventing blue stain in stored logs and in reducing the end checks in these logs. Further tests and an improved formula are a part of the proposed work for the coming season.

The research projects carried on by the two research fellows, Mr. P. D. Kemp and Mr. A. G. Sharp, on the effect of kiln drying upon the decay resistance of Idaho white pine and Pondosa pine are completed and will be presented soon. A study of the organisms which cause sap stain in lumber manufactured in Idaho is nearing completion. Mr. C. M. Genaux, a graduate student, is completing this project. An interesting study of the effect of blue stain in wood upon the pentration and absorption of wood preservatives has been completed by Mr. W. M. Saling, another graduate student. The studies show that previous views on this problem have not been based on facts. The possible use of Douglas fir bark as a heat insulator is being investigated as a special problem by one of the senior students, A. P. Balch.

The investigative program consisting of a study of the effect of tree windbreaks on crops and of the relative adaptability of tree species to grow in certain southern Idaho regions is being carried out by Mr. A. M. Sowder, Extension Forester, and it is expected that a report on the windbreak study will be issued at an early date.

IDAHO'S REFORESTATION LAW

The reforestation law passed by the recent session of the Idaho legislation should play an exceedingly important part in the perpetuation of the lumber industry of the state. One of the main obstacles to the practice of forestry by private owners is the prevailing confiscatory system of taxing young, growing timber. Under this system the same crop is taxed over and over from year to year with the result that by the time the new crop is ready to harvest, its value has been eaten up by taxes.

This question has been agitating the timber growing states for some years, and many of them have met the issue by passing remedial tax laws calculated to encourage private forestry. Those laws as applied to cut-over lands, levy a nominal annual tax on the land as land, and collect the main tax as a yield assessment on the timber at the time it is harvested.

This is the basic principle of the Idaho reforestration law. According to this new law all lands designated as reforestation lands are to be assessed for taxation purposes at one dollar per acre, the tax on this value to be paid annually, and the crop is to pay a yield tax of 12 1-2 per cent of its stumpage value when it is cut. It works out that this dual form of taxation exacts from the owner all that he should pay in comparison to what other classes of property pay, and is, therefore, fair both to the forest owner and to the community in which his forest property is situated. The law also recognizes the need of the community for an annual revenue from taxes for the support of local government, and at the same time defers the main tax until the owner can pay it out of crop income, thus placing him on the same basis in this respect with the farmer.

The reforestation act is a recognition of the principle that the growing of a long time crop like timber is not an obligation of the owner alone, but one which entails risks in the way of losses from fire and other hazards, which the community must share. Under the law the owner pays the annual tax on the land regardless of whether he ever gets any income from the crop, but if the crop burns or is otherwise before it is ready to cut the community shares the loss by sacrificing the yield tax on the timber.

The reforestation act is a fitting companion piece of legislation to the Idaho forest law passed in 1925, and the two together give the state a forest policy second to none among the states of the Union.

THE NATION NEEDS FORESTERS

The exceedingly rapid development of forestry has created a demand for technically trained foresters which is in excess of the supply. Lumber companies, private timber owners, public service corporations, municipalities, states, and the nation, are taking an increasingly active interest in the problem of perpetuating our forest resources and are demanding the services of trained foresters to manage their properties and help devise means for more economical utilization of the timber crop. Probably no other line of scientific training offers more or better opportunities to intelligent and able-bodied young men for real constructive 160,000,000 acres as national forests. Proper deservice to society.

The federal government has set aside nearly velopment and administration of this vast domain requires a large force of men especially trained as supervisors, deputies, rangers, forest engineers, lumbermen, land examiners, forest pathologists, forest entomologists, wood technologists, silviculturists, and other technical assistants.

The Forest Service is now organizing an extensive research program which will require another large force of men suitably qualified. There is urgent need for research in silviculture, range management, forest products, forest economics, and perhaps most of all in chemical derivatives that will utilize our wood waste. The states and forest schools are also employing research men in increasing numbers.

Trained Foresters Needed

Practically all of the timbered states and some of those in the prairie belts have now adopted forest policies and employ state foresters with aids. Lumber manufacturers' associations, wood pulp concerns, the lumber industry, and railroad companies are realizing their need for men trained in forestry. Many cities employ city foresters to care for public parks and street trees, and many public service corporations have trained foresters in their employ to manage timbered watersheds for the protection of city water systems.

The successful forester must be a man who has a natural aptitude for the work, be thoroughly trained, and imbued with the spirit of public service. He must be a man of wide practical interests; men in few professions, if any, encounter more of the practical every-day life of the people than does the forester. The forestry profession is recognized as being on a par with other professions based on the sciences. This is evidenced by the fact that several universities now offer the degree of Doctor of Philosophy in the field of forestry. Such recognition should serve as an inspiration to all young men looking forward to forestry as a life career.

Salaries for Beginners

In the matter of salary scale the forestry profession is ranked with the engineering profession in the government service. The majority of graduates from the School of Forestry take employment in the United States Forest Service. The positions open to beginners are those of forest ranger, junior forester, and junior range examiner, and the initial salary is from $1860 to $2000. Candidates qualify for these positions through comprehensive examinations which are usually taken by seniors in their final semester. Men passing these examinations have been almost uniformly fortunate in receiving prompt appointments.

After entering the Forest Service the young forester is eligible for promotion up through the ranks to the more responsible positions, the rapidity of advancement depending on the individual. Stepping up from grade to grade the salaries range from $1860 as the beginning salary for forest rangers to $7500 for the higher administrative and investigative positions. Salaries in the service of the states range from $3000 to $8000 for state foresters, with an average of about $4000, and from $1800 to $3000 for deputies and assistants. Educational institutions usually pay about the same as the Forest Service or perhaps somewhat more in comparable positions, while salaries for foresters in private corporations are usually higher.

Though the principal work in forestry is done on the Main Campus of the University, students who are contemplating enrolling at the Southern

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THE FACULTY

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ber of the American Society of Plant Physiologists, Ecological Society of America, and of the Northwest Scientific Association. He also holds membership in Sigma Xi, Phi Beta Kappa, and Xi Sigma Pi.

Thornton G. Taylor, Assistant Professor of Forestry, took his first college work at Massachusetts Agricultural College. In 1921 he received the degree of Master of Forestry from Yale University.

His first two years after graduation from Yale were spent as a Forest Assistant in District 4, United States Forest Service. The next three years were spent as a Forest Ranger on the Targhee National Forest. From 1926 to 1927, Professor Taylor was Assistant Supervisor of the Idaho and of the Wasatch National Forests, respectively. Since coming to Idaho he has spent his summers on the Forest Survey of Benewah County.

Coming to Idaho in the fall of 1927, Professor Taylor has specialized in teaching silviculture and grazing courses.

He is a member of the Society of American Foresters.

Harry I. Nettleton, Assistant Professor of Forestry, received the degree of Bachelor of Science in Forestry from Oregon State College in 1921. Specializing in forest mensuration, he received the degree of Master of Science in Forestry from the University of Idaho in 1928.

During his undergraduate days, he spent one year as a log scaler and check scaler in the yellow pine region of eastern Oregon, and six months as district dispatcher on the Columbia and Cascade National Forests. Before coming to Idaho Professor Nettleton spent three months as timber cutting foreman and brush disposal inspector on an East Oregon yellow pine logging operation. Since coming to Idaho, he has spent three field seasons on residual white pine studies in North Idaho, one-half season on cottonwood studies in South Idaho, one-half season on the Clearwater Timber Company timber survey and one season on residual western red cedar studies in North Idaho.

Specializing in forest mensuration and fire protection, he has taught one year at Oregon State College and the past six years at Idaho.

Professor Nettleton is a member of the Society of American Foresters and National Forester of Xi Sigma Pi, national forestry honorary fraternity.

Erwin G. Wiesehuegel, Instructor in Forestry, received his Bachelor's degree in Forestry in 1922 from the University of Michigan, at which he also took one-half year of post graduate work. Mr. Wiesehuegel received his Master's degree in Forestry from the University of Idaho. His major subject is wood technology.

After his graduation from the University of Michigan, Mr. Wiesehuegel spent four months in timber cruising on the Plumas National Forest in District 5, followed by fifteen months in logging operations in pine and redwood at Hilt and Scotia, California, respectively. This experience was followed by a year on tie sale work as a Forest Ranger at Big Piney, Wyoming. The following two years were spent as a Forest Assistant on the Wyoming and Teton National Forests, from which field he moved to that of Technical Assistant in forest management on the Uinta National Forest, Utah, holding the latter position for the two years previous to his acceptance of his present position at Idaho. Since coming to Idaho, Mr. Wiesehuegel has had charge of the field work on the Clearwater Timber Company forest survey during the field season of 1927 and of a field study in the growth of residual western yellow pine during the past season.

For the past three years he has been teaching logging, lumbering, dendrology, wood technology and history and policy.

Mr. Wiesehuegel is a member of the Society of American Foresters, of Xi Sigma Pi, and of Phi Sigma Biological Society.

WHERE THE BOYS WILL BE THIS SUMMER

Ahlskog, Ralph. On the Coeur d'Alene National Forest. Care U. S. F. S., Coeur d'Alene, Idaho.

Andrews, Whipple. Working on the Coeur d'Alene National Forest. Care Honeysuckle Ranger Station, Coeur d'Alene, Idaho.

Aust, Paul. Trail crew, Coeur d'Alene National Forest. Care McGee Ranger Station, Coeur d'Alene, Idaho.

Brown, Harold. On the falls district of the Kaniksu National Forest. Care Falls Ranger Station, Priest River, Idaho.

Buckingham, Art. Grazing work on the Clearwater National Forest. Care Forest Service, Weippe, Idaho.

Burton, Les. Burton will be on a timber survey on the Boise National Forest. Care Forest Service, Boise, Idaho.

Daskam, Glenn. Trail crew, Kootenai National Forest. Care Kootenai National Forest, Troy, Montana.

Dittman, Clarence. Working for the School of Forestry on the Weiser and Payette Forests. Care School of Forestry, Moscow, Idaho.

Dodd, Jack. On the teaching staff of Daniel Carter Beard's Outdoor School. Care D. B. O. S., No. 1, Hawley, Pennsylvania.

Farmer, Lowell. In charge of eradication crew, blister rust control work. Bovill, Idaho, care B. R. C.

Ficke, Herman. Trail survey, Clearwater National Forest. Care Bungalow R. S., Pierce, Idaho.

Fisher, George. Will be in the Middle West this summer. 623 Crawford Avenue, Ames, Iowa.

Frederick, Jack. Lookout, Coeur d'Alene National Forest. Care Magee Ranger Station, Coeur d'Alene, Idaho.

Fritchman, Holt. With blister rust control on Clearwater National Forest. 618 Realty Building, Spokane, Washington.

Hardin, Francis. Trail crew, Nez Perce National Forest. Care, U. S. F. S., Grangeville, Idaho.

Hepher, Stanley. Assistant ranger, B. C. Forest Service, New Denver, British Columbia.

Hill, Ed., Timber survey, Weiser National Forest. Care U. S. F. S., Council, Idaho.

Hockaday, James. Jim will be on the Sawtooth National Forest. Care U. S. F. S., Ketchum, Idaho.

Hoggan, George. Farm manager. Care Theodore Nelson, Moscow, Idaho.

Hopkins, J. K. Trail crew, Columbia National Forest. Care Forest Service, Guler, Washington.

Hunter, Harold. 111 25th St., North, Great Falls, Montana.

Illichevsky, George. Northern Rocky Mountain Experiment Station, Priest River, Idaho. George has accepted a research fellowship of $675 from the Idaho School of Forestry next year.

James, C. L. Lookout, Coeur d'Alene National Forest. Care Honeysuckle R. S., Coeur d'Alene, Idaho.

Johnson, Robert. Grazing reconnaissance, Boise National Forest, Boise, Idaho.

Klepinger, Franklin. Fireman, Pend Oreille National Forest, Clark's Fork, Idaho.

Kennedy, Fred. "Fritz" will be on grazing reconnaissance on the Ashley National Forest. Care U. S. F. S., Ogden, Utah.

Krummes, William. With the School of Forestry on the Benewah County Timber Survey. School of Forestry, Moscow, Idaho.

Langer, Charley. Assistant ranger, Clearwater National Forest. Care Musselshell R. S., Weippe, Idaho.

LeBarron, Russell. Lookout, Coeur d'Alene National Forest. Care Honeysuckle R. S., Coeur d'Alene, Idaho.

Lindsey, Clive. On the Sawtooth National Forest, Hailey, Idaho.

Lord, Philip. Smokechaser, Salmon National Forest. Care Indianola R. S., North Fork, Idaho.

Martinez, Paul. On the Colville National Forest, Republic, Washington.

Miller, R. B. Sawmill and woods work. Box 373, Salmon, Idaho.

Morgenroth, Earl. Lookout, Idaho National Forest. Care Forest Service, Warren, Idaho.

Moss, Virgil. Reconnaissance, blister rust control, Clearwater National Forest. 618 Realty Building, Spokane, Washington.

Newcomer, Fred. Sheridan, Wyoming.

Pechanec, Joe. Smokechaser, Salmon National Forest. Care Forest Service, North Fork, Idaho.

Redmon, E. R. F. D. No. 1, Pocatello, Idaho.

Richards, Hod. With the Brooks-Scanlon Lumber Company, 232 Congress St., Bend, Oregon.

Rostock, Roy. Trail work, Payette National Forest. Care Forest Service, Cascade, Idaho.

Sargeant, Howard. Trail survey, Clearwater National Forest. Care Bungalow R. S., Pierce, Idaho.

Schaller, Maurice. Chaser-lookout, Weiser National Forest. Care Ranger McDowell, Council, Idaho.

Sowder, James. With the School of Forestry on the Benewah County Timber Survey. School of Forestry, Moscow, Idaho.

Shank, Paul. District dispatcher, Hughes Creek Ranger District, Salmon National Forest. Care Forest Service, North Fork, Idaho.

Stanley, W. B. Cruising for the Clearwater Timber Company. Care C. T. C., Pierce, Idaho.

Stowasser, Clarence. On the Coeur d'Alene National Forest, Coeur d'Alene, Idaho.

Stroud, Charles. Timber survey, Sequoia National Forest. Hot Springs, California.

Swayne, Allen. Blister rust control. 618 Realty Building, Spokane, Washington.

Thormock, Clarence. Trail crew, Kootenai National Forest. Care Forest Service, Libby, Montana.

Whiting, Harry. On the Kaniksu National Forest. Care U. S. F. S., Newport, Washington.

Wilmot, F. H. Smokechaser, Pend Oreille National Forest. Care U. S. F. S., Sandpoint, Idaho.

Woods, E. W. Time studies on caterpillar logging in the Clearwater country. Republic, Washington.

Woodward, Doren. Trail traverse, Clearwater National Forest. Care U. S. F. S., Pierce, Idaho, Bungalow R. S.

Wuhrman, Ed. Trail crew, Pend Oreille National Forest. Care U. S. F. S., Sandpoint, Idaho.

The Nation Needs Foresters

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Branch have an opportunity to take their first two years of study there. In forestry, as in other divisions, the freshman and sophomore years are co-ordinated with the junior and senior years at Moscow. The Southern Branch student looking toward forestry as a profession begins a course which can be continued by specialization in general forestry, logging engineering, or range management on the Main Campus. Graduates and former students of the School of Forestry are serving with distinction in a wide range of forestry positions.

THE FOREST RANGER

His throne, a lofty mountain peak;
His realm, the country 'round;
His joy, the bursting sundown sky;
His life, what God sends down;
His law, the way of Nature's plan;
His power, a mighty force,
The trust of God and man combined,
And service is its source.

Stanley Foss Bartett
The American Forestry Magazine

THE ALUMNI

(Continued from Page 40)

He has accepted an appointment to a fellowship of the American-Scandinavian Foundation for the academic year of 1929-30 with a stipend of one thousand dollars, and will study in Sweden under Dr. E. Melin, a world authority on tree mychorrhiza. Mr. Hatch is a member of the research branch of the Forest Service with headquarters at Philadelphia. The American-Scandinavian Foundation annually awards a number of fellowships of one thousand dollars each, an equal number of students being appointed in the United States and in the Scandinavian countries.

Heggie, Tracey L.
"Trace" is down in New Mexico on grazing work. Mail will reach him at Monticello, New Mexico, care U. S. F. S.

Hoffman, Henry C., '27.
"Hank" secured his master's degree in forestry from the University of Idaho in 1928 and is ranger on the same tie-sale as "Bob" Davis. "Hank" and "Bob" are working together to make the world safe for tie-hacks. Daniel, Wyoming, care U. S. F. S., will find "Hank" at home.

Hjort, George.
George will return to graduate next year after spending the year to earn funds.

Huntington, Collis, '26.
Mr. Huntington has recently been transferred from the Crater National Forest to a timber sale on the Malhuer National Forest, with headquarters at John Day, Oregon.

Jackson, Tom, '19.
Jackson is assistant resident manager of the Fruit Growers' Supply Company, Susanville, California.

Jemison, George M.
George has been out this year earning funds with which to return next year.

Johnson, Royal, '27.
"Jerry" is with the Clearwater Timber Company at Lewiston, Idaho. He was married last spring.

Kemp, R. L., Ex. '27.
Kemp is yard foreman for the Panhandle Lumber Company at Spirit Lake, Idaho.

Lehrbas, Mark M., '27.
"Polly" is junior forester working on the acquisition of lands in District 7. At present he is down in Florida, the land of sunshine and grapefruit. Write care U. S. F. S., Lake City, Florida.

McLaughlin, Robert P., '25, M. F. Yale, '26.
"Bob" is assistant professor of forestry at the University of Minnesota. He writes, "Am attempting to fill Prof. J. P. Wentling's shoes during his leave. I plan to start work toward Ph.D. next year at Yale." Address Division of Forestry, University Farm, St. Paul, Minnesota.

SUSTAINED YIELD

Within the past three years a new phrase has been coined by foresters—a phrase which is certain to become a familiar expression wherever foresters and lumbermen gather.

The term "Sustained Yield" covers a field so vast and enters into so many side trails and byways of the lumber industry that the magnitude of such an undertaking leaves the average operator rather dubious in his own mind as regards the practical possibilities contained in such a scheme.

To remove any doubt which now exists in the minds of the lumber industry as to the ultimate value of forest perpetuation in this state, a great deal of missionary work must be done by those both directly and indirectly interested in our forests.

The lumbermen of the state are approaching this problem with an open mind and are ready and willing to accept such advice as will aid them in making forest perpetuation a reality in this state.

The Forest Schools of the Northwestern States are rapidly sensing the importance of bringing before the industry pertinent facts relating to the various angles of Sustained Yield.

Slash disposal, forest taxation and forest economics are being stressed more and more. It is gratifying to note this forward step of the Forest Schools; it is a hopeful sign for the industry to contemplate.

One of the leaders in the lumber industry stated very aptly, not long ago, in addressing a body of foresters, that the lumber industry was sadly in need of a Moses to lead this forward movement.

Unquestionably, the Forest Schools are best equipped to produce a leader or leaders, to place the lumber industry on a firm and permanent basis.

Malmsten, Harry E., '17.

Assistant professor of forestry and assistant forester in the Experiment Station at the University of California. He writes that he is teaching courses in general forestry, forest protection, and range management during the winter and spring terms and spends summer and fall on research. His address is 1715 Francisco Street, Berkeley, California.

Martin, P. J., '18.

"Special agent, Chapman and Company of San Francisco. In my trips thru Idaho, Oregon, and Washington meet many of the Old Guard," reads his questionnaire. His avocation is the capturing of rattlesnakes. His address is 414 Chamber of Commerce Building, Spokane, Washington.

Miller, William B., '22, M. S. (For.), University of California, '25.

Miller is associate range examiner, U. S. Biological Survey, Reindeer Investigations, Nome, Alaska. He is conducting experimental work and investigations aiding the development of the reindeer industry in Alaska.

Mitchell, William W., '28.

"Shy" has been in the east this last year but is coming west this fall. He is rapidly recovering from his recent illness. We will be watching for you, "Shy." Write to 1105 Madison Street, Wilmington, Delaware.

Malhotra, Des Raj, '25.

Mr. Malhotra is assistant conservator of forests to the State of Kashmire, India, with headquarters at Jammu, Kashmire State, India.

Munson, O. C., '21.

Munson is district exchange engineer for the Pacific Telephone and Telegraph Company and the Northern California Telephone Company. Says that he runs onto Bill Schofield every once in a while. Munson's address is Santa Rosa, California, care Pacific Tel. & Tel. Co.

Olsen, C. C., '26.

Olsen is district ranger on the Deschutes National Forest. Last year he said he was looking for the footprints of Fremont the Pathfinder. As he said nothing about the results of his quest this year, we take it that he is still looking. Just write care U. S. F. S., Bend, Oregon.

Olson, Oscar A., Ex. '27.

Oscar is manager of the Page Milk Company, a large corporation at Marshall, Missouri.

Pike, Galen W., '27.

"Gale" received his Master of Forestry from Yale in 1928. At present he is chief of party on a winter cruise on the Chippewa National Forest in Northern Minnesota. His address is Cass Lake, Minnesota, care U. S. F. S.

Potter, Arthur.

Mr. Potter is assistant forest supervisor, Boise National Forest, with offices at Boise, Idaho.

Renshaw, Emera W., '25.

Mr. Renshaw is now forest ranger on the St. Joe National Forest at Avery, Idaho.

Rettig, E. C., '19.

Mr. Rettig is land agent of the Clearwater Timber Company with headquarters at Lewiston, Idaho, 203 15th Avenue.

Rowe, Percy B., '28.

Perce has recently transferred from the office of Blister Rust Control, Spokane, Washington, to the Forest Service with headquarters at Ogden, Utah. He will attend the Yale Forest School next year, where he has been granted a $250 scholarship.

Sajor, Valentine, '26.

Mr. Sajor is now district forester of forest districts IV, V, and X in the Philippine Islands. His address is Manila, P. I., care Bureau of Forestry.

Sharma, Parmishirie Das, M. S. (For.), '22.

Sharma is technical advisor in the Forest Branch, State of Gwalior, India.

Schofield, William R., '16.

Mr. Schofield is secretary-supervisor, Humbolt Redwood Reforestation Association. He has supervision of the largest reforestation program by private interest in the U. S. Address 319 Brett Street, Eureka, California.

Snow, E. A., '25.

Snow is senior ranger in charge of a district on the Medicine Bow National Forest. Box 634, Laramie, Wyoming.

Space, Ralph S., '25.

Ralph is principal ranger on the Blackfoot National Forest with headquarters at Kalispell, Montana.

Space, Jackson, '27.

Jack is a ranger at Alamogordo, New Mexico. He says it is twice as hot down there as in Idaho.

Spence, Liter E., '28

"Spence" is a junior range examiner working out of Montpelier, Idaho. Says he is doing grazing reconnaissance work and likes it fine. He has accepted a scholarship of $600 at the University of California next year. His address is Forest Service, Ogden, Utah.

Sowder, Arthur M., B. S. (For.), '25; M. S. (For.), '27.

"Art" is extension forester to the State of Idaho with offices in Moscow.

Saling, Wallace M., '28.

"Smoky" is back at the school this year working for his master's degree in forestry. He worked at the Priest River Experiment Station last summer. He will be on the Boise National Forest as junior range examiner this summer.

Wheaton, Rodgers G., '24.

Mr. Wheaton is cedar pole salesman for the Page and Hill Company with offices at 733 Public Service Building, Boston, Mass.

White, Harold Z., '26.

White is Dry Kiln Superintendent for the Clearwater Timber Company. His address is 624 6th Avenue, Lewiston, Idaho.

Williams, Guy V., '27.

Guy is located in the plant department of the Mountain States Telephone and Telegraph Company at Boise. His address is 704 McKinley Street, Boise, Idaho.

Zuver, John H. Jr., Ex. '26.

Mr. Zuver is vice-president of the Mirror Press, Inc., South Bend, Indiana. Says he received a wedding announcement from "Hank" Baumann, '24.

JUNIORS GO ON FIELD TRIP

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in the laboratory. This work will be under the direction of Earl W. Shull of the Entomology department.

The first of June the class will move to the Northern Rocky Mountain Experiment Station near Priest River, Idaho. Here, they will be given an insight into methods of conducting experimental work as well as opportunity to obtain important data on projects which have been running for several years. The station has projects in silviculture, management and protection, underway, which will afford splendid opportunities for study. Mr. Kempff who was formerly at the station will conduct much of the work done by the class. Aside from work at the station itself there are several timber sales in the region where the class can see how cutting is handled on government timber. Such opportunities to obtain first-hand information place the Idaho School of Forestry in an enviable position.

The trip will end June 7 and most of the men will probably go directly to their summer work.