



Dr. Griffin and his Crew about to depart.

SILVICULTURE TRIP—1963

by BOB AUGUST

Sunday, June 2, dawned bright and sunny which provided a pleasant setting for an early morning send-off in our luxurious Bangor and Aroostook bus. Needless to say, the mightiest plans of mice and men came to naught when our "departure" time of 8:00 was delayed to 8:05. Dr. Griffin couldn't "understand" it. Well, even with "life's little setbacks," we finally reached our first stop at Professor Ashman's place outside Augusta at about ten o'clock.

Professor Ashman treated us to a very interesting tour of his lands and home. We were able to see and compare plantations of many variations of species on different sites. One of the most important things gained, however, was physical exercise. After weeks of sitting, Prof's walking tour really proved to be quite a test of endurance. It was good practice for Dr. Baldwin's "Running Tour" of the Fox State Forest.

The next stop was the Massabesic Experimental Forest in Alfred. We spent a very interesting day with Tom McConkey, the

Forest Director. White pine silviculture and the various site preparation treatments, planting procedures, and silvicide-use associated with it occupied us while there.

While in the Alfred area, we had an opportunity to talk with Dick Arsenault, Service Forester with the Maine Forest Service. This proved to be an interesting look into the practical aspects of forestry as the service foresters see it.

Late in the day, we headed west toward the Harvard Forest in Petersham, Massachusetts. However, first we "invaded" Concord, New Hampshire for supper. To say that twenty-odd foresters, complete with boots and field clothes, caused just a little eye-opening would be a gross understatement. The only thing our sideshow lacked was an admittance charge.

After leaving Concord, we traveled right to the Harvard Forest—that is, we came within 5 miles of it before we—Dr. Griffin—got lost. After some deliberation, map-reading, and eye-straining at the darkened

countryside, we found the place. The rest of the night was occupied going through the Harvard Museum and seeing the very life-like three dimensional displays as well as other items relating to forestry.

The next day was spent on the forest. It was a day in which the staff appealed to and challenged our concepts of forestry. These people were intellectual foresters. A Harvard "brain trust", as it were. That night, we were offered the choice of either talking with Dr. Roup or going into town with Archie, our bus driver, to tank up—also to get some gas in the bus.

Next on the agenda were stops at the Fox State Forest and Bear Brook State Park. Dr. Baldwin limbered up our legs at the Fox Forest and Claxton Heath our minds at the Bear Brook State Park. Clayton told us all about his bird box program used to divert "little old ladies" attention from his silvicide spray program to release white pine. Foresters have to be devious psychologists at times. At Bear Brook, we were also treated to a view of an "integrated logging operation" and learned about a destructive distillation set-up which existed there a few months previous—that is, before the "revenuers" found out about it.

We then headed north to the White Mountain National Forest. Our stops in this area included the Forestry Building in Laconia, where we saw The Forest Service Laboratory. At the time, studies were underway in soils and northern hardwood pathology. Most of the work in the Bartlett Experimental Forest concerned northern hardwood management. All the while, our unsung hero—Archie—piloted our big B and A bus over the graveled forest roads without incident. However, when we passed over the same weak-appearing bridge four times, we all had our doubts as to how much longer Archie's record would last.

While in the area, we stayed at a ski lodge—just like summer camp! Needless to say, we did scrape together a crew to play "Old Maid" while there. Dr. Griffin claimed he never heard of "sech" a game, but funny thing—he won!

After a stop at the Hubbard Brook Experimental Forest to see the work there in watershed management and water run-off determination, we headed north to the International Paper Company camp at Crystal, New Hampshire. The camp fit the description in our logging book quite well—horse

hovel next to the water supply and a root cellar. That night we had another game of one and two "Old Maid." The next day we saw the pulp operation on I.P.'s working circle which they managed on a selective cutting basis. Under the terrain conditions of the area, the forester in charge claimed that only horses could be used economically in their selective cutting system.

Homeward bound. Saturday we arrived back in Orono, tired, but not in the least regretful for the experience. After a night's rest, many of us were off to Princeton for an extended vacation.



"Clear cut and burn"

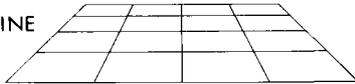
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CLASS OF 1965

by DOUG MONTEITH

The end is in sight! We are rapidly approaching the day when we will have completed our undergraduate studies and will either get out into the field and put our knowledge and ability to work or go on to graduate work in our preferred specialties. This fact, coupled with the fact that we are really getting deep into the subject matter of Forestry, helps to make our efforts more enjoyable and interesting.

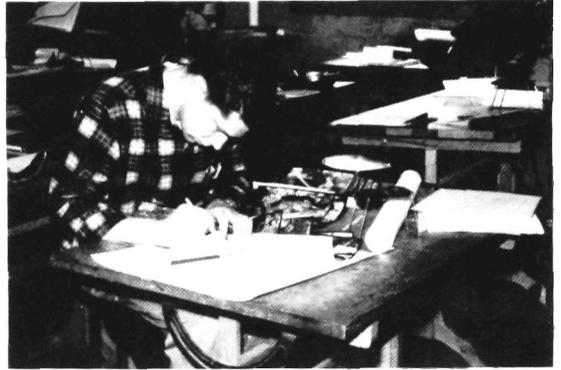
The first semester of this year has seen the first real differentiation between the foresters and the wildlifers of our class. While the wildlifers went off studying their birds

and fish and "creepie-crawlies", we foresters study some of the more "meaty" of the forestry courses, as sech. Logging is all important, and Land, Growth and Growing Stock are terms which are now well known to the junior foresters.

With the rapid approach of the end of the spring semester we enviously watch and listen while our underclass associates make plans for their summer employment. The major portion of this coming summer will be spent on spring trips and summer camp for both the foresters and the wildlifers. While the "webfeet" are at Camp Robert I.

Ashman for the first week after finals, the foresters will be on either the silviculture or utilization trip. We view this coming summer with both apprehension and enthusiasm. We will finally get a chance to earn some credit doing some of the things that we are being trained to do in the field. But surely the rumors being circulated by the seniors about buzzard-sized mosquitoes, and hip boots not helping much can't be true, can they?

And so, with the end of this year rapidly approaching we look forward to the summer camp ahead, our senior year and whatever else the future holds.

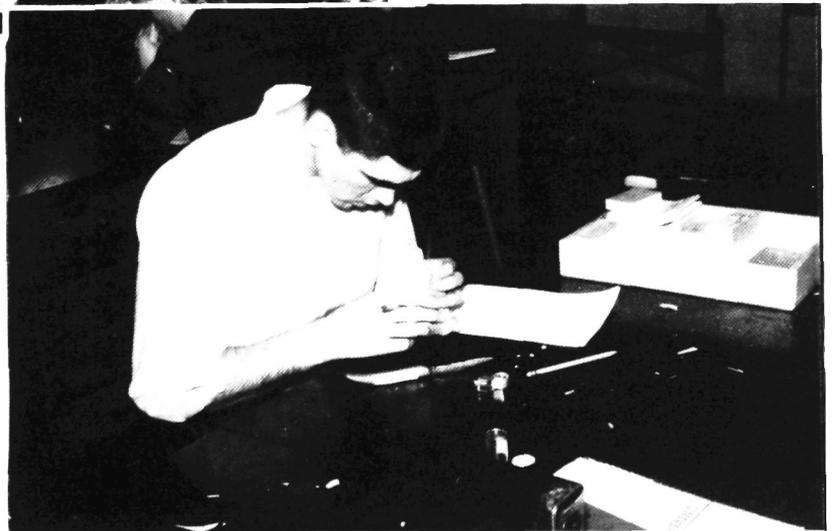


Photogrammetry Lab



Ichthyology Lab—

“Male or Female?”



“This is pine.” “Or is it spruce?” “Or poplar?”



CLASS OF 1966

by DAVID ABELL

After a summer of great value to most of us, we returned to Maine, not as "green freshmen" but as "experienced sophomores". Now with a year of broad subject matter behind us, we began to take subjects that more closely pertained to our major. In our freshman year many of us could not see what value some of our courses would be to us when we eventually graduated. We began, in our sophomore year, to see some definite connections between forestry and the courses we were taking. As this year wore on, we began to have more appreciation for our freshman courses. Everything, now starts to fit together. As each year goes by, past and present courses have more meaning, and ultimately a senior forester should

be able to see what relation each course has to his final goal.

Probably the most important courses we have this year are forest sampling and forest mensuration. Forest sampling gives the student an insight into the different sampling methods used in forestry. An insight into problems in setting up sample sizes, determining sample means and standard deviations, and determining methods to find the accuracy of your work, are all important phases of forest sampling. Forest mensuration gives the student experience in working with forest measurements and extending or extrapolating these measurements to estimate future growth and yield of our forests. These courses are, in a sense, introductory

and in future courses we will again use the principles we have learned in sampling and mensuration. We will use the fundamentals of these courses throughout our lives as we make a place for ourselves in this world.

Dendrology, the classification and nomenclature of trees, is almost self-explanatory. Becoming familiar with trees, their value, and their habitats is essential to any forester. Also, along these lines, a forester in his sophomore year must take forest entomology. With a basic knowledge of insect pests, the student can better appreciate the importance that insects play in the growth of our forests.

Surveying, geology, and ecology are all very practical courses for any potential forester. Surveying gives the student sufficient knowledge to map an area, lay out roads, pipe lines, and mark boundaries. These are all essential in forestry. Geology gives the student an understanding of where to lay out roads, where to construct buildings, what type of materials to use, and what type of repairs could be expected to be needed to maintain these roads and buildings. Ecology is necessary for an understanding of the relationship between animals, plants, soils, and climate. These are without a doubt, very practical courses for any forester.

Our remaining courses do not seem as closely related to forestry as the aforementioned courses, but, nevertheless, they have their place. Economics gives the student an understanding of basic economic principles, which will be used later in forest economics, a course definitely oriented towards forestry. Physics, more than anything else, is a course that trains the student in mental discipline. A great amount of logical reasoning is needed to understand the basic problems a student encounters in physics. Also, with the expanding field of bio-physics a forester must understand fundamentals of physics in case he encounters problems dealing with bio-physics in his future work. Last of all, but very important, is our speech requirement. All foresters must meet the public in one way or another and fundamentals of speech is designed to better enable a forester to express himself, whether in front of a group or on an individual basis.

Most definitely, our courses are becoming more directly related to our major. But many of us participated in activities that were just as important as our courses before we even started our sophomore year in college. I'm speaking, of course, of summer jobs in forestry. Sophomores from the University of Maine were present in many parts of the country this summer, working in state and federal forests. Students worked in such states as Maine, Vermont, Idaho, Wyoming, Colorado, California, and Washington, just to name a few. Practical experience was the value of our various summer jobs. We learned to apply classroom knowledge obtained during our freshman year. In many cases we learned things that we wouldn't be getting until our senior year here at Maine. Fire fighting, cutting, surveying, cruising, and operation of equipment were a few of the many and varied things we obtained practical experience in. After the summer experience we had, forestry means a great deal more to us. To be able to apply the techniques you have learned is a most valuable part of anyone's education. Most definitely our education has been broadened from our summer experience.

Rounding out our year's activities, are the extra activities on campus offered to forestry students. Many students participate in forestry meetings, the woodsman team, and the "Hot Shot" Fire Crew. Participation in these activities helps to further broaden each student's outlook on the entire forestry picture.

We, as a class, have done well this year, and we expect to do better next year. We have worked hard and we have tried to do well, because some day we will be managing our nation's forests. To meet the increasing problems encountered in forestry as our nation expands, we must put forth every effort now so that we will be able to meet the challenge tomorrow. To a great extent our nation depends on our forests, and the productivity of our forests depends on our present and future foresters. We have a challenge to meet, and, through our schooling now, we will be able to meet that challenge when we take our places as foresters in this world.

CLASS OF 1967

by STEPHEN L. DYER

I can remember well my first few weeks on campus and the trials and tribulations I went through to get into the School of Forestry here at Maine. Everything was worry, worry, and hurry up or you will be out before your time.

Our first semester was long and hard. We had prelims in which we were completely snowed and courses which were relatively simple. But in the midst of all this confusion, we all learned to relax when opportunity presented itself. No matter where we stand in the varying categories of schooling, we all feel the basic need for knowledge. Even with low grades and no women, we can be thankful for one thing—we are still here.

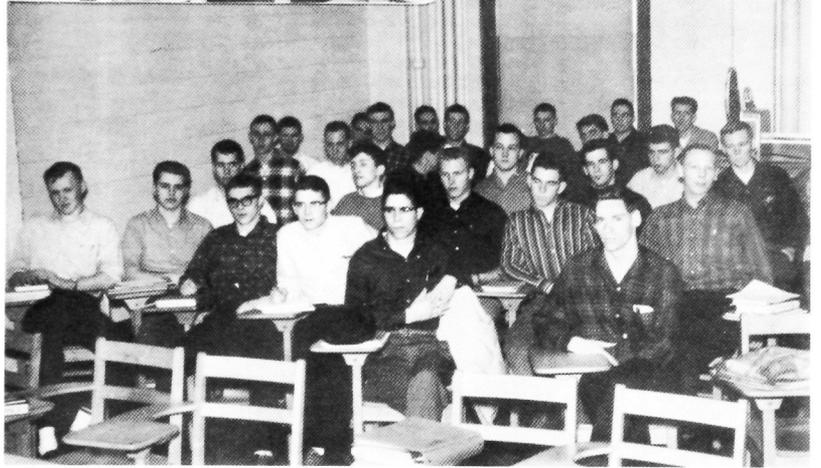
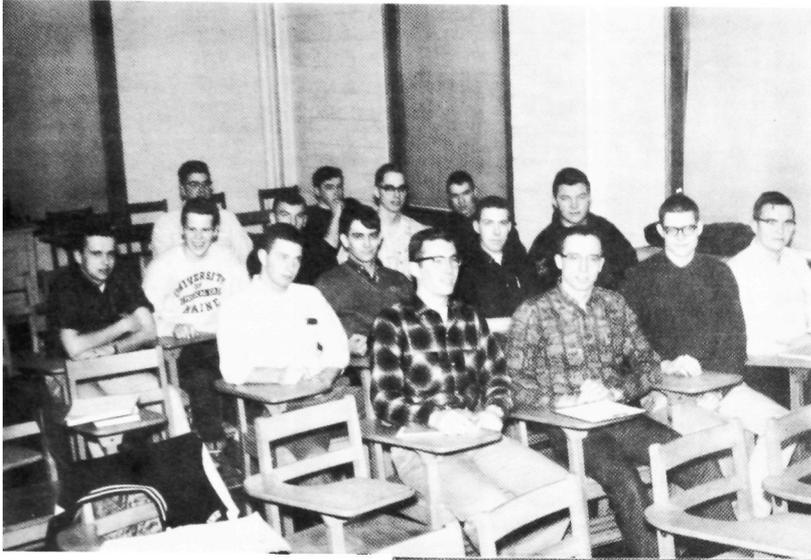
Forestry is a way of life that means a great deal to us. It is human, understandable, and sensible. Even greater perhaps is the realization that forestry and related fields deal with life and are very interesting. This is why we, as future foresters, are at Maine.

A great deal depends on what we do with the accumulated knowledge we have attained as freshmen, because from here we must somehow decide which way to turn and in doing so determine how far we should go. It is here that the freshman gets his training and general learning. From this general orientation in many varied fields a choice may be made as to specialization later.

In the beginning learning from lectures was difficult as it was new to many of us, but we soon found out we must not give up when courses are tough and our desire for knowledge not completely fulfilled. Sometimes in the early part of our college career we have required courses which seem to be of little value to us, but we soon realize we must look forward to later semesters with the hope that new subjects based on our present courses will strike our fancy and stir our interest. Be prepared for let-downs for they come often and are valuable assets of life, for here lies the true value of education—the exploration of life.

And life is more than one field, one science, or art. That is why our education here at the University of Maine in Forestry or Wildlife is a good one. We as freshmen have already experienced the well-roundedness of a forestry education through the flavor of varying subjects such as English, Chemistry, Engineering Graphics, Forestry and Botany. These are the makings of a fine student and a respected man, for here our way of life is paved and our path is laid. It is now up to us to gain the initiative necessary to branch off on our own and make something of ourselves. Life is hard and rewarding, but living is an individual trait needed by all.





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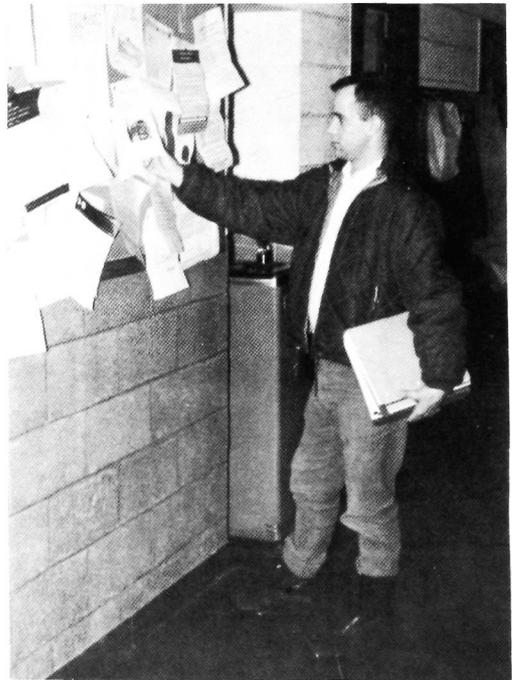
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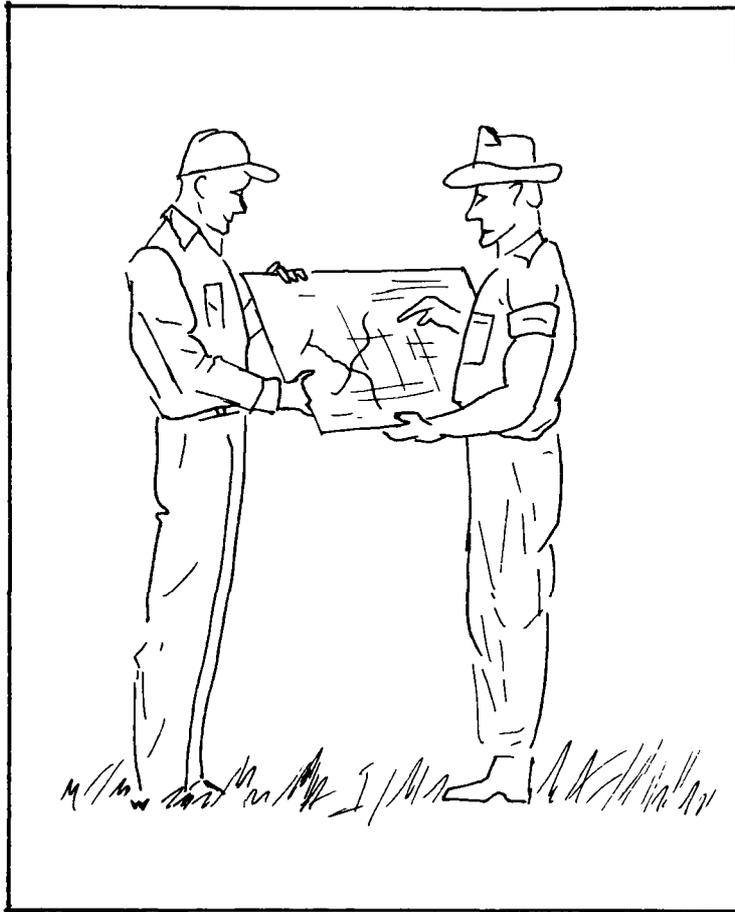
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Forestry Jobs?

FEATURE SECTION

EMPLOYMENT OPPORTUNITIES



**FOR FORESTERS
AND WILDLIFERS**

The Expansion by Pulp and Paper Companies in Maine

What it Means to Maine, Forestry, and Foresters

by CALVIN GAMMON

The \$124,000,000 expansion plans for Maine's pulp and paper industry are being welcomed by nearly everyone. It is interesting to note that the average annual capital expenditures for Maine's pulp and paper industry since 1950 is approximately \$20,000,000. Payroll increase per year have averaged \$1,500,000 since 1950. The production of pulp, paper and paperboard increased 48% from 1954 to 1959. A decrease of 1% occurred from 1960 to 1962. This, combined with a 30% decrease in labor per unit produced, indicates that operations have been profitable. The expansion is also helping to push construction upward. The 1963 New England industrial construction rose to record levels, according to a report in the *New Englander* magazine. This non-residential construction is welcome news for lumber, paper, and forestry oriented business. Coupled with the pulp and paper expansion, it is looked upon as one more favorable step towards bringing the demand for Maine's timberland resources in line with supply. The greater the demand for wood, the more intensive forestry will be practiced.

Early activities in the pulp and paper industry were limited by three major elements. The lack of manufacturing equipment and the limited market for paper products are two of them. The third, and most important to forestry as it turned out, was the limited supply of raw material. During the paper industry's infancy, rags were the sole supply of raw material. Then, in the middle 1800's, research directed its efforts toward finding a large source of fibrous material. This research led to the discovery of wood pulp by Ladd and Keen, assignees for Wall and Burgess in England, in 1858. In the same year, Charles Marzoni secured a patent for a stone to reduce wood fiber to pulp.

With the knowledge that paper could be made from wood fiber, the search for suitable tree species began. The discovery of large areas of spruce along many rivers of the northeastern part of the United States made available the volume of wood fiber

necessary for the expanding industry. These rivers furnished transportation for the raw material to the mills, as well as an adequate supply of water. Land acquisition and securing of water rights followed.

Many pulp and paper companies hold large acreages of timberland, but many more depend on small woodlot owners for 50% or more of their pulpwood supply. This fact coupled with the \$14,400,000 a year spent by industry in managing its own lands, results in much woods activity. Some pulp mills in Maine are now using 1,000 cords of wood per day. Within the next two years the number of mills in the 1,000 cord per day bracket will nearly double, making almost 50% of Maine's mills users of 1,000 cords (or more) per day.

In the five major pulpwood-producing regions of our nation, the proportions supplied by farmers and other small owners is listed as follows: Appalachian, 60 percent; South, 70 percent; Northeast, 30 to 50 percent; Lake States, 50 percent; Western region, "negligible". These percentages are not expected to change rapidly.

Pulp and paper companies will probably always have to buy millions of cords of pulpwood annually from farmers, even after their own company lands reach capacity production some years hence. Because of this dependence upon the small landowner, the trained foresters now employed by pulpwood companies are giving increasing attention to providing technical assistance to farmers and small landowners who otherwise might not obtain it. Foresters are also being called to aid other sectors of Maine's expanding use of its natural resources.

Maine's mountain sides are supporting the expansion in the field of multiple use. Through the cooperation of private timberland owners, many ski areas have been built. These areas have not yet created many forestry jobs, but they are a part of multiple use and currently multiple use is a part of a forester's responsibilities.

Forest landowners and foresters are tied to this concept of land use right now. Like

it or not, recreation is an item to be reckoned with, and many foresters are already more deeply involved with it than they ever thought they would be.

Certainly many business sectors of Maine's wood economy looked bright at the end of 1963. Therefore, it is probably safe to say that 1964 shows promise of tremendous expansion by the pulp and paper industry. Last year virtually all of Maine's pulp and paper companies announced plans to invest or consider investing substantial sums of money in the state to improve their facilities.

Feelings are that these plans reflect a revived awareness of the state's great wood potential for the industry. Presently, water and wood are plentiful. We currently are growing more wood than we are harvesting and the planned expansion alone will not upset this favorable condition. The situation may not be quite as good with water. The pulp and paper industry considers water its most critical raw material, and the supply of good clean water is becoming scarce at a rapid rate.

Nevertheless, Maine's natural resources of water and wood are considered the best of any state in the Northeast. Maine's boundaries enclose 17,000,000 acres of forest land, more than three times the forest acreage of any other New England state, or more than is found in any of the middle-Atlantic states. More and more of the major

pulp and paper companies, which formerly chose southern and western sites for their expansion, are looking back toward Maine and her extensive timberlands. The pulp and paper industry is assured of a growing and prosperous future here because of bountiful natural resources and increased good management of them.

What all this means to forestry and foresters will not be spectacular enough to make front page headlines in local newspapers, but there is no doubt that more trained men will be needed to insure an adequate supply of wood for Maine's wood-using industries. Today the problem is not so much the supply of wood available, rather it is the conversion of this supply in the forest into a usable form to be further processed at the pulp mills. The significance of this is simple if one realizes that over 50 percent of the cost of making a ton of paper is attributed to one raw material, namely wood. Foresters are the best trained people to manage the growing, harvesting and delivery of wood to the manufacturing mill. Presently the future of foresters lies largely with their ability to meet this growing demand and at the same time to reduce costs of wood procurement. Foresters will play a big part in how well wood pulp meets the competition of other materials. If forestry is to thrive and grow, more uses must be found for wood. New and better products are the seeds of better things yet to come.



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CONSULTING FORESTRY — OPPORTUNITIES UNLIMITED

by EDWARD STUART, JR.¹

By definition a consulting forester is a professional man trained and experienced in forestry, who offers his services to the general public on a fee, contract, or contingency basis. His clients may own one acre or a million acres; may need only an hour of the consultant's time or three to four days a week. As in any professional practice the consultant stands ready to serve those who consult him to the best of his ability guided by a strict code of professional ethics. In the parlance of other professions, the consultant can be considered "a general practitioner."

Scattered throughout the United States are approximately 500 consulting firms ranging in size from one man outfits to corporate type organizations employing as many as forty to fifty foresters. The majority however, are of the one or two man variety. Though some sections of the U. S. have a fairly heavy concentration of consultants, there are millions of acres of timberland in small holdings that are crying out for these services of local consultants. According to government surveys, it is the small landowners who are suffering from the lack of technical assistance in the management of their small woodlands. The answer to this problem is the consulting forester, who by reason of his competency, education, experience and salesmanship can demonstrate to the land owners that the growing of timber under proper forest management is profitable.

To the forestry student who contemplates going into consulting work, a few words of advice: After obtaining his forester's degree, the forester should acquire at least five years of practical experience before hanging out his shingle. If at all possible, this experience should be obtained in private industry where the profit motive still reigns supreme. It is in this field that he will find and respect the private enterprise system that is necessary in order to successfully conduct his own business. In addition he

should have sufficient capital to finance himself for at least one year. It is well to choose an area for his practice in which he is well acquainted both as to the forestry problems and to his potential clients.

What sort of an income can a consultant expect? The opportunities are unlimited and the sky is the limit. He may go broke or he may earn one hundred thousand dollars. It is entirely up to the individual, his capability, his willingness to work and the name that he makes for himself.

It is not all a bed of roses. There is no forty hour week, no paid vacations, no sick leave or other fringe benefits. The consultant is on his own and everything that he obtains is through his own individual efforts. He must be prepared to muddy his feet and thrash his way through the woods. He will wear out the bottom of his boots rather than the seat of his britches. The woods are his place of business and his office only a convenient spot to keep his records and prepare his reports.

In addition to his highly remunerative monetary returns there is a pleasant side to consulting forestry. The work is very diversified and certainly not routine. One day may find the consultant appraising a small woodlot, the next day may find him in court testifying on some technical matter and the following day flying off to one of the Caribbean Islands to make a feasible use study for some forest industry. There is never a dull moment, though his work load be either a feast or famine.

To the forestry student who has confidence in himself, is self reliant and has more than the normal share of intestinal fortitude, consulting forestry can offer one of the most satisfying and most remunerative forms of professional forestry employment. If such is to be considered, then the student should now start slanting his studies and his subsequent experience for the proper fulfillment of this goal.

¹ Edward Stuart, Jr., graduated from the University of Maine in 1937. He is currently President of Eastern Forestry Incorporated, Consulting Foresters. Wake, Va.

PROFESSIONAL WORK WITH THE U. S. FOREST SERVICE

by ELMO G. KELSO¹

Probably the one thing that is now, and always has been, most appreciated by an individual in any work is the opportunity for full time, demanding effort to accomplish an objective on his own with a minimum of specific guidance or controls. Free enterprise has thrived by promotion and use of this fact. So has the U. S. Forest Service. Training, both on the job and in organized groups at several levels, is emphasized and continued throughout a career but once capability is established the individual is expected to solve specific problems within general standards with which he is already acquainted.

The college graduate forester starting with the Forest Service on a National Forest as one of the administrative organization can expect to take part in multiple use management of all of the timber, water, wildlife and recreational resources of the District where he is employed within a short time. Emphasis on any one of these resources will vary on different forests, but probably the first assignment will be in timber management since knowledge based on study and experience in the Forest is essential even though a man may eventually specialize in administration, forest recreation, water management or public relations. After training he may be expected to study and delineate on aerial photos areas in need of timber stand improvement, make basal area surveys and maps of these areas, and organize and supervise crews of men who will kill cull trees in order to promote the growth of better trees. He may have them doing this by axe girdling, by use of chemicals applied with tree injectors or applied in axe frills. Possibly he will be practicing stand conversion by locating and mapping areas of conifers where overtopping weed hardwoods can be killed by helicopter spraying of chemicals. On most Forests he will probably be scaling logs or measuring standing trees to determine merchantable volumes available for sales to private industry. This, as well as timber stand improvement, is challenging professional work demanding a knowledge of silviculture, entomology and pathology and in which the man is trained and checked on the job. He will be selecting and mark-

ing trees for cutting on timber sales and will gradually enter into supervision of stumpage sales contracts. This involves public relations, erosion control, fire control, wildlife management and recreation and presently he may find that with or without any intent on his part he is doing a lot of work in one or more of these fields. The timber must be cut and removed in a way that will not be subject to criticism by the public, will not cause erosion of roads or landings, will minimize the possibility of fires, will favor fish in the streams and habitat for game, and will protect or possibly improve forest recreational resources.

Perhaps a Forest Service fire trail or a hiking trail crosses the sale area and the forester may soon find himself in charge of a crew on trail maintenance. They will repair water bars, remove down trees or cut brush as necessary to keep the trail clear.

The Ranger may send the forester out with a game biologist to find out what should be done to improve cover or food supply around a deer yard. The forester may be in charge of a crew cutting openings in low quality stands of hardwoods to produce browse near water and coniferous cover for deer or moose as well as cover for small game.

The forester will certainly be assigned to inventorying and maintaining fire tools and equipment and will become acquainted with the local fire prevention and control organization, both Forest Service and State or municipal. On some Forests he may spend several weeks of each year fighting forest fires.

Maintenance of campgrounds, swimming areas, beaches or picnic areas as well as construction of new ones will take part of the time of the forester. Obviously, the extent of this, as well as each of the other fields of work, will depend on which Forest is involved.

Progressing in ability, responsibilities and on the promotion roster the forester may work for a National Forest District Ranger for two or three years and then transfer to work in some special field in a Forest Supervisor's office. More likely he will work on one or two Districts for three to six years

and become a District Ranger. In this position, with trained forestry assistants and supervised by professional foresters, he practices multiple use of the resources of areas usually varying from 50,000 to 250,000 acres with great independence in judgment as to specific methods. The fields in which

Forest Service opportunities exist beyond the position of District Ranger in National Forest administration or in cooperative work with States or with private owners of timberland are numberless but many choose careers as District Rangers.

1. Mr. Kelso has had considerable experience in both private and government forestry and is currently employed in the field of Forest Administration on the White Mountain National Forest.



Fishermen at Abol Stream Deadwater

Job Opportunities for Foresters in Wildlife

by MERTON RADWAY¹

In the process of meeting man's needs for food and welfare, civilization constantly poses new threats to the conservation and wise use of our natural resources. The widespread use of toxic, chemical insecticides and vegetation control compounds is a good example of a highly inter-related problem. New ideas and scientific approaches must therefore be developed to meet these threats and maintain a desirable balance between preservation, utilization and loss. I believe there will always be opportunity for qualified men in wildlife conservation.

Hunters pay for a privilege and rightfully expect a rewarding recreation. With many intangibles, the profession is faced with the task of providing a reasonable harvest and, at the same time, assuring an adequate reserve. In the year 1962 there were over 10,000,000 visitor use days on our National Wildlife Refuges for the purpose of nature study, swimming, picnicking, observing and photographing wildlife, and other recreation. The tempo of such use steadily increases. More trails, picnic tables, camping sites, boat launching ramps, and water facilities are needed. The challenge is ever before us.

Public agencies — Federal, State, and County—whether administering land areas for wildlife, forestry, or park purposes must meet this challenge. This type of administration involves land management and the application of the basic sciences. Foresters will need special qualifications for positions in these activities.

In the Bureau of Sport Fisheries and Wildlife, there are duties in a wide variety of functions related to wildlife and public use, and in dealing with waterfowl, woodcock, and certain mammals. They are concerned with research, management, enforcement, and public use.

Wildlife Refuge Managers administer specific areas of substantial acreage, directing development toward desirable habitat for waterfowl and other wildlife, and managing public hunting programs and recreational use. They determine appropriate land uses, inventory resources, effect ecological and mechanical management and conduct extensive public education programs; they devise methods of increasing waterfowl nesting, maintain delicate water levels, enforce

game laws, direct farming and maintenance programs, and prepare records, plans, and reports. In short, a Refuge Manager enjoys an interesting but demanding career.

Management Biologists pursue wildlife management studies in depth to assure proper direction and goals in the management of habitat. They determine utilization of ecological types by individual waterfowl species, by woodcock or other types of wildlife. They assist in determining the most suitable means for vegetation control to produce optimum wildlife habitat. They attempt to relate local populations and management to the needs in the State and the flyway.

Wildlife Research Biologists are employed in the Branch of Wildlife Research to study problems basic to the proper management and utilization of the nation's wildlife resources. The work involves both long- and short-term basic and applied research in the broad fields of physiology, animal control, population dynamics, animal behavior, ecology, and the management of forest, upland, and marsh wildlife.

The Branches of River Basin Studies, Federal Aid, and Predator and Rodent Control require the services of general Wildlife and Fishery Biologists. Duties may include specific studies, but efforts are usually applied to broad programs.

In connection with the Fish and Wildlife Coordination Act, the Watershed Protection and Flood Prevention Act, and other legislation, biologists are employed for the purposes of evaluation and coordination. They define wildlife problems of significance in public works, identify possible solutions, and propose investigations necessary to provide sound recommendations for improvement.

Under the Federal Aid in Wildlife Restoration Act, general Biologists evaluate wildlife and fishery projects dealing with the acquisition and development of lands, and the operation and management of areas as proposed by the State conservation agencies.

In the Branch of Predator and Rodent Control, employees keep informed regarding animal and bird control problems and, through demonstrations and distribution of information, assist public and private associations in minimizing damage.



Allagash Falls

The Branch of Realty employs Foresters for appraisals of lands, negotiations, and in various functions dealing with real estate. Mapping of Land Classes and ownership boundaries with the use of aerial photos, the searching of county land records, land use economics, and project recommendations are involved.

In the Branch of Fishery Management Services, duties involve the evaluation of streams, lakes and ponds, and recommendation of plans for reclaiming, restocking, or other types of management. Sampling may be carried out by the use of electro-fishing gear, seines, gill nets or other types of gear. Chemicals are used also for sampling fish populations and for removing all fish from a lake when restocking with a more desirable kind of fish is recommended.

Salaries in these positions range from annual starting rates of \$4,690 to \$9,980 in the field. Formal training programs now under way for all employees and flexibility in assignments to various programs make these jobs continually more attractive. At the same time, competition for employment is serious. Since many of the functions require good managers and administrators, a broad perspective is the basis for selection. Bear in mind also that one of the most difficult problems in managing resources is people. For this reason, personality is of prime importance.

I hope that, in this review of employment opportunities, I have inspired you, rather than discouraged you, and that I have helped to set your goals at a high level.

1. Assistant Regional Refuge Supervisor, U. S. Bureau of Sport Fisheries and Wildlife.

The Recreational Field Offers Opportunities For Foresters

by MAURICE K. GODDARD¹

America today is not the America of 50 years ago. Life is no longer a mere subsistence because better wages, shorter work hours and modern transportation have conspired to make leisure a prize possession of our citizens today.

Leisure time brings to mind the recreational demands of the American family. In my estimation, these demands will require, in coming years, the "intermediate type" recreational areas and will fall somewhere between the National parks, the National forests, and city playgrounds.

As Marion Clawson of Resources for the Future has pointed out, the distribution of our federally-owned lands available for recreation is at complete variance with the national population pattern. For instance, the Far West with a population of under 25 million has five times the federally-owned recreation acreage of the remainder of the country with 155 million people. If we look carefully at the historic development of American life it is not difficult to see why this is so, since our first conservation interests were in saving the priceless scenic treasures and some of our forest lands from destruction by the hand of Man. By the mid-nineteenth century, most of such areas existed in the West and this is where early federal forests and parks were set aside. The East was already too built up and reshaped by Man to afford many opportunities for such reservations.

So important is this phase of land use and management that the American Forestry Association has devoted considerable space to the discussion of recreation in its recently published Platform for American Conservation. Furthermore, this association endorses the Outdoor Recreation Resources Review Commission recommendations to the President on January 31, 1962, that, "It shall be the national policy through the conservation and wise use of resources to preserve, develop and make accessible to all American people such quantity of outdoor recreation as will be necessary and desirable for individual enjoyment and to assure the physical, cultural and spiritual benefits of outdoor recreation." This report went further when it recommended to the States and their political subdivisions that: "educational curricula should include instruction in the development and administration of out-

door recreation programs."

The State parks we build today, however, and those of the past are two different breeds. In many respects the older state parks, taking advantage of publicly owned forest land or some unusual scenic attraction, strongly resemble the National parks. Most state parks in the past were tucked away in the state forests and forest preserves and by and large, were in more remote sections. Today, the emphasis is changed. They are being established closer to the metropolitan periphery. When we talk state parks today we are talking regional parks, multiple purpose recreation areas located offtime in a region where there are few natural features to distinguish it as a prime wilderness area.

Where does the forester fit into all this? He should be very much there. Who knows, for instance, more than the forester about proper forestation and maintenance techniques for a water supply reservoir? Who knows more than a forester the kind of woodland which would ideally serve as a recreation site? Who knows more than a forester where urban encroachments will seriously affect the natural environment? Who can serve better than foresters on local or municipal planning boards in performing invaluable services in long-range planning? He should be there but may suffer a sea-change into something new and strange. In this field he is not so much a forester any longer as a resource engineer, a specialist in multiple use management. Dean S. T. Dana stated at the Washington Section of the SAF several years ago, that from his observations it would appear that the major product of our forests today is water and the second is probably recreation. I think he is right, and I think this has corresponding implications for our profession. A forestlike environment is still desirable in our state parks even where it is as difficult to achieve as in the regional parks.

The professional work areas for the forester today have been pushed back so that the horizon of opportunities are broader than ever. I urge foresters to consider this a legitimate field for their professional endeavors. I am certain that foresters of the present and future will have a great part in shaping the economic and social needs of the new America.

1. Secretary, Department of Forests and Waters, Harrisburg, Pennsylvania

THIS BUSINESS OF WATER

by RICHARD D. GOODENOUGH¹

Let's go right out on a limb and say that this business of water is perhaps the most important and the most challenging of all the fields available to conservationists. It seems like few places in the country have no water problems. With our burgeoning population making increased demands on all our resources, water supply seems to be the salient resource demanding attention. The cliché, "feast or famine," applies directly to the water situation. Unless an all-out effort is made to initiate the best possible watershed conservation and control plans, this paradox is likely to increase in its diametric nature. Poor land use practices, increased urbanization which increases surface runoff, poor zoning and planning are all factors which will continue to result in too much or too little water.

We have probably made the greatest gains in surface water control. Reservoirs and channel improvements are visible, tangible projects which law makers can easily identify with, and for which funds can be more easily justified. Ground water, however, presents our biggest problems. How many homes can tap a given aquifer? Will septic tanks work on a given soil or will the effluent run off and pollute streams and wells? What happens when a 100-acre farm is subdivided for 200 homes and the water runs off roof tops, drives and streets instead of soaking into the ground? When every mile of Interstate Highways paves 40 acres of land, what happens to the ground water supply? When a shopping center paves 5 square feet of parking area for every square foot of store area, what happens?

We could go on and on and on posing questions still unanswered. But these questions must be answered by professional resource developers. The interesting point is that when we speak of water conservation we must necessarily think of every single phase of the resource sciences, biological sciences, and the political sciences. The water resource person must have a working

knowledge of wise forestry practices, soil conservation methods, governmental aid programs, population trends, geologic conditions, stream characteristics, chemical pollutants, fish and wildlife needs, zoning codes, government responsibilities and organization at all levels, vegetation patterns and potentials and a myriad of other associated items. Above all, if he doesn't know the answers to all of these questions (and he probably won't), he must know where to go to get them. The intriguing thing is the obvious—nearly everything that effects the land effects the water, both quality and quantity.

Many specialists work in some part of this field—foresters, wildlifers, geologists, soil scientists, planners, economists, hydrologists and politicians. But the greatest reward is to the general water resource man whose job it is to pool and coordinate all information from the specialists to promote basin-wide water resource programs. His personal and academic horizons are limitless, his contacts numerous, his responsibilities nearly boundless.

Forester, don't be chagrined by the variety of the field, the immensity and diversity of the task. It has been found that the forester receives the varied background and thinking training necessary to cope with the problems of the field. The following are general agencies which may employ foresters for watershed or water resource work: U. S. Forest Service, National Park Service, Fish and Wildlife Service, State Water Supply Departments, City Watersheds, Bureau of Land Management, County and State Planning Boards, Small Watershed Associations, Soil Conservation Service, State Geology Departments, University Extension Services, River Basin Commissions, State and Federal Health Departments, State Fish and Game Departments.

A more complete listing is not possible here, but the author will be pleased to guide anyone interested in this field.

1. The author was graduated from the University of Maine in 1961 with a Bachelor of Science in Forestry degree. He is now Executive Director of the Upper Raritan Watershed Association in Far Hills, New Jersey.

EMPLOYMENT OPPORTUNITIES FOR FORESTERS

by MORRIS R. WING¹

Recent announcements of pulp and paper mill expansion in the State of Maine should be the best news for Foresters in this area for the last 25 years. The need for additional Foresters in the woodlands of Maine is bound to increase rapidly within the next decade. It would seem that the day of more intensive forest management in Maine is truly just around the corner. A look at the various pulp and paper companies in Maine would reveal that nearly all have many more Foresters on their payrolls than were employed by these same companies 10 years ago, and they are still hiring.

In Maine the pulp and paper industry lacks knowledge concerning many forest facts. A few of these fields which definitely require more study are soils and site, genetics, forest taxation, thinning, improvement cuttings, and selective cutting. There are also many allied fields on which the surface has just been scratched. Nearly all of the companies in our industry are large forest landowners. The subject of minerals and mining has been explored very little here in Maine and it would seem that this field should be pursued much more completely if only to produce additional funds for more intensive forestry work. All land managers, I am sure, need more recommendations from the field. Why did we have blowdown here? How should we cut this stand? When and where should we cut first?

I believe that in many cases good forestry has been held up in Maine due to lack of sufficient markets. Many of these mill expansions will result in the use of nearly all species of commercial timber. It looks as if these markets would provide the economic basis for the thinning of pine plantations and other natural stands where this work is needed badly. In the past, many landowners would have liked to accomplish cuttings on their forest land but there were just no markets for the inferior species to be removed.

In writing of employment opportunities, I believe I would be remiss if I did not mention the requisites which I believe would be greatly advantageous to any Forester seeking employment.

- (1) Achieve a scholastic standing in the upper 25% of his class.
- (2) To have had considerable work experience in the woods and it is a fact that many employers are only luke warm on a Forester who has had no prior woods experience other than what he has received in College. It is recognized that all cannot be from a farm or woods background but without this woods experience, a Forester must usually work at least one to two years before he is of much value to his Company.
- (3) The Forester should possess a good personality and be able to meet and talk easily with others and especially to be desired is a man who is an able public speaker. Public relations today make this ability almost a necessity.
- (4) Fulfillment of one's military service is most desirable from the employer's point of view.

Of the items mentioned above, the most important to my way of thinking is Item 2, or work experience. If a Forester does not have a woods background, he certainly should get as much as he can during the school vacation period. Working with a crew is very important and learning to get along with others at work provides this man with the "know how" for handling a supervisory position later on.

One of the chief problems we encounter in the hiring of young Foresters is the place of work. Too many Foresters do not want to be in the woods. This is a little hard to imagine but it remains a fact. It seems important that Foresters be made to realize that their work will usually start in the woods and not behind a desk.

In some cases today, a Forester may be managing over one-quarter of a million acres of forest land. I am sure that the need for more intensive forest management will result in Foresters supervising smaller units of forest land in the future. The present growth of the pulp and paper industry in Maine is bound to have an impact on the number of Foresters needed. The very large investment in these new paper mills pro-

vides tremendous security for the concept of growing trees as a crop. It is a must that the pulp and paper industry establish forest management programs to provide assurance for the supply of raw materials

from the woodlands in increasing amounts as our markets grow. It certainly appears that the outlook for employment of good Foresters in Maine is indeed a rosy picture at this time.

1. Resident Manager, International Paper Company, Department of Woodlands, Chisholm, Maine.



Maine Service Forester Jack Dirkman, kneeling, discusses a sanitation cut of overmature pine on the Oakland Town Forest with town manager Robert Drew and logger Robert Peaslee.

Employment Opportunities in State Forestry

The remarks that follow will deal briefly with two topics; employment opportunities for foresters in the Maine Forest Service and opportunities in state forestry work in general.

The Maine State Forestry Department, commonly called the Maine Forest Service, is not typical of most state forestry agencies, for in Maine, ninety-nine percent of the forest land is in private ownership. This means that the state forestry department is primarily a service organization, providing protection and farm woodlot management programs on private lands, but having no large acreages of state-owned lands over which to exercise complete forest management supervision.

Specific divisions of activity within the Maine Forest Service include fire control, service (woodlot) forestry, entomology, public reserved lot management, forest nursery, and information and education. The fire control and entomology divisions are responsible for forest protection on all state and private forest lands in Maine. The service forestry program is concerned with assistance to woodlot owners, most of whom are located in the organized towns. Other divisions and activities are designed to supplement these other three fulfilling their responsibilities. All of the above mentioned divisions employ foresters to some extent.

In most of these cases the foresters are in supervisory or technical positions requiring experience or an advanced college degree. Within the service forestry division, however, there are often opportunities for younger foresters to find employment as Service Foresters.

Currently the Maine Forest Service maintains sixteen service forestry project areas, each staffed by a forester. Several of the larger project areas also employ an assistant to the forester. From time to time, openings occur for the hiring of new or additional service foresters.

Few forestry jobs offer a young forester greater opportunity for individual initiative and responsibility than that of service forester, and few positions provide better opportunity of gaining valuable experience in all phases of forestry.

The Service Forester is in the field much of the time, working directly with landowners, loggers, millmen and other foresters. His work touches all aspects of forestry, as he advises woodlot owners on such topics as fire prevention measures, silvicultural techniques, reforestation problems, harvesting and marketing methods, insect and disease control measures and management of related forest values of recreation and watersheds. Each day he may be involved in a variety of situations where he must advise or recommend a specific prac-

tice. Although he must operate within established department policies, and in close coordination with other divisions, many of the day-to-day decisions are his to make, and his success in his work depends to a large extent on his own initiative.

The Service Forester must also be an organizer and a salesman, disseminating information through personal contacts and newspaper and radio publicity. He arranges show-me trips, field trips and meetings. In addition he cooperates with other state and federal resource agencies in a variety of forestry activities.

Turning briefly to opportunities offered by forestry departments of other states, it should be noted that most states maintain a forestry department similar to the Maine Forest Service with one major addition; the forest management of state-owned lands. This normally involves a land management division set up to deal primarily with these state lands. Such a division would provide a variety of opportunities for foresters, including such specialized work as forest surveying, forest engineering, inventory and timber sales, plus complete programs of protection and management.

An increasing number of states are consolidating their resource agencies under one administrative head, with forestry as a major division of a resources department. The opportunities within the forestry divisions remain virtually the same as before in most cases. Also, a number of states operate their forestry department on a district basis, similar to that employed by the U. S. Forest Service. This involves the placing of all forestry activities within a given area under the supervision of one man, usually a forester. Under him may be employed any number of assistant foresters, technically trained personnel, and skilled and unskilled labor, depending on the size and complexity of the district.

Opportunities in state forestry work are generally increasing throughout the country as state organizations intensify or expand their resource management programs. State-federal cooperative programs in soil and water conservation, aid to small woodland owners, recreational development and rural redevelopment have all given impetus to increased state forestry activity. In addition, many states are themselves engaged in similar intensification in resource development.

Anyone interested in securing information can be assured that the doors of the Maine Forest Service office are open to them, as are those of state forestry organizations throughout the country.

Maine Forest Service
Information and Education Division
Joel W. Marsh, Supervisor

OPPORTUNITIES FOR WILDLIFERS

by M. A. MARSTON, Chief
Branch of Federal Aid Bureau
of Sport Fisheries and Wildlife
Washington, D. C.

It is the purpose of this article to discuss opportunities for employment in the fish and wildlife field. Right away, it is apparent that there are many, many more employment opportunities outside the field than in it. Those who are not deeply and sincerely interested in fish and wildlife work, and who do not strongly feel that they can make a real contribution, are urged to find their employment elsewhere. There is, and probably always will be, opportunity for dedicated fish and wildlife workers. This field, like any other, has little room and offers no happiness for those who are not truly dedicated to its work. The pay is small, the hours are long and if you enter the fish and wildlife field, you are destined to be either a teacher or a public servant, for it is not a private industry. However, for those who really love the work, the challenges are great and the satisfactions are commensurate therewith.

The major work areas in the field are management, research, information, teaching and law enforcement.

Management is the production end of the business. It includes all that is done to produce the crop, fish and wildlife for recreational use. The manager is interested in such things as habitat development, setting seasons and bag limits, control of fish and wildlife populations and providing hunting opportunity. He generally finds his employment with a state fish and game agency or in one of the management branches of the Bureau of Sport Fisheries and Wildlife. There are also occasional opportunities with the Forest Service, the Soil Conservation Service, the National Park Service, and a few private enterprises which manage large tracts of land. The fish and wildlife manager needs a good background in the basic sciences, such as the University of Maine provides in its undergraduate curriculum for wildlife conservation. Good, solid work experience is probably of more value to him than graduate study.

Fish and wildlife research is for those who are temperamentally suited to painstakingly thorough, exacting work. Advanced degrees are desirable in preparation for a career in research. The ability to define and

analyze problems and organize programs to solve the problems is of great importance. Much of the research work on fish and wildlife that has been done in recent years is of doubtful quality, because it has been done by persons who were ill-suited and ill-prepared for the task. A good research worker needs talent and much preparation. Unfortunately, until very recently, research workers have not been paid salaries commensurate with the talent and preparation required for the job. The situation has changed in the last few years and some of our highly skilled research people now are paid more than their administrative supervisors. Fish and wildlife researchers find employment with state fish and game agencies, the Bureau of Sport Fisheries and Wildlife, the Bureau of Commercial Fisheries and on the research staffs of some of the universities.

For those who have the right combination of interests and skills, there is opportunity in the field of fish and wildlife information. This requires an ability in communicative skills as well as a knowledge of fish and wildlife management. Information and extension workers are employed by the state fish and game agencies, the federal agencies, some of the universities and on the staffs of outdoor magazines and daily newspapers. While the number of positions is not great, there are few really well-qualified people available to fill them.

There are always openings for teachers in the fish and wildlife field. In my view, however, these are away out of reach of the undergraduate or the newly graduated. If you want to be a good teacher, first go out and get a lot of good practical experience and then acquire the full measure of graduate education. When you have done this, you will have something to offer your students.

One phase of fish and wildlife work that is often overlooked is law enforcement. As a student, you may have looked down on the game warden as a layman in the field. You likely have considered him a "brush cop" with some queer country notions about fish and wildlife management. Today, the conservation officer is becoming less a policeman and more a manager and extension

agent. There are more jobs in the conservation officer field, than in any other branch of the business. They offer a tremendous opportunity and challenge. The best way to make the conservation officer service the kind of a high-level professional outfit that it should be is for some good professional people to get into it. Although the beginning pay is not high, there are some good jobs in the enforcement and management field, especially in the Federal Service where these people routinely participate in water-

fowl surveys, banding programs and other information-gathering services, requisite to proper management. Over the years, a few professionally trained people have gone into the law enforcement field and I know of none who have not done well for themselves.

In conclusion, there are places for those who have a real interest in fish and wildlife work. There are several choices within the field and it is well for one to carefully assess his own talents and abilities before choosing.

Professional Wildlifers at Work



Employment Opportunities in Consulting Forestry

by DAVID H. HANABURGH
Consulting Forester

Consulting forestry is a business made up of independent jobs. The successful consulting forester must provide sufficient satisfaction to his client, or service to the economy, to attract to himself an adequate income. The emphasis is on the desire of the client or economic profit rather than technical conformation. Each opportunity must be discovered; a problem crystallized; a job formulated, researched and performed.

Quick sources of information are the consultants best tools. These include directories, handbooks, procedure files, and contacts with information agencies.

Jobs are discovered, generated or channelled through close contacts with people or associations connected with the forestry profession, forest products industries, landowners, conservation interests and recreationists.

Allocation of time is an important factor in the conduct of a successful practice. At least one third of a consultant's time must be devoted to work that produces the bulk of his income. Up to one third of his time may be devoted to free or demonstration services. These may be important for public relations, professional relations or business promotion. Up to one third of his time should be allocated to self improvement, professional contacts, research and development.

Charges should be adapted to the receptive psychology of the client or the nature of the work performed. Income productive work can be charged at a percentage of the net or gross income produced. Thus timber sales can be negotiated and administered at a charge of 10% of the gross return to the landowner. Marking or scaling timber, however, should be charged by the day, the job, or the unit of measure (example: \$2.00 per MBF). Daily charges might be based on a charge of \$50.00 per day plus expenses or \$60.00 per day flat rate. Hourly charges might be figured at the rate of \$10.00 per hour. Charges for a 10% appraisal might be figured at the rate of 40¢ per acre. Some clients are receptive to charges that sound high, others to charges that sound low. In all cases the client must be carefully studied as to the real nature and degree of his de-

sires. The degree of client satisfaction is the direct measure of the consulting forester's success.

The consulting forester makes jobs for himself or channels jobs to himself from his observed needs of society. The more kinds of jobs developed the more become apparent. Each job, however, requires thorough research and planning to assure client satisfaction.

Following are some typical jobs with sample charges and potential sources:

Preparation, negotiation and administration of timber sales.

Charges—10% of gross or net return to client.

Sources—Absentee, inexperienced or too busy landowners.

Timber marking.

Charges—\$2.00 per MBF or \$1.00 per cord.

Sources—Forest industries, landowners.

Scaling

Charges—\$2.00 per MBF, \$1.00 per cord.

Sources—Forest industries, landowners.

Industrial procurement

Charges—Commission per unit, margin of profit per unit delivered.

Sources—Pulp companies, sawmills, treating plants, construction companies, retail lumber yards.

Commission merchandising

Charges—10% to 50% of gross or net income depending on problems.

Sources—Forest industries (lower grades, overstocks, salvage) Construction companies (salvage, land clearings) Lawyers (bankruptcies, settlements, disposals)

Forest inventories (Cruising, mapping, quantitative analysis)

Charges—\$50.00 per day plus expenses, contract price, price per acre

Sources—Forest industries, private landowners, real estate agencies

Forest appraisals (Inventory, quality, use and purpose analysis)

Charges—\$50.00 per day plus expenses, contract, per acre.

Sources—Real estate appraisal companies, lawyers, railroads, property owners, forest industries.

Purposes—Condemnation, sales, trespass, fire damage, wind or flood damage, income tax deduction, arbitration, planning and development.

Silvicultural Contracting

Charges—Based on cost per crew day plus material, equipment and profit; per unit of performance (\$45.00 per acre planted); contract estimate.

Sources—Landowners, local government agencies, cooperating state and federal programs.

Line clearance and maintenance

Charges—(Lumped for planning purposes) \$60.00 per day administration plus \$30.00 per day for each crew member.

Sources—Landowners (land lines), power and communication companies (pole lines), Construction companies (rights of way,) Public agencies (roadside maintenance)

Advisory retainers

Charges—Based on \$60.00 per day of estimated work required.

Sources—Landowners, associations, clubs, communities, industries.

Development retainers

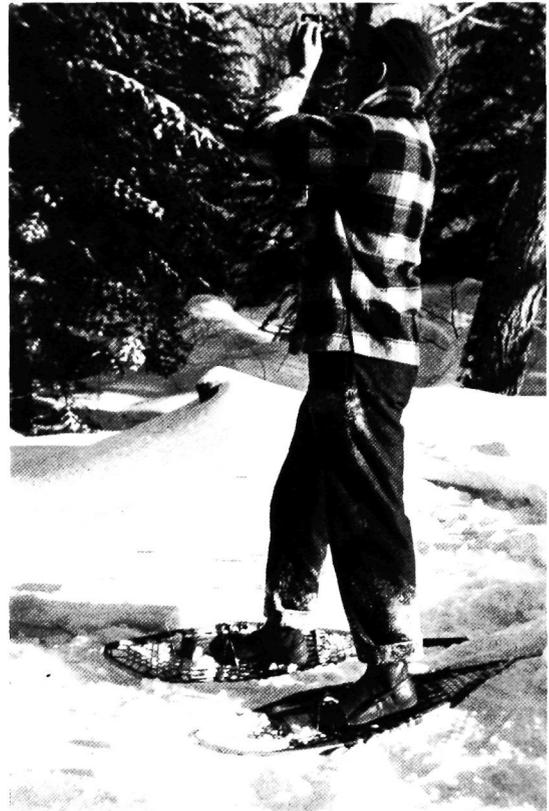
(These are budgeted for forestry or conservation and apportioned to salary or other expenditure as the situation indicates)

Charges—Apportioned as to time, equipment, materials, or services required.

Sources—Local chambers of commerce, communities, towns, counties, large business organizations.

Other jobs commonly taken on by consulting foresters include management plans, logging, transportation, tree service, industrial trouble shooting, part time teaching, cooperative enterprises with landowners or industry, technical witness in legal matters, landscaping, nursery practice, sawmilling, estate management, recreation development.

Remember that the business of consulting forestry is finding, making, promoting or attracting jobs. Each job must be learned and satisfactorily performed.



Consulting Forester Measuring Tree Heights

America's Frontiers in Public Forestry

by C. K. LYMAN, Director
Division of Personnel Management
U. S. Forest Service
Washington, D. C.

Today, about 90 years after the first organized investigative work in American public forestry, there are stimulating and diverse opportunities to extend the forester's profession to broader horizons. I appreciate the "Maine Forester's" invitation to discuss a few of these opportunities—and some of their related responsibilities.

First, an estimated count on employment and forestry school enrollment. About 21,000 professional foresters are employed in the United States today, including 1,500 in graduate research or on military furlough. Teamed up with these professionals are an additional several thousand forestry technicians who provide, in growing numbers, a vital support service in the protection, management and development of public forest land resources. About one third of the professional foresters are employed by the Federal Government. This figure includes a goodly number in Agriculture's Forest Service—in Interior's Bureau of Land Management, Park Service, Bureau of Indian Affairs and Fish and Wildlife Service—some in the Income Tax Unit of Treasury—in the Tennessee Valley Authority—the Department of Commerce and in the Soil Conservation Service of Agriculture. Approximately 3,000 foresters work for State governments and about 1,500 are employed by educational institutions and local governments. The remaining number, about 9,500, are employed in private industry: mainly in pulp and paper companies, with logging, lumbering and milling businesses or as consultants.

These employment figures can be compared with the academic year 1962-1963 enrollment data from the Nation's forestry schools: approximately 2,000 seniors and about 1,100 enrolled for advanced degrees. These data compare with 1 forestry undergraduate degree awarded in 1900, 160 in 1920 and 1,072 in 1940.

Second, consider some of the broad changes and increasing requirements of service from the Nation's public forests. A new vitality in the multiple-use concept of forest resource management requires greater administrative abilities—higher degrees of specialization in both research and admin-

istration—and growing demands for cooperative endeavor.

The recent surge to the outdoors is reflected in rapidly increasing forest recreation areas development. The clean, quiet air above and the earth below America's great forests have an appeal to young and old alike, which is unequalled in history. As an example, use of Forest Service administered campgrounds, picnic areas, winter sports developments, trails and information centers rose in 1963 to 125,000,000 visits—10% over 1962—and double the figure of 1957.

Fire and water, component yet often opposing forces of nature, are likewise elements of the spectrum ahead. Uncontrolled fire, great devastator that it is, is being paced by equally complex protection problems in forest insect and disease control. This situation will continue to require an entire complex of forest protection, involving biological, chemical and silvicultural measures. Water and forest land relations present a deep challenge. For tomorrow, vast areas of the Nation's forested watersheds will be protected and managed with unparalleled intensity to deliver maximum supplies of high quality water for industrial, agricultural and domestic use.

As men assemble more diverse arrays of physical science and reach outward to probe the mysteries of the universe, so will foresters team up with associates in the humanities—to achieve greater roles in public affairs. Rural areas development—and the gradual erasing of poverty from the depressed areas of our country will demand coordination between men of many arts and sciences—and unforeseen levels of products and services from America's forests. And, as if to unite the peoples of the world with a better mutual understanding of the earth's great forests, the forester of tomorrow will exchange and practice his professional skills in many lands. U. S. world leadership will demand outstanding skills, in all of the professions. Public and private forestry will be no exception. The contributions to global good will can be as long as the forest trails of the world and as deep as the spirit of human progress in the hearts, hands, and minds of American foresters.

In closing, a few words on the responsibilities and characteristics which relate to our opportunities ahead. Men in forestry gain riches, not in great material value, but in the experiences and satisfactions, derived by creation and devotion to the good of man. It follows then, that our opportunities are enhanced by striving for certain personal values, namely:

An awareness of high character which achieves a sense of ethics in the practices on the land: sensitive to the objectives of our Nation and free people everywhere—and appreciative of conservation and forestry's role in achieving these objectives.

An intense dedication and grounding in the scientific principles and arts of the profession of forestry—yet cognizant of the deepening importance and relationship with people in all walks of life.

The curiosity to research and explore the unknowns, and to apply the knowns with vigorous, positive action—thus to grow and develop in the service of man.

Frontiers in forestry are unlimited. The dimensions are ours for the making. I believe the young men graduating today are prepared and have the strength of character to welcome this challenge, and get on with the task before us.



Students at work on the University Forest



Timber!



Which side did you knotch?



To a three inch top?



Log loading with an "A" Frame



I know one of these levers makes this thing go

ORGANIZATIONS

AND



ACTIVITIES



XI SIGMA PI

by TIMOTHY LAFARGE

Xi Sigma Pi was founded on November 24, 1908 at the University of Washington as a local forestry honor fraternity. In 1915 a national constitution was adopted, and the original local fraternity was designated Alpha Chapter. Beta Chapter was established in 1916 at the University of Michigan, and in 1917 Gamma Chapter was founded here at the University of Maine.

Since that time, 20 active and one inactive chapters of Xi Sigma Pi have been established throughout the United States. These chapters have been added periodically only after careful consideration for the general good of the fraternity by the early Executive Councils.

As stated in the constitution, the objectives of the fraternity "are to secure and maintain a high level of scholarship in forestry education, to work for the upbuilding of forestry, and to promote fraternal relations among earnest workers engaged in forestry activities."

These objectives are intended to honor the student who excels scholastically, who shows a creditable interest in forestry work, and who has a character and personality that would tend to make him successful in forestry work. The establishment of Xi Sigma Pi, which is the only national forestry honor fraternity, has resulted in linking together students with a common interest from various parts of the country.

To qualify for membership, the student must meet the scholastic standards, be in the upper 25 percent of his class, have at least two and one half semesters in forestry and wildlife, and possess good character, personality, ambition and interest. Professors and graduate students in forestry or wildlife may also be members.

At present the major activities of Gamma Chapter are the annual Christmas Tree Sale and the annual Forestry-Wildlife Supper. Soon after Thanksgiving Xi Sigma Pi members start cutting Christmas trees to offer for sale. This year the Penobscot Development Company gave us permission to cut 50 trees from their land in Milford, of which we cut 36. We took 25 more trees from the University Forest under the supervision of Superintendent Roger Taylor. A future source of supply was established on the University Forest in 1960 as a plantation of 300 trees was planted by members of Xi Sigma Pi.

Each year in April Xi Sigma Pi sponsors the Annual Forestry-Wildlife Supper. This banquet is the only formal event in the School of Forestry which brings together students, faculty, alumni, and friends, to hear a nationally recognized speaker. Presentations are made to the outstanding student in the freshman, sophomore and junior classes respectively.

The officers of Gamma Chapter consist of a Forester, Associate Forester, Secretary-Fiscal Agent, and Ranger. At the last meeting of each spring semester, new officers are elected from the junior class members, to carry on the organization through the following year.

In the future Gamma Chapter hopes to adopt its own chapter constitution, and to sponsor a seminar or other academic activity for the discussion of matters central to the problems of forestry. It is hoped that such activities will stimulate interest in forestry among the students and work toward a closer understanding between faculty and students, as well as among the student members themselves.



FORESTRY WIVES' CLUB

by PATRICIA THOMPSON

This year we became charter members of the National Association of Forestry Student Wives. It has proved to be a very enjoyable way to learn about other Forestry Wives' Clubs' activities. In October Beulah Lane attended the annual meeting at Boston as our representative. She was chosen secretary of the meeting and brought back much interesting information about the activities of other forestry wives' clubs. Our club now has an official pin of the National Organization. It is a silver replica of a juniper and is in the custody of the president.

To acquaint our members with the field of forestry, programs are planned that are slanted toward different aspects of forestry. In addition to being informative, the meetings provide an opportunity for the wives of the forestry students to become acquainted with each other and the wives of the faculty.

The pot luck supper seems to be the traditional way to start our year and appears to be the most popular meeting of the year. In November, Professor Frank Beyer spoke to us about the habits and activities of birds. He illustrated the program with slides taken of birds here in Maine and from his travels. Mr. Lawrence Stuart, Director of State Parks in Maine, was guest speaker at our

January meeting. He described a trip down the Allagash supplemented by color slides. He presented a map and overlays that showed the areas of the Allagash that would be flooded if the Rankin Rapids or the Big Rapids-Lincoln School dams were built. Another overlay showed the area that would be encompassed by the proposed Allagash Recreational Area. Our February meeting consisted of a Scotch auction. What better way to make money for the club and have some fun too!

For our March meeting we plan to discuss articles made of wood found in our homes and bring illustrations. In April we plan to join our husbands for the Annual Forestry Banquet. May brings our year to a close with a game night and election of officers.

There are 21 active members of the club this year and 15 honorary members. The elected officers are President, Patricia Thompson; Vice-President, Beulah Lane; Secretary-Treasurer, Marilyn Collom; Corresponding Secretary, Ruth Gammon; Program Chairman, Jo Ricker; Hostess Chairman, Jean Carey; and Faculty Advisor, Mrs. A. D. Nutting.

The Forestry Wives' Club has been active on campus for some years and we hope that it continues to be so in the years to come. We urge all active members to invite prospective members to our meetings.



MAINE FORESTRY CLUB

by JAMES L. H. THOMSON III

Another year has passed for the Maine Forestry Club; a year of interesting speakers, participation in two Woodsmen's Weekend contests, and some lively business meetings.

Probably our first meeting of distinction was the March meeting of '63, when Norman Gray, an independent forester from Fryeburg, Maine presented a talk on small lands management. He was later questioned by most of those members present, and helped us in understanding some phases of his work as a consultant.

In the month of April, the Woodsmen's Weekend was the primary concern of the club. The two teams began practice under the leadership of Dick Riding. Problems piled up fast, owing to the fact that we were to be host school, but under the capable management of Robert Whyland, Ray Cullinane, Jim Collom, and others, they were reduced to trifles. Woodsmen's Weekend that Spring was a great success, and many people here on campus had an opportunity to witness something they had never seen before. Both Maine teams were composed of fairly "green" men, but they performed extremely well.

The May meeting proved to be one of those lively business meetings mentioned previously. At that time, we were closing

out the business of the club until the fall semester, and there was considerable confusion among those present. At the end of that rather spectacular meeting, Professor Randall made the Hot-Shot presentations to those completing the training program.

When we returned in the fall, the Forestry Club was involved in something new. The Woodsmen's Weekend team had been invited by the University of New Brunswick to participate in their annual Woodsmen's Jamboree. With Dr. Corcoran as advisor, Dick Riding's A and B teams journeyed to Fredericton, N. B. Again, we had many inexperienced men, and too short a training and practice period. This, combined with unfamiliarity of the Canadians' version of events, defeated us, although both teams displayed marvelous spirit and good sportsmanship. One of the highlights of that trip was the "Hammerfest" put on by UNB. Just ask anyone who went and they'll tell you about a *real* "blast."

At the first official meeting of the new semester the club congregated around the campfire at the Ledges at about 7 p.m. At this meeting the freshman members were introduced to the officers of the club, and the members of the senior class who were present. The policies and procedures of the club itself were also presented. Appointments

to the executive committee were made, and Bob August was presented with his St. Regis check. After adjournment of the meeting, refreshments were served, and informal conversation became the order of the hour.

On November 6th, the club moved indoors, and held the monthly meeting in the Bangor Room of the Memorial Union. In addition to the regular items of business, including the proposal for new identification patches, Paul Patterson of Great Northern Paper Company presented a talk on management practices on Great Northern's lands. His talk was followed by a discussion period.

The December meeting was highlighted by the nomination of officer candidates to be voted into office at the January meeting. The

proposed patch designs were collected and later evaluated at an executive board meeting. At this time, the club donated the sum of \$100 to the Feltman-Field Scholarship Fund.

On January 8th, the elections were held. The new officers include: Marshal Ashley, president; Gary Morse, vice president; Dorothy Bell, secretary; and Doug Meservey, treasurer. The new patch proposals were also voted on, and the credit for creation of the new identification patch goes to John Hescocock. The meeting was closed with an informative talk by Don Wilson on Indian artifacts.

In closing, I want to thank all those who have made the past year a successful one for the Forestry Club.



Officers for current year

Gary Morse	Vice President
Doug Meservey	Treasurer
Dorothy Bell	Secretary
Marshal Ashley	President

Faculty advisor, Prof. Beyer and students at the refreshment table



WOODSMEN'S TEAM

by DICK RIDING

May 4th and 5th of 1963 saw Woodsmen's Weekend come to the University of Maine. The competition was held behind York Hall on the former site of the South Apartments, with an estimated 500 spectators on hand. Paul Smith's College of New York walked away with the team championship to continue their record to 7 consecutive victories.

This Woodsmen's Weekend was a record year for entries as 9 schools entered 13 teams for a total of 91 individual participants. Woodsmen's Weekend was originated in 1947 as a competition between forestry schools in the Northeast. Traditionally the competition has included events such as bait casting, fly casting, log rolling, pulp throwing, scoot loading, fire building, tree felling, cross cut and buck sawing, chopping, split-

ting, pack board racing, single canoe, double canoe, and portage.

The University of Maine entered two teams in the competition. Although they did not place as well as had been hoped, they were strong in chopping and sawing events. The members of the teams were:

Dick Riding (Capt.)	Roy Burton (Capt.)
Marshal Ashley	Carl Bradley
George Pinkey	Dick Clark
Pete Ripple	Rod Record
Jim Thompson	Carl Weber
Jim Wheeler	Aaron Whitcomb
Bruce Wiersma	

The contest was high-lighted Saturday by a steak dinner at the pole barn, near the



Roll 'em along, then

and maybe they'll go up!



camp sites of the contestants in the University Forest. After a full day of competition this offered an opportunity for the contestants to join together in discussions of the events of the day, plans for the next Woodsmen's Weekend, and any other topic of general interest. It also offered an opportunity to talk with the instructors and coaches from other schools.

Much credit should be given to all who helped set up this weekend and the efforts of Bob Whyland, Jim Collom, and Ray Cullinane in organizing such a successful weekend.

This fall two Woodsmen's teams ventured to New Brunswick for a weekend competition. In this contest the team was pitted against five teams from three Canadian schools. The New Brunswick Ranger School

won the meet. Maine's teams were again strong in sawing and chopping events as evidenced by their winning or placing high in this competition. They also completely dominated the canoe race capturing first and second place in this event. The members who went to Canada were:

Bill Hooper, Capt.	Dan Schroeder, Capt.
Jim Collom	Jim Davenport
Ray Cullinane	Mike Dunn
Rick Phinney	Gary Morse
Dick Riding	Jim Robbins
Aaron Whitcomb	Walt Seaha
Jim Thomson	

The team is looking forward to participating in the Woodsmen's Weekend to be held at West Point Military Academy in April of this Year.



Cut it off and ...



... then heave it!



THE HOTSHOTS

by EDMUND K. DINSMORE

The University of Maine Hotshot Crew is a voluntary group of students who take it upon themselves to learn the techniques of forest fire fighting, so that if they are needed they will be able to perform a valuable service to Maine's citizens. The seventh year has passed since the hotshots were called to service and it is hoped that many more will pass before they are called again. However, if they do get called, they will be ready.

Under the guiding hand of Professor Arthur Randall these students are educated in fall and spring weekly training sessions. They are exposed to the old hand tools (pulaski, lady shovel, and fire rakes) as well as new pumps, such as the centripetal pump

which was donated by the State of Maine. After the training program is completed in the spring, the crew looks forward to the delicious dinner served by Mrs. Randall.

Each year at the last meeting of the Forestry Club certificates are awarded to new members.

This fall the crew gave a demonstration of American forest fire fighting techniques to a group of visiting Swedish foresters. During this demonstration the spirit of the crew was evidenced by the efficiency in the pump operation, line-building, and hose laying.

It can safely be said that if they are needed, they are ready.



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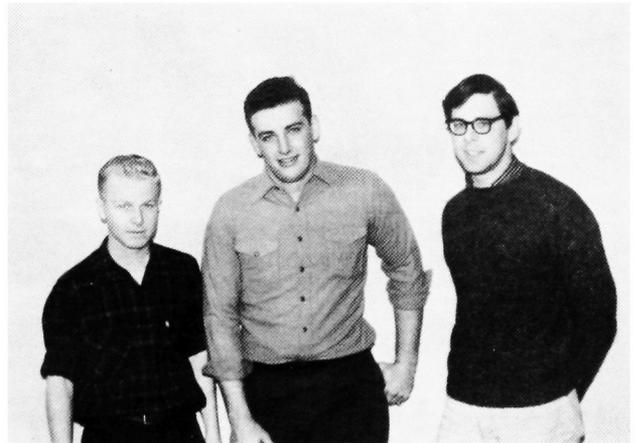
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It is impossible to list the rest of the people who have made this edition of the MAINE FORESTER possible. We wish to thank all who have contributed to the 1964 edition, especially Mrs. Cleale for her assistance and patience.



Business



Art and Circulation

TIME FOR A BREAK!



Wildlife Students talking with Fish and Game Commissioner Speers after a wildlife seminar.



After a Forestry Club meeting



Faculty relaxing in the Bear's Den