Did you know that one out of every 20 workers in the United States is engaged in some kind of timber based activity? Together these jobholders contribute more than $25 billion to the gross national product.

The American Tree Farm System, which is celebrating its Silver Anniversary in 1966, helps to sustain and expand this economic wealth. The System is one of the most important factors in maintaining a favorable balance of this nation's most valuable renewable resource.

A leading member of the System, Georgia-Pacific's dynamic conservation policy maintains that tree farming means healthy and productive forests perpetually... that it provides additional benefits consistent with the primary purpose of growing trees as a crop... that it means greater national strength and better living. Tree farming is best for all of the people, not just a few!

For information on Careers in Forestry, write the PR Department, Georgia-Pacific, PO Box 311, Portland, Oregon 97207.
FOREWORD

Forestry research is becoming more and more important in terms of the amount of time and money spent for it. Continued growth of forestry research will result in greater problems in the acquisition and allocation of research funds, and in guiding the research into those areas that will yield the most benefit to society. The 1966 "Ames Forester" staff seeks to help publicize this problem because understanding the problem is a necessary first step in its solution.

ACKNOWLEDGEMENTS

The Ames Forester is grateful to all those who helped make this publication possible. We deeply appreciate the financial support of our patrons and advertisers. The help and advice of Dr. William Bentley, our faculty adviser, and Mr. Robert Schwartz of the Iowa State University Press were invaluable. We are further indebted to the faculty members, students, and other individuals who offered help and suggestions.

PHOTO CREDITS

Iowa State University Printing Service—11, 21
Weyerhauser Company—14
National Park Service—26
Staff, Faculty, and Students—others
# TABLE OF CONTENTS

- Foreword and Acknowledgments .............................................. 2
- Dedication ............................................................................. 5
- The Widening Research Gap in Forestry .................................. 6
- The Relation of Federal Programs to Forestry Research in the United States ............................................. 8
- Graduate Opportunities in Forestry ........................................ 10
- Research and Forest Recreation ............................................. 12
- Activities ................................................................................ 14
- Summer Camp ........................................................................ 23
- Faculty .................................................................................... 26
- The Professional Code of Ethics ............................................. 27
- Students .................................................................................. 36
- Student Awards and Scholarships ........................................... 37
- Seniors .................................................................................... 38
- Master's Candidates ............................................................... 43
- Alumni .................................................................................... 44
- In Memorium .......................................................................... 45
- The Uses of Charity ............................................................... 46
- Alumni Notes .......................................................................... 47
- Patrons ..................................................................................... 64

THE COVER design was created by GENE LUEDTKE, who is a freshman in Applied Art. The AMES FORESTER staff gratefully acknowledges the cooperation of MR. LUEDTKE and PROFESSOR MARY MEIXNER in preparing the cover for the 1966 edition.
DEDICATION

Keith Allen Bauer

The untimely death of Keith Allen Bauer, graduate research assistant in Forestry, shocked and saddened the students and staff of the Department. Keith was a talented, promising young man with a deep-seated interest in the world around him. His academic achievements as an undergraduate and graduate student in Forestry were outstanding; but more important than this, Keith’s unusual maturity, pleasant personality and subtle sense of humor marked him as a rare individual who would have contributed much to his profession and to society as a scientist and as a responsible citizen.

Keith, the son of Reverend and Mrs. Lloyd Bauer, was born March 1, 1940 in West Chester, Iowa. He was reared on a farm and attended West Chester Consolidated High School where he graduated as Salutatorian in 1957. From 1957 to 1965, Keith attended Parsons College, served in the U.S. Army in South Korea, graduated with a B.S. in Forest Management at Iowa State University, and entered Graduate College to work towards Master of Science and Doctor of Philosophy degrees in water resources. On September 7, 1965, while returning to Iowa State from a visit with friends in Nebraska, Keith was killed in an automobile accident near Vail, Iowa.

Staff and students of the Department will miss Keith. In memory of a young man who exemplified so well, through academic attainment and personal characteristics, the forest scientist of tomorrow, we dedicate this issue of the Ames Forester to Keith.

"His life was gentle, and the elements
So mixed in him, that Nature might stand up
And say to all the world, this was a man."

— Shakespeare
The Widening Research Gap in Forestry

By R. Keith Arnold

... the Author

Dr. R. Keith Arnold became Dean of the School of Natural Resources at the University of Michigan on May 1st of this year. At the time of writing this article, he was Director of the Division of Forest Protection Research with the U.S. Forest Service. Dr. Arnold has almost thirty years experience in forestry research and education, and has been quite concerned in recent years with research planning and programming.

From 1950 to 1963 Dr. Arnold was a member of the staff of the Pacific Southwest Forest and Range Experiment Station with headquarters in Berkeley, California. He first served as Project Leader in fire research on work to determine the effects of nuclear weapons on forests. Later he was Manager of Operation Firestop. This was a cooperative project in which the Forest Service, several military and civilian public agencies, universities, and private industries joined in an intensive one-year program to explore the possibilities of new techniques in controlling forest fires. In 1955 he was appointed Chief of the Division of Forest Fire Research, and in 1957 was named Director of the Pacific Southwest Station.

Dr. Arnold attended the University of California where he obtained a B.S. degree in forestry in 1937. In 1938 he earned a master of forestry degree at Yale University. He entered the Forest Service the same year as a research assistant at the Stanislaus Experimental Forest of the California Forest and Range Experiment Station. The following year he joined the staff of the University of California as an associate in forestry.

During World War II, Dr. Arnold served 4 years with U.S. Navy, assigned to a research and development unit of the Atlantic Fleet. In 1946 he returned to the University of California to engage in teaching and research in the School of Forestry. Later he spent a year at the University of Michigan to complete work for an advanced degree and was granted a Ph.D. in forestry in 1950.

I have become increasingly concerned in recent years about the proliferation of forestry problems in relation to the rate of production of new knowledge required to solve them. New techniques like balloon logging and remote sensing add to opportunities to practice forestry, while new constraints imposed by such national concerns as pesticides and environmental health complicate its practice. Competition for land use by a society now dominately motivated by urbanized values adds new social and economic dimensions. Consequences of poor management decisions are more far-reaching and more drastic than ever before.

Today's forestry problems require new knowledge and accelerated quantification of old knowledge fitted into ecologic and economic systems that explain how the real world functions.

In substance, current forestry research programs
address themselves to the complex elements of multiple use of forest lands. But research plans have not yet projected programs which look at the entire forest environment as it interacts with urbanization. My concern extends beyond the need to finance forestry research at an accelerated rate to the need for new evaluations of research needs which encompass all of today's opportunities and constraints.

It was with pleasure then that I looked forward to this opportunity for a discussion of research.

My thesis, stated in another way, is that though research shifted from a dominant focus on timber oriented land management to meet needs for successful practice of multiple-use forestry, it has failed to treat the forest environment as a complex socio-economic-ecologic entity. Therefore, current projections of research needs are inadequate. The significant question is, "Do forest land owners and managers as well as private and public policy makers have the basic information and decision making tools and techniques for the practice of forestry in today's urbanized society?" To answer this question, let's look briefly at a broad concept of forestry and some of the inferences it suggests. Then we will examine the major projections of research needs, and suggest research areas that need special attention.

The New Forestry

Foresters are concerned with generating an acceptable stream of human satisfactions from forests. In the practice of forestry, they mold the biological complex of the forest in a way to knit man and his forested environment into an integrated system.

If we accept this statement as a broad definition of forestry, we, immediately, can draw inferences which are significant in today's world.

It is first apparent that forestry within this framework completely transcends traditional concepts of forest management. Though today's multiple use principles come close, they still are usually interpreted in a vein narrower than that required to encompass the broad bio-socio-economic complex of man's outdoor environment. V. L. Harper (1964) describes "The New Forestry" and emphasizes the need to define its scientific and social challenges.

It is also apparent that a broad concept of forestry provides no clearly defined limits for the profession nor for the practice of forest management. The number of scientific disciplines which impinge on the interface between forests and modern society attest to this fact. Sociologists, psychologists, economists, landscape architects, epidemiologists, and many others have skills and developing concepts which bear on the outdoor environment and interact with the traditional management of forests. Conflicts and confusion about the role of professions and disciplines in the new forestry will continue and possibly increase until either the boundary between the forest and non-forest environments is better defined or until stronger multidisciplinary approaches in science and technology are developed.

A third major inference of the new forestry relates to the state of knowledge required for policy decisions, development of management principles, and the practice of land management. Knowledge is inadequate. In fact most of the problems of land management policies and practices stem from the lack of quantifiable knowledge about forest ecosystems and how they mesh with the economic and social systems of today's urbanized society. I submit at the date of this writing that the gap is widening between increased needs for new and better information and the rate research is producing it.

Research Planning

It is interesting and profitable to trace the path of forestry research planning in this country.

Clapp, et al (1926), in "A National Program of Forest Research," a report of a Special Committee on forest research of the Washington Section of the Society of American Foresters, described forest research progress to that date and projected a far reaching research program. This analysis presented research needs in terms of forest management, forest protection, forest influences, forest range management, wildlife, the utilization of wood and other forest products, and forest economics. Though the report dealt with each area separately, it did include a chapter on "The Essential Unity of Forest Research" which emphasizes the forest as a biological unit. It recognized the obvious fact that all plant and animal life forms compete for food and energy, and in varying degree consume or prey on each other or are dependent upon symbiotic relationships for existence. This broad eco-system concept has never been fully considered in later planning for forestry research. Bailey and Spoehr (1929) in "The Role of Research in the Development of Forestry" placed primary, if not complete, emphasis on phases of forestry concerned with silviculture. Though they professed to deal with complex needs of American forestry, their analysis and recommendations projected only the bio-science aspects of trees and of forests in the narrow sense of tree growth.

Kaufert and Cummings (1955) in "Forestry and Related Research in North America" developed projections of research needs required by multiple use forestry. They described their work as dealing "not only with the timber resources, its products, and its utilization, but includes those parts of the wildlife, range, watersheds, and recreation resources and ac-

(Continued on page 51)
The Relation of Federal Programs to Forestry Research in the United States

BY R. H. WESTVELD

... the Author

Dr. Westveld has had long contact with and interest in forestry research. This began in 1922 when, as a junior forester on the Carson National Forest in New Mexico, he was assigned for a few weeks to assist G. A. Pearson and Herman Krauch of the Fort Valley Experiment Station on some studies of the spruce-fir type. He has been actively engaged in research with the Forest Service, Michigan State University, the University of Florida, Auburn University and the University of Missouri. He is the author of 60 technical articles and bulletins and two textbooks.

From 1947 to 1965, while serving first as chairman of the Department of Forestry and later as director the School of Forestry, the forestry research budget of the University of Missouri grew from less than $10,000 annually to $175,000.

He was chairman of the research committee Council of Forestry School Executives (1957–58), a member of the committee of forestry research, Society of American Foresters (1958–64), and chairman of the organization now known as the Association of State College and University Forestry Research Organizations (1958–64). Through the latter organization he provided the leadership that led to the enactment in 1962 of the McIntire-Stennis Act. He was chairman of the Cooperative Forestry Research Board (1963–65) which advises the Secretary of Agriculture on the McIntire-Stennis Act. In 1963, at the request of the Secretary of Agriculture, he served on the Research Facilities Review Team of the U. S. Department of Agriculture. Currently he is chairman of the committee on forestry research of the Agricultural Board, National Academy of Science National Research Council.

He is serving a three-year term (1965–67) as the representative of the Society of American Foresters on the National Research Council. He is a fellow of the Society of American Foresters. He has served on numerous national and section committees of the Society and from 1952 to 1955 he was a member of the Council.
The federal government has played an important role in the development of many activities and programs in the United States. Forestry was one of the areas in which the federal government took an early interest. This probably occurred because wood in various forms was important to the defense of the country. When the government decided that some type of national forestry program was needed, research received first attention. In 1876, Congress authorized the appointment in the Department of Agriculture of a person to prosecute investigations and inquiries in a wide variety of matters pertaining to forests and forest products. When Bernard Fernow was appointed chief of the Division of Forestry in 1886, research received even greater emphasis. The establishment of the national forests, which included hundreds of tree species and many diverse forest types, increased the importance of forestry research. The Forest Service of the U. S. Department of Agriculture, with its responsibility of administering the national forests and its broader interests in both state and private forest lands, early assumed the responsibility for leadership in a forestry research program. This was in contrast to the research program in agriculture, responsibility for which was shared by the U. S. Department of Agriculture and the land-grant colleges and universities. Although the land-grant colleges could have been more active in forestry research, their interests were strongly with agricultural commodities other than wood. Consequently, never more than three percent of the federal funds allotted to the agricultural experiment stations under the Hatch Act were for forestry research.

All federal programs undergo changes, and in recent years changes have occurred in the federal forestry research program. Furthermore, dynamic changes in the state research programs have occurred during the past ten years and these changes are influencing the federal programs. To understand the future relationship of the federal forestry research programs to the overall development of forestry research, a review of the past is necessary.

The establishment of the research centers on campuses put some of the Forest Service research workers and the colleges and universities in close contact with each other. This resulted in the development of more cooperative projects—projects participated in by personnel of both agencies. With the transfer during the past year of additional research scientists from experimental forests to project locations on campuses, more opportunity for cooperation in research between federal personnel and faculty is provided.

It would be difficult to appraise the effect which federal programs have had on research performed by private industry. Industry develops its research on the most pressing problems which, if its expenditures are an accurate index, are in the field of forest products and utilization. Nearly 97 percent of its expenditures during the fiscal year of 1959–60 were in this area (Committee on Forestry Research, Society of American Foresters 1962). If the federal program of the Forest Service has had any effect on private industry research, it may have been to minimize research in fields other than forest products and utilization since the Forest Service spent 79 percent of its 1959–60 fiscal year research budget in the other fields.

Although several federal agencies do some forestry research, their impact on the total research effort is small. During the fiscal year 1959–60 they spent approximately seven percent of the federal forestry research total of $17,247,000 (Committee on Forestry Research, Society of American Foresters 1962).

Forest Service Research Program

Prior to 1908 all research personnel of the Forest Service had their headquarters in Washington, D.C. With the reorganization of research, a system of local forest experiment stations was established in six states. From those local stations the regional stations were developed, beginning in 1921. The establishment of the Forest Products Laboratory in 1910 initiated a major research effort in wood utilization. By 1928 when the McSweeney-McNary Act was passed by Congress, the Forest Service was the dominant agency in forestry research. The Act authorized appropriations to reach $3,625,000 annually, 10 years after the program was initiated. By 1940 the annual appropriation had reached $12,092,000 (Kaufert and Cummings 1955). At that time educational institutions were spending $256,525 for forestry research (Westveld 1954)—approximately 12 percent of the Forest Service appropriation. Although data are not available, it is estimated that the states, through agencies other than colleges and universities, were spending considerably less. Up to this time, the Forest Service concentrated its efforts on its internal research program. The Service entered into cooperative agreements with other agencies, particularly educational institutions, through its regional experiment stations and the Forest Products Laboratory. In 1946, the Forest Service was authorized to establish research centers now called project locations, many of which were located on college campuses. These steps initiated a new policy in Forest Service research, the effect of which will undoubtedly grow in the future. Under the cooperative agreements, grants to cooperating agencies can be made for research on problems within the framework of the Forest Service program. Until recently, individual grants have been small—$2,000 to $5,000—enough to finance wholly or in part a graduate student. Through 1960, these grants in total rarely exceeded $100,000 per annum. They were, therefore, a minor factor of the research programs of state and other agencies. It is estimated that since 1960 these grants have risen to $500,000 annually. The Forest Service has indicated its intent

(Continued on page 53)
Graduate Opportunities in Forestry

The following description of these programs has been prepared by the Forestry Graduate Committee for release as a brochure next fall. The Ames Forester staff felt that the forestry alumni and friends of Iowa State would enjoy learning more about these programs.

GRADUATE PROGRAMS

Degrees

Iowa State University has offered a professional forestry curriculum since 1904. Scientific study on the graduate level has always been an important aspect of the program; 150 graduate degrees have been granted in forestry and related areas.

The current graduate programs are closely coordinated with an intensive and expanding research program in selected areas. U.S. Forest Service scientists who are working on research projects in hardwood physiology share facilities and cooperate closely with the faculty in research and supervision of graduate studies. Graduate programs in forestry rely strongly on several excellent supporting departments of the University.

The graduate programs include the Master of Forestry, emphasizing professional goals, and the Master of Science and Doctor of Philosophy, emphasizing scientific research.

The objective of the Master of Forestry program is to give the student an advanced, professional education in preparation for administrative careers in land management or forest utilization. The graduate from this program will have achieved higher professional competence than can be obtained from the academic and professional experiences gained at the undergraduate level. Toward this objective, the core of study in the various subject matter areas of forestry emphasizes the resolution of forestry problems. In this program no thesis is required; instead, the student concentrates on further course work supporting the professional areas and on individual analysis of selected problems.

The objective of the program for the Master of Science degree is to give the student academic work that will make him a competent research scientist or teacher in forest economics, forest mensuration, forest management, silviculture, or wood technology. This program may serve as a step toward the doctorate, or it may be a terminal degree for those who do not desire a Ph.D. The academic work for each area of specialization consists of a core of courses in forestry and related disciplines. In addition, the student is required to prepare a thesis based upon a substantial research experience in his area of specialization.

The objective of the program for the Doctor of Philosophy degree is to give the student exceptional competence as a research scientist or teacher in forest economics, forest mensuration, silviculture or wood science. In this program emphasis is placed on (1) coursework in forestry and appropriate related disciplines, including research methodology, (2) research experience on forestry problems, and (3) a substantial, independent contribution in research on a forestry problem of considerable depth.

Facilities and Staff

Iowa State University of Science and Technology is the land grant college of the State of Iowa. Teaching, research, and extension are concentrated in areas of science and technology. Of the American universities primarily oriented towards science and technology, Iowa State is among the oldest and largest, and enjoys a reputation of excellence in scholarship, research, and teaching in many fields.

The Department of Forestry is concentrating its efforts in teaching and research in those special fields of study in which the University is exceptionally strong and provides outstanding supporting work. These areas are forest economics, forest management, forest mensuration, silviculture, and wood science and technology.

The Department of Forestry has a complex of laboratories, classrooms and offices in a new plant science building. The forestry facilities have been designed specifically to serve the future needs of the
Department in its pursuit of excellence in the areas of specialization mentioned above. In addition to these facilities, the staff and students of the Department make extensive use of the facilities of many cooperating Departments.

AREAS OF SPECIALIZATION

Forest Economics

The objective of the graduate program in forest economics is to prepare students for positions requiring competence in forestry and in the application of a specialized knowledge of economics to problems arising in forestry. For students who are seeking the M.S. degree, the program requires additional advanced work in forestry and intermediate graduate courses in economics and statistics. For students who already have a Master's degree in forestry, the emphasis is on advanced theoretical and applied economics, and related areas such as statistics; advanced coursework in forestry is limited to those few courses needed to give the student an opportunity to consider specific applications of economic concepts and analytical tools to forestry problems.

Graduate programs in forest economics are conducted in close cooperation with the Departments of Economics, Statistics, Government, and Industrial Engineering, and other research and teaching groups in the University. Consequently, the student is able to take advantage of exceptionally strong programs in such fields as production economics, marketing, resource-policy formation, operations analysis, computer technology, and international trade and development. The University's Department of Economics has long been respected nationally, and has gained an international reputation in the postwar years.

Forest Management

The objective of the graduate program in forest management is to provide advanced study at the Master's level in the combined disciplines of silviculture, mensuration, economics and business administration. The focal point of the study program is the managed forest. The purpose of the course work and the research is that of sensitizing the student to the managerial responsibilities, the information needs, and the decision making techniques that are useful to the modern forester in either private or public employ.

For students who already have a B.S. degree in forestry the probable study plan will include three to six forestry courses supporting one formal course in advanced forest management plus one special problems course. Non-forestry courses will be taken from at least three cooperating departments.

Students with a B.S. or M.S. degree in a field other than forestry will be expected, in addition, to gain competence in certain aspects of forestry before participating in advanced work in forest management.

Students in the graduate programs of forest management will find themselves closely associated with such cooperating departments as Industrial Administration, Statistics, Economics, Agronomy and Botany. It is this opportunity to be allied with authorities in each of several fields that adapts this program so well to the complexities of modern forest management.

Forest Mensuration

The objective of the graduate program in forest mensuration is to prepare students for positions requiring competence in forestry and in the application of a specialized knowledge of mathematics, statistics, and computer technology to problems arising in forestry. For students who already have a Master's degree in forestry the requirements would entail less additional advanced forestry and a higher proportion of time devoted to work in mathematics and statistics.

In these programs the Department of Forestry cooperates closely with the Departments of Statistics and Mathematics. The student, consequently, is able to make use of the University's exceptionally broad and strong program of teaching, consulting, and research in applied and theoretical statistics, numerical analysis, and computer technology. Forest mensuration students make extensive use of the staff and facilities of the Department of Statistics and the Statistical Laboratory—two of the oldest and most widely known and respected institutions in applied statistics. This particularly enhances the opportunities for graduate study in forest mensuration.

Silviculture

The objective of the graduate program in silviculture is to give the student a rigorous education in the fundamental aspects of silviculture (silvics) and thus prepare him for research and teaching positions

Controlled-environment chamber and infra-red analyzer used in studies of tree metabolic processes in relation to genetic and environmental factors.

(Continued on page 59)
Larry L. Streeby is a Research Forester at the Pacific Southwest Forest and Range Experiment Station of the U.S. Forest Service, headquarters in Berkeley, California. He came to the Station in 1965 after receiving his Master's in forest economics from Iowa State University. He is currently working on the Forest Recreation Research project, with particular emphasis on economic aspects of forest management and planning for recreation.

Robert H. Twiss is the project leader in Forest Recreation Research at the Forest Service's PSW Station, and Lecturer in the Department of Landscape Architecture at the University of California, Berkeley. He received his AB from San Jose State College in 1951. After completing three years in the USAF, he returned for his MS and Ph.D in Conservation from the University of Michigan. Shortly thereafter he came to the Station to head up the recreation project. Current research emphasizes scenic resource analysis.

ABSTRACT

Research on forest management for recreation is described with references to recent work. The need is advanced to study individual perception and the social and physical environment so as to guide the provision of appropriate forest settings for recreation activity.

Recreation impinges on forest management in many ways. How much recreation should be provided in comparison with other forest uses? How important is recreation to the growth of regional economic health and development? What mix of recreation services should be provided? How should each recreation activity be accommodated into the forest environment so as to use each site to fullest advantage?

These questions would be difficult to answer even for a stable, uncomplicated society. But to make matters more difficult, they must be asked in the context of rapid population growth and cultural change. Changes include the suburbanization of the forest itself—including zoning and development for transportation, water supply, power distribution, and
housing—and the urbanization of forest visitors—with varied and changing values, tastes, and perceptive abilities.

In such a context of change, a professional’s traditions, training, and experience are sorely taxed. Increasingly, forestry, like other professions, will look to research for clear concepts and valid information to aid in the decision process.

Even to touch upon the many fields of research which bear on forest management for recreation would require more space than we have here. But we can point up some areas where research is making headway.

The recreation aggregate includes a diversity of activities, each having different requirements. In varying degrees, some recreation requirements complement, and others compete with, those of other forest uses. Even if we ignore the often-expressed problem of comparing market and non-market values, limited knowledge concerning the relation between recreation and other uses makes it difficult to answer the question of how much recreation to provide. The political process can resolve conflicts between uses with market values and those with non-market values, but this process may be inefficient without knowledge of physical relationships between various uses. For example, a case study of three National Forests by Amidon and Gould suggests that competition between recreation and timber is more serious with respect to capital than to land.

The recreation industry has been hailed as the new hope for rejuvenation of some economically depressed areas. Foresters are deeply concerned about the economic health of those regions, whose boundaries often coincide with those of forested regions. If recreation is to have a significant economic impact, tourists must cause increased spending in the region. The impact depends not only on how much tourists spend, but also on continued expenditures in the secondary chain of spending. Many studies have estimated tourist expenditures; fewer have examined the secondary effects. To our knowledge, no one has conducted a truly comprehensive regional analysis of multiplier and accelerator effects of tourist expenditures.

Policy questions such as those of how much recreation to provide and of the impact of recreation on regional economics are indeed germane to forestry. But more foresters would more likely ask, “What recreation activities are most suitable for my area?” “And how can I provide for the proper settings for these activities?” In this context, research can provide some answers that make the forester’s job easier. But as research digs into such questions, foresters should expect that some answers will merely reveal the true complexities of the problems before them.

Sociologist William Burch of Victoria University of Wellington has suggested:

“An apt analogy for the role of the resource manager concerned with recreation management is that of the theater scene designer, his central contribution being the management of settings to fit the particular drama to be performed. As different settings are required for tragedies than for comedies, so too are different settings required for different types of forest recreation.”

The “setting” of forest recreation activity can be thought of as a function of three factors: (1) the natural-physical environment, (2) the social relationships, and (3) the values, predispositions, and perceptiveness of the individuals concerned.

The natural environment for recreation received early research attention because of the damage to the forest being wrought by increasing numbers of recreationists. Dr. E. P. Meinecke’s studies in the late 1920’s set the standards for many recreation site designs—designs that minimized soil compaction and damage to vegetation. Continuing research is documenting site-condition trends in heavily used recreation areas. But new findings are modifying some early generalizations. For example, Hartzfeldt’s recent studies on Sequoia gigantea indicate that asphalt walkways and roads over root systems may actually benefit many trees by helping to conserve moisture—a limiting factor in the area he studied. In a similar vein, several current studies

---


2 Two examples of such studies are:


---

* Personal communication from William Burch to Robert H. Twiss.


(Continued page 61)
Chalk up one highly successful year for the Forestry Club. Fall quarter, the Club's "Big Brother" program helped incoming freshmen get acquainted with campus life and oriented in the forestry curriculum. While unsuccessful in the tug-of-war with their arch-rivals the C.E.'s, the foresters scored a win with the hayride held later in the fall for Forestry Club members and dates.

Winter quarter was kept busy by Christmas tree sales and Game Banquet plans, with several faculty firesides filling in the gaps. The foresters buried the hatchet for one evening and held a joint meeting with the C.E.'s with a program given by a civil engineer employed by the Forest Service. Programs of other meetings included a slide lecture by Dr. Scholtes of the Agronomy Department and a program by Dr. Stoltenberg on German forestry.

Spring quarter was highlighted by the Game Banquet and a re-evaluation and membership program designed to make Forestry Club the top club in the College of Agriculture. With such enthusiasm, next year promises to be even more successful than this year.
1965 marked the establishment of the Alpha Gamma chapter of Xi Sigma Pi on the Iowa State campus. Xi Sigma Pi is a national forestry honorary established at the University of Washington in 1908 for the purpose of stimulating high standards of scholarship, promoting fraternal relations among foresters, and upbuilding the profession of forestry. Xi Sigma Pi became a national honor fraternity in 1915, and has grown considerably since, with 23 active chapters and nearly 7000 members at the present time.

Alpha Gamma chapter has about 30 members from the staff, extension service and graduate school, in addition to 5 undergraduate members. Any professor or instructor may be elected to Xi Sigma Pi, and, in fact, most of the Iowa State forestry staff are members.

In order to be eligible for membership, students must be regularly enrolled in the forestry curriculum, must be of junior or senior status with 110 quarter hours of credit, 15 of these in forestry courses, and must rank in at least the upper 25% of his class. In addition, his character and personality are carefully considered.

Because of the recent establishment of Alpha Gamma chapter, no activities or projects have been initiated, but the scope of activities seems to be limited only by the imagination and energy of its members.

Current Officers

Forester ....................... Roger Fight
Assistant Forester ............... David Countryman
Secretary-Fiscal Agent .......... John Mathiessen
Ranger ........................... Dick Bower
Hartman Award Trip

The recipients of the 1965 George B. Hartman Award trip were Dick Bower, Roger Fight, and David Countryman. During the week of October 24–October 31 of 1965, the trio toured the Lake States region, accompanied by Dr. Stoltenberg and Dr. Ware.

The week was indeed a busy one for all involved. Before meeting the faculty in Detroit, the three students visited the Indiana Dunes along Lake Michigan. Tuesday evening the group attended the ISU Alumni Banquet in Detroit, and the following morning attended more sessions of the national meeting of the Society of American Foresters. While in the Detroit region, they crossed over into Canada to visit the Point Pelee National Park nature sanctuary in the southernmost tip of the Canada mainland.

Their return route was through the Upper Michigan Peninsula via the Mackinac bridge, and through Wisconsin into Iowa. A number of stops were made en route, including the Seney Wildlife Refuge at Seney, Michigan, and the Trees for Tomorrow Camp at Eagle River, Wisconsin. The Kimberly-Clark pulp and paper operation at Norway, Michigan, was one of the commercial outfits visited. The final stop of their Lake States tour was a visit to the University of Wisconsin at Madison, where the group had breakfast with several Iowa State alumni. They arrived back in Ames on October 31, thus completing an exciting and highly informative week.

Lumber Jills

Forestry Wives’ Club has been very active in the past year. The year’s activities were started early fall quarter with a barbecue at the home of Dr. and Mrs. Stoltenberg. Two bake sales and Christmas card sales helped to keep money in the treasury. Activities planned for spring are a faculty wives’ tea and the annual diploma dinner at which PHT (Putting Hubby Through) diplomas are presented to wives of graduating seniors.

At the regular meetings they have had Dr. Thomson, speaking on “The Role of Forester's Wives” and Dr. Bensend, speaking on “Wood Products in the Home.” They also have had demonstrations on hair styling, gift wrapping, and candle making.

Officers for the past year were:

Linda Hayes ....................... President
Paula Sullivan .................... Vice President
Dorothy Radeke ................... Secretary-Treasurer
Susan McCay ..................... Recording Secretary
Holst Tract

The Holst State Forest, located north and west of Boone, is managed by the Forestry Club for a variety of purposes. During the past year, activities of the Holst Tract committee have included pruning of the red pine plantation and digging several large pits revealing a profile of the forest soil for use in silviculture.

The Holst Forest pine plantation also provided pine boughs that were sold with the Christmas trees. Excellent wildlife cover makes the forest a popular hunting spot, especially for bow hunters during deer season. And of course it is used occasionally as an outdoor laboratory for several forestry courses.

Christmas Tree Sales

The Yule season found the Forestry Club in the midst of Christmas tree sales once again. Through the efforts of the tree sales chairman, Dennis Murphy, the club secured a quantity of splendid Iowa-grown red and scotch pines. The Holst tract provided pine and fir boughs that were sold for decorations along with sugar pine cones from the West Coast. One of the finest trees in stock was presented to Robert Parks by members of the Forestry Club.

Financially, the venture was not quite as successful as in past years. Balmy, fall-like weather didn't help put customers in the Christmas spirit. Also, a shortage of smaller trees hampered sales somewhat. Nevertheless, the club netted $178, with about 25 trees unsold.
Spring Foresters’ Day

Spring Foresters’ Day last year was held on Saturday, April 24. We all awoke that morning to the pitter-patter of little drops—of rain, that is. The day remained chilly and rainy until about 11:30 when the rain slowed to a slight drizzle.

After all the planning done by the co-chairmen, Aaron Campbell and Ken Phipps, they were in no mood to let a little sprinkle spoil the fun. By 1:00, all had fought their way out to the Izaak Walton League Grounds over “gravel” roads with ruts nearly axle deep.

The first event of the day was the canoe race. Parmelee and Gjersstad managed to make it across the lake and back without swamping the canoe and received a short ovation, but Chuck Keiweg and Marv Schmeiser turned in the best time.

After the events were over a delicious meal of hot dogs, potato chips, and beans was served in the shelter. The floor show consisted of a student skit of a faculty staff meeting, starring Dennis Murphy and his nose as Dr. Thomson. Dr. Thomson provided the entertainment for the faculty by making some cutting quips about faculty and students alike.

After the floor show announcements were made of the winning contestants. The first place winners were:

- Canoe Race . . . Chuck Keiweg and Marv Schmeiser
- Trap Shoot . . . . . . . . . . . . . . . . . . . . . . John Frey
- Log Throw . . . . . . . . . . . . . . . . . . . . . Mark Schultheiss
- 2-man Bucking . . . John Frey and Marlin Johnson
- Log Chopping . . . . . . . . . . . . . . . . . . . . . Marv Schmeiser
- Match Split . . . . . . . . . . . . . . . . . . . . . Dean Gjersstad
- Traverse . . . . . . . . . . . . . . . . . . . . . . . . Brian Lightcap
- Chain Throw . . . . . . . . . . . . . . . . . . . . . Gary Jorgenson
- Grand Prize . . . . . . . . . . . . . . . . . . . . . . Marv Schmeiser

Midwest Foresters’ Conclave

The 12th annual Midwest Forester’s Conclave was hosted by the University of Missouri, and was held at the Lake of the Ozarks State Park on May 1, 1965. Those schools attending were the University of Michigan, Michigan State, Michigan College of Mining and Technology, University of Missouri, University of Illinois, University of Minnesota, Purdue University, and Iowa State University. The Conclave, which originated at Purdue, is an annual event whose purpose is to promote good relations among forestry schools. Modern power tools and machinery are laid aside and contestants revert to the back breaking and hand-blistering methods of the old days.

Our crew of super-foresters arrived on the scene Friday evening, all fired up for the events that got under way Saturday morning. Mel Spies and Roger Fight won first place in the log roll. The team also placed in several other events which included dendrology, match splitting, tobacco spitting, pole climbing, one and two man bucking, pacing traverse, chain throwing, and log throwing. All told, they didn’t take top honors, but managed to give the bear rug (booby prize) to Minnesota. The canoe team got a little wet (They swamped the canoe in the middle of the first leg of the race), but this failed to dampen their spirits, and all those attending had a great time. Hereafter, the Conclave will be held in the fall, with the University of Minnesota hosting the next one.
Tug-of-War

On Engineer’s Day in September, the C.E.’s challenged the mighty foresters to defend their title as tug-of-war champions. The C.E.’s bragged about their tremendous strength, and of how they would finally take the victory ax from the foresters.

Both the foresters and the C.E.’s showed up in force, with blood in their eyes. The stage was set for a battle to the end, except the C.E.’s forgot to bring the judges. But the foresters, being good sports and all, agreed to compete without the judges. Contest rules call for two wins out of three tries, and after the first two rounds, the score was tied 1 to 1. On the third try the C.E’s managed to pull the foresters about ½” over the line, (or so they say) and immediately declared themselves the victors. Because of the absence of judges, the contest ended in confusion, and the C.E.’s finally walked off with the axe.

Veishea Open House

1965 Veishea visitors entering Curtiss Hall were taken by surprise by a tree that apparently was growing in the rotunda. A 33 foot white pine, cut from the Holst tract and placed in the rotunda by ISU foresters, beckoned visitors to the forestry display on the second floor. The display explained what forestry is, with emphasis on the five-parted multiple use program. Visitors and prospective students learned of the two paths that an ISU forester might follow through displays and demonstrations in both the management and forest products options. Attendants were on hand to answer questions about demonstrations and to explain the career opportunities in forestry and the forestry program at ISU.
The annual Game Banquet was held on March 12, 1966 in the newly finished Campanile Room of the Memorial Union. The guest speaker was Lemuel A. Garrison, regional director of the Northeastern Region of the National Park Service and past superintendent of Yellowstone National Park. After a splendid dinner of buffalo roast, Mr. Garrison spoke on “People, Parks, and the Conflict.” His talk surveyed the problem of increased use of National Park facilities and the problems that would have to be faced in the future.

Prior to Mr. Garrison’s talk, Dr. Stoltenberg presented two awards to foresters with outstanding achievement in the past year. The Iowa Hoo-Hoo Club award was presented to an outstanding sophomore student, Paul Wray, on the basis of his freshman record. The Frudden Award given each year to a person who has made outstanding contributions to Iowa Forestry was presented to Mr. Mans Ellerhoff. Because of the fine job they had done in the past year, the officers and committee members of Forestry Club were also recognized.
The 1966 Ames Forester Staff

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Editor</td>
<td>ROGER FIGHT</td>
</tr>
<tr>
<td>Managing Editor</td>
<td>DICK BOWER</td>
</tr>
<tr>
<td>Assistant Managing Editor</td>
<td>KEN PHIPPS</td>
</tr>
<tr>
<td>Business Manager</td>
<td>BILL EINSPAHRR</td>
</tr>
<tr>
<td>Feature Editor</td>
<td>TOM ELLERHOFF</td>
</tr>
<tr>
<td>Faculty Editor</td>
<td>ROGER GORDON</td>
</tr>
<tr>
<td>Senior Editor</td>
<td>BOB MEYER</td>
</tr>
<tr>
<td>Summer Camp Editor</td>
<td>DENNIS CLINE</td>
</tr>
<tr>
<td>Alumni Editor</td>
<td>DEAN GJERSTAD</td>
</tr>
<tr>
<td>Activities Editor</td>
<td>NORM LEWMAN</td>
</tr>
<tr>
<td>Advertising Managers</td>
<td>LARRY TAYLOR</td>
</tr>
<tr>
<td>Sales and Circulation</td>
<td>JIM ADAMS</td>
</tr>
<tr>
<td>Photographers</td>
<td>ARRON CAMPBELL</td>
</tr>
<tr>
<td>Faculty Advisor</td>
<td>RON SHULL</td>
</tr>
<tr>
<td></td>
<td>DENNIS CLINE</td>
</tr>
<tr>
<td></td>
<td>DR. BENTLEY</td>
</tr>
</tbody>
</table>

1965 Montana Summer Camp

BY DENNIS CLINE

“Sir, can you tell us how to get to Greenough? It doesn’t seem to be on our map.” We were four tired, but anxious, foresters enroute to summer camp. After driving from Missoula along the muddy Blackfoot, we saw the sign which read Iowa State University Forestry Camp. The lane led us a few hundred yards through beautiful ponderosa pine to the University of Montana spring camp which was to be our base of operations. It was nestled in the trees along the edge of a large meadow.

The other 33 had already arrived, some of them in the camp bus and the camp truck, others by car. In no time at all, we piled our gear in our “summer cottages” which were soon to become “home-sweet-home.” The two months which lay ahead were to be brimming with activity. Before the end of camp, our group of budding foresters would see at first hand a nearly complete picture of forestry in the “Inland Empire.” We were destined to a summer of enjoyment in one of the most scenic areas of the country. There were also to be the inevitable miseries of summer camps, such as rock’n’roll in the camp truck and the peanut butter blues. Many people that we visited will surely remember us as the guys in the funny, yellow hats.
In our first class meeting, we were greeted by Dean Bolle of the University of Montana, who oriented us on the camp and its history. It was interesting to learn that the Leubrecht Forest descended from the early mining and railroad operations, and that mining has had an important role in the forestry of the area. Biological factors as well as economic and other factors influence the use of the land in this region.

The northern Rockies are blessed with examples of all phases of forestry. Frequent field trips acquainted us with many of them. For example, private industry was illustrated by trips to several companies. Anaconda's mill at Bonner, Montana, is completely equipped with modern machinery. Near Bonner, we toured Anaconda's logging operations and saw forest management by a private firm at first hand. Most lumber mills in the Missoula area sell chips from their waste trimmings to the Waldorf-Hoerner Paper Products Company nearby. This is a good example of efficient use of raw materials. At the paper mill these wood chips are stored outside for months at a time in large piles. The rather dry summer climate limits the deterioration of the chips. Bleached pulp and heavy paper for making cardboard are produced here by the Kraft pulping process. The Van Evan Plywood Mill and the Missoula White Pine Sash Company presented other processing methods and products.

The longest trip of the summer took us to Potlatch Forests, Inc. at Lewiston, Idaho. Being a highly integrated company, Potlatch gave us a good picture of private forestry in many aspects. Management policies in protection, disease control, regeneration, and recreation were viewed. The Lewiston mill included a pulp and paper plant, a sawmill, a veneer and plywood plant, research facilities, and the general office. This company is especially interesting because its management plan must include control measures for the white pine blister rust disease, since white pine is the chief species grown.

Government agencies play an important role in forestry. A trip to Swan Lake, Montana, revealed that the forests managed by the Montana Forest Service are utilized solely for the sake of the state's educational system. Management programs are conducted which provide the maximum income for education. The federal government's role in forestry in Montana was seen by visits with the National Park Service, the Bureau of Land Management, and the United States Forest Service. Range management is important in this part of the country, where ranching is common, and grazing must be controlled. Private and public lands often are used for grazing purposes as well as for timber production. The Forest Service operates on the principles of multiple use, which are designed to make the most efficient use of the land that will best meet the needs of the public. This multiple use concept was emphasized by a visit to the Seely Lake Ranger District to see management on the district level. The Forest Service also provides research facilities and forest protection. The Northern Forest Fire Laboratory and the Smoke Jumper School at Missoula are important in protecting the region's forests.
The National Park Service presented their policies and problems to us at scenic Glacier National Park. The management of forests in national parks must be such that the public is satisfied. This sometimes causes problems such as with fire, wildlife, and timber utilization. Some very interesting discussion was brought forth relating to these problems. A scenic trip to Logan Pass brought out some hidden skiing blood in some of us and also some wet clothes. The view was fabulous from our bus which swooped around the sharp curves of the “Going to the Sun Highway” with the agility of a mountain goat.

Classes in forest biology and mensuration were taught at camp between field trips. Concepts of ecology, forest influences, and silviculture were explained as they applied to specific areas. The important tree species and competitors of the camp area were learned while in the field.

In forest mensuration, we learned to use simple methods of surveying and volume estimation. These skills were used in preparing a topographic map of a big “hill”, from which one crew “never returned” from “chaining round the mountain.” Also, we used elementary tools for estimating the value of 320 acres of standing timber.

Time was found for recreation in the evenings and on weekends. Jungle rules were in effect most of the time in volleyball, while the clang of horseshoes often lingered till dusk. A few hardy foresters found time for fishing and hiking in trout streams and wilderness areas nearby.

While Greenough at first seemed to be in the middle of nowhere, it was soon realized that it is actually in the middle of everywhere as a summer camp. No finer sampling of forestry, or of the professional forester at work, could be found in another place. The value of camp was probably not the same for all, but it did serve as a good indicator of the forestry profession. In this sense, it was a rung in the ladder of education for all.
Effects are the results of conduct. Such conduct may be good or bad, and canons of ethics are the outgrowth of practices, both good and bad. No society is perfect; therefore friction, which is frequently the sign of unethical conduct, exists in all society. From period to period, and from place to place, certain standards of conduct have been listed as acceptable, and others nonacceptable. These standards have not necessarily been the same in different places at the same time, nor at different times in the same place. Seldom among society as a whole have these accepted standards of conduct been written in the form of law, or for that matter written at all. Most are impressed upon the individual before maturity by parents, or associates, or are learned, belatedly, while the results of nonadherence are being endured.

Many of these standards of conduct have preceded the legislative laws later developed to restrict the minority who refuse to abide by the concepts of the majority. Some supersede and are even more strict than the law; and some, as with most professional canons of ethics, set forth those practices which, although not illegal, do not further the wellbeing of the individual, his professional group, or society in general. Professional canons of ethics are not designed merely to protect the professional worker, or to promote the interest of the profession itself, although these two objectives are frequently found to a greater or lesser degree in practically all such codes. The foremost objective of the professional code of ethics is to further the interests of the public which it serves. It is based, therefore, largely on altruism and a sense of service, rather than egoism.

This attitude certainly does a profession no harm. When advertised in a dignified manner, before the public, it attracts respect for the profession and its individual members. When the general public realizes that the members of the profession are required, not by legislative law, but by their own group action to protect the public interest, a faith in the ability of the individuals and in the work which they perform is generated.

Such is the nature and purpose of most professional codes of ethics. The profession of forestry, however, has an even greater responsibility and opportunity than some other professions. Practitioners in most professions deal with the individual or with small groups of individuals, and their decisions or the results of their decisions are usually of interest only to the individual or a closely related group. Directly, this may also be true of the professional forester, but it is also true that the decisions of the forester will many times affect the well-being of generations yet to come. Thus, no profession has greater need for the guiding principles of altruism than forestry.

Members of several professions, including some members of the profession of forestry, contend that a written code of ethics is unnecessary; that an unwritten code, based on an intensive “esprit de corps” and the supposition that all members of the profession are gentlemen and will conduct themselves both in business and pleasure as such, is enough. In a numerically small, compact profession this line of reasoning is good and frequently workable. In a profession with thousands of members of varied employment and many interests, it is mere wishful thinking.

The written code has proved itself superior in other learned professions; the profession of forestry is no exception. A code reduced to the written form clarifies the thinking of the group, and in itself serves to bind the group more closely together.

In all professions the ideal is service to mankind rather than monetary gain. Whenever a profession accepts a code of ethics it is a declaration to society of this ideal, and to a certain extent enlists the aid of society in the furthering of the ideal. Thus, good relations with the public are established, and public confidence in the profession is strengthened.

No individual member of a profession can live in a world alone. Just as his training and professional knowledge are based on the experience, research, and thinking of those who have preceded him in the profession, his present and future gains must come through a continuous exchange of information with his colleagues. Although he may make some progress without this exchange, it will be slow and halting. Those who have passed their knowledge on to him in the past have given to him not only a means of service and livelihood, but also a staggering responsibility. This knowledge must be put to its best use, and he must consider it his private responsibility that it is used fairly, and only for the purpose for which it was intended.

Thus, in accepting a code of ethics the individual agrees to discipline himself according to the dictates of the code; and in return he is favored with protection from the egoistic and selfish motives of fellow workers. In addition, he receives the confidence of the public, who may not know him personally, but who know the moral obligations of the profession. This public confidence can only be maintained by the individual, by a show of both technical and moral competence in all instances.

In many ways the forester is similar to other professional workers. In a few ways, especially in relation to his work, he is decidedly different. Most foresters, even at an early stage of their career, work alone under a heavy load of responsibility. Their every action may potentially involve large sums of money, or the safety and welfare of present or future populations. Instant decisions are often necessary both in times of stress and in everyday work. In such moments, the forester must rely upon his technical training, his former experience, and his moral judgment. The last of these is seldom the least. Foresters are not exempt from human weaknesses or temptation, and unless they are guided by a code of ethics they may unwittingly make the wrong decision. The code must always be foremost in the mind of the forester, and his every action and decision should be tested within its crucible.
Dr. Dwight W. Bensend is studying the relationship of environmental conditions to the anatomical and physical properties of wood. The species studied include red pine, Indonesia pine, cottonwood, and soft maple. Studies include the evaluation of specific gravity, fiber length, and holocellulose content as related to radial position and height in the tree. This work is supported by the Agricultural Experiment Station at Iowa State.

In a project sponsored by the Raft Chemical Company, the use of blood as one of the ingredients in phenolic resin glues is being studied. This glue will be used for hot press gluing of southern pine plywood.

Dr. William R. Bentley is involved with three projects concerning economic problems in forest management and policy in addition to his major research effort. This project, which is financed by the Iowa Agricultural Experiment Station and the U.S. Forest Service, was started in July, 1964, and will be completed in June, 1967. The objectives of this project are to develop theoretical models to be used for analyzing statistical data and other information needed by forest managers, and to test these models by applying them to actual forestry decision-making situations. Case studies using new techniques have been completed in Forest Service timber allocation, multi-product timber appraisal, Iowa Christmas tree production, and Iowa black walnut production.

Raymond F. Finn is doing research on the inorganic mineral nutrition of black walnut in addition to directing research carried out by the research center. The primary objective of this project, which is financed by the United States Forest Service, is to determine the levels of the essential elements which will maximize growth as determined by sand nutrient culture studies. The project also includes field studies in which the growth of black walnut is studied under varying nutrient and soil moisture levels.
Dr. Gordon E. Gatherum is involved with three projects related to tree physiology and forest soils.

The first project, financed by the Iowa Coal Research Association, is to obtain data relative to the revegetation with forest tree species of coal strip mine banks, and to provide these data for economic and institutional analysis.

The second project has several objectives: to determine the range and pattern of genetic diversity within selected forest tree species, to determine the physiological and evolutionary mechanisms responsible for growth and morphological differences, to establish the usefulness of juvenile performance data and shorten test periods by means of juvenile-mature correlations and theoretical analysis, to determine the tree species and variants within species which are best adapted to the major tree-planting sites in Iowa, and to evaluate plantings on the major tree-planting sites in Iowa in terms of the direct environmental and genetic factors affecting forest tree establishment, survival, and growth.

The third project is financed by both state and federal funds. Its objectives are to determine the effects of seed source, light, temperature, water, and certain nutrients on the photosynthesis, respiration, and growth of Scotch pine and aspen-poplar hybrid species, and to determine the relationships between tree survival, growth, photosynthesis, and respiration of seedlings of these species as affected by some genetic and environmental factors.

Dr. John Gordon has nearly completed research on Scotch pine which he is conducting as a basis for his doctorate thesis. The work concerns the photosynthesis and respiration of Scotch pine seedlings as affected by light intensity, carbon dioxide level, and genetic factors. The research is financed partly by Agricultural Experiment Station funds and partly by a government grant.

James H. Gottsacker conducts research which relates to his work as extension forester. In addition to surveying Iowa’s wood-using industries, he does work on the adaptability of recommended windbreak and Christmas trees to Iowa conditions. Future plans call for demonstration windbreaks and Christmas tree plots.
Dr. Frederick S. Hopkins completed a research project based upon the small woodlot owner in Iowa in 1963. The project, which was financed by a Forest Service cooperative aid grant, concerned the small woodlot owner's basis for forest investment decisions. The main emphasis was upon the opportunity cost of capital.

Kathy Koch is assisting Dr. Thomson with a survey of the home and educational backgrounds of Iowa State forestry students and their success both in school and after graduation. She is also involved with a recreation research project in which comparative studies are made between two Iowa cities before and after new recreation facilities are added.

Dr. Roger Q. Landers, Assistant Professor of dendrology and ecology, is attempting to find the natural forces which affect the grouping of plants into structural communities, the changes in these communities, and the management techniques necessary to manipulate these communities. This research, which began in 1963, was preceded by investigation of brush and grassland boundary changes in the foothills of central California. The work is partially financed by state funds.
Dr. Julius A. Larson is responsible for the establishment and study of many of Iowa State's plantation areas. Most of the studies concerned the comparative growth of various softwoods and hardwoods under natural conditions. Dr. Larson also did research on windbreak establishment in Iowa.

Dr. Harold S. McNabb, Jr. is currently involved with research projects in two general areas: relationships between soil fungi and plant roots, and host resistance reactions in woody-plant wilt diseases.

In the first area he is studying the mycorrhizal associates of white oak and black walnut and their significance. Other studies are to determine the role of nonmycorrhizal fungi in the development of mycorrhizae.

In the area of resistance reactions, Dr. McNabb is determining the physical and chemical basis for abnormal xylem tissue growth in oak as a resistance to oak wilt. He is also finding the physical and chemical basis of the localized disease establishment phenomenon found in certain elms which are resistant to Dutch elm disease.

Dr. Dean Prestemon, another new faculty member, is working on two research projects concerning the use of products in residential construction.

The first, which is supported by a federal grant, is aimed at isolating the major problems with the use of wood products in residential construction. This work will provide a basis for future wood products research.

A second project, which is scheduled to begin in April and will be completed in October, 1967, involves research into acoustical problems in residential construction. This project is sponsored by the Forest Service.
You Gotta

L. to R.—Future prof., and friend.

Da da, financial maturity, goo goo—

—But, it's more economically feasible than a Cadillac.
Be Kidd’n!

Hey, guys? What kind of bait are you using for carp around here?

(see page 60 for key)
Dr. Carl H. Stoltenberg is involved with two research projects in addition to his responsibilities as head of the forestry department. In one project he is working with Dr. Ware on evaluating hardwood stumpage. This work began in 1961 and is expected to be completed in 1966. Dr. Stoltenberg's contributions are in the area of price trends and economic basis for tree grades.

A second project, intended to benefit the Iowa Conservation Commission, is concerned with recreation, and currently involves a survey of the forest recreation activities of Iowans. Both projects are financed by the Iowa Agricultural Experiment Station and United States Forest Service Grants.

Dr. George W. Thomson directs the management research problems of graduate students who are working on a masters degree. Although these problems may have silvicultural, mensurational, or economic implications, they are aimed at management in a general sense rather than pure research in a specific field.

Dr. Kenneth D. Ware’s research deals with problems in forest measurements and forest inventory with particular reference to the management of Iowa hardwoods. The objectives of his current studies are to derive and test several techniques for estimating the value of hardwood trees, to develop several sampling plans involving unequal probability sampling and test them for field application, and to test methods of growth estimation in mixed hardwood stands. The work is financed by the Iowa Agricultural Experiment Station and the Northeastern and Central States Forest Experiment Station.
Dr. J. D. Wellons, a new faculty member at Iowa State, does research in the area of wood-moisture relationships. The objectives of his work are to obtain a better understanding of how wood and water interact and to devise methods of altering existing wood-moisture relationships. He began this work three years ago at Duke University. His work is financed by the Iowa Agricultural Experiment Station.
STUDENT AWARDS
AND SCHOLARSHIPS

1965-66

F.P.R.S. AWARD
Richard Bower
Tom Parmelee
Kenneth Phipps
Mark Schultheiss

G. B. HARTMAN TRAVEL AWARD
Richard Bower
David Countryman
Roger Fight

IOWA HOO-HOO CLUB AWARD
Paul Wray

ELI LILLY ADVANCED CURRICULUM SCHOLARSHIP
Thomas Eischeid
Kenneth Phipps

PACK ESSAY CONTEST
Robert Radeke

RICE ESTATE ADVANCED CURRICULUM SCHOLARSHIP
Steven Anderson
Aaron Campbell
William Einspahr
Mark Schultheiss

RICE ESTATE INTERNATIONAL SERVICE SCHOLARSHIP
Gerald Daugherty

SEARS-ROEBUCK SCHOLARSHIP
Thomas Heckenberg
Stephen Petersburg
Daryl Rahfeldt

UNIVERSITY MERIT SCHOLARSHIPS
Stephen Petersburg
Dennis Stirler
SENIORS

RICHARD KENDALL BOWER is in Forest Products, and calls Naperville, Illinois, his home. Dick attended the 1964 summer camp in North Carolina. Last summer he worked in the Basic and Exploratory Research Section for the Masonite Corporation. Dick includes among his activities: Varsity Band; Stewart House Treasurer, Vice President, Veishea Float Chairman; Boyd House Head Resident; Forestry Club, President; Ames Forester Managing Editor; Xi Sigma Pi National Forestry Honorary. Dick's hobbies are camping, sailing, and waterskiing. After graduation, he plans to do graduate work in wood technology.

DAVID W. COUNTRYMAN, Forest Management, is from Bloomfield, Iowa. He was married this past November. David has been a member of the AFROTC Rifle Team, Forestry Club, Ag Council Representative, and Xi Sigma Pi. In 1963, he attended the Colorado summer camp. Since then he has worked on the Arapaho, Mark Twain, and Winema National Forests. His hobbies are hunting and fishing. David is going to graduate school after graduation.

ROGER DEAN FIGHT hails from Weldon, Iowa, and is in Forest Management. Rog attended the North Carolina summer camp in 1964. Last summer he worked on the Black Hills National Forest for the Visitor Information Service. University Honors Program, Chamberlain House Scholarship Chairman, Assistant Managing Editor 1965 Ames Forester, Editor 1966 Ames Forester, Hartman Award Trip; membership in Forestry Club, Society of American Foresters, Alpha Zeta, Gamma Sigma Delta, Phi Kappa Phi, and Xi Sigma Pi have kept him busy these past years. In his spare time, he enjoys coin collecting, hunting, and shooting. Roger is planning to get his Ph.D. in Forest Economics after graduation.
DEAN HAROLD GJERSTAD, Forest Management, is from Livermore, Iowa, which he claims is "God's Country". Dean attended the 1963 Colorado summer camp. The "Swede" has worked on fire suppression in Deschutes National Forest, Oregon; TSI on the Arapahoe National Forest, Colorado; TSI on the Kaibab National Forest, Arizona; and was a Forestry Aid on the Willamette National Forest, Oregon. Dean was the Alumni Editor for the 1966 Ames Forester, Co-chairman for the 1964 Veiwshee open-house, and Treasurer, Secretary, and Vice President of Alumni Hall. Photography, athletics, and hunting are Dean's favorite pastimes. The Forest Service and then the Army are in the future for Dean.

DAVID J. GOETZ comes from Keokuk, Iowa, and is in the Products option. Dave and his wife Mary Ellen have a daughter, Christine. In 1964, he went to Franklin, North Carolina, for summer camp and since then has worked for the Central States Forest Experiment Station out of the Carbondale, Illinois Research Center, in the field of Forest Utilization. Dave is a member of Forestry Club and a student member of the Forest Products Research Society. His hobbies are: woodworking, coin collecting, and the collection of dendrology specimens. Dave plans to go into technical sales or research for private industry.

MICHAEL ROGER KING, Forest Management, whose home is Des Moines, Iowa, attended summer camp in Colorado during 1962. Summer work has included Forest Service in Oregon in 1963 and the Bureau of Land Management in Colorado in 1965. Mike has been 1964–1965 Forestry Club president, chairman of Christmas tree sales in 1964, and has been on the Army ROTC rifle team for four years. His interests include hunting and flying. After graduation he will spend three years as a 2nd Lt. Army pilot, after which he plans to attend grad school.
KENNETH E. LIBBY, who is from West Des Moines, Iowa, is in Wood Technology with a statistics minor. He is married and has a five year old son. Ken worked as a Fireman on the Rock Island Railroad from 1959–1964. Also, during 1961–1964 he attended Grand View College in Des Moines and then came to Iowa State in the fall of 1964. Ken will attend the 1966 summer camp in Montana after which he plans to do quality control programming for a forest products industry. He is a member of Forestry Club and FPRS. His hobbies include: cabinet-making, golf, bowling, and music.

BRIAN WILLIAM LIGHTCAP comes from Rockford, Illinois, and is in Forest Products. He spent summer camp in Franklin, North Carolina. During the summer of 1965 he worked for Pope and Talbot Corporation in various operations connected with hardboard and particleboard and later worked in the quality control testing lab. Brian's activities have included Sigma Pi Fraternity's secretary and pledge trainer, the varsity band, the Iowa State Singers, Festival Chorus, and L.S.A. Other interests include camping, canoeing, and traveling. After graduation Brian plans to work in the utilization of Eastern and Central hardwoods and possibly attend graduate school.

NEIL D. NELSON, Management, is from Marion, South Dakota, and attended the 1965 Montana summer camp. Neil has worked on the Chippewa, Lolo, and Black Hills National Forests. He belongs to Xi Sigma Pi, Forestry Club, Ward System, and SAF. He has, also, been in Intramural basketball and track and was the 1965 IBM Dance Business Manager. Neil likes outdoor sports, motorcycles, and traveling. Following graduation, Neil would like to get 2–4 years of work experience in research with the Forest Service and then return to school for graduate work.
JACK PIEPEL, a Forest Products man from Jefferson, Iowa, attended the 1964 North Carolina summer camp. Jack worked last summer for Michigan Consolidated Gas Company at Reed City, Michigan. Jack belongs to Forestry Club, and is a student member of the Society of American Foresters and the Forest Products Research Society. Athletics and working on cars are his hobbies. Military service and then work are Jack's plans after graduation.

LLOYD PEDERSEN comes from Cedar Rapids, Iowa. He is in Management and plans on either the Forest Service or the military after graduation. Lloyd attended the 1963 Colorado summer camp and has worked on the Arapaho, Uinta National Forests and on the Sheyenne National Grassland. Forestry Club, Newman Club, and Niles House Activities Chairman are among his activities while hunting and guitar playing are his hobbies.

JIM SCHULER of Jesup, Iowa, is another Forest Management man. Jim was married last December. He has been the Publicity Chairman for the Game Banquet and Chairman of Spring Forester's Day. North Carolina, 1964, was the scene of Jim's summer camp and this past summer he worked at the Pacific Northwest Forest and Range Experiment Station in Portland, Oregon. Hunting is his favorite hobby. Jim hopes to work in the Pacific Northwest after graduation.
RONALD SHULL, from Conesville, Iowa, is in the Forest Products option. He attended summer camp in Colorado in 1963. Summer work has included six months with the Bureau of Land Management in Colorado and Wyoming and also some sales experience in California. Ron's activities have included the Forestry Club, Ames Forester, the Holst Tract Committee Chairman, and Ward System. Hunting, fishing, skiing, photography, and travel are some of his other interests. Ron will probably continue in sales work after graduation.

ROBERT VAUGHN RADEKE hails from Marengo, Iowa, and is in Forest Management. Bob is married and has one daughter. He attended the Wirt, Minnesota, camp in 1959 and has worked on the Mt. Hood National Forest, Oregon-Hiawatha National Forest, and in Michigan for the Forest Service. Bob is a member of Forestry Club and likes hunting, swimming, camping, and reading. Working for the U.S.F.S. is his after-graduation plan.

LARRY TAYLOR, Management, calls Ames his home. Larry is another of our married Forestry students. "Tails" attended the 1964 North Carolina summer camp and surveyed logging roads this past summer out of Reedsport, Oregon. Larry has been kept busy by participating in Varsity track and Forestry Club as well as being Ad Manager of the 1966 Ames Forester and belonging to Sigma Alpha Epsilon. Larry's plans after graduation are indefinite.
Master's Graduates

RAYMOND S. FERELL earned his B.S. at the University of Missouri in 1957 and then came to Iowa State to get his masters in Forest Economics. Raymond hails from Louisiana, Missouri, is married, and has two boys and one girl. His hobbies are golf and shooting. Ray plans to continue his education and get his Ph.D. here at Iowa State.

DAVID W. KANEY is married and has two children. He did his undergraduate work at Iowa State in Forest Management and then continued on to get his masters in the same field. David comes from Forreston, Illinois, and is going into timberland planning for Simpson Timber Company after graduation.
In Memoriam

Class of

Armstrong, D. .......... 40
Baird, C. L. .......... 38
Barnoske, Francis M. .... 26
Barrett, R. L. .......... 11
Bauer, Keith Allen ....... 65
Baxter, W. G. .......... 08
Bergemeyer, F. R. ....... 46
Beyer, J. H. .......... 35
Blackman, S. R. ........ 38
Campbell, Samuel LeRay .... 34
Cassidy, H. O. .......... 16
Clemmensen, N. K. ....... 26
Diemer, J. A. .......... 30
Eggers, W. C. .......... 22
Erwin, C. E. .......... 41
Fisk, V. C. ........ 21
Geiser, Max .......... 16
Gibus J. A. .................. M.S. 27
Gottschalk, Fred .......... 33
Gunderson, Omer J. ........ 39
Hansel, H. E. ........ 15
Harklan, H. F. ........ 35
Harris, Robert B. ......... 42
Hartman, G. B. M.S. ’41, B.S. ....... 17
Helm, H. J. ........ 21
Hoffman, Arthur F. ....... 11
Hoyer, Verne B. ......... 20
Huling, J. H. ........ 27
Jackson, M. D. .......... 27
Jensen, A. W. .......... 51
Johnson, G. W. .......... 42
Kindig, E. R. .......... 39
Kinkor, Clarence P. ....... 37
Kline, George J. ......... 32
Kipfer, C. A. .......... 07
Lantzyk, A. J. ........ 36
Lehmann, W. A. .......... Ex. 62
Lessell, L. R. .......... 12
Libby, P. V. .......... 35
Lischer, D. W. .......... 39
Long, R. S. ........ 40
Lough, W. M. .......... 25
Loy, E. C. ........ 20
McGlade, J. C. .......... 28
MacDonald, G. B. ....... M.S. 14
Mast, W. H. ......... 00
McIntire, G. S. .......... 26

Merritt, Melvin ........ 04
Meyers, A. ........ 40
Mickey, Myron .......... 30
Moorhead, J. W. ....... 20
Morrell, Fred .......... M.F. 20
Munson, H. F. ........ 21
Nibe, D. N. .......... 40
Olmstead, R. A. ....... 12
Parke, L. S. .......... 11
Patrick, O. K. .......... 21
Patterson, A. K. ....... 39
Paulson, R. A. .......... 50
Plagge, H. H. .......... 16
Plagge, Newton O. ...... 16
Poch, F. J. ........ 54
Poschusta, D. C. ...... 20
Quint, J. Harley ....... 17
Ratcliff, Mark R. ...... 28
Ray, F. E. .......... 11
Rehman, T. W. .......... 18
Reily, G. E. .......... 39
Rice, J. S. ........ 40
Robertson, G. K. ...... 49
Rumbaugh, W. R. ...... 16
Rutter, Frank .......... 24
Sage, H. H. ........ 15
Schreck, R. G. .......... 15
Schroeder, G. M. ...... 34
Secor, J. B. .......... 38
Sherman, E. A. .......... M.S. 27
Shirk, R. ........ Ex. 41
Smith, H. M. .......... 37
Smith, Percy T. ........ 11
Smith, William A. ...... 12
Snyder, R. A. .......... 37
Steffen, E. H. .......... M.F. ’22, B.S. 13
Sterrett, John C. ...... 14
Strokes, R. R. ........ 17
Taube, A. H. .......... 50
Teeters, J. L. .......... 59
Tenton, M. C. .......... 41
Tostison, C. H. ....... 34
Van Boskirk, S. S. ...... 14
Watt, L. F., B.S ’13, M.F. ’28, D.A. 48
Whithan, James Campbell .... 11
Wiley, G. J. .......... 50
Younggren, P. R. ...... 40
THE USES OF CHARITY

By GEORGE W. THOMSON, Chairman
Scholarship and Loans Committee

One of the most gratifying aspects of association with a department as old as ours is that of realizing the strength of the loyalty of its alumni and friends. This loyalty appears in many ways: In support of student and departmental programs, in friendship exhibited when one is a visitor in any of the far corners of the country, in suggestions and help offered in getting employment for graduates, and in financial help provided whenever the opportunity occurs.

Lest the reader be frightened off by the suspicion that one more collection hat is to be passed let me hasten to say that this brief report intends only to comment on funds that have been donated to the Department of Forestry through recent years rather than to solicit more.

There have been several excellent and most sincerely appreciated grants and gifts from industry and professional associations. The first came many years ago with the establishment of the Charles Lathrop Pack Fund. The interest from this grant is used to stimulate improved writing and communications by undergraduates in Forestry. The Pack Essay Contest has been an almost annual event for more than thirty years. Other gifts and awards in this category are those from the Des Moines Chapter of the Order of Hoo-Hoo, the Forest Products Research Society and the Society of American Foresters. These three awards have been presented annually to undergraduates for about ten years.

Koppers Company, Incorporated and St. Regis Paper Company have each presented sizeable scholarships to graduate students in recent years. These are of great help because they extend the use of always limited graduate assistantships.

Gifts that have allowed us to set up low-interest, long-term loan funds to needy forestry students came several years ago from Edwin Pohle, who established the G. B. MacDonald Loan Fund, and from the W. H. Mast Estate. The MacDonald and Mast Loan Funds are administered by the University Loans and Scholarships Committee under the direction of Mr. Edgar Swanson. Money provided by these loan funds, plus some 48 other private grants and the National Defense Act, amount to $997,000 and have been extremely useful in helping students over the chronic depressions that strike almost everyone. During 1966 and 1967 $257,000 have been allocated to I.S.U. in Opportunity Grants for needy and scholastically worthy students. Another $50,000 is available for short-duration loans and is much in use by students, particularly at Spring interview time.

A unique and most stimulating use of donated money was made of the cash gift of $1800.00 donated by Forestry alumni for the use of the late and much respected George Hartman at the time of his retirement. The establishment of the George B. Hartman Travel Fund has enabled four different groups of Seniors to attend national meetings, to meet alumni and to make week-long professional trips. Approximately $300.00 remains in this fund. This is a sufficient amount to make one more trip possible. Each of these trips has been reported in some detail in the last four "Ames Foresters." Certainly the memory of Professor Hartman has been kept bright in the minds of those who participated in these trips.

In the last two years we have received three cash gifts totaling $2000.00 from Mr. Harry Koenick, the father of a recent graduate student, Leonard Koenick, from Mrs. Romaine K. McIntire, the wife of the late George S. McIntire, For. '26, and from Mr. Paul Dunn, For. '23, '33. These gifts are incorporated in an account called the Forestry Memorial Fund and is disbursed, at our direction, by Mr. John Granson, For. '37, '38, Director of Field Activities, Alumni Achievement Fund, Iowa State University. We anticipate that this recently established fund will fill a special need that heretofore has gone unfilled.

Money for scholarships and loans, while always welcome, has become increasingly easy to get through the auspices of both government and industry. From scholarships available through the College of Agriculture and the University, our students have received $3445.00 during this school year. From University Loan Funds earmarked for foresters they have borrowed $2150.00. Now this is a sizeable sum to depression-raised alumni, although
one must recognize that each of the 166 currently enrolled undergraduates has a total yearly expense of approximately $1280.00.

Despite the relative availability of funds to help deserving students there are certain expenses that cannot be met in this way nor by administrative budget. For example: One cannot take students to visit industrial operations, government installations, short courses or symposia that could often breathe life into course work otherwise considered unexciting. Funds are seldom available to provide junior staff members the opportunity to attend annual meetings or conventions that would be of much use to him. Funds are extremely limited in providing staff members the opportunity to visit new and potentially stimulating areas that could update their teaching. Honors students are generally not able to participate in such unique educational experiences as giving a report before Academy of Science meetings and the like and they are often unable to receive support for special equipment or projects. It is very much our hope that contributions from friends of the Forestry Department can be deposited in the Forestry Memorial Fund and thus promote new facets of the educational process here at Iowa State.

Those of use who teach, direct and advise here in the Forestry Department are most grateful to all who have assisted students in the countless ways that are exhibited each year. We hope that we continue to merit your support.

ALUMNI NOTES

CLASS OF 1905
Secor, Arthur J.—is a self employed forester and manages over 500 acres of tree farms. Mr. Secor’s daughter is a missionary in the Philippines.

CLASS OF 1909
Allen, Shirley W.—has just finished revision of Conserving Natural Resources: Principles and Practice in a Democracy for McGraw-Hill. Mr. Allen is retired from the University of Michigan, but seems to be keeping busy.

CLASS OF 1922
Fennell, Robert E.—is spending most of his time in church work and the Boy Scouts after retiring from 36 years with Prudential Insurance Company.

CLASS OF 1928
Iverson, Ray C.—and wife are enjoying a long deserved vacation in the Southwest and Mexico after Ray’s retirement from the Forest Service. The Iverson’s plan to make their permanent retirement home in Wisconsin.

CLASS OF 1929
Kulp, John W.—is preparing a “post service record” report for the American Wood-Preserves Ass’n. meeting in 1966. John is a technologist at the Forest Products Laboratory in Madison, Wisconsin.

CLASS OF 1930
Burkett, Luther B.—retired from the Forest Service in June, 1965. Luther is now practicing forestry on the Northland Tree Farm, McNaughton, Wisconsin. He is raising timber and Christmas trees and managing several properties for local landowners.

CLASS OF 1931
Chapman, Russell L.—is forest supervisor of National Forests in Alabama. Russ claims that the South is now America’s Land of Opportunity

Garver, Raymond D.—is Chairman of Public Health for Chevy Chase Citizen Ass’n. Ray says that Washington is a good place for a retired forester who is looking for excitement.

Zimmerman, Eliot W.—is Chief of the Division of State and Private Forestry for the U.S.F.S. North Central Region. Eliot has one son who is a graduate of the University of Wisconsin and another son who will graduate this year in medicine.

CLASS OF 1933
Stevenson, Hugh A.—is President and owner of Forest Keeling Nursery in Elsberry, Mo. Hugh grows a wide line of seedlings and larger stock as well as cattle on his 500 acres.

CLASS OF 1936
Compton, K. C.—has returned to the United States from Peru on October 27 after 3 months of work with sawmill operators and lumbermen. He is presently a forest products technologist with the Central States Forest Exp. Station.
Renaud, Jules S.—spent one month in Madrid, Spain this year promoting U.S.D.A. exhibit at the Trade Fair. Jules is a public information specialist and is handling television production and distribution for the U.S.D.A. in Washington.

CLASS OF 1937
Holmes, Clark E.—says he had a fine trip to Germany with Dr. Stoltenberg in April-May 1965. Clark is chief of the branch of Forest Soil and Water Research for U.S.F.S. in Washington, D.C.

CLASS OF 1939
Bjornson, Harold B.—following W.W. II, Harold entered the Berkeley Baptist Divinity School and graduated in 1949. He is presently the Pastor of the Baptist Church in McMinnville, Oregon.

Freundlich, John L.—is currently the Chairman of Arrangement for the meeting of Illinois Technical Forestry Assoc. John is the assistant chief forester of the Forest Preserve District of Cook County, Illinois.

Miller, Norman R.—has recently completed a study for the U.S. Civil Service Commission on the “Data Requirement for Federal Personnel Management.”

CLASS OF 1940
Applequist, Martin—would like to see more Iowa State Foresters in the Southwest. Martin is a Professor of Forestry at Arizona State College.

Bagley, Walter T.—is the chairman of the Forestry Committee of Great Plains Agricultural Council. Walt is an Associate Professor at the University of Nebraska.

Benda, Kenneth—who is mostly self-employed, is a State Senator and also is Executive Vice Pres. of Hartwick State Bank. Ken’s daughter and son-in-law are working on advanced degrees at the University of Washington.

Patterson, Douglas H.—a Colonel in the U.S. Army, is in the Chief Military Plans Division Defense Supply Agency in Washington, D.C. Doug would like to pursue a Forestry career after retiring from the Army.

CLASS OF 1941
Schnabel, Louis F.—recently retired from the U.S. Army after attaining the rank of Colonel. The Schnabel’s enjoy a 40 acre Christmas tree ranch on the Olympic Peninsula.

Thomson, Donald E.—has a son who is a freshman at Oklahoma U. and another son who is a sophomore in high school. Don is a Professor of Military Science at Panhandle A&M College.

CLASS OF 1942
Buck, George A.—has recently retired from the U.S. Army as a Lt. Colonel. George attended Drake and is presently teaching science classes in his “2nd career” at Van Meter High School.

Hoover, Clyde C.—is currently serving as Vice Chairman of the Advisory Council to the Department of Forestry of the University of Missouri. Clyde is the President of Forest Products, Inc., Cassville, Mo.

CLASS OF 1946
Burke, Joe—is the President of the Northwest Hdw. Ass’n. Joe is the Production Manager with Educators Mfg. Co.

Doolittle, Warren T.—served as Moderator at a session Detroit of the National SAF meeting. Warren is the Asst. Director of the Northeastern Forest Experiment Station. Daughter Linda is a senior at Penn State and son Randy is a sophomore at Temple U.

CLASS OF 1948
Munger, Robert J.—has a daughter on a GM scholarship at the University of Cincinnati. Bob is a Farm Forester with the Ohio Dept. of Natural Resources.

CLASS OF 1949
Allen, M. R.—is the executive secretary for the Minnesota Timber Producers Association. The Allens have 2 sons and 2 daughters.

Anderson, Raymond E.—is math and business training instructor in Reading, Mass. Junior High. Ray has three children.

Downey, Daniel—has accepted the position of plant superintendent with Grays Harbor Chair and Mfg, Co., Hoquiam, Washington. Dan has been employed in Canada for the past two or three years.

CLASS OF 1950
Barbham, W. C.—has recently accepted the position of planning and coordination with the Iowa State Conservation Commission. The Barbham's oldest daughter recently graduated from Valley of Des Moines after playing four years of basketball and climaxing by her team winning the state runner-up spot.

Jones, Robert E.—is general supervisor of overhead electrical transmission and distribution line clearance activities. Bob and wife Pinky are the parents of three children.

Rozeboom, William E.—is sales representative and field supervisor for Osmose Wood Preserve Company. Bill recently built a new home in Ames, which he says is naturally made primarily of wood.

CLASS OF 1951
Renard, Laurence P.—is plant manager of the Briar Gypsum Plant in Nashville, Arkansas. Larry has five children.

Saba, Edward J.—is a wood technologist with the United States Plywood Corp. in Lebanon, Oregon. Ed and wife Norma have a daughter and a son.

CLASS OF 1952
Eschner, Art—is an Associate Professor of Forest Influences in the College of Forestry at Syracuse University. A son has recently been added to the family.

CLASS OF 1953
Cooper, Glenn A.—is a Forest Products Technologist with the U.S.F.S. Carbondale Research Center.

CLASS OF 1954
Griswold, Richard K.—has just completed a 9-month Fellowship in Congressional Operations which was sponsored by the American Political Science Association and Civil Service Commission. Rich is a forester in the chief’s office of the U.S.F.S.

Johnson, Howard—is the general superintendent of Forest Preserves District of Du Page County Illinois. Chuck and wife Bev have four children.

CLASS OF 1955
Fellows, Bert—is promoting the use of American Douglas Fir plywood to the European market for the American Plywood Association. Bert has been travelling in Belgium, Holland, Denmark and Germany and says that the market potential looks good.

Lutz, Clarence—is a Presbyterian minister in Greenville, S.C.

Terlouw, Joe— has recently been put in charge of reforestation and watershed management on the Oakridge District of the Willamette National Forest. Joe and his wife are the proud parents of 3 sons.

CLASS OF 1956
DeVaul, Frank—is a factory superintendent for Long-Bell Division of the International Paper Company. Frank and wife Joyce are the parents of two daughters and a son.

How, David C.—works on all phases of the acquisition of easements for timber access roads for B.L.M. in Medford, Oregon.
CLASS OF 1957

Ethington, Robert—is in charge of fundamental properties research at the U.S. Forest Products Laboratory. Bob and his wife Ellen live in Madison, Wisconsin, with their two daughters.

CLASS OF 1958

Clausen, Melvin D.—works in timber sale layout, marking, and administration for the Pennsylvania Dep't of Forests and Waters.

Jugene, James L.—is a pre-sale forester on the Olympic National Forest. Jim was married last June.

Simpson, Harold—is the district Ranger on the Cheyenne National Grassland. He is the father of 3 boys, ages 8, 7, and 5.

CLASS OF 1959

Brown, Gregory N.—is conducting research in responses of higher plants to ionizing radiation. Special emphasis is being placed on mechanisms of photosynthesis, nucleic acid metabolism, and mineral uptake mechanisms. Greg is a plant physiology researcher with the Oak Ridge National Laboratory in Oak Ridge, Tennessee.

Fields, Bob L.—and his family have recently moved to Salem, Missouri where he assumed the position of fire training instructor for the North Central Region. He is presently traveling about the state of Missouri with the mobile simulator, a classroom on wheels which can be used to train men for any fire control problem.

CLASS OF 1960

Halverson, Howard—is a research forester with the Pacific Southwest Forest and Range Experiment station, presently on the snow zone research project in watershed management.

Little, Harry—is a range and wildlife assistant for the Forest Service in Oregon. He administers grazing of livestock, conducts range and wildlife habitat forage inventories and utilization studies. Harry and his wife, Elyonne, have 4 children.

Spencer, Gerre—is presently district sales manager of Iowa and Nebraska for Unit Structure Department of Koppers Company, Inc. Gerre has two daughters and one son.

CLASS OF 1961

Appenzeller, Robert—is promoting the final uses of softwood plywood for the American Plywood Association.

Gingerich, Earl—has recently become a timber buyer for Simpson Timber Company. Earl is the vice chairman of the capital chapter of the S.A.F.

Jessen, Jay—is now a park ranger in Catocin Mtn. Park in Maryland. Jay and wife, Ruth, have three children.

Reves, Roger—is working in plywood quality control with the Roseburg Lumber Company. Rog is married and has one daughter.

CLASS OF 1962

Boyle, Jim—is going to receive his PhD in forest soils at Yale this spring. Jim will then have an opportunity to fulfill his ROTC officer commitment.

Doolittle, Dick—and wife, Mary Kay, are the proud parents of a son born last fall. Dick is an assistant district forester with Dierks Forests, Inc.

Howard, Richard—is a computer programmer dealing with tree and forest growth models at Harvard University.

Rydberg, Ron—was married on May 1, 1965. Ron is a forester with the Northeastern Forest Experiment Station.

Schwart, Lorin—is working in timber sales, inventory, cruising, and appraisal. Lorin has two daughters ages 7 years and 4 months and a 5 year old son.

Shadle, James N.—is presently a diving officer in the U.S. Navy.

CLASS OF 1963

Hall, Russ—covers 2/3 of Indiana as a salesman of laminated wood products and roof decks. Russ is also in charge of sales representatives in Mishawakas, Ind., Cincinnati, Louisville, and Lexington.

Hunziker, Rog—recently has been promoted to technical forester with Owens-Illinois. Rog has recently moved into a new home in Jacksonville, Florida.

Kesselring, Ron—has recently gone to work for Masonite Corporation as an assistant technical director.

Streeby, Larry—is employed with the Pac. S.W. Forest and Range Expt. Sta. He received his M.S. from I.S.U. last year.

CLASS OF 1964

Devibiss, John M.—is a bombardier and navigator with the Heavy Attack Squadron Four in the U.S. Navy.

Firch, Gary F.—is PFC in U.S. Army with the artillery in South Viet Nam.

Thurman, John R.—is a graduate research assistant in wildlife biology at Purdue and is studying the ecology of ruffed grouse in South Indiana.

CLASS OF 1965

Cone, J. Milton—is presently in the Peace Corps and is working with the Peruvian Forest Service. Mill's work concerns reforestation projects for communities and small farmers.

Johnson, Marilyn—is with the Peace Corps and is working with the Bolivian Forest Service.

Leaverton, Don—is a forester in the administrative staff of the Continental Training Center in Continental Divide, New Mexico.
BUYERS OF WALNUT LOGS, LUMBER AND OTHER TIMBER

Sliced Hardwood Veneer

Large and complete inventories of all foreign and domestic fine face veneers including our "Treasure Chest" of rare stocks for custom architectural woodwork.

Hardwood Lumber

Walnut sawmill in Dubuque, Iowa. We specialize in Walnut but also handle all other popular foreign and domestic hardwoods.

PANAWALL

Originators and manufacturers of PANAWALL, the quality V-grooved plywood with identical appearance of individual tongued and grooved boards. Available in genuine Mahogany, Walnut, Cherry, Oak, Brown Elm, Birch, Butternut, Pecan, Teak and many others.

PANAWALL CO. (LTD), KING'S LYNN, ENGLAND, licensees for manufacture and distribution of PANAWALL other than Western Hemisphere.
activities having their basis in the forest and associated lands of the nations.” Unfortunately their actual projections were dominated by timber as shown in the following quotations. “Research in timber production may be considered as the orthodox field of forestry investigations. Included under this major subdivision is all research concerned with the production of timber crops.” “It is recognized that all the research in the forest sciences, ecology, physiology, genetics, and soils is not restricted in its application to timber production; it has application as well to the wildlife, range, watershed, recreation, and forest products fields.” It is surprising that even in 1955, most forestry research was described under timber management.

The Forestry Research Committee (1962) of the Society of American Foresters appraised research effort and needs in 1962. It projected the $87.9 million dollar expenditure in 1960 to show a need of about $300 to $350 million between 1975 and 1980.

The Forest Service (1964) outlined a balanced attack by the U. S. Department of Agriculture on the major forest resource problems facing the Nation in its, “A National Forestry Research Program.” This analysis projected forestry research needs in the most realistic fashion to date, but it did confine the research program “—to long range objectives related to forest development programs that will be necessary to produce the wealth of renewable forest resources needed by the year 2000.” A broad interpretation of this statement could suggest that this projection extended to environmental and social areas, but inspection of program details shows research is related to production, protection and utilization of timber, forest soil and water, range forage, wildlife and fish habitat, and forest recreation.

Research Planning Opportunities

It is my opinion that past projections of research needs in forestry have identified no more than 50 percent of the problem area susceptible to research. Here are a few examples of the types of problems receiving less than adequate treatment in research planning:

How can forest management affect the growing proportion of carbon dioxide in the atmosphere? Conversely what are the long run consequences of this increase on forest ecosystems? Weather modification appears to be close to reality. What are the economic and ecologic consequences and potentials of weather modification to forest land management? How can watershed management be coordinated with weather modification which changes rainfall patterns?

What are the private and public costs and returns of public recreation on private forest lands?

Is it true that slash disposal by burning and other prescribed use of fire for hazard reduction in total may produce less air pollution than that which results from increased wild fires of hazard reduction is not accomplished?

What is the role of the forest in environmental health? How much wilderness is adequate for the United States?

How can decision making tools be improved for public and private forestry enterprises? How does an urbanized society become objectively informed on the policy issues of natural resources management?

It is not the purpose of this paper to determine how to increase the scope and scale of forestry research. But because major policy decisions, public and private, in forestry must be made in the hard, cold light of such major national issues as environmental health, pesticides, pollution, weather modification, beauty, drought, poverty, and national defense; new knowledge relating ecologic and economic consequences of land management decisions to these and other national issues must be developed. Therefore, the Forest Service, the Universities, possibly in consort, and industry should face squarely these new research needs.

It is easy to recommend new research programs and new dimensions to old ones. These recommendations, though, must be accompanied by some appraisal of cost benefit ratios. Dr. Philip Abelson, Editor of Science, speaking at Washington State University, has decided the potential for discovery of revolutionary knowledge in biology as greater even than in the physical sciences. Similarly, social sciences appear ready for great advances. New scientific tools, computers which remove restraints imposed by masses of data, and the ability to develop interdisciplinary teams of highly trained scientists provide new hope that the massive bio-socio-economic problem complexes can be solved. Industrial efficiency, economic necessity, and social development promise high returns on increased research investment.

Bibliography


AMES FORESTER
wherever you go in the forest industry

WEST • SOUTH • NORTHEAST
MIDWEST • SOUTHWEST • CANADA
LATIN AMERICA • OVERSEAS

...you'll find forestry and industry leaders reading......

forest industries is the only truly national and international journal serving the complete industry from the growing and logging of trees, through the manufacturing and marketing of lumber, plywood, board and other wood products. Subscription rates: one year, $5—two years, $8—three years, $10.

forest industries

Serving: LOGGING • FORESTRY • LUMBER • PLYWOOD • BOARD

MILLER FREEMAN PUBLICATIONS

Circulation Department: 500 Howard St., San Francisco, Calif. 94105

the world's leading publishers serving the forest industries • Publishers also of:

PULP & PAPER • PULP & PAPER INTERNATIONAL • POST'S PULP & PAPER DIRECTORY • PACIFIC LOGGER AND LUMBERMAN • WORLD WOOD • DIRECTORY OF THE FOREST PRODUCTS INDUSTRY • THE PLYWOOD DIRECTORY

San Francisco • Portland • Chicago • New York • Decatur • Ruston, La. • Seattle • Fort Worth • Long Beach • Vancouver, B.C. • London • Brussels

The 1966
to increase the amount of those grants substantially in the future as its appropriations increase. Since its appropriation for fiscal year 1966 for operations is $7,363,000 more (29 percent) than in fiscal year 1964, there appears to be ample opportunity for expanding the cooperative grants.

**The Impact of Hatch and McIntire-Stennis Funds on Forestry Research**

Federal appropriations under the amended Hatch Act, a part of which were used for forestry research, had an influence on the early development at many land-grant colleges and universities, especially those having forestry departments or schools. The technical capacity of the forestry schools to perform research developed more rapidly during the 10-year period after 1946 than did funds to support research. For the fiscal year 1960 the total research budget of the forestry schools was $6,521,000 of which $808,000 came from Hatch funds, and $741,000 came from other federal funds (Committee on Forestry Research, Society of American Foresters 1962).

As early as 1957, the state forestry schools realized that funds were wholly inadequate for research needed to develop graduate programs and to meet responsibilities for solving state forestry problems. A determined effort had to be launched to solve the financial problem (Westveld 1963b). By 1961 it had become evident that securing substantial increases in funds for forestry research under the Hatch Act was not promising. Enactment of federal legislation which would eventually provide more adequate federal support for forestry research at land-grant colleges and other state institutions seemed to be the first important step to be taken. It is now history that such legislation in the form of the McIntire-Stennis Act was signed into law on October 10, 1962 (Westveld 1963a). After making appropriations of $1 million for fiscal years 1964 and 1965, Congress increased the appropriation to $2.5 million for fiscal year 1966. This means that the qualifying state forestry schools now have a solid base of about $3.5 million (including approximately $1.0 million of Hatch funds) upon which to build. Although this constitutes less than 30 percent of a total research budget of approximately $13 million, it is vital to the development of adequate research and graduate programs. The fact that those funds, administered by the Cooperative State Research Service of the U. S. Department of Agriculture, may be used for forestry research as the schools see fit gives great flexibility in their use. Congress can appropriate in any one fiscal year, through the McIntire-Stennis Act, an amount equal to one-half that appropriated for Federal forestry research conducted directly by the Department of Agriculture for the fiscal year preceding (Congress of the United States 1962). This act can provide a sizeable and stable base for forestry school research. Since the current federal appropriation for forestry research in the Department of Agriculture is $36,689,000 (including $4,108,000 for construction), the appropriation of McIntire-Stennis funds is far below the allowable maximum of $18.0 million. Assuming that the Federal program reaches the recommended goal of $76 million by 1974, (Forest Service, 1964) Congress could appropriate $38 million under the McIntire-Stennis Act at that time. Unless Congress and the state legislatures become more generous in their appropriations for research to the state forestry schools in the future, the Forest Service may continue to do three times as much forestry research as the schools. The ratio has remained fairly constant since 1953.

**Support of Forestry Research by Other Federal Programs**

Other federal agencies which perform forestry research, usually of a specialized nature, are the Bureau of Sports Fisheries and Wildlife of the Fish and Wildlife Service, U. S. Department of Interior, the Weather Bureau and National Bureau of Standards, U. S. Department of Commerce, the Agricultural Research Service, U. S. Department of Agriculture, the U. S. Atomic Energy Commission through its Oak Ridge National Laboratory, and The Tennessee Valley Authority. The total expenditures by these agencies in fiscal year 1960 was $1,169,000—about four percent of total public effort in forestry research. Obviously this has a small impact on the total public effort.

Forestry schools have had some financial support for their research programs from federal agencies other than the Forest Service. The most significant of the agencies and the one which offers the greatest potential is the National Science Foundation, established by Congress in 1950. The Foundation makes financial grants to individual investigators for specific projects in basic research and to institutions for research facilities. Few grants have been made to forest scientists, perhaps because relatively few of them were doing basic research as defined by NSF. This situation has changed in the last few years, but data are not available on the amount of the grants currently made for forestry research. It seems likely that these grants will become increasingly significant. They do provide an excellent means for the individual scientist to strengthen basic research in the field of his interest. The disadvantage of this type of federal support is that grants are limited to a maximum of 5 years with no assurance of renewal. Consequently the scientist must spend an excessive amount of time in preparing a research proposal.

The National Institutes of Health also make grants to individual scientists for basic research. Since the research must be health oriented, relatively few problems in forestry can qualify for such support. Some types of research on problems of forest watersheds can qualify.
staffs are persons with doctor's degrees, the potential of the schools to do basic research is increasing. It is likely, therefore, that with an increasing amount of funds available from the National Science Foundation and the National Institutes of Health, these federal programs will stimulate greater activity in basic research at the forestry schools.

The Bureau of Outdoor Recreation of the Department of Interior, most recently established federal agency, may be a source of grant funds for state agencies. Apparently plans are being developed to provide states with federal funds for research in outdoor recreation. It is too early to predict the significance of this program.

A Look to the Future

Prior to 1960 the Forest Service was the dominant force in forestry research in the United States outside of the field of forest products and utilization, where private industry was dominant. It would be difficult to assess the influence that federal programs have had on forestry research by private industry. On the other hand, the effects on state forestry research programs is strongly evident in several forms. The most significant effect is the strengthening and expansion resulting from the federal appropriation under the McIntire-Stennis Act since 1963. This should become an increasingly important force since the states must spend a sum at least equal to the Federal appropriation. Greater emphasis on basic research has been stimulated to a limited degree by funds available from the National Science Foundation and the National Institutes of Health. This influence is likely to become greater in the future since a greater proportion of forestry research scientists will be qualified to take advantage of grants from these agencies. Since the proposals for grants are carefully appraised for their scientific soundness, the more able scientists will receive the maximum encouragement. By placing more of its research scientists on university campuses and providing more funds for cooperative aid grants to personnel of university faculties during the past few years, the Forest Service has established a broader base for increased cooperative effort. This becomes increasingly important as more agencies become involved in forest research programs.

In general it seems unlikely that federal programs will have a profound effect on the nature of research programs. To an increasing extent state programs will be developed as joint efforts of state and federal agencies engaged in forestry research. Undoubtedly the federal grant programs in support of basic research will increase the amount of basic research, which certainly is desirable. Greater attention to outdoor recreation research will probably occur in the state programs of grant funds become available though the Bureau of Outdoor Recreation. Since there is great freedom in the use of Hatch, McIntire-Stennis, and state funds, the state forestry research programs do not appear to be adversely influenced by federal programs.

Literature Cited

To the left of the entrance to Gold Star Hall is the new northeast wing. We hope you'll be visiting the campus to enjoy its facilities, which include:

On the “sub-ground” floor: work space, photography dark rooms and a crafts area

On the ground floor: 15 new offices for student organizations, food storage rooms and offices for food staff personnel

On the main floor: 3 new dining rooms—
   The Cardinal Room (decorated in cardinal and gold; will serve 100)
   The Campanile Room (in blue, green and gold; will serve 140)
   The Regency Room (in paneling and red plush; will serve 40)

On the second floor: meeting rooms and offices

MEMORIAL UNION
Campus Headquarters
Portraits & Application Photos

Color or Black & White

HILL STUDIO
2530 LINCOLN WAY AMES, IOWA

"We'll be chaining 'round the mountain."

University Bank & Trust Co.
in Campustown
Serving ISU Since 1916

SCHOENEMAN BROTHERS COMPANY
Dealers in Building Supplies
Main and North Western Ames, Iowa
CHAMPION slide pump makes "a little spray go a long way" on a fire-fighting job

ADVANCED-DESIGNED TANK
is also built for dependable performance. Important feature is attachment of hose at top of tank to prevent water leaking when pump is below bottom of tank. Large filler opening has leak-proof cover with non-freeze gasket; locks securely, no threads to wear. Tank holds up to 5 gallons.

HEAVY-DUTY PUMP
has Champion-designed handle which lowers to any convenient position for easy operation. When not in use, the sturdy handle locks pump in closed position and positive-locking device on cover holds pump securely. Pump is brass throughout with non-corrod­ing, self-cleaning bronze ball valves.

VENTILATED BACK
is form-fitting and providing air circulation between tank and operator's back, guards against discomfort. Wide, adjustable straps make it easy to carry as knapsack.

Piston-type pump also available. Write for literature on both models. Distributor inquiries invited.

CHAMPION SPRAYER COMPANY
Manufacturer of Portable Sprayers and Dusters
6509 HEINTZ AVENUE - DETROIT 11, MICHIGAN
A late evening pizza from Ames' newest pizza establishment.

THE PIZZA HUT

355 SOUTH DUFF

Paul Bunyan SAYS

The Best Dressed Foresters Shop at Joe's

For Nationally Known Brands at Popular Prices

"From Head to Toes—Shop at Joe's"

JOE'S MEN'S SHOP

2536 Lincoln Way 232-5264

WHERE THE DISCERNING FORESTERS CONGREGATE

TROVATO'S LOUNGE

115 MAIN

Campus Drug Co.

2430 Lincoln Way

Campus Drug Co.

2430 Lincoln Way
in this area. Tree physiology and forest soils are the disciplines fundamental to silviculture in which course work and problem-oriented research are concentrated.

Close cooperation is maintained with the physiology group of the Department of Botany and the soils group of the Department of Agronomy. The silviculture program is broadly structured and the student's program of study is molded to make the fullest use of the University's educational resources in meeting the needs of the individual. Most course work is taken in biochemistry, genetics, plant physiology, soils, and statistics. Two forestry courses, advanced silvics and advanced silviculture, are used as a framework for the application of these basic sciences to forestry problems.

**Wood Science and Technology**

The objective of the graduate program in wood science and technology is to prepare students for positions requiring a comprehensive knowledge of the anatomical, physical and chemical properties of wood. To develop this knowledge a student must master, in addition to courses in wood science and technology in the Department of Forestry, a selection of courses in one or more of the following departments: Biochemistry-Bio-physics, Botany, Chemistry, Engineering Mechanics, Industrial Engineering, Mathematics, Physics, or Statistics.

Research on the anatomical properties of Iowa hardwoods provides clues to more efficient selection of trees for specific uses.

Many of the facilities of these Departments are available for the research of forestry students, e.g., the electron microscopy laboratory in the Department of Botany. The student in wood science and technology has considerable latitude to develop the program of study which is best suited to his needs and to make the most effective use of the University's strong programs in the basic sciences.

**INDIAN FIRE PUMPS**

Form-fitting, ventilated tank gives a constant circulation of air between tank and carrier's back. It protects the back from the cold water and moisture in the tank and keeps the back warm and dry. The form-fitting shape of this tank fits the back perfectly snug and firm and feels good.

**D. B. Smith & Company**

Utica, New York 13503
Aw, come on. I dare you to divide 1 by 0 on the calculator.

Key to Faculty
Candid Pictures

Top row, L. to R.—Dr. Stoltenberg, Dr. Bensend, Dr. Gatherum, Dr. Thomson. Bottom row, L. to R.—Dr. Hopkins, Dr. Bentley, Dr. Ware (the big guy).
Streeby and Twiss . . .  
(Continued from page 13)
emphasize cultural treatments such as fertilization or irrigation as opposed to purely protective maintenance.6 Better methods of judging the potential hazard to visitors due to decay in standing trees should result in not only increased safety but also in more attractive recreation areas through the preservation of mature trees which might otherwise be cut.7 Most ecological studies of recreation areas have focussed on campgrounds and other small areas. For extensive recreation complexes, such as National Parks, National Recreation Areas, and Wilderness Areas, large-scale ecological surveys are more appropriate. Given a forest area that should be maintained in natural condition, such surveys would inventory and describe the natural situation, point out unstable situations, limiting factors, and the natural changes taking place, and otherwise indicate needs for management action. Ecological surveys and management research plans such as those now being prepared by the National Park Service would seem to be helpful in many situations.8

Most often, however, the forester is interested not only in the ecological situation, but also in creating the appropriate forest setting for the individual and social transactions of recreation activity.

Bury confirmed that people resist adapting to campground designs to maximize protection of vegetation.9 This suggests that campground designs should consider other components of visitor satisfaction and not solely the preservation of vegetation. Other studies have shown how recreationists differ in social interests and site requirements.10 Furthermore, activities may not be mutually conflicting. The canoeing-power boating conflict cited earlier proved to be a one-way affair. To the power boaters, the sight of canoeists added a touch of “flavor;” to the canoeists, the power boat was an unwelcome intrusion. Indeed many canoeists defined “wilderness” not so much in terms of area or natural features, but by the presence or absence of power boats and other mechanized forms of travel.

Since forest visitors may often define recreation resources in terms other than those to which foresters are accustomed, researchers should focus attention on the study of human perception and values as an aid to better forest management.

Individual perception and evaluation become the ultimate basis for classifying and evaluating resources in recreation terms. Classification of resources in terms of their capacity to meet the tastes and preferences of forest visitors is imperative whether it is done subjectively or objectively. At best, each classification can be no more precise than our knowledge of (1) what attributes of the resource are perceived, and (2) how these attributes are evaluated by different types of people.

Study of forest classification based on perception has barely begun, but even the earliest work casts doubts on over-simplified classification schemes. For example, National Forest roadside zones for special treatment were formerly set at uniform distances from the forest road in an attempt to protect scenic values. Visibility, however, can better be considered as a function of distance plus slope, position of view, lighting, and so on. A cooperative study between the Forest Service and the Department of Landscape Architecture of the University of California is seeking to devise more precise, meaningful, and effective methods of classification.11

Conclusion

Research can be of help in many facets of decision making in forest management, but it is apparent that the work needed for recreation decisions has barely begun. There is an opportunity for students to contribute and participate in an expanding field of work. Beyond this, we would hope that many experienced professionals would consider forest recreation management and research as appropriate subjects for continuing formal education. For forestry to meet the challenges of the day, there must be a continuing close association between scientists, students, and practicing professionals.

8 Andrew T. Leiser. Vegetation problems on forest recreation sites (A pilot study to develop horticultural methods for planting, managing, and enhancing vegetation). Cooperative study between Univ. of California (Davis) and the Pacific SW Forest and Range Exp. Sta., Berkeley, California. 1966.


Take Her To
TOM'S
CELEBRATE
AFTER EACH EVENT
Downtown Ames

FASTCO DRUG
327 Main
Ames, Iowa

Bone Dry Caulk Boots
also
Chippewa Doublewear
Available at
Archie's Goodyear
Shoe Repair
107 Welch

MATHISON MOTOR COMPANY
Ford Fairlane – Falcon – Mustang
Special Financing Program
For Graduating Seniors
323 5th St.
Telephone Cedar 2-5521
AMES, IOWA

The Finest Groceries and
The Freshest Meats are found at
The Hy-Vee Food Stores
Large Selection
Quality Meats & Groceries
at competitive prices
Plenty of free parking
112 South Sheldon 207 South Duff

Forestry Graduates and Students: You are invited to
join thousands of foresters and woodland operators
and find “What you need—when you need it” at:

Forestry Suppliers, Inc.
Box 8397, 205 West Rankin Street
Jackson, Mississippi 39202
Quality Forestry, Engineering
and Industrial Supplies
SHIPPED WORLD-WIDE

Our tests show that Elmer's glue—
Calders' Percent Abney Reduction Tables $1
Calders' Forest Road Engineering Tables $5
Calders' Natural Cosines and Sines Table $4
Calders' Perspicuous Treatise FREE

Any or all three of these books will be mailed post-paid for 30 days trial use.

Calders'
1228 Hilyard
EUGENE, OREGON
97401

RELAX AFTER
THE BIG TEST

THE BEACH HOUSE
119 Kellogg

"Be ready as soon as I—OUCH!"

Visit Our Store Often
If you're looking for
Reference Books Stationery
Paper Backs Art Prints Greeting Cards
We Appreciate Your Business

SOUTH-CAMPUS OPEN 9AM-6PM

CUTS COST! SAVES TIME!
NEL-SPOT D-103 HAND GUN
Attaches direct to Nelson quart of paint. No straining—no transferring of paint—no daily cleansing.
FOR BETTER TREE MARKING
LOOK TO NELSON FOR LEADERSHIP
THE NELSON PAINT COMPANY
THREE PLANTS TO SERVE YOU
Box 349, Iron Mountain, Michigan • Box 1892, Montgomery, Alabama • Box 402, McMinnville, Oregon
Patrons of the 1966 Ames Forester

Shirley W. Allen  Gordon E. Gatherum  Dean A. Rasmuson
Lee G. Andreas  R. Earl Gingerich  James J. Rettenmaier
Robert S. Appenzeller  Nel G. Glesne  William Rice
Richard J. Arney  Richard Goins  Ronald V. Rydberg
Wm. D. Arnold  Robert B. Grau

Dean P. Baker  Earl H. Hansen  Con Schallau
Donald R. Ball  W. P. Harley  Howard N. Schmidt
John Barrington  George B. Hartman, Jr.  Charles M. Schumacher
Richard L. Bassett  Clark E. Holscher  Wayne Scholtes
Theodore J. Bauer  Clyde C. Hoover  Henry H. Schwane
Kenneth Benda  Fred S. Hopkins
Dwight W. Bensend  Lowell E. Horton
William R. Bentley  John P. Hough
D. Bruce Brown  David C. How
Kenneth D. Brown  Arthur C. Hubbard
Gene S. Brugere  E. S. Hurd

L. W. A. Campbell  James L. Jayne  John Shepard
Russell L. Chipman  Howard Johnson  Maynard J. Smith
Lyle W. Chisholm  Robert E. Jones  Gerre Spencer
Duane M. Christ  George W. Kansky  Hugh A. Steavenson
John I. Christensen  L. F. Kellogg  Dean E. Stepanek
J. P. Cline  Blaine M. Knop  Robert Stewart
Lauress C. Collister  John F. Knupp  J. H. Stoeckeler
J. Milton Cone  M. E. Kroack  Carl H. Stoltenberg
H. S. Coons  Richard D. Lane  Gil H. Stradt
Glenn A. Cooper, Jr.  Merrill Lash  Larry Streeby
Richard J. Couger  L. A. Lindquist

Earle E. Denmark  Howard E. Lowe
Frank DeVaul  Fred W. McMillan  Leonard H. Thomas
William A. Duerr  Harold S. McNabb  John R. Thurman
Paul M. Dunn  Arthur Matthias  Fred B. Trenk

M. A. Ellerhoff  Clark J. Mitchell
Robert Ethington  Dorsey J. Morris

Clifford E. Fago  Roger D. Morris
Gene A. Failor  David K. Nelson  F. A. Walff
Bert Fellows  Dewitt Nelson
C. Dean Finch  George J. Pecaro
Ray Finn  Richard F. Pierce
Gary F. Firch  Vincent P. Pizzano
Frances J. Flich  George I. Porter
John L. Froehlich  Ronald C. Prichard

The financial success of this publication is due in a large part to the generosity of the above persons. We thank them for their patronage.
PRUNE TREES, PICK FRUIT and SHAKE WALNUTS
60 ft. up with LIGHTWEIGHT SECTIONAL or
TELESCOPIC ALUMINUM or INSULATOR POLES

PRICES ARE FOR TOOL ONLY — POLES EXTRA.

RECOMMENDATIONS FOR PRUNING

For Tree Pruning, we recommend a 12 ft. Telescopic Pole which telescopes from 6 ft. to 12 ft. To this pole you can add as many sectional 6 ft. poles as you may need to reach up to 60 or 90 feet.

The Telescopic Poles permits you to keep the bottom end on the ground, thereby letting the ground do most of the heavy work. As you need a 6 ft. pole added to telescopic pole, all you do is slip it over the end of telescopic pole and secure it with two bolts with wing nuts. With this type of pole, an elderly man or woman can prune tall trees with ½ the effort required with a pole that is too long, that requires slanting or a pole that is too short, that requires holding arms in a tiring position.

A 12 ft. Telescopic Pole is .................. $ 15.00
2-6 ft. Sectional Poles at $5.50 each ........ 11.00
A #1 saw is ........................................ 8.95
A #7 trimmer is ................................. 18.95
A #9 saw is ........................................ 11.95

Additional 6 ft. sections are $5.50 each plus delivery of approximately $4.00 out of state.

The #1 saw is adjustable to 13 positions and is ideal for cutting trees 24 feet and more in height.

NEW IMPROVED PINE CONE HOOK KNIFE CUTTER

Fits our aluminum poles
Cuts on both the upward and downward strokes. Cuts weeds, bushes, suckers, and small green palm fronds. It will not cut dead palm fronds. It will clean trees and cut Tines. Ideal for cutting pine cones up to 75 feet in the air. Entomologists find it very valuable in cutting specimens of diseased branches. Fits our aluminum poles.

PRICE — $10.95

STEEL OR ALUMINUM WINDOW SQUEEGEE

$3.95

When ordering additional attachments for poles you have to specify type and diameter of pole to assure perfect fit.

THIS MERCHANDISE MAY BE ORDERED FROM J. B. SEBRELL CO. 301 So. SAN PEDRO ST. - LOS ANGELES 13 - CA 5-26

OPEN SATURDAY TILL 4 P.M. — MONDAY TILL 9 P.M.