The 1961 Michigan Tech

FORESTER

Published annually by the

FORESTRY CLUB

Michigan College of Mining and Technology

Houghton, Michigan

VOLUME XII 1961
Mrs. Orval F. Korpela, Department secretary. Nancy is the forester’s “Our Girl Friday,” always willing to type out a quick letter or mimeograph a bulletin or newsletter. Her help with the “FORESTER” and other Department publications is always appreciated.

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FOREWORD

by John Franzen, Editor

This is the first issue of the new Michigan Tech Forester. The new “FORESTER” is larger in size and contains more pictures of higher quality. Yet we of the staff, in making the decision to renovate the "FORESTER," did not want to style it after the typical "picture-book" annuals seen today.

We believe that articles of interest to professional Forestry, the recording of the happenings within the Department and Forestry Club, plus the general campus activities that the Club enters into have a definite place in the "FORESTER." It is by these means that credit is brought to the Forestry Department, contact and fellowship is maintained with our alumni, a record of our activities before and after graduation is kept, and general interest in professional Forestry is maintained.

With these things in mind, we present the 1961 Michigan Tech Forester. We hope you like it.

Frontispiece

How many of you early Forestry graduates remember this snow statue? For the benefit of you youngsters, it was the 1st place statue built by the Forestry Club in 1939.
DEDICATION

We of the staff of the "FORESTER" proudly dedicate the 1961 Michigan Tech Forester to Professor C. Richard Crowther, faculty advisor for the annual.

Since coming to Michigan Tech in 1956 Dick has been advisor to the "FORESTER." During this time he has put countless hours into the planning and production of each years annual. This work has not only been one of advisory nature; he has always pitched in and helped with the actual makeup of the annual. For instance this year he has done photography darkroom work, written articles, proofread copy and taken pictures.

In addition to his work with the annual Dick carries a full teaching load, and those who have taken the time to notice can attest to the care given in preparation for each of his courses: Soils, Silviculture, Range Management, Seeding and Planting, and Recreational Forestry. These courses may not have the glamour and natural interest of such courses as, say, Fire Protection, Logging or Ornithology, but who can say that Silviculture, Soils or Seeding and Planting are not basic knowledge in the foundation of a professional Forester's education?

Yes, in time we may forget the man, but we cannot forget what he has taught us here at Michigan Tech.

It is with these thoughts in mind that the Michigan Tech Forester is dedicated to this conscientious member of our staff and faculty.
THE FORESTRY DEPARTMENT

at M.C.M. & T.

The Department of Forestry is a part of the Michigan College of Mining and Technology, located at Houghton, with a two-year branch at Sault Ste. Marie, Mich. A state-supported college, Michigan Tech is accredited by the North Central Association of Colleges and Secondary Schools.

Michigan Tech also is accredited as a forestry school by the Society of American Foresters.

The location of Michigan Tech, in the heart of the heavily timbered Upper Peninsula of Michigan, provides an ideal situation for the location of a forestry school. A great variety of northern forest types are utilized in outdoor laboratory work, and many types of public and private timberland ownerships are represented within a short distance of the campus. Various timber-using industries, including sawmills, pulp and paper, fiberboard, flooring and miscellaneous industries, provide opportunities for study of many forms of wood utilization.

The student also has an opportunity to observe several forest research facilities, including the two forest research branches of Michigan Tech, the Ford Forestry Center and the Forest Products Research Division. The Upper Peninsula Branch of the Lake States Forest Experiment Station, and the Toumey Nursery of the U.S. Forest Service, as well as several state and national parks within the area, are utilized in the instructional program.

The college itself owns a large acreage of timberlands which are valuable for laboratory purposes. The Forestry curriculum involves four years of college work leading to the Bachelor of Science degree. In addition to providing the student with a strong background in professional forestry, this program encompasses the basic sciences such as mathematics and physics, and the broadening influences of the humanities.

During the summer following the sophomore year, the student attends a 10-week forestry and forest surveying camp which is located on the Ford Forestry Center, 40 miles southeast of Houghton. This session stresses the practical aspects of forestry, including timber cruising, log scaling and grading, forest type mapping and forest land subdivision.

A popular facility administered by the Forestry Department, available to forestry students, is the Otter River Camp, located 25 miles south of Houghton. This serves as a center for special student events and for weekend outings.

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Mr. Noble had been with M.C.M. & T. since 1929, a period of 32 years. From 1929 to 1936 he was Director of Athletics. In 1936 he was instrumental in organizing the Forestry Department, and has been Head of the Department since that time.

In addition to obtaining the well-rounded education provided by Michigan Tech, the student has opportunity to participate in many campus-wide extracurricular activities, and many others sponsored by the Forestry Club. Many of these are described in other sections of this publication.

DEPARTMENT ENROLLMENT CONTINUES TO GROW

Another large class of entering freshman forestry students during the fall term of 1960 has brought further increase in enrollment in the Forestry Department at Michigan Tech. Enrollment on the Houghton campus during the fall term totaled 47 freshmen, 37 sophomores, 40 juniors and 33 seniors. In addition, 15 freshmen and 12 sophomore forestry students enrolled at the Soo Branch.

Thus, a total of 184 undergraduates were majoring in forestry at Michigan Tech at the beginning of the current school year. This compares with an enrollment of 157 during the fall of 1959.

No personnel changes have taken place in the forestry faculty, at either the Houghton or Soo campuses, during the past year.

The most significant development in the instructional program occurred last summer with the combining of the forestry and surveying summer camps into one 10-week period. Both were operated at Alberta, townsite of the Ford Forestry Center. Forestry activities were concentrated into a six-week period, and surveying occupied the final four weeks of the camp. This eliminated the necessity of students attending two summer sessions, as was previously required.

The group attending the 1960 camp was the largest ever enrolled, numbering 55 students. They were housed in three recently-constructed dormitories and in one residence. This was also the first year in which attendance at summer camp was mandatory following the sophomore year.

In preparation for the surveying portion of summer camp, sophomore forestry students were given a course in the fundamentals of surveying, taught by Prof. H. M. Stienhilb, during the spring term. This replaced the surveying course previously taught to forestry freshmen by the Civil Engineering Department.
FACULTY

HELМUТ STEINHILБ
B.S., M.S.
Associate Professor
"Hammer" has taught 16 years in the Forestry Department.

JOHN VEENSTRA
A.B., B.S., M.S.
Assistant Professor
John is the newest member of the staff, this being his 4th year.

C. RICHARD CROWTHER
B.S., M.S.
Assistant Professor
Dick has taught 6 years in the Forestry Department

VERNON W. JOHNSON
B.S., M.S.
Professor of Forestry
Vern has taught in the department since 1939.

GENE A HESTERBERG
B.S., M.S., Ph.D.
Associate Professor
Gene has been teaching for 12 years at Tech.

ROBERT T. BROWN
B.S., M.S., Ph.D.
Assistant Professor
This is "Doc's" 10th year with the Forestry staff.
FORESTRY
OF

LAWRENCE D. BATTLEY
Mio, Michigan

ALBAN R. FLECHSIG
Milwaukee, Wisconsin

LYLE W. HANNAHS
Ballston Spa, N.Y.

LEON R. KABAT
Manitowoc, Wisconsin

DONALD N. EILERTSEN
Washington, D.C.

JAMES A. GUERARD
Port Arthur, Ont. Canada

DAVID V. HOLLI
Ishpeming, Michigan

WILLIAM J. MAHALAK
Ossineke, Michigan

ELAINE C. MOSHER
Grand Rapids, Michigan

DONALD A. LANDGRAFF
Milwaukee, Wisconsin

KENNETH C. MAGNUSON
Iron Mountain, Michigan

DAVID W. MATTILA
Ironwood, Michigan

RODNEY L. NELSON
Mondovi, Wisconsin

HAAROLD T. NYGREN
Houghton, Michigan

HAAROLD T. NYGREN
Houghton, Michigan

HAAROLD T. NYGREN
Houghton, Michigan
GRADUATES
1961

ROBERT W. PADDOCK
Augusta, Wisconsin

EUGENE J. PARTYKA
Chicago, Illinois

HOWARD H. PIEPENBRINK
Crete, Illinois

CLIFFORD G. REED
Tomahawk, Wisconsin

FRED M. PASTORI
Muskegon, Michigan

DONALD R. PRESTON
Battle Creek, Michigan

NORMAN W. REMINGTON
Davison, Michigan

GEORGE H. RYAN
Gladstone, Michigan

RONALD E. SCOTT
Iron River, Michigan

GEORGE J. WALIMAA
Negaunee, Michigan

JAY C. WRIGHT
Clio, Michigan

RICHARD A. SCHINDLER
Niagara, Wisconsin

ROBERT G. STREJC
Lombard, Illinois

LOREN S. WOEPEL
Stevens Point, Wisconsin

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CHIEF FORESTER’S REPORT

by Cliff Reed

The Forestry Club is a very special group at Michigan Tech. It is one of the largest organizations on campus, and its membership is growing by leaps and bounds every year. The members are very enthusiastic about, and work very hard on the club’s activities.

This year, as always, Winter Carnival was the club’s biggest project. Many long and hard hours were put in planning and building the snow statue, in rehearsing the skit, and in practicing for the special events. The club put up a very good showing in each one of these events.

Many of the alumni have been sending monetary gifts towards our new annual and toward our camp fund. A special thanks goes out to those people who have been thinking of us, here at Tech.

This year the club voted on, and passed, a proposal for a Club Publication. This publication will make available to the club members, condensed versions of Senior Problems worked on by the members and other pertinent, up to date, data relating to forestry.

During the past, the club has had only people from the "outside world" come in and give talks at its meetings. These talks have been very interesting, but we have been ignoring a lot of talent in our midst. This year we have tried to bring out a little of this talent, and it has been very successful. Thus, many of the club’s own members have been able to entertain us with talks on their hobbies or summer jobs that pertained to forestry.

This year the club continued its Noon Luncheon Programs. There have been several interesting discussions from individuals in both private and state organizations.

In conclusion, a big thanks to all who helped make my year as Chief Forester a memorable one, and thanks to all those who put in so many hours on those special jobs.

Soo Branch . . . FORESTRY CLUB ACTIVITIES

The year opened with our first meeting on October 4, 1960. Ken Boxdoll was elected president, Del Priest, vice-president and Tom Creslinski secretary-treasurer. Jay Madison was elected sophomore student council representative and Donald Ott freshman representative.

Our first activity was to visit a branch of the Taquamenan river on October 6th where a survey was being made of the fish in the stream.

On November 13th about 6 members went out to the cabin and sank a point for a well. Later on in January some members went out to the cabin and put celotex on the walls.

During the month of November we had our first dance, which turned out to be a success.

Soo Branch . . . FORESTRY CLUB ACTIVITIES

In the month of December and quite a few of the members went out to the 75 club property to cut Christmas trees for sale during the Christmas season. We had a good time cutting them during a heavy snowfall and made about 20 dollars on the venture.

With the coming of the new year, the Forestry Club held the annual Snowball during the Winter Carnival festivities. Donna Jean Shepard, Miss Michigan of 1960, attended the dance and crowned Jim Arnold and Gayle Tavern King and Queen of the Sault Branch Winter Carnival. The Club was highly praised for its decorations for the dance.

In the Winter Carnival snow statue competition the Forestry Club took second place with its statue of two loggers burling.

On February 11th, 10 members of the Club went out to the cabin for a steak fry. We had a wonderful time and are looking forward to doing it again.

With the coming of spring we hope to include more activities for an already successful year at the Soo Branch Forestry Club.
INTRAMURAL HOCKEY

by Bob Brisson, Mgr.

This year's hockey team, improved somewhat over last year's, won three while losing four, as compared with a 1-1-7 record a year ago.

Ron Buck, Ricky Geiss and Bob Miller sparked the team on offense, scoring fourteen of our sixteen goals. Dan Matero, Bruce Anderson and Lou Armbuster also did a good job up front. On defense Norm Johnson and Pete Zalk were the stalwarts, along with Ron Lewis and Dave Rogers, who was forced to quit early in the season with an eye injury. Bob Brisson started the season in the nets, but switched to defense after a hand injury. He was replaced by a freshman, Joe Hubbs, who turned in a fine job in the goal. Jim Gosz and Al Caron also played a good part in some games. Tom Piehl and John Herbst, our coaches, helped organize the team and keep the spirit up.

Overall, the team showed fine spirit and played a real scrappy game. There were no seniors on the team, so we are looking to a better season next year with the same boys and some new freshmen.

INTRAMURAL BASKETBALL

by Norm Johnson

When the regular season had ended, it found the Foresters tied for first place in their league, with a record of eight wins and one defeat. In the first game of tournament action, however, we had one of those "bad nights," and were beaten by the KD's.

Leading us in scoring was our playmaker and player-coach, "Sarge" Preston, with a 12.3 points per game average. Sarge, the only senior on the team, filled one guard spot, while "Driving Dan" Matero played the other. Our center and leading rebounder was Peter B. Waisanen, with Russ Weisinger and Norm Johnson holding down forward positions. Giving us added strength as substitutes were the capable replacements John Herbst, Ken Lathrop, Ron Lewis, and Dan Schroeder.

Although we will have lost our best player through the graduation of Don Preston, we hope to have another good year next year with so many veterans returning.

REGULAR SEASON AVERAGES

<table>
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<tr>
<th></th>
<th>Points</th>
<th>Games</th>
<th>Average</th>
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<tbody>
<tr>
<td>Herbst</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Johnson</td>
<td>61</td>
<td>8</td>
<td>7.6</td>
</tr>
<tr>
<td>Lathrop</td>
<td>29</td>
<td>6</td>
<td>4.1</td>
</tr>
<tr>
<td>Lewis</td>
<td>5</td>
<td>5</td>
<td>1.0</td>
</tr>
<tr>
<td>Matero</td>
<td>80</td>
<td>8</td>
<td>10.0</td>
</tr>
<tr>
<td>Norton</td>
<td>4</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td>Preston</td>
<td>87</td>
<td>7</td>
<td>12.3</td>
</tr>
<tr>
<td>Schroeder</td>
<td>32</td>
<td>7</td>
<td>4.6</td>
</tr>
<tr>
<td>Waisanen</td>
<td>65</td>
<td>8</td>
<td>8.1</td>
</tr>
<tr>
<td>Weisinger</td>
<td>49</td>
<td>6</td>
<td>8.2</td>
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SEASON RECORD

<table>
<thead>
<tr>
<th>Team</th>
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<th>Games</th>
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<tbody>
<tr>
<td>Foresters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>Delt Sigs</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>Dependents</td>
<td>2</td>
</tr>
<tr>
<td>0</td>
<td>Theta Tau</td>
<td>6</td>
</tr>
<tr>
<td>0</td>
<td>A. I. M. E.</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>K. D.'s</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Newman Club</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>D. H. H.</td>
<td>2</td>
</tr>
</tbody>
</table>
This year marked the start of a new sport in both the varsity and intramural programs. Wrestling, as it turned out, proved to be a success; providing good competition between the organizations on campus. It proved especially successful for the Foresters, as they walked away with a first place team score. The quality of the team members is shown in the final score. The Foresters had a total of 96 points, while the next highest score was 35 points.

Next year we will have the same team returning, along with some new freshmen, so another first place is in order.

The following is an account of the individual wrestlers making up the team:

**VARSITY ATHLETES**

Among Tech's varsity athletes are these Forestry majors. Fred Pastori and Jack Boldt played on the football squad, Fred seeing a lot of action as quarterback, while Jack usually played the entire game as an outstanding offensive and defensive halfback. Hank Ackervall, Tech's jolting defenseman, made second team all WCHA honors, and was noted for his hard bodychecks. Al Flechsig swam freestyle on Omar Lajeunesse's swimming team, while Carl Gebhardt and Jim Gosz (not pictured) were two of Bob Gunner's top wrestlers. Charles Jones (also not pictured) was a member of Coach Verdie Cox's varsity basketball squad.
Along about noon on June 14, the 1960 session of Forestry Summer Camp got under way with 55 foresters present. This year's Summer Camp was unique in that for the first year the ten week session included a condensed four week course in surveying.

The first night in Alberta made most of the boys aware of an outstanding feature of the area, its great population of blood-hungry insects. Those who particularly felt this were the boys in the then unfinished barracks #3, and those of House 11 who didn't know that no-see-ums do not slow down for window screens.

Compassing and pacing were first on the agenda, and after this was "mastered" the foresters began working with traverse tables. Highway 41 was the scene of the test on traverse tables, which ended a short distance up a bush road. This particular road seemed to be a special attraction to mosquitoes, and Hammer was forced to build a smudge to ward them off.

After a week of scaling at Ruona's mill at L'Anse, the bush stomping really got into high gear when we began type-mapping and cruising. No one will forget that swamp in Section 13, where we were counting splashes instead of paces.

The first six weeks ended with a final problem which had some of the boys counting up tally sheets in their sleep. Hammer and Gene really kept us moving during the next four weeks of surveying, condensing as much as possible into every week. We all remember the quizzes which we were bombarded with practically everyday. The work included everything from levelling and sunshots to laying out horizontal curves and running section lines on the jackpine plains. As a final problem in surveying, we were required to make a plat map of half of Alberta.

The extracurriculars of summer camp were many and varied, one of which was softball. A pretty fair team was fielded, and the boys managed to give the prisoners and some of the L'Anse city teams some stiff competition. In hitting they were led by Pete "Jackpine" Waisanen, who was also the camp romeo.

The usual rivalry in volleyball between House 11 and the barracks existed, and, although there were three barracks to contend with, the "House" managed to win the biggest share of the games.

A center of social activity was the Colonial Inn, which, as the summer wore on, became even more popular than Beasley's with many foresters. The most popular place of all was, of course, the cookhouse, mainly because of the delicious cooking done by our cooks, Mrs. Clish and Mrs. Anderson.

Some of the many memories most of us will recall from summer camp are these: The many rides on the Blue Bullet, always accompanied by shouts of "Let 'er go, Hammer—she wants to go!" Scaly Marita's insistent arguments with Gene and Hammer on the log decks, saying, "You have to favor that yellow birch, you know!" A water football game against the L'Anse boys at the Second Sands beach. When Gene met a certain person during the final problem in Section 19 who had no idea which forty he was in. Bob Artis, who wandered into the next section on the Jackpine plains before he got his bearings. Old Bruno, the guardian of the garbage dump.

All in all, practically everyone felt that they had received a lot of practical knowledge in forestry, and had a lot of fun in the process.
WINTER CARNIVAL

In the competition for the Winter Carnival Trophy, the Forestry Club fell short of its achievements of 1960, dropping to third place behind the up-and-coming Independents now competing in Class A, and the Theta Tau Fraternity.

However, the Foresters still gave a good accounting of themselves, taking 2nd place in the somewhat soggy snow statue contest and 3rd place in the skits. In the special events we did not show too much—except our heels in the snowshoe races; the only event in which we placed first.

In general, Winter Carnival was again the "spectacular" of the year and called for the maximum effort of the Club—which was received—as many aching backs and blistered hands can attest to.

It must also be said that the Frats are really shaking their heads after losing the Trophy two years in a row?

SKITS

by Dan Matero

"Say Clem, you all a readin'?" "Yup.." "This here article is about them thar skits." "Yup."

Big Nick (who appeared to be Khrushchev) came over from Red Knob County to help out the United Moonshiners. The United Moonshiners were having trouble with "them thar U.S. Revenooers, what are stifling our freedom of commerce." Big Nick said he would help the boys out, but when they all got "plastered" he took over their stills.

Our buddy Nick didn't quite make it off with any Good ol' Mountain Dew, but the skit made off with third place, adding 5 points to our winter carnival total.

Al (Big Nick) Babboni, Bob (Harley) Strejc, and Floyd (Zeke) Roberts were the main "characters." Hohlfelder, Herbst, Gosz, Johnson, Lewis, Theiler, Lathrop, Ziemer, and Piepenbrink also played roles in the skit.

Dick Giebner, stagemanager, really added a bee and a bang to the skit. His helpers who gave him support were Dave Godfrey and Carl Gebhardt. Dan Matero was the director.

"Big Nick" Babboni offers to buy all the Good ol' Mountain Dew the United Moonshiners can make, but "Harley" Roberts and the rest of the boys are a little leery.
The 1961 Forestry snow statue, "Tim-m-ber-r," depicts the old and new methods of logging. It won second place in Class A.

SNOW STATUE

by Norm Johnson

The snow statue committee, under the direction of Al Caron, came up with an idea which portrayed the old and new methods of logging. Entitled "Timber-r," the sculpture won second place in Class A, behind the Statue of the Independents. This year's Winter Carnival theme, "75 Years of Progress," made the selection of an idea for the statue more difficult than usual.

Although we did not have last year's problem of the lack of snow, we had even more trouble with extremely mild weather. With the temperature in the 40's, four nearly completed "loggers" toppled over on the day before judging.

Al had some trouble getting adequate crews out until the last few nights, when the club came through with the big push needed. With "Stumper" Brisson at the helm of the Blue Bullet, a crew was able to haul all the snow needed.

Some of the comments we remember from that last night on the statue were: Al Caron: Come here, Piehl, I need a model for the back end of this horse. Ricky Geiss: Watch that loose rock in the creek! Ron Lewis: Forty degrees at midnight? Bill Mahalak: As soon as I finish this "Cat" I'll drive it over and push over the Phi Tau's statue. "Satch" Kuntze: Don't spill that coffee -- It'll eat right through the floor.

All the statue workers would like to thank Bert Noblet for the coffee and doughnuts he supplied on the last night.

SPECIAL EVENTS

by Norm Johnson

The special events were the weak points in Winter Carnival for the Foresters. They placed in only one event, that being snowshoeing. The combined times in the cross-country snowshoe race of Oliver Hannula (who placed first), Al Babboni and Paul Theisen; plus Fred Duddleston's third place in the dash, gave the foresters a first in the event.

After many gruelling practice runs, musher Paul Theisen's dogsled team had to settle for fourth place. In a new special event, broomball, the boys had a rough time, the sport being new to everyone. Although we scored highly in the number of bruises from falls on Dee Stadium ice, our goal score wasn't too high. Theta Tau edged us out of third place by a single goal, after we had beaten the Delt Sigs and lost to the Newman Club.

Floyd Roberts, Bob Paddock and Larry Battey, winners of the Forestry Club's beard contest.

This Swede tries snow sculpturing.

The "cat" takes shape under the direction of Jim Mahalak and Crew.
CELOTEX IN UPPER MICHIGAN

by Lynn Sandberg
Manager, Forestry Division

At L'Anse, Michigan, The Celotex Corporation has just completed the world's most completely automated and mechanized insulation fiberboard plant. To provide this plant with a daily diet of 150 cords of wood, Celotex purchased 185,000 acres of forest land in Baraga and surrounding counties and perpetual timber cutting rights to an additional 57,000 acres. Through scientific forest management, these timber lands provide a continuing supply of pulpwod, the plant's most important raw material.

Recognizing that the annual production of timber of all kinds on Celotex lands is several times the present needs of its L'Anse plant, The Celotex Corporation set up a Forestry Division to handle the growing and marketing of its timber. The primary concerns of the Forestry Division are these:

1. To keep the L'Anse plant supplied with the necessary raw material at a reasonable cost.
2. To manage the forests of Celotex in such a way as to develop increasing quantity and quality of products through good cutting practices and adequate care and protection.
3. Most important, to make a profit on forest operations over and above taxes, administration and investment costs.

Celotex has followed a pattern used more and more in the woodusing industry whereby forestry operations are made to pay their own way and forest management is responsible directly to top company management.

The first requisite for efficient forest operations is an inventory that accurately reflects current conditions in the forest. A series of 760 permanent sample plots has been located on a 57 chain-square grid throughout Celotex forest lands and is measured at five year intervals to provide a cross section of all lands to show the changes that are taking place. Information from the 760 study areas provides the yardsticks for determining the quantities and quality of timber to be included in annual cutting budgets. Details of where and when to cut are determined from forest condition and timber type maps prepared for all lands using recent aerial photographs and by repeated ground checks.

Predominant on Celotex lands is the Northern Hardwood forest type with all its complexities of species mixtures and wide differences of quality. Aspen - paper birch lands and the areas of spruce - balsam mixtures are also important elements. Cedar, pine and swamp hardwood lands together make up less than 1/10th of the total acreage. Non-productive acreages are relatively small.

In order to achieve the best growth rates of the highest quality timber possible, the Northern Hardwood type will be cut selectively on a projected ten-year cutting cycle. Once in each ten year period, overmature trees and excess mature and immature growing stock will be marked for cutting and removed from the stand, doing as little damage as possible to the leave trees. As a general rule, a residual stand of seventy square feet of basal area will be left in sawtimber stands and of eighty-five square feet in poletimber stands. Theses levels of growing stock should adequately protect the site, insure good quality of future products and promote seedling regeneration to replace harvested trees.

Aspen timber types will be clear cut for root sprout regeneration. Much of the aspen will convert to northern hardwoods or to balsam fir types after one or more rotations. Spruce - balsam mixtures are either marked or cut on a diameter limit or clear cut in strips.

To facilitate the field operations, Celotex forest lands have been divided in two management districts centered around L'Anse and Champion. Cutting budgets for each district are prepared annually and administered by a district forester and assistant for each district. Each annual plan provides for road layout and construction, preparation of timber harvest areas, arranging and supervising contract logging operations, and scheduling delivery of forest products.

Logging operations are carried on by independent contractors usually equipped either for log timber or pulpwod. In some instances, the softwood pulpwod is cut prior to sawlog operations. From three to five hundred workmen are employed on part-time or full-time basis by contractors.

Forest products from Celotex lands are shipped by truck and rail to mills in Upper Michigan and Wisconsin. To paper mills go spruce, balsam, hemlock and hardwood pulpwod. Sawlogs are shipped up to distances of one hundred...
miles or more. Several veneer companies take birch, maple, and other hardwoods in veneer grades. Two chemical plants take hardwood for charcoal manufacture.

Problems encountered in managing these forest lands include:

1. Overmaturity in virgin stands.
2. High culm percentages in hardwoods.
3. Inaccessibility of areas most in need of cutting together with difficult road building terrain.
4. Lack of sufficient markets for hemlock logs and pulpwood, and for low grade hardwoods.
5. High freight rates for spruce and balsam pulpwood.

Pulpwood supplies for the L'Anse plant come primarily from Celotex lands, supplemented by purchases from loggers and farmers. Aspen is the species now utilized. The use of dense hardwoods, such as maple and birch, in the production of fiberboard is a relatively new process. Indications are that eventually a substantial portion of the total wood used at L'Anse may be dense hardwoods. This development will help solve one of the forester's problems.

Pulpwood suppliers are paid on a tonnage basis for deliveries to L'Anse. Weighing of pulpwood promotes delivery of freshly cut wood, eliminates many differences on scaling procedure, and compensates the producers of good quality, sound and well-prepared wood. When the trucks are weighed on the fifty foot platform scale, an automatic printer records the loaded weight in and empty weight out on a check form. After a rapid calculation by the weighmaster, the check is completed and each driver receives payment on delivery for each load.

Within the L'Anse plant, a specially designed system of intricate, automatic controls assures production efficiency and product quality by guiding plant operations from the log yard through board manufacture and final fabrication. Pneumatic controls, unique to the L'Anse plant, accurately regulate the flow of all materials used in the production of fiberboard. Under the supervision of trained operators, these controls compensate for differences in the type of wood pulp being fed into the machine, measure precisely the amount of other materials (alum, asphalt, rosin, etc.) to be blended with the pulp, and direct the manufacture of a broad range of fiberboard products from the same basic ingredients. Characteristics of the wet board produced are varied from the low density of acoustical ceiling tile to the comparatively higher density of Strong-Wall insulating sheathing.

In the first step of the manufacturing process, pulpwood is fed into two consecutive endless conveyor chutes leading from the wood yard to the chipper house. Powerful rotating knife blades convert pulp sticks to chips for temporary storage in two silos, each 24 feet in diameter and 50 feet high.

From the silos the chips are conveyed to the pulp mill. Here, the latest digesting and defibrating processes -- including new techniques developed by Celotex engineers -- separate, refine and wash the wood fibers. Now in liquid form, the wood pulp is pumped to a stainless steel head box.

From the headbox, the liquid mixture flows onto the Fourdrinier board machine, where it is distributed evenly across a broad, moving wire screen. Gravity and vacuum drain much of the water, leaving the treated wood fibers in a mat roughly resembling fiberboard. Five successive sets of vacuum press rolls extract still more moisture from the wet mat. The L'Anse Fourdrinier machine is the widest wet-process structural board forming machine in the world. (A sheet 176 inches wide can be produced.)

From the presses, the sheet moves to a cut-off machine and is cut in 16 to 24 foot lengths. These cut sections then pass to a tipples and are automatically fed into the eight moving tiers of a huge dryer. To dry the board uniformly, the dryer is divided into several sections with temperatures varying from 300 to 400 degrees Fahrenheit. Steam exhaust from the dryer heats the water used in early stages of manufacture -- one of the many cost-cutting and efficiency-producing features developed by Celotex engineers particularly for the L'Anse installation.

From the dryer, the rough boards are conveyed to the fabrication area for sizing, edging, trimming and finishing. Here experienced technicians supervise the conversion of the basic fiberboard into a variety of products. For example, in the production of Hush-Tone acoustical ceiling tile, the fiberboard moves by conveyor through the following processes:

- cutting to 4' x 8' size
- coating and drying
- cutting to 12" x 24" ceiling tile
- Drilling of sound trapping cavities
- cutting of tongue and groove joint or trimming edges
- printing of the over-lay design, if any.
The finished tile is then individually inspected before being packaged for delivery.

In a separate production line, fiberboard is either asphalt coated or asphalt-impregnated to make several types of insulating sheathing. In the same line, sheets of fiberboard can be laminated to produce insulating roof deck or roof insulation. The L'Anse plant is the only operation of its kind in which a product, such as laminated and coated sheathing can travel all the way through manufacturing and fabrication into packaging without leaving the main production line.

Operating at full capacity, the L'Anse plant employs approximately 150 people. An additional 100 to 150 woodsmen are employed by private contractors in the logging operations that supply the plant besides those woodsmen producing sawlogs and other forest products for the open market.

The completion of the L'Anse plant symbolizes the steady growth of The Celotex Corporation through the years. From a single plant with 34 employees, Celotex has expanded in four decades to a network of 9 plants and 17 district sales offices serving all parts of the United States. A plant in London, England, produces a similar array of fiberboard and hardboard products. At Marrero, Louisiana, Celotex's original plant, now the world's largest fiberboard mill, produces a complete line of fiberboard building products.

For commercial installation, Celotex markets the well known line of Acousti-Celotex acoustical ceiling tile and suspension systems including economical fiberboard tiles, incombustible mineral fiber panels and efficient steelbase sound-absorbing tiles. The firm manufactures asphalt shingles, roll roofing and asphalt roofing felts.

Celotex is also a major manufacturer and supplier of Celo-Rok gypsum wallboard, sheathing and plaster; mineral wood insulating blankets and Handi-Pak home insulation; insulating siding; decorative interior hardboard panels and exterior hardboard siding; and industrial fiberboard for a wide range of other applications such as packaging of delicate or irregularly shaped items and as a component of other products.

Production start-up at the L'Anse plant marked the completion of a major four-year expansion program. Included in the program were a gypsum products plant at Ft. Dodge, Iowa; a mineral fiber ceiling tile facility at Pittston, Pennsylvania; a new Research Center in the Chicago suburb of Des Plaines and major modifications at the Marrero plant.

With these and future expansion efforts, Celotex expects to continue its building industry leadership established more than forty years ago in the sugar cane fields of Louisiana. The advent of Celotex in Upper Michigan to manufacture fiberboard from aspen and other hardwoods is one more step in supplying the needs of America's growing economy.
New Developments at . . . .

THE FORD FORESTRY CENTER
by Eric A. Bourdo, Jr.

Each year since the Center began operation in 1955 has seen new construction and other new developments. The year 1960 has been no exception.

It would have been hard to imagine in 1955 that more space to house students would be needed. Yet 1960 saw the completion of the third 25' x 46' 12-man dormitory and the beginning of construction on the fourth. Dormitory four will be ready for occupancy by 1961 students, but the finish carpentry and panelling won't be completed until fall. The four dormitories are designed to provide living and study quarters for 48 students, but could accommodate up to 64 men in an emergency. Food service was improved by the installation of a high production commercial toaster.

On the other end of town a 20' x 64' pre-fabricated garage was built to house vehicles which formerly had to stay out in the weather. The garage also provides some badly needed storage space.

Special attention was given to research facilities, however. The 16' x 24' greenhouse planned last year was erected. Equipment will be installed in it this summer. It is hoped that construction of a headhouse laboratory can be initiated as planned.

The soils-plant physiology laboratory begun a year ago was much expanded. Addition of new equipment, much of which made at Alberta (pressure membrane apparatus, tension table, etc.) now permits most standard soil tests to be run at the Center, as well as many kinds of procedures required in plant physiology studies.

Installation of apparatus for "vernalization studies" was completed, and recording of data will begin during the spring of 1961. The 85-foot tower for determining temperature at different levels in the forest and the instrument house with its recording machines are a spectacular part of this installation. Research here will attempt to relate seasonal tree development and growth to selected environmental influences.

In the fall of 1960, the Center's first "controlled burn" was held in the jack pine stands of the Baraga Plains. Temperatures in the crowns of seed trees were recorded to relate fire characteristics to the opening of the serotinous cones of jack pine. Any fire, of course, is not controlled until its out, even if it were set on purpose. The students and others who witnessed the burn had an interesting time fighting the flames to a standstill on the second line of defense. Another burn is scheduled for the Spring of 1961.

As usual, over 100,000 board feet of white pine, hemlock, and hardwood logs were sawn in the Alberta Sawmill, providing lumber recovery and other information. Another 10,000 board feet of sugar maple logs were "sawed alive" for the Lake States Forest Experiment Station. Federal researchers spent most of the summer at Alberta Photographing the logs and the boards in connection with their work on tree quality evaluation. Researchers from the Institute of Paper Chemistry also spent several weeks at Alberta working on the chemistry of new wood development in sugar maple, jack pine and balsam fir.
Among the many other people who cooperate with the Ford Forestry Center must be mentioned the Soil Conservation Service. A soil scientist virtually completed soil descriptions for the hardwood areas and did considerable work on the pine plains. It will require at least one more year for him to complete describing the soils in detail in order to be able to tie tree growth on the Center's growth plots to them.

Students, of course, made much use of the Center's facilities in 1960, as they have in other years. Summer school this year included not only field forestry, but for the first time, forestry surveying as well. Forestry students from both the Purdue and University of Michigan summer schools visited Alberta, as well as Conservation groups from Teacher Colleges. Students from a number of the area's high schools also visited Alberta for field instruction in phases of forestry.

At Alberta standing still finds no place and education lives side by side with research. An ideal environment thus exists in which future foresters can learn established facts while being in contact with new frontiers.

Pulping Research at Michigan Tech . . .

FOREST PRODUCTS RESEARCH DIVISION

The Forest Products Research Division at Michigan Tech has, since its inception in 1947, been involved with studies to develop Michigan's pulping potential. Its most recent investigation has been concerned with the possibility of producing bleached food container board in the Upper Peninsula.

This interest in pulping is appropriate in view of character of the area's wood resources. The character of the forest has been changing from one of old-growth timber to one where second growth stands predominate. The growth in these stands, particularly in the hardwoods, is producing a large cubic foot volume of fiber. This change in the character of the forest resource presents a real challenge in utilization, but at the same time offers good forest management opportunities when approached from a pulping utilization standpoint.

Pulpwood production in Michigan is already a big and growing business. In the past five years production in the state increased some 32 percent. In 1959 Michigan produced 1,067,000 cords of pulpwood — more than either Wisconsin or Minnesota and of this, 57 percent (601,010 cords), was produced in the Upper Peninsula. Projected estimates of volumes for 1965 and 1975 indicate there will be increasing supplies of pulpwood in the years to come.

The minimum economic size for a non-integrated pulpmill is considered to be in the capacity range of 200 to 300 tons per day. To meet such requirements and also to utilize the resource to the best advantage, a product which can use blends of hardwood and softwood pulp offers the best possibility.

Exploration of all of the resource and location factors by the Forest Products Research Division has lead to the writing of a report recommending the building of a food container board mill in the Eastern half of the Upper Peninsula. This report is the result of some three years of effort on the part of our staff in cooperation with the Forest Products Laboratory, Madison, Wisconsin who made the pulping tests and produced the bleached food container board, while the Pure Pak Laboratories of Ex-Cell-O Corporation, Detroit, Michigan tested the milk cartons made from this paperboard. Some eighteen companies and public agencies provided the funds or services to make this investigation possible.

This report proposes the manufacture of milk carton stock from a mixture of either fifty percent mixed softwoods and fifty percent mixed hardwoods or twenty-five percent mixed softwoods and seventy-five percent mixed hardwoods. Service tests indicate either combination of species mixtures gives a serviceable product — the latter combination, however, gave the best all around characteristics.

Location factors favoring the building of a mill in this area:
1. Sites on Lake Superior and Lake Michigan with deep water transportation possibilities
2. Large volumes of clean water available
3. High quality labor supply
4. Large private and public land ownerships assuring continued pulpwood supplies from managed forests
5. Favorable freight rates to midwestern markets
SPRING-RUN RAINBOWS OF THE KEWEENAW

by Gene A. Hesterberg
Illus. by John Franzen

Spring comes with a rush to the Keweenaw Country! Every Tech Forester is familiar with this fact. Lenthening spring days accompanied by a waxing sun release a rush of snow-melt water into every forested stream along the rugged shore of the great peninsula that juts northeast out into the "big lake." Delicately timed with this gush of water, as only Nature can perfect, the big spring-run rainbows begin their move to spawning beds. Forcing upstream against torrents of chill water, the colorful hook-jawed males flash around countless snags and log jams and over foaming cascades of water rushing across rock-slides and falls. Joining in the migration are the heavy, spawn-laden females. They, too, fight upstream as freshets from every warm day speeds more snow-water on its way to join the restless waves of Lake Superior.

Now is the time one's heart quickens and once-sluggish bodies begin to react more quickly, to become alive with spirit again. No attacks of spring fever ever infest rainbow fishermen. This is a breed like no other strain of man in the North. Drippily nosed but never ill; shaking cold but not stricken by a microbe; dampened, wool clothing and gear but never dampened spirits. Only optimists care to fish during this season.

The Misery, Elm, Greveraet, Salmon Trout, Gratiot, Tobacco, Traverse, Kelsey, Falls, Silver, Slate, Ravine, and the Huron. These are just a few of the larger rivers that sluice their chill water downstream and serve to transport the big fish on their annual spawning run up to the quiet gravel bars beneath shading hemlock, pine and spruce. The little alder-choked streams, too, accomplish the same purpose, but their names like the names of the fishermen that haunt these stretches are far too numerous to mention.

Of one thing I am certain, however. You will find a Tech Forester among those who fish every one of these re- frigerated avenues to the Lake. Some will be standing wader-deep in the mist just off the main current of water flushing from a roaring falls. One, rod in hand, is bent over at the cobbled gravel bar quieting a highly colored rainbow as she scatters salmon-colored spawn across the stones that are her final place. Far upstream another lad, satisfied with his success of early dawn's fishing, is hunkered down close to a warming fire. His pitch blackened coffee pot sets up an aromatic attraction as a boiling brew of coffee erupts stronger by the minute.

Here on the rainbow streams of Michigan's Keweenaw peninsula, strength is a virtue. Strength to stand among powerful currents, resistance to ward off cold and chills and aching joints; tolerance to stay the hunger that quickens from tardy meals and long hours afield in chill air and chillier water. Power to awaken a tired body at 3:00 a.m. for a hurried rush to stand among the spawning rainbow waters only 'til daylight.

Most Techmen know the rainbow best after their first or second year of prowling the streams of the Keweenaw. By this time each lad has his favorite ribbon of water to test, and usually there is a strong attraction to that place where he hooked and held his first big fish.

Man, it seems, is strongly motivated by memory. Returning to sites of pleasant times makes an easy trail for him to follow. For the rainbow fisherman, at least, this is true. I could always expect to see Al Burkhardt waist deep on the big pool below the first falls on the Slate; "Pete" Theisen would always prefer the rockbound stretches near the mouth of the Elm; Duane Wenzel is perennially taking big fish from the Falls; Don Kruter always preferred the distant stretches of forest-shrouded, riled water of the Salmon Trout; and --- Don Scott, Fred Pastori, Ralph Hewitt, Paul Theisen, John Franzen, Ralph Duddles --- each of them holds some deep pool, bend or eddy as favorite above all other places. Through secrecy of the highest order each protects his place against discovery and frequent use by others.

What causes these lads to rejoin each spring to the same gravel bar? Why the unflagging affinity? Why the sacred place? The secrecy? A ritual-like appointment to be kept inviolate from year to year. Answers to these questions provide a revealing study to human nature among young and developing outdoormen. Ken to these facts is knowledge of all intimate things that are foremost in the minds of most Tech foresters.
But much may be explained by the setting and atmosphere at each place. Water of the Ravine river sweeps quietly out into Huron Bay, but a few hundred yards upstream the river is a boiling froth of foamy white tumbling over ice bedecked boulders. Sharp edged sheets of ice protrude from moss encrusted slate rock a few inches above the wrinkled rushing water along a "run" which presses tight against the layered wall of stone.

A night of action is over for the nesting pair of Great Horned owls up in the timber. Migrant goldeneyes and the first bluebills float sleepy among the pancake ice out in the Bay. Daylight serves a prompting call to the first wildlife (the Herring Gull) as well as a retiring signal for others such as the night prowling mink. In the chill early dawn screaming gulls sail in from the bay on efficient, outstretched wings to land ever so gracefully on the gravel bars below the roaring falls near the big pool. Competing for choice feeding areas where spawn has been spewed out across the rocks from a luckless female rainbow these great gulls stir a continuous turmoil of caterwauling that persists long after sunup.

The first crew of fishermen arrives when darkness still prevails - each promptly feeling his way along familiar paths to a predestined run of water. When first light is still only a glimmer in the cut-over timber up the snow covered slope, there may be half dozen vague forms in the half-dark. Each man busily pitching spawn covered hooks in rhythm with the swift current. (No delicate size 14 flies used here.) Although more fishermen, anxious to make their first catch are yet to come, these wise ones have already hooked and successfully netted a number of three-, four-, and five-pound fish. Big all-powerful, rushing, incontestable rainbows more than a match for many of these lads - these are the fish caught as a result of plentiful hopes and prayers and tackle and patience and drippy noses and skill and fortitude and deep hand nets and heavy waders and cold fingers and bedeviled lures and - everything that goes with spring-run rainbow fishing.

A hooked fish is rushing wildly, uncontrollably in furious, deep, almost inexhaustible flashes from end of pool to its head. Oftentimes - should this fail - the big one with red striped side may shift tactics and head off downstream at a gait easily defying anyone shrouded in ampit-high waders and motivated by chilled, stiff muscles. Down - down - down - pool after pool after pool, rapids after rapids she goes, goes, goes - GONE! Then our forester, with sickening slack line, a lump in his throat and a brow with a drop or two of sweat, stands alone again.

Like many of life's problems that have already beset this young man, he rises again to the reality that all is not lost - only a hook, a sinker, and a few salmon eggs. Our forester is learning to be humble; a lesson from the basic primer of life for every good American. Our lad readies his gear for another try and another fish.

Tell me now - is this not the proper method of teaching young men to know their realm among wild things of the forest?

Diamond Jubilee
REUNION
August 3-4-5, 1961

Plans are being made now to make this 75th Anniversary a milestone in the progress of Michigan Tech, and a real, old-fashioned family reunion, picnic, bull session and beer bust type gathering for all the returning Forestry grads.

Bert is hard at work now, planning a special program of get-togethers for you stump-jumpers, so make your plans now to attend and chew the rag with your classmates and favorite (?) instructors.

And what's more, a certain C. Y. Cundy seems to have something to say about what class is going to have the most fellows at the reunion.

A CHALLENGE
by C. Y. Cundy, '50

As a member of the largest graduating class in forestry, I am taking the liberty of speaking for the class of 1950 and do--here and now--issue a challenge to all other forestry classes of Michigan Tech. As we all know, our school is holding its 75th anniversary this year. We Foresters are holding our 25th anniversary reunion at the same time. We are looking forward to renewing old acquaintances at the school and, more particularly, at the Forestry Department.

Now, as to the challenge. I feel confident that we Foresters of the class of 1950 will have better representation (even percentage-wise) at these big doins' in August than any forestry class before or since.

Any of you youngsters (or oldsters) care to pickup the gauntlet?
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