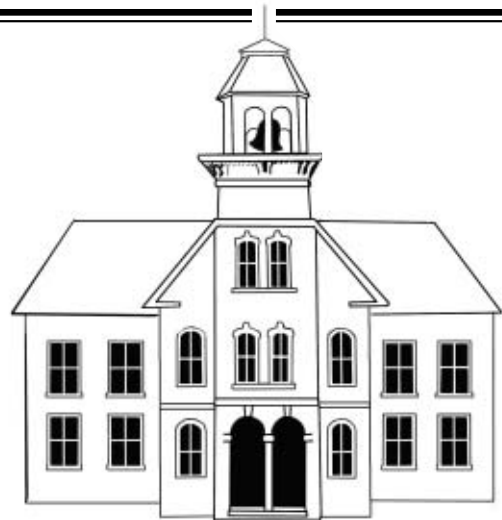
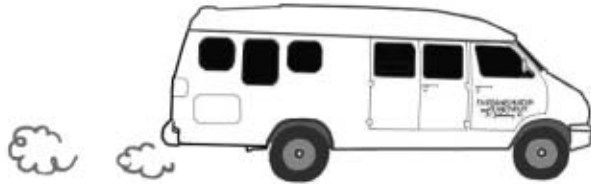


# HISTORY *comes to* SCHOOL



Prepared by the staff of the  
FAIRBANKS MUSEUM & PLANETARIUM • ST. JOHNSBURY, VERMONT  
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## Sheep in Vermont

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# Sheep in Vermont

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## Introduction

Nathan Hoskins wrote in his book, ***A History of the State of Vermont***, in 1831,

*"The soil is such and the seasons are so uncertain for the perfection of crops of grain, that grazing is the most sure and profitable branch of agriculture which the farmer of Vermont can carry on with success."*

It would seem as if everyone had taken Hoskins seriously when you take a look at the sheep numbers. In 1836, the number of sheep was 581,989 and rose to 1,681,000 in 1840. Sheep far outnumbered people in Vermont! Henry Stevens, Esq. said in a speech in 1845 before the Caledonia County Agricultural Society,

*"Vermont can raise as fine wool as any section of the world. Our mountains furnish pasturage of the best kind, and roll down their thousand streams to aid us in its manufacture."*

Vermont's sheep history, in terms of numbers and popularity, was quite short. Very rough dates would put the startup in 1811 and the peak between 1840–1842. By the year 1870, Vermont's 1840 total had dropped 64% to 580,347. This lesson will take a look at this period in Vermont's history in terms of numbers, production, industry, breeding, and home-life.

## Goals and Key Concepts

Students will be introduced to the following:

- Special characteristics of sheep
- From sheep to clothing
- Sheep mania and William Jarvis
- Numbers
- Mills and factories
- Reasons for the decline in the sheep population.
- Breeding

## Class Outline

### Sheep in Vermont

Wool clothing is warm, wears well, holds its shape, and is not easily saturated. This is all due to the characteristics of the wool fibers. What better clothing for those early, drafty, New England homes? Zadock Thompson, in his ***History of Vermont***, published in 1842, says,

*There are, probably, few countries in the world better adapted for the rearing of sheep than New England, and the soil and climate of the hills of Vermont seem to be peculiarly suited to that purpose. Experience has likewise shown that while the Merino and Saxony sheep thrive here in a remarkable manner, their wool suffers no deterioration in quality, but with suitable attention is rather improved. Sheep require an airy location, both in summer and winter. In summer they thrive much better in elevated, dry pastures than on low, moist lands. In winter they should be yarded from the last of November till the latter part of April, but should never be crammed, in large numbers, into small or tight enclosures. They should be salted weekly, both in summer and winter, and at all seasons have free access to pure water. The best season for lambing is thought to be from the 1st to the 10th of May. The daily allowance of food per head for sheep in winter should be 3 lbs of hay, or 2 lbs. of hay and half a pint of oat meal, or other food equivalent.*

**Sheep characteristics** (many students may not be familiar with sheep):

- Female sheep are called ewes, males are rams and babies are lambs.
- Sheep are ruminating animals, they chew their cud. Their stomach has four divisions or chambers. What they eat is swallowed un-chewed, passes into the first of the chambers (reticulum), from here it is later regurgitated and chewed, swallowed, and digested.
- Sheep have cloven hoofs, divided lengthwise.

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- Sheep have fleece made of wool, different in structure from hair.
- Their sweat glands produce perspiration called suint. Suint combines with oily material (lanolin) secreted by the sebaceous glands. The combination of the two is called “yolk.” Proper amounts of yolk help keep the live fleece in good condition, un-matted, and waterproof.
- Sheep are grazers. They eat grass and other plants all the way down to the ground. They do not browse or nibble here and there!
- Ewes are pregnant for 5 months. Twin lambs are not uncommon.
- Lambs rely heavily on their mother for 2–3 weeks, then they start to eat grass.
- Lambs mature rapidly and are large enough to be eaten in 3–4 months.
- Sheep flock together for protection. They are vulnerable to predators such as wolves, coyotes, bears, and dogs.
- Sheep can be eaten and milked.
- Sheepskin is good for rugs, jackets, shoes, and boots. Books are bound with hide. The inner layer of skin can be peeled off the sheepskin and used as parchment for important documents. Parchment was used in place of paper in Europe until the fifteenth century.
- Wool is good for spinning, weaving and knitting.
- Sheep can be shorn yearly. Their fleece grows back in 9–12 months.

## From Sheep to Clothing

Producing one’s own clothes meant raising and preparing the material to be spun, spinning the yarn to be woven, and weaving the cloth. From the earliest histories (1700’s) of the New England colonists, we find written evidence of “sheep to clothing.” Sheep raising was encouraged in every way. Sheep were permitted to graze on the commons; every family had to have a spinner; encouragement was given to the raising and manufacture of wool.

Using the chart (Fig.1), one can follow the various steps from fleece to cloth.

The following is a short glossary of some of the various devices used in processing wool:

1. **Cards** are wire-toothed brushes (used in pairs) to straighten wool fibers and remove seeds, hay, and burrs prior to spinning.
2. **Clock reel** is a device for winding and measuring yarn into knots. (A “knot” is a measurement of yarn equal to 80 yards). The reel often has a clocklike face and has a wooden mechanism that clicks once it has reached a knot, 80 yards.
3. **Combs** arrange long wool fibers in a parallel manner prior to spinning, especially for worsted spinning.
4. **Drop spindle** is a hand spindle that is dropped and rotated in front of the spinner causing the wool fibers to twist. This is a less efficient but portable way to spin.
5. **Hank** sometimes called a skein, is a 560-yard unit of wool yarn wound on a reel.
6. **Niddy noddy** a simple hand reel used to wind and measure new spun yarn, usually one knot of 40 turns. Here is a counting rhyme used with a niddy noddy:  
*Niddy noddy, niddy noddy,  
Two heads, one body,  
Here’s one, ‘tain’t one,  
‘Twill be one, bye and bye.  
Here’s two, ‘tain’t two,  
‘Twill be two, bye and bye. (etc.)*
7. **Swift** is a reel used to hold yarn skein as it is wound off into a ball.
8. **Wool wheel** is a large, hand turned, wheel-driven spinning wheel used to spin wool yarn. Also known as **walking wheel** or **great wheel**.
9. Smaller spinning wheels were based on the design of a flax wheel but were used to spin wool.

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## Sheep mania and William Jarvis

Prior to 1811, there had been a moderate number of sheep in Vermont's history but the moderate numbers were about to multiply. Enter William Jarvis. Jarvis was the American consul at Lisbon, Portugal, in 1809. There he became familiar with the Spanish Merino sheep. He became convinced that an introduction of this fine-wooled breed would be beneficial to the United States. Jarvis received permission to export two hundred rams of the Escorial royal flock and they were shipped to Boston. The Merino's fleece is thick and long and falls into heavy rolls or folds. (Fig. 2) William Jarvis returned home in 1810 and the following year moved to Weathersfield, Vermont, along with 400 Merinos. They took up residence on his 2,000 acre farm in Windsor County. Imagine the attention this must have drawn! William Jarvis would successfully breed Merino sheep in Weathersfield until his death in 1859.

Until this time (early 1830's), Vermont was known for its butter and egg production, chickens and cows were the mainstays. The times were about to change. Conditions were ripe for the introduction of sheep:

- The southern part of New England was seeing more mill growth with newly constructed machinery, thus creating a demand for raw wool.
- A protective tariff, or import restriction on wool, kept prices up.
- The westward movement had not begun in earnest so there were no competing wool producers from the west.

## Numbers

Harold Wilson in his book, *The Hill Country of Northern New England*, wrote of the late 1830's,

*Except for a few remote districts in the Green Mountain range and in the frontier section of northeastern Vermont, every town had more than 1,000 sheep, while some of them possessed over 5,000 and a few on the Connecticut Valley and Champlain Valley had been transformed into vast sheep runs where the numbers totaled more than 10,000 per town.*

During this peak time, prosperous farmers wanted to increase their pasturage area and bought up neighboring farms and turned them into sheep runs. These farmers counted their flocks by the thousands. For some farmers who were considering moving west, this "buy out" was all the push they needed. In the *Windsor Vermont Chronicle*, on October 17, 1834, the reporter warned,

*"Beware of the 'western fever' and above all, sell not your farms to your rich neighbors for sheep pastures."*

### Vermont sheep population in comparison with Maine and New Hampshire

State	1836	1840
Maine	622,000 sheep	649,000 sheep
New Hampshire	465,000 sheep	617,000 sheep
Vermont	1,099,011 sheep	1,681,819 sheep

In 1840 Vermont had  $5 \frac{3}{4}$  sheep per person!

Addison County had 373 sheep to the square mile, and raised more wool than any other county in the United States.

Take a look at the enclosed chart of The Northeast Kingdom in 1840 (Fig.3), and the enclosed map of Vermont's sheep population (Fig. 4), for a visual interpretation of the distribution of the Vermont sheep population at that time.

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## Mills

Vermont's sheep industry allowed a burgeoning wool processing industry to arise here as well. Carding mills began in Vermont in the early 1790's, these mills combed raw wool to prepare it for spinning. Fulling mills washed and sized the wool fiber or woolen cloth. By 1809 Vermont had 28 carding mills and 58 fulling mills. By 1820 there were four times as many of these mills throughout the state. The words **mill** and **factory** are often used interchangeably but refer to different parts of the wool process. A mill prepares the fiber, which includes fulling, carding, dyeing, etc. The factory takes the spun yarn and on mechanical looms, weaves it into cloth. By the 1830's, Vermont was home to 80 textile mills. One in Colchester (now a shopping mall) employed more than 100 people!

Shoddy mills, where used wool is reprocessed, were the invention of a Vermonter by the name of Rueben Daniels of Woodstock. In the 1840's he invented a machine to rework used wool, rags, and felts. An abandoned shoddy mill can be seen in Ludlow, Vermont.

An example of a local factory was the Greenbank's Factory, located on the Joe's Brook in South Danville. Benjamin Greenbank's factory was one of the largest in northeastern Vermont. It was a water-powered factory erected by Harrison Bolton in 1845 and acquired by Greenbank in 1849. Greenbank operated a successful business there until 1885, expanding his factory in 1855 and again in 1875. At its peak, the business employed 45 people, and its broad looms turned out 700 yards of cloth daily. On December 4, 1885, the factory as well as Greenbank's store, house, two barns, and the covered bridge, went up in smoke. One possible cause was thought to be that the night watchmen's lantern had fallen and ignited the mill. After much thought and debate with the railroad owners about moving the track closer to the factory site, Greenbanks abandoned his operation in Danville and only the foundations remain.

Mill and textile maps can be found in Harold Meek's book, *Time and Change in Vermont — A Human Geography*.

## Decline of the sheep population

The old saying of "what goes up, must come down" applies to the subject of this lesson. In the 1840's, the numbers of sheep began to drop. Two factors played out here:

- In the early 1840's, the protective tariff on wool was lowered, more foreign wool was imported with lower prices for wool resulting.
- The westward migration had begun, resulting in wool production out there. As transportation routes increased, back came the west's wool to compete with the east's wool. By 1845 with the use of the Erie Canal and the opening of the Ohio and Pennsylvania Canal, 28 times more wool was carried eastward than in 1840.

Prior to 1860, the average expense per year to raise sheep in the east was \$1-\$2 dollars a head. Compare this to the west at \$1 down to 25 cents per head. In the late 1840's the price of wool fell to 25 cents a pound, half the price it had been in the 1830's.

**Trends in the sheep population in Vermont**

1840	1,681,819 sheep
1850	1,014,122 sheep
1860	752,201 sheep
1870	580,347 sheep

The only slowdown in the wool market decline was during the Civil War (1860's) when blankets and clothing were needed for the soldiers. After the war, the market dropped way off again as additionally there were increasing imports of raw wool from Australia and South America. As the sheep industry waned the dairy industry started coming back to the hills of Vermont.

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## Breeding

The steady decline of the sheep population from 1840–1870 did not cause a proportionate drop in wool production! The number of sheep decreased in Vermont by 64% but the wool clip decreased by only 8%. Careful breeding had produced more wool per animal, rising from 2.2 pounds per year in 1840 to 5.34 pounds per year by 1870. This was the largest improvement in wool production in all of New England!

**Vermont average wool production per head**

1840	2.20 pounds
1850	3.35 pounds
1860	4.14 pounds
1870	5.34 pounds

The development of Merino sheep breeding kept sheep farming important in the 1860's and 70's. The Merino obtained a higher degree of perfection in northern New England than in any other section of the United States. The combination of breeding skill and climate brought out heavier wool characteristics that gave the breed an excellent reputation for superior wool rather than mutton (meat). Remember William Jarvis who started this "sheep mania?" In Weathersfield, his flock averaged 4 pounds of washed wool per year per sheep from 1811–1836! His best stock rams sheared off 6<sup>1</sup>/<sub>2</sub> pounds to 9<sup>3</sup>/<sub>4</sub> of unwashed fleece per year.

Vermont sheep strains were considered the finest among breeders and buyers. Consider one of the finest rams named **Bismark**.

### **BISMARK**

He won the sweepstakes prize of awards for "the best American Merino ram of any age" at the Philadelphia Centennial in 1876. Owned by H.C. Burwell, a farmer of Bridport in Addison County, Bismark weighed 170 pounds in full fleece. One sheep authority described him this way,

*"...his back was straight throughout and very broad while at the same time, he had great depth of carcass...His head was short, broad and well carried up; his nose short, of good breadth, well wrinkled and very soft and silky to the touch. His fleece was very dense, even, of most excellent style and quality, highly crimped... and it covered him to perfection at all points, notably so on head and legs...The fiber was 3<sup>1</sup>/<sub>2</sub> inches long...His neck (fleece) was one of the heaviest ever carried by a Merino ram and was proportionately folded at hip, tail flank, and at point of shoulder. He also had some heavy side folds which ran well under the belly."*

In those times, famous rams took on personalities and sometimes had eulogies printed! **The Middlebury Register** of Vermont of August 9, 1865 stated,

*"Mr. Hammond's best ram Gold Drop, died Sunday night. This sheep probably had a better reputation than any that ever lived. Mr. Hammond could at any time for years past have taken \$10,000 for him. He was valued at \$25,000. He will be sincerely mourned by all sheep breeders at home and abroad."*

In 1863, the Maine Board of Agriculture, emphasizing the need for better-bred sheep, urged the farmers of the state to "go to New Hampshire and particularly Vermont to insure the best selection." By the 1870's, the production of wool as a staple industry was becoming a thing of the past. The number of sheep in Vermont has never again equaled that of its early history.

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# Sheep in Vermont

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## *Follow-Up Activities*

1. Check with your local Historical Society or Museum to see if they have any pictures, articles, maps or implements that date back to Vermont's early sheep days.
2. Have someone that raises sheep come in and talk to you about the animal and the uses of its fleece. You might also find someone in your area that spins and would be willing to come in and demonstrate.
3. Choose a wool implement such as cards, combs, niddy nobby, etc. and do a report on it.
4. Research the early use of your area's rivers and streams and see if there were ever any woolen mills and or factories along its banks.
5. Find out if your state's museums have exhibits, field days or special events pertaining to sheep. Fairbanks Museum has a sheep exhibit.
6. Check out the Department of Agriculture and see what role sheep play in present day Vermont.
7. Write a story about what your life might have been like if you had been a youth in the early 1840's? What would your part of Vermont have looked like?

## *Resources*

### **Books:**

Those with \* are children's books.

\*A Symphony for the Sheep. Millen, C.M., & Azarian, Mary, (illus.). Houghton Mifflin Co. Boston, MA. 1996.

Child Life in Colonial Days. Earle, Alice Morse. The Macmillan Company. New York, NY. 1899.

\*Colonial Craftsmen. Tunis, Edwin. The World Publishing Company. New York, NY. 1965.

\*Colonial Living. Tunis, Edwin. Thomas Y. Crowell Company. New York, NY. 1957.

Field Guide to New England Barns and Farm Buildings. Visser, Thomas Durant. University Press of New England. Hanover, NH. 1997.

Hand-Hewn In Old Vermont. Simpson, Ruth M. Rasey. Poly Two Press. North Bennington, VT. 1979.

Hands on the Land – A History of the Vermont Landscape. Albers, Jan. MIT Press. Cambridge, MA. 2000.

History of Vermont, Natural, Civil and Statistical. Thompson, Zadock. Chauncey Goodrich. Burlington, VT. 1842.

In Company. Boston, MA. 1996.

Out of the Saltbox, the Savoir of Old Vermont. Rasey, Ruth. Academy Books. Rutland VT. 1974.

The Craft of Hand Spinning. Chadwick, Eileen. B. T. Batsford Ltd. London. 1980.

The Hill Country of Northern New England. Wilson, Harold Fisher. Columbia University Press. New York, NY. 1936.

The Joy of Spinning. Kluger, Marilyn. Simon & Schuster. New York, NY. 1971.

The Textile Tools of Colonial Homes. Channing, Marion, & Channing, Walter, Reynolds,(illus). DeWalt Printing, Inc. New Bedford, MA. 1971.

The Vermont Geography Book, Teacher's Guide and Resource Book. Allen, Richard, & Woodruff, Mark, & Myers, Allen, & Farrow, Steven, & Feaster, Laura. Northern Cartographic, Inc. Burlington, VT. 1989.

Time and Change In Vermont – A Human Geography. Meeks, Harold A. The Globe Pequot Press. Chester, CT. 1986.

\*Vermont, A History of the Green Mountain State. Fuller, Edmund. Vermont Printing Company. Brattleboro, VT. 1952.

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## *Vermont Standards*

This class is associated with the following standards: 4.6C; 6.4; 6.8

### **HUMAN DIVERSITY**

#### **Understanding Place**

**4.6** Students demonstrate understanding of the relationship between their local environment and community heritage and how each shapes their lives.

**4.6.c.** Demonstrate knowledge of past and present community heritage (e.g., traditions, livelihoods, customs, stories, changing demographics, land use) and recognize ways in which this heritage influences their lives.

### **HISTORY**

#### **Historical Connections**

**6.4** Students identify major historical eras and analyze periods of transition in various times in their local community, in Vermont, in the United States, and in various locations world wide, to interpret the influence of the past on the present.

#### **Movements and Settlements**

**6.8** Students analyze the factors and implications associated with the historical and contemporary movements and settlements of people and groups in various times in their local community, in Vermont, in the United States, and in various locations world wide.