



# A Bitter Past: Hop Farming in Nineteenth-Century Vermont

*The history of hops in Vermont is not only a history of an agricultural crop, but also a cross section of social and cultural history.*

BY ADAM KRAKOWSKI

I think I have asserted heretofore, there were more hops raised in the town of Hydepark than the rest of the county. Hops had been so profitable for a few years, that many new yards were planted in the spring of 1851, which would produce a crop the present fall, which has been very abundant, and the hops well cured; the prices have ranged 16 to 18.5 cents per pound.

The quantity raised is over eighty-three tons; the amount of money from the raising of hops brought into our town is over twenty-eight thousand dollars. Many more are commencing the business, and the probability is, that in a short time the price will be reduced to six cents per pound, as has been the case here once before, when all but a few threw up the business.

*Ariel Hunton  
Hyde Park, Vermont  
Nov. 20, 1852<sup>1</sup>*

The current craft brewing movement has seen a successful rise in the last two decades, leading to the start of numerous artisan breweries throughout the United States. In the case of Vermont, nearly all the raw materials for their operation are imported into the state. Just over a hundred years ago, the opposite was true. Halfway through the nineteenth century Vermont was the second largest pro-

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ducer of hops in the United States, behind only New York, and was exporting nearly the entire crop throughout New England and beyond.

In just over a hundred years the entire hops farming infrastructure disappeared entirely from the landscape. The last unaltered hop house structure documented in the state is located in Charleston, Vermont.<sup>2</sup> It has been argued that the many difficulties of farming hops and their sensitivity to growing conditions led to their demise in the state. However, it would be more accurate to say that the demise of hop farming in Vermont was a result of the confluence in the middle of the nineteenth century of commercial, environmental, and cultural pressures on the industry. Understanding how these three elements worked to bring hop culture in Vermont from its humble beginnings, through its boom, to its bust, necessarily begins with the history of hops in colonial America.

#### ORIGINS

Hops in New England have a long and complicated history. Although wild hops grew throughout North America before European contact, European hops were introduced into the Massachusetts Bay Colony in 1628, brought over on the Endicott Voyage to resupply the Puritan colonists.<sup>3</sup> Samuel Sewell, the judge of the Salem Witch Trials and later governor of the Massachusetts Bay Colony, recorded his trip to a local hop yard in Woburn, Massachusetts, on August 13, 1702, to inspect that year's crop.<sup>4</sup>

While seventeenth- and early-eighteenth-century accounts of hops in the colonies are rare, a law passed in the English Parliament in 1732 under the reign of King George II, titled "*An Act for importing from His Majesty's Plantations in America, directly into Ireland, Goods not enumerated in any Act of Parliament, so far as the said Act relates to the Importation of Foreign Hops into Ireland,*"<sup>5</sup> suggests just how widespread and successful the hops crops were in America at that time. Outlawing the importation of hops from America through Ireland and into England implied that the hops were abundant enough to fulfill domestic demand as well as supplying an export trade. The Massachusetts Bay Colony had already established itself as an important hops supplier, shipping hops to New York and Newfoundland as early as 1718.<sup>6</sup> Shipping records for the schooner *Bernard* out of Boston destined for New York include 3,000 pounds of hops in February 1763.<sup>7</sup>

Further evidence of Massachusetts's dominance in the early American hop trade is a report that, "A single brokerage firm at North Reading in Middlesex County, Massachusetts, between 1808 and 1837, assembled and sold 16.5 million pounds of hops."<sup>8</sup> Although the average price was nearly 13 cents a pound from 1806 to 1846<sup>9</sup>, prices through

this time were so volatile that fortunes changed without warning. A journal keeper in Shirley, Massachusetts, documented that on September 30, 1802, prices were at 6 cents a pound and thousands of pounds of the crop changed hands. In 1817 the price reached 34 cents a pound.

The origin of Vermont hop culture has its roots in the hop fields of Wilmington, Massachusetts, the epicenter of colonial hop production during a large portion of the eighteenth century. An account from General William P. Riddle of Manchester, New Hampshire, a leading hop merchant and hop inspector, reveals a possible beginning to the Vermont crop:

About the year 1800, a few individuals emigrated from Wilmington [MA] to Bedford, N.H., where they commenced the culture of hops, and being successful, in a few years most of the farmers in said town went into cultivation of the article. . . . About the same time [1825] there was a number of individuals of Bedford and Amherst emigrated to Bethel, Vt., who likewise carried the hop root with them, and cultivated the article successfully, from which the hop fields spread mostly over the State, and at present Vermont has become the second in New England for the cultivation of hops.<sup>10</sup>

Bethel in Windsor County was still one of the larger producers of hops in 1840, according to the state agricultural census.

Michael Tomlan, author of *Tinged with Gold*, noted that the earliest reference to the commercial cultivation of hops in Vermont appears in an article published in an 1835 issue of *The Genesee Farmer and Gardener's Journal*. The author "H.C." of "Meadowbanks" describes an enterprising pair of farmers, "D & H," "who cultivate a small [hops] farm in partnership in a town in Vermont, on the Connecticut River." From four acres in 1833 they obtained 3,000 pounds, selling for 20 cents a pound.<sup>11</sup> Accounts of hop farming and yields in Vermont continued to be published in agricultural journals such as *The American Agriculturist*, *The Cultivator*, and *The Country Gentleman* through most of the nineteenth century.

#### RISE AND DECLINE

Cultivation of hops became commercially viable statewide around 1840, where cultivation prior to that year was highly localized. The 1840 state agricultural census reported that Vermont produced 48,137 pounds of hops statewide, accounting for 3.9 percent of the national total, which was a distant second to leader New York's production. At the time, Windham County produced 25,911 pounds of hops, more than triple the production of any other county in the state. It is important to note that other eastern counties of Vermont produced miniscule amounts: for example, Orleans County recorded a mere 642 pounds.<sup>12</sup>

The year 1850 saw the peak of Vermont's hop production against the national numbers: 288,023 pounds of hops produced statewide, accounting for 8.2 percent of the national crop, but once again, second to New York. In the decade since the 1840 agricultural census, Windsor County had become the largest producer, totaling 79,700 pounds; Orleans County was second, producing 77,605 pounds; and Windham County dropped to a distant third with 41,510 pounds.<sup>13</sup> The value of the crop in 1850 was near \$1.00 per pound, making the year lucrative for the Vermont farmers.<sup>14</sup>

The agricultural census of 1860 showed the peak of the hop-farming boom in Vermont. Statewide a total of 638,657 pounds of hops were produced, nearly triple the numbers reported just ten years prior. Orleans County produced 161,192 pounds of hops, nearly 40,000 more pounds than Windsor County. Perhaps the most interesting trend revealed in the 1860 census is that every county in the state was actively producing hops. This included Grand Isle and Chittenden, which both produced around 2,000 pounds. Bennington County, on the other hand, tallied a mere 8 pounds.<sup>15</sup> The large increase, however, only accounted for 5.8 percent of the national crop, a drop of 25 percent from the previous national contribution. This decrease in Vermont's production against the national production highlights the addition to the national output from Midwest and Pacific Northwest growers. As these areas expanded and improved production, Vermont's output became less important to the market.

By 1870, signs of the impending decline of the Vermont hop crop start to show up in the census records. Vermont produced 527,927 pounds statewide, a noticeable decline from the previous total, accounting for only 2.1 percent of the national crop. Windsor and Windham Counties start to decline in their production, while Orleans doubled production, accounting for nearly half of the entire state's yield. Bennington County had no recordable crop, while Chittenden County produced only a single pound. Rutland County saw the largest decrease, dropping from 21,835 pounds in 1860 to 400 pounds in 1870.<sup>16</sup>

The state agricultural records for 1880 and 1890 show drastic drops statewide, with Derby, Vermont, the last sizable producer of hops in the state. And the 1900 census recorded only 4,400 pounds of hops in the entire state.<sup>17</sup>

#### VARIETIES AND CULTIVATION

It is difficult to name or know clearly the variety of hops grown within the state of Vermont in the nineteenth century. Many accounts refer to the crossing of male and female plants grown on the farm and

using the seed to produce new plants that could lead to entirely new breeds. The only way to assure the purity of variety is to replicate the plant through rhizomes (a cutting of one offshoot of the hop root). Edwin O. Lee's 1865 essay, however, did describe some varieties in Vernon, Vermont.

In this section, the Connecticut Valley, we have at least three distinct varieties of hops, characterized as follows: In the most common kind, both vines and fruit are of medium size; the hops have a mild flavor, and part very easily from the stems. Another kind is distinguished by its large, rank-growing rough vines, dark green foliage, large, squarish, and strong-flavored fruit, sometimes three and even four inches in length, and hard to pick. The third variety is known by its red vines, fruit rather below the medium size, hard, of a golden color, and mild, agreeable flavor. The First of these is known in the New York market as the "grape" variety, and the second as the "Pompey" hop. There are no imported hops in this section that I know of.<sup>18</sup>

The "grape cluster" variety was grown throughout New England and was a long-established varietal.

With nearly no market for hops in Vermont, the crop had to be exported outside of the state, mostly to New York, Boston, and as far as Philadelphia. Lee commented that "most of the growers in this section send their hops to the New York market to be sold by Commission Merchants."<sup>19</sup> While Vermont hop farmers were competing against New York's crop for market share, the western states also entered the market place. The establishment of the California and ultimately the entire Pacific Northwest hop culture is credited to Daniel Flint, and to a lesser extent his brother Wilson. Flint imported a large shipment of hops from Vermont, possibly the "Pompey" variety, with the intent of establishing the first commercial hop farm in California.

Daniel Flint was born on May 9, 1832, in Swanzeey, New Hampshire. By 1850 he was employed by the Flint & Holton Company based in Crown Point, New York, with his work taking him all over the Lake Champlain region.<sup>20</sup> After three years with the company, Flint traveled to California aboard the clipper ship *Mystery*, landing in San Francisco.<sup>21</sup> By late 1856 he had set up a hop yard near Sacramento. Flint wrote an account describing the status of the hops industry or hop culture in the Sacramento Valley:

There are only two varieties of hops cultivated here to any great extent. The leading variety is called the large gray American hop. The hop is large and compact on the stems. We are so well pleased with it in every respect, except in some localities it does not give as fine straw color as we would like, that we are not looking for a better one. Another variety is called the "San Jose hop," but the growers do not plant it if they know it.<sup>22</sup>

Flint later wrote that “most all the hops on the Pacific coast came from my yard and I brought the stock originally over from Vermont in 1855.”<sup>23</sup> After the harvest of his first crop, he met opposition from brewers who had long established the usage of eastern hops in their brewing production. Flint took a sizeable gamble, offered his hops for use, and if the brewer did not feel that these were of the same quality as the eastern hops, he would not have to pay for the crop. The hops exceeded the expectations of the brewers who used them, and Flint proceeded to establish hop culture on the Pacific Coast.

Unlike in California, the cultivation of hops in Vermont was difficult for all who grew it. Due to both the volatility of the market and the sensitivity of the crop to weather conditions, hops were a gamble for a farmer. An account from Ariel Hunton for *The Plough, The Loom, The Anvil* in 1856 describes some of the early difficulties of the crop.

The weather was about as much too wet last season as it was too dry in 1844; the frequent rains caused the hops to rust. At the time the strobiles were nearly grown, and quite tender, we had frequent winds, that agitated the vines and bruised the tender buds or cones, which assumed a reddish-brown color, which was injurious to the sale of the hops; in consequence of which many went second sort.

Another variable contributing to the downfall of the Vermont hops industry was the yearly stability of the crop.

The hops will hardly average \$5.00 per hundred. There being many new yards, there have been a few more raised in the county than last year. In Hydepark, in 1855, 75 tons, the amount realized \$40,000 and \$100,000 in the county; this year the growers in Hydepark will receive about \$7,500, and the county about \$20,000; not enough to cover the expense of picking and bailing.

Many have contracted debts on the expectation of realizing an abundant crop and fair prices for their hops. The fall of hops has caused a great dearth of money, and much financial distress.<sup>24</sup>

Hunton wrote that hops are a demanding crop to maintain. The plant can grow nearly thirty feet in a year, sometimes as much as six inches in a day. Their vertical growth requires a trellis system to support the plants in their development. The traditional or “Old Method” of growing the plant was to use poles, primarily of cedar, from the “swamps of Vermont or Canada.”<sup>25</sup> Cedar poles were the most common and inexpensive timber in the northern Northeast, costing a farmer nearly \$150 per acre at the time. While it was a sizeable initial expense, the cedar would last for years and the poles were planted upside down each successive season to reduce the effects of dampness on the wood. The poles were set firmly into the ground and the plants were then trained up the poles. At harvesting time, the vines were

pulled down and stripped of the hop cones. The cedar posts were then removed, trimmed of any rotting that had occurred over the season, and stored for the winter season. Over time this practice shortened the length of the timber, leading to replacement after a period.<sup>26</sup> An undated stereograph photo (Fig. 1) shows a group of young male and female hop pickers assembled in a hop field belonging to George Hubbard in Vernon, Vermont, showing the cedar pole-style hop field. The hops have exceeded the length of the poles, possibly placing the photo at or near harvest time.

Later designs resulted in the trellis system: overhead wires set into larger timber poles, with rope or wires running vertically from the ground to overhead. Two favorable methods emerged by the 1890s to



*Figure 1.: "Hop field at Geo. Hubbard[s], Vernon." Stereograph photo courtesy Andrea Willett.*

support the growing hop vines. The first method was to use chestnut timbers the size of "telegraph posts" set in the ground with wires running tepee-like down from the posts to anchors set in the mound with a hop plant. This method allowed more plants to grow in the same acreage, and required fewer timbers.<sup>27</sup> The wires were introduced after experience showed that twine failed after a single growing season.

The second method that developed during the same period was utilizing large hardwood poles set about twenty-five feet apart in rows, with wire strung across the top of the timber forming a frame from which other wires ran to the ground. The plants grew vertically up to the top of the frames.

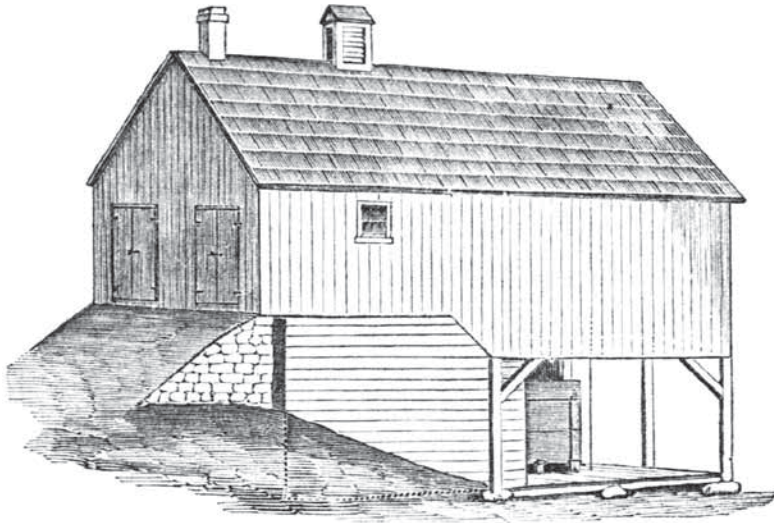


FIG. 16. ELEVATION OF HOP-HOUSE.

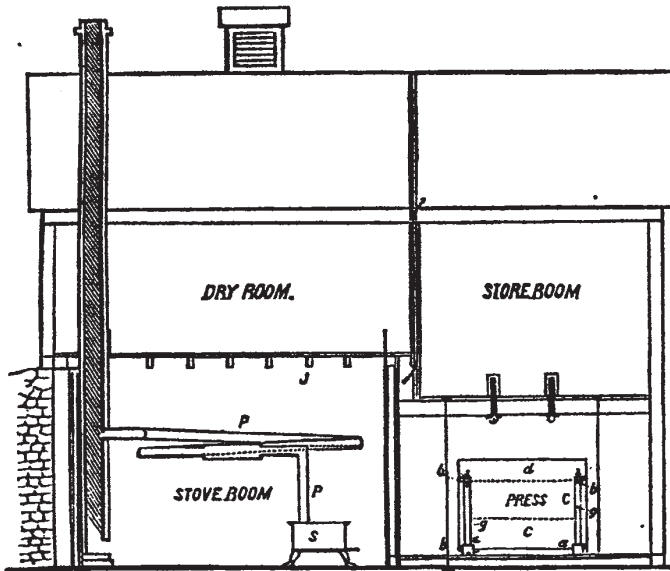


FIG. 17. SECTION OF HOP-HOUSE.

Figure 2.: Plans for a Hop House, by E.O.L. [Edwin O. Lee], in *Hop Culture: Practical Details, [etc.]* (1865): 21, 22.



The best contemporary accounts of nineteenth-century hop culture in Vermont come from Edwin O. Lee (“E. O. L.”) of Vernon, and Zuar E. Jameson of Irasburg, published in 1865 in the *American Agriculturist*. While Jameson’s essay gives a better broad account of the methods of putting in a hop yard, soil conditions, and harvesting tips, Lee’s essay provides a valuable narrative and diagrams on how to construct an oast or hop house (Fig. 2). The oast was an important structure on the farm or in a community of hops production, since it was the site of drying and packaging or baling the crop. Lee also discussed the difference between Vermont hop culture and other growing regions, and offered insight into the future of the industry.

Jameson’s essay gives some evidence of the early decline of Vermont hop culture and touches on some of the environmental pressures that were starting to affect the crop.

The cut-worm, or grub, will often eat the vine below ground. Its presence is shown by wilting on the leaves. The offender can often be found and killed, and sometimes the vine, when partially severed, will root above the injury and grow. Worms breed in stable manure more than hog manure or leaf mold. Rust affects hops as it does the other cultivated crops. If they are nearly matured when attacked by rust, pick them without delay. Lice very much damaged the crop of 1864; they covered the leaves and stopped the growth.<sup>28</sup>

The following year, Jameson forecast the looming decline.

Mr. Z. E. Jameson of Irasburg, Vt., writes to the *Country Gentleman* that a field in that town which produced 2000 pounds in 1865 yielded only 200 pounds in 1866. In years past roots were given away. Now they cannot be obtained without difficulty in sufficient quantities to replace the dead hills. The runners which are cut up into sets seem diseased. Whether this state of things is wholly the effect of lice or partially the result of cutting the vine before the hop is fully matured, causing it to bleed and exhaust the root somewhat, I cannot say. There seems to be a prospect that this branch of agriculture will soon become extinct, unless the causes which have proved so detrimental can be removed.<sup>29</sup>

Having a string of difficult growing years created an adverse situation for Vermont farmers to sell their hops. With better growing conditions in other regions, Vermont farmers were unable to increase their selling price to help recover the losses they suffered in the fields. Abundant harvests from Wisconsin, Washington, and New York saturated the market and kept hops prices low in comparison to recent decades.

The final factor in the demise of hop culture in Vermont is found within the culture and laws of the time. The temperance movement had gained such strength in the state that taverns and hotels became dry. In

1852, just as Vermont's hop crop reached the peak of production, Vermont became the second state to adopt prohibition.<sup>30</sup>

### THE HOP CULTURE IN VERMONT

The hop harvest was an important time in both the yearly agricultural production cycle and in social culture (See Fig. 3). Through different accounts, we learn that the harvest period was both romanticized as, and was in fact, a celebratory time. In an account published in the April 1867 issue of the *New England Farmer*, "J.R." from Concord, Massachusetts, fondly wrote:

I have some pleasant recollections of the old-time hop-pickings, when we used to eat the luscious watermelons and roasted corn in the evenings at the hop-kilns, and when the buxom daughters of the farmers, with their gloves and sun-bonnets stood at the bins day after day through the hop harvest, and when the bag, with a hoop at the mouth was suspended under the trap door in the slatted floor of the kiln, and the dried hops were pushed into it with a rake, and the smallest boy jumped into the bag to tread them down, and had to tread for dear life to keep on top of them, and prevent being smothered by them. They were pleasant days, which will never come again to me at least.<sup>31</sup>



Figure 3.: Hop pickers, detail of Figure 1.

Similar accounts published in *Harper's New Monthly Magazine* as well as other agricultural trade journals referenced everything from social gatherings to whole towns celebrating. In Vermont, the published account of Edwin O. Lee stated that the "Hop-harvest generally begins here during the last week in August. We employ women at thirty to fifty cents per day."<sup>32</sup> A hand-written account of the hops harvest exists in the Brewer-Mathews family papers at the Vermont Historical Society. In a letter dated August 7, 1864, from Tunbridge, Jane Hartshorn wrote to her cousin Henrietta Mathews, "I spoke with Mr. Rowell about your picking hops. He would be glad to have you pick. They expect to commence by the 22nd [August] certainly. They are going to pick by the box. They will give 50 cents a box and certainly board them. Be sure and come if you can."<sup>33</sup> A second account by Elmira Streeter Laundry of Concord Corners, Vermont, reminisced, "We got paid fifty cents a box and our board and room for picking hops."<sup>34</sup> Some farmers paid a flat wage while others paid by the box harvested. Also in the Brewer-Mathews papers is a letter from Bethel, Vermont, dated August 1864, in which Mollie Burnet wrote, "I look up at the end of each line to see if any one is after me. I expect a man after me to pick hops. I have picked for seven days and going to three more."<sup>35</sup> The best record of a Vermont hops harvest is Tennie Gaskill Toussaint's article, "Hop-raising in Vermont," published in the Autumn 1952 issue of *Vermont Life*, in which Toussaint shared the oral history of Elmira Streeter Laundry, a "hop-girl" or hop harvester from 1885-1890.<sup>36</sup> Laundry gives an account of not just the tiring task of the hop harvesting, but also of the camaraderie that was shared within the hop fields of Bill Darling, who by 1890 was one of the last hop producers in Vermont, and the importance of the harvest within her town.

Following the harvest stage, the hops had to be prepared for market. A Massachusetts law passed in 1806 established the first regulations for hop quality.<sup>37</sup> In Vermont, county hop inspectors were appointed through an act of the General Assembly passed October 29, 1831, and in 1852 the legislature appointed an Inspector General of Hops to inspect and establish a quality control of the crop. There were strict laws on the preparation, drying (ten days minimum before packing), and the packing of hops. The inspectors graded the hops either First Sort, Second Sort, or Refuse. The position of Inspector General of Hops was short lived, with no references to it found after the peak of hops production in 1860.

## BEERS AND BREWERS

Another difficulty of cultivating hops is that the crop has only one primary use: as the key ingredient in beer production. Hops have natu-

ral preservative qualities and are added to beer to enhance the stability of the finished product. Because there were only a handful of breweries in Vermont from the late eighteenth century to the later part of the last century, the local market for the crop was limited. The earliest brewery in Vermont was located in Middlebury, and though of notable size, it produced only porter ale in 1792.<sup>38</sup> Daniel Staniford established a commercial brewery in Burlington around the year 1800. The joint brewery and distillery was located near the northeast corner of Pearl Street and present-day Winooski Avenue. It produced “beer, ale, and porter, and manufactured other fluids which even the phlegmatic votary of lager cannot claim as non-intoxicating.”<sup>39</sup> A second account states that the David Tuttle Tavern “on the west side of S. Main St. on Gouger’s Hill” was also a brewery in 1799.<sup>40</sup> Other breweries and distilleries quickly arose around Burlington and the state. Shortly after Staniford started his brewing operations, further down at the head of Pearl Street, another company emerged, Loomis & Bradley, though it is uncertain how long their operation lasted.

Another brewery was started by Samuel Hickok on the west side of Champlain Street in Burlington. The starting date of the brewery is unknown, and it burned down around 1837. George Peterson rebuilt it and produced ale at around 1,500 barrels (50,000 gallons) a year, starting the longest-running brewing operation of the nineteenth century.<sup>41</sup> Peterson’s son Benjamin was the main brewer in the 1860s and had a notable run-in with the court system. In a case decided in the January 1869 term of the Vermont Supreme Court, the *State of Vermont v. Benjamin Peterson*, Peterson was charged with the illegal production of strong beer consumed within the state. A key witness in the case went on record claiming it was an intoxicating sour and very bitter beer. A later bottle from the short-lived Bellows Falls Brewing Company shows how brewers circumvented Vermont’s prohibition law. While the Bellows Falls Brewing Company in nearby Walpole, New Hampshire, brewed the “Duplex Ale,” William Miller in Montpelier, Vermont, bottled it and labeled it “expressly for export,” that is, to be sold outside of the state.

George Peterson’s brewing operation continued until late 1870 or early 1871, when Ammi F. Stone, a retired lawyer and merchant from Charlotte, took over the Burlington Brewery, as it was known, along with his son, William. They carried on the operation for nearly a decade, brewing around 3,000 barrels (100,000 gallons) until 1879. By 1880, William Stone had moved the brewing operation to Albany, N.Y., “on account to the stringency of Vermont’s prohibition law.”<sup>42</sup> He then turned the Vermont operation into a successful bottling company of mineral and soda water.

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In the 1850 manufacturing census of Vermont, Peterson was the only listed brewer in the state. He produced 500 barrels of beer in 1850, using 2,000 pounds of hops.<sup>43</sup> While local histories (such as those of Quechee and Hartland) claim that there was a brewery whose certain location was replaced with a church or meeting house, these stories require further investigation. Other Vermont brewers in the nineteenth century were Henry Frenier (Barre, 1893), William Savery Warder (Burlington, 1816?), Samuel B. Doty (Morrisville, 1893), Charles M. Blake (Rockingham, 1875-1879), and George J. Burnham (1893).<sup>44</sup>



*Figure 4: A massive hop rhizome recovered from an area in Tunbridge, Vermont, that was a nineteenth-century farm producing hops among other crops. The rhizome has since been replanted and is thriving. Photo courtesy of Scott Russell.*

The history of hops in Vermont is not only a history of an agricultural crop, but also a cross section of social and cultural history. In the time that has passed since hops first appeared in Vermont, this delicate and volatile crop and its entire infrastructure has disappeared. The only evidence left of the nineteenth-century boom are wild hops found growing in areas where the crop once flourished. Examples include the hop rhizome I found in spring of 2011 with Scott Russell of Royalton on the

location of a nineteenth-century hop farm in Tunbridge (Fig. 4), and a long-forgotten barrel full of hops, found in Windsor County.

The confluence of temperance, westward expansion, and agricultural challenges, each an important theme in our nation's history, resulted in the disappearance of hops in the state. Today, as a result of the current resurgence in craft brewing and the development of the localvore movement in Vermont, hop production has returned to the state. With the interest and passion for small-scale farming rekindled in the state of Vermont, its history with hops will not end just yet.

#### NOTES

<sup>1</sup> Ariel Hunton, "Hydepark, Lamoille County, Nov. 20, 1852," *The Plough, The Loom, The Anvil*, 5:6 (December 1852): 364. I would like to thank the Vermont Historical Society for selecting me for their 2010 Weston A. Cate, Jr. Fellowship to support my research; Thomas Visser and Robert McCullough from the Historic Preservation Graduate Program at the University of Vermont; Richard and Pamela Stevenson; Toby Garland; Jonathan Schechtman and Deborah Doyle-Schechtman; the staffs of the Vermont Historical Society library and Special Collections at the Bailey/Howe Library, University of Vermont; Heather Darby and Rosalie Madden at the University of Vermont Extension School; Scott Kerner, Matthey McCarthy, and Wes Hamilton; and Noella Girard.

<sup>2</sup> Thomas Visser, *Field Guide to New England Barns and Farm Buildings* (Hanover, N.H.: University Press of New England, 1997), 184.

<sup>3</sup> Heinrich Joh Barth, et. al., *The Hop Atlas: The History and Geography of The Cultivated Plant* (Nuremberg: Joh. Barth & Sohn, 1994), 127.

<sup>4</sup> Samuel Sewall, *The History of Woburn, Middlesex County, Mass., from the Grant of Its Territory to Charlestown, in 1640 to the Year 1860* (Boston: Wiggin and Lunt, 1868), 176.

<sup>5</sup> Hamilton College Rare Book Collection, Document KD2475.H66 A2 1732.

<sup>6</sup> Barth, *The Hop Atlas*, 127.

<sup>7</sup> Howard S. Russell, *A Long Deep Furrow: Three Centuries of Farming in New England* (Hanover, N.H.: University Press of New England, 1976; abridged 1982 by Mark Lapping), 165.

<sup>8</sup> Ethel S. Bolton, *Shirley Uplands and Intervales* (Boston: G. E. Littlefield, 1914), 29; *New England Farmer* 8 (1856): 463. Federal Writers Project, *Massachusetts: A Guide to Its Places and People* (Cambridge, Mass.: The Riverside Press, 1937), 433, quoted in Russell, *A Long Deep Furrow*, 166.

<sup>9</sup> See "A list compiled by Gen. Wm. P. Riddle on the New England hop crop totals," in James O. Adams, *Transaction of the New Hampshire State Agricultural Society, for the Year 1853* (Concord, N.H.: William Butterfield, 1854), 134.

<sup>10</sup> *Ibid.*, 165.

<sup>11</sup> Michael Tomlan, email correspondence with author, September 27, 2010. See Michael A. Tomlan, *Tinged with Gold: Hop Culture in the United States* (Athens, Ga.: University of Georgia Press, 1994).

<sup>12</sup> U. S. Department of Agriculture, "Sixth Census of the United States original returns of the assistant marshals: fourth series: agricultural production by counties: 1840" (Microfilm 625, Reel 2, Bailey/Howe Microforms, University of Vermont, Burlington).

<sup>13</sup> U. S. Department of Agriculture, "Seventh Census of the United States original returns of the assistant marshals: fourth series: agricultural production by counties: 1850" (Microfilm 626, Reel 2, Bailey/Howe Microforms, University of Vermont, Burlington).

<sup>14</sup> Michael Sherman, Gene Sessions, and P. Jeffery Potash, *Freedom and Unity: A History of Vermont* (Barre: Vermont Historical Society, 2004), 234.

<sup>15</sup> U. S. Department of Agriculture, *Eighth Census, Agriculture, Vermont, 1860* (Microfilm 627, Reel 2, Bailey/Howe Microforms, University of Vermont, Burlington).

<sup>16</sup> U. S. Department of Agriculture, *Ninth Census, Agriculture, Vermont, 1870* (Microfilm 628, Reel 2, Bailey/Howe Microforms, University of Vermont, Burlington).

<sup>17</sup> Walter H. Crockett, *Vermont: Its Resources and Opportunities* (Montpelier: General Assembly of the State of Vermont, 1916), 36-37.

<sup>18</sup> E.O.L. [Edwin O. Lee], Prize Essay II [No title], in *Hop Culture: Practical Details, from the Selection and Preparation of the Soil, and Setting and Cultivation of the Plants, to Picking, Drying, Pressing, and Marketing the Crop* (New York: Orange Judd, 1865), 12.

<sup>19</sup> *Ibid.*, 16.

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<sup>20</sup> Tom Gregory, *History of Yolo County, California* (Los Angeles, Calif.: The Record Company, 1913), 660-661.

<sup>21</sup> *Ibid.*, 660.

<sup>22</sup> Quoted in Herbert Myrick, *The Hop: Its Culture and Cure, Marketing and Manufacture*, (Springfield, Mass.: Orange Judd Company, 1899), 42-43.

<sup>23</sup> *Ibid.*

<sup>24</sup> Ariel Hunton, "Hops in Lamoille County," *The Plough, The Loom, The Anvil*, 8: 10 (April 1856): 605.

<sup>25</sup> Henry Mills Alden, ed., "A Glass Of Beer," *Harpers New Monthly Magazine*, 17(June-November, 1885): 666-683.

<sup>26</sup> Unknown Author, *American Agriculturalist*, 52 (1893): 285.

<sup>27</sup> *Ibid.*

<sup>28</sup> Zuar E. Jameson , Prize Essay VII [No title], in *Hop Culture*, 31.

<sup>29</sup> Samuel Cole, *The New England Farmer*, 1:4 (April 1867): 168.

<sup>30</sup> "Of the Traffic In Intoxicating Drink," Title XXX, Chapter 94, *The General Statutes of the State of Vermont: Passed at the Annual Session of the General Assembly, Commencing October 9, 1862*. (Published by the State of Vermont, 1863), 588.

<sup>31</sup> Cole, *The New England Farmer*, 158.

<sup>32</sup> E.O.L., Prize Essay II, 14.

<sup>33</sup> Brewer-Mathews Family Papers, MSC 210:41. Vermont Historical Society, Barre.

<sup>34</sup> Tennie Gaskill Toussaint, "Hop-Raising in Vermont" *Vermont Life*, 7 (Autumn 1952): 25.

<sup>35</sup> Brewer-Mathews Family Papers, Vermont Historical Society.

<sup>36</sup> Toussaint, "Hop-Raising in Vermont," 24-27.

<sup>37</sup> Barth, *The Hop Atlas*, 139.

<sup>38</sup> William Guthrie, *A New System of Modern Geography* (Philadelphia: Matthew Carey, 1795), 331.

<sup>39</sup> Hamilton Child, *Gazatteer and Business Directory of Chittenden County, Vermont for 1882-83* (Syracuse, N.Y.: Hamilton Child, 1882), 113.

<sup>40</sup> John C. Wriston, *Vermont Inns and Taverns: Pre-Revolution to 1925: An Illustrated and Annotated Checklist* (Rutland, Vt.: Academy Books, 1991), 462.

<sup>41</sup> Child, *Gazetteer of Chittenden County*, 113.

<sup>42</sup> Hon. Hiram Carelton, *Genealogical and Family History of the State of Vermont* (New York: Lewis Publishing Co., 1903), 216-217.

<sup>43</sup> U.S. Department of Agriculture, "Seventh Census of the United States original returns of the assistant marshals: fourth series: manufacturing production by counties: 1850." Microfilm 626, Reel 2. Bailey/Howe Microforms, University of Vermont: Burlington).

<sup>44</sup> Dale Van Wieren, *American Breweries II* (Philadelphia: East Coast Brewiana Association, 1995), 374.