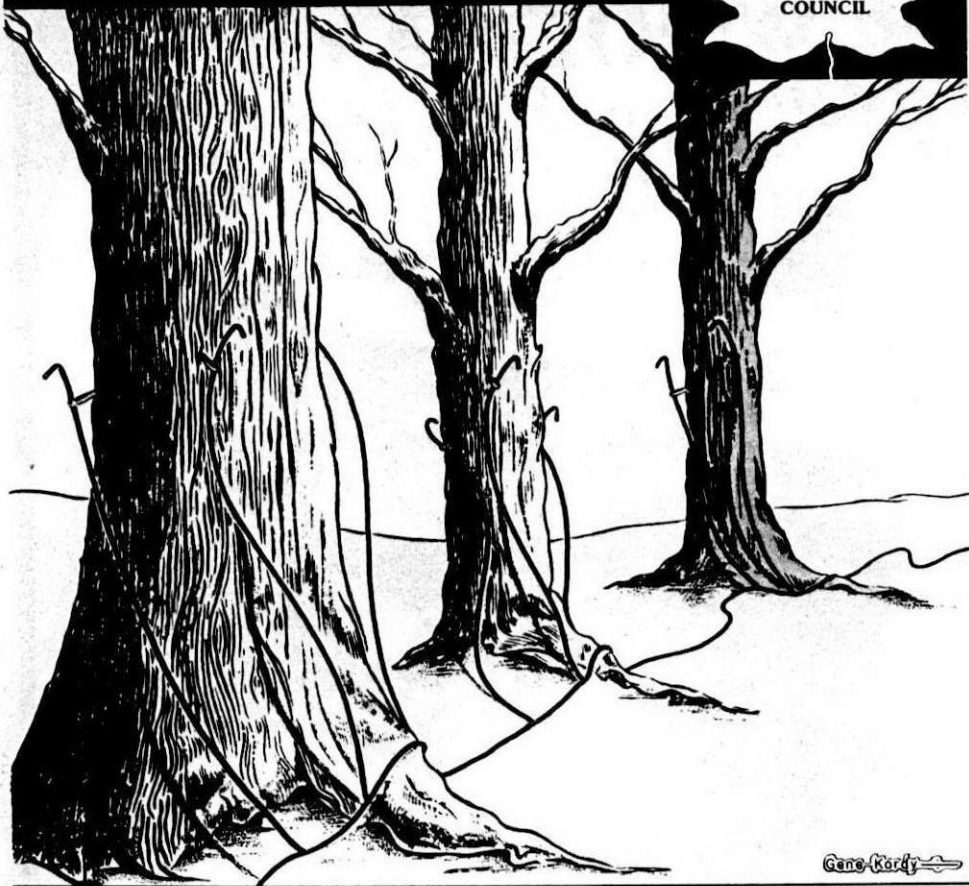


National Maple Syrup • DIGEST •

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Gene Kordy 

Vol. 24, No. 3

October 1984

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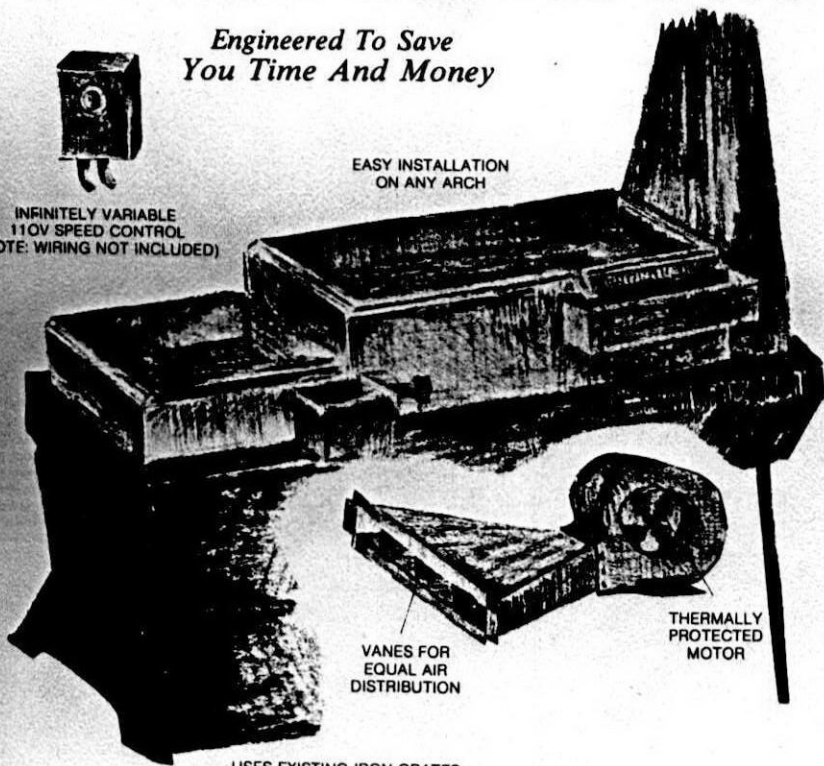
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THE MAPLE SYRUP DIGEST

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COVER PICTURE

This design was used on the first Digest published in January, 1962. Since this is the 25th anniversary of the North American Maple Syrup Council, we thought it was appropriate to use it again.

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Editorial

Important information for all Vermont and Somerset County, Pa. producers

In the last issue I explained our procedure for changing the mailing list over to a computer. We had completed all but Vermont, New York and Pennsylvania for the July issue. I intended to have it all done by this time but a problem has come up that is going to delay some of it.

I have received several changes of address from Vermont readers - all with no money enclosed but with a note saying they belong to the Vermont Maple Sugar Makers Assoc. Apparently they assume or have been told that their association is paying for their subscription.

Since this is not true I thought it best to inform all our Vermont readers that their association has not supported the Digest since July 1st, 1980. Therefore, we will send Digests to the entire Vermont list one more time (October issue) so they will understand the situation and have a chance to bring their subscription up to date before they are deleted.

The Somerset County Association, a division of the Pennsylvania Maple Syrup Council, is in the same situation. Apparently their members have been led to believe their subscriptions have been paid when, in fact, the Somerset Association has sent nothing to the Digest since the beginning of 1978. This has been verified by a letter I received from one of their members.

So - - if the Vermont and Somerset County, Pa., producers want to keep on receiving the Digest they will have to subscribe by Nov. 15th, 1984. The rate is \$2.00 per year or \$5.00 for 3 years.

WELCOME BACK MIKE

Mike Girard's short leave of absence from Council duties has ended -

We welcome Mike back as Secretary-Treasurer.

AMERICAN MAPLE MUSEUM



CROGHAN, N. Y.

The American Maple Museum, Croghan, N.Y. would like to congratulate the North American Maple Syrup Council on their 25th anniversary.

We are pleased to be able to acknowledge the many accomplishments of all the dedicated individuals that have made the Council the great success that it is.

We would also like to thank Lloyd Sipple for his efforts to keep us informed and up-to-date through the Maple Syrup Digest.

**DEADLINE
DEC. ISSUE NOV. 1st.**

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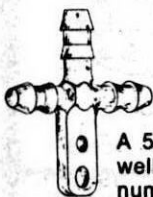
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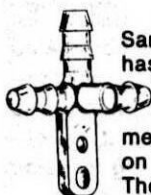
NEW FITTINGS FOR 1985

These new tubing fittings supplement our old fittings which are all still available.

Nothing is ever entirely obsolete.



A 5/16 Tee with a nail hole as well as an eyelet to attach a numbering tag to.



Same as #34-ST, except that it has a spout plug on one side, for washing only. We do not recommend using this method if you leave the tubing on the trees the year around. The tubing eventually kinks and collapses, and also it is very hard to get all the cleaning solution out of the lines.



5/16 Y, a heavy duty, low production fitting for some installations. It can be used to start a line, by going around the first tree. It will work best for those who leave their tubing on the trees the year around. As it is almost impossible to pull our tubing off your fittings, for those who reinstall their tubing each year.



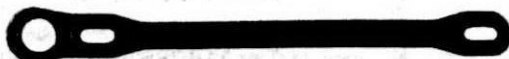
Same as #78-SS, except that it has a tubing clip for coiling. This clip idea, the same as on the #78-S-A, has not proven popular. The #67-A fitting, installed a few inches below the spout, makes a much easier and neater coil. PAT. PEND.



An entirely new concept in a Spout that saves time and is easier to use. In many cases it will do away with a nail in the tree for the Tee PAT. PEND.



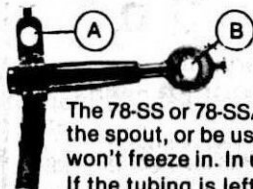
This Plug works on all new #78-SS Series spouts, as well as on all #78-S Series spouts produced during the last 25 years. PAT. PEND.



This Retaining Strap attaches #78-S and #78-SS spouts to the #78-P plug. We do not feel it is essential, but it is available. PAT. PEND.

AVAILABLE AT LAMB'S

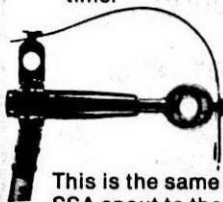
We haven't discontinued anything, just added to our previous line of fittings to make it more complete and versatile.



The 78-SS or 78-SSA spout with the 78-P plug in place to prevent mud wasps from plugging the spout, or be used in washing. The tapers in the spout and plug are dissimilar so they won't freeze in. In use, the plug (B) goes into opening (A) for storage.

If the tubing is left on the trees the year around, hang the spout on a nail thru opening (A). This way you are all ready to retap and your drop lines are straight, not kinked or collapsed, and the cleaning solution drains out.

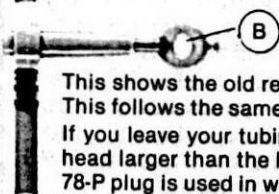
In the event you take your tubing down during the off season, when you reinstall it, all you have to do, as you uncoil your tubing, is to hang each spout on a nail thru opening (A). This way your tubing is on the trees and ready to be tapped in, with a minimum of time.



This is the same as above, but with the 78-R retaining strap connecting the 78-SS or 78-SSA spout to the 78-P plug. We do not consider this essential, but it is available.



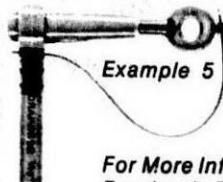
This shows the 78-SS or 78-SSA spout in use with the 78-P plug in storage, while the spout is in the tap hole.



This shows the old reliable 78-S spout of the past 25 years with the 78-P plug installed. This follows the same description as Example (1), with the following exceptions:

If you leave your tubing the trees the year around, you install a nail thru hole (B) with a head larger than the hole. This way, the 78-P plug can not come off the nail head. Then 78-P plug is used in washing the tubing on the trees, as well as holding the plugged 78-S spout and drop line in place till next season.

If you take your tubing in, use a nail thru hole (B) with a nail head smaller than opening at (B). This way the spout, with the plug in place, can be slipped off the nail and coiled up intact. Then it can easily be reinstalled on the trees by just slipping the plug hole over the nail head.



This is the same as Example (4), but with the 78-R retaining strap in place, connecting the 78-S spout to the 78-P plug, if considered necessary.

For More Information see your Lamb Dealer or Write Robert M. Lamb, Box 368 Bernhards Bay, N.Y. 13028 for complete parts description & price list.

GREETINGS
FROM
THE
CHAIRMAN



When summer first started (seems like about two weeks ago) it was wet and cold, then it was wet and hot and finally dry and hot. A very hard summer to make hay.

However, this didn't stop people from moving a lot of syrup to market. From all over it has been a good selling year at somewhat stronger prices.

It's always good to get a surplus under control, which is what we seem to have done in the maple industry. Under control that is, until the next big crop.

The plans for the Council meeting in Danbury, Conn. are well along. I consider twenty-five years of being a successful maple organization a triumph over long distances and differences of opinion. Did you notice the young folks in the pictures in the short council history in the July digest? Everyone changes but thee and me.

Our twenty-fifth anniversary meeting promises to be fun, lively, educational and businesslike.

Gordon Gowen

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Women's Page

Editor, Mary Lou Sipple

These recipes are from an old cook book - dated 1903!

MAPLE CUSTARD PIE

mix together

1/2 cupful scraped maple sugar

1 TB flour

3 eggs slightly beaten

1/2 tsp butter

1 quart milk

fill deep, pastry lined pan and bake as a custard pie in a moderate oven.

LEMON PIE

1 cup maple syrup

3 egg yolks

1 egg white

1 lemon, juice and grated skin

beat egg yolks and add maple syrup.

Whip egg white and fold in syrup mixture and add lemon juice and rind. Pour

in 8" pastry lined pan and bake 350 degrees until knife comes out clean.

Cover with meringue of 2 egg whites and 1/4 cup sugar and brown.

(another old cookbook suggested to bake a meringue at 250 degrees for up to 30 minutes!! I haven't tried that yet).

MAPLE SYRUP GINGERBREAD

1 egg, well beaten

1 cup maple syrup

1 cup sour cream

2 tsp ginger

1 1/2 tsp baking soda

2 1/2 cups flour

1/2 tsp salt

1/2 cup melted butter, cooled slightly

Combine syrup, cream and egg and mix well. Add dry ingredients and mix well, add butter and beat vigorously. Bake in greased 9" square pan 350 degrees for 30 minutes. Serve warm with whipped cream sprinkled with shaved maple sugar.

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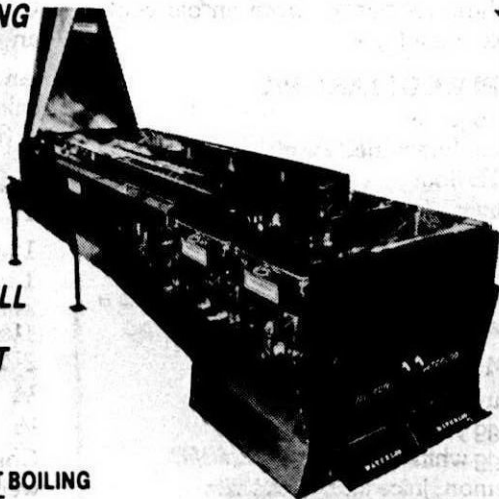
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Cornell Studying Vapor Compression Evaporator

— A Progress Report —

Prepared by

J.W. Kelley, L.J. Staats, and S. Dorsey

A prototype vapor compression evaporator was subjected to operational testing during the 1984 maple season at the Uihlein Sugar Maple Research-Extension Field Station at Lake Placid, New York. Preliminary results are very encouraging.

Conventional open pan evaporation by boiling has long been the standard maple industry method for removing water from sap. While the efficiency of this process has been improved over the years, the potential efficiency is limited by the nature of water itself. When one pound of water is converted to one pound of steam, nearly 1,000 BTU's of heat energy are absorbed. This energy is then lost as can be seen by the steam rising above the sugarhouse roof. In vapor compression evaporation (VCE), this steam is reused inside the machine. The steam is compressed and is then reused as a heat source to evaporate more water. The steam thus produced is in turn compressed, reused, and the cycle continues. The energy requirements of the VCE's compressor and accessories equal about 50 BTU's of energy per one pound of water evaporated. This is, obviously, less than the 1,000 BTU's required to evaporate one pound of water through the standard process.

Cornell University believes that the concept of VCE has sufficient practical promise for the maple industry to justify its further investigation and testing under actual operational conditions. Questions such as cost effectiveness, quality control, possible scale accumulation, ease of operation, reliability and maintenance are of particular interest. A pro-

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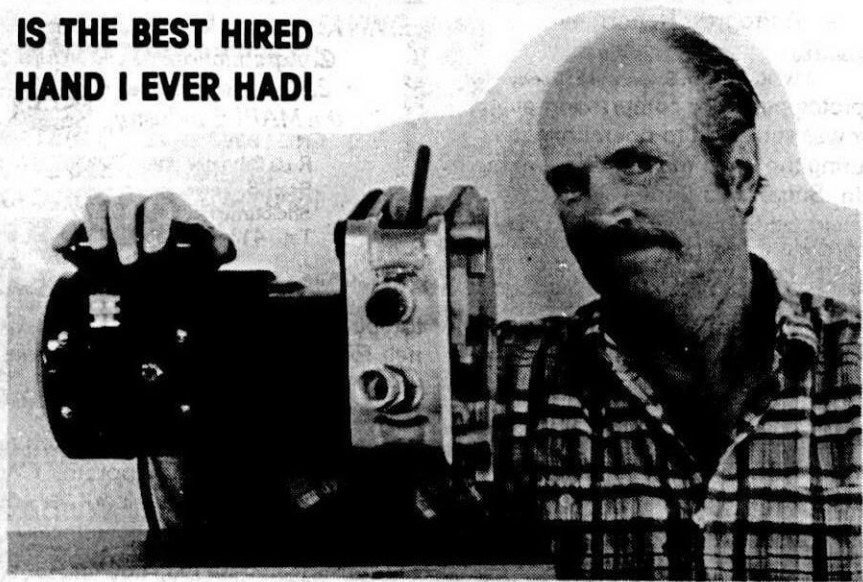
otype VCE unit was acquired by Cornell for research and demonstration at the Uihlein Sugar Maple Research-Extension Field Station.

The prototype unit was designed and built by the Modern Evaporator Company of Westport, New York, a company experienced in this concept of evaporation. The VCE was designed to remove 250 gallons of water per hour with the resulting concentrate to be further processed through conventional evaporation. Automation and operational energy efficiency are incorporated design characteristics which reduce labor and production costs.

The unit was subjected to pretesting with water in several trial runs prior to the 1984 maple season. During the 1984 season, the unit was operated under actual production conditions for about 70 hours. Maple sap was concentrated to an average of 14 to 15% sugar content. During some trial runs, concentrations to over 20% sugar were obtained. The concentrate was then finished to standard density syrup in a conventional evaporator. Resulting syrup quality was excellent. Valuable experience and data were obtained during this season's operation of the unit. However, more running time and production experience are necessary before a complete report to the industry can be provided.

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Letter to the Editor

Dear Lloyd,

I have read with great interest your article on The History of the North American Maple Syrup Council, published in the July issue of the Maple Syrup Digest. I found it very informative and well researched. However, I wish to rectify an incorrect piece of information. You wrote that in 1965 "Senator Aiken of Vermont managed to get a large grant to build a new Maple research Laboratory at the University of Vermont." Senator Aiken was able to appropriate money to build a Maple Lab for the USDA Forest Service, NE Forest Experiment Station, in Burlington, Vermont. The Maple Research Laboratory and the Proctor Maple Research Farm at the University of Vermont (Botany Department, College of Agriculture, Vermont Agricultural Experiment Sta-

tion) have never received any grant through Senator Aiken. After the establishment in 1973 of the new USDA Forest Service Laboratory, we maple scientists at the University of Vermont were able to get some of our research projects funded by the forest economist's unit of the Aiken Maple Lab. That is the reason why some research publications have been co-authored by scientists of the Forest Service and the University of Vermont. However, USDA Forest Service funds for collaborative maple research studies have not been available to us since 1982.

Sincerely,
MariaFranca Morselli
Research Associate Professor
Maple Research Laboratory
Vermont Agr. Exp. Station
University of Vermont
Burlington, VT 05405

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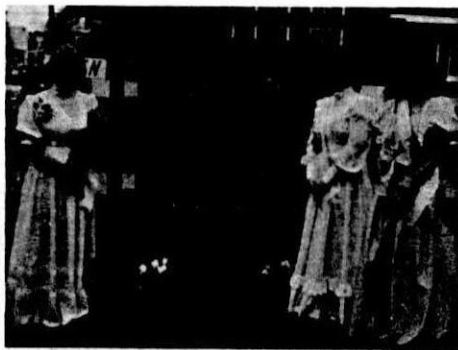
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Left to right: Jill Coller, Julie Adams, Kimberly Pedito

Jill Coller 1984 Maple Queen

The American Maple Museum held its annual Maple Festival on Saturday, May 19th, during which the 1984 New York State Maple Queen pageant was held.

Miss Jill M. Coller of Herman, repre-

senting St. Lawrence County, was crowned Miss New York State Maple Queen, Miss Julie A. Adams of Greene, representing Chenango County, and Miss Kimberly Pedito of Turin, representing Lewis County, are alternates.

Miss Coller is the daughter of Eugene and Barbara Coller. She has been busy promoting REAL maple syrup and its products. Jill attended the N. Y. S. Maple Tour and participated in the maple booth at the New York State Fair.

The committee is planning for the 1985 Queen Pageant. It is hoped that each maple producing county and/or Association will sponsor a candidate. Application forms are available by writing:

American Maple Museum
P.O. Box 81
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The annual opening is the third Saturday in May.

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LOCAL GROUP BUYS GRIMM CO.

Robert Moore, owner of the G. H. Grimm Co. of Rutland, Vt., sold the company to a local partnership last December 30th.

The 94 year old factory, one of only two major maple syrup equipment manufacturers in the country, will be operated by the Grimm Group, a partnership made up of State Transportation Secretary Patrick Granahan; William Carris, of Carris Reels Inc.; lawyer Alan George, of Carroll, George, Hill & Pratt; Baird Morgan of Vermont Tubbs Inc. in Brandon and Tom Howe, a C.P.A. of Burlington, Vt. The Grimm Co.'s name, employees and product lines will be retained.

Moore has owned and operated the Grimm Co. since 1951 when he and a partner bought it from Nella Grimm Fox

of Rutland. Fox's father, G. H. Grimm, founded the business in Ohio in 1880, but moved to Rutland in 1890 because most maple sugarers are located in the Northeast.

When Grimm arrived in Vermont, maple sap was boiled in the flat pans and kettles that often produced dark brown syrup. The Grimm evaporator cleaned up the process and was a major factor in expanding and upgrading the maple industry.

In 1956 the Grimm Co. built a new type of hay tedder. Now, about 40 percent of the company's production is for hay tedders.

Moore bought out the Lightning Evaporator Co. of Richford, Vt., in 1964 and began producing that line in Rutland. The Grimm Co.'s current production includes four models of hay tedders, two styles of evaporators, raised flue and drop flue, plus all kinds of maple syrup producing equipment.

Though the Grimm Group has no immediate plans to expand the factory, Carris said, the partners intend to bolster the 24 member work force to handle greater production. They have already hired two additional employees in the management area. David Markle has replaced Moore as plant manager and William Gormly has been appointed to the new post of vice president of sales and marketing.

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Left to Right: Edward Curtis, Putnam W. Robbins

PENNSYLVANIA AND MICHIGAN CONTRIBUTE TO AMERICAN MAPLE MUSEUM HALL OF FAME

EDWARD CURTIS

Edward Curtis was born June 7, 1920, in Siko, Wayne Co., Pa. He attended a one room elementary school, majored in agriculture in High School, graduating with honors, and was selected as delegate from Pennsylvania to the National 4-H Congress in Washington in 1940.

Ed has always been very active in both maple and other organizations. He was Sunday School Superintendent of his church for many years. He was Supervisor of his township for 18 years, a member of Pa. Farmers Association, a member of NRBA of Sire Power Artificial Breeding Corp., president of Wayne Co. Sheep and Wool Growers, a Dairylea Co-op. member for 43 years and president of the Beech Grove-Siko local unit of Dairylea. He was chairman of the G.L.F. and Agway Committee during their Transition.

In connection with the maple industry, he's not the largest producer in Pennsylvania but he has been more instrumental in the development of the maple organizations in his state than any one else.

He was one of the original 5 directors of the N.E. Pennsylvania Maple Producers Assoc. In 1963 he promoted a leaflet for his local association and helped organize the Pennsylvania Maple Syrup Council. He was elected president of the Council in 1965, an office he still holds.

During that time he found an outlet for bulk syrup when prices were low, helped update maple exhibits and premiums at the Pennsylvania Farm Show, started the Pennsylvania Maple Tours in 1968, promoted a picture postcard for the N. E. Association and the Pennsylvania Maple Man of the Year award in 1970.

He managed the first sales booth at the Penn. Ag. Progress days and finally succeeded in getting space to sell maple at the Farm Show. He has managed this booth ever since.

Ed has always been an avid supporter of the Maple Syrup Digest at both state and local levels. He also pressed for more research at the Philadelphia Laboratory, a battle he finally lost to politics. He served as vice chairman of the North American Maple Syrup Council in 1968 and '69 and as Chairman '70 and '71.

He served on several committees including changing the U. S. Syrup grading standards, and organized the 1970 annual meeting of the Council at Lucan's resort near Honesdale. He has never missed a North American Maple Syrup Council meeting.

PUTNAM W. ROBBINS

"Put" Robbins must have had maple syrup in his blood for he comes from a long line of maple producers. His great grandfather Robbins built a sawmill near

Westmoreland, NH, in 1770. His grandfather made syrup at Malone, NY. On his mother's side his great grandfather Lyon was born in Saw Pits (now Portchester) NY and logged on the Tioga River.

"Put" made maple syrup in 1914 at his father's sugarbush near Iron Mountain, Michigan. He spent his winter and spring of 1917 at his father's logging camp. They made maple syrup and had real maple on their pancakes.

In 1927 he graduated in Forestry at Michigan State University and was appointed Superintendent of the Dunbar Forest Experiment Station near Sault Ste. Marie. Each Winter he returned to the M.S.U. campus. In 1928 he made maple syrup for the University at the Lake City Potato Experiment Station. During the winter of 1929 he built the first steam evaporator used at M.S.U.'s sugar bush.

"Put" spent many hours from 1932 to 1936 recording temperatures and sap flows and assisted the U. S. Weather bureau in Michigan in devising a way to predict when the first sap flow would occur. He wrote "Smoke in the Sugar Bush" which was published in the Country Gentleman in 1944. In 1947 he published "Cost of Making Maple Syrup" covering 12 seasons.

The research "Put" conducted at Dunbar and East Lansing culminated in "Position of Tapping and Other Factors Affecting the Flow of Maple Sap", his thesis for M.S. degree in 1948. A 28 page bulletin "Production of Maple Syrup in Michigan" by Robbins was published in 1949.

In 1952, because of Put's research in maple sap, the Forestry Dept. entered a contract with the U.S. Dept. of Agriculture at Philadelphia to conduct research on maple sap flow. The following publications were based on data collected from this research:

Identification of Microorganisms from

Maple Tree tapholes, by Sheneman and Costilow.

Correlation Between Microbial Populations and Sap Yields from Maple Trees, by Sheneman, Costilow, Robbins and Douglas.

Some Evidence of Premature Stoppage of Sugar Maple Sap Production by Ching and Mericle.

The Effect of Chemical Fertilization on the Yield of Maple Sap and Sugar, by White and Robbins.

The Yield of Maple Sap per Taphole, by Robbins.

Pellets for Controlling Organisms in Maple Tree Tapholes, by Costilow, Robbins, Simons and Willits.

Influence of Tapping Techniques on Maple Sap Yields, by Robbins.

"Put" gave talks all over the maple belt, judged syrup at the Vermontville Festival and Michigan State Fair, served two years as secretary-treasurer of the National Maple Syrup Council and presented many papers at the tri-ennial conferences in Philadelphia.

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HOW TO - - -

MAKE MAPLE SUGAR CAKES

If you are now making and selling maple sugar commercially, you can skip this article - unless you have some problems. This column is for beginners.

First, check your thermometer. Since thermometers vary considerably, you must check the boiling point of water. Boil some water vigorously in a small container with the thermometer in it. Water will seldom boil at 212° like the book says. It may be as low as 205°. Regardless of what your thermometer reads use that as a base.

Use a good grade of syrup. It doesn't

This is a new feature of the digest designed to help both beginners and professionals, written in language I can understand so you should have no trouble. To have a column in each issue, we'll need your contributions. If you have ideas that might help others, please send them in. We'll use all we can.

have to be light amber. A medium amber syrup in the upper half of the grade variation will serve very nicely. If you want a fine grained, fondant type of cake, it will be very light colored. If you make a coarse grained, old fashioned type cake sugar, it still won't be too dark. I don't recommend using dark syrup. Besides making black sugar, it could have a high invert sugar content that will cause all kinds of trouble. You can't make a silk purse out of a sow's ear, nor can you make light sugar out of dark syrup.

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Make a small batch at a time. A quart of syrup in a 4 quart sauce pan is probably all you can handle at a time especially if the sugar is of the fondant type. It sets up faster than coarse grained sugar.

Boil the syrup to 32° above the boiling point of water. (If water boils at 210°, boil syrup to 242°.) You may want to increase or decrease this temperature after a few batches, but this is a good place to start. A streak of butter around the inside of the pan an inch below the top will help keep it in the pot.

For coarse grained, old fashioned sugar, stir as soon as it has boiled enough. Stir slowly until it starts to turn a bit white and quickly pour or dip it into the molds. Rubber molds are best. Tin molds must be greased with butter. It will take about an hour before it is set enough to unmold. Hard sugar should be air dried at least over night before packaging.

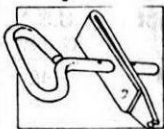
For fine grained sugar, when syrup is done (we use the same temperature as for coarse grained, hard sugar. The cooling process makes the difference) set the pan in a larger pan of cold water to cool it quickly. Leave the thermometer in it and cool to 200°, but do not agitate the syrup at all while it is cooling. (You may want to cool more or less but remember how you do it and when you find a procedure and temperature that works best for you, stick to it.) Start stirring but don't "whip" it. This just puts air in it, makes it foamy and doesn't help a bit. Don't use your electric mixer, you'll probably burn up the motor. Just keep it moving as long as you dare. You'll have to put it in the molds very quickly. The cooler the syrup is and the longer you stir, the finer the sugar will be but it will also set up faster. This sugar can be unmolded in just a few minutes but let it dry some before you package it.

Have fun and lots of luck.

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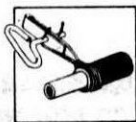
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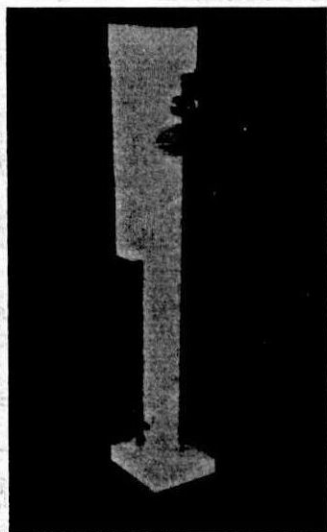
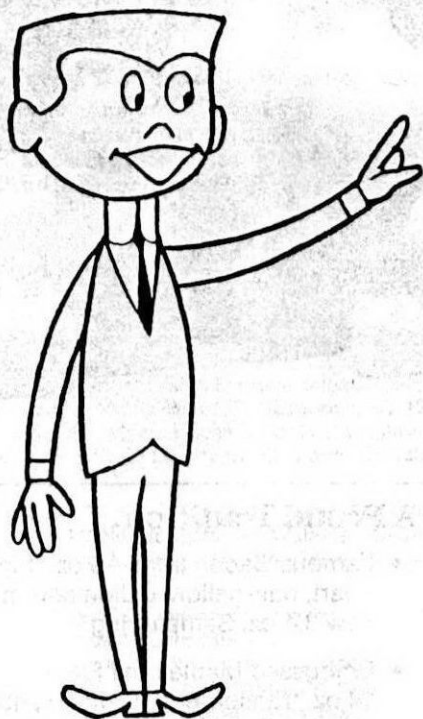
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History of Maple Research at University of Vermont

Basic and applied maple research at the University of Vermont (UVM) began in the early 1900's. Our research has centered on the sugar maple tree (*Acer saccharum* Marsh.) and its products--sap and syrup.

Here is a brief outline of our facilities and history.

The Maple Research Laboratory

- C. H. Jones, Experiment Station chemist, began research on maple sap and syrup chemistry and on maple tree physiology. His pioneering studies at UVM in 1900 were the basis of modern maple research.
- During the 1940's, James Marvin, plant physiology professor and chair of the Botany Department, continued Jones' work, along with Prof. Fred Taylor.
- The maple lab was first located in Morrill Hall, and then moved with Botany to Williams Science Hall, to Hills Building, and finally to Marsh Life Sciences Building in 1966.
- The new lab has expanded biochemical and plant physiology facilities for microbiological and plant tissue culture research and for teaching.
- MariaFranca Morselli, research associate, heads this program.
- Telephone number: (802) 656-2930

The Proctor Maple Research Center

- In 1947, Gov. Mortimer Proctor donated funds to UVM, and James Marvin used them to purchase a 200-acre sugarbush in Underhill.
- With F.H. Taylor, Marvin established a field station for conducting research on the sugar maple tree.
- The sugarbush supports about 1,800 taps in mature trees plus thousands of young trees.
- The Center now has two sugar-houses, a classroom and office build-

ing, and storage rooms. The Laboratory building is named for C.H. Jones.

- The Center is used as a field classroom for biology, botany, and forestry students; for maple specialists; and for maple syrup producers.
- Fred M. Laing, research associate professor, heads this program.
- Telephone number: (802) 899-4923

Activities at the Burlington Campus

- **Maple research library:** To receive a copy of the maple reprint list of UVM research, write to Dr. Maria-Franca Morselli, Botany Dept., 225 Marsh Life Science, UVM, Burlington, VT 05405-0086.
- **Student involvement:** In addition to ongoing undergraduate research in our lab (Botany 197-198), we teach Maple Science and Practice (Botany 149) during rotating years. We also teach a graduate course (Botany 391) and have several work-study, part-time waged, and volunteer positions for students from UVM and other colleges.
- **Research focuses:**
 - Microbiology** of maple sap, and of tree tissues at the taphole
 - Biochemistry** of maple sap, callus culture, and wood tissue
 - Chemistry** of maple syrup
 - Physiology** and **anatomy** of sugar maple

Here is a brief description of current questions studied in the Maple Laboratory.

- How does a tree's metabolism contribute to the biochemical composition of the sap as it flows from an aseptic taphole and of the resultant syrup flavor and color? How do microorganisms ferment the sap before it is processed to syrup?
- What happens to sterile or nonsterile sap when frozen, or to sterile sap when it's inoculated with bacteria and

yeast (amino acids, peptides, proteins, pH, invert sugar, phenolic compounds)? Do these influence syrup color and flavor?

- What is the interaction between micro-organisms and phenolic compounds in wounded maple wood?
- Can we grow the sweetest sugar maple from cells in a test tube?
- Can "scanning electron microscopy" (SEM) help us find what organisms are in plastic tubing collection lines?
- Can we identify microorganisms associated with the sugar maple and its sap-collecting system faster, easier, and more accurately with the help of a computer? If so, how large should our comparable data base be?
- Is the guanine-cytosine (G-C) ratio of the DNA of sugar maple-associated

bacteria isolates different from what is expected? If so, do we have a new species?

- Can we develop biochemical and microbiological methods to analyze maple sap, as well as techniques the Association of Official Analytical Chemists (AOAC) can use to detect maple syrup adulteration?
- What are the effects of acid rain on the inorganic composition of aseptically collected sap from individual sugar maples?
- What is the effect of vacuum at tap-holes on sap volume, rate of flow, and sap sugar content? (Done in cooperation with Proctor Maple Research Center.)
- Can we control for syrup quality by analyzing sap collected by plastic tubing systems, sap processed through reverse osmosis, or the use of inline ultraviolet light and other energysaving and sanitizing methods?

Activities at the Proctor Maple Research Center, Underhill

- **Working sugarbush:** Four major types of activities are done in the sugarbush:
 - 1) **Developing more efficient sap-collection methods** --Our Plastic pipeline installation system has been widely accepted. Using vacuum pumps with this pipeline increases sap yields significantly.
 - 2) **Studying effects of sap-collection methods on sugar maple tree** --How many tapholes should be placed in trees of different diameter when using a vacuum system, and what is the smallest size tree from which you can get an economic return?
 - 3) **Modifying and testing conventional maple evaporators and new maple syrup-processing techniques** --We studied two-stage evaporators (vacuum and conventional), vapor compression evapora-

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5) **Studying reaction of tree tissues to wounding** --How does the tree protect itself from infection following tapping?

Here is a brief summary of other research questions examined at the Proctor Maple Research Center.

- How does the environment affect growth, vigor, and sap yield of the sugar maple? We maintain a complete weather station and monitor temperatures, pressures, and sap yield (volume, rate, and sugar concentration) of individual maple trees during sap flow season.
- How can we select superior sugar-producing maples from young trees around the sugarbush? We are not looking at genetics but a variability and consistency of certain hybrids and how we might enhance sap sweetness and yield through proper selection and management.
- Can native hardwoods be grown quickly and used for firewood? This research is done in cooperation with U.S. Dept. of Energy project on woody biomass production.
- **Teaching activities:** We conduct classes, give demonstrations, and lead tours of our facilities for maple producers, foresters, high school and college students and faculty, and other interested people.

By M.F. Morselli, F.M. Laing, and M.L. Whalen



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1984 New York Maple Tour

The 1984 New York Maple Tour took place July 30 and 31 in Cattaraugus and Allegany counties which are located in southwestern New York.

The Castle Inn, located in Olean, served as the tour base of operations. Transportation to and from the tour stops was furnished with buses.

On Monday, July 30, the tour group numbering nearly 200 left for Portville where the new roadside sugar house of Charles Ishelman was visited. Sap is collected from a tubing system of 1000 taps with syrup produced on a 4' x 12' wood fired evaporator. The syrup is marketed retail at the sugar house.

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The second stop of the day took place at Van Munson's maple operation just out side of Allegany. This 400 tap operation features a 2' x 6' oil fired operation with good tubing layout and vacuum system on near level terrain. The initial layout of tubing and marking for thinning was assisted by foresters from the N.Y. Dept. of Environmental Conservation.

Last stop for the day was a visit to Tom Stayer's family operation near Allegany. An attractive, roadside sugar house contains a 4' x 12' oil fired evaporator. Sap is collected from 2000 taps on tubing with another 200 taps on buckets. The sugar house also serves as a retail outlet for maple syrup and maple products.

After returning to Olean, the tour group was served an excellent buffet dinner at the Castle Inn. The evening program that followed was co-hosted by Andy Dufresne, Cooperative Extension Agent of Chautauqua County, and Lewis Staats, Cornell University Extension Specialist, Maple Programs. Roger Sage, President of the N.Y. State Maple Producers Association gave a welcome address and highlighted many of the Association's marketing and promotional activities during 1984. The 1984 reigning New York Maple Queen, Miss Jill Collier from St. Lawrence County was then introduced by Roger Sage. Guest speaker for the evening was Terry Moore, Regional Wildlife Biologist

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for the N.Y. Dept. of Environmental Conservation who talked on New York State's Whitetail Deer. The evening continued with entertainment from the "Sap Sucker String Band".

Tuesday morning, bright and early, the tour traveled to Andy Sprague's well managed sugar bush located outside of Portville. This sugar bush has been thinned with good results and a permanently installed tubing set up and vacuum system was observed and discussed. Sap is collected, treated by ultraviolet light sap treatment unit, and stored in a storage tank housed in a metal building at the lower end of the sugar bush. The sap is then transported to Randy's sugar house a few miles away in Portville.

The group next visited the Cattagagus County Resource Recovery Plant which is owned by Cattaraugus County though built in Cuba, N.Y. in Allegany County. It cost \$5.5 million to build; much of the cost was provided under a federal energy grant. The incinerator burns approximately 120 tons of garbage a day, operating 24 hours a day, six days a week. Nearly all the garbage of Allegany County and half of Cattaraugus County's garbage passes through the incinerator. The plant pro-

duces steam which it sells to the Cuba Cheese Factory across the road.

The last stop on the tour was in Allegany County at Merritt Vossler's maple operation near Wellsville. The steam evaporator receives its heat energy from a combination wood and waste oil fired boiler. The sugar house features a sugar kitchen. A sugar maple planting established by Merritt and his family in the late 1950's through mid 1960's interested all those in attendance. 450 of the plantation trees were tapped in 1984 producing approximately 150 gallons of syrup.

The group then boarded the buses and returned to the Castle Inn in Olean where maple equipment exhibits could be viewed until late afternoon.

This very successful tour resulted largely from the efforts of the Maple Tour Committee made up of local maple producers, N.Y. Dept. of Environmental Conservation Foresters and Cooperative Extension personnel. The excellent weather during the two day event was also greatly appreciated.

Lewis J. Staats

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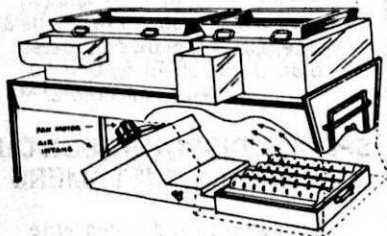
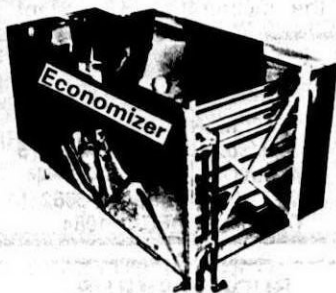
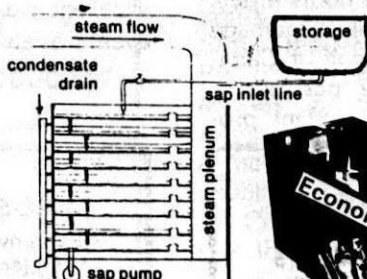
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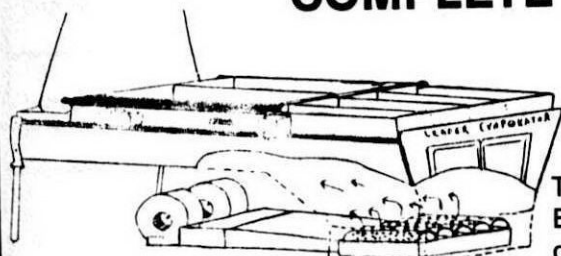


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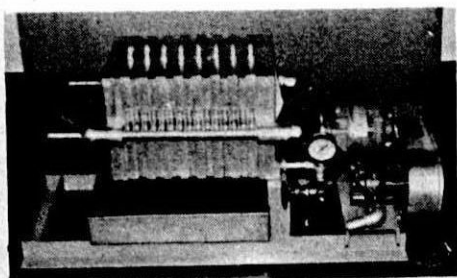
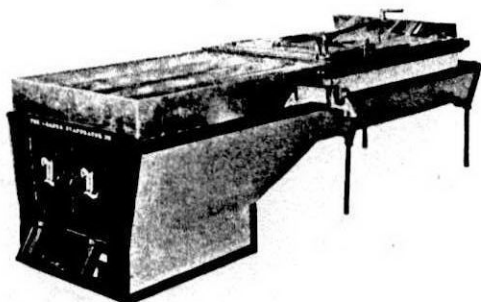


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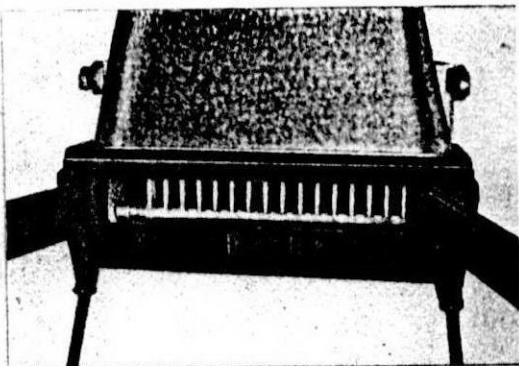
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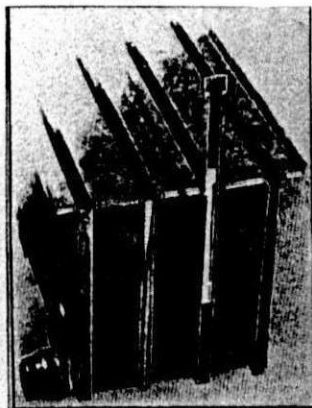
REAR VIEW OF LEADER ARCH

We have built the rear of the Leader arch of the same quality castings, featuring wide doors for the convenient cleaning of flues. It is very essential that flues be kept clear of soot and carbon if best results from fuel are to be obtained. A flue brush is included with each rig. Note the seamless drawn copper drain



pipe 1 1/8" square, firmly soldered to the bottom of the flues which, through a 3/8" hole in each, are quickly drained, flushed and automatically cleaned.

LEADER FLUE CONSTRUCTION



Notice the double locked seam construction used in our flue ends resulting in four thicknesses of metal at this point. The ends are then saturated with hot solder. Each step is carefully brought out in the picture at the left. To give added protection the flue ends at the front of the flue pan which come in direct contact with the flames are also soldered on the inside. These sections are then fastened together by a special method of locking seams which ensures a tight rigid joint. This method eliminates any danger of moisture accumulating in the seam itself. The inside of a Leader seam has never been known to rust out. Notice heavy brass flange securely attached to end of drain pipe and side of flue. Here again you see that extra quality found throughout the LEADER.

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LAMB'S CORNER



There's no such thing as strangers at a maple meeting, just friends you haven't met yet. All you have to do is walk up to some one and say "Hi". If you prefer privacy and stay by yourself, most will honor it but you have to work at it.

We've come a long way since the North American Maple Syrup Council was formed. The Maple Syrup Digest is almost as old. When I think of the distance people travel to attend the meetings year after year, it's great but unbelievable. I never could figure out whether maple was a bad habit or a disease.

I'm convinced that research is responsible for saving the maple industry. It's kept the quality up and the costs down enough to make it still saleable. A new idea here and some new equipment there all adds up to a better way to do it.

But what good is this research if every one has to travel to where it was done to learn about it? This is where the Digest comes in. It's a mouthpiece for research. Brings the good news right into your home where you can think about it and make use of it or have it shoved down your neck, whichever you desire.

If it wasn't for the efforts of the Council and area associations there would be little if any research being done now, but the Digest is probably the most important thing that ever came out of the Council.

Printing the Digest isn't easy. To keep it solvent and productive it takes someone who understands money. I don't know what all the problems of publishing it are, but two things are certain: deadlines must be met and bills have to be paid. Somehow, the editor has managed to stay on top of these and all the other things he does for almost as long as the Council has been in business. I guess we better help him keep it going a while longer.

We extend our congratulations to the North American Maple Syrup Council on it's 25th anniversary. May the Council and the Digest have another 25 successful years.

Bob and Florence Lamb