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FOREWORD

The Forester staff has decided to break with a recent trend and use the business side of forestry for our theme of this year's book. More specifically, we chose the Connor Company as the topic of our feature articles. This company has been a long supporter of research at Tech and they also practice a good blend of multiple use forestry for a private forestry concern. I invite everyone to read the article on the Connor Company and I would like to express my thanks to Mr. and Mrs. Connor for their help and hospitality during our visit.

I would also like to thank my friends who took the time to help out by making written contributions to this book and I also wish to express my gratitude to the Forester staff for their help. A very special thanks goes to Dr. Crowther whose confidence in a novice editor made this book a reality. Now, for those of us who are leaving Tech and everyone who has fond memories of the 1976-77 school year, I offer this book in the hope that we have captured the essence of those pleasant memories.

- Russ Dotzauer, Editor
SPECIAL SALUTE

This is a special salute to a member in longstanding of the Forestry Department, Professor Vernon W. Johnson. Professor Johnson retired from his position after 38 years with the Forestry Department at the close of the 1976-77 school year, ending a long career dedicated to the advancement of forestry skills. Known to his colleagues and students alike as Vern, this man's ability to convey his knowledge and willingness to provide further assistance to struggling forestry students has been an earmark of his career. Since his appointment to the forestry faculty, hundreds of students have had the benefit of this man's tutelage. His retirement will leave a hole in the department that will be difficult to fill. I know I am not alone when I say thanks for all the years you have spent as a teacher and I sincerely hope your retirement is all you want it to be.

- Russ Dotzauer
DEPARTMENT
OF
FORESTRY
SALUTE

The Forester’s Salute goes this year to a man-on-the-go, a genuinely worldly if not earthy person of jaunty mien and myriad accomplishments—Dr. Martin F. Jurgensen, professor of soils in the Forestry Department at Michigan Tech.

Marty, as he is known to faculty and students alike, has been a member of the forestry faculty since 1969. During this time he has built the Forest Soils Option into one of the Department’s most active subject areas, and one of its most popular for graduate study. Success of its graduates in obtaining employment as soil science professionals attests to the quality of the educational background provided by Dr. Jurgensen.

In addition to his effective teaching, Dr. Jurgensen is engaged in a variety of sponsored research projects relating to soils and, in particular, microbiology. His research projects include the conversion of pulp mill wastes into energy and protein sources, and the effects of intensive forest utilization on forest microbial ecology.

The latter of these studies involves field work in the national forests of Montana, necessitating Dr. Jurgensen’s absence from the Tech campus much of the spring, summer and fall during recent years. Although he is missed during these absences, we realize that Houghton’s loss has been Hungry Horse, Montana’s gain, and it can safely be assumed that times are livelier at Hungry Horse when Marty is engaging in his biological pursuits.

Dr. Jurgensen came to Michigan Tech by way of New York, North Carolina and Texas. A native of Syracuse, N.Y., he attended New York State College of Environmental Science and Forestry at Syracuse University, majoring in forestry. While a student, he distinguished himself by being elected president of the university’s Student Council.

While at Syracuse, Marty and Sonya Lee were married. Their wedding took place at Syracuse in 1961.

After Marty completed his work at Syracuse, he enrolled at North Carolina State University. Majoring in soils, he engaged in doctoral studies and received his Ph.D. degree in 1967.

While in college, Marty also enlisted in the Air Force Reserve, and following his graduation he reported for active duty at Randolph Air Force Base, San Antonio, Texas. He remained on active duty until 1969, when he returned to civilian life and came to Michigan Tech.

Marty and his family arrived in Houghton soon after his release from Air Force duty. The couple have three lively children, Eric, 14, Laura, 12, and Garth, 7. Eric and Laura are avid cross country skiers and have won many awards in this sport. Their father also participates enthusiastically in ski races and provides ardent support and coaching for his youngsters.

Sonya is an accomplished stenographer and is employed as a secretary in the University Technical Services office at MTU.
Marty is a man of many interests and activities, in addition to his teaching and research. Along with skiing, he participates in pistol shooting and advises the Michigan Tech pistol team. He also has been active in Little League baseball leadership, and enjoys hunting and fishing.

During the past year, Dr. Jurgensen took the lead in organizing a student chapter of the Soil Conservation Society of America at Michigan Tech. He serves as advisor to this group, which received its charter last winter. Marty also has served as faculty advisor to the Michigan Tech Forestry Club. He is a member of the Society of American Foresters, and of the Sigma Xi Honor Society.

He has continued his military reserve service, and a few years ago changed from Air Force to Army. He currently holds the rank of captain in the Army Reserve, and participates in two weeks of active duty each year.

Adding spark to this array of talents, interests and activities is an engaging personality, wit and vigor which add much to Dr. Jurgensen's contribution to the Department of Forestry at Michigan Tech.

For these attributes and services, the Forester cheerily awards its '77 Salute to a valued friend and mentor, Dr. Martin F. Jurgensen.
REPORT FROM THE DEAN

"The Past Is Only Prologue To The Future"
by Dr. Eric A. Bourdo, Jr.

For a number of years I have used this space to discuss growth and change in The School of Forestry and Wood Products. A time comes, however, to sit back and review the past. In December of 1976 I had the opportunity to do that for the University’s Board of Control. The following summary is essentially what I told them.

Forestry at Michigan Tech began in 1936 at the prompting of Upper Peninsula and northern Wisconsin forest industries. They wanted an industry oriented program here, an orientation that has been maintained to this day.

Again at the behest of forest industry, the Michigan Legislature, in 1947, established the Institute of Wood Research. Senate Enrolled Act No. 117 authorized Michigan Tech to conduct research “in the industrial utilization and marketing of Michigan wood products in order to develop industry and further employment in the forest areas of the state of Michigan.”

In 1955, the Ford Motor Company Fund donated the company sawmilling town of Alberta and 1,703 adjacent forest acres to Michigan Tech for the establishment of the Ford Forestry Center. This was one of the first actions of the fund after it acquired the forest related assets of the Ford Motor Company. Mr. Allan Merrill dedicated the Center for research, education, and demonstration in forestry. The Center’s research forest has since been expanded to over 4,000 acres.

After a long struggle which culminated in 1955 in accreditation by the Society of American Foresters, the Department of Forestry lost that accreditation in 1962 because of its sub-standard quarters in the once condemned Hubbell school. One of Dr. Ray Smith’s first acts as incoming president was to initiate planning which resulted in 1967 in the erection of the present $2.4 million Forestry-Institute of Wood Research complex. The new facilities contributed to 5-year re-accreditation in 1968, which was renewed for 10 years in 1973.

Reorganization of the University into colleges and schools in 1968 saw the combining of the Department of Forestry, the Institute of Wood Research and the Ford Forestry Center into the School of Forestry and Wood Products under the general administration of a dean. This combination, perhaps more than anything else, has precipitated the development at Michigan Tech of one of the finest and largest forestry education and research centers in the country.

Since 1968, enrollment in the Department of Forestry has increased almost three-fold to 722 in 1976, making it one of the largest departments at Tech. Enrollment of women has increased from virtually none to 25 percent of this fall’s freshmen class. Educational opportunities have been diversified so that 17 options are available. Last fall a new Wood and Fiber Utilization program was introduced, it already has 33 students enrolled. To accommodate changes in land subdivision requirements, a surveying option was developed in cooperation with the State Board of Registration for Land Surveyors. It has been elected by 60 students.Initial placement of forestry graduates exceeds 80 percent. Few other forestry departments elsewhere do as well.

Since 1968, faculty have grown from 8 to 20 and support staff from one to five. Faculty research has grown from virtually nothing to a level approaching $150,000 annually. The MICTEC* pulping process, which has great potential for the nation and Michigan Tech, is the most visible evidence of that research.

After important initial successes, the Institute of Wood Research became moribund. In 1972, however, a dramatic turn-around was generated by re-emphasis on research centered on composite wood products. The Advisory Committee, required by law, was re-vamped and expanded to enhance expertise and accommodate changing research orientation.

With the engagement of a new director in 1974, this effort was increased. The “Continuous Press” for manufacturing structural particle board and the PALLETECH process are two major developments, in the tradition of the much earlier, patented, royalty-producing “Manitowoc Debarker.” The first industrial licensee has been obtained for the PALLETECH process.

Research on composite utility poles and crossarms, and in the near future, on crossties and highway guard rails, are exciting new areas of effort. The professional staff now numbers 11, including two Civil
Engineering faculty working on special projects. Six people constitute the support staff.

The Ford Forestry Center has grown substantially, both buildingwise and programwise. Over 37,000 square feet of floor space, mostly in laboratories, dormitories, classrooms, and shops, has been added to the buildings at Alberta received from the Ford Fund, the townsite has been more than doubled in area, and the electrical, water, and sewage systems have been modernized. A new 60-man dormitory currently is waiting approval by the Board.

Research is diversified. Over 80 timber stand treatments on the forest, and many more off, provide a "library" of silvicultural cutting. Research in logging and sawmilling provide a data base for more efficient utilization in the forest industry. Assembly of an unequalled data base on northern soil-site relationships is being explored by the Soil Conservation Service for cooperative development of soil surveys with a forest orientation.

Contract research supported by industry and public agencies involves revegetation of metallic and non-metallic mine-mill wastes, abatement of pollution effects on vegetation, forest inventory analysis and interpretation of C.F.I. (Continuous Forest Inventory) data, forest fertilization, and regeneration techniques. Basic research includes such things as vernalization (when and why do trees grow) and the effect of acid snow. An industry-agency organization bearing the acronym, CROFS (Cooperative Research on Forest Soils) has just been organized involving 13 timber and mining companies and 9 public agencies and universities.

The Department of Applied Technology teaches its forest technician and diesel mechanic programs at the Center. Over 100 students currently are enrolled, including 10 women.

Special programs, public demonstrations, and short courses are held at the Center. Three short courses are being offered for the coming spring. Professional staff at the Center totals 10; support staff totals 9; plus 8 other personnel.

However, to the administration, faculties, and staff of the School of Forestry and Wood Products what has been summarized above is largely past; and to them the past is only prologue to the opportunities that the future surely holds for forestry and wood products at Michigan Tech in the developing northern forests.

The School of Forestry can take pride in David (Mac) Frimodig, '50, who was a recipient of Michigan's Distinguished Public Employees Award. Governor William Milliken presented the award in November, 1975.

Mac currently holds the position of Information Officer with the Michigan Department of Natural Resources, Region III headquarters, Marquette. He has been employed by the DNR since his graduation from Tech, serving as a park ranger at Porcupine Mountains State Park, as manager of Fort Wilkins State Park and as Regional Naturalist before assuming his present position.

Governor Milliken lauded Mr. Frimodig as best exemplifying the human side of a public employee. "He has exhibited superior performance, innovation and dedication," the Governor added. "He is one of those persons whose convictions lead him beyond the personal satisfaction of simply doing a good job," he added.

Among Mac's major accomplishments are guiding the reconstruction of Fort Wilkins and development of an outstanding historical interpretive program at the Fort. These successes led to his appointment to the position of Regional Naturalist in 1963. He assumed his present position in 1974.

An interesting speaker and humorist, Mac frequently is called upon to serve as an after-dinner speaker and in similar capacities on special occasions.
"Things are tough all over," the oldtimer said, "but we're still gittin' along and I 'spect we always will." These were the sentiments of many foresters four decades ago, when economic depression ripped through the land. And people just took it for granted that the "goin' would be tough." What few of us (at the time) realized, however, is that we were being seasoned by the greatest teacher of them all - ADVERSITY.

Facing up to adversity is an essential element of the maturing process of a lot of young people. It is when things go wrong and adverse times develop that we really respond to the evolution of the first stages of leadership. It isn't until we are faced with major problems that we really begin to fully assemble our resources and put forth a well organized effort to face up to matters. It's when the "chips are down" so to speak, that we really function most effectively.

You've all read stories about people accomplishing virtually impossible tasks of physical strength. These circumstances arise when the individual is pitted against unusual odds. Physical strength to accomplish the "impossible" is said to result from a person's sudden increase in adrenalin output which results in remarkable physical accomplishments. The human body just "puts it all together" and unusual physical strength results.

In everyone's life, there are times when adverse conditions arise and it is the mark of true leadership when a person is able to function effectively during such periods. There's an old statement - "When the going gets tough, the tough get going." And this neatly describes the conditions I have in mind.

For many young foresters now graduating from the University, this is the proper attitude to develop. Under present economic and employment conditions, the new graduate is faced with depressing circumstances. One must assume a position of aggressive leadership in his effort to locate a position. But the jobs are there - it just takes a lot of courage, initiative and perseverance to locate them. There is need at this time to take on an attitude of objective assurance...think positive! "I have a fine forestry education and I know Tech's a top-flight school. The program I just finished is a tough one; given the opportunity, I can handle most jobs. I AM going to locate a good job. I know it'll take time and lots of effort. But there are a few excellent jobs in forestry and I know I am going to land one of them." That's what it takes. Development of a pure, gutty, objective attitude that you ARE going to succeed. And for the new graduate, I think this is absolutely essential.

As I mirror back over the past four decades or so, I think on my own forestry job seeking in the 1940's before the War. Nobody ever advertised for foresters in those days. There weren't any placement offices in our schools. You just lit out with a plan to get a job and made a lot of contacts with industry, public service, the Feds...and landed your job somewhere along the path. You didn't have to be a genius then; you don't have to be one in 1977. Just use these words of the poet Henry W. Austin -

"Genius, that power which dazzles mortals eyes, is oft but perseverance in disguise."
Dr. Norman F. Sloan
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. Bernard C.H. Sun
Associate Professor
B.S. Taiwan University
M.S. University of British Columbia
Ph.D. University of British Columbia

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

Dr. Fred A. Stormer
Assistant Professor
B.S. Penn State University
M.S. Penn State University
Ph.D. Purdue University
Dr. Michael S. Coffman  
*Associate Professor*  
B.S. Northern Arizona University  
M.S. Northern Arizona University  
Ph.D. University of Idaho

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

Charles E.H. Hein  
*Assistant Professor*  
B.S. Michigan Technological Univ.  
M.S. Michigan Technological Univ.

Dr. Yuan-Zong Lai  
*Assistant Professor*  
B.S. Taiwan University  
M.S. Washington Univ.  
Ph.D. Washington Univ.

Dr. Douglas J. Frederick  
*Assistant Professor*  
A.A.S. Paul Smith's College  
B.S. West Virginia University  
M.S. West Virginia University  
Ph.D. University of Idaho
Donald Schwandt  
*Instructor*  
B.S. Michigan Technological Univ.  
M.S. Michigan Technological Univ.

James Armstrong  
*Instructor*  
B.S.  
M.S.

Glenn Mroz  
*Teaching Assistant*

Irvin Ziemer  
*Teaching Assistant*

Dennis Baril  
*Forestry Aide*

William Hensel  
*Teaching Assistant*
IWR STAFF

Anders Lund
Director IWR

Darrell Nicholas
Senior Wood Scientist

Bruce Haataja
Wood Scientist

James Hamilton
Senior Wood Scientist

Roy Adams
Wood Fiber Scientist
ALBERTA STAFF

Dr. Stephen G. Shetron
Professor

James Johnson
Assistant Professor

Bernard Carr
Associate Professor

James Meteer
Professor

William Bertie
Assistant Professor
NEWS OF THE DEPARTMENT

Developments have continued at a rapid pace the past year in the Forestry Department. Additions to the faculty include Dr. Robert F. Ginn, who joined the faculty in June, 1976, as assistant professor, and James P. Armstrong, instructor, who arrived at MTU in August, 1976. Both are teaching in the Wood and Fiber Utilization program. Also helping in this program is David E. Andersen, research aide, who joined the staff last fall.

Donald L. Schwandt took a teaching position as instructor last September. His responsibilities include the instruction of forest measurements and forest biometrics.

Craig Bremmon is a new research associate engaged in a chemistry project under Dr. Martin Jurgensen's direction.

The Department also has benefitted from the appointment of three teaching assistants who were added to the staff during the spring of 1977. They are William A. Hensel, Glenn D. Mroz and Irvin R. Ziemer. Their services will include assistance in laboratory work, in the field and indoors, in areas such as dendrology, silviculture, soils, measurements and surveying. They also will assist with the summer school program.

With these additions, the teaching and research faculty and staff of the Department now totals 21 persons on a full-time basis; several additional personnel affiliated with the Ford Forestry Center, Institute of Wood Research and Forestry Technician program also provide services in teaching or guidance of student research. Two or three more appointments of full-time teaching faculty are anticipated in the coming year.

On the other hand, the Department feels a major loss with the retirement of Prof. Vernon W. Johnson, effective in June, 1977. Vern's service dates back almost to the beginning of forestry education at Michigan Tech, as he joined the faculty in 1939, only three years after the Department was established. He has had a pervasive impact on the development of forestry education at Michigan Tech, and the influence of his teaching and counseling in the Department will be felt for years to come. We wish him the best in a long and pleasant retirement, and know that the golf courses and ski slopes will be the busier for his absence from the classroom.

Enrollment increased slightly the past year, as 722 students enrolled in the Forestry and Wood Fiber Utilization curricula.

A new Option in Industrial Forestry has been approved by the University and will be implemented this fall. Worked out in consultation with industrial forestry representatives, it will provide specialized education in subjects considered important for foresters who are preparing to enter this field of employment.

The faculty has been busier than ever with research and consulting projects, in addition to heavy teaching loads. Dr. Martin Jurgensen has continued his soils research for the U.S. Forest Service in Montana much of the spring and fall.

Four members of the Department presented papers at the Michigan Academy of Science last March. They are Dr. Michael Coffman, Dr. Douglas Frederick, Dr. Jurgensen and Donald Schwandt. Dr. Frederick chaired the Forestry Section of the Academy meeting.

Dr. Coffman is consulting with U.S. Forest Service personnel in Missouri and visited Forest Service installations in Mississippi and Louisiana last spring, to study intensive forest management practices.

Dr. Frederick delivered a paper, co-authored by Dr. Coffman, at a Society of American Foresters meeting in Jackson, Mississippi, last fall.

Dr. Norman Sloan and Dr. Frederick attended a meeting on research in the national parks, held in New Orleans, Louisiana, last November.

Dr. Roswell Miller is a member of a Society of American Forester task force to revise the Forestry Handbook. His responsibilities include revision of material on forest engineering and forest utilization. Dr. Miller also is collaborating with the National Park Service in revision of the fire management plan for Isle Royale National Park. He has been elected secretary of the Fire Working Group of the S.A.F.

A Forest Service publication on mechanized thinning of pole stands was co-authored by Prof. H.M. Steinhilb.

Among the activities of Dr. Fred Stormer were participation in two wildlife research meetings at Higgins Lake and two at Dearborn. He chaired a session of the Midwest Fish and Wildlife Conference and co-authored four research papers which were presented at these meetings.

Dr. Bernard C. Sun was co-author of a paper on energy dissipation in paper tearing which appeared in TAPPI, journal of the Technical Association of the Pulp and Paper Industry.

These are only some of the highlights of a busy schedule of contributions to science and professional forestry in which members of the faculty of forestry participated during the past year.
SENIOR CLASS
OF
1977

JAMES AKKER
Houghton, Michigan

MARK A. ANDERSON
Harper Woods, Michigan

KEVIN BATTERBEE
Davison, Michigan

STEPHEN C. BAUMAN
Hamilton, Michigan

MARK R. BUCHINGER
Reese, Michigan

MICHAEL BUSCH
Ocean Gate, New Jersey
JOHN C. CABANISS
Hancock, Michigan

JOHN S. CHAMBERLIN
Madison Heights, Michigan

DAVID E. COLE
Howell, Michigan

PATRICK K. COOLEY
Houghton, Michigan

LAURA J. CURRY
Houghton, Michigan

KIM E. DAVIDSON
Montague, Michigan

DARRYL DEDENE
St. Clair Shores, Michigan
JOSEPH DENIG
Brielle, New Jersey

RUSSELL DOTZAUER
Cincinnati, Ohio

EDWIN F. EISWERTH
Bradfordwoods, Pennsylvania

ROBERT A. EVANS
Manistique, Michigan

KENNETH W. FARRISH
Detroit, Michigan

THOMAS M. FISHER
Elmhurst, Illinois

DONALD A. FYHR
Gladstone, Michigan
WILLIAM C. GASSMAN
Traverse City, Michigan

THOMAS D. HICKEY
South Wales, New York

DAVID GARNER
Northbrook, Illinois

DAVID GOODREAU
Houghton, Michigan

DAVID J. HENSEL
Wausau, Wisconsin

DANIEL D. HIIPAKKA
Ironwood, Michigan

JOHN HIRSCHFELD
Flushing, New York
JOHN HOLMES  
Iron River, Michigan

JAMES HOXIE  
Traverse City, Michigan

OTTO S. JACOB  
Crystal Falls, Michigan

JAMES KAMARAINEN  
Gladstone, Michigan

DENIS P. KOEHM  
Houghton Michigan

DAVID KOELTZOW  
Saginaw, Michigan

KENNETH J. KRESZYN  
Trenton, Michigan

HENRY E. KULCHIK  
Northport, Michigan

ROBERT P. KUSZMAUL  
East Detroit, Michigan
KIM H. LAMB
Houghton, Michigan

DONALD J. MANKEE
Ishpeming, Michigan

JACK M. LANDON
Howell, Michigan

GORDON A. MACLEAN
Royal Oak, Michigan

GEORGE A. MICHAELS
Keweenaw Bay, Michigan

JEFFREY H. MIKAELIAN
Birmingham, Michigan
FRANK W. ROBERTS
Flint, Michigan

DAVID W. ROBINSON
Medway, Maine

DONALD H. SANDT
Easton, Pennsylvania

THOMAS E. SCHMIERMUND
Garfield Heights, Michigan

PATRICK R. SHERIDAN
Hancock, Michigan

JOHN S. SHERMAN
Lake Hopatcong, New Jersey

BRADFORD G. SLATER
Cadillac, Michigan
ROBERT LEE SMITH
Houghton, Michigan

JOHN D. SOLLINGER
Garden City, Michigan

JONATHAN D. SNYDER
Houghton, Michigan

CHRISTOPHER STINEHOUR
Belleville, Michigan

TIMOTHY F. STREETER
Vassar, Michigan

CHARLES SWAN
Battle Creek, Michigan
RICHARD THORBJORNSEN  
Houghton, Michigan

WILLIAM H. TORBET  
Mason, Michigan

JOHN N. UNDERWOOD  
Traverse City, Michigan

CARL R. VARAK  
Villa Park, Illinois

JAMES L. VANDERPLOEG  
Zeeland, Michigan

HELENA S. VAN DYK  
Grand Rapids, Michigan
FRED H. VONHINKEN  
Roscommon, Michigan

ROBERT J. WAGNER  
Flemington, New Jersey

JAMES M. WETHY  
Kalkaska, Michigan

THOMAS W. WIMBLE  
Warren, Michigan

RUTH F. WOODS  
Williamsburg, Michigan
THE FOREST TECHNICIANS OF 1977

Sophomore class, Forest Technicians; L. to R.: Randy Klevickas, Chris Okhuysen, Tim Miller, Chris Schau, Bill Cook, Steve Schlenvogt. Second row: John Ignaczak, Dave Strantz, Mel Miller, John Maciok, Leo Schernick, Keith Ohnmeiss, Steve Miller. Third row: Jim Karle, Mike Cecile, Roger Skyfca, Cliff Oleszko, Greg Buresh.

Recipients of the Dean's Award for 1975-76 were Christopher R. Eder and John M. Helge.

Chris Eder attained an outstanding scholastic record at Michigan Tech, graduated with a 3.58 grade point average. He was active in the formation of the Michigan Tech Chapter of the Wildlife Society, and was elected president of this group. Under his leadership, the society carried on many activities relating to wildlife. Chris also was a member of the Michigan Tech Flying Club.

John Helge was very active in student affairs, serving as president of Blue Key Honor Society, Cadet Commander of the ROTC unit, Vice President of the Varsity Club, an all-conference tackle in football, and recipient of the Clair M. Donovan Award for outstanding service outside of the classroom. He also was president of Kappa Delta Psi Fraternity, and was named Distinguished Military Graduate for 1976. While a student, he was instrumental in establishment of the Husky Booster Club in Houghton. John maintained a 3.00 scholastic average during his undergraduate years at Tech.

DEAN'S AWARD
FOR 1975-76

John Helge
Chris Eder

The Forester congratulates these outstanding students for their accomplishments as forestry students and campus leaders at Michigan Tech.
Connor Forest Industries
Leaders in Management and Utilization of Forest Resources

Modern sawmill at Laona, Wisconsin, is one of four sawmills operated by Connor Forest Industries.

Integration, conservation and efficiency -- these are the bywords that guide the operations at Connor Forest Industries. One of the largest industrial forestry and forest products manufacturing companies in the Midwest, and among the largest hardwood producers in the nation, Connor Forest Industries engages in all phases of the forest products business from growing timber to manufacture and sale of the finished product.

Connor's forest holdings include nearly 200,000 acres in the Upper Peninsula of Michigan and 65,000 acres in northeastern Wisconsin. The company, headquartered in Wausau, Wis., has sawmills at Marquette and Champion, Michigan, and at Laona and Butternut, Wis. Other plants include two at Wausau, a cabinet factory and a plant for making items such as wooden puzzles and toys. At Laona, Wis., the company operates a large plant for the manufacture of flooring, dimension stock, children's furniture, counter tops, wood flour and other products. A planing mill is located at Wakefield, Michigan.

The company formerly operated a sawmill at Wakefield, but this mill was destroyed by fire in 1976. The company now is considering rebuilding a sawmill
at Ewen or another location in that area.

These varied lands and facilities enable Connor to produce and process the company's products literally from the ground up. A pioneer in selective logging in northern hardwood forests, Connor has practiced sound forestry on its lands since the 1930's. Some of the company's holdings in Forest and Vilas Counties, Wisconsin, represent hardwood forest tracts which were among the first to receive scientific forest management in the mid-continent region. The firm's lands in Michigan have been acquired since the end of World War II and have been logged selectively since being placed under the management of the company's forestry staff.

Robert Kolbe, located at Laona, is the chief forester of Connor's staff of foresters. Ed Aho of Wakefield is in charge of the firm's lands in the Upper Peninsula. Eight or more additional professional foresters complete the forestry personnel.

Forest fertilization is an area of intensive forest management which currently is receiving much attention from the company's foresters. Gordon R. Connor, company president, has been in the forefront as a sponsor of studies to explore and utilize the effectiveness of fertilizing trees to achieve increased growth.

Through Mr. Connor's interest and support, a research program to test the effectiveness of forest fertilizers now is underway at Michigan Tech's Ford Forestry Center. Results of these studies are highly promising, and the company has begun large scale application of fertilizers on its hardwood timberlands.

Measuring a sugar maple in one of many permanent sample plots maintained to assist in securing inventory data on Connor forest lands.

Businesses are operated by Connor at Loona, Wisconsin. Camp Five Farm, a major tourist attraction operated by Connor, is nearby.
A real challenge, loading and transporting huge sleigh loads of logs in an earlier logging era, using primitive equipment, is well illustrated here. This Connor operation was under way in 1910.

Currently, fertilizer is being applied to selected trees on 10,000 acres of Connor land each year. Fertilizer is applied to as many as 60 trees per acre. Trees selected for treatment are those that are scheduled for harvest in eight years. During this final growth period, tests have shown, diameter growth of the trees may be increased by at least 10 to 20 percent. Further refinements may boost this growth rate even more.

Company personnel carry out about half of the logging operations which provide wood for Connor's manufacturing operations. The remainder is logged by private jobbers. Most of the timber used in the firm's mills and factories is grown on Connor lands, but a small percentage comes from public forests or other private lands.

Through integrated processing, maximum utilization and value is obtained from each tree harvested. High quality hardwoods are cut into bolts, kiln-dried and then sawn into flooring or parts for furniture and other finished products. Other material becomes dimension stock for the lumber market. Residues go into wood flour or are utilized as fuel. Efficient processing, handling and transportation contribute to a high degree of productivity in all stages of operations.

Although stressing progress and the most modern techniques in all operations, Connor has not forgotten its ties with the past. Bygone days of lumbering, old-time logging camps, logging railroads and the way of life in the north country during the horse-
and-buggy days are recalled at a company-built museum and ecology complex. These attractions are located at Laona, Wis. at Camp Five Farm reached by the Lumberjack Special.

The museum exhibits logging equipment used in earlier periods. The complex features a blacksmith shop and an old-time general store. Visitors may ride on a steam train reminiscent of the 55 miles of railroad formerly operated by Connor, and they may enjoy a boat tour, ecology walk or a guided tour of the Green Treasure Forest. These developments have made Laona one of the most popular places for vacationers in northern Wisconsin. Each year as many as 30,000 visitors enjoy these nostalgic attractions.

This development, providing an opportunity for a glimpse into the past and a center for environmental education, is the special interest of Mrs. Gordon R. Connor. A main force behind its creation, she is constantly seeking ways in which the facilities may be augmented and improved.

Modernization and improvements in Connor's forestry practices and industrial activities also continue as the firm's management constantly strives to improve the level of resource conservation, integration and efficiency of operations.

This zeal for improvement is evidenced by Gordon Connor's current interest in further improving the company's tree fertilization program through control of competing vegetation. Should experience in the fertilization of other types of crops prove applicable to forests, Mr. Connor is hopeful that another major advance in the productivity of his company's forests may be achieved.

Inasmuch as Connor Forest Industries has a long history of utilizing the forest resources in Wisconsin and Michigan—the company celebrated its centennial in 1972—its management realizes the need for conservation and renewal of the forest resource and for ever more efficient utilization of the products derived from its lands. These concerns are coupled with high standards of production, bringing to the public a wide variety of high quality Connor products for the home and for business, industry and institutional use.
Modern Trends In Wood Preservation
by Darrel D. Nicholas

Because of the need for conservation of our natural resources and the desirability of reducing maintenance costs, wood preservation is becoming increasingly important. In view of this, a brief review of recent developments in one general area of wood science would be timely.

Wood Preservatives
Since most wood preservatives are classified as toxic chemicals, their use must be reviewed by governmental agencies. An example of such a preservative substance is arsenic, which is currently being reviewed by OSHA.

Other preservative chemicals such as pentachlorophenol, creosote and chromium are also being reviewed by OSHA and EPA; however, the full impact of these evaluations on the wood preserving industry will not be known for some time.

Preservative Treated Products
With regard to new markets for treated products, the All-Weather Wood Foundation is leading the way. This development is a system for building home foundations, either basement or crawl-space type, from water-borne salt treated lumber and plywood rather than from concrete.

This system was conceived and developed by the American Wood Preservers' Institute and has several advantages over standard concrete foundations, including lower costs, construction potential in cold weather when concrete cannot be used, shorter construction time, and drier basements.

Research on Wood Preservation
In the area of research there are several developments which could have a significant impact on the wood preserving industry.

Work currently being conducted at Oregon State University on the use of fumigants to treat existing structures is impressive. Researchers have found that chloropicrin, Vapam and Vorlex have the ability to diffuse through wood and kill existing decay fungi that are present. Even though these chemicals are fairly volatile, they are retained in the wood for a number of years and effectively inhibit the attack of decay fungi.

Prior to the development of fumigant preservative systems, an effective method of treating structures having internal decay was not available. Consequently, as a result of this development it will now be possible to significantly extend the service life of products such as poles, pilings, and other structures.

From the economic standpoint, fumigant preservative systems should pay rich dividends in the future.

Research is also being conducted to find alternate methods for preserving wood. Such methods are desirable because all wood preservatives currently being used in the United States are toxic in nature and to a certain degree hazardous. It appears that work currently being conducted at the U.S. Forest Products Laboratory may ultimately lead to such method.

The basic approach being investigated involves modifying wood by various chemical reactions with the hydroxyl groups. Theoretically this type of system works by effectively blocking direct contact between the enzymes and substrate or possibly by effecting the hydrophilic nature of wood. As a result of such treatments the substrate is no longer recognizable as a source of food to support microbial growth.

The most effective chemicals for this modification are di-functional compounds which have the capability of forming cross links in wood. By this means decay resistance can be imparted at relatively low treatment levels. Such treatments also provide dimensional stability, a property of considerable value for many end uses. Admittedly a number of important problems remain to be solved; however this approach should ultimately lead to major advances in wood preservation.

Finally, some significant developments in the fundamental aspects of decay mechanisms have been published. For many years wood product pathologists have wondered how brown rot fungi could rapidly depolymerize the cellulose in wood at relatively low weight losses. This phenomenon has been particularly puzzling since the enzymes which normally are responsible for depolymerization are known to be too large to penetrate the openings in the cell walls. It now appears that the initial attack on the cell wall of wood by brown rot fungi is accomplished by the production of hydrogen peroxide which readily diffuses into the wood structure. Depolymerization is then effected by a redox reaction with hydrogen peroxide. If this mechanism proves to be correct, knowledge in this area may possibly lead to new methods of preserving wood in the future.
In previous issues of the *Forester* (1969, 1970, 1972, 1973 and 1974), we have reported on the U.S. Forest Services continuing research program to develop a means of removing the bark and foliage from whole-tree chips. This research has led to a patented system for bark-chip separation-segregation built around the compression debarking process described in earlier issues. This year's article will report on the first semi-commercial application of the chip debarking process developed by the Forest Engineering Laboratory which has been operating at the St. Anne-Nackawic Pulp and Paper Co. for about two years.

The St. Anne-Nackawic Pulp and Paper Co., Ltd. of Nackawic, New Brunswick, is a high quality bleached kraft hardwood pulp mill wholly owned by Parsons & Whittomore, Inc. with corporate headquarters in New York. The mill produces approximately 750 tons/day of bleached hardwood kraft pulp.

The mill is currently receiving whole-tree hardwood chips from two mobile chippers. Both produce about 200 oven-dry (O.D.) tons of unbarked hardwood chips per 9-hours of operation. This quantity of chips represents about 15 percent of the daily chip usage at the mill. In over three years of experience the company has found that whole-tree harvesting yielded about 30 percent more fiber per unit area of forestland. The mill's experience with pulping of whole-tree chips without bark removal was similar to those experienced by other mills--barky, whole-tree chips caused increased operating and product quality control problems. Mill personnel concluded they could not increase the use of as-received whole-tree chips in the mill unless the chips were reduced in bark content prior to pulping.

A world-wide review of bark removal methods being researched led St. Anne personnel to the Forest Engineering Laboratory located on the campus of Michigan Technological University. St. Anne personnel visited the Forest Engineering Laboratory to discuss the system developed by the Forest Service and make arrangements for cooperation. Subsequently, chip debarking trials on typical St. Anne whole-tree chips were conducted in the Spring of 1974.

On the basis of these promising trials conducted at the FEL, St. Anne decided to adopt the chip debarking system developed by the Forest Engineering Lab for their Nackawic Mill. Construction of the St. Anne pilot plant was started in the summer of 1974 and was operational by March 1975. The pilot plant processes approximately 9 ODT/hour which amounts to 100 percent of St. Anne's unbarked whole-tree chips. Since mid-1976, the plant has been operating 3 shifts per day which amounts to 20-22 hours per day. Chip debarking results over the test period have confirmed the results of the Forest Service's laboratory system.

In addition to removing bark, St. Anne has verified claims by Forest Service personnel that pulping of the compressed chips results in better penetration of pulping liquors giving shorter cooking time, plus less alkali demand; additionally, compression of knotwood opens up the fibers which result in significantly fewer knot rejects which gives an overall increased digester yield.

The St. Anne pilot system has demonstrated the viability of the Forest Service system on a continuous basis--they have found the total cost of chip debarking competitive with conventional chip production. We feel this is only the beginning of the establishment of a revolutionary concept of how future pulp and paper mills will debark whole-tree chips and forest residual chips.
The past year has seen a notable expansion in the forest soils research program at the Ford Forestry Center. This program has already achieved significant results in mine waste stabilization and reclamation, forest fertilization, and the investigation of the relationships between soils and forest productivity. With the addition of two new soil scientists to the staff Dr. L.J. Bartelli and Dr. R.C. Dohrenwend, and with the establishment of the Cooperative Research on Forest Soils organization (CROFS) in November, 1976, forest soils research is expanding rapidly at the Center.

Mine waste stabilization and reclamation studies have been expanded under the direction of Dr. S.G. Shetron to include both metallic and non-metallic mine wastes throughout the state of Michigan. These studies, which are being undertaken in cooperation with the mining industries and with the Michigan Department of Natural Resources, have largely been concerned with the characterization and description of the wastes in terms of their ability to support vegetation. A wide variety of different plant species have been tested for their suitability as mine waste stabilizers. In working with these wastes, the investigators at the Ford Forestry Center have accumulated considerable experience in the establishment of trees on very severe sites. Based in part on this experience, we are currently formulating a cooperative research program on the reforestation of severe sites with the Icelandic Forest Service.

The soil is the basis for successful production forestry, and foresters badly need good soil data for the design of good management. Unfortunately, good data on forest soils are not generally available, and current soil survey and classification practices are strongly biased towards the needs of agriculture. The Ford Forestry Center is currently involved in the updating of the Keweenaw County soil survey, and in the development of meaningful criteria for the survey and classification of forest soils. This work is extremely important, and the results from these investigations have enormous significance to the future of forest management in the Lakes States.

The Ford Forestry Center is a leader in the development of computer applications to both operational and research forestry. Under the direction of Prof. J.A. Meteer, Center research on computer applications to forest inventory problems have achieved widespread recognition. The techniques and programs developed at the Center's computer facility have been central to a unique study of forest soil productivity. Over two thousand Continuous Forest Inventory (CFI) plots have been visited and their soils characterized. Computer techniques developed at the Center have permitted the initial ranking of these soils in relation to productivity.

In cooperation with private industry and with the Forestry Division of the Michigan Department of Natural Resources, the Ford Forestry Center has undertaken research on the fertilization of sugar maple on an individual tree basis. Preliminary results from these studies indicate that forest fertilization is practical for northern hardwoods.

The passage of Public Law 92-500 has classified production forestry as a source of the so-called non-point water pollution. This law requires public participation in a planning process designed to minimize water pollution. The Ford Forestry Center is actively participating in this planning process, and has been responsible for the design of a comprehensive research program on erosive processes in the forest and the forest soil as a sediment source. The information to be provided by this research is crucial for the proper design of measures to minimize any water quality degradation resulting from forestry operations.

The fledgling organization CROFS, has perhaps the greatest potential for increasing the quality and range of the Center's forest soil research program. Due in large measure to the vision of Dr. Eric A. Bourdo, this program is to be the basis for cooperative interaction between industry, government and the academic community directed towards the solution of major problems related to forest soils. The initial CROFS research program addresses the twin problems of growth responses to different forest practices and the evaluation of soil potential.

Forest soils research is only one phase of the total research program being carried out at the Ford Forestry Center. Projects led by Prof. J. Johnson and Prof. J.A. Meteer are making major contributions to a major program designed to improve the value of our forest resource and the quality of its management. The Ford Forestry Center is an important component of modern production forestry in the Upper Peninsula. We intend to increase and improve our contributions to the advancement of forest management in the critical years of natural resource depletion ahead.
THE 1977 MICHIGAN TECH FORESTER STAFF

Left to Right, First Row: Mike Gottschalk, Russ Dotzauer, John Parry, Dick Crowther.
Second Row: Doug Ritter, Todd Davis, Dick Crowther.
The student chapter of the Wildlife Society was organized during 1974 at Michigan Tech. The Wildlife Society is an international organization representing professionals in the field of wildlife conservation. Composed mostly of forestry students, the chapter has as its advisors Dr. Norman Sloan and Dr. Fred Stormer. Since this club's beginning, it has grown rapidly to become one of the largest and most active club sponsored by the forestry department.

The highlight of the Wildlife Society social calendar was the third annual wild game smorgasbord. The sell-out crowd once again feasted on a tantalizing array of wildlife delicacies prepared by Tech's own incomparable chef - Norm Sloan. The only complaint that was voiced at the end of the evening was 'there wasn't enough of everything to satisfy everyone.'
The purpose of the M.T.U. Forestry Club is to provide a social and professional organization for the students and faculty of the Forestry and Wood Science Department here at Michigan Tech. As I look back on this year, I recall the hard work and sacrifices the members of this club made to uphold these traditions.

At the beginning of this school year, our club hosted the Mid-Western Foresters Conclave, a task we not only met but also succeeded in taking the title as the champion team. Other events followed throughout the year. Some old established events such as pulp-cut, and some new, like the tree sale. Each of these events had one thing in common. The key ingredient which makes or breaks any organization, participation.

It is in the light of service I charge future members of this organization to serve as much as the club needs you. The time you put towards the continuation of these traditions will remain with you throughout your life.

Good luck,
Timothy A. Taggart
Chief Forester
This year Booyaw was held on Tuesday evening, May 3rd, 1977 at the Trinity Episcopal Church in Houghton. As usual, Norm Sloan and his crew fixed up a tantalizing meal of booyaw, salad, rolls and butter, cake, coffee and milk. There was a good turn-out of people with approximately 100 students, faculty, staff and guests present.

After everyone had eaten a filling meal, they all settled back for the evening’s two-part program. The first part was a “retiree roast” entitled “This is your life, Vern Johnson.” Vern is retiring this year after 38 years with the MTU Forestry Department, so in honor of his service he was presented with gifts to represent some of our memories together. These gifts ranged from broken skis to a lifetime membership in the Forestry Club, including a scrapbook, beer mug, poem, gold lettered cruiser stick, an “Oriental handy-dandy,” two Blue Spruce seedlings, membership in the Booyaw Pledge Class of the “Order of the Golden Leaf” and a miniature wooden rocking chair.

The second part of the program was the 2nd annual appearance of the Forestry Club “Tabernacle Choir” singing some of those good old forestry songs. The group consisted of Bill Perkis, Barry Lempe, Axel and Sue Anderson, and Gail Simons.

Finally the club pictures were taken (while everyone was still smiling) and the evening was complete.

— Laura Curry
After enjoying the Forestry Club venison (?) booyaw, members (right) prepare for a performance by the club's "Tabernacle Choir" (in action below).
PULP CUT

The first opportunity for many forestry club members to show off their expertise in using a chainsaw and axe came at the club's fall pulp cut on November sixth. Evidently Mother Nature didn't like the idea of having all sixty of the students who had planned on participating show up that morning because she sent along some cold temperatures and snow. This led to a rather disappointing turn out of about thirty people when we gathered at the Forestry building at 8:30 a.m. for our briefing and an important safety chat from the club advisor, Dr. Ros Miller. Later in the morning the number of participants was boosted by a carload of "Alberti" foresters and some stragglers from Houghton. By lunchtime there was about forty-five people and two dogs (Jeff and Zack) that had been broken up into eight crews.

Most of the work that was done throughout the day included thinning to a specified basal area, clearing corridors for roads, widening existing roads and cutting hardwood firewood. Things went smoothly in the morning and early
afternoon but by three o'clock it was much easier
to sit and think about the usual post-pulp cut
party at Al's Halfway than picking up your axe
and limbing a few more trees.

The Le Croix Red Pine Plantation covers some
six hundred acres of Houghton County near
Atlantic Mine. The school has been cutting in it
since 1971 but the Forestry Club did not have
their first pulp cut until the fall of 1973. It
became so popular with club members that since
1974 the club has had to schedule two pulp cuts a
year, one in Fall and one in Spring. Besides
being a good opportunity for student foresters to
practice the more manual part of their chosen
profession, it is an important source of income for
the club. In this year's Fall pulp cut 26.02 cords
of Red Pine were cut which brought in $476.17.

This was my first Forestry Club pulp cut and
although I had some fun working in the pine
plantation I would have to say that the highlight
of the day was the party at Al's. I can not
remember ever having hot dogs and beer that
tasted so good. It was almost enough to make me
look forward to cutting pulpwood in the spring.

— Karen Shillito
CONCLAVE 1977

1976 FORESTERS CONCLAVE TEAM


The preparations for the 25th Annual Conclave began much earlier than usual for the Tech Foresters. The reason? Tech was the host school and a lot of hard work has to be done to insure a great day of competition. The months of preparations came to an end on Friday evening when everything stood in readiness for the competition on Saturday.

The long awaited day, dawned with a big surprise for just about everyone except maybe a few Tech Foresters who have grown used to these things. The surprise? Well during the night the temperature dropped and so did an inch of snow. It was a cold, windy day that greeted the contestants but this did not stop the schedule of events. The day went on as planned even though tremendous quantities of hot chocolate were consumed.

The events making up Conclave included: log rolling, speed chopping, field identification (dendrology), chain throwing, compass and traverse, one and two man buck sawing, pulp tossing, bolt throwing, match splitting, tobacco spit and a special event. Few new records were made this year because the Forestry club reversed a growing trend of recent years. This trend involved using lighter logs for pulp toss, smaller logs for log rolling and softer woods for the cutting events. The feeling among the Tech foresters was that this did not truly reflect the old-time logging skills, so heavier, harder and larger logs were used. The highlight of the day turned out to be the special event designed by Dr. Ros Miller. This timed event had three parts: a surveying problem, felling a pole within a 20 degree angle and bucking the log into three equal lengths and carrying it over the finish line. The old saying goes, "The best laid plans of mice and men..." as did this one. The Red pine pole proved to be the major stumbling block. With one exception, these logs fell in every direction but the one planned. It seemed that the angle the pole was set in the ground had more to do with where it fell than the manner of chopping. Southern Illinois University managed to win this event with a winning time of two and a half hours! Of course, they were the only ones to finish. The SIU team almost missed the awards meeting trying to finish up that one event.

For those of us who spent the day tallying up the points scored, it came as no surprise that the Michigan Tech Foresters had won the 25th Annual Midwestern Forestry Conclave. This is the first time in ten years that Tech has won the honor of displaying the first place trophy. Hopefully it's stay here will last a little longer than one year. The Tech team won two 1sts, five 2nd's, three 3rd's and one 4th place in besting the other ten teams.

The one event everyone was looking forward to following the awards presentation was the Ice Cream Social. This traditional event gave everyone a chance to gather and talk over the day's events and forget all about the frigid temperatures.
THE OTTER RIVER CAMP

The Otter River Camp - a source of continual work and a place of occasional enjoyments. the work on the camp continued this year with the completion of the cable bridge over the Otter River. The camp committee held a fall work day so the camp could be prepared for the upcoming winter. the event was well attended and a lot of work was done - including stock piling enough fire wood to last through the winter.

The camp committee also drafted a set of rules for use of the camp that was ratified by the Forestry Club. These rules will, hopefully, make your visits to the camp more pleasurable. So, take some time off from your studies, and get reacquainted with the many recreational opportunities at the camp.

— J. Rose
**VISITING SPEAKER**

The School of Forestry and Wood Products was pleased to have Dr. Russell A. Parham as the Visiting Wood Scientist sponsored by the Society of Wood Science and Technology.

Dr. Parham received his B.S. in Wood Science and Technology and his M.S. in Wood and Paper Science from North Carolina State Univ. He received his Ph.D. from the State University of New York College of Environmental Science and Forestry in Wood Products Engineering.

The topic of Dr. Parham’s presentation was the Applications of Electron Microscopy in Wood, Paper, and Forest Science.

**Left to Right:** Peggy Gale, Joe Denig, Dr. Parham, Kay Sasso, Bob Van Dyke.
Friendship, Honor, and Earnest Endeavor—these are the fundamentals for which Xi Sigma Pi stands. Our objectives as a society are to maintain a high standard of scholarship in forestry education, to work for the improvement of the forestry profession, and to promote a fraternal spirit among those persons engaged in activities related to the forest.

It had been the intent of this year's membership to transfer this rhetoric into action. Our first responsibility was to fill our ranks with new members. Two initiations were held—one in January and the other in May. Following four days of personal display, a ceremony and banquet were held in honor of our new members.

Because we were bonded to one another primarily as a result of our scholastic achievement rather than a search for social interaction, we needed an activity that would promote and strengthen a sense of comradery within the organization. Beer, punch, munchies, and Polka seemed to promote a fraternal spirit among those who participated.

In the tradition of the Alpha Eta Chapter of Xi Sigma Pi, we sponsored a symposium on the “Let Burn” policy on our wildlands. The symposium was well attended and proved to be interesting as well as informative.

We bolstered our treasury with a pulp cut so that eventually the Chapter could afford to assemble distant natural resource expertise for future symposiums.

I was pleased and fortunate to have had the opportunity to serve and work with a talented group of people and I wish them well wherever their futures take them.

John D. Sollinger, Forester
Alpha Eta Chapter
Xi Sigma Pi
On Wednesday April 6, Xi Sigma Pi held their annual symposium in the memorial Union Ballroom. This year's theme was "Let Burn - Should Natural Fires in our Wildlands be allowed to Burn?"

There were about 200 people in attendance at the symposium. The first speaker was Dr. Roswell Miller, associate professor of Forestry at Michigan Tech. Dr. Miller has had much experience in the field of fire use and control.

Introducing the subject of the symposium, Dr. Miller pointed out that, "In nature, there are no beneficial or catastrophic fires. It is neither good or bad. It exists." He stated that labeling a fire either way is a "human value judgement, important only because we as humans, make them."

A great advance in fire control has come about since the days when, according to Dr. Miller, foresters were told to "patrol districts and watch for smokes." 87 percent of today's wildfires are held to less than ten acres. Better equipment, training, and technology are cited as reasons.

Suppression is still a fundamental tool to foresters and Dr. Miller declared that the rule "when in doubt, put it out" still applies.

Following Dr. Miller was Dr. Robert Janke, associate professor of botany at Michigan Tech. Since 1969, Dr. Janke has done research of fire ecology on Isle Royale.

Dr. Janke labeled fire ecology a broad subject, and admitted he would only be able to scratch the surface of the topic. He began his discussion talking about the Boundary Waters Canoe Area.

Here, in "virgin forests" (not cut or deliberately burned by man), many stands of young and intermediate trees were found, almost all dating back to natural fires.

Dr. Janke discussed his own work on Isle Royale also, going into considerable depth about the species on the island. He concluded that fire is an important part of the natural ecology of most forest systems.

A large concern with complete fire suppression is that, in Dr. Janke's opinion, a loss in diversity of habitat types would occur.

Mr. Stu Croll, Chief Interpretation and Resource Management at the Isle Royale National Park was the next speaker. He talked on the present fire policy in the National Park System.

Mr. Croll said that the main objective of the National Park was to preserve the land in its natural state and also to provide recreation for the public. He said that part of keeping a natural park was to let wild fires burn. At this time several of the National Parks have the so-called "Let burn Policy," better known as "Fire Management," Croll added.
The fourth speaker was Mr. Terry Hoffman, district ranger of the Ottawa National Forest. Mr. Hoffman spoke about the fire policy in the National Forest System.

Hoffman said the National Forest System has used fires for many years to achieve forest management objectives. This use of fire is called prescribed fire. This type of fire is started by man and will be allowed to burn under control to achieve a management objective.

Some wildlands fires come under this prescribed fire policy, Mr. Hoffman said. He went on to say that any fires either natural or manmade will be suppressed if the fire does not meet certain management objectives stated beforehand.

The guidelines are that the fire must meet some predetermined management objective, will not injure life, or cause property damage.

Mr. Dave Buell, operations Analyst of Mead Paper Corporation, presented the private industry viewpoint on wildland fires.

Mr. Buell stated that we cannot afford to waste our renewable resources. Fire can be very costly to industry. If their forests burn, then they have no livelihood.

The last speaker of the panel was Mr. Mike Paluda, district fire supervisor, who spoke on the fire policy for the Michigan DNR. Mr. Paluda was very brief and to the point on the DNR's policy. The policy states that all wild fires will be suppressed immediately.

Mr. Paluda added that the DNR does use prescribed fires in management of the forests. These fires are only used when planned in advance and only under controlled conditions.

Paluda said that the DNR feels that all naturally started wildland fires would be put out immediately.

The afternoon session of the Let Burn Symposium gave people attending an excellent chance to question the morning's speakers. After each panelist briefly recapped his views on the subject of natural fires, they answered specific questions passed through a moderator.

The symposium was a success in its presentation of the subject of wildland burning from all sides of the story.

— Kay Sasso
Bob Mayer
Ah yes...everyone has those “special” memories that stick in their minds from summer camp 1977, good or bad.

Of course, there are those of us who did not want to have any memories at all and made futile attempts to “Z” through those exciting 7:30 lectures, including the Forester’s Editor. Then there were the gung-ho types who sat in the front row but could not quite ever understand what was meant by “Nort’ by Nort’ Eet.”

There was a five minute period of silence before heading to the Forestry Building each morning for prayers to the Rain gods. Finding this tactic unsuccessful, it was time to scramble for an Adams Township School Bus. As you leave, you watch the surveyors come to school with the proper equipment; cutoffs, tennis shoes and Coppertone while you head out with hardhat, boots and Cutter’s.
You may have spent a morning or two searching for timber to cruise in an alder swamp infested with mosquitoes. The bugs, or insects as one of the instructors has urged you to call them, get so thick you think it's all over and really believe you hear a voice from the heavens when a teacher sings "Edelweiss" over the next ridge. You believe that life is as bad as it can possibly be when you leave your orange hardhat hung on a tree as a marker - and never find it again. Then, an especially persistent black fly flies by and you take a swipe at it with your Biltmore stick, only to miss it and split your weapon over a 17 inch Hemlock.

Then, there were those incidents that were almost "dreams come true." The day that Vern heard mining explosions, figured it was thunder and hollered, "Head for the bus!" brings back a fond memory - the sunny afternoon you went to spend at Houghton Beach.

But the ultimate had to be when Glenn's bus became hopelessly lost in a search for the Calumet Waterworks Road and the morning was spent waiting for Vern to rescue us.

Ah...those memories.

— Rob Olszewski
— Steve Briggs
The Soil Conservation Society of America is an educational and non-profit scientific organization dedicated to advancing the science and art of good land use. Currently, the society has 14,500 members including researchers, administrators, students, educators, planners, technicians and laymen. The S.C.S.A. now has 156 local chapters in the United States, Canada and Puerto Rico.

Late last spring, interest was expressed among students and various faculty members of the forestry department concerning the possibilities of having our own student chapter here on campus. Letters were written to the parent society by Dr. Gene Hesterberg and Dr. Martin Jurgensen expressing our interest and requesting information concerning the requirements we must meet before we are chartered by the national organization. We completed all the requirements by August of 1976 and on August 23, 1976 we were presented a chapter by the parent organization. On February 4, 1977, the Dean of Students Office here on campus accepted our application for registration as an official university organization.

This organization is open to any student who is interested in community involvement in conservation. The first elected officers of the new student chapter are: Scott D. Spano, President; David Myrold, Vice-president; Dennis Doherty, Secretary; and Valerie Brunell, Treasurer. Advisors to the chapter are Dr. Martin F. Jurgensen and Mr. Glenn D. Mroz.
Students Assist in Soil Fertility Research

A study of soil microbiological activity and the nitrogen cycle in undisturbed, old growth hardwood stands has occupied the attention of more than a dozen forestry students and three faculty members the past year.

Financed by the federal McIntire-Stennis Fund for forestry research, the study involves analysis of soils taken from two undisturbed hardwood sites located on the McCormick Experimental Forest near Champion, Michigan, and the Dukes Experimental Forest near Skandia, Michigan.

Soils are analyzed to determine the nature and abundance of microorganisms active in the mineralization of organic nitrogen. The levels of soil nitrogen on various sites, turnover of the element through the nitrogen cycle and other processes, and annual and seasonal fluctuations are being determined for three years.

In addition to soil samples, forest litter (leaves, twigs, seeds, etc.) is collected and analyzed. Precipitation also is measured and samples are collected. Rainfall is measured as stemflow and throughfall beneath the tree canopy. Cores of snow are collected in the winter months. These are analyzed for pH, ammonium and nitrate content.

Drs. Martin Jurgensen and Douglas Frederick are directing this project.

Top: Mike Ojanen, Jackie Pyper, Glenn Mroz and Dave Myrold, left to right, measure soil nitrogen as Drs. Martin Jurgensen and Douglas Frederick look on.

Middle: Dr. Jurgensen, Mroz, Ojanen, Pyper and Myrold pause to ponder on their fertility study.

Left: Busily measuring soil samples are Rick Bandi, Jim Stukel, Carl Varak, John Car, and Brad Slater. Others not pictured include Kathleen Slattery, George Teachman and William Perkis.
DEAN'S AWARD FOR 1976-77

GRADUATING SENIORS RECEIVE FORESTRY DEAN'S AWARD

Joseph M. Anderson and Carl R. Varak are the recipients of the Dean's Award in the Department of Forestry at Michigan Tech for 1976-77.

The award, presented each spring to two members of the graduating class, is based on the qualities of scholarship, citizenship and leadership. Two students are named each year, and their names are inscribed on a plaque which is maintained in the Forestry Building.

Joseph Anderson is receiving his degree in Wood Fiber Utilization. He is a member of Xi Sigma Pi, honorary forestry society, of which he served as a member of the Initiation Committee. He also is a member of Phi Kappa Phi, national honor society for outstanding performance in science studies. Mr. Anderson engaged in assisting as a laboratory instructor and in research, in the Wood Fiber Utilization program. He is a member of the Technical Association of the Pulp and Paper Industry. He also took part in intramural athletics. His cumulative grade-point average at Michigan Tech is 3.58. His home town is Iron Mountain, Michigan.

Carl Varak was very active as a member of the Forestry Club during his years as a Michigan Tech student. This year he served as Treasurer of the club, and was a member of the club's Otter River Camp Committee. Carl also took an active role in planning and conducting other activities such as the club's venison booyaw, pulpwood harvesting project, and Christmas party.

He is a member of Xi Sigma Pi, national honorary forestry society. His overall grade-point average at Michigan Tech is 3.40.

Carl, whose home town is Villa Park, Ill., came to Michigan Tech after receiving an Associate Degree in Fire Science at Du Page College, Glen Ellyn, Illinois. While at MTU, he majored in Forestry.

PETEerson AwARDS

The Society for Experimental Stress Analysis has selected the paper entitled "Resistance Strain Gages as Physiological Transducers on Trees" for the 1975-76 Peterson Award. The award is given to the best applications paper published in the Journal of the Society over a two-year period. The paper was co-authored by R.L. Whipple, former ME-EM graduate students; J.B. Ligon, Associate Professor of Engineering Mechanics; Dr. M.S. Coffman, Associate Professor of Forestry; and C.P. Burger, Professor of Science and Mechanics at Iowa State University.

The authors received the award at the Spring Meeting of the Society for Experimental Stress Analysis held in Dallas, Texas (May 16-20).

The paper reflects the initial work of an ongoing research effort on the development of a technique of using resistance strain gages for continuously measuring small changes in the circumferences of tree stems. By monitoring these changes, it is possible to observe an immediate response of the tree to its environment.

The authors believe that its continued development would be beneficial to a wide range of disciplines including plant ecology, plant physiology, horticulture, nursery and orchard operations, and many more.

The method has further potential for use with nursery operations and the watering of containerized seedlings in large greenhouses.

The investigators have coined the term PHYTO-MECHANICS (Phyto-Gr. python--meaning plants) to describe this new interdisciplinary effort of applying principles and techniques to the physiological aspects of plants that have been traditional to the field of experimental mechanics.
Foresters Bolster Huskies Athletics

Marc Angell  
Football

Mike Trigg  
Football

John Bock  
Wrestling

Amy Spence  
Tennis

William Campbell  
Football

Jeff Autenrieth  
Football

Cliff Anderson  
Football

Howard Griggs  
Football

Steve Anderson  
Basketball

67
Varsity Athletes

John Guyette
Basketball

Wendy Wagner
Volleyball

Jon Lamy
Football

Kenneth McLellan
Wrestling

Stephen Barteszewski
Cross Country

Barbara Bonefeld
Women's Basketball

Warren Mandrell
Cross Country

David Nelson
Wrestling

George Michaels
Football

Not Pictured
Delmar Barton - Cross Country
Michael Black - Rifle
Catherine Bowers - Skiing
Barbara Hintzen - Cross Country Skiing
Gail Simonds - Women's Basketball
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Many people thoroughly enjoy forests. They enjoy fishing and hunting and all the other recreation forests can offer. Other people simply like to view a huge tract of trees and marvel at one of nature's most beautiful creations. Still others take a strictly utilitarian viewpoint—forests are watersheds, trees produce oxygen, wood is a raw material. But whatever their point of view, all Americans have this in common: they rely on forests in many ways.

**Jobs and a Payroll**

Many people rely on America's forests directly for a livelihood. In 1975, the forest products industry—including wood, pulp, paper and furniture—employed an estimated 1.15 million people whose paychecks for the year totaled nearly $11 billion. But that's just the initial value of the paychecks. The sawyer in the lumber mill spent some of his paycheck for groceries. The grocer used part of the same money to buy clothes. The clothier used a portion of the money which he received from the grocer to pay the plumber. And so it goes. A single paycheck spreading out to purchase a wide variety of goods and services. And all of it ultimately derived from forests.

In addition, several million other people in thousands of companies earn their livelihood selling products and services to the forest products industry.

**Taxes and Services**

Privately owned forests also provide tax revenue. Last year, taxes paid by companies in the forest products industry amounted to many millions of dollars. Part of these dollars went to the federal government. The rest helped to support local schools, fire and police departments, sewage disposal systems, and other services provided by state and local governments.

So the government relies on forests for tax revenue, and people, in turn, depend on the services which are provided by the taxes.

There are thousands of companies in the forest products industry. These companies manufacture a variety of products ranging from plywood and lumber to pulp, paper, and chemicals. Georgia-Pacific is one of these companies. Georgia-Pacific employs over 33,500 people. The Company owns more than 4.5 million acres of timberlands in the U. S., Canada, and Brazil; and has exclusive cutting rights to another 1.5 million acres, mostly in Indonesia and the Philippines. G-P's significance is reflected in some revealing statistics: In 1975 Georgia-Pacific's assets amounted to $2.4 billion. Sales totaled $2.36 billion. And the Company paid out a total of $525 million in payrolls to employees and taxes to the federal government, and state and local governments.

**The Endless Bounty**

Today, more than 5,000 products are made from wood. Many products which we have come to consider as necessities are derived from forests. And it seems that new products are continually being developed from wood and wood by-products. So, even if you are not directly affected by the forest products industry, you still rely on America's forests.

Fortunately, forests are a renewable resource. And that may be their greatest value. They will continue to provide man with the luxuries and necessities of life.

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