THE 1976 MICHIGAN TECH FORESTER
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ALDO LEOPOLD:

... wildlife once fed us and shaped our culture.
It still yields us pleasure for leisure hours, but we try to reap that pleasure by modern machinery and thus destroy part of its value.
Reaping it by modern mentality would yield not only pleasure, but wisdom as well.—From “A Taste For Country”

Photos courtesy of Michigan D.N.R.
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FOREWORD

Forestry at Michigan Tech is developing many new facets as a new option, Land Surveying, and a new degree, Wood Science and Technology, are added to the curriculum. No longer is a forestry student concerned with just “trees.” He or she is now exposed to recreation land use, wildlife management, urban forestry, land surveying, and wood science.

This year’s Forester theme “Wildlife” is in keeping with this trend. I hope you will enjoy the excellent feature story and the full page pictures of America’s wildlife.

I would like to say thank you to the staff for their hard work and to Dick Crowther for his guidance and suggestions. Special thanks goes to Rolf Peterson for taking time from his busy schedule to write the feature, and to Karen Meyers, whose artwork is found throughout the book and on the front and back covers.

Sit back with this book and relax. I hope you enjoy reading it as much as I did editing it.

Ann L. Leach, Editor
The 1976 FORESTER salutes

Dr. Michael S. Coffman

Forester SALUTE

"Look out! A tree is falling on you!" "What? You chopped your foot off while you were lopping that pine?"

These aren't real happenings in the life of Mike Coffman. They are only the stuff his dreams are made of during the silviculture laboratory season, when his classes conduct thinning operations in nearby pine plantations. Fortunately, no calamities have occurred, and Mike takes every precaution to make certain that they won't happen, except possibly in the visions of his nightmares. Such forebodings, and the care and caution he instills in his students, are part of Dr. Michael Coffman's concerns and responsibilities as a valuable member of the forestry faculty at Michigan Tech.

Silviculture is Dr. Coffman's primary interest and responsibility in the Department's instructional program, and in these courses he combines a sound academic grounding in silvicultural theory with a realistic coverage of applied silvicultural practice.

In addition to his full schedule of class and laboratory instruction, Dr. Coffman serves as advisor to the Department chapter of Xi Sigma Pi, national forestry honor society. He has held this position since a short time after the chapter's establishment at Michigan Tech in 1970. Dr. Coffman also has helped to organize and assists the Forestry Club in its annual pulpwood cutting project, a major fund-raising effort which the club has carried on for the past three years.

Last year, he also brought recognition to Michigan Tech and the Department of Forestry by authoring an article, "Shade from Brush Increases Survival of Planted Douglas fir", which appeared in the November, 1975, issue of the Journal of Forestry. This article was the outgrowth of research conducted by Dr. Coffman for the U. S. Forest Service in New Mexico.

Strongly devoted to undergraduate teaching, Dr. Coffman strives to instill in his students an understanding of the principles and relationships of tree growth and silvicultural practice. Always ready and willing to explain and clarify difficult points, he continually strives to maintain open channels of communication and exchange of ideas with his students. Although serious in his approach to teaching, he is known for his ready smile and sense of humor.

When Dr. Coffman joined the Forestry Department faculty as an Assistant Professor in 1970, he added to the program a strong background in forest biology and silviculture. A native of Anaheim, California, he attended schools in Anaheim and Fullerton, and graduated from Fullerton Junior College with major in biology. He then enrolled in Northern Arizona University and received his B. S. degree in forestry in 1966.

B-r-r-r ... it's cold out here!
One year later, he received the M. S. degree in forestry, also from Northern Arizona University. He then began doctoral studies at the University of Idaho, where he secured the Ph. D. degree in 1970.

Beginning in 1964, Dr. Coffman spent several summers engaging in research and as a teaching assistant in forestry summer programs. He also was employed by the City of Fullerton Parks Division, during earlier years.

Dr. Coffman continues as a member of the forestry summer faculty at Michigan Tech during most summer periods.

In 1974, Dr. Coffman was elected to membership in the Michigan Tech Senate, and in 1975 he was granted tenure by the University. He also is a member of the University's Graduate Faculty.

In 1964, Mike and Susan Belli were married at Flagstaff, Arizona. They have two children, John, 10, and Tammy, 7.

Mike enjoys many outdoor activities, including gardening, hunting, fishing, canoeing and camping. He also is active in church work and in civic affairs. He is a member of the Hancock City Planning Commission and the city’s Recreation Commission. He is chairman of his church’s Council on Ministries, a member of the church Administrative Board, and teaches the adult Sunday School class.

For these accomplishments and the many valuable attributes he brings to Michigan Tech and the community, the Forester takes pleasure in saluting Dr. Michael S. Coffman.
REPORT FROM THE DEAN

It sounds almost like a broken record for me to say that enrollment in the Department of Forestry increased again last fall to a total of 714 students. The increase was only 9%—somewhat less than last year's 22%; but the projections for next fall indicate that growth will continue. Much of this new growth, however, is a reflection of increasing interest in Forestry among women. Women comprised 15% of last fall's freshman class; they will comprise nearly a quarter of the coming freshman fall enrollment.

The new Wood and Fiber Utilization Program got under way this year with 33 students opting for it. Dr. Yuan Lai has joined Dr. Bernard Sun on the staff; Dr. Robert Ginn will join the staff next fall along with a fourth man not yet selected. Program growth was made possible by a continuing Special Programs Grant by the Michigan Legislature.

Another Legislature Special Programs Grant funded equipment purchases for the new Forest Surveying Option. Over 60 students have indicated interest in this option, which will be taught by the three Registered Surveyors who are members of the Forestry Department's faculty.

Research among Forestry faculty increased markedly this year also. Research on the MICHTEC pulping process is continuing with substantial support from the chemical industry and the pulp and paper industry. A large new plastic greenhouse has become the center for research on soil additives. Research on land reclamation and related problems occupies the efforts of several people. This increased activity has been aided by the engagement of another full-time technician and by support from a number of student assistants.

At the Ford Forestry Center, sponsored research has engendered growth, too. Dr. Robert Dohrenwend will join the staff to work with Dr. Shetron on soils and mine tailings research. He will also be responsible for getting under way the new industry-public agency-university CROFS (Cooperative Research On Forest Soils) Program. Also joining the staff were Research Forester Gary Willis, who will work with Professor James Johnson on forest management research; and Mrs. Julia Kucab, who, as research programmer, will augment the Center's computer staff.

As already reported, through a gift from Morbark Industries, Inc., of Winn, Michigan, the Center acquired a full-sized Morbark Chiparvestor. Arrangements to obtain other harvesting equipment are underway. Among its research innovations, The Center used the Chiparvestor and other heavy equipment to demonstrate "selective," wholly mechanized harvest in mature northern hardwoods stands for several groups, including nearly 150 people who attended a meeting at Houghton of the International Off-The-Road Terrain Vehicle Society.

At the Institute of Wood Research field testing of the single-faced, disposable, particle board pallet and the double-faced, rackable, reusable pallet has been very successful. Interest in the pallets has been high, and the likelihood is that manufacture will be underway before long.

The successful development of the I.W.R. Continuous Press System has led to a contract with EPRI (Electric Power Research Institute) for a 3-year research program to develop utility poles from structurally aligned wood flakes. Other smaller contracts for research on the use of wood chips, wood flakes, and waste wood products occupy the existing staff of the I.W.R. and will involve additional staff currently being recruited.

Again space permits covering only a few highlights of the activity in the School of Forestry and Wood Products. At times it seems impossible for the staff to do more, but their enthusiasm being what it is, I am sure they will try.

-Eric A. Bourdo, Dean
Gene's "Top Log in the Deck"

Communicating with others is the most vitally important habit we can cultivate in our daily lives. Good communication is often the most ignored or misjudged essential of the professional forester. It is small wonder today's public becomes disenchanted with the policies or practices the forester attempts to implement; we so often fail to realize the significance of the public and our responsibility to effectively communicate with people.

Today, forest managers have been coping with some of the toughest problems in natural resource management history. And most of these are "people" problems. Our forest managers are the best educated in the world. They have developed efficiencies in production, improved utilization, reforestation, cultural treatment of growing timber, better means of fire, insect and disease control and countless other modern advances. But so often we fail to get the public to appreciate our problems and to applaud our successes. The majority of our failure stems from the least measureable, most intangible, and least manageable factor—group attitudes of the public.

The public we once knew a decade or so ago has changed from an "it" to a "them." There is overwhelming evidence that the "new" public is formed by separate cells of "group attitude" each with a few spokesmen dedicated, willing and aggressive in their action to speak out with gusto. It is easy to recognize some of the prominent group attitudes—activist, environmentalist, women's liberationists, complaining consumers and others. The forester must understand the need to effectively communicate with the spokesmen for these new "publics." We may not be "turned on" by these people, but they may turn us "off" if we fail to communicate.

Our modern publics are better educated—television has created a more alert public—and recent events like Watergate have induced a tint of skepticism in most of us. So, in our education of young foresters today—male or female—we must highlight the fact that their effectiveness as professionals must recognize that the publics they deal with are intelligent and responsive.

Michigan Tech must provide its foresters the best exposure and understanding of communications possible. We need to increase the sensitivity of our young people to their need for knowing their new publics. Today's human climate is far too complex for one-dimensional communication. So each of us must be aware to discern the presence of group attitudes and to treat these with trained sensitivity as a professional forester. The people factor is vitally important to the wise management of our nation's natural, renewable resources, and we must recognize this element in our daily professional lives.

-Gene A. Hesterberg
Dr. Martin F. Jurgensen
Associate Professor
B.S. Syracuse University
M.S. Syracuse University
Ph.D. North Carolina State University

Dr. Norman F. Sloan
Associate Professor
M.S. University of Wisconsin
Ph.D. University of Wisconsin

Dr. Roswell K. Miller
Associate Professor
B.S. Syracuse University
M.S. Syracuse University
Ph.D. University of Michigan

Dr. Stephon G. Shetron
Professor
A.S. New York University
B.S. Mich. State University
M.S. Mich. State University
Ph.D. University of Michigan
Dr. Berbard C. H. Sun
Assistant Professor
B.S. Taiwan University
M.S. University of British Columbia
Ph.D. University of British Columbia

Dr. Fred A. Stormer
Assistant Professor
B.S. Penn State University
M.S. Penn State University
Ph.D. Purdue University

Robert L. Sajdak
Assistant Professor
B.S. Michigan Technological University
M.S. University of Minnesota

Dr. Douglas J. Frederick
Assistant Professor
A.A.S. Paul Smith's College
B.S.F. West Virginia University
M.S. West Virginia University
Ph.D. University of Idaho
Charles E. H. Hein  
Assistant Professor  

Kimberley Iles  
Lecturer  
B.S. Oregon State University  
M.S. Oregon State University  

Dr. Michael S. Coffman  
Assistant Professor  
B.S. Northern Arizona University  
M.S. Northern Arizona University  
Ph.D. University of Idaho  

James Meteer  
Professor  
B.S.F. University of Michigan  
M.S.F. University of Michigan  

FACULTY LOST IN THE WOODS  
Dr. Yuan-Zong Lai  
Assistant Professor  
Michael Kerttu  
Faculty Assistant  
Irving Ziemer  
Faculty Assistant  
Dennis A. Baril  
Forestry Aide  

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James A. Johnson  
Research Forester  

Ralph Duffek  
Assistant Professor, Forest Technology  

Tom Kelly  
Assistant Professor, Forest Technology  

James Dougavito  
Teaching Aide, Forest Technology  

William Bertie  
Assistant Professor, Forest Technology  

Bernard Carr  
Assistant Professor, Forest Technology  

James Chosa  
Research Forester  

Robert D. Tembruell, Office Services  
Roger L. Rogge, Operations Manager  
Eva Miron, Secretary  
Helen Maki, Senior Clerk
“Banders” or “Banding”?  
Dr. Norman Sloan received a special award from the Inland Bird Banders Association in 1975. The award was a plaque, here held by Dr. Sloan, given in recognition of his years of outstanding service to the association as editor of the *Inland Bird Banding News*.

During his five years as editor, Dr. Sloan has guided the bi-monthly publication to considerable growth, both in size and in circulation. It now has a circulation of approximately 1,000 and goes to 49 states and 21 foreign countries. Its size has increased to 40 pages per issue.

The periodical, printed by the Book Concern Printers of Hancock, Michigan, has been published since 1929 and is the oldest bird banding journal in North America.

Faculty Awards

Professor Vernon W. Johnson, of the Michigan Tech Department of Forestry, was recipient of the 1975 Distinguished Teacher Award of Michigan Technological University, presented at the midyear Commencement.

A committee uses nominations from faculty, graduate students and seniors in making their choice. Criteria for this award are: inspirational guidance, outstanding grasp and effective presentation of subject matter, genuine interest in students, scholarly leadership in preparing students for lifetime studies, and a continuing interest outside the classroom in students, teaching and the profession. Professor Johnson more than fills these requirements as he has shown great leadership to students as well as being an outstanding teacher.
Professor Emeritus U. J. "Bert" Noblet
Receives Two Distinguished Service Awards

Professor Emeritus

Professor Emeritus U. J. "Bert" Noblet, founder and head of the Department of Forestry at Michigan Tech from 1936 until his retirement in 1962, has been presented two major awards in recognition of his service to the forestry profession and to Michigan Tech.

The Wisconsin-Michigan Section, Society of American Foresters, selected Professor Noblet for its 1975 Distinguished Service Award. The award was announced at the spring meeting of the Section, held in March, 1975.

At the Michigan Tech Spring Commencement in May, 1975, Professor Noblet also received the 1975 MTU Distinguished Service Award.

Both of these awards cited the accomplishments of Professor Noblet, including his leading roles in the establishment of the Ford Forestry Center which was created by a donation of land and the town of Alberta by the Ford Motor Company in 1954, and enactment of legislation to provide for the registration of professional foresters in Michigan. Through consulting work, Professor Noblet also helped to improve industrial forest management throughout the Upper Peninsula.

In 1955, Professor Noblet was appointed to the first Michigan Board of Registration for Foresters. That year he also received Michigan Tech's Distinguished Teacher Award.

Coming to Michigan Tech in 1929 as athletic director and coach, he continued in this capacity until the establishment of the Forestry Department in 1936. He also was primarily responsible for the establishment of Michigan Tech's Practical Woods School, located at Camp Pori, 50 miles south of Houghton. This school provided a 9-month course of study and practice of applied forestry from 1945 to 1950, and was attended mostly by recently discharged World War II veterans.

These awards formally recognize the importance of Professor Noblet's contribution to forestry in Michigan and, especially, to forestry education and research at Michigan Tech. The Forester adds its congratulations and commendations to Professor Noblet for many accomplishments which are recognized by these high honors. Well done, Bert!
NEWS OF THE DEPARTMENT OF FORESTRY

Burgeoning enrollment continues to be the dominant element of the Forestry Department this year. Student enrollment in September, 1975, totaled 714, a sizeable increase over the 650 students enrolled the previous fall.

A new curriculum, Wood and Fiber Utilization, took its place beside the Forestry curriculum offered by the Department. Funding for this program amounts to $47,000 per year. Instruction in this new curriculum is directed by Dr. Bernard Sun, who is assisted by Dr. Yuan Lai. The addition of new faculty to augment this program is anticipated during coming years. A new option in Land Surveying also was activated in 1975.

Michael Kerttu joined the Department faculty for the 1975-6 academic year. He provided instruction in soils, natural resources administration and policy, range management, instruction in soils, natural resources

also was activated in 1975.

Michael Kerttu joined the Department faculty for the 1975-6 academic year. He provided instruction in soils, natural resources administration and policy, range management, senior seminar, and recreation courses. Mike holds both the B.S. and M.S. Degrees in forestry from Michigan Tech, and previously taught in the MTU Forestry Technician and Forestry Aide programs at Alberta and in the Civil Engineering Technician program.

The year has been another busy one for members of the Department faculty. Prof. Vernon Johnson gained outstanding recognition when he was named as recipient of the Michigan Tech Distinguished Teacher Award for 1975. Details of this honor may be found elsewhere in this issue.

Also an award recipient in 1975 was Dr. Norman Sloan, who received a special commendation from the Inland Bird Banders Association, in recognition of his years of meritorious service as editor of the Inland Bird Banding News.

Two members of the department faculty received promotions in 1975. They are Dr. Sun, promoted to the rank of Associate Professor, and Charles Hein, promoted to the rank of Assistant Professor. Dr. Michael Coffman also was granted tenure.

Three members of the School of Forestry and Wood Products attended the annual meeting of the Society of American Foresters in Washington, D.C., last fall. They are Dean Eric Bourdo, Jr., Dr. Gene Hesterberg, and Dr. Roswell Miller.

Dr. Miller is active as chairman of the committee to review, evaluate and revise the Forest Engineering Division of the Forestry Handbook. He is conducting a nationwide study on forest fire education and is chairman of the Functions Committee of the newly-formed Keweenaw Group of the Society of American Foresters.

A cooperative study with the U.S. Forest Service has taken Dr. Martin Jurgensen to Montana for several weeks in the spring, summer and fall, as he investigates the effects of logging and silvicultural treatments on soils.


Talks were presented at the annual meeting of the Michigan Forestry and Parks Association by Dr. Hesterberg and Dr. Richard Crowther. Gene spoke on "The Role of the University in Strengthening the Forest Industry," and Dick presented a slide-talk on "Minimizing User Impact in Recreation Areas."

Dr. Douglas Frederick has been very active in research and other activities. He has coordinated the Forestry Department's radio program, "New Horizons in Forestry," presented weekly by WGLL, Michigan Tech's FM radio station. He also presented a paper, "Decay Relations in an Integrated Population of Abies grandis/Abies concolor in Central Idaho," at the International Forest Insect and Disease Conference at Eagle River, Wis. He has initiated vegetation studies of the Apostle Islands and Pictured Rocks National Lakeshores, and serves as coordinator of research on the incidence of hypoxylon canker of aspen, and on the effects of soil amendments on the incidence and severity of Dutch elm disease.

Dr. Sun is continuing his research on a new pulping process, called the Michtech Process. Successful pulping of southern pine chips has been achieved and work in the recovery of chemical residues continues.

Activities of Dr. Fred Stormer include continuation of environmental studies for Homestake Copper Company, initiation of studies relating to deer forage preferences and re-establishment of the eastern pine marten in the Upper Peninsula. Last summer Dr. Stormer teamed with Dr. Lawrence Rakestraw and a graduate student to complete a study of the historical ecology of Grand Island and will present a paper on this work at the Michigan Academy's annual meeting. Fred also attended the Midwest Fish and Wildlife Conference in Toronto, Canada, last fall.

Prof. H. M. Steinhilb has completed a study of sugar maple weight and center of gravity and a study of mechanized thinning of pole-sized northern hardwoods. Both studies were conducted in cooperation with the U.S. Forest Service.

Dr. Sloan is continuing his studies of bird and insect relationships in the jack pine type, population dynamics of the white pelican, and re-introduction of the peregrine falcon in the Lake Superior area.
GRADUATE STUDENTS

DON KOSTRZEWG
Thesis: Desulfonation Of Lower Molecular Weight Lignosulfonic Acids By The Bacteria Desulfovibrio.

JERRY KELLY
Thesis: Landscape Planting Design For Coppertown USA, Calumet, Michigan.

CHERYL REEDER
Thesis: Water Repellent Properties Of Forest Soils In Upper Michigan

NOT PICTURED

ROBERT JOHNSON, JR.

DENNIS CARLSON

NANCY HALL
Thesis: The Use Of Site Indicator Species To Predict Productivity Of Pok Size.

GLENN MROZ
SENIOR CLASS OF 1976

NICHOLAS BANDA
Dearborn, Michigan

KENT BARDEN
Otisville, Michigan

KENNETH BARDO
Chicago, Illinois

GLEN BARNA
Houghton, Michigan

MICHAEL BELTZ
St. Helen, Michigan

STEVE BETHUNE
Pittsburgh, Penn.
JOAN CRYDERMAN  
Romeo, Michigan

ROBERT DOLATA  
Hancock, Michigan

PHYLLIS DORMAN  
Houghton, Michigan

TIMOTHY EICHER  
Hurontown, Michigan

RICHARD EIGEL  
Reading, Ohio

DAVID ERICKSON  
Republic, Michigan

MICHAEL FOX  
Roscommon, Michigan

WAYNE GASSER  
Baraboo, Wisconsin

ANN GOODMAN  
Elmhurst, Illinois
PATRICIA GROSSMAN  
Petoskey, Michigan

RANDALL GRUNIGEN  
Cinnaminson, New Jersey

JOHN HELGE  
Upper Sandusky, Ohio

DON HOLCROFT  
Albion, Michigan

WILLIAM KARR  
Hancock, Michigan

JOHN KOEHLER  
Detroit, Michigan
JOHN KRAMER
Washington, Michigan

MARVIN LA GREW
Ironwood, Michigan

ANN LEACH
Duncannon, Pennsylvania

MARCUS LEE
Escanaba, Michigan

KENNETH LEONARD
Yorktown Heights, New York

RONALD LEWANDOWSKI
Hamtramck, Michigan
EDITH LICHTLER
St. Clair Shores, Michigan

CHARLES LUDWICK
Hancock, Michigan

HENRY O'DONNELL
Ferndale, Michigan

WILLIAM LIVINGSTON
Hudson, Michigan

WAYNE METHNER
Garden City, Michigan

MICHAEL MUMFORD
Paw Paw, Michigan
MICHAEL OJANEN
Livonia, Michigan

RICHARD PALMER
Caledonia, Michigan

NANCY PANOPLOS
Mt. Prospect, Illinois

JOHN PENEGOR
Hancock, Michigan

WILLIAM PERKIS
Chicago, Illinois

JOHN PILON
Cheboygan, Michigan

RICHARD REISINGER
Springfield, Ohio
Catherine Riley  
Dolton, Illinois

Frank Roberts  
Flint, Michigan

Michael Schira  
Battle Creek, Michigan

Thomas Schultes  
Grosse Point Farms, Michigan

David Schwandt  
Libertyville, Illinois

Thomas Smith  
Midland, Michigan
WILLIAM SMITH  
Washington Corners, Ohio

STEPHEN SPAULDING  
Newton, New Jersey

ADAM SUHONEN  
Kearsarge, Michigan

GEORGE TEACHMAN  
30 Grand Rapids, Michigan

FREDERIC THIELE  
Colon, Michigan

DANNY THOMAS  
Lincoln Park, Michigan
THE FOREST TECHNICIANS OF 1976

Forest Tech. Graduates

FOREST TECHNICIANS AT ALBERTA

The Ford Forestry Center is affectionately referred to as “home” by MTU students enrolled in the School of Technology’s forest technician program. The emphasis at Alberta is on practical, “hands-on” field experience. Well-trained graduates of the forest technician program find rewarding careers in both public and private forest industry.

Members of the Alberta branch of the Forestry Club have enthusiastically participated in all projects undertaken by their brother club on the main campus. The 1975 Conclave team included several technicians who placed in their individual events.

Winter Carnival, 1976, was a source of enjoyment and pride as Forestry Club members and members from Alberta Council joined forces to produce a prize-winning snow statue in Class III and to win third place in over-all competition.

The faculty of the Forest Technology Program is comprised of Professor Bernard W. Carr, Coordinator; Professor William J. Bertie, Instructor; Ralph G. Duffek, Instructor; Thomas L. Kelley, Instructor; and James P. Dougovito, Field Assistant.

The winning Forest Tech Winter Carnival Statue: “East meets West in a steaming affair.”
MOOSE-WOLF RELATIONSHIPS
ON ISLE ROYALE NATIONAL PARK

The wolf is a creature that never fails to stir controversy and interest among almost any group of people. Though eliminated from almost the entire United States, wolves remain in the public eye and continue to generate headlines and debate. In spite of a feud between man and wolf that spans centuries, scientists have begun to answer major questions on the nature of wolves and the effects of wolf predation only in about the last two decades.

Recently there has been an awakening of public interest in wolves, not as a species of little value that should be eradicated, but as a highly social creature possessing many qualities which humans emulate and like to think of as characteristic of our own species. Indeed, wolves are devoted parents, tend to be monogamous (to about the same extent as people), and rarely kill other wolves. Social ties are close within families, or packs, and order is maintained within packs by a complex dominance hierarchy, or social "peck order".

In addition, to many people wolves symbolize what we have sacrificed in order to accommodate burgeoning human populations and technological development. Indeed, the only places where viable wolf populations exist on this continent are those areas where man has not yet established himself in large numbers, mostly large undeveloped areas of Canada and Alaska. South of Canada there are perhaps 1000 timber wolves, almost all of which live in northern Minnesota.

The roots of man's hostility toward wolves are ancient. Evidence points to man's own beginnings as a group-hunter, suggesting that man and wolf have long sought the same prey species. Competition became more serious as man domesticated many herbivores and selectively bred most defensive behavior out of these species.

Horror stories of mass-killings of humans by wolves were handed down though generations and accompanied European settlers to North America. While such stories may have had some basis in fact (evidence suggests that abnormal hybrids or rabid wolves created most of the stir), there is not a single, documented case of a non-rabid wolf attacking a human in North America. Rabies occurs so rarely among wolves that humans can safely assume that there is no reason to fear wolves living in the wild. Captive wolves, of course, are often socialized to people and may have lost their normal fear of humans—such individuals might treat humans as they would another wolf.

Since 1970 I have been involved in a study of wolves and moose in Isle Royale National Park, a 210-square-mile island in northern Lake Superior. The study was initiated by Dr. Durward L. Allen of Purdue University in 1958 and has continued to the present time. In this study wolves are tracked and observed from light aircraft in winter, and researchers have gathered data on size of wolf and moose populations, wolf behavior and hunting techniques, and the effect of wolf predation on the moose population.

When wolves were first established on Isle Royale (in the late 1940's), skeptics predicted that wolves would rapidly eliminate moose and then start in on people. Over the years, however, data from Isle Royale has convincingly demonstrated that nature imposes limits even on wolves. During the first 16 years of the study the population averaged 23 wolves, and the moose population continued to be one of the densest in North America. Wolves "manage" the moose population by preying heavily on calves and old moose, usually at least 7-8 years of age. Although moose continue to heavily browse woody vegetation on Isle Royale, wolves have eliminated the

Ridge and valley topography of Isle Royale National Park

— Rolf O. Peterson.
periodic heavy losses of moose to malnutrition that occurred prior to the establishment of wolves.

Wolves have coexisted with their prey for thousands of years, and each prey species has developed defensive behavior which usually is adequate against wolves. Deer, caribou, elk and mountain sheep all run from wolves, but moose stand and face wolves when they approach. Indeed, if a moose runs from wolves it is almost always chased and occasionally killed. Wolves have never been observed to kill a moose that stood its ground, regardless of how large the wolf pack was. Apparently there are subtle changes in the behavior of a moose as it senses an increase in its own vulnerability.

Wolves "test" almost every moose they meet, often forcing it to run in an attempt to escape. Wolves will then attempt to take advantage of any opportunity to close in on the prey animal. The hooves of a moose are its most effective defense, and wolves show great respect for these formidable weapons. If wolves sense incapacities in a moose, they will concentrate on wounding the prey animal around the hind-quarters, where the moose is least able to defend itself. Once wounded, a moose eventually succumbs to exhaustion, shock or blood-loss, often in a matter of minutes.

While wolves are well-adapted for their predatory role, most prey species have equally effective defense. Only a small segment of a prey population is highly vulnerable to wolves; for example, wolves are able to kill only about 5% of the moose they test in winter. It is not uncommon for a wolf pack to travel for a week without making a kill.

Wolves are powerful predators, yet at the same time must cooperate if they are to survive. Group hunting is essential in order to kill prey that sometimes weigh 10 times more than a wolf. At the same time wolves possess weapons (teeth) which can do serious damage to other wolves if not controlled. Aggression among wolves in a pack is channeled into highly ritualized threats and inhibited bites, and submissive behavior helps promote friendly relations.

All behavior within a pack occurs within a framework of dominance within each sex. There is a single alpha male and alpha female in each pack to whom subordinate wolves must answer. Alpha wolves provide essential leadership for the pack. They are usually at or near the front of the pack, decide where and when to travel, and are likely the experienced hunters. Experienced wolves, for example, can sometimes size up a moose with little more than an intent look, while
In a more relaxed atmosphere subordinate wolves greet alpha wolves submissively, wagging a lowered tail and trying to lick the alpha wolves around their mouths. Domestic dogs exhibit identical behavior toward their masters. Often wolves engage in a group ceremony in which subordinate wolves crowd around the alphas and enthusiastically greet them. This reinforces social bonds within the pack and may provide reassurance for wolves at critical times such as chasing prey or traveling in unfamiliar territory.

Wolves have no serious natural enemies, yet obviously something holds their populations in check. While we do not yet understand all the factors affecting wolf population dynamics, we do know that food supply is the ultimate determinant of wolf density. Pup mortality is apparently high, and some may die of starvation if members of the pack are not able to bring them enough food when they are too young to travel with the pack. Food shortage could conceivably affect stress levels within packs, perhaps altering adult fertility and dispersal rates of young wolves from packs.

One of the most interesting mechanisms which limits the number of pups born is restriction of mating activity among subordinates. Alpha wolves are often the only adults that breed in a pack, even if several mature adults are present. Alpha males are especially protective of their own mates, keeping all other males away while she is in estrous. When alpha wolves detect courtship behavior among subordinate wolves they usually threaten or punish the participants. Some alpha wolves may eventually give up and allow subordinates to breed, while others are more persistent and may actually chase from the pack subordinate wolves that refuse to cease breeding attempts.

Another factor which reduces the number of pups born in a pack is mate preference. Males often court females that are completely unresponsive, and males occasionally disregard interested females. Research with captive wolves indicates that individuals often develop life-long mate preferences, and will accept another mate only if the first dies.

There exists at the pack level a territorial system which adjusts wolf populations to their food supply. Wolves maintain group territories and individuals usually restrict their movements to their pack's territory. In addition to the established packs, there are lone wolves or pairs that exist primarily between packs, staying alive by their ability to avoid the resident wolves. Adjacent packs communicate indirectly through scent-marks and howling, and there is little direct contact between them.

Recent years on Isle Royale have shown how wolf populations respond to an increased food supply. By the early 1970’s the island’s beaver population doubled and wolves began to rely heavily on beaver in summer. Forest succession and a series of severe winters reduced the available winter food for moose and produced a generation of undersized moose which wolves were able to kill as young adults. The island’s single large wolf pack killed more moose and utilized carcasses to a lesser extent than usual. While in the 1960’s the single large pack traveled over the entire island, by 1971 the pack found all the prey it needed on just half of the island. Thus as the wolves’ food supply increased, the territory of the single pack shrank correspondingly, leaving much of the island vacant except for a few loners and pairs.

In the summer of 1971 a litter of pups was born in the vacant half of the island, forming the nucleus of a second major pack. This pack eventually claimed the east half of the island as their own, and grew to 18 wolves by 1975. In 1974 pups were born to a pair that had occupied a narrow zone between the two main packs and thus a third large pack was formed, bringing the population to a record-high of 41 wolves the following winter.

Wolves in an unsuccessful chase
— Rolf O. Peterson
Predation on moose increased as the wolf population grew, and currently the moose population is decreasing to a level more in line with its food supply. The most impressive aspect of wolf predation has been its sensitivity to moose condition, evident in the early 1970's. Calves born after severe winters during this period were malnourished while in the fetal stage, and were born physically smaller and weaker. The calves that survived their first year exhibited slower growth rates (determined from bone measurements), and probably many less obvious abnormalities. While these animals appeared normal to humans, wolves were able to kill them early in their adult life, when normal moose are almost invulnerable to wolves.

The wolf population responded rapidly to greater moose vulnerability, first by killing more moose and finally by increasing in number themselves. It is doubtful that any other mortality factor, including human hunting, could more efficiently adjust this moose population to its food supply. Likewise we have seen how predators such as wolves are ultimately dependent on their prey.

While the biological basis for wolf management may be fairly straightforward, management efforts are complicated by a wide array of public opinion ranging from complete wolf protection to total annihilation. For this reason wolf management programs in Alaska and Minnesota have recently captured headlines. Such controversies have arisen over alleged losses of domestic livestock to wolves in Minnesota and competition between hunter and wolf in both areas. The livestock issue is fairly clear-cut—where land use patterns are largely agricultural wolves cannot be expected to live without causing damage to domestic animals. The situation is entirely different in remote areas with low human populations, where competition between hunter and wolf is the issue. Wolf numbers will be naturally adjusted to prey densities without any purposeful management by humans. However, wolf predation may compete with intensive human hunting of a prey species. It is biologically questionable, however, to eliminate a predator species simply to increase the hunter harvest. On the other hand, short-term wolf control may be justified in order to maintain prey levels under certain conditions, eventually providing both wolves and man with a greater prey base.

It is easy for the public to zero in on hunters and trappers as the primary threat to our remaining wolf populations, but of greater consequence are future land-use patterns in northern areas of Canada and Alaska. Head-long development of oil and gas reserves accompanied by rapid growth of human populations potentially can affect prey populations over large areas, and thus may indirectly determine the future of wolves in such areas. Obviously northern development will not be stopped simply to accommodate the native wildlife. However, such development should proceed only after the ecological impact has been determined, and with every effort to minimize permanent alteration of major components of the ecosystem.

Wolf preservation efforts are most effective if they concentrate on maintenance of the entire ecosystem underlying these great predators. Wildlife may be the most sensitive indicator of environmental deterioration that we have, providing advance warning for ecosystems upon which humans and all other forms of life depend. If we succeed in preserving wolves in their natural role, we will have simultaneously preserved much more than just a single species.
There are tens of millions of acres of overstocked pole-size northern hardwood stands in the eastern United States. The resulting competition between trees for nutrients, water and sunlight retards the growth and stagnates the stand development. Silviculturists recommend thinning these stands to 1) promote the growth of the more valuable species, 2) reduce the number of trees of less important species, and 3) remove those trees of poor form and condition. In addition, such thinnings create openings which provide the variety of vegetation necessary to sustain wildlife.

Hardwood thinning is very limited because of the direct cost involved, about 30 to 40 dollars per acre, without any immediate return to the investor.

Last year in the MTU Forester we described a 50 acre thinning study, conducted by the Forest Engineering Laboratory, which was designed to:

1) Determine the economic operability of a mechanized thinning system on a pole-size northern hardwood stand (maple, birch and cherry) where the cut material is utilized.
2) Determine the most economical and efficient thinning pattern (four were studied).
3) Determine the damage to the residual stand caused by machines.
4) Determine the adaptability of regular mechanized logging equipment for thinning purposes.

During the past year we carefully analyzed the data collected, itemized all machine costs and rates, and assessed residual stand damage. Detailed results will be presented in a publication now being drafted.

Several loggers, landowners, and equipment manufacturers are considering mechanized thinning because of the preliminary success of this study. Long term results will be evaluated periodically. Following is a brief summarization highlighting some of the results:

- A total of 1769 tons (74 vans) of chips were removed from the study site in 22 partial days of operation.
- Average yields of chips was 46.8 tons per acre.
- The feller-buncher cut and bunched whole trees at the average rate of 86 per hour.
- Productivity ranged from 13 tons per hour to 26 tons per hour with a mean production rate of 17 tons per hour.
- Strip thinning with selective thinning between strips was the most efficient thinning treatment.
- Total cost of logging equipment was approximately $220,000 resulting in a daily operating cost of $887.
- Average cost of thinning, chipping and hauling to a pulp mill was $8.78 per green ton.
- Net profit per ton of green chips delivered to the mill was approximately $3.00.
- Twenty per cent of the residual stand suffered logging damage. Half of the damage was classified as minor and would not be considered detrimental to future growth.

Future plans for the Forest Engineering Laboratory will include additional studies with other equipment combinations to further assess the potential of mechanized thinning. With the development of improved harvesting equipment and techniques, mechanized thinning of northern hardwoods should become an accepted logging practice. In addition to using the recovered thinnings for pulp and paper, this material could become a valuable source of alternate fuel for use by forest industries.
The Computer in Wood Research

Roy D. Adams

There are several areas where the computer is of value to the Institute of Wood Research. The first concerns the statistical analysis of research results. Although statistical analyses can be carried out by hand calculation, even small problems become tedious, and with a large number of observations they become extremely time-consuming. Additionally, the possibilities for arithmetical mistakes exist. The computer overcomes both these obstacles. It can handle masses of raw data and subject the data to numerous mathematical operations in a matter of minutes or seconds in a virtually error-free manner.

As an example, IWR has undertaken a joint study with the U.S. Forest Engineering Laboratory on the effect of species and fingerling size on the flakes produced by our MKZ flaker. A fingerling is a small piece of wood, ideally one-inch square in cross section and two to three inches long. When the project is completed, the total number of flake measurements will be close to 90,000. It would be almost impossible to handle this amount of data without the aid of the computer.

Another area where the computer is of value is in the IWR library. Bibliographic and subject data for each item in the collection is being fed to the computer. This information is currently being used to produce catalog cards and, at a later date, will be used to prepare a book catalog, i.e., a record of library holdings in book format. Presenting card catalog data in book form allows information on IWR library holdings to be given to any requesting individual, agency or business.

Scientific literature is expanding at such a phenomenal rate that it is no longer feasible to perform a manual “search of the literature” in its most basic sense, and even manual searching of indexing and abstracting tools has become slow and cumbersome. This has led to the development and expansion of computerized data banks and retrieval services such as Lockheed’s DIALOG, which includes about 18 major data bases. IWR expects to have on-line access to such data banks in the future. Another indexing service which relies heavily on computer technology is the Forest Products Research Society’s Abstract Information Digest Service (AIDS), which provides retrieval of technical information of interest to the forest products industry. Specific information stored in the AIDS data base is retrieved by the computer with the use of a program called FAMULUS. The Institute of Wood Research is in the process of obtaining the AIDS data base for storage at Michigan Tech. The computer program FAMULUS is already available on campus. This will allow on-campus on-line retrieval of any of the information in the AIDS file.

Finally, the computer is of value in the area of wood engineering. Whenever new or revised construction systems, such as roof trusses or wall panels, are envisioned, the wood engineer must determine if they meet strength and deflection requirements. Until recently, the only way to evaluate a new design concept was to carry out performance tests which comprise observations of component performance under applied loads. Significant time and money are needed to carry out these tests, thus making it impossible to test every variation required in today’s housebuilding market.

However, the structure can be represented by a model which can be analyzed using the computer without resorting to numerous performance tests. Precise methods of matrix structural analysis are available and with a knowledge of material properties, the model of the structure can be analyzed and compared to an actual performance test. Modification of input properties and of the model can be carried out to allow the model to behave as the actual structure does. Once this is done, any number of load conditions and slight variations of model configuration can be analyzed by computer. This results in considerable saving of time and effort.

Computerized design is an area of research that IWR is starting to explore. We now have excellent facilities for testing full-scale trusses, and wall and floor sections. In addition, on campus we have access to several structural design computer programs, one of which has been specifically written for wooden frame analysis.
Research In Renewable Resources at the Ford Forestry Center

James A. Chosa, Research Forester

Since its dedication in 1954, the Ford Forestry Center has provided the forest industry with a great deal of information that has aided in increasing the productivity of their forests. This has resulted because of progress achieved in the field of research in forest management and forest soils.

The most notable success in forest management has been the advocacy and installation of the Continuous Forest Inventory system for obtaining growth data from forest stands. The development of this system as well as the development of computer techniques to handle the large volumes of data generated have proven so successful that the Department of Natural Resources has contracted the Center's staff to assist in the remeasurement and analysis of their CFI plots. In 1974, Center crews remeasured the Baraga and Misawabic state forest CFI plots. In 1975, they assisted in the remeasurement of CFI plots on the Iron River and Sturgeon River State Forests.

The vegetative stabilization of the Humboldt mine mill wastes, and the significant results from forest fertilization studies initiated in 1968 are two of the important contributions of the Ford Forestry Center's forest soils program. The impressive results obtained by fertilization projects in the Southeast and the Pacific Northwest, and a definite lack of research information for this region were the main reasons for instituting the fertilization program at the Center. Because of the positive results obtained from these studies, the interest in forest fertilization as a viable hardwood forest management tool is spreading within the forest industry. In 1975 the DNR funded a Ford Forestry Center study on state lands to evaluate the effects of fertilization on sugar maple trees on a wide variety of soil conditions. After one growing season, the over-all response of the fertilized trees over control trees has been positive.

These studies have answered some of the questions about forest fertilization, but before realistic fertilization guidelines can be established many more questions need to be answered about tree-soil growth relationships. To facilitate research in this area, the Ford Forestry Center is attempting to organize a cooperative for research on forest soils (CROFS) which would be a joint effort of forest industries, agricultural companies, state and federal agencies, and Michigan Tech. The main purpose of such a Cooperative would be to cut the cost of research for each participant, and to minimize unnecessary duplication of effort which would result if each organization attempted a "go-at-it" alone philosophy.

In conjunction with providing the research facilities for the cooperative, Michigan Tech would assume the major technical advisory role in setting up the field experiments. The field experiments would be located on participants properties throughout the Upper Peninsula of Michigan. These experiments would be designed to relate tree and tree properties response to soils, fertilizers, harvesting, and cutting practices. Basic aspects of a particular problem such as fertilization and nutrition would be conducted in greenhouses and laboratories at the University. Participants annual grants combined with funds from the University would provide the support for the various phases of the program.

The Cooperative is an extension of a concept successfully applied in other regions. The University of Florida at Gainesville established a cooperative in forest fertilization (CRIFF), and has had it working successfully for about ten years. The North Carolina State Forest Fertilization Cooperative established by the School of Forest Resources, North Carolina State University has been operating for about five years. The University of Washington, also, has had a cooperative agreement with the forest industries in its region for five years.

As a preliminary to the establishment of a Cooperative in this region, an organizational meeting was held on February 26, 1976 at the School of Forestry, Michigan Tech. Thirty-nine people representing twenty commercial forest land managers and state and federal agencies attended the meeting where they heard Dr. William Pritchett outline the CRIFF's program at the University of Florida. Also presented at this meeting were outlines of current forest-soils research work by state and federal agencies which emphasized the need for more research work in this field. The next step is to bring together the interested parties to form an industrial, executive committee for CROFS. Hopefully, CROFS will be the new look in this region for future forest soils research.
THE 1976 FORESTER STAFF

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Alumni Editor: Tammy Dorow
Senior Editor: Dave Gundy
Photographers: John Ball, Tom Tauchus, Scott Sample
Production: Cathy Riely, Mike Gottschalk
Advisor: Dr. C. Richard Crowther

You've got to be kidding! — Ann

No, these aren't snow bunnies!
L. to R.: Tom Tauchus, George Teachman, Mike Gottschalk, Dick Crowther, Cathy Riely, Ann Leach, Tammy Dorow.

What do you mean more paper work? — George

The staff during one of its rare work sessions.
Careful Tom, that knife is sharper than your camera

Whatda mean say, “cheese”?

I wonder if Wall Street would invest in the Forester?

Geez, when did I take that one? — Scott

John doing what he does best — smiling

Smile, Cathy

Wow, no more layouts to do
I thank all the Forestry Club members who helped me this last year. Those who helped the most had the best time. Looking back through the year I recall the tremendous effort by the Conclave team, the hard work and long hours during Winter Carnival, the successful pulp cuts, and the rifle raffle. These events have given the Club a strong financial basis for hosting the Midwestern Foresters' Conclave this fall.

As the Forestry Department continues to grow it becomes increasingly difficult for students to know all their classmates on a personal basis. The Forestry Club provides a solution to this problem. The Club brings together foresters who like good hard work, want to work as a team, and truly love the out-of-doors. To these people I want to say, "Thank you."

Respectfully,

William Perkis, Chief Forester

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L to R. Row 1: Laura Maguire, Helen VanDyk, Barb Moss, Diane Gosler, Barb Grieve, Pat Grossman, Phyllis Dorman, Devin Chisholm, Ron Lewandowski, Steve Courchaine Row 2: Bill Smith, Tim Taggart, Pat Timonen, Jerry Densmore, Karin Buckland, Bob Mayer, Mike Ojanen, Carl Varak, Mike Hayes.

1975-76
FORESTRY CLUB OFFICERS
Chief Forester: William Perkis
Assistant Chief Forester: Bill Anderson
Secretary: Laura Maguire
Treasurer: Mark Zambo
Advisor: Dr. Roswell K. Miller

Our faithful leader

John Hesterberg, one of the Club's speakers this year

A forester's favorite time
Big Brother Day

Big Brother Day 1975 meant new skills learned by the Freshmen, two man buck, match split, tobacco spit and for the seasoned upper classmen it was a time to renew acquaintances and enjoy the natural splendor of the Otter River Camp. Roz started the day with his usual, “No unsheaved axes on the bus!” and forty of us were off to make a day of it.

Everyone tried their hand at the sawing and chopping trying to impress Roz and land a berth on the Conclave team. There was even talk of the possibility of new saws with “more cutters” for next year.

Barry, Sue, and Edie whipped up a lunch of Dogs and Beans and then thoughts turned to the egg toss. Most started out tossing but ended up wearing scrambled egg. Nobody seemed to mind much. A new tradition was born when the excess of eggs were unloaded on President Perkis, much to his surprise.

President Bill then took his dunking in the Otter River to satisfy another tradition, but it wasn’t too clear as to why Barry Lempe and Mike Ojanen had accompanied him. They must have been at the right place at the wrong time.

Trap shooting topped the day but it didn’t last too long. The freshmen girls were getting to be too much competition so the guys conveniently ran out of shells when it began to look like they were going to be shown up.

The day was termed a success by all those that participated and most went home with a feeling of closeness and friendship that seems to be the mark of Foresters and Forest Technicians here at Michigan Tech.

Reported by Bill Smith

Are you sure that you want seconds on those beans, Barry?” asks Mike.
Tradition with a capital "T".

Fifteen minutes... (Rozzzzz)

You won't get far that way, Freshman!

That's right. Do it with a smile, Pat!
Conclave is the time of year when all Foresters who want to show off their special skills get a chance to do so. This year's team was small—thirteen team members traveled to Southern Illinois University in Carbondale, Illinois, on the weekend of October 18, 1975. These included 5 from Alberta: Greg Buresh, Jim Karle, Cliff Oleszcko, Larry Steward, and Lee Perry; and 8 from the main campus: Steve Spaulding, Bill Perkis, Tim Taggart, Laura Maguire, Mike Ojanen, Danny Thomas, Doug Curry, and Mark Woltanski. Roswell Miller and Tom Kelley were the advisors who endured the long trip and pranks of the team.

After 18 hours, the group arrived at 4:00 Friday afternoon, giving them time to loosen up, “fix” the state car, and practice the events. 8:00 Saturday morning started the day’s excitement with dendrology, traverse and tobacco spit. Of the three events, only Bill Perkis placed in the tobacco spit, with a tie for second. One man bucking and match split also failed to gain points, but the bolt throw at 11:00 pulled us through the morning with 2 men placing in this. Mike Ojanen and Jim Karle took 3rd and 2nd places respectively, being knocked out of 2nd and 1st in the last round.

Following lunch, the pulp toss, chain throw and two man bucking got us nowhere, but Jim Karle took 4th place in speed chopping and Greg Buresh got a tie for 4th place in the special event which was log burling; pretty good since the weather here gave him no chance to practice beforehand.

Prizes were awarded to all who placed after dinner, and Tech received the award for traveling the farthest. There was the usual ice cream social
Have you ever seen such intense concentration?

So in May of 1959, one carload of nervous twigs traveled to Minneapolis, Minn., to compete in the various events pertaining to forestry life. The schools participating were University of Minn., University of Michigan, Michigan State University, Purdue, and Iowa State. The competition was tough and they placed fifth that year. But they had acquired the necessary experience to score five first place, two second place, and two third places in the following years.

To prepare for these various events, the foresters at Tech either go out to the Forestry Camp located at Otter River or behind the Forestry Building. These events are Dendrology, traversing, one and two man bucking, match split, bolt and pulp throw, log roll, chopping, chain throw, and last but not least, tobacco spitting.

Each year a different college hosts the event. Michigan Tech has hosted it twice already and next year it will be held here once again. In past and at 1:00 a.m. a bunch of weary Tech foresters piled into the two vehicles, leaving behind the girl from Iowa, but taking home a 5th place.

The Midwestern Foresters' Conclave was started in 1953 with five midwestern colleges attending. The purpose of this inter-collegiate activity was to provide an opportunity for forestry students from various accredited forestry schools in the midwest to get acquainted. After the Forestry Department here at Tech became accredited, MTU's Forestry Club was invited to attend.

In 1973, the 24 man and one woman team consisted not only of the Tech students, but also of students from the Ford Forestry Center at Alberta, thus making it the largest team ever to go on the road.

The Forestry students from here as well as Alberta have been practicing their skills in anticipation of making the team this year. As in all competitive sports, the competition keeps getting stronger each year. There are now eleven midwestern colleges participating, the newest additions being: Ohio State, University of Missouri, University of Illinois, Southern Illinois, and University of Wisconsin. All the member schools are trying to win the first place award; a power chain saw. The winner will also hold for one year the Black Oak trophy with the names of all the winning schools on it since this meeting of Forestry schools was started.

Bob Mayer
Laura Maguire

Gotcha!

years, one or maybe two carloads of Tech Foresters attended the conclaves, but in the last few years, the enthusiasm generated by these events increased the attendance to the point where Tech now uses one of the buses to transport its competitors.
HOMECOMING

This year's Homecoming celebrations were enjoyed by all — even those that didn’t attend the campus events. They went to their own celebrations. The rest of us joined them later that night. The club entered teams in the tug-of-war, the chug-a-lug, and a couple of others. There were, of course, several foresters in the Hobo Parade — we were in our Sunday best. I was going to tell of the prizes we won — but try as I might I cannot seem to remember. I had such a good time at the later celebrations I've forgotten what prizes they were. Ah well — there's always next year.

George Teachman
RIFLE RAFFLE

Rifle Raffle this year was every bit as successful as in years past. This year instead of having the Michigan Tech Homecoming Queen, who was engaged in her regal duties elsewhere, we had an every bit as lovely replacement do the honors of drawing the winning tickets. As you may imagine no one of the onlookers, mostly foresters, was disappointed. As is fast becoming a tradition the first place prize was a high caliber rifle, the Winchester Model 94 30-30, to be exact. The remainder of the prizes were in the same vein. Freeze dried food, sleeping bag, snowshoes, backpack, and other sundry camping goods.

George Teachman
WINTER CARNIVAL 1976

This year's Winter Carnival was dampened somewhat by a lack of communication which, in turn, hurt participation. Those who did participate will tell you of the good times. The last night at the statue will be a night to remember. With that many drunk people, these are Tech Toots remember, swinging axes and no accidents — who says foresters aren't loggers?

Needless to say, the skit was, as usual, the high point of the entire weekend. Not only was it funny, but we placed and picked up a trophy. This was the first major event that we placed in, in the last three years.

One thing remains to be done, and that is: to thank the writer, producer, and director, actress, not to mention costume maker — Nancy Panoplos.

—William Perkis

Last minute finishing touches
ICY BLASTS
FROM OUR FROZEN PAST

Score a goal Cathy — Dave

"America — Log it or Leave it"

The winning Forest Tech. statue

C'mon fellas, we want to win. — John
The foresters held their third annual fall pulp cut in November and the second annual spring pulp cut in April of this year. The pulp cut is a fund raising project to help meet some of the Club’s expenses, and to show the student how to safely use a chain saw and other tools in the woods. It also provides the opportunity for students to work with the faculty in a non-classroom environment.

The pulp cut is conducted on a 600 acre Copper Range Co. red pine plantation near Atlantic Mine that must be thinned, logging roads and fire breaks constructed.

Eighty club members took part, cutting 35-40 cords of pulpwood. The event takes place on a Saturday. Members bring their lunch; food and drink is supplied by the Club for supper. A good time was had by all. The profits will be used to host the Conclave in October.

—Bob Mayer
Spring Field Day was held May 22 this year, which was the Saturday before finals. This provided everyone with the opportunity to relax and have some fun before “studying down”. For once the weather cooperated and provided us with sunshine and warm temperatures. Quite a contrast to the snow experienced on the 1974 Spring Field Day.

Everyone got the chance to stretch his or her muscles after the long winter. There was log rolling, tobacco spitting, and plenty of sawing. The leftover Booyaw was heated up and eaten with remarks like “This tastes better now than it did in April.” All who attended had a great time and left relaxed though not looking forward to finals.

Hey, which way is this log rolling?

Look at that tobacco spit!

“I’m glad I’m on top!” — Bob
SUMMER CAMP IS . . .
An activity that forestry students are required to endure, in the face of adversity greater than the mind can fathom.
The acquisition of knowledge that will be used by the 19% of us who will get a job after graduation.
The formation of definite views on bussing.
Finding out that no matter how new the bus, it will still get at least one flat tire. (Murphy's Fourth Law)
Becoming extremely familiar with the rest of Murphy's Laws!
Realizing that the pocket knife you were required to buy is the best defense you have against mosquitoes!
Being given directions to follow the blue ribbon into a section corner when the only ribbon in 5 miles is orange.
Asking Vern a question and getting an answer.
Asking Irv the same question and getting a different answer.
Getting together with your partner and fudging the answer.
Discovering that it is very hard to pace accurately when your course takes you up a 75 ft. pile of mine tailings.
Finding out that "C'est lavie" has one meaning for Vern and another for us.
Having mosquitoes carry away your camera which contained the summer camp pictures!

SURVEYING IS . . .
Making three of the best friends (enemies) you will ever want to work with.
Finding out one of these new friends can't read an add-on tape.
Becoming so good with a transit that you find you can read the level rod at 500 yds. after all.
Realizing that a sun shot takes more than a good 30-30.
Becoming aware that the reason Ross wears steel toed boots is so he doesn't hurt his foot kicking out loose stakes.
Learning that pounding a 16" stake 8" in the ground makes it look loose. Look out Ross!
Coming to the conclusion that the buildings at Horner Flooring don't have square corners.
Discovering that your conclusions were wrong. The buildings do have square corners.
The ability to do rain dance and have it work.
Finding out that Mike Coffman has a fetish for unattended transits.

—Tom Vanderboom
XI SIGMA PI

Xi Sigma Pi

With graduation fast approaching it’s time for the senior members of Xi Sigma Pi to relinquish their positions and responsibilities to the next wave of eager forestry honor students. Now we may look back upon the past year and see what we have learned through active participation in planning and developing the societies activities.

This year there were two initiations. One in January, where we welcomed 25 new members, and one in May with twenty new members. This was the largest single year increase in membership in the history of the Alpha Eta Chapter.

A symposium on “Land Use” was sponsored by the Chapter, and was very successful, informative and beneficial to all who attended. To those who planned it and put in many hours go many thanks.

With the job market as bad as it is in forestry this year, I feel any contacts a student can make with others in the profession will build confidence, understanding and ability to act as a professional. Xi Sigma Pi Forestry Honor Society makes possible many of these contacts to the student with enough initiative to work for them.

It’s been a long, hard year for all of us in forestry, but for the graduating senior the frustrations of few available jobs has made it even worse. Those seniors with a true professional attitude and a real desire to pursue their careers in forestry will find jobs and definitely be a credit to the forestry profession. Hard work will pay off, and the only goals worth attaining are those you must work for.

Bill Roberts, Forester
Alpha Eta Chapter, Xi Sigma Pi


Row 1: Gerald Miller, Mark Buchinger, Carl Varak, Row 2: Bob Wagner, Bob Smith, Joe Anderson, Row 3: Mike Schira, Dave Myroid, Tom Hickey, Jackie Pyper, Row 4: Doug Simonsen, Karen Shillito, Chris Steinhour.
Xi Sigma Pi Symposium

Land Use—An Overview

On Friday April 30, Xi Sigma Pi, the National Honor Forestry Society, held a Symposium on Land Use in the Memorial Union Ballroom. The Symposium consisted of four speakers giving various professional opinions on land use. There was a panel discussion in the afternoon. The Symposium tried to answer two major questions; what is land use planning, and is it desirable?

The first speaker was Dr. M. Rupert Cutler, Assistant Professor of Resource Development at Michigan State University. He spoke on the State of Michigan viewpoint. Dr. Rupert said, “I am not here to make a sales pitch for one solution, but I’ll be dealing with alternate ways to protect the value and usefulness of our Michigan land resource.”

Dr. Rupert feels that it is in our own self-interest to discourage the development of certain kinds of lands which are uniquely suited for “particularly important purposes.” Some of these developments would be food and fibers or providing needed metallic ores and construction materials.

Dr. Rupert stated that if the land was already zoned on a statewide basis, then potential developers would merely locate their developments. There would be no need for environmental impact statements and things of that sort. The land would already be set aside for certain purposes.

He also added that a state land use bill would lead to an “open government.” There would be citizen input regarding the routes of proposed highways and location of new buildings and development. This would eliminate windfall gains for some and property value wipeouts for others.

Dr. Cutler believes that local communities could govern land use. They could get help from a state agency, rather than from a federal agency.

Dr. Cutler sees state land use legislation in the future. He feels that what the legislature needs are “constructive suggestions as to the kinds of programs local people would find useful to strengthen their land use planning.”

Mrs. Barbara Clark, chairwoman of the Northern Environmental Council, spoke on citizen input into planning agencies. Mrs. Clark feels that “our resources, soil, fossil fuels, water, minerals, and forests are limited—and are being passed around at an increasingly large dinner table.”

There are reasons for public controls over private land use here in the U.P. Mrs. Clark feels. Some of these are the rampant strip development along highways and that shoreline private home development gives a view of trash cans instead of beautiful scenery. Other examples are trailer courts and large forest tracts broken up into 10+ acre lots.

Mrs. Clark believes that the way to solve the problems is through citizen organizations—not federal or state agencies. The public is disillusioned with government and their bureaucracies.

She cited one citizen group in Sioux Falls, South Dakota, known as “Cencoad”, a center for community organization and area development. It is a private, non-profit corporation associated with Augustana College. Its purpose is to create a “new” rural community by horizontally linking the many smaller communities of a multi-county area into a larger scale.

She feels that such an organization is possible here in the U.P. “We have here the facilities and the abilities needed to do the educating, training, communicating, and coordinating, which would create a new, inter-related and integrated Copper Country. I think there is a challenge and an opportunity here, and with some faith in the future and in human kind and with some vision and creativity, we could invent our own future.”

Dan Napier, Government/Public Affairs Coordinator for Cleveland Cliffs Iron Company, spoke on “An Industrial Viewpoint of Land Use.” He stated that in the early 60’s land use was on a local level, then grew to a regional level and now the question is, “will it be state control?”

In the past, Mr. Napier said that land use was zoned on a township or county basis. Now the question is whether or not the policies should go to a central government. Bills in the past have been defeated because only a few people wanted central control at the time.

The people backing these bills had good intentions but “went astray” with the policies. There has to be a definite starting point with a listing of the problems and they must be “specific.” In the past this has not happened and this wasting of time by dreaming up solutions to problems that may not exist has resulted in a waste of finite resources.

Mr. Napier added, “For all practical purposes, it is accurate to say that a couple of federal agencies are very close to bringing the debate on land use, and control of that use, to an abrupt halt. They will control it...by an interlaced pattern of limited purpose-environmental planning laws, and always with a (regulations) development clause.”

As of right now, the Pollution Control Act gives the Army Corps of Engineers authority over any 5 acre or larger lake or over any stream that flows at a rate of 5 cu. ft. per second or more.

Mr. Napier concluded that “I am as every bit concerned about the environment as anyone...but I challenge the basic ability of the central
government—through any administrator, board or commission—to substitute political judgements for personal decisions. Your target area for participation is the local, regional, and state planning programs.”

The final speaker, David Stewart of the Western Upper Peninsula Planning and Development Region, spoke on local land use problems and concerns. He felt that there are seven major problems and concerns facing the U.P.

The first concern to the U.P. was the problem of agricultural lands becoming woodlots and empty fields. This is due to older farmers retiring and no one taking their place. The farmlands are either bought by other farmers for use on a part-time basis or are bought by land speculators for the development of subdivisions. He feels that the zoning for Agriculture lands is very weak and that some kind of better zoning is needed.

Mr. Stewart’s second concern is the subdivision of Forest lands. The future is a little brighter in this area due to the large holdings of corporations. Local zoning ordinances on forest land sales combined with the fact that certain forest roads are not maintained year round, also helps to alleviate this problem.

Other major problems are Industrial wasteland and mineral regions. With help from reclamation agencies of the government the future looks much better with regard to these concerns. Natural hazard areas and development of state and federal highways also need land use planning.

Mr. Stewart stated that as of the start of 1976 one-half of the western region of the U.P. has been zoned either on a township or a county-wide basis. He felt that “land use planning is helpful in that it should coordinate state organizations—instead of making them fight each other.”

The afternoon session consisted of a panel discussion involving the morning’s speakers.

In view of the small, private landowners, Barbara Clark started the discussion by categorizing land ownership. She said the small, private landowner owns the best land, private industry owns the next best, and governments agencies own the worst. She also said that the government is getting out the most timber. The private landowner, while owning the best land, produces hardly any timber. This is mainly caused by the small owners’ inability to produce forest products. Even if he could, she said, there would no market available for his products.

According to Dan Napier, forest products companies do not want to depend on the small producer for their raw material supply. There are too many questions involved. Can the small landowner be consistently depended upon? What are his future plans for his land? To compound this problem, Napier said that there is presently no shortage of fiber. Right now, industry and national forests have more fiber than they can sell. Since their taxes are lower, they can sell their material at a lower cost.

To alleviate this dilemma, a plan has been introduced which, if passed into law, would set up national standards to zone land according to its best use. If a parcel was zoned commercial forest land, it would have to be used for that purpose only.

Some feel that if such plans are enacted, there would be an influx of forest industries into the Upper Peninsula. The companies would no longer worry about commercial forest lands being sold as resorts or subdivisions. There would be a reliable timber source.

Swede Intermill said that the Upper Peninsula is “at the end of the line” as far as freight is concerned. He said outside industries would benefit the area, because they would depend on a reliable supply of high-grade hardwoods. As it stands now, these industries will not pay high freight rates for second-class hardwoods, which they can get near their mill. Also pointed out was the fact that the Upper Peninsula is expanding, and the work force is growing. Development of industries would help the economy of the area.

On the other hand, it was mentioned that this national standard plan would only create a whole new bureaucracy which would cost too much to operate. Control on a national level would also be quite infeasible.

The discussion ended by hearing views of the students participating in symposium. The symposium served its purpose well—it can be assured there are many people having serious thoughts on the pros and cons of land use policy.

-Bob Mayer
-John Pilon
THE OTTER RIVER CAMP

The Otter River Camp which was donated to Michigan Technological University by the Fisheries Division of the Michigan Department of Conservation in 1954, is located approximately 20 miles southwest of the campus. The maintenance and care as well as use is entrusted to members of the Michigan Tech Forestry Club.

The Camp is located on the scenic Otter River and is the site of various club functions. It is also used by many members of the club as a place to relax and enjoy the out-of-doors. It is a prime site for fishing and hunting.

The maintenance and care of the camp is done by the Camp Committee. The camp is continuously being worked on to keep it in good condition.

The first work day was held by the Camp Committee the day before Big Brother Day. The floors were scrubbed, dishes washed, and firewood cut and stacked for the long winter. The roof was shoveled many times during the winter to insure it would stay in place.

As spring came so did the floods, and the Camp took its beating from the Otter River. The highest waters in 20-30 years descended upon the camp. When the water receded it left its mark. The toll was one bridge and much cleaning up to be done. It was noted that a new floor would be needed in the main room of the cabin. The cable bridge would have to be redecked also.

All of this work has been started and should be completed by the fall of 1976. The camp will be in top shape for use by members at the start of the new school year. All are welcome to come out and use the camp at anytime.

-Bob Mayer
The saws are quiet now

The old A-frame bridge
The Michigan Tech student chapter of the Wildlife Society is now beginning its third year of existence. Upon receiving its charter in 1974, the members, under the direction of Dr. Norman Sloan and Dr. Fred Stormer plunged into a variety of projects.

One of the most exciting and long range projects has been the small marsh management study at the Chassel Sportsman's Club. This study was begun in 1974 and is still underway. During the past summer, society members living in the area conducted a bird census at the marsh to determine which birds, waterfowl and song birds alike are utilizing this habitat. The experience gained by this type of a project is invaluable to future wildlife managers.

The social event of the year, the second annual wild game smorgasbord, was held in April. The menu featured such delicacies as bear, venison, beaver, grouse, hare, trout and raccoon. Once again Norm displayed his skills as an expert at wild game cookery.

Two new projects were undertaken during the past year. One of these involved a raffle which we hope to make a yearly event. Such items as a down sleeping bag, back pack and frame, and freeze-dried camping foods went to the lucky ticket holders. The money earned from the raffle went to help fund other society projects such as participating in the Central Students Wildlife Conclave.

The second new endeavor of the chapter was the purchasing of books directly from the publisher and offering them for sale at rates lower than current book store prices. These books covered a variety of subjects from wildlife to plants including some field guides. This gave members and the public the opportunity to acquire some worthwhile reading material and reference books at affordable prices.

In October the society had the honor of co-sponsoring a visit by Mr. and Mrs. Frederick Hammerstrom to the Tech campus. The Hammerstroms are noted for their work with raptors and prairie chickens. They presented two extremely interesting lectures on these subjects.

The Wildlife Society is a professional organization. Our student chapter is working to promote this professional spirit while increasing our knowledge in the field of wildlife through social cooperation.
The man who cooks those wonderful dishes for the Smorg.

"Watch out for your thumb, Gary"

Chief Norm and his assistant cooks.

Our leader and president, Randy Grunigen
VARSITY ATHLETES

Once again the Forestry Department recognizes the many Varsity Athletes who are also majoring in Forestry at Tech. This year was the first that women participated in Varsity Athletics, and our women did extremely well. Many of these young athletes have received honors in their sports for their outstanding performances. The Department congratulates each of these young men and women on their accomplishments athletically and scholastically.

Ken McLellan

Dave Nelson

Wendy Wagner

Ellen David

Val Brunell

Steve Bartazewski

Steve Huffman

Steve Anderson

Kendall Banks

Lee Jones

Bob Kuszmaul

Warren Mandrell

Rich Ahler

Steve Betleski

Gary Oullette
ATHLETES LOST IN THE WOODS

Mike Beisel
Steve Bett
Kim Davidson
Dave Hensel
Don Holcroft
Mark Stelle
Mark Woltanski
The Forestry Club put in another active year in intramural sports. Teams were fielded in bowling, basketball, volleyball, horseshoes, and ice hockey. Although our athletic ability wasn't up to professional standards, all the participants had a lot of fun playing and just plain "goofing off."

What are you reaching for Bill, the sky?

Up, up and away with that ball John!

Hey team, where did the ball go? — Mike Underwood
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At the dedication of the Tilden Mine, August 12, 1975, the President of Michigan Tech had some things to say that we thought were important and needed saying. On this occasion, we'd like to share with you an excerpt from Dr. Raymond L. Smith's address:

I would urge everyone who wishes to celebrate our bicentennial to read the Federalist. It would bring you back to the reality of the Revolution and our Constitution. It would reawaken in you the realization that good government is limited government—that only through our efforts on a local level can we truly govern ourselves without excessive Federal bureaucracy and interference with our lives.

Since the beginning days of our Constitution, thoughtful people have recognized that ours is a most difficult, perhaps impossible, government to sustain over a long period of time. Perhaps 200 years is the limit. Certainly ominous signs are present—a flood-swollen central government that now funnels about a third of the nation's wealth through its own omniscience; a population demanding that government not free it but to coddle and control it even more; political leaders who have long forgotten the real difference between Republicanism and Democracy as our Founding Fathers defined the terms; and, entrenched bureaucrats who fail to understand that the greatest social program is the development of self-reliance through a hard day's work.

You have our best wishes for the future—which you will help shape.

The Cleveland-Cliffs Iron Company
America's first industry: now more important than ever.

Over the years, industries have come and gone. But the first industry in America—the first enterprise that produced finished products from raw materials—is still vital and dynamic. In fact, it's more important today than ever before.

When early English settlers landed at Jamestown, Virginia, they were awed by the immensity of the forest. But the leader of the group, Captain John Smith, quickly recognized its commercial possibilities. He conveyed his ideas to London, and several months later Dutch and Polish millwrights arrived in the New World. Under the direction of Captain Smith, they constructed a sawmill near Jamestown, and America's first industry was born. The year was 1607.

The Value of Lumber

Soon, America's vast virgin forest was supplying products for many industries. The forest also provided building materials for homes, shops, and churches.

Because of the heavy demands on the forests and inaccessibility of the enormous wood supply in the interior, the early colonists actually worried about a wood shortage. As early as 1798, newspapers and magazines were urging conservation measures to preserve and improve the forest. It's interesting that the methods advocated at that time are common in modern silviculture (forest management). Editorials urged the thinning of diseased and stunted trees. The harvesting of old trees to promote growth of younger, faster-growing trees. And the thoughtful regulation of fires which settlers often used to clear land for crops.

But conservation was difficult because wood was vital for the colonists. They used it to build buggies, buildings, ships, butter churns, walkways, furniture—almost everything.

The colonists and early Americans found other interesting uses for trees. A famous colonial charter was hidden in the base of a tree to keep it from the British. On a tree in northeastern Tennessee, these words were carved: "D. Boon called A BAR On Tree in THE YEaR 1760." "D. Boon" was, of course, Daniel Boone. George Washington assumed command of the ragtag colonial army beneath another famous tree, the "Washington Elm," in Cambridge, Massachusetts.

The Future of the Forest

These are just a few examples of the role played by the forest in early America. It was important then. It's important now. And it will be even more important in years to come. Because wood is a renewable resource. And, while other natural resources are dwindling, the forest can go on forever.

Georgia-Pacific is helping protect this natural resource by managing its forests scientifically. In addition, the Company is planting millions of trees each year. And, each year, more of the newly planted trees are "supertrees" which are bred from superior stock. The "supertrees" grow faster, are healthier, and have more usable wood fiber than ordinary trees.

However, a wood shortage in the U.S. is possible in the near future because vast tracts of forestland, most of it government-owned, are not being managed to best advantage. That is why it is so important that G-P, as a private timberland owner, is heeding the words of the conservationists of 1798. Because, as much as Americans relied on the forest products industry in the past, they'll rely on it even more in the years to come.

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Crystal Falls
REMEMBER WHEN . . .

Students used slide rules
Dendro was taught in room 141
General forestry was taught in the Forestry Building
The Dee was used for hockey
The Forestry class could fit in the Forestry Building
There was more grass than concrete on campus
There were ten guys for every girl
Tony O. only let in 39 goals
Amo Besone was the hockey coach
The toots were drunk
Wads was all guys
Summer camp was held at Alberta
Quincy was working
Lake Superior was cold
The Edmund Fitzgerald sank
There were more engineers than Foresters
There wasn't a wind tunnel
We were still in the old Forestry Building

Created by William Livingston and George Teachman

SOME THINGS NEVER CHANGE

Football is still played at Hubbell Field
Huskies are still No. 1
Toots are still drunk
Finns are still here
Still snows alot
The annual snowball fight
Lake Superior is still cold
The Hoton lift bridge
Summer camp
It's still a long way to Hoton
Hammer
Vern
Ross
Black Bob
Michigan Tech is still the Biggest thing in Hoton
Freshman
Summer camp fudge factors
Keweenaw Eagles (mosquitos)
REMEMBER
THE BROCHURE THAT SAID . . .

. . . Michigan Tech’s location is in one of the
nation’s most productive forest areas that offers
numerous advantages to the forestry student.

Michigan Tech is the biggest thing in Houghton.

The Otter River Camp, a spacious lodge on
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In all probability, your first job is going to find you
on the Michigan Tech campus before you receive
your degree.

QUIZ

1) What does it cost to replace a transit that you
pushed off the tripod?
   a) a year’s tuition.
   b) your life.
   c) your forestry career.
   d) your partner’s life.
   e) your summer camp grade.

2) What is a stereoscope?
   a) a physician’s instrument.
   b) glasses thru which you watch TV in stereo.
   c) something used in aerial photo.
   d) a microscope with two eyepieces.

3) What do I do with a 4”-by-4 with armour”?
   a) Build a termite resistant house.
   b) drive thru the woods knocking down trees.
   c) knock down ice statues with it.
   d) Fight fires with it.
   e) Anything I damn well please.

4) What is Smokey the Bear’s middle name?
   a) put-out-the-fire.
   b) found-on-the-tree.
   c) only-you-can-prevent-forest-fires.
   d) the.