Warrensburgh Historical Society Quarterly

Volume 18 Issue 2 Summer 2013

CLIMATE CHANGE IN WARRENSBURGH

A history of climate warming and cooling

Part 1 of a series by

Paul Gilchrist

The history of Warrensburgh's climate is one small part of the general history of climate in the northern hemisphere, and, indeed, of the whole globe. It is a story of many cycles or oscillations of temperature and other climatic factors, in which cycles of shorter duration are superimposed on longer cycles, which are themselves superimposed on even longer cycles. Change is natural, unavoidable, and not to be feared.

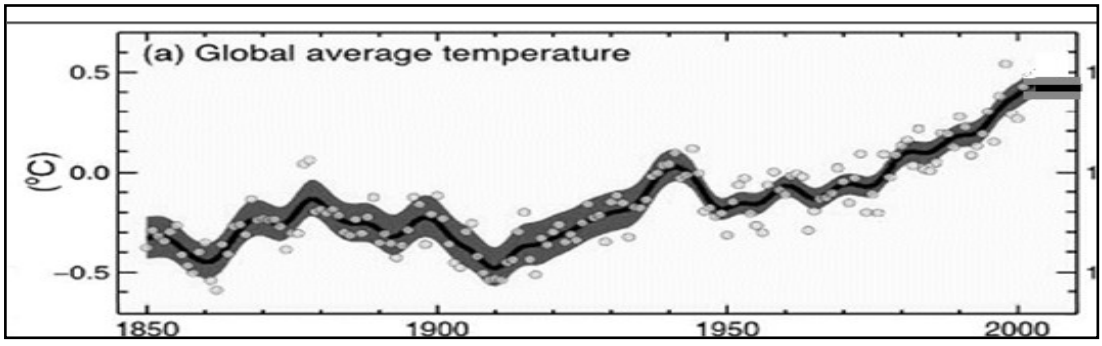
We will start with recent time and work backward in steps.

More recent data are more accurate and detailed at the micro level. An important principle of the natural sciences is that processes that operate today also operated in the past, so by working backward, our knowledge of recent processes can help us understand the more distant past.

Looking at the distant past can give us a macro view and allow us to discern larger-scale, longer-term patterns that may reveal where we are at the present in the overall picture.

Jean Hadden's column "Turning Back the Pages" in the *Adirondack Journal* on 2/3/13 recalled that Lake George did not freeze over during the winter of 1912-13 for the first time in living memory. The season for navigation between Albany and New York lasted longer than any in the 80 years that records had been kept. This was at the end of a cooler period.

Temperature trends 1850 to present. Notice the leveling and decline at the top. Higher latitudes vary more than overall global average.



Modern Period. By the mid-1800s, Warrensburgh was emerging from 500-years of cooler climate. The climate since then has shown a pattern of warming and cooling: a warming phase until 1878, then cooling for more than 30 years, then a strong warming phase until 1940, then cooler until 1975, then a warming phase until 1998, finally leveling off and cooling until the present. Global average temperatures since 1850 have risen about 1.4°F (see graph below); at mid-latitudes the rise has been a little more; and still more nearer the poles.

By 1940, the 30-year warming trend was changing into a cooler trend that

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Calendar of Events

June 15th - Ceremonial Burial of the Unknown Odd Fellows - 11:00 AM at the Warrensburg Cemetery.

July 4th - Warrensburg Day - Parade and Celebration. Parade at 11:00 AM starting at 4th Street & Hudson Sts., activities following at the Recreation Center

July 20th - Architectural Heritage Workshop and Walking Tour - 10 AM

July 21st - Bicentennial House and Garden Tour 11:00 AM

August 11th - Sticky Wicket Croquet Tournament and Chicken Bar-B-Que. 11:00 AM at the Fish Hatchery

September 14th - Antique Farm Equipment show at Tom Davis property on Lamb Hill Road.

September 19th - Stephen Foster's Civil War and other Music - 7:00 PM at the Warrensburgh Museum.

For more events and details go to: www.warrensburghistorian.org or call 623-2207

Masthead Photo
This photo is a view of the skyline in Warrensburg at sunrise. from the Editor's post card collection.

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The Board of Directors meets at the Senior Center, 3847 Main Street, at 7:00 pm on the **FIRST** Wednesday of each month. Call Gary to confirm at 240-6013 .

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CURRENT MEMBERSHIP: 219

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WELCOME NEW MEMBERS

Flo & Todd Olden
Mary (Geraghty) Langdon
Eileen Baker

New Museum Hours

Wednesdays, Noon to 4 pm Saturdays, 11 am to 3 pm (through Columbus Day Weekend) Sundays, 1 to 3 pm (Due to very sparse attendance we will no longer be open the First Thursdays, 6-8 pm.). We would like to be open more hours but need more volunteers to staff them. If you are interested in volunteering for as little as two hours a month, please check the schedule on the Society's website (Museum page) or call the director, Steve Parisi at 623-2207. No great knowledge of Warrensburg or experience is necessary, just a friendly, welcoming personality.

Membership Information

Students $5.00 Individual $15.00 Family $25.00 Senior (62+) $10.00 Senior Family $18 Contributing $55.00 Business $50.00 Life (Individual only) $300 (membership is on a calendar year basis)

If you would like to join and receive the Quarterly by mail, please send a check for the amount of the membership classification, with name, address, and phone number to: **Warrensburgh Historical Society, P.O. Box 441, Warrensburg, N.Y. 12885**

NOTICE

The recording of history is an interpretive and ever changing study. Therefore, the Warrensburgh Historical Society or its Board of Directors or members shall not be held liable for the accuracy or authenticity of the material herein. **We welcome and encourage corrections, comments, and additional information.**

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lasted until 1975. Soon there were dire predictions that a new ice age was beginning. The first "Earth Day" in 1970 was organized to warn us, not about global warming, but an impending deep freeze that would destroy our agriculture and freeze over our sea ports before the year 2000, and that CO_2 emissions were the culprit.

However, a warming trend occurred instead, that lasted until the late 1990s. The dire predictions changed course and warned of the terrible things that would be happening very soon due to runaway heating of the climate. Again, CO_2 was blamed, this time as a greenhouse gas that caused heating rather than cooling, but despite continuing increases in CO_2, temperatures for the past 16 years have trended downward, to the consternation of climate alarmists. The phrase "global warming" has been quietly replaced by "climate change" in grudging recognition of the facts, but it is used to imply still that bad things are going to happen before long due to CO_2.

Little Ice Age (LIA). From about 1350 to 1850, the climate of Warrensburgh, like the global climate, went through a long period significantly cooler than the periods before or after. Those 500 years have been labeled the "Little Ice Age," but temperatures were nowhere near as cold as during the glacial period from which the Earth emerged 12,000 years ago, and were, on the average, only perhaps 4°F cooler than today.

The Little Ice Age was characterized by wild swings of temperature and rainfall from year to year and decade to decade as the polar front and jet stream moved farther south. Strong storms were more frequent, weather more unstable. There were four waves of particularly cooler climate lasting from three to almost ten decades, separated by milder intervals in a fashion similar to the shorter cycles in the Modern Period. These multi-decade oscillations within the multi-century oscillations demonstrate that climatic cycles operate and occur on multiple time scales.

Although the weather of any given year during the LIA might be similar to weather in any given year of our contemporary period, the long term averages differ, resulting in numerous observable effects that reveal the climate differences. For example, Londoners held frost fairs on the ice on the Thames River regularly from 1607-1804. In 1780, supply sleds and cannons were hauled over the ice between Manhattan and Staten Island, escorted by hundreds of cavalry.

During the LIA, where glaciers existed, they advanced to a considerable extent. Glacial ice in Greenland, which earlier had retreated far enough inland and northward to allow the Vikings to colonize, farm coastal areas, fish for cod, and hunt seals in ice-free waters for several hundred years, advanced and destroyed the colonies during the 1400s. It became too cold to grow grain or graze cattle; ice blocked coastal waters, obstructing seal hunting and trade with their homelands to the east. Inuit hunters from farther north were driven southward, resulting in conflict. Inuit kayaks were even seen as far south as coastal waters of the British Isles.

In many mountain areas of the world, farming that had moved hundreds of meters up the slopes had to retreat back to lower elevations during the colder climate of the LIA. Mountain glaciers in Europe advanced down their valleys and buried villages (and then retreated back up the valleys during the warmer 20th century). The elevation of the tree line shifted hundreds of meters down from where it was located in the previous warm period. The average temperature differences can be estimated at the rate of about 3.3°F per thousand feet.

Agriculture was more difficult in the LIA and crop failure, famine, war, and disease increased in frequency, causing a decrease in populations that had grown in previous centuries. Bubonic plague in the mid-1300s killed a third of Europe's population. A decade of crop failure and famine from 1690 to 1700 killed millions in Europe and elsewhere.

While there are always plenty of wars, Europe's Little Ice Age saw many of the most historic and longest-lasting – too many, and no need, to list them all here. Nor was there any dearth of wars in America, many of them extensions of the wars in Europe, causing famine and disease.

"The year without a summer" (1816), although it occurred during one of the four main cold waves, was caused by 1815's eruption of Indonesia's Mt. Tambora. However, there were at least 90 other major volcanic eruptions during the LIA which spewed high into the atmosphere not only ash but sulfur dioxide, both of which act to block the sun's radiation.

Exploration and settlement of the New World took place during the LIA, and colonies in North America were being settled during the coldest phase of the LIA – the "Maunder Minimum"- from 1645-1715. The colonies in New York and New England suffered from difficult climate in those years. Roanoke and Jamestown colonists, a few years apart, had the extreme misfortune to arrive in Vir-

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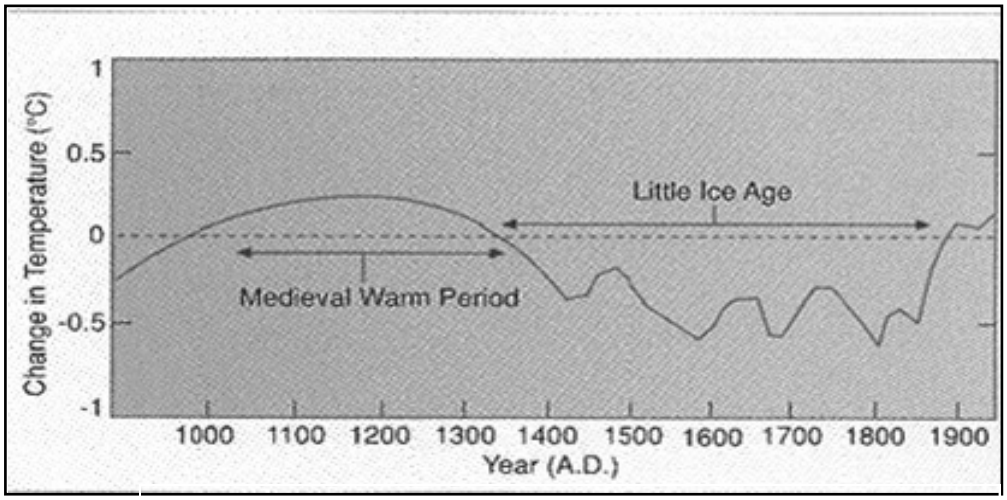
ginia during the worst droughts in more than 700 years.

Early settlers of the Warrensburgh area had the misfortune to have to deal with the last of the colder phases of the LIA – the "Dalton Minimum" - of the late 1700s and early 1800s. Farming in the Adirondacks is hard in the best circumstances, but under colder conditions it must have been difficult in the extreme. Logging and tanning were less sensitive to climate.

During the LIA, some native tribes, such as the Iroquois and Abenaki, had formed leagues to help survive difficult times, such as periods of food shortages. However, Indians may have benefitted from the colder LIA when French and Dutch traders recruited them to trap for furs, as pelts would likely have been of high quality due to the colder climate.

It was during the LIA that telescopes began to reveal spots that moved across the sun. Observers have been counting sun spots ever since the early 1600s. The 400 years of counting led to recognition of the relationship between sun spots and climate – fewer spots correlate with lower temperatures; more spots correlate with warmer temperatures. Even in the 1600s observers noticed the connection between colder periods and lack of sun spots. In 1801, a London scientist, W^{m} Herschel, related the price of wheat to sun spots via their influence on rainfall and temperature each year - the years of fewer spots yielding less wheat, causing higher prices at market.

It was also during the LIA, in the second quarter of the 1800s, that it was recognized and accepted that glaciers do advance and retreat, and that this indicates climatic oscillations. This realization resulted from observations of mountain glaciers in Switzerland where it was obvious to Venetz, Charpentier, and Agassiz that glaciers had retreated and advanced in their valleys during the many centuries of human occupancy.



Global temperature oscillations during the past 1100 years

During the Maunder Minimum, the coldest period of the LIA, almost no sun spots occurred for 70 years from 1645 to 1715. The "Dalton Minimum" later in the LIA had a low level of sun spots for about three decades from 1790 to 1820.

The warming from the mid-1800s and the warm periods from 1910-1940 and 1975 to late 1990s were times of greater solar activity. The cooling period from 1940 to 1975 was a time of lower solar activity, which was also the case during the years before 1910 as well as in the current 16 years of cooling.

Medieval Warm Period (or Optimum) preceded the Little Ice Age from about 850 until 1350 A.D. during which time temperatures averaged about 2°F^{+} warmer than today. The Medieval Warm Period was a time of general prosperity: agriculture thrived and expanded, populations increased (Europe's doubled), roads and trade improved (roads were drier, mountain passes open longer), cathedrals were built (food surpluses could support more non-farm workers).

The isotope record shows this was a period of high sun spot activity. There were also multi-decade periods of cooler climate during the Medieval Optimum when solar activity was lower, the main one being the Oort Minimum of the 11th century (not shown in graph above). The multi-decade cycles occurred within each of the centuries-long oscillations, just as they've done in the Little Ice Age and the Modern Period.

Norse explorers found wild grapes growing in Newfoundland ("Vinland"). In Europe, cultivation of grapes and production of wine had been moving northward and was carried on in southern parts of England, mostly south of Cambridge. But during the LIA, even though it did not die out completely in England, the practical northern limits of viticulture shifted southward and wine production decreased dramatically, as

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œnologists had difficulty producing decent wine in England during the cooler Little Ice Age climate.

It should be mentioned that the Romans had introduced and were producing wine in England a thousand years before, in an earlier warm period, but the cooler centuries of the Dark Ages caused it to all but fade away until the warm period of the Medieval Climate Optimum. Fortunately, the nobility in England had ancient and close connections with Loire Valley vineyards and could easily import all the wine they required.

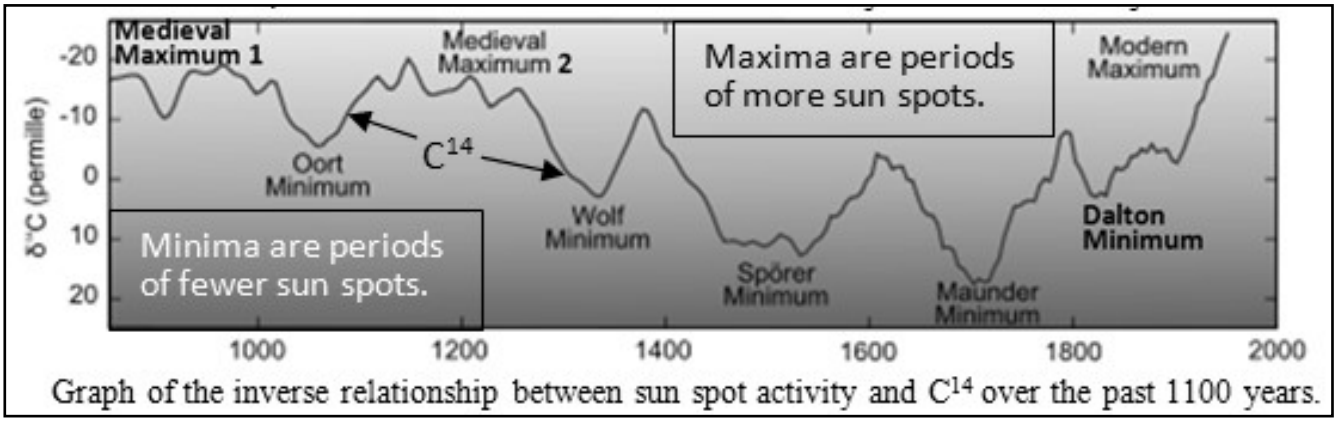
There was not much cathedral building or agriculture in the Warrensburgh area during this time period before European settlement, so how does the Medieval Warm Period relate to Warrensburgh? Well, agriculture was carried on in adjacent regions by Iroquois tribes and Abenaki tribes, such as the Missisquoi, along Lake Champlain and near Schaghticoke. And there were native hunting parties frequently travelling through this area. These activities would have prospered during the Medieval Warm Period with its longer frost-free seasons, and native populations would have grown larger prior to arrival of Europeans, who brought with them wars and, especially, many diseases, i.e., death on a large scale.

In recent decades, science has developed proxy methods of estimating past solar activity by measuring isotopes of argon, oxygen, carbon, and beryllium in marine sediments, ice cores, stalagmites, peat bogs, pollen, and other organic material, or by studying fossil species, or debris dropped on the ocean floor from melting glacial icebergs. These surrogates confirm the timing of counts made by direct observation of sun spots, and can measure solar activity in the more distant past, providing information about ancient climates in addition to that from human records. Proxy methods confirm that greater sun spot activity was causative for the warm period that preceded the Little Ice Age, and lack of it for the cold periods in the LIA.

Besides human records, the evidence compiled by many hundreds of scientific studies of the various climate indicators and proxies from all over the world leave no doubt that the cycles were global and that they are rather moderate in terms of temperature. They show that within the multi-century Medieval Warm Period, Little Ice Age, and Modern Period, multi-decade cool and warm cycles have always occurred.

Part 1 of Warrensburgh's climate history has covered one of the millennial-scale cycles that typically last about a thousand years or more – in this case from about 850 to 1850. It appears we've gone 163 years into the next. We've seen decades-long cycles "porpoise" within centuries-long cycles, and we have seen the role of solar activity in determining climatic change.

Part 2, planned for the next Quarterly, will go further back in time all the way back through the glacial period. There will be further discussion of causes of climate cycles, including oceanic oscillations, cosmic rays, and Milankovitch Cycles, and how we might try to see into the future. Or, as Winston Churchill put it: "The farther backward you can look, the farther forward you are likely to see." Perhaps we might anticipate a fine, slightly warmer climate like the Medieval Optimum that will last a few hundred years. Viticulture in England is prospering again in the Modern Warm Period; perhaps it can even be part of the future of Warrensburgh!



Graph of the inverse relationship between sun spot activity and C^{14} over the past 1100 years.

N.B. Negative values above, positive values below, the zero point on the vertical axis.

Paul Gilchrist, PhD, taught climatology and physical geography in the

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state universities of South Carolina and North Carolina (warm climates), with special interests in glaciology, paleo-climatology, and plate tectonics. He was present at the first Earth Day in 1970, organized to warn of an impending ice age.

What about "anthropogenic" carbon dioxide?

There are quite a few problems with the theory that man-made or "anthropogenic" * CO_2 is leading to catastrophic warming or climate change. Here are some of the criticisms:

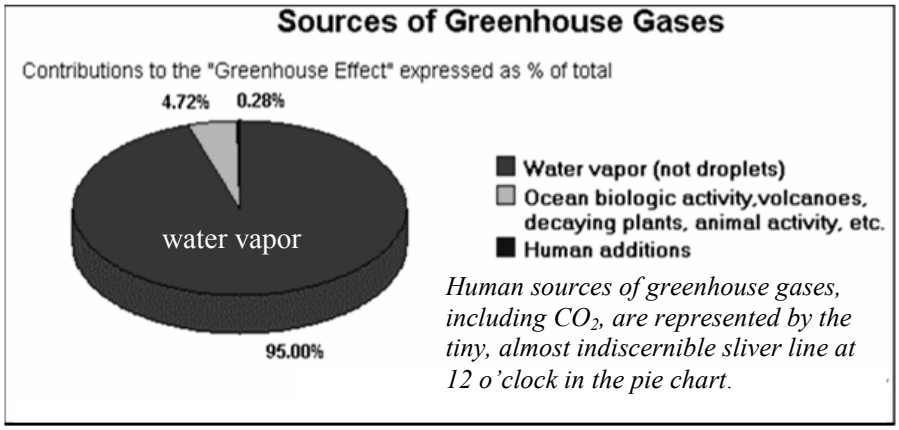
1. It was during World War II that very large amounts of CO_2 began to be put into the atmosphere by industry. But the Modern Warm Period started at least 90 years earlier – about 1850.

2. Despite the increase in CO_2 after 1945, a 35-year cooling period occurred. Likewise, the current 16-year cooling period has been occurring despite ongoing rise in CO_2.

3. Measurements of the isotopes of various climate proxies have shown that increases in CO_2 lag behind increases in temperature, not the other way around. As temperatures increase, the oceans release CO_2 in the same way club soda releases gas faster when warm than when cold. Some portion of the recent increase in CO_2 during the last century may be attributed to this "champagne effect."

4. Water vapor makes up 95% of earth's greenhouse gases. CO_2 is less than 5%, of which man-made CO_2 is less than 1/3 of 1%, an infinitesimal portion of the whole. As a determinant of climatic temperature, it is of very minor significance.

5. Isotope analysis has shown that CO_2 levels in the atmosphere have never been a determinant of temperature or climatic cycles during the Pleistocene Epoch of the last 1.6 million years.



Human sources of greenhouse gases, including CO_2, are represented by the tiny, almost indiscernible sliver line at 12 o'clock in the pie chart.

6. Alarmists assert that modern warming is unprecedented in speed of onset, that previous warm periods were less warm than today's, and that they were merely regional, not global. These assertions are crucial to alarmist theory, but each has proved to be false, their "truth" depending mainly on persistent repetition.

7. CO_2 is an important plant nutrient. It has been pointed out that we might benefit from a little more of it, as it can improve agricultural production and speed up the reforestation process. Warmer periods have historically been characterized by food surplus, more prosperity, lower mortality rates, and population growth (we could use more of the first three, if not the fourth).

8. In the absence of any actual evidence that increases in CO_2 will lead to catastrophic results, the main rationale for concern is based on intuitive reasoning that we shouldn't put combustion wastes into the atmosphere any more than we should dump any of our waste products without restriction into rivers or oceans.

***As used, "anthropogenic" is an error of language. Consider the terms "carcinogenic," "mutagenic," and "pathogenic" as they refer to causes that "generate" or result in cancer, mutations, or illness, respectively. Hence, "anthropogenic" actually means something that creates or generates an anthropoid (an ape-like or human-like creature). Obviously, that's not what was intended.*

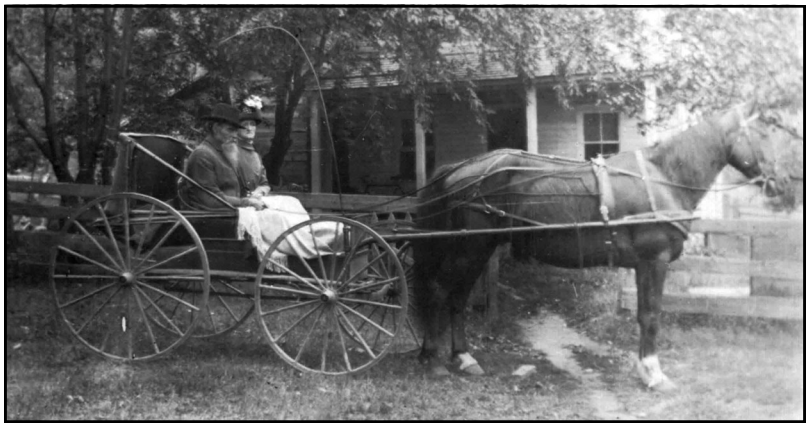
From a July 27, 1893 Newspaper Article in the Warrensburgh News

Warrensburgh girls who are addicted to the habit of chewing gum - and there's a good many of them - little dream of the terrible fate they are bringing upon themselves. I saw in the Boston Courier, the other day, the following awful warning to gum chewers which, for their benefit, I reproduce here:

It is said that the human mouth is surely but steadily moving toward the left of the face, owning to the tendency to chew with the teeth on the right side. It is to be hoped that in some way gum chewing may be suppressed, for if it increases, there is danger that a race may be developed whose mouths will be located in the back of the head. To remedy this defect, some centuries of vigorous chewing would be required to bring the mouth back to its proper position. The Rambler

Split Hickory Vehicle - The Ohio Carriage Mfg. Co. (1906)

by Mark K. Brown



I was going thru some old papers and came across a letter dated January 25, 1906 from H. C. Phelps, President of Ohio Carriage Mfg. Company from Cincinnati, Ohio to my Grandfather Ralph Brown, asking him to assist in selling their product. This company sold direct from their factory in Ohio to the user, gave them a 30 day free trial and a two year guarantee on all models.

Which new model do you buy???? Mr. L.G. Mayer, the factory superintendent, has made up two special vehicles with new improvements for 1906. Mr. Phelps endorsed and even used these 2 new vehicles (as he called them).

***No. 6479 SPLIT HICKORY SPECIAL TOP BUGGY and *** No. 6633 SPLIT HICKORY RUBBER TIRE DRIVING WAGON.

What are these new improvements?

TRIPLE A GRADE FINISH- Instead of the regular coat of finishing we apply two coats one light and one heavy.

REINFORCED SIDE CURTAINS- a double thick curtain is now used which prevents the curtain from sagging, and letting in the cold or rain.

ROLLER RUB IRONS- This makes easier turning and does away with the excess noise that you have often heard of steel tires scrapping against solid rubber irons.

CUSHION AND BACK UPHOLSTERING- The cushion and back will be made of full 16 oz dark green wool broadcloth, fast color, guaranteed the regular $2.00 per yard quality. Leather trimming in the seat and can be added for $1.50.

SPECIAL TOP L1NER- The top will be made with good heavy wool cloth.

XXX REACHES- The reaches (connect the front and rear axles to stabilize the carriage and help it from tipping) should be one of the strongest parts of the gear and special black hickory reaches will be reinforced with cross braces.

OTHER IMPROVEMENTS- Grain-front special padded dash. Improved hand holds 13" high add a great deal to the appearance. The carpet used will be Wilton velvet, dark green ground with small neat figures, giving it a very rich and handsome appearance. The new 3 prong step is practically unbreakable.

Of course if you want, Mr. Phelps can have your monogram (initials) put on the seat-riser. The 1906 catalog did have over 100 styles of vehicles and harnesses besides these two new models. No prices are included on these two deluxe buggies but PS Mr. Phelps did forget to mention for $1.25 he will have the patent automatic top adjuster added. If you do not find that it is worth at least two or three times this amount he will refund the $1.25.

NOW FOR THE REST OF THE STORY: As far as I know my grandfather never bought, sold or even used one of these new improved 1906 expensive buggies. Enclosed is a picture of what they owned and the Brown family used at the homestead on Pucker Street (off Schroon River Road) town of Warrensburg. This model sure looks like a plain horse drawn buggy with none of the 1906 improvements. The Ohio carriage Mfg. Company continued to thrive and move to Columbus, Ohio and by 1909 offering 125 styles without my grandfather's financial endorsement.

Town Historian Tidbits

From the Warrensburgh News March 1, 1917

White Bread Harmful

Next to coffee, white bread is the nation's greatest curse. Dr. Harvey Wiley, Food expert, told a meeting of the women's section of the Navy League. "White bread is poisonous" he said. "Whole wheat bread is the only kind. If Americans had been nourished properly from the cradle up, the majority of men today would not be unfit for military service." [Ninety-six years later, we're hearing the same things.]

Above is a photo of workers at the pulp and paper mill taken in the early 1900s, which was submitted by Mark Brown. Some of the men are identified, but many are not. Can any of our readers identify any of the people in this photo? Call John at 798-0248 if you can. The known names will be published in the next Quarterly.

Society Obituaries

Jean Frulla was a founding member of the original Warrensburgh Historical Society in 1973. At that time she was deeply involved in an attempt to save the Emerson Sawmill, located just upstream from the Grist Mill. In 1972 she guided her class at WCS in the making of a video about the lost historic buildings in town, with the intent of encouraging her students and the community at large to protect the remaining architectural treasures. Students interviewed several local people involved with the town's history, including Town Historian, Mabel Tucker, and the now legendary Stewart Farrar. A special interview with Mr. Farrar was entirely about the sawmill. Another interview was with an architect, actually taking students into the sawmill and describing its workings. A TV channel in the Capital District came to town and did a segment on local historic preservation efforts, including an interview with Mrs. Frulla about the situation. (All of these videos can be seen at the Warrensburgh Museum of Local History.)

In 1996, when the Warrensburgh Historical Society was revived and reorganized Mrs. Frulla applauded the effort and was very supportive. In 2007, the Historical Society made an appeal to the community to help finance the restoration of the 1976 Bicentennial Mural on the wall of the museum building, Mrs. Frulla was the first, and largest, contributor to the effort, making her donation in memory of her husband Rino. She wrote, "(I) can't fully describe how thrilled I am to learn that the mural will be restored to all its colorful beauty."

Jean Frulla set an example and left an indelible mark on historic preservation efforts in the Town of Warrensburg

Mildred "Millie" Fish was born on November 23, 1923 in North River, NY. She was raised by her aunt and uncle, the late Mildred and Andrew Barney of Lake George. She was predeceased by her five siblings.

In October of 1946 she married Richard J. Fish in the Episcopal Church of the Holy Cross. She was a graduate of Warrensburg Central School, the class of 1943 and of the Albany Business College in 1944. She worked for the Warrensburg Pulp and Paper Company and in later years for Art Brown's Shoe Store on Main Street in Warrensburg. She also served the Warrensburgh Historical Society as a Board member.