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# Making Maple Syrup at Saint John's: Records Show Shifts in the "Sticky Business"

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# Making Maple Syrup at Saint John's: Records Show Shifts in the "Sticky Business"

Large areas were covered with sugar maple trees, which the Indians and early settlers held in some esteem. In spring they used to cut a horizontal gash into the trunk or bole and collected the sweet colorless sap, which was boiled in large pans over a fire and evaporated, leaving a deposit of soft sugar in the pans. This was maple sugar, some of which was put on the markets. The Indians [used] to pack it into small baskets made of birch bark. I do not think it was generally popular as it could not compete with cane sugar from the South. It is no longer made here, as far as my knowledge goes. Indians still make it.

- Alexius Hoffmann, O.S.B. The Natural History of Collegeville (1934)



John Geissler, St. John's Arboretum, fires the evaporator in the St. John's Sugar House. Photo by Stephen G. Saupe

Fr. Alexius Hoffmann provides a glimpse into the early history of maple syrup making in our area in *The Natural History of Collegeville*, a handwritten manuscript he describes as a "modest labor of love for St. John's" and "respectfully inscribed to THE RIGHT REVEREND D. ALCUIN DEUTSCH O.S.B., FIFTH ABBOT OF ST JOHN'S." What may come as a small surprise is that maple syrup was originally valued not so much for its ability to complement a stack of pancakes, but rather because it could be boiled down further to make maple-flavored table sugar. In today's era of cheap and readily available beet and cane sugar, it's hard to appreciate that not too long ago table sugar was a highly sought-after commodity. Native Americans and settlers were happy to satisfy their sweet tooth by producing sugar from the sweet sap of the sugar maple tree (*Acer saccharum*). However, once table sugar became more readily available, few maple trees were tapped in this area during the first third of the 20<sup>th</sup> century (Hoffmann, 1934). Then came World War II.

In 1942, after reading a newspaper article about "catching the sap or being a sap," presumably written in response to sugar shortages created by the war, Fr. Wendelin Luetmer and helpers tapped 150 trees, collected 1440 gallons of maple sap, and boiled it down to make 45 gallons of maple syrup (Mertz, 1942). This successful experiment initiated a monastery ritual that has continued until the present.

It's not clear from the data how much maple sugar or maple syrup was produced at St. John's prior to 1942. There were likely small-scale attempts. For example, Mertz (1942) indicated that "[f]ormerly a few trees were tapped each spring to secure food for the apiary." And in another *Record* article, Albert (1959) stated that "[p]rior to the '40s a small amount of collecting was done, with boiling taking place in open kettles." Nevertheless, the 1942 effort by Fr. Wendelin and crew is clearly the first major effort to make maple syrup on campus. I suspect that even Robert Mertz, the author of the first article appearing in *The Record* about St. John's syrup-making in 1942, would be surprised to know how prophetic his statement was, that "there is evidence that an eventual syrup industry [at St. John's] is in the offing."

Through the years, the monks and their helpers have maintained records concerning the success of their maple-syruping operation. For example, during many seasons (e.g., 1978, 1982, 1985, 1988, 1990, 2002, 2005) the leader of the operation, the "sugar boss," kept a daily log of their activities or wrote a summary of activities at the end of the end of the season (e.g., 1996, 1999, 2005). A three-ring binder in the St. John's Arboretum offices serves as a depository for most records. In addition, the syrup-makers penciled the loads of sap that were hauled to the sugar shack on a piece of scrap lumber, and on a second piece of wood the amount of syrup produced was recorded. At the end of the season, these "datasheets" were nailed to the joists in the roof where they greet visitors even today. All of these data will eventually be available at our St. John's maple syrup web site (www.csbsju.edu/maple).

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By initiating a project to make data from the St. John's maple syrup operation more readily accessible to our community and the general public, I hope to present a more complete historical picture of the monastery's syruping efforts and a better understanding of the factors that affect maple sap flow and syrup production. In this first article of a series I focus on the individuals who made syrup and how often St. John's produced syrup. Subsequent articles will provide an analysis of sap and syrup production.

#### How Often Does Saint John's Make Maple Syrup?

Since their first modest effort in 1942, St. John's has made syrup in 30 of the past 63 years (Table 1). Though the interval between successive syrup-making seasons has varied from one to four years (Fig. 1), on average St. John's has made syrup every 2.1 years. During the 1940s through 1960s syrup was made approximately every other year (Fig. 2). The time interval between syrup-making seasons reached a peak in the 1970s through 1980s when syrup was made roughly every third year. Three of the four times (1968-1972, 1974-1978, 1978-1982; see Table 1) that St. John's waited four years between syruping seasons occurred during this period. In the 1990s syrup-making returned to a biennial activity, but in recent years syruping has decreased again to an annual activity (Fig. 2).

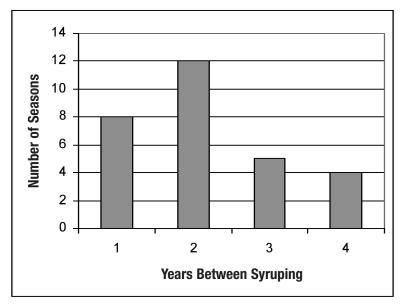


Figure 1. Time interval between successive seasons of making maple syrup at St. John's.

Table 1. Listing of years during which St. John's has made maple syrup and the leader of the operation (if known).

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3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 1940 1950 1960 1970 1980 1990 2000 Decade

Figure 2. Average time interval between successive seasons of making maple syrup at St. John's sorted by decade.

# Goal of Saint John's Syrup Making

The time interval between successive syrup-making seasons is largely a function of syruping success. Until 2002, the main purpose of making syrup at St. John's was to provide syrup for the monastery dining room and for Abbey gifts (Br. Walter Kieffer, personal communication; Minneapolis *Star Tribune*, 1982). The Benedictines fired up the evaporator only when they needed to replenish dwindling supplies. "When we run out of syrup, we start collecting again," Fr. Paul Schwietz, the syrup boss in 1988 told *The Record* (Armon, 1988). And this has been the case since the beginning. Near the end of the third season of syruping, *The Record* (April 12, 1945) wrote that "[a]ccording to Brother Phillip, it is not expected that these operations will be extended next season, as none of the syrup is sent out, and the present yield is sufficient for the school's needs."

Making maple syrup, especially on the grand scale carried out by St. John's in the 1960s through 1990s, is a very labor-intensive process. With syrup in the larder, the crew can take a break from the long hours in the sugar shack. Br. Walter Kieffer reflected in his year-end maple summary for 1996: "In two years one will forget the hours and pains and again be ready to carry on the tradition of sap to syrup."

#### How Much Syrup Does Saint John's Use Annually?

Using data on the number of monks at St. John's provided by Fr. Colman Barry (1993) for the years 1978 to 1992 (Table 2), I calculated that the overall average of annual syrup usage for this period was 0.54 gallons of syrup per monk (Table 2). Thus, we assume that the frequency of making syrup should be dependent on supplying the monastery with approximately one-half gallon of syrup per person.

TIME INTERVAL	AVERAGE NUMBER OF MONKS AT ST. JOHN'S DURING TIME INTERVAL (data from Barry, 1993)	TOTAL SYRUP (gallons)  AVAILABLE DURING  TIME INTERVAL  (= amount of syrup  produced during first  year of time interval)	SYRUP (gallons) PER MONK PER YEAR DURING TIME INTERVAL
1978 – 1981	307	373	0.30
1982 – 1984	303	271	0.30
1985 – 1987	261	560	0.72
1988 – 1989	249	348	0.47
1990 – 1991	245	364	0.74
1992	235	344	0.73
		mean	0.54

Table 2. Summary of Maple Syrup Usage at St. John's from 1978 to 1992.

The amount of syrup actually produced during a season is dependent on two major variables: the number of trees tapped and the weather. Ignoring weather for a moment, to provide a constant annual supply of syrup, a producer could tap fewer trees annually or tap large numbers of trees less often. As mentioned above, St. John's has historically opted to make larger batches of syrup less frequently. Since the process is dependent on weather, putting out a standard number of taps is unpredictable and can result in wildly different amounts of syrup production. For example, in 1978 the monks installed 1850 taps and made 373 gallons of syrup but in 1982 the same number of taps yielded only 271 gallons of syrup. And in 1985 when only 100 more taps (1950) were installed, St. John's produced a whopping 560 gallons of syrup.

Thus, we can hypothesize that following a year in which lots of syrup is produced, St. John's will have enough syrup in stock that they will not need to make syrup the following season. Or stated more scientifically, there should be a direct correlation between the amount of syrup produced during a syrup season and the time interval until the next syrup-making season. To test this hypothesis I have graphed the interval

between successive syrup-making years versus the amount of syrup produced (Figure 3). These data provide clear support for our hypothesis: the more syrup that is made in a given year, the longer the lag period before St. John's made syrup again.

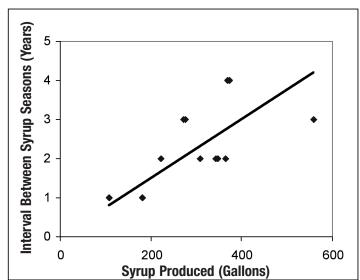


Figure 3 Time interval between successive seasons of making maple syrup at St. John's from 1972 to 2003 as a function of the total amount of syrup (gallons) made in the first of the two seasons.

One advantage of graphing these data is that the slope of the trendline provides an estimate of the total annual monastery syrup use. The slope of this line, which is 0.0075, is expressed in units of 'years between syrup-making seasons per gallon of syrup.' If we calculate the inverse of the slope of this line (1/0.0075) we convert the units to gallons of syrup per year. The end result is that our calculation shows that the monastery has used an average of 133.3 gallons of syrup per year.

# A Philosophical Shift

In 2002 there was a philosophical change in the purpose of the operation. Rather than serving the main role of providing the Abbey with syrup, the operation took on a primarily educational role. This occurred when Abbot John Klassen asked the Arboretum to share responsibility for the operation because the chief syrup-maker, Br. Walter, was busy with graduate studies. The Arboretum was honored by this request and elucidated three major goals for their tenure: (1) to maintain the monastery tradition of making syrup at St. John's; (2) to provide the monastery with

enough syrup to meet their needs; and (3) to provide educational opportunities for our students and the wider community.

In order to provide continuity in educational programming, the Arboretum decided to make syrup every year. To avoid the long "hours and pains" associated with a large operation, the Arboretum scaled back the syruping effort by installing fewer taps. Since taking over, the Arboretum syrup-makers put out about 600 taps annually, which is about 58% fewer than the historical average at St. John's of 1416 taps. Based on our past experience (data not shown) we expect to make about 0.8 quarts of syrup per tap. In a good year, our 600 taps should yield a minimum of 120 gallons of syrup to satisfy both monastery needs and arboretum educational activities.

# Educational Activities in the Sugar Bush

St. John's syrup makers have always welcomed visitors and tour groups. For example, my Plant Physiology (BIOL 327) class has toured the operation nearly every season that St. John's has made syrup since I arrived more than 20 years ago. In the year-end syrup summary for 1996, Br. Walter reported that fourth-graders from Oak Hill Elementary (St. Cloud) and preschoolers from Sartell visited the operation. And in his season summary from 1999, Br. Walter noted that several "outside groups toured," including four groups of second-graders, Boy Scouts from Litchfield, middle school students from St. John's Preparatory School, Pearl Lake Girls Scouts, and a group from North Dakota State University.

Since becoming involved, the Arboretum has been particularly successful in achieving their goal of developing the educational potential of the maple sugar operation. For example, in spring 2005 we provided tours to more than 500 primary school children, including 300 third and fifth graders from St. Cloud Independent School District 742, 110 preschoolers from Sartell Early Childhood and Family Education program, 65 middle school students from St. John's Preparatory School, and 34 kindergarteners from Belgrade-Brooten-Elrosa. In less than five years of sponsorship, the Arboretum has nearly reached the maximum number of school children that we can handle considering the short syrup-season and our limited staff. In addition to the K-12 groups, during 2005 two CSB/SJU Symposium classes visited our operation and students from a variety of courses were involved, including several who included syrup making as a part of a service-learning experience. We supervised one individual who was sentenced by the Stearns County court to mandatory service work. In addition, Sarah Gainey (Arboretum Education Coordinator) and I each gave formal presentations about the operation that involved approximately 120 attendees. Finally, there were many individuals who simply stopped by for a visit.

The Arboretum has also hosted one or two annual Maple Syrup Festivals every

year since becoming involved. These festivals feature tours, lectures, horse-drawn carriage rides, maple syrup sundaes and the opportunity for visitors to participate in the process. The festivals have been well received. In 2005 more than 400 visitors (and 25 volunteers) attended our two festivals. In addition, one festival was featured in a full-page article in the *St. Cloud Times* (April 15, 2005).

#### Saint John's Syrup in the News

One benefit of the maple syrup operation is that it has generated a significant amount of publicity for our institutions. For example, Br. Arnold Jirik reported in the daily log for April 12, 1982 that a "reporter and photographer from the Star and Tribune were out to do a story about the operation." There was apparently so much publicity this year that the May issue of the abbey newsletter, The Confrere, reported that "photographers of the operation were about as numerous as the sappers." In 1990 Fr. Daniel Durken sent a press release to the St. Cloud Times and other area papers with the clever title, "Benedictine monks get into sticky business: Maple syrup." Br. Walter reported in his year-end summary for 1996 that "WCCO covered the tapping process and returned later to catch other aspects of the operation" and that "Ron Schara productions in conjunction with KARE 11 did a full afternoon of interviews and filming all operations." That same year, St. John's maple syrup was also featured in the St. Cloud Times and on KSJR. Nearly every year since the Arboretum has become involved, the operation has been included in local new stories published in the St. Cloud Times, Stearns-Morrison Enterprise, and St. Joseph Newleader. Br. Walter astutely recognized the potential of the operation for recruiting students when, in his 1999 year-end summary, he quoted one of the Litchfield Boy Scouts as saying, "I hope you keep this up, as I am coming here to college in five years."

### What is the Syrup Used For?

Today, approximately 90% of the maple syrup that is produced at St. John's goes directly to the monastery. Some of this syrup is eaten in the monastery dining room or used in baking. Br. Raphael Olson's pecan/maple pies are apparently legendary in the abbey. The *St. John's Quarterly* (1985) described maple syrup as a "popular novelty in the abbey dining room; most used it on the occasional ice cream that appeared, though men like Br. Ambrose Mader put it on his potatoes and Fr. Joachim Watrim put it on everything."

The bulk of the syrup, perhaps as much as 80 gallons or more a year, is given away by the Benedictines as gifts (Br. Walter Kieffer, personal communication). Br. Walter and helpers rebottle the syrup in 12-ounce glass containers, apply labels that

state "Pure Maple Syrup. Made by the Monks of SAINT JOHN'S ABBEY," and then stock the St. John's commissary shelves where individual Benedictines or institutional groups (*e.g.*, President's office) can obtain it for gifts.

Br. Walter Kieffer recalls that in the 1960's Fr. Walter Reger, the founder of the Alumni Association and an expert fund-raiser, once told him that "....with a can of syrup and a loaf of bread, we will keep St. John's running." Reger recognized the value of St. John's maple syrup: "as a gift the return is much higher than [you] could receive on the market...I gave this [potential donor] a loaf of bread and can of syrup and here is a check for \$500...never sell a unique gift, it is priceless." According to Br. Walter, "[i]n the Colman Barry presidential years, many a case of syrup went to his office for gifts to friends and donors. The practice was greatly cut back when [new] accounting [practices] were set in place about the time of [President] Blecker...[Later] much less [syrup] was given out by the offices. This changed some when Fr. Don LeMay moved into what developed as [Institutional Advancement]. He would give out a fair amount of syrup but pay for it through the internal budgeting systems. More than once [Fr. Don] praised the unique gift of maple syrup in influencing some donor or friend."

As a result, none of the syrup that St. John's makes is sold through the bookstore or other venue. The syrup reflects the history and tradition of St. John's – and it is impossible to put a value on that. Br. Walter would say, if they sell the syrup it is worth about \$6.00 a pint, but as a gift — it's priceless.

The remaining fraction of syrup (10%) that doesn't go into the monastery is served to guests at our festivals and is gifted to the workers and volunteers who participate in the syrup-making process.

Students will not find any of our syrup at the waffle bar in the Refectory. In fact, to my knowledge, no syrup produced during at least the past 5 years, and likely much longer, has been available to the students unless they participated in syrup-making or received it as a gift. However, this hasn't always been the case. Syrup produced during the first season "was found on the ice cream in last Sunday's dinner" (Mertz, 1942). On April 10, 1959, *The Record* published an image of a sap bucket with the caption, "soon gallons of the sap will appear on the refectory tables as delicious maple syrup." A 1966 article in the *Off-Campus Record* indicated that St. John's syrup, "[a]lthough refined principally for the monks, a lot of it makes its way to the college and prep refectories." This practice was eventually discontinued, at least in part, because the students didn't like the flavor of the St. John's pure maple syrup as well as the maple-flavored corn syrups (e.g., Aunt Jemima) to which they were more accustomed (Br. Walter Kieffer, personal communication). However, the syrup was clearly appreciated by the students who tasted the first batch of St. John's

maple syrup. In 1942, *The Record* reported that "according to those who have tasted it, it is much better than can be bought in a grocery store."

### Syrup Making at St. John's is a Labor of Love

An incredible amount of effort is required to produce St. John's maple syrup. First, the equipment must be readied. Long before the trees start to produce sap, the sugar shack is opened up and thoroughly cleaned. The evaporator, which was disassembled and cleaned at the end of the last season, is reassembled. The sap holding tanks are cleaned and the hoses are re-attached and plumbed into the evaporator. Any equipment, such as the tank on the wagon that hauls in sap from the field and the holding tanks, are sanitized to prevent mold and bacterial growth.

Next, the trees are tapped. This requires a crew of at least five. One person leads the way drilling the holes with a 7/16<sup>th</sup> inch bit mounted on a chainsaw body. A second person follows close behind and drops a bucket at the base of the tree beneath the hole while a third person drops a lid next to the bucket. Two or more individuals follow behind and tap a tube called a spile into the tree, hang the collecting bucket on the spile, and then install the lid. For maximum efficiency, two or more other individuals shuttle buckets and lids to the spile tappers. In 2005 it took a crew of 35 about 6 hours to install 600 taps.

Once the trees start to produce sap it must be collected. The collectors, who each carry two five-gallon pails, remove the sap-laden buckets from their spiles, empty the buckets into one of their pails, hang the bucket back on the tree, and continue the process until both five gallon pails are as full as they can carry. These are then transported to storage barrels which are strategically placed along tractor pathways throughout the woods. The sap is then pumped from the barrels through a filter into a 175 gallon tank pulled by a tractor and returned to the sugar house where it is filtered again as it is off-loaded into stainless steel holding tanks. In an average year, we collect sap on 13 days (data not shown) and, depending on the amount of sap, it will take four people about 3 hours to collect the sap from about 600 taps.

Once the sap has been brought back to the sugar shack it must be concentrated into syrup in our wood-fueled evaporator. The St. John's evaporator is 16 feet long by four feet wide and once it is running at full capacity can produce about five gallons of syrup per hour. The syrup is removed from the evaporator before it officially "done" because it would be too easy to burn the syrup before it is finished. As the syrup is drawn off the large evaporator, it is filtered to remove the "sugar sand" or minerals that precipitate during the cooking process. The cooking of the syrup is completed on a small propane-fueled stove that can finish 8-10 gallons of syrup per batch. The finished syrup is filtered one last time before it is bottled.

Clearly many hours are spent in the sugar shack. For example, during every season that I've been involved with syruping I have spent at least two or three nights in the sugar shack cooking sap until 2:00 am or later. My efforts look pale in comparison to those of the crew in 1958 "when the [stove] was in continuous operation from early on a Tuesday morning until late on Saturday night" (Albert, 1959). And in 1985 the crew cooked around the clock from April 1st to the 3rd and again from April 10th to 11th (data not shown). It was not uncommon for one crew member to tend the stove while another takes a nap in the attic of the sugar shack.

Although we don't have records for the total time we've spent cooking sap in the sugar shack, we do have records for how long it takes to prepare finished syrup with the finishing stove. In 1982, which was an average year for syrup production, St. John's produced a total of 271 gallons of syrup. The crew cooked syrup on the finishing stove on 12 days and completed 42 batches of finished syrup. Each batch that year required an average of 2 hours and 13 minutes. In short, the crew spent a minimum of 177 hours in 1982 just finishing syrup. And this figure doesn't include the time spent cutting, splitting, hauling and stacking wood.

Our evaporator burns approximately one cord of wood for every 25 gallons of finished syrup. Thus, in 1982 St. John's burned nearly nine cords of wood to produce the 271 gallons of syrup. Fr. Knute Anderson, Fr. Fintan Bromenshenkel and Br. Walter Kieffer are among the Benedictines who have spent many hours cutting wood. In recent years Arboretum personnel, especially Mr. Dan Vogel, have supplied wood, too.

## Syrup Making at Saint John's Requires Many Hands

Syrup-making is clearly not an individual activity. It is a labor-intensive process that requires many people working together. In his daily syrup log for the 1978 season, Br. Arnold Jirik reported that at least 30 different community members and helpers participated in making syrup. Even more people helped in 1982. Br. Arnie's daily log recorded at least 35 priests, brothers, novices and candidates who were involved and the *Confrere* (1982) stated that "to record all the names of all the helpers in the total process would demand listing a large portion of the Ordo. Simply stated: it was a monastic project." In 1988 at least half of the Saint John's monks were involved in the syrup collecting process, according to Fr. Paul Schwietz (*The Record*, March 24, 1988). In the year-end log for 1996, Brother Walter noted that 34 monks participated during that season. Although we haven't yet calculated the hours of time invested per gallon of syrup, which will be the topic for a subsequent article, this past spring (2005) we kept track of the number of volunteers who helped out. We recorded 115 volunteers who donated 455 hours of time. This doesn't include the time that the syrup bosses spent at the sugar bush.

#### Syrup Making Reflects Benedictine Values

The monastic community has always recognized that making maple syrup is an endeavor that combines community and work in a truly Benedictine fashion. After just the second season Fr. Wendelin described the process as a "family project" (*The Scriptorium*, 1943) and in 1988 Fr. Paul told *The Record*, "It's a community project." Fr. Paul also noted the egalitarian atmosphere at the sugar shack: "All the monks from the top to the novices work." The maple syrup operation is clearly one of the places on campus where, borrowing the title from Colman Barry's book (1993), "worship and work" go hand-in-hand. Similarly, in a 1951 article in *The Record*, the reporter observed that "maple harvest seems to typify the cooperative spirit that helps to make the monastery self-supporting in as many ways as possible. Cooperation is called for on all sides – from the Clerics and Novices, from the Brothers and layworkers, and lastly, from the weather."

#### Saint John's Syrup Bosses

Table 1 lists the individuals who were the syrup bosses through the years. These individuals are the ones who had the primary responsibility for day-to-day operations. Fr. Wendelin, the first boss, was followed by a long succession of monks. Without a doubt, the one person who has spent more time at the St. John's sugar bush than any other is Br. Walter Kieffer. His name is synonymous with maple syrup making at St. John's. Although the data in Table 1 are incomplete, if we logically fill in the gaps Br. Walter clearly stands out as having the longest association with the process. He has been directly or indirectly involved in syrup-making since at least 1962 when he was a student at St. John's Preparatory School. In other words, Br. Walter has been a spring fixture in the sugar bush for 43 years or nearly 70% of the syruping history at St. John's. Other Benedictines, including Br. Julius Terfehr, Br. Marcellus Handorgan, Br. Mark Kelly, Br. Stephen Thell, and Br. Arnold Jirik, also deserve special recognition. They were each involved in syruping for a dozen or more years (Table 1). For example, in 1988 *The Record* noted that Br. Stephen had "been involved with the operation since its inception."

The Abbey has been assisted by lay individuals throughout the history of the syruping operation. In the 1950's Ralph Meyer, a former employee and neighbor of St. John's (Meyer's Fruit Farm now Collegeville Orchards) played an integral role in the operation. In 1966, *The Record* said that he had "been at the art for some 15 years." When the Arboretum became involved in 2002, John Geissler, the Assistant Director at the time, and I were asked to assist Br. Walter Kieffer. We were the first non-Benedictines to lead the operation since Ralph Meyer four decades earlier. In 2005 I was joined by Sarah Gainey (John's replacement when he left the Arboretum), William and Linda Mock (neighbors and long-time supporters of St. John's), and

Kyhl Lyndgaard (first-year symposium instructor).

Relatively few Benedictines have been involved in syrup-making during the past few years with the exception of the wood makers. In 2005 only about a half-dozen different individuals visited or volunteered. The reason for the decline of monastery participation is not clear. However, in a year-end summary in 1990 Fr. Paul listed the following problems to be solved in future years: "difficult to keep people interested," "little support from Community members," and "getting old." Although I can't be certain to what these brief comments refer, it seems likely that as early as 1990 there was dwindling monastery interest in syrup-making. Fr. Paul predicted the need for the Abbey to seek help from the Arboretum to maintain the tradition of syrup making at St. John's.

This manuscript is dedicated to my friend and syrup mentor, Br. Walter Kieffer.

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