

# NATIONAL MAPLE SYRUP DIGEST NATIONAL

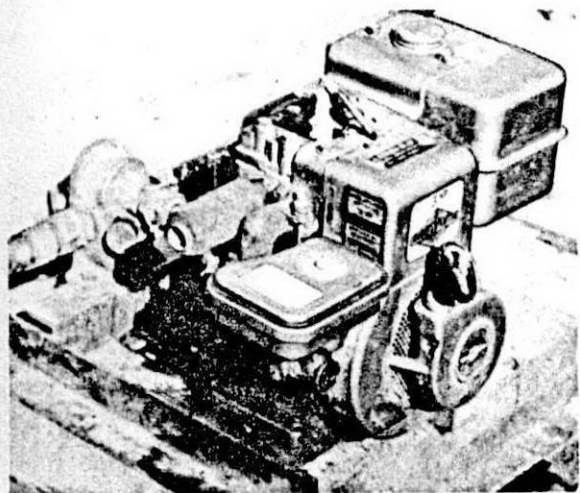


Vol. 15, no. 4

December 1976

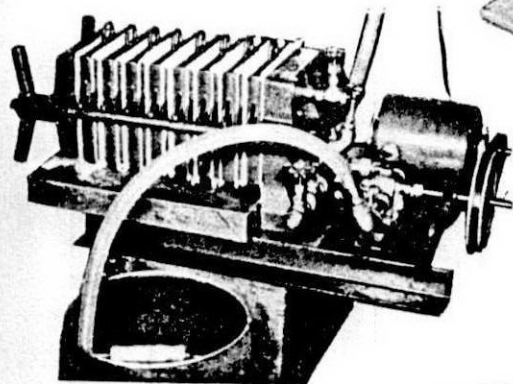
BULK RATE  
U.S. POSTAGE PAID  
BAINBRIDGE, N.Y.  
PERMIT NO. 12

Address  
Correction  
Requested



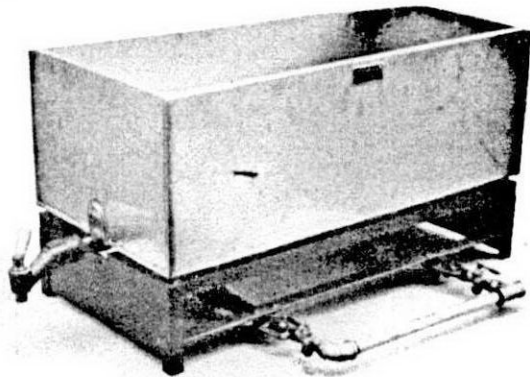
### SAP PUMP SUCKER FOR EFFORTLESS GATHERING

Pump and engine 50 ft. 1 inch Dia.  
Rubber Hose



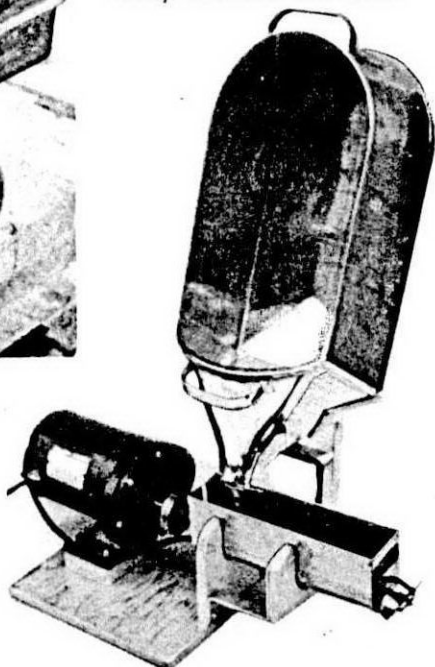
### GAS FIRED FINISHING PAN

A new gas fired finishing pan for the smaller sized evaporators. Also ideal for making cream and sugar. Rugged base and fittings.



### MAPLE CANDY MAKER

Time saver and profit maker. Brings out maple flavor in candy. Stainless steel const.

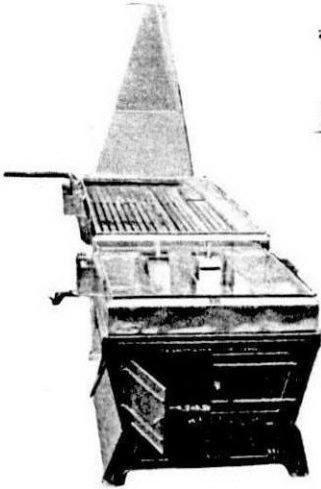


### MAPLE SYRUP FILTER PRESS

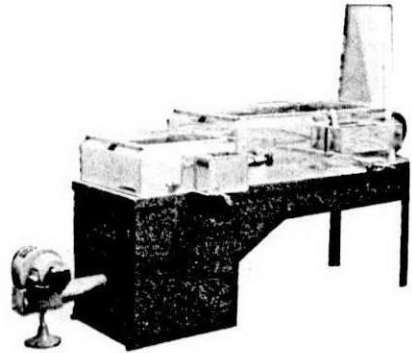
Takes out all dirt and sugar sand. Electric motor operates a bronze gear pump to push hot syrup thru filter and lift it to any height. Capacity 2 gallons per minute.

# WOOD & OIL BURNING

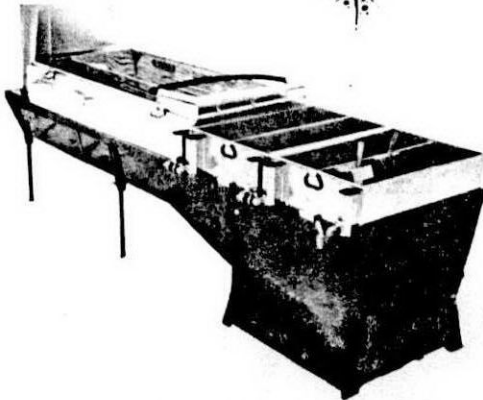
# EVAPORATORS



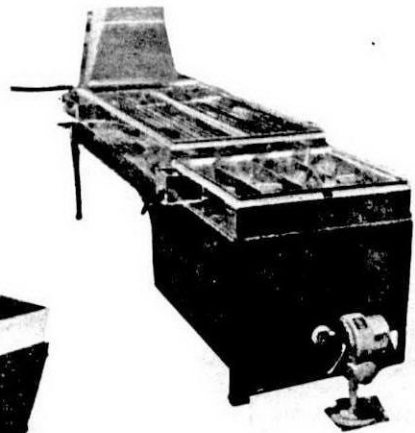
4' x 12' WOOD LIGHTNING



2' x 6' OIL LIGHTNING



3' x 10' GRIMM EVAPORATOR



4' x 14' OIL LIGHTNING

---

# G. H. GRIMM CO.

RUTLAND, VERMONT 05701

---

AC802 775-5411 773-9519

---

## NATIONAL MAPLE SYRUP DIGEST

Printed by . . . . York Mail-Print  
Bainbridge, N. Y.

Edited by . . . . Lloyd Sipple  
Bainbridge, N. Y.

### DIRECTORY OF OFFICERS

Rex Alwin . . . . . Chairman  
Mound, Minn. 55364 612-472-1344  
Gordon Brookman . . . . . Vice-Chairman  
South Dayton, N. Y. 716-988-3617  
Gordon Gowen . . . . . Secretary-Treasurer  
Alstead, N. H. 03602 603-835-6531

### DIRECTORS

Orlando Small . . . . . 207-778-2404  
Farmington, Me. 04938  
Russell Davenport . . . . . 413-625-2866  
Shelburne Falls, Mass. 01370  
Mel Koelling . . . . . Temp. Appointment  
East Lansing, Mich. 48823  
Terry Healey . . . . . 616-582-7683  
Charlevoix, Mich. 49720  
Kenneth Bascom . . . . . 603-835-2230  
Alstead, N. H. 03602  
Ture Johnson . . . . . 216-834-4206  
Burton, Ohio 44021  
Ronald Shaw . . . . . 705-325-6878  
Hawkestone, Ont. L0L1T0  
Edward Curtis . . . . . 717-253-3759  
Honesdale, Pa. 18431  
Wilson "Bill" Clark . . . . . 802-325-3203  
Wells, Vt. 05774  
Adin Reynolds . . . . . 715-449-2057  
Aniwa, Wisc. 54408

### NATIONAL MAPLE SYRUP DIGEST

Published by: Lloyd H. Sipple  
R.D. # 2  
Bainbridge, N. Y.

Published four times a year.  
(Feb., July, Oct., Dec.)

Postage  
Paid at Bainbridge, N. Y. 13733  
Mailed outside our circulation  
area for \$2.00 per Year.



Printed by:  
YORK MAIL-PRINT, INC.  
Corner of Pruyne & Parsons Sts.  
Bainbridge, New York 13733

# MERRY CHRISTMAS



### DIGEST ADVERTISING RATES

2 Page Spread . . . . \$242.00

Full Page . . . . . 132.00

½ Page Vert. or Hor. . . 71.00

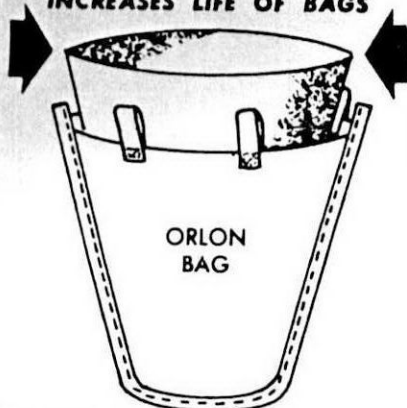
Column Inch . . . . . 10.00

Classified . . . . .30 per word

Deadline for copy —  
First of month preceding issue.

### FILTER BAG LINER

SAVES TIME  
INCREASES LIFE OF BAGS



No need to remove filter bag from  
syrup filtering tank. Just remove liner  
from bag, rinse out solids in hot or  
cold water and replace. Liner has long  
life with careful use.

### KOPEL FILTER PAPER COMPANY

2538 S. Damen Avenue, Chicago, Ill. 60608

Serving the Maple Syrup Industry  
more than 25 years

# Editorial

The Annual meeting of the North American Maple Syrup Council held at the Quadna Lodge, Hill City, Minnesota, enjoyed 100% attendance again, (every member state was represented) for the 17th straight year. All officers were re-elected for another year: Rex Alwin, Minnesota, Chairman; Gordon Brookman, NY, Vice Chairman; and Gordon Gowen, NH, Secretary and Treasurer. Associate members re-elected for another three year term are: Robert Lamb, NY; Mel Koelling and Robert Huxtable, Mich.; and E. S. Doubleday, James Marvin, Lawrence D. Garrett and Fred Lange, all of Vermont. Also, new Associate members elected for a three year term: Everett Willard and William Gabriel, Vt. and Gaston Allard, P. Q., Canada.

The production reports given by the delegates from each state and province showed a wide variation in production—from almost nothing at all to a better than average crop. The southern states, or warmer areas, suffered the most because of the early warm weather. The colder areas that were able to get by the early warm weather without too-early budding fared much better. Quebec produced a better than average crop of excellent quality syrup. Most reports indicated excellent demand and very little syrup is left for late fall sales, even the darker grades are in very short supply.

The old problem of can availability

and quality received considerable attention. Bill Clark reported that a new company in Vermont was ready to start production of syrup cans this fall. Adin Reynolds told about two companies he had been working with and expected one of them to start making cans for the maple industry this year. This should improve the situation considerably.

Plastic containers are readily available and of excellent quality. Just be sure syrup is at least 180° F. when packed. Syrup in plastic will darken somewhat when stored for a long time - (over six months). This can be avoided by packing syrup as it is sold and not packing the entire crop when it is made.

Several reports were given on research and new equipment, from sap pumps to reverse osmosis. These will be published in future issues, as received. One article on a new type of sap pump appears in this issue.

One report I'm especially happy to pass on to you now is the one I made at the meeting on the "State of the Digest." For the first time in several years we ended the fiscal year in the black. This was because so many of you responded with contributions this year. All I can say is: "Thanks, folks, and a very Merry Christmas to you all."

**IN STOCK:**  
**LAMB TUBING SUPPLIES**  
Electric Tappers  
**GORDON H. GOWEN**  
Tamarack Farm  
Alstead, N. H. 03602 835-6531

**LES JONES' "Do It Yourself" instructions available. For convenience buy your burner locally; use "Do It Yourself" DETAILED Instructions for easy and CORRECT installation.**  
**Mrs. Les Jones      Holcombe, Wisconsin      54745**

# KRESS Jugs



Containers for the  
food product of  
**QUALITY**



Half Gallon,  
Quart, Pint



& Half Pint jugs of  
**QUALITY**



*Kress Creations, Inc.*

339 Christian Street  
Oxford, Conn. 06483  
Phone (203) 264-9898

# INTERNATIONAL MAPLE SYRUP INSTITUTE

*Minutes of Executive Committee meeting held October 3rd in Hills, Minn.*

Edited by Claude Tardif, Executive Manager,  
643 Grosvenor  
Montreal, H3Y 2S9, Canada.

## 1. Financing:

The International Maple Syrup Institute has received \$20,979.66 in paid 1976 contributions from its members out of a budget of \$25,000.

## 2. Logo contest:

Response to the IMSI logo contest exceeded by far the initial expectation. The entries will be judged by a jury on Nov. 15 and the official logo will be announced on Dec. 2 during the 1976 General Meeting of the Institute. Members were informed that the IMSI aims to establish a logo or a symbol which could be printed or affixed on labels but it did not intend to establish a new label as such.

## 3. Brochure:

A brochure on the IMSI is in preparation and will be published in November.

## 4. Policy regarding delayed payments:

Members of the executive committee agreed that members of the maple industry who have not paid their contributions will have to pay one year back whenever they will wish to join the IMSI and use its logo. This policy will not apply to newcomers in the industry nor to unpaid dues prior to and including 1976.

## 5. Information binder:

Members appointed a committee to look into the possibility and feasibility of an information binder which could inform IMSI

members of new legislative, marketing or technical developments on a continuous basis.

## 6. Standardization of grades:

Members have approved the following agreement for the standardization grading:

a) The syrup directed to table use will be all identified as Grade A syrup and will be subdivided in three categories:

% Transmittence

Light Amber Not less than-75.0

Medium Amber " 60.5

Dark Amber " 44.0

b) The syrup with below 44.0% transmittence will be directed to industrial use and identified as Utility grade B or C Syrup.

c) The evaluation of the color intensity shall be made optically with a research or laboratory accurate spectrophotometer, in matched square optical cells having a 10mm light path, at a wavelength of 560mm.

The International Maple Syrup Institute will present the above to the various levels of government for approval.

**APPROVED LABELS FOR  
MAPLE SYRUP, CREAM & SUGAR  
Pressure Sensitive Labels & Tapes  
for use on Glass, Plastic or Metal  
Containers  
ATTRACTIVE COLORS and SIZES  
for information, write to  
WILLIAM L. CHALMER  
150 Traverse Blvd., Kenmore, N.Y. 14223**

# Think of Cook's for all your Maple Syrup Supplies

OUR STOCKS ARE COMPLETE  
EARLY — ORDER NOW

## WE STOCK

Leader-King Evaporators (wood  
or oil fired)

Sap Buckets, Covers, SAP-SAKS  
Red "Golden Maple" Syrup Cans  
(4-sizes)

(Our stock on CANS is complete  
all year.)

Tappers, Bits, Spouts, Filters

Rubber Candy Molds (asst. pat-  
terns)

Storage and gathering tanks

Maple Cream Tubs - Syrup Bottles

Pellets, Tubing, Plastic Jugs, etc.

COME TO COOK'S FOR ALL  
SYRUP SUPPLIES

Write for Free Catalog

## H.W. Cook

### Farm Service, Inc.

Serving the Maple Industry for  
53 years.

Phone: 315-852-6161

DeRuyter, N.Y. 13052

# LETTER to the EDITOR

North Sandwich, N. H. 03259

Dear Sir:

Some of your other readers may be interested in an observation which I made last season.

I am a small producer, mostly for the fun of it, having expanded to nearly 500 taps over the past 27 years in a 1-man-plus-volunteers operation. I sell enough to pay for operating costs, and friends, family, and volunteer helpers see that the rest gets used.

Last year I had two tubing lines, all on 1/4" plastic, about 90 taps on one line and 60 on the other. The latter line terminated (guess I should say 'started') at the top of a steep hill on a private road. There were about 40 taps beyond the start of this line, too scattered and too flat to hook up to tubing. I had had this line for four years.

Last year I tapped the extra trees up top and collected them by hand, dumping into a barrel at the top end of the line. Each morning I would do this and unplug the top end of the line and

**WANT TO SAVE LABOR  
AND BOILING TIME?**

**EVAPORATOR  
GAS BURNERS**

**Manufactured By  
ELMER WINTER**

11171 Sisson Highway  
North Collins, N.Y. 14111

Engineered for the Job  
Clean Pans, Instant Heat, No Soot  
Proven since 1952

No Electricity Needed  
No Service - Nothing to Wear Out  
**CAN BE USED IN ANY  
EVAPORATOR**



drop it into the barrel. The line would fill instantly, and there would be no air bubbles in the line from then on until the barrel was empty. This would take most of a running day. Suction caused by filling the line from the top so increased production from the trees tapped by the tubing line that production of these 100 taps (60 on tubing and 40 on buckets) doubled the production of the nearby line of 90 taps on tubing. These had been roughly comparable per tap in previous years.

This appears to be a simple and no-cost way to gain certain of the advantages of pumping for a small operator who has trees on a good slope and can introduce a reservoir of collected sap into the start of the mainline. Note that the increase is not merely from dumping collected sap into the upper end of the tubing; the real gain is from the increased suction from the very top of the line of taps on the tubing through exclusion of air bubbles. In a way, this seems to combine the differ-

ent advantages of the vented and the non-vented systems, avoiding the problems of both.

—Edgar P. Wyman

**SHOW OFF YOUR FANCY  
SYRUP IN**

**JUGS      BOTTLES      JARS  
MAPLE PRODUCTS      SELL  
BEST IN GLASS**

**WE ALSO CARRY MANY  
TYPES OF PLASTIC CONTAINERS  
INCLUDING THE KRESS JUGS.**

**Send for complete list..**

**M.R. CARY CORPORATION  
219 Washington Square  
Syracuse, N.Y. 13201**

## *American Maple Products*

Newport, Vermont 05855

- produces maple syrup,
- buys bulk Maple Syrup from other producers,
- packs Pure Maple Syrup,
- makes Maple Candies, Maple Sugar and Maple Butter,
- wholesales these products to the retailer
- and supplies leading food manufacturers with Bulk Maple Syrup or Maple Sugar.

**CAN WE HELP YOU WITH YOUR MAPLE REQUIREMENTS?**

## ARCHIE'S SUGARBUSH

Dear Editor,

10-1-76

You know, I met a windy fellow the other day, he talked of 5%, 6% and 7% sugar trees. I could see that he was stretching the truth a little bit which is something I am very careful not to do. It reminded me of my wife who says always tell the truth.

Anyway, when it comes to sweet trees, the year we tapped the big woods in the bend of the Ohio River, beat anything I ever saw. Why those trees were so sweet and the gentle drying winds blew in from Death Valley with no moisture in 'em, as the trees would start to drip the dry winds would evaporate the moisture leaving pure sugar

### EVERYTHING FOR THE MAPLE PRODUCER

Grimm, Lightning Evaporators,  
Lamb Tubing and Supplies,  
Bacon and Kress Jugs.

ORDER EARLY AND SAVE

HAROLD TYLER MAPLE FARMS  
607-638-2921 Westford, N. Y. 13488

crystals hanging from the spiles. It lasted for 3 weeks and we got so tired of unhooking the buckets and breaking off the icicles of pure sugar that we never hung the buckets back. From then on, we gathered pure sugar.

To fill our orders for maple syrup that spring we put a pump on the bank of the Ohio River and pumped water to the sugar house, which when added to the sugar ice-cicles made maple syrup.

Everything was going fine until the U.S. Army Corps of Engineers wondered why the water level of the river dropped so quickly that the tow boats ran aground. The next year the Corps of Engineers built a series of dams on the Ohio to prevent a re-occurrence of drawing off too much water at one time.

Anyway, the super sweet sugar trees were all cut down and the area flooded by one of the dams so that put us out of business.

Your truthful friend,

*Archie*

### SOULE EVAPORATOR & CAN COMPANY

Fairfield, Vt. 05455, Phone: 802-827-4467

Famous, high quality "Canadian Lightning" sugaring equipment is available at Factory Direct Prices. We carry a complete line of storage tanks, gathering tanks, evaporators (wood, oil or gas), finishing outfits, filters and other supplies.



Bulk syrup — bought — sold — all grades.

Fair prices — one barrel or one thousand — all grades.

Just a minute - - -

**LAMB** products have proven quality over 20 years through consistant effort of improvement and constant research.

**LAMB** tubing has minimum amount of stretch, maintains full flow capacity.

**LAMB** tubing will hold up under vacuum, will not collapse under natural or pumped vacuum.

**LAMB** tubing is made from virgin raw materials, insuring a long life span.

**LAMB** has the largest variety of fittings and accessories, everything needed for any type of installation.

**LAMB** has dealers everywhere to help you solve your problems.

**LAMB** stretches your dollars. Durability and workability determines tubing value.

**THINK ABOUT IT**



# Sherwood

## MEDICAL INDUSTRIES

**ATTENTION ALL PRODUCERS: 1ST ANNUAL TUBING SCHOOL**

**SATURDAY, DECEMBER 4, 1976, SHERWOOD FACTORY, ARGYLE, N. Y.**  
 Experts in the field will give objective advice and recommendations on  
**Installation & Economics of Tubing Systems and Sugarbush Operation.**

Seminar and Tubing Demonstration will begin promptly at 8 AM, December 4, at  
SHERWOOD FACTORY located: 40 miles north of Albany, near Glens Falls; from  
 Canada take Route 87 (Northway), from Vermont take Route 4 from Rutland, easy  
 connections from NY thruway.

**NOTE, THERE IS NO CHARGE FOR THIS PROGRAM, BUT YOU MUST  
 RESERVE YOUR PLACE BY POST CARD NOW! MORE INFO BY MAIL!!!**

### **NEW, LOW COST MAPLE SAP SPOUT/TEE CONNECTOR (\$.23 PER SET)**

DRAMATICALLY IMPROVED LOW TEMPERATURE STRENGTH AND MOISTURE RE-  
 SISTANCE, OVER CURRENT NYLON/POLY PRO NOW USED!!!!!!!!!!!!!!

SPOUT DESIGN ENSURES KINK-FREE DROP LINES, EASY REMOVAL FROM TAP  
 HOLE AND BLACK COLOR FOR THAWING / IDENTIFICATION!!!

AVAILABLE NOW. NEW DESIGN OF BOTH PARTS GIVES YOU MORE DURABLE PARTS  
 WITH BUILT-IN ENGINEERING AND MATERIAL ADVANCES!!!!!!

#### **1976-77 PRICING SPOUTS/TEES**

PER SET (1 spout, 1 tee, 1 cap) :	\$.23 per set
PER SPOUT :	\$.17 each
PER TEE :	\$.08 each
PER CAP :	\$.01 each

**NOTE: Your save \$.03 / set when you buy sets vs. individual**

#### **1976-77 TUBING PRICING (NO CHANGE FROM 1975-76)**

5/16" Translucent Smoke Color, Food-Grade Guaranteed (900' per box)

1 - 5 BOXES (up to 4500')	: \$.045 per foot
6 - 22 BOXES (5400' - 19,800')	: \$.035 per foot
23 and up (20,700' and up)	: \$.03 per foot

**NOTE: 1/4" Tubing Available at Same Pricing**

**ELIMINATE "HOT SPOTS" AND GRADE CHANGE USING LIGHT GRAY  
 POLYETHYLENE PIPE: 1/2", 3/4", 1" (300' coils). THIS IS SPECIFICALLY FOR  
 MAPLE, NOT AVAILABLE PREVIOUSLY! Solves overheating in black pipe and  
 sagging in Polyvinyl mainline!! (\$ .12 /ft. - 1/2", 3/4" : \$ .16 /ft. - 1")**

Freight Collect or Pick Up at Factory: Payment With Order



Contact: MIKE BERLINER, Sherwood Med. Ind. Inc., Box 147, Argyle, New York 12809 U.S.A.  
 Phone: (518) 638-8222

EVAPORATEURS  
**Lightning**  
EVAPORATORS

YOUR FASTEST WAY

TO MAPLE SYRUP

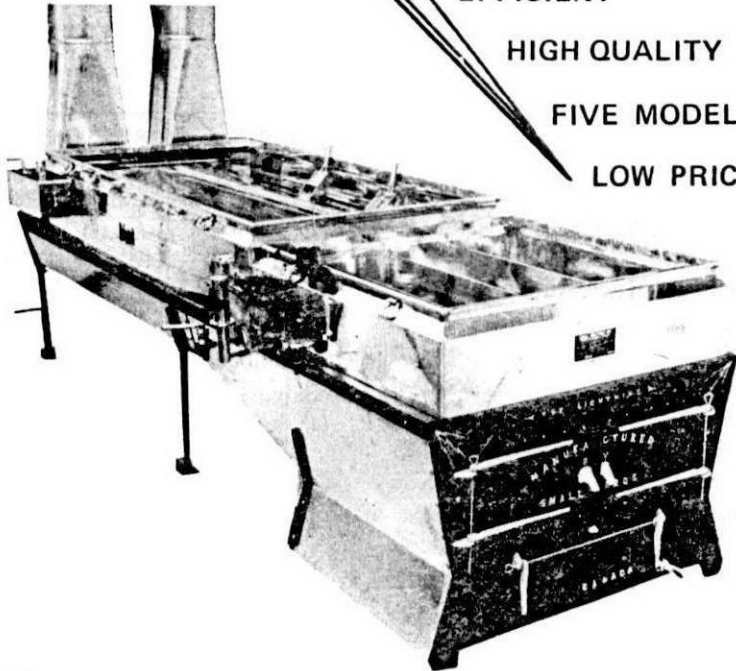
RAPID

EFFICIENT

HIGH QUALITY

FIVE MODELS

LOW PRICED



☛ THE MODERN EVAPORATOR FOR PROGRESSIVE PRODUCERS SEEKING QUALITY PRODUCTS WITH SPEED OF OPERATION.

☛ MANUFACTURERS OF A COMPLETE LINE OF MAPLE SYRUP SUPPLIES.

Phone Or Write For Your Nearest Distributor.  
Catalogues Available Upon Request.

**SMALL BROTHERS INC.**

Dunham, Quebec, Canada. Telephone (514) 295-2441

# A NEW APPROACH TO VACUUM PUMPING

by Dale E. Minick

A review of the literature 4 years ago concerning vacuum pumping of plastic tube maple sap collection systems revealed the evolving state of an art in which much was yet to be learned. The systems used at that time were expensive, complex, and had some practical disadvantages.

The crew at Sapsucker Sugar Camp, located in western Michigan at the 45th parallel, decided that there had to be a better way. We started searching for a pump that would overcome the problems inherent in those used up to that time and would allow us to do away with all of the plumbing and complex paraphernalia that were required in most systems.

Extensive literature searches were conducted throughout various disciplines. Within the field of medicine we discovered the tube pump which has been used for quite some time to transport sterile liquids. We settled on this pump type for various reasons, however, its greatest appeal was its simplicity.

With the assistance of a pump manufacturer we have been experimenting with various types of tube pumps and tubes for the past 3 years. Our objective was to determine if tube pumps could be used as vacuum pumps for collecting maple sap, if such applications were economically feasible and what kind of yield improvement could be expected over conventional buckets.

## WHAT IS A TUBE PUMP?

Engineers refer to the tube pump's

TABLE 1 - SAPSUCKER TEST - PRODUCTION

Sap Flow Periods Ending	300 Taps Pumped Network	Per Tap
3-20-76	918.75	3.060
3-24-76	846.75	2.820
3-25-76	271.5	.905
3-26-76	322.5	1.075
3-28-76	527.25	1.758
3-29-76	339.75	1.132
3-30-76	367.5	1.225
3-31-76	162.75	.542
4-3-76	176.25	.588
TOTALS	3,933.0	13.110

action as "peristaltic". Webster's Dictionary defines peristaltic as, "pertaining to the peculiar wormlike wave motion of the intestines produced by the successive contractions of the muscular fibers of their walls, forcing their contents onward." Tube pump manufacturers achieve this same action with a length of flexible tubing acted upon mechanically by two or more rollers. Figure 1 illustrates the principal.

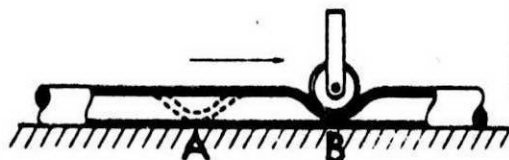


Figure 1

If a tube is collapsed by a roller at point A and the roller is moved to point B, the tube in front of the roller is compressed, moving its contents forward, and the tube behind the roller resumes its original shape as the roller passes, thus creating a vacuum. In order to maintain a continuous pumping action, a series of rollers may be mounted on a rotating rotor, within a housing as illustrated in Figure 2.

## DUCTION IN GALLONS

200 Taps Conventional Buckets	Per Tap
-------------------------------------	---------

300.0	1.500
-------	-------

291.0	1.455
-------	-------

22.5	.113
------	------

37.5	.188
------	------

214.5	1.073
-------	-------

129.75	.649
--------	------

51.0	.255
------	------

-0-	
-----	--

23.0	.115
------	------

1,069.25	5.35
----------	------

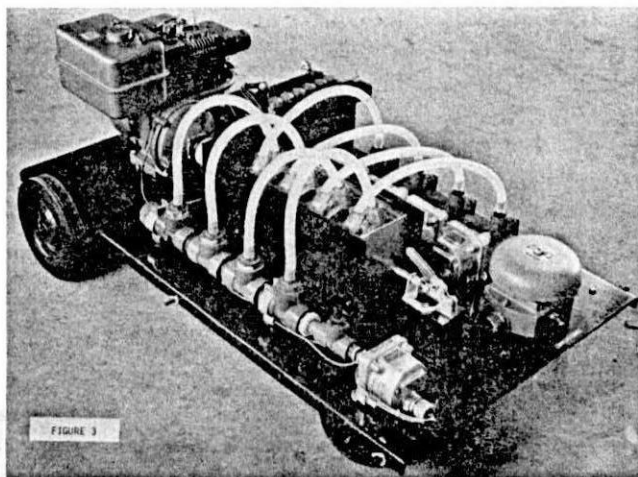


FIGURE 3

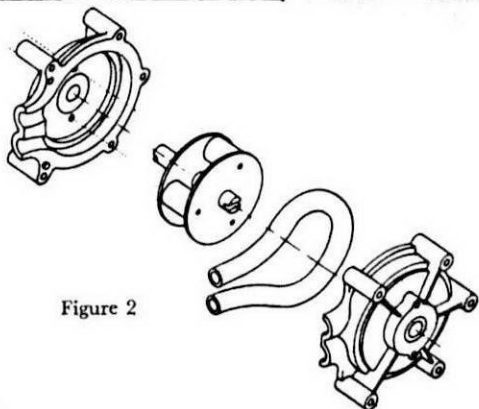


Figure 2

A prototype pump was built consisting of a 3 H.P. gas engine driving 4 of the "heads" shown in Figure 2 with in a special quick release fixture that facilitated tube removal and replacement. See Figure 3. Although 4 heads were present only one was used for actual pumping. We did this to prove the mechanical reliability of our method of driving multiple heads with a single power source, and determine how many taps could be serviced by a single head. The rated capacity of a head is 120 GPH at up to 40 PSI and vacuum up to 26 inches of mercury.

### THE PIPELINE

Our sugar bush is located upon a

glacial moraine about 400 feet above and 15 miles inland from the shore of Lake Michigan. It has both level areas and sloped areas which face the southwest, slopes varying from 0 to 30%. We installed the prototype at the lowest point in the bush and connected the output side to 900 feet of  $\frac{1}{2}$  inch line which terminated in a 650 gal. storage tank at the sugar house. The input side was connected to an unbranched  $\frac{1}{2}$  mainline 300 feet long with 23 laterals containing 3,272 feet of  $\frac{5}{16}$  tubing servicing a total of 300 taps. Drops were 18 inches long and all mains and laterals were laid on the ground. Our design philosophy included the following points:

1. Use slope wherever possible to enhance or increase far tap vacuum.
2. Do not create slope on level areas by tapping at unequal heights so that pumping power may be tested on such areas.
3. Minimize sag wherever possible.
4. Many short laterals are more desirable than few long ones for the sake of vacuum transfer.

### THE BUCKET CONTROL GROUP

Ideally in an experiment such as <sup>15</sup>

this there would be an equal number of bucket taps and tube taps on each tree in the study to eliminate the possibility of individual tree variances from distorting the data. Due to labor shortages we found that this was not practical. We, therefore chose to tap 200 separate trees for our control group being careful to tap some trees in each general area including roughly the same slope % proportions, compass orientation, mix of tree size classes, etc. More simply stated, we encircled our pipeline with our bucket control group.

### SAP AND DATA GATHERING PROCEDURES

We collected sap from the bucket control group with tractor and gathering tank each day at 6:00 p.m. At the end of each collection run sap was pumped from the gathering tank and the pipeline storage tank to a larger

storage tank at 25 GPM through a Hershey water meter which has been certified as 99.7% accurate by a local municipal water department. Total gallons collected were thus recorded from each system for comparative purposes.

### SAP PRODUCTION

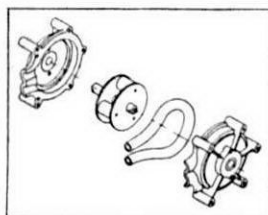
The 1976 maple season in Michigan was a bad one to say the least due to unusual weather conditions. We had a rather heavy run lasting several days in mid-February which was about 3 weeks earlier than normal. It then froze up until the middle of March at which time it turned warm and pretty much stayed that way. The entire season could be best described as a weeping half season.

We were only able to produce sap for 11 days and, due to 2 runs lasting over 30 hours, achieve 9 pairs of comparative data points. See Table 1 for

## TWO HEADS ARE BETTER THAN ONE!

AT LAST - there is a vacuum pump system for collecting maple sap that:

- Is simple ● Is freezeproof ● Can run dry ● Does not overheat
- Will not discolor sap ● Is easy to maintain



Three rollers on a rotating rotor, inside of a housing lined with a flexible tube is all that you need to pump sap from up to 400 taps.\*

No dump units, tanks, floats, switches, or worries about freeze-up are required.

COUPLE AS MANY HEADS TOGETHER AS NEEDED

Up to 400 taps

Up to 800 taps

Up to 1200 taps

Belt drive it with your power plant or ours - ADD ON as you grow

NOTHING COULD BE SIMPLER!

Write for free brochure on gas, electric and no-power models.

## SAPSUCKER SUGAR CAMP

Route 2 - Box 337, Rapid City, Michigan 49676 Phone 616-331-6328

\*May vary according to bush and pipeline characteristics.



the results. Yield improvements were realized to the extent that pump production per tap was 245% of bucket production. The total gallons produced per bucket tap of 5.35 supports the half-season characterization and suggests that perhaps the pumped tubing network would have produced something more than 25 gallons per tap in a normal season. While most of the flows that did occur were weeping, flow rates in the pipeline during the early hours of the long 30 plus hour runs could be described as moderately heavy.

#### **PUMP OPERATION AND PERFORMANCE**

The pump was started whenever the temperature rose to 32° F and stopped when it fell below that point. It ran a total of 159 hours consuming 22 gallons of gas at a cost of \$13.20 or slightly over \$.08 per hour. The longest continuous run was 36 hours during which time flow rates varied from moderately

heavy to long periods of running totally dry. No appreciable difference was noted in operating temperatures or fuel consumption due to variations in the amount of sap passing through the pump.

Far tap vacuum was higher than pump vacuum in some cases, especially in the longer laterals on slopes. For example, one lateral registered a far tap vacuum of 25 inches of mercury while the pump was only showing 20. This fact seems to indicate that our favoring short laterals over long ones on slopes to enhance vacuum transfer is a false premise.

Mechanically, the prototype performed flawlessly during the entire season except for a tube failure after 105 hours of operation. This was the result of an unnoticed ice block in the line to the storage tank at start-up time which caused the pump tube to inflate to the point of rupture. Pump vacuum,



**MAPLE  
PRODUCTS, INC.**  
JACKSONVILLE, VERMONT  
05342

tel: 802-368-2345

**Dealer for a full line of maple sugaring equipment specializing in "Leader" and "King" evaporators.**

**Many sizes of gathering and storage tanks kept in stock as well as the small utensils used in making maple syrup.**

**Buyer of bulk maple syrup.**

**Processor and packer of maple syrup and candies in consumer packages.**

using this tube, at the beginning of the study was 23 inches of mercury and had declined due to normal fatigue to 18.5 inches at the time of the failure.

### CONCLUSIONS

Due to the yield increases realized in this study, which are comparable with those achieved in the past by other systems, it would appear that the pump and type of tube we are using installed in a plastic tube network constructed with similar design philosophies, will adequately service 300 taps. We also suspect that the maximum number of taps this head will handle will be limited solely by the capacity of the pump in GPH. Using a number that's most often quoted in our area as maximum flow per tap of .3 GPH, it would appear that 400 taps could be serviced by the 120 GPH head.

If the reliability demonstrated by this pump and pump tube during this study and previous season's work could be maintained for a significant period of time, then this approach to vacuum pumping could prove very practical for smaller producers. (The simplicity of the unit itself suggests that 10 years is realistic.) This type pump can be merely placed in line in any tube network without the need for dump units, tanks, valves, floats, switches, transfer pumps, etc. It may be allowed to freeze up filled with sap without damage thereby eliminating the need for overnight draining. Tube pumps can be run dry for long periods of time without damage to any of its few parts. We found that it does not add any significant amount of heat to the sap as do other types of pumps that require recirculation of sap during weeping flow periods for cooling purposes.

The only disadvantage found is that

the tube must be replaced annually at a rather minimal cost. Additionally, care must be exercised while installing the pump to insure that ice blockages will not occur in the output side of the system as this invariably causes tube rupture. These two points appear to be rather insignificant when the characteristics of alternate existing systems are considered.

If a producer wishes to increase his sap supply and faces the option of expending capital and labor to tap more trees, purchase sap from others, or install a vacuum pump then this approach to vacuum pumping appears economically feasible. A producer could belt-drive a single head mounted on a plank with a gas engine or electric motor for around \$185 to \$220. If this head were used to service 300 taps on an existing pipeline and a yield increase was realized of 10 gallons per tap, then 3,000 gallons of additional sap would be collected in a season. If you consider that sap is currently worth a minimum of \$.05 per gallon, then a product with a gross value of \$150 would be realized and the unit would nearly pay for itself the first year of operation. Adding additional heads to the same drive would further improve the economics as each additional \$100 of capital expenditure could produce an additional 3,000 of sap.

### SUMMARY

1. Tube pumps may be successfully used in the collection of maple sap and have proved to be both simple and reliable.
2. Highly significant yield increases are possible over conventional collection techniques.
3. Tube pumps are economically feasible.



# IF YOU MAKE MAPLE SYRUP YOU NEED OUR CATALOG

HERE ARE JUST A FEW OF THE ITEMS AVAILABLE



**MODERN SAP COLLECTION**  
Throw-Away Bag



Trouble With Moldy Syrup?  
Use **FERMIBAN**  
Inexpensive!



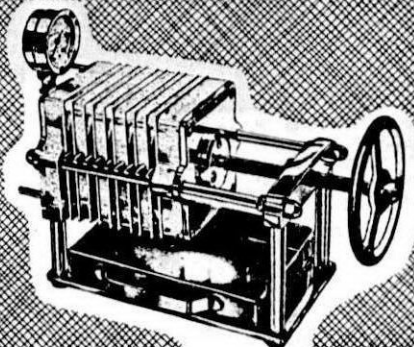
**TAPERED BUCKET**  
BRUSHES  
Full Size



**REFRACTOMERS**  
For Extreme Accuracy  
In Syrup Testing



**Old Fashioned Earthen Jugs**  
All Sizes  
2 Oz. Up To One Gallon



**PRESSURE FILTERS FOR**  
SPARKLING CLEAR SYRUP



**POLETHYLENE**  
LINERS  
For Leaky  
or Rusty  
Buckets

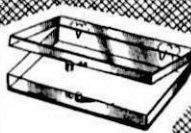


**CANDY CUPS**

**GOLD FOIL**  
Pressure Sensitive  
NAME STICKERS



Light Weight  
Big Capacity  
**GATHERING PANS**



Plastic As Well As Paper  
**CANDY BOXES—Many Sizes**



Glass Jugs  
Bottles - Decanters  
Plastic Bottles  
and Jugs  
All Styles and Sizes  
of Syrup Cans

Non Toxic Paint  
For Buckets and Tanks



**ALL MAKES**  
OF EVAPORATORS

SEND FOR A  
FREE COPY  
OF OUR CATALOG

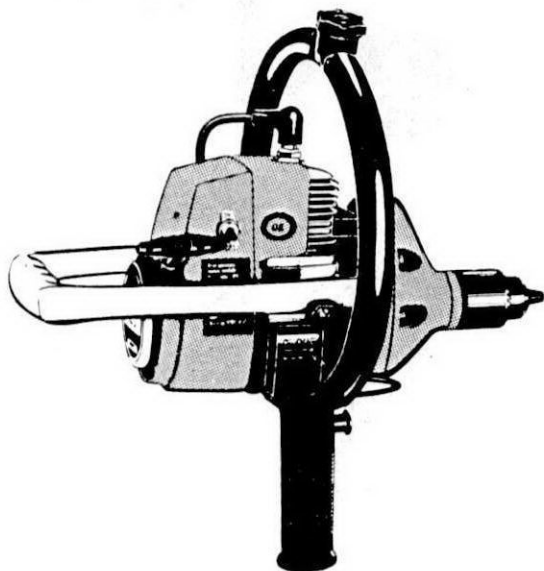


**REYNOLDS**  
SUGAR BUSH INC.

ANIWA, WIS. 54408 Ph: 715-449-2057

# **Piston Drill™**

## **It's Sugar Bush Time!**



There was a time when the only way to handle a tough drilling job was to be within the reach of an electrical outlet or a generator.

**That's in the past!**

Today, there's a new concept from Piston Powered Products — *complete portability!* The Piston Drill! The perfect tool for the maple syrup industry.

*For further information call or write:*

***Piston Powered Products***

14805 S. INTERSTATE 10 / TEMPE, AZ 85284 / (602) 963-9693

# GOD'S SWEET GIFT

Clare Meier  
Route 1, Ogema, Wisc. 54459

Steam rolled out of the old sugar shack chimney as the boys stoked up the fire under the evaporating pans. Hotter and hotter the fire grew, building up a glowing bed of coals. With such efficient stokers on hand, it didn't take long for the cool, incoming sap to boil and foam as it churned through the evaporator. Slowly the water content of the sap escaped through the chimney, leaving behind the enticing smell of fresh maple syrup.

"Well boys, you'd better taste it to see if it's syrup yet," said Grampa Meier, as he looked up from stirring the sap. He knew quite well it would take more cooking to reduce the sap to proper sugar content, yet he also knew that in order to become a connoisseur of syrup, these boys must partake of the brew from time to time.

"Still kind of swampy tasting," the tall red-headed Lenny replied. "It'll take a while yet," added Dan, Lenny's younger brother. They were his grandchildren, helping him out, as he had helped his grampa, during this busy maple syruing season. "Ya, I kinda thought so. What do you say us hard workers take a break?"

Lenny and Dan heartily agreed, for it was seldom their own parents let them rest while working. They ambled to the front of the shack where antiques of all sorts were displayed. Rusty lanterns and old telephone insulators hung in one corner, while in the opposite corner, spanning the weathered wall, rocks of all sorts and shapes, colors and patterns were shelved. Grampa was quite a rock collector; most of

the rocks he found around the area. Dan also liked to do this sort of thing so some of his rocks had been added to the collection.

On the back wall, a conglomeration of unidentifiable objects hung. Grampa Meier seldom passed up the opportunity to play his guessing game with youngsters, and of course, a youngster was anyone under his 71 years! "You



R. R. 1,  
ST. EVARISTE, BEAUCE Co.  
QUEBEC, CANADA

418 459 6649

203 747 2863

## BULK MAPLE SYRUP

Government inspected  
Grades Guaranteed

LOWEST PRICES AND  
ASSURED SUPPLIES AVAILABLE

WHEN TENTATIVE ORDERS  
ARE PLACED THIS WINTER.

Don't be caught short  
next Spring. Call Now!

Also Available  
ALUMINUM SAP BUCKETS  
\$1.00 each

John and Read Extend

*Season's  
Greetings*

TO EVERYONE!

EVERYTHING FOR THE  
MAPLE PRODUCER  
FROM TREE TO CONSUMER

PLEASE : Order Early

Good Bulk syrup in stock

Used Equipment available

WE BUY AND SELL BULK SYRUP

**Smada  
Farms  
Inc.**

Star Rt. Rt. 41 N  
GREENE, N. Y. 13778  
607-656-4058

LIGHTNING GRIMM  
KRESS LAMB

know what that is?" he'd quiz, pointing to the weirdest thing the boys had ever seen. His eyes twinkled, knowing their young minds could not possibly be familiar with the household tools of his youth, yet he was willing to share his youth with them. "It's a cream separator"—or "an ox harness," he'd say, then explain to them how the fresh milk was spilled into this contraption, cranked around, and by centrifugal force the milk spouted out one pipe, with the cream leaving by another pipe.

Today, however, he passed by this back wall, across the room to the front window, picked up a statue of a black beast with silver spines on its back. "What's that, Grampa?" Lenny clamored. "Oh, it's a side-hill gouger. It used to climb the hills around here—that's why the feet on one side of its body are shorter than on the other—so it could climb hills sideways. Folks really were afraid of these ferocious little beasts." The boys exchanged glances, wondering whether or not to believe this tale. One never could tell with Grampa.

Just then, Grampa Meier's closest neighbor, Robert and his wife, Jane walked through the door. "Howdy, Roy," the stocky farmer said. "Come by to see if you had any syrup for sale yet."

"Why, Robert, as a matter of fact we're almost ready to filter and can this batch. Come on in." They all headed to the rear of the shack to set up the filters.

"How's the sapping this year, Roy?"

"I'll tell you, Robert, the tests aren't as good as last year—only 2.2 this year compared to last year's 3.5—but, the season's still young."

Then Grampa picked up a big pail

to draw off a few buckets of syrup for filtering. The people squirmed in close now, to watch the final process. Lenny filled a cup and did a little taste-testing as he watched. Grampa filled the finishing tank, which was lined with thick orlon filters, with syrup, then set himself down on a stool.

"Now, as the syrup is filtered, I'll collect it in bottles from this spout. Lenny, it's time for you to finish your taste-testing and hand me one of those clean bottles." He was ready now to open the spigot, and out rolled the syrup in a steady flow. Bottle after bottle, they filled and sealed until ten quart jars lined the shelf.

Grampa looked up at the people in the shack he had built with his own hands, proud of his grandsons (even if they did a little taste-testing), glad that Robert and his wife could stop by, happy that he could give them this product to sweeten their pancakes, their ice cream, their lives. The boys worked together, sharing their eagerness for the task, while neighbors accepted the fruits of their labor: all sharing God's sweet gift to mankind. There would be more sap to collect and evaporate tomorrow, more sap to heat and filter with care. There would be other neighbors or passers-by stopping in; he and the boys would still be here, to tell a story, to work together, to welcome the people to their sweet-smelling sugar shack.

**WANTED:** Used evaporator and sundry equipment for small home syrup operation. H. J. CUMMINGS, Box 254, Chatham, New York 12037.

**FOR SALE:** 800 buckets, 1400 Grimm covers & spiles. FRANK BRODIE, Westford, N. Y. 13488 607-264-3225.

## *Classified*

**MAPLE INDUSTRY CONSULTANT** - Layout and installation of vacuum tubing systems a specialty. Also, feasibility studies and sugarhouse design. References. Available for work anywhere in the maple region. DAVID R. MARVIN Johnson, Vermont 05656, 802-635-7483.

Use our beautiful four-colored gummed for glass labels. Three sizes imprinted with your name, contents. We are western warehouse for Leader, King, and Vermont evaporators. Leader distributor for past forty years. Most replacement sizes stocked. SUGAR BUSH SUPPLIES COMPANY, Box 1107, Lansing, Mich.

**EVAPORATORS** - All Makes - All sizes. From 2'x4' up to 6'x20'. Some used in the larger sizes. Some oil fired. We carry a stock of New Pans. REYNOLDS SUGAR BUSH, Aniwa, Wisc. 54408. Write for our supply catalog. It's Free!

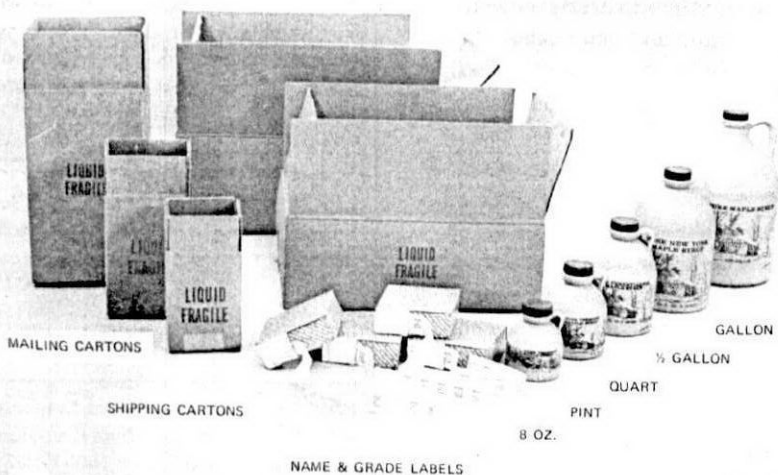
**FOR SALE:** 6x12 Oil-Fired Evaporator w/SS Pans; 3x10 Wood-fired Evaporator; Automatic Draw Off; Two 1500 Gal. Storage Tanks; Approx. 15,000' Lamb Tubing and Fittings; Various other equipment. H. REMMLER - RD 3, Box 233A, Bainbridge, N. Y. 607-895-6666

**FOR SALE:** 1-6'x10', 1-6'x14' Evaporators, Oil-fired, Buckets, Lids, Storage Tanks. 1 BBL Dark Syrup, very good. LEROY SHAFFER, Star Rte., Norwich, N. Y. 607-334-6195.

**FOR SALE:** Used sugaring equipment, buckets, covers, spouts, 3/2x12 Lightning Pans, Misc. MICHAEL GIRARD, 11 Village Road, Simsbury, Conn. 06070 (203) 658-5083 or call Steve: 651-3852.

**FOR SALE:** Maple Cream Machine, Unused - Price \$175.00. ELLSWORTH HANDRICH, Fairview, Mich. 48621, Phone: 517-848-2322.

USE THE 'BACON' JUG  
 HAVE HAPPY CUSTOMERS  
 SAVE \$\$\$\$\$



MAILING CARTONS

SHIPPING CARTONS

8 OZ.

NAME & GRADE LABELS

PINT

QUART

1/2 GALLON

GALLON

The Dealers and Associations listed on the following page can supply their customers and members with a complete line of "Bacon Jugs" from 8 oz. to one-gallon — Individual Mailing Cartons for pint, quart, half-gallon and gallon jugs — Shipping Cartons for 12/8 oz., 12/Pint, 12/Quart, 6/Half-gallon and 4 Gallon jugs.

Unbreakable Polyethylene Jugs are printed for Pure New Hampshire, Vermont, New York, Maine, Pennsylvania, Ohio and "all state" Maple Syrup — CUSTOM PRINTING, too.

See your  
 dealer  
 or write

**BACON'S SUGAR HOUSE**

JAFFREY CENTER, NEW HAMPSHIRE 03454

(603) 532-8836



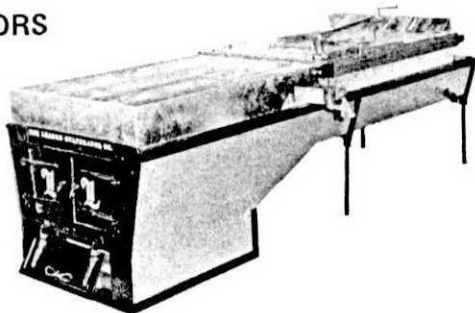
## DEALERS & ASSOCIATIONS CARRYING BACON'S JUGS

N. H. Maple Producers Assn., Warehouse, Rt. 106, Loudon, N.H.	(603) 783-9961
Richard Moore, RFD No. 8, Concord, N.H. 03301	(603) 267-8217
R. N. Johnson, Walpole, N.H. 03608	(603) 756-3321
<b>Massachusetts Maple Producers</b>	
c/o Russell Davenport, Shelburne Falls, Ma. 01370	(413) 625-2866
Lesure Farm, Ashfield, Mass. 01330	(413) 628-3268
Clark Brothers, Wells, Vt. 05774	(802) 325-3203
The Dakin Farm, Ferrisburg, Vt. 05456	(802) 877-2936
Harry Jorgensen, W. Woodstock, Vt. 05091	(802) 457-2261
H. W. Leach, Waterville, Vt. 05492	(802) 644-2488
Leader Evaporator Co., St. Albans, Vt. 05478	(802) 524-4966
W. S. Mitchell, Inc., Newport, Vt. 05855	(802) 334-2800
<b>Vermont Sugar House</b>	
Exit No. 3, I. 89, South Royalton, Vt. 05068	(802) 763-8809
Justus "Dutch" Asthalter	
Neversink, N.Y., P.O., Parksville, N.Y. 12768	(914) 292-8569
Frank Barney, Sherman, N. Y. 14781	(716) 761-6071
W. Barry Branon, 31 Tremblay Ave., Plattsburg, N. Y. 12901	(518) 563-1063
Lansing Burdick, 335 East Rd., Stephentown, N.Y. 12168	(518) 733-5591
Campbell's Maple, Smyrna, N. Y. 13464	(607) 627-6653
Charles R. Emerson, RD 1, Alfred Station, N. Y. 14803	(607) 276-6481
Leo W. George & Sons	(716) 591-1531
Rt. 77, Bennington, P.O. Strykersville, N. Y. 14145	(716) 591-1766
Bill Kent, Jr., RD 1, Franklin, N. Y. 13775	(607) 829-8262
Puszcz Brothers, Great Valley, N. Y. 14741	(716) 699-2113
Claude Sisson, Sr., Central Bridge, N. Y. 12035	(518) 234-3194
Ralph VanBrocklin, RFD No. 2, Canton, N. Y. 13617	(315) 386-3036
Louis Vincent, P.O. Box 33, Jay, N. Y. 12941	(518) 946-2620
John Wiggers & Son, North Clymer, N. Y. 14759	(716) 355-2511
Neil C. Wright	(315) 245-2450
28 Liberty St., Camden, N. Y. 13316	(315) 245-1434
J. Curtis Dom, P.O. Box 56, Wellersburg, Pa. 15564	(814) 324-4414
<b>Northeastern Pennsylvania Maple Producers Assn.</b>	
Court House, Honesdale, Pennsylvania 18431	(717) 689-2353
Potter-Tioga Maple Producers Assn.	(814) 274-8540
Robert McConnell, Coudersport, Pennsylvania 16915	(814) 274-9143
H. W. Russell & Sons Maple Farms, Rome, Penn. 18837	(717) 247-7361
<b>Sugar Bush Supplies</b>	
Box No. 11C7, 4109 West Saginaw, Lansing Mich. 48904	(517) 372-1149
Kinney & Hodgkins Maple Supplies, Cumberland Ctr., Me. 04021	(207) 829-5565
Kinney & Hodgkins Maple Supplies, Yarmouth, Me. 04096	(207) 846-4570
Titcomb's Dairy, Farmington, Maine 04938	(207) 778-4959
Wyman W. Manes & Son, East Orwell, Ohio 44034	(216) 583-2388
Richards Maple Products, 545 Water St., Chardon, Ohio 44024	(216) 286-4160
<b>O.C. Stevens &amp; Son</b>	
Maple Lane Farm, Mt. Gilead, Ohio 43338	(419) 946-3300
Reynolds' Sugar Bush, Inc., Aniwa, Wisconsin 54408	(715) 449-2057
Steve Berman, Monterey, Virginia 24465	(703) 474-2902

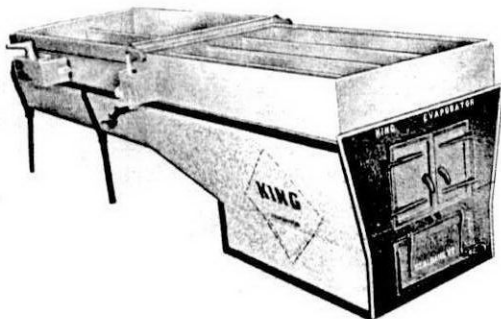
# 1888- LEADER EVAPOR

---

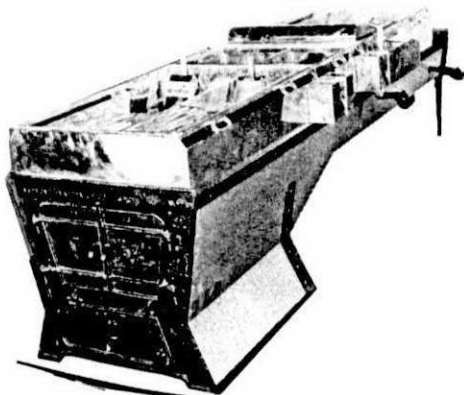
LEADER SPECIAL EVAPORATORS  
MONITOR TANKS  
WARNER SPOUTS



KING EVAPORATORS  
KING TANKS  
SOULE SPOUTS



VERMONT EVAPORATORS  
VERMONT SPOUTS



---

*May We extend our Very Best Wishes*

---

**Leader Evaporator Co. Inc.**

---

# RATOR CO. INC. -1976

We are proud to be a part of America and to take part in the Bi-Centennial Celebration.

For 88 years LEADER has served the Maple producer and enjoyed our relationship very much.

In addition to Evaporators, Tanks and Spouts, we also offer the MAPLE-FLO and LAMB sap gathering system, sap bags, buckets, and try to be a complete supplier to the Maple Producer.

Through your patronage LEADER has continued to grow.

When interested in Maple, please contact our distributors, dealers, or direct with us for prompt, courteous service.

---

*for the Coming Holiday Season!*

---

Box 588 St. Albans, Vermont 05478  
802-524-4966 or 802-524-3931

---



From An Old Print

FROZEN UP

Currier & Ives

Best Wishes To You  
for a very Merry Christmas  
and a Happy New Year

Bob Lamb