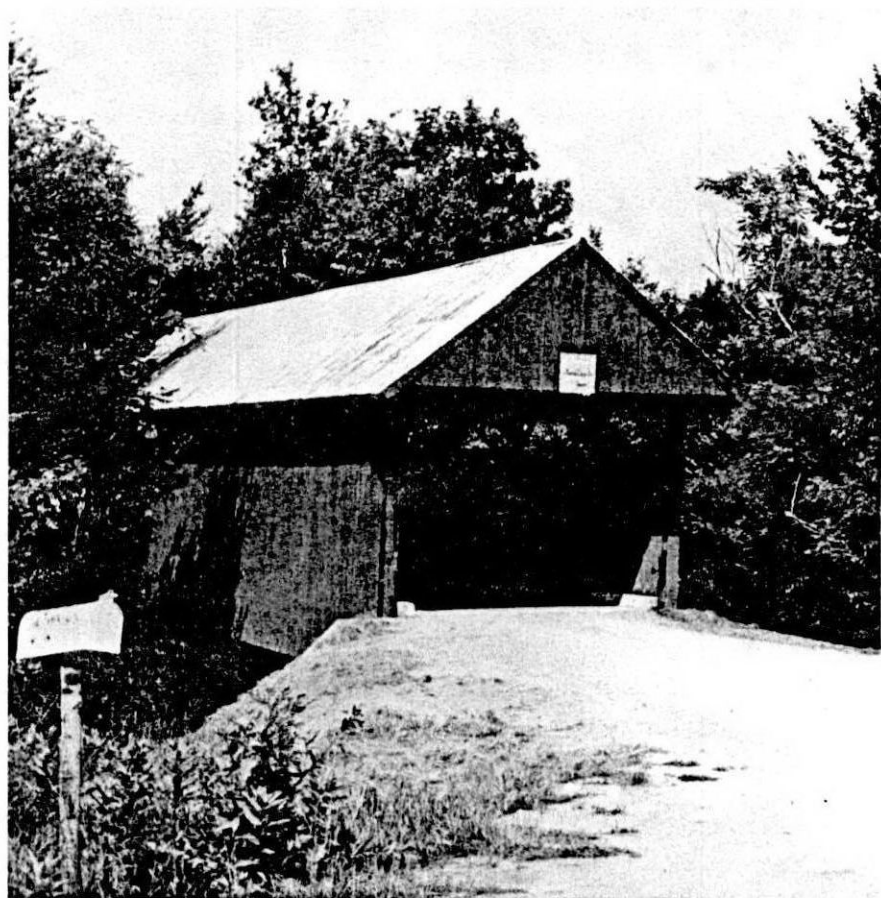


# NATIONAL MAPLE SYRUP DIGEST NATIONAL

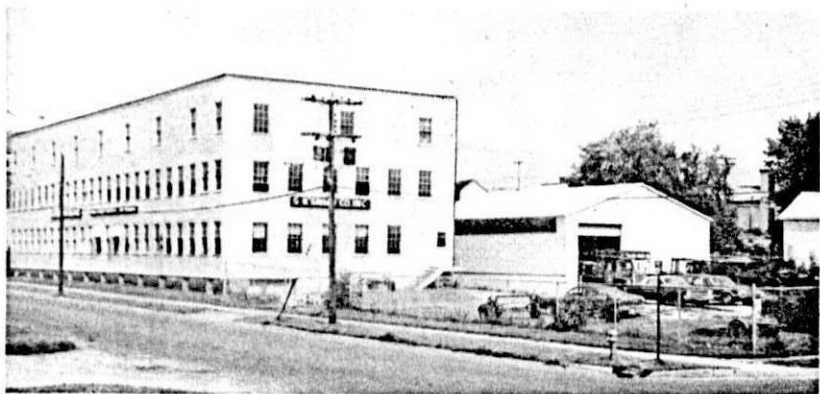


Vol. 10, No. 3

October, 1971

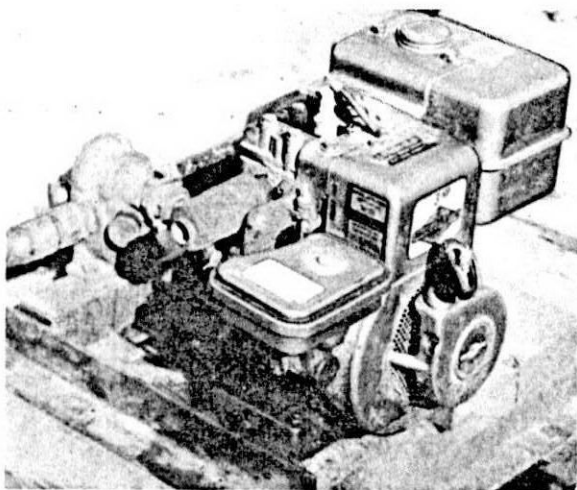
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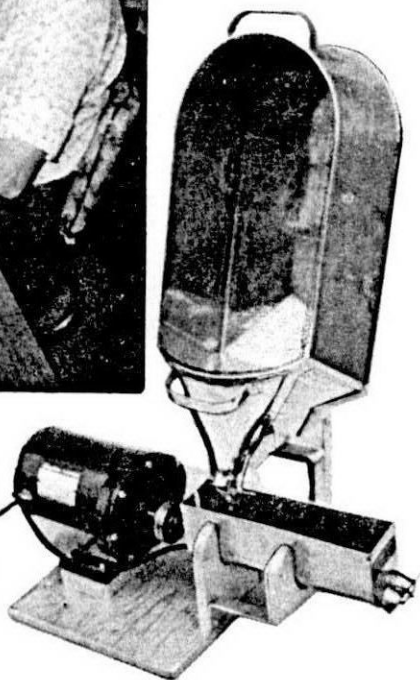
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Bainbridge, N.Y.

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## NATIONAL MAPLE SYRUP DIGEST

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# Editorial

I just had to print another issue of the Digest. That little guy that watches over me and spoils all my fun said I couldn't quit quite yet.

In case you didn't notice, the date line on the cover says Vol. 10, No. 4. This means we have completed 10 full years of the Digest. It doesn't seem that long, although the last few have been a struggle financially, but as I get older I've noticed inflation is even affecting time — the years are shorter than they used to be.

While I'm reminiscing, I'd like to say something about the National Maple Syrup Council, which is two years older than the Digest. The National Council is not exactly a governing body, but a group of people dedicated to the improvement of the maple industry. Officially, it is composed of one delegate from each of the 10 member states. There are about 25 associate and honorary members who act as advisors and anyone else is welcome to sit in on the open meetings and even join in on the discussions. So far, the Council has met only once a year with an occasional committee meeting if the need arises.

When I said dedicated, I wasn't just using the word facetiously. This has got to be the most conscientious bunch of tree tappers in the country. In the last eleven years, the Council has had 100% attendance which is phenomenal when you consider the meetings have been held from Maine to Wisconsin; and many of the delegates have no backing, no association to pay their expenses, they have to foot their own bills. I'd like to list the names of some who have been with the Council since it started, but I wouldn't dare attempt it - I might accidentally miss someone.

The Council's constitution states that the President can call for a closed meeting, where only the official state delegates can attend, if, for some reason, the need arises, like, for instance, firing the Digest editor. But a closed meeting has never been called. Maple producers are such an agreeable bunch of yokels it's never been necessary. Sure, we've had some arguments on certain issues, but there's never been any fights, strikes, or protests, and very little name calling. The Digest editor has been raked over the coals more than once for something printed in that infamous periodical that nobody wants to support, but I guess this is to be expected. I was told once, "If you don't want to be criticized, just don't do anything."

There's an old cliché, "Monkies is the funniest people." I've been in several businesses since I was old enough to count money, and I've never made as many true friends as I have in the maple business. After the poor production, rising costs, paper work, labor problems, taxes, price squeezes (see article on marketing in this issue) and a hundred and one other predicaments that have come up in the last few years (in New York State, I now have to have a license to buy sap!), I'd have to say "Maple producers is the nicest monkies" because I guess that's the only reason I stay in this business.

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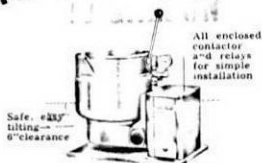
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## From the President

Dear Maple Friends:

It doesn't seem possible that it's nearly time for the Annual Meeting of the National Maple Syrup Council, but by the time a good many of you read the Maple Digest, it will have become a past chapter in maple history.

We will be meeting at Boyne Falls, Michigan on October 18 this year in conjunction with the triennial conference on October 19 and 20.

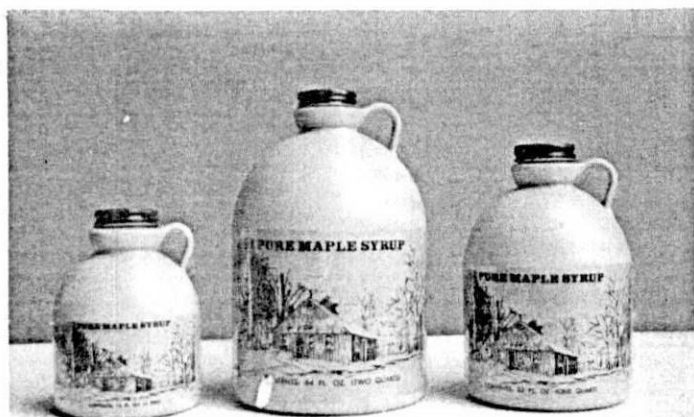
In my capacity as President of the Pennsylvania Maple Syrup Producers Council, I would like to report a first as far as the State Council is concerned in conducting a sales and educational booth at the Pennsylvania Agricultural Progress Days held at Rock Springs, Pa., near State College, on August 31 and September 1 and 2. It was a great success and showed me what can be accomplished by five associations working together. I might also say we had some real dedicated maple people working together.

One item I would like to discuss with each and everyone of you is the financing of the Maple Digest. Folks, an industry like the maple business, not a giant as industries come, still needs some means of communication between states, equipment companies, maple producers themselves and our research and extension specialists. It takes money to edit and print a magazine but it's our only hope for a maple future. If everyone who received the Maple Digest would set aside the proceeds from one-half gallon of syrup, this could be accomplished. Is this asking too much in the year 1972? I don't believe so.

As my two-year tenure as President of National Maple Syrup Council draws nigh, I am filled with mixed emotions. On one hand I am thrilled to have been the National President of such a great industry, met and made friends with so many fine maple people, had the participation and help from everyone in carrying out my duties as your president for which I am very grateful; on the other hand I can see many things which should have been done, people who should have been helped, questions that should have had answers; I guess this will always be true as long as there are mortals like me.

Sincerely,  
Ed Curtis

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# MAPLE MARKETING - 1971

by Gordon Brookamn

N.Y.S. National Council Delegate

Now that we should be making plans for next year's syrup production, the question of marketing comes up. I have always said, "It is just as important to market a crop as it is to produce it." A good crop without a market hurts the producers. A good market without a crop does the same.

If our maple industry is to continue to be a major income in the northeast, we all have to work together, both producers and buyers, so we can have a good volume of a good quality syrup to supply the excellent market we have today.

We in the N. Y. Farm Bureau Maple Marketing Co-op have been working at this for several years. We have experienced a great number of problems, but the main problem today is the same as when we started.

To be plain and clear, we still have producers who expect to market drum syrup and get approximately the same price per pound that they retail it for in cans! Now as I see it, this just can't be done because: If I, or John Doe, or anyone else is to give a producer, for example, 50c per pound for drum syrup, he must take into consideration costs of handling, transportation, equipment needed for re-processing and packing, containers and

commission for selling the finished product, which are all true factors in today's costs of volume marketing. The consumer must pay at least \$9 or \$10 per gallon in order for the packer to break even or make a profit according to the efficiency of the operation.

Now when the same producer retails syrup at his door for \$6 per gallon which is the same as 50c per pound, not even figuring the cost of the can, he isn't allowing anything for marketing. He is creating the impression to the consumer that the \$10 figure is too high, when in reality it isn't. He is also cutting the throat of the processor he expects to pay him 50c a pound for his syrup.

I have been around the maple business for years, know many producers, personally visited them on their farms about marketing, and the majority say they

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aren't going to expand and may just quit entirely when their equipment wears out. Question: Why in thunder won't they charge enough for their finished product retail so they won't be competing with or spoiling the market for the packer who buys their bulk syrup. The retail price must be high enough so he can pay them a fair bulk price and make expenses plus a profit or he won't be able to stay in business either.

A few of our producers who have kept their retail prices up each year as production and marketing costs climbed, have done real well and proved consumers will pay a fair price. Why won't the rest?

In closing, I would like to make the following statement: Maple syrup in today's economy at \$10 per gallon is the cheapest it has ever been according to the wage-earning power of today's consumers. In the 1930's in my neighborhood, farm labor was 25c per hour or \$2.00 for an 8-hour day and maple syrup retailed for \$2.00 a gallon. Today, an average farm wage is \$2.00 per hour or \$16.00 for an 8-hour day. Therefore, we should be getting \$16.00 a gallon for maple syrup retail. This we could do if every producer would work at marketing and charge a fair price instead of giving their products away. It is high time we faced the facts, that we live in an inflationary period and must price our products accordingly if we are to survive. Together we can do it, individually we can't.

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# VERMONT MAPLERAMA

by Silas Jewett

Lamoille Co. Ext. Agent



Three hundred maple producers from the Northeast and Canada attended the 1971 Vermont Maplerama in the Lamoille County area on August 13 and 14. A quick standing survey at the Friday Evening program in Dibden Auditorium at Johnson State College showed 30 people from New York, 18 from Quebec, 7 from Ontario, 9 from Ohio, 6 from Pennsylvania 5 from Massachusetts, 3 from Wisconsin, and 2 each from Michigan, Connecticut, New Hampshire and Indiana. The attendance indicated maple production and interest from a wide area of the country.

Nason Adams and Paul Percy of Stowe and Franklin Hooper of Johnson were hosts Friday afternoon to over 200 of the visitors. Not only did these folks enjoy looking over the equipment and program of these three local maple producers but also the scenic backroad tours involved in getting from place to place.

Two hundred and sixty attended the fine cafeteria banquet put on by Johnson College Friday evening. Following the banquet, the group toured an excellent exhibit of maple sugaring equipment in the foyer of the auditorium.

David Garrett, Project Leader for the Market Research Division of the Northeast

Forest Experiment Station, in discussing "Preference of Consumers for Maple Products" during the evening program, said that, "Research being carried on indicated that maple producers in the future might have to listen to the consumer in determining how, when, and where to market maple products".

Everett Willard of the Vermont Department of Agriculture was Master of Ceremonies for the evening. The Rene Marcoux Family of Hyde Park entertained with several really excellent musical numbers. Many maple dignitaries including Mary Howrigan of Fairfield, Vermont, Maple Queen and Vermont Commissioner of Agriculture, Edward Eurich, the 1971 Maplerama Committee and the delegations from the various states were introduced.

The Saturday tour, following a pancake breakfast, and on a second day of beautiful weather, visited Wilmer Locke of Waterville, the expansive research program at UVM's Proctor Maple Farm in Underhill, and Arthur Toof, Jr. of Fairfax. Mr. Toof's picnic grove was a fitting finale for the two day show. A fine box lunch from Johnson College was enjoyed by 200 before the buses returned to the College for "homeward bound".

# NEW YORK MAPLE TOUR

The popularity of the New York Maple Tour and Lewis County's hospitality attracted over 300 visitors from Maine to Minnesota and two Canadian provinces to the 1971 event held early in August.

The tour started at the Irving Kraeger farm at Constableville. Mr. Kraeger praised his pressure filter. His sugarbush averages two quarts of syrup from each of 2,200 taps. Plastic line and pumps are used to transport sap across fields from a second sugar bush. Two evaporators, oil fired, with automatic drawoff were features of this enterprise which supplements a herd of 130 milking cows.

The group went next to the central evaporator of Elwin Rowell at Glenfield. Rowell's sugarhouse has been converted from a milk receiving station. Dairy plant equipment is being used effectively and consists of steam boiler, steam finishing pan, automatic draw off and dual filter. Mr. Rowell owns a sugar bush, rents trees and buys sap. Products are sold retail in his electrical store in the village.

C. F. Handy, Lewis County Agriculture agent, welcomed producers at a dinner at Lowville Academy and Central School Wednesday night. Mr. Handy recognized Prof. Fred E. Winch, Jr., Cornell specialist

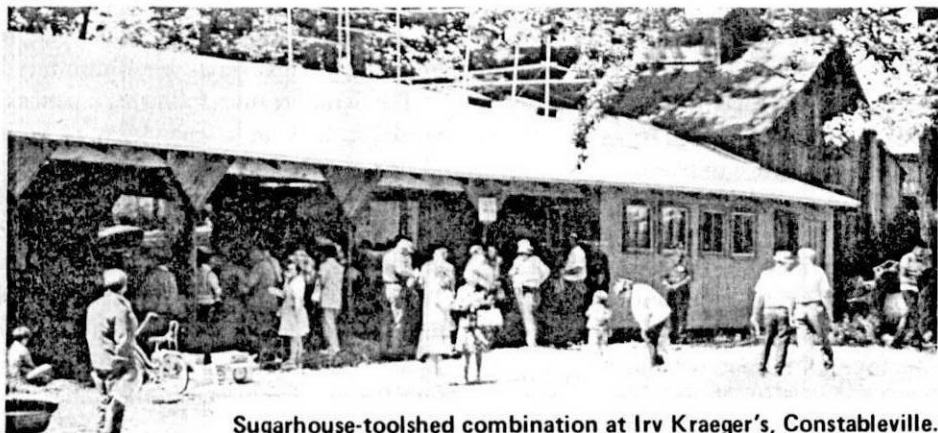
in Maple Production. Lowell Virkler, president of the Lewis County Maple Producers Assoc. outlined activities of the association for the past year. Stuart Harris executive secretary of the Lewis County Chamber of Commerce, recalled his first experience as a "city boy" to sugar on snow. Miss Wendy Leitchweiss, Lewis County Maple Queen, was introduced.

Dr. J. C. Underwood of the Eastern Utilization Laboratory in Philadelphia, in a letter read to the group, stated he was unable to keep his commitment to attend because of budget cuts. A local producer suggested a resolution be passed asking for restoration of funds for the facility. The motion was approved with the recommendation producers write their congressmen and senators.

Max Neal, president of the State Maple Producers Assoc., spoke on the continued production of maple syrup and its products.

The problem of printing the Maple Digest because of rising costs was discussed. Suggestions were reviewed and the problems would be worked on and referred to the national council.

Dr. Robert Morrow, Cornell University,



Sugarhouse-toolshed combination at Irv Kraeger's, Constableville.

showed slides and graphs and described the natural vacuum procedure in obtaining sap, as opposed to the vented system.

A special feature of the evening was a testimonial and special recognition of Prof. Fred Winch for his leadership in helping maple producers develop strong, profitable businesses through the use of modern, scientific technology. An oil painting of a sugarbush was presented to Mr. and Mrs. Winch from the State Maple Producers Assoc. by President Max Neal.

Thursday morning the group assembled at Gerald and Catherine Lyndakers, who operate a modern sugarhouse and kitchen with the latest in equipment and efficiency. Their entire production of syrup is sold from salesrooms in roadside sugarhouse. Kitchen features steam kettle, syrup pumped, not carried, candy makers, display case, etc. Sugarhouse highlights are three oil fired evaporators in series, boiler and steam finishing pan, electronically controlled automatic drawoff, ultra violet storage tanks, meter for purchased sap and storage for plastic tubing and supplies. New 3,500 feet of underground plastic pipeline will transport sap from 4,000 taps to the sugarhouse.

Next stop was Amos Lyndaker's where three wood fired evaporators boil the sap from 11,500 taps. Wood storage for 130 cords. During the 1970 season, made 3,000 gallons of syrup which graded 95% fancy. Storage for 6,000 gallons of sap and 5,000 watt generator for power. Mr. Lyndaker has a sawmill across the highway which furnishes slabwood for evaporators. He contracts building of houses, barns, etc. to maintain staff of regular employees.

The next stop was deep in the Adirondack preserve where Mr. and Mrs. Anthony Zehr make fancy maple syrup late in the season at their sugarhouse and summer home overlooking a lake. Logging on

extensive woodlot holdings and 75-cow dairy are other enterprises carried on by this family. Mrs. Zehr was hostess of a break sponsored by the Lewis County Chamber of Commerce featuring lemonade, chocolate milk, Lewis County cheese and Croghan Bologna.

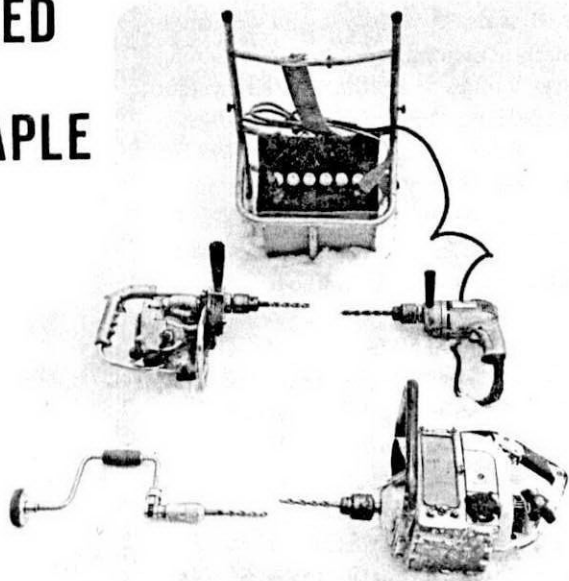


**Excellent sap storage at Wicks' Sugarbush, Harrisville.**

The concluding stop was at the Verne and Duane Wicks sugarbushes at Harrisville where everyone was served luncheon by the Harrisville Grange. Features of the Wicks' enterprise are six oil fired evaporators, steam finishing pan, all sap and syrup moved by pumps, vacuum plastic tubing for 7,500 taps, 2,500 buckets. Buys sap from 500 taps. Bottling and capping equipment. Maple products sold at roadside as well as to commercial outlets. Other business enterprises include sawmill, fuel oil distribution, farm and building supply store.

More than one hundred cars were moved around the county and through sugarbushes with great finesse. Local association members assisted by County Extension agents from adjoining counties were assisted by the Lewis County Sheriff's deputies. Everyone appreciated the cooperation of hosts, tour participants, and all committees that made the tour one that will be long remembered by everyone. 13

# TAPPING SPEED & SUGAR MAPLE SAP YIELDS



by

H. Clay Smith and George M. Keiser  
Northeastern Forest Experiment Station  
Forest Service,  
U. S. Department of Agriculture  
Burlington, Vermont

The drill speeds for these tappers were:

Tapper	R.P.M.
Hand auger	120 (estimated)
Battery Power	400
Power	935
Chain saw	6,600

Several new tappers have recently been developed for drilling tapholes in sugar maple trees. Some people in the maple industry have been concerned about using these newer tappers, particularly those having a high drill speed. These people say that at this high speed, the drill bit seems to scorch or burn the taphole tissues, resulting in a cauterizing effect of the tissues surrounding the taphole and a plugging of cells from which the sap flows.

Our study indicated that there was no statistical difference in the amount or sweetness of the sap collected from tapholes made with drills revolving at various speeds.

In this study, four types of tapholes were used — a hand auger, a battery-powered drill, a gasoline-powered drill, and a chainsaw drill.

Four tapholes were drilled in each of 15 trees on March 3, 1970. Air temperatures during tapping were between 20° and 22°F.

We saw steam coming from some of the tapholes made with the high-speed tappers. Steam is sometimes seen at cooler temperatures; and this may be why some producers believe that faster drilling burns the taphole, for the steam may look like smoke from burning wood.

## Results and Conclusions

Sap volume yields and sap-sugar concentrations were not affected by the speed of the tapper used to drill tapholes in the sugar maple trees. These tapping speeds varied from 120 r.p.m. for the hand auger to 6,600 r.p.m. for the chainsaw drill.

Tapholes were made when temperatures were in the low 20's. We do not

# MADDENS GIVE NATURE STUDY SITE

Approximately 100 acres of land in Kent has been donated by Mr. & Mrs. John C. Madden of Miller Hill Road to the Putnam-Northern Westchester Board of Cooperative Educational Services (BOCES) in New York State. The property will offer all area school children, as well as adults, an ideal location for nature studies, field trips and related activities. The transfer of title specifies that the site shall forever retain its present natural wild character.

Mr. & Mrs. Madden are retaining ownership of their residence and a few adjacent acres, including a pond and a sugar house. The Madden property, located a mile north of Mead's Corners, New York is traversed by the Appalachian Trail. The land consists of swamp, woodlands, hilly sections with large rock outcroppings, wetlands along Black Pond Brook, four or five meadows and a half-acre pond. The forest portion is managed with the cooperation of the N.Y.S. Department of Environmental Conservation.

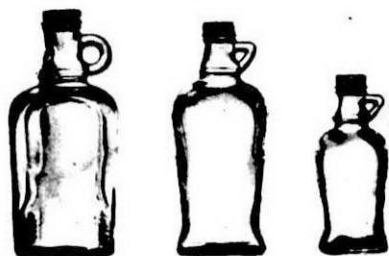
A rare feature is Mr. Madden's maple syrup operation, his chief hobby. The maple syrup operation is unique in southern New York. It is visited by busloads of area school children and scores of adults yearly and will be continued. Mr.

expect that tapping when temperatures are either slightly higher or lower than this would have an effect on the study results. Other temperatures were not tested. Based on the results of this study, sugar producers should not be reluctant to use the higher speed tappers to drill tapholes in sugar maple trees.

For those desiring more information as to the details of this study, please refer to Northeastern Forest Experiment Station Research Note NE-132.

Madden markets more than 500 gallons of pure maple syrup each year, using a modern plastic tubing sap collection system, a four by eight foot, oil fired evaporator, and other up-to-date equipment.

Mr. Madden commented that, "We want others to enjoy a small part of Putnam County as much as we have for 40 years. Arrangements for simple preservation could have been made, but we preferred that the land be utilized for constructive purposes which will not spoil its native beauty. BOCES provides one answer. Mrs. Madden and I hope that more residents will develop their own methods for keeping green spots — large or small — scattered forever throughout the friendly neighborhood of our town and country."



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# NATURAL VACUUM and the FLOW of MAPLE SAP

by Robert R. Morrow

Department of Natural Resources, Cornell University

On New York's Maple Tour of August, 1971, the author presented the results of four years of research with natural vacuum. The conclusions are printed below. Numerous questions by maple producers on the tour prompt the following additional statements:

1. Pumped vacuum is ordinarily better than natural vacuum, but the latter is a powerful tool to be employed when topography is suitable and it is impractical to use pumps. Pumped vacuum is especially superior during poor flow periods.

2. The recommended numbers of taps per tube line for natural vacuum do not apply to pumped vacuum installations. Pumped vacuum probably is more efficient with fewer taps per line.

3. All tests were made with Natural-flow tubing. Use of smaller tubing increases the friction and is equivalent to decreasing the slope. Quarter inch tubing, for example, can accommodate less sap and fewer tap holes. The optimum number of taps per tube line is not known, but it may be about 60 percent of that for the larger tubing tested.

## Conclusions

Field research, using 4500 tap holes, was conducted for four years at three geographical locations. This was supplemented by laboratory tests to determine pressure-flow rate relationships in maple tubing.

Good natural vacuum in closed maple tubing needs the following:

- (1) A good, leak-free installation and freedom from rodent damage.
- (2) A high column of sap to make a good head. An elevation difference of 50 feet or more is best; this can be obtained by steep slopes and/or long lines, as well as sufficient numbers of tap holes per tube line.
- (3) A fast flow rate, obtained by numerous tap holes per line, vigorous trees, good climatic and weather conditions for sap flow, etc. Within the range tested, vacuum increased with larger numbers of taps; ten taps per line were too few, while best vacuums were obtained with 50 or more taps.

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Gains in sap production tended to be proportioned to increased vacuum, whether natural or pumped. Both experimental and commercial results suggest seasonal sap gains of 1 to 2 quarts per tap hole for each inch of vacuum (33 to nearly 100 percent). The lower gains are associated with natural vacuum, poor seasons, and low producing localities and bushes. The better gains may be achieved with pumped vacuum, good seasons, and high production trees.

Both the requirements for and potential sap gains from natural vacuum indicate the need for evaluation and proper use of slope for maple tube installation. Steep slopes, poorly regarded in the past, may now be considered assets.

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# Regarding this business of sucking on maple tubing.

by Bob Lamb

Well, now, I reckon everybody else has had their say on milking maple trees, so I think it's about my turn. Especially when I am paying \$120.00 a page to have it printed to help the Digest, admit my confusion, and just stir up some fun.

I told Jim Marvin many years ago, "If you got a friend and you want to hurt him, agree with him; he may go right to sleep. But if you want to help him, give him an argument". In other words, cultivate his mind and keep it active. He may be sore at you, but he will go on and do better things.

I've seen some of this first run syrup come out of tubing and evaporators so clean you couldn't tell it from cane sugar and water, and you had to mix it with late season syrup, so it could be sold as maple syrup. Of course, I kept telling Dr. Willits he should forget this so pure stuff, and just find out how many bugs maple syrup has to have in it to make it taste good. Then he would be doing things the way I do them. This suggestion went over like a lead balloon and Dr. Willits would just look at me sort of pityful.

Then I've said that a fine healthy human being is nothing more than a bunch of well-balanced diseases and agreeable faults, and the best food is just the right mixture of germs. So you see, when we finally get around to talking about vacuum on maple tubing, there is room to agree and to disagree.

farm and a pump business just about all their lives, so before I was big enough to work at a work bench, I stood up on an old elm potato crate and worked on pressure pumps and vacuum pumps. And to say I've done it for 50 years ain't stretching nothing.

I don't know how many years ago we built 8 double jet vacuum systems and took them to 7 different states. They worked fine, were very efficient and capable of a high vacuum. There were almost no moving parts and the wear and expense was limited to freeze ups and keeping them turning over.

The drawback here was that I could not operate on more than a 1000-tap line with any size unit that I tried and keep a consistent vacuum even over a closely grouped area. And if you ran off very far in one direction you had nothing. A friend fixed me up with a hollow pointed needle with a hole in the side back of the point, and a very sensitive vacuum gauge connected to it. All I had to do was stick the needle in the tubing anywhere and get a reading. To maintain top efficiency, we had to have all lines running down hill, the level areas proved harder to pump from, and pumping up hill just did not work for me.

To prove this, I took empty glass hard cider jugs and drilled two holes in the cork. Then we ran copper tubes in them. By hooking the 5/16" tubing to them at different distances from the pump, we

found out in each area how long it took to fill the jugs. We found that 10 taps near the pump filled the jug much quicker than 10 taps in a remote area on the same system. This was double checked by my vacuum gauges and proved I had to keep the vacuum up all over. These findings verify Carter Gibbs work done later at N. E. Forest Experiment Station and also Fred Laing's work at the University of Vermont.

After these findings I decided to build a half way system. This also failed, so we started all over again with a great big unit with tremendous capacity that would suck up 2 or 3 thousand taps to make things more practical. However, we have in vacuum pumping problems bugging us, and everywhere we turn they seem to lick us.

No. 1 The coefficient of friction.

The coefficient of friction is hell to live with on any pumping job on the suction line, even pumping water and easy flowing liquids. But on an air suction line, it seems to be, by my experiments, an entirely worse, uncontrollable monster that I'm not well educated enough to cope with. Dr. Robert Morrow proved this tremendous coefficient of friction by simple practical experiments in gravity flow through elevation and distance of tubing at certain levels at Cornell University.

So now, to continue as a perfectionist, it became apparent that the main lines leading back into the woods should be very large, possibly 2 or 3 inches in diameter, and the drop lines and laterals should be larger than the standard 5/16 inch. So you put in 1/2 inch drop lines and laterals and they don't thaw out till next season. Also, who can afford them?

Possibly, on a sizeable installation, it would be necessary to have 2 or 3 vacuum units running in the same bush to maintain a good vacuum at each tree tap.

Then, what kept bothering me all the time is, if we get this contraption working the way it should, are we producing the same effect as over tapping? Prof. Put Robbins proved this damage years ago, but I never got near enough to that point to worry.

No. 2. The law of diminishing return.

Here is the simple fact that if we spend too much money and too much time, we won't make as much profit as we would without the vacuum system. Every single report I've ever seen comparing vacuum systems with gravity systems, the results are given in the amount of sap produced. No one ever says anything about the total cost of producing that sap in each system. Somewhere there must be a happy medium — some cheap answer that makes money, even in a short season.

Next, we looked over some self-priming contractors pumps, some as big as 3" for 2000 taps or over. This made some sense but I told the guys, the capacity is tremendous but, by the nature of the pump, the vacuum is low. So they ran a large size suction tube out from the pump. Then they tapped the bottom of their storage tank and installed a gate valve and run a tube out 20 or 30 feet to the end of the straight suction line, draining into the pump. This way they could control the amount of times the pump would prime itself on solid maple sap. On a poor day, more sap was returned to the suction line than on a good day. This recirculation system I call my "shot gun feed." (Note - this system seems to make most vacuum systems perform a little better)

When the self-priming pump primed itself on solid liquid and pulled the sap out of that 20 or 30 feet of graded suction line, it would give a maple tree the hiccups a quarter mile away. The users seemed pleased, but we could not maintain a consistent high vacuum at times. I still 19

feel this is the most sensible method so far.

And then, as if we didn't have enough troubles with these two flaws, here's another problem that's a humdinger. We can have a fine, leak proof, open gravity system 10 to 15 years old. But if we take a brand new system right out of the boxes and hook vacuum to it, it turns into a blooming, leaking sieve with a thousand small unmeasurable air leaks that all add up to let a lot of unwanted air into the vacuum system.

These leaks led me to spend a whole lot of dollars reworking the 5/16" molds, and it did no good. Then we got the heavy duty 5/16" clamps. But chrimus, do you realize this means at least 4000 quick clamps, part #51, to a thousand taps?

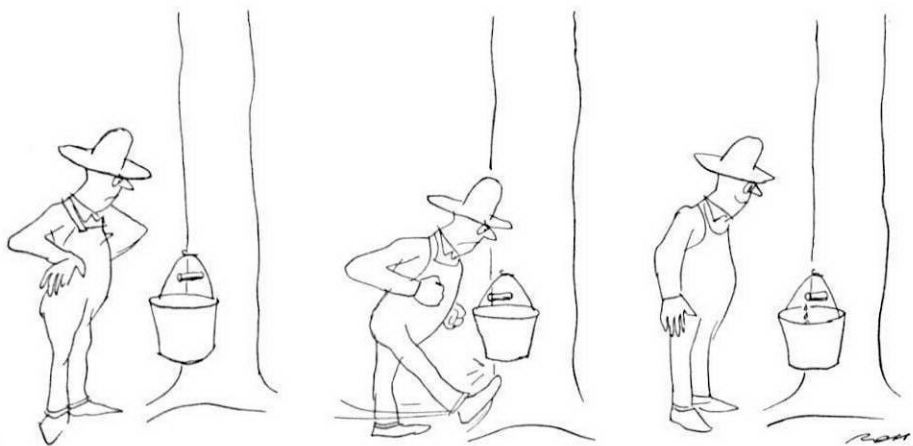
They say, "fools rush in where angels fear to tread", so I keep treading and stumbling as my desire is to furnish anything anyone wants in the tubing business at a reasonable price. How they use it is none of my business.

Warren Mitchell of Newport, Vt. has developed a wonderful vacuum system with a big main line. He is even thinking of a larger one or a duplicate beside it. He has a great bug milker pump and a fine

dump valve system that he developed himself, but who's got the means Warren Mitchell has?

So we keep looking for the pot of gold at the end of the rainbow — a pump that would have a big vacuum capacity and we can suck air and sap right through it and make this thing cheap and simple. Gear pumps didn't last; neoprene impellers melted and tore; nylon rollers cut the guts out of the pump casing; fiber blade pumps wore readily and multi-stages were expensive and hard to service, but may be the best overall answer.

Then Hypro Pumps came out with an inexpensive Teflon roller pump where the rollers did not touch the suction or discharge ports, so everything wouldn't be chewed up. On the test bench this pump had good capacity, it worked on air or maple sap and kept a good, effective vacuum, but here again the recirculating system helped its performance and lessened the wear. It even developed enough head pressure to elevate sap to an overhead tank, still doing a good job on the vacuum side. Then we put it in the field where it worked well, but that's only one season. I don't think we should recommend anything that's only been tried one year.



We have to remember that maple sap is very corrosive. Most vacuum pumps should be thoroughly cleaned and filled with a salt free vegetable oil that won't damage the seals, as recommended by the manufacturer. It doesn't take much pitting of certain surfaces to destroy the pump's efficiency and shorten its life.

I'm still not convinced that vacuum is the answer. A good gravity system eliminates many of the problems encountered in vacuum systems and is much cheaper and easier to install. I think much of the time and expense incurred in experimenting could be put to better use in working on an improved gravity system since it would help a larger percentage of producers, many of whom cannot use vacuum practically because of location.

This is a "think" article. If you are using vacuum, perhaps you can give your system an overhaul. If you are contemplating it, maybe you can do a better job to begin with. There are a lot of good vacuum units on the market today that can do a better job if they are allowed to.

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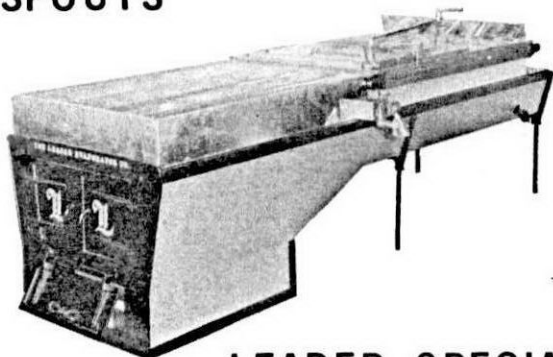
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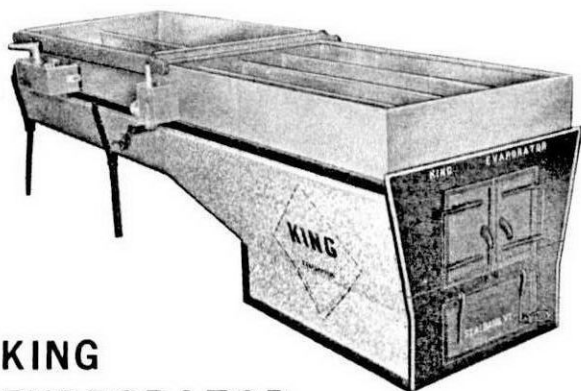
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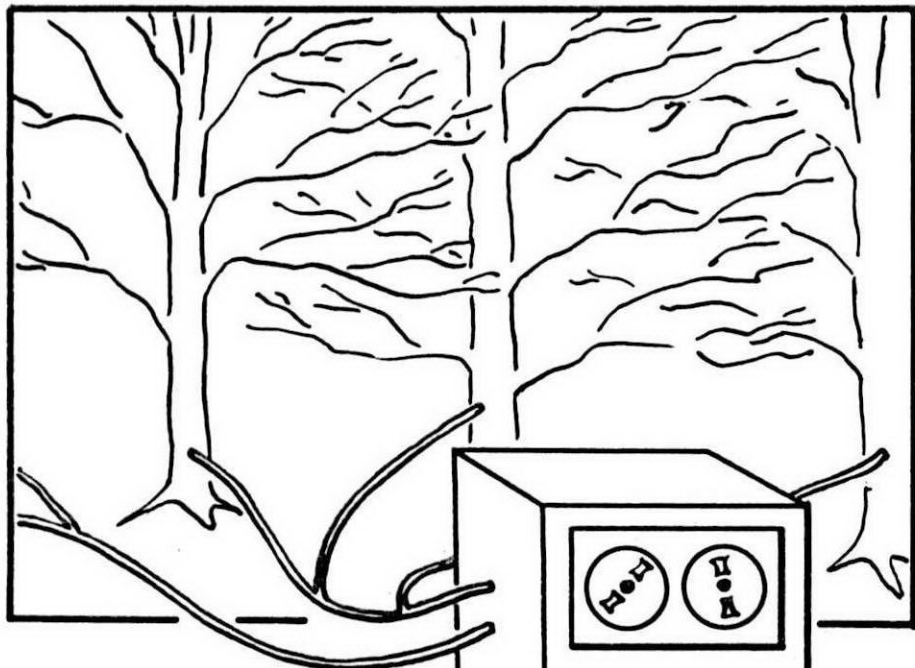
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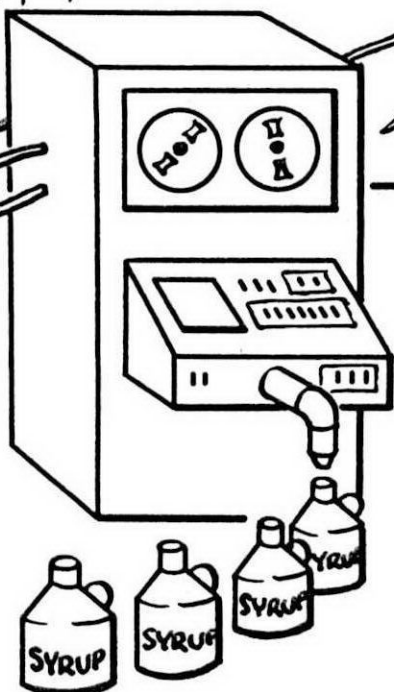
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