OLD STONE MILL
National Historic Site of Canada
Delta, Ontario

TOUR GUIDE MANUAL
and
HISTORY OF THE OLD STONE MILL NHS

Prepared by Ken W. Watson for
The Delta Mill Society

Version 1.5
ACKNOWLEDGEMENTS

This tome started out as a little project initiated by the President of the Delta Mill Society, Dann Michols, who compiled information from our summer students and tour guides into what was initially going to be a short tour guide primer.

Your editor then got involved, initially simply fact checking the historical information and then morphing this document into something much larger, incorporating more of the history of the mill, since, to do even a simple tour, the historical background, one as factually correct as it can be, should be understood.

Two exceptional sources of information have been Anna Greenhorn who has a vast knowledge of the mill, leading hundreds (and hundreds) of tours over the years, and Wade Ranford, whose extremely well researched book, A History of Grist Milling in Delta, has formed the foundation of the history portion of this document.

The interpretation layout of the mill today, the many high quality interpretive panels, the installation of period correct milling equipment, are due to Curator Paul George, whose tireless work made the mill the stellar place it is today. He was assisted for part of his tenure by Associate Curator Natalie Wood.

We’ve also benefitted greatly from high quality history research done by the Delta Mill Society, people such as Paul Fritz, Peggy Fry, Davis Mess, Susan Noakes, Art Shaw and Susan Warren.

We’re also very lucky to have superb archaeological work and documentation done by the former Cataraqui Archaeological Research Foundation. Those programs were led in 1994 by archaeologist Sue Bazely and in 1999 by archaeologist Jonathan Moore.

And also by André Scheinman, a heritage preservation consultant hired to prepare the 1996 “Delta Mill Conservation Report” which laid the conservation foundation for the massive 1999-2003 restoration of the Old Stone Mill. André’s high quality work has given us a far greater understanding of the mill than we ever had before.

There will be others down the road – each history builds on work done before – gaining greater understanding as more information is located, as more questions are raised and answered.

And last, but not least, the hundreds of people who have volunteered with The Delta Mill Society over the years, each contributing in their own way to presenting the fascinating story of the Old Stone Mill.

Ken W. Watson

Editor (heritage research, verbiage and document production)

May, 2017

Feel free to direct questions, updates and information to Ken at rideauken@gmail.com
Update History

v.1.0 – May 14, 2017 – released prior to summer student training.

v.1.1 – May 30, 2017 – minor edits

v.1.5 – May 10, 2018:

- Note that the tour stops and the general tour information has not been changed, just a few specific details (as listed below). Our interpretation panels are still accurate (with the small exception of the waterwheel display – but it’s close enough).
- The main update is not in this document, but the creation of a stand-alone companion piece, “Building the 1810 Stone Mill in Delta, Ontario” by Ken W. Watson, April 2018. That article should be read by all interpreters to get a better understanding of the original mill. That document is available as PDF download from the history page of our website: http://www.deltamill.org/history.html
- Updated the Telling the Story section with a new line: “3. Always position yourself so the visitors focusing on you are also viewing the object which you are discussing. Be aware of the field of view of your audience, it should be you and the object (i.e. interpretation panel, artefact display, etc.).”
- Removed references to belts in the 1810 mill (no belts, only direct connect wooden shafts and wooden gearing – belt technology wasn’t invented until the 1820s).
- Removed references to the Old Stone Mill being mainly a custom or barter mill in its early days. It was purpose built as merchant mill. Some custom milling would have been done but the mill’s main (designed) purpose and source of income would have been merchant milling.
- As per the above, removed the reference to Denaut being the one to start merchant milling – changed to mention that he was doing feed milling in addition to flour milling - unsure when exactly feed milling started – that would have increased as animal husbandry (cattle, etc.) in Bastard and region townships increased. Farming in Bastard & Kitley changed over time as populations grew, tillable land increased and markets for wheat changed.
- Added a new section about farming – agriculture, the growing of wheat and the raising of animals (requiring feed) go hand in hand with the story of the mill.
- Early millwrights were expert carpenters, so removed carpenters as a skill separate from that of a millwright.
- updated the section about the automatic milling process.
- added a note that all the equipment in the original mill was hand built, including all the original wooden gearing (all original gearing was wooden, not metal).
- middlings may have been re-ground into fine flour to increase the amount of exportable flour the mill could produce (an Oliver Evans’ recommendation – but we don’t know if this was done in the OSM).
- Uncertainty as to whether there was a wooden flume inside the waterwheel raceway has been replaced by certainty (there clearly was a flume). Our waterwheel display doesn’t show a flume – but the general principles of the display are still accurate.
- Removed references to original miller’s office being on 3rd floor (that appears to be an incorrect early interpretation due to the plastered accordion lath on the 3rd floor). Original office on 1st floor (current gift shop) and 2nd floor private office created by Walter Denaut (1850s).
- Added a section in Mysteries about the production capacity of the early mill (several paragraphs detailing why there is no way to really figure this out).
- Added a new section about The Delta Mill Society.
- Changed reference to flour not staying on second floor (all flour would be bolted by bolters on the 2nd floor). Also that prior to c.1922, there was no 2nd floor over the millstones (since they sat on an elevated husk).
INTRODUCTION

This document is both a tour guide primer and a history primer for the Old Stone Mill National Historic Site of Canada. It is designed to prepare volunteers and summer staff to guide tours of the Old Stone Mill National Historic Site in Delta and also as a resource document on the history of the mill from 1810 to present. Much of the detailed information for this guide has been sourced from Wade Ranford’s well researched book “A History of Grist Milling in Delta” published by The Delta Mill Society in 2006 – it is well worth a read!

**Note 1:** primary information in the tour guide section is in **bold**, secondary information is in regular text, advice on how to present this material is contained in boxes as interpretation notes. A short listing of the tour station stops (cheat sheet) can be found as Appendix A. The locations of those tour stops are shown on the plan views of each floor of the mill in Appendix B.

**Note 2:** We don’t tell the whole story of Delta, our focus, as per our NHS designation and our Mission (see below), is the Old Stone Mill, and even with its history we are selective in the stories we tell. Not every visitor is as keen on history as we are so keep it simple and to the point. An “average” tour of the mill should last about 45 minutes to an hour*. In some cases you may find someone very interested in the mill and a tour can last until the questions run out.

* There is no such thing as average – but it should be long enough to fully engage the visitors, to get them interested in the history of the mill. Many tours last an hour to an hour and 15 minutes. Two hour tours also happen now and again when someone gets really interested in a certain aspect of the mill.

National Historic Site of Canada

The Old Stone Mill was designated a national historic site in 1970 because:

- it is one of the oldest surviving mills in Ontario;
- it is a fine example of early Canadian architecture;
- it is a reminder of the pioneer industrial development of eastern Ontario.

THE DELTA MILL SOCIETY

Mission Statement

*It is the mission of the Delta Mill Society to preserve and present the Old Stone Mill National Historic Site for the education and enjoyment of the community and the visiting public. To accomplish this mission, we collect artefacts and documents related to the Mill’s development and we research and interpret its history, design, and evolution as it pertains to the early development of Eastern Ontario.*
NEW TO THE OLD STONE MILL?

Don’t get intimidated by the size of this document, most of it is background information (light evening reading 😊). If you’re a new tour guide, jump to Appendix A to get started. The mill is also filled with high quality interpretive signage, much of that speaks for itself and provides cues to interpretation. Don’t try to memorize, simply absorb the information – you’ll be an expert in no time. Re-read this document every so often, you’ll gain a greater understanding of the mill and how to best interpret it, with each read. And feel free to ask questions, there is no such thing as a dumb question – if in doubt about something, don’t be shy, ask a question.

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BACKGROUND

The Old Stone Mill in Delta is the only stone grist mill in Canada to be designated a National Historic Site (NHS).

By the end of the 1700s, the first settlers had arrived in Delta. This was earlier than other areas because of the unique geology and geography in the Delta area. The presence of iron minerals and falls of water (to provide power for water wheels) drew people to the area. Inland road development in this region was due to the settlement of the Delta area and the building of sawmills and grist mills. The Old Stone Mill helped to develop both Delta and the surrounding region.

MEETING YOUR GUESTS

Your main objective as a mill interpreter is to create genuine interest on the part of visitors to the mill! Your first task is, therefore, to get to know your guests. What you find out about them will guide you on what information to impart. Tell them your name and that you are their host for the visit. Ask them about special interests or if there is anything specific they came to see.

If visitors would rather not have a guided tour, start them on their journey by explaining 4 main points before turning them loose on their own:

1. It is the only stone grist mill in Canada designated as a National Historic Site*. Grist is any grain that has been separated from its chaff and is ready for grinding.
2. The Mill was a very early example of an automatic mill. It required only one person, assisted by waterpower and gravity to run the mill.
3. The building is constructed in a gorgeous Georgian style of architecture adapted to an industrial use. Some of its finest features include the arches over windows and doors and the beautiful stonework. The size and style of building speak to its design as an automatic mill.
4. The building is original but its spectacular condition is due to extensive heritage restoration done by The Delta Mill Society in 1999-2003.

* Note that we are the only “stone” grist mill designated an NHS. There are wooden grist mills with the NHS designation – our uniqueness is the “stone grist mill” part, the only surviving pre-1812 stone grist mill in Ontario.
LAUNCHING THE TOUR

First off, ensure that you have a tour plan. The General Tour Guide (Appendix A) listed in this guide is a good start. This guide will give you some ideas but it is up to you to choose what information you will use. It is critically important to spin a story out of the facts. There are many possible approaches to how you could execute your story, some of this will depend on the interests of your audience, modify your presentation to match what they are interested in. For example, you could:

1) Tell the story from a **mechanical or technological perspective** with a focus on how the mill operates, how it was renovated through the years, the restoration process, the pros and cons of certain technologies, and how they fit within the culture of the given time period; and/or…

2) Tell the story from a **socio-economic perspective**, focusing on the family backgrounds of the different millers throughout the Mill’s history. In addition, you could talk about how certain external affairs affected the Mill, for example, temperance societies, the fluctuation of grain prices, and the life as a settler in Delta: and/or…

3) Tell the story from a **historical/political perspective**, focusing on the historical and political aspects of the Mill and on the question “why”. **WHY** was there a need for the Mill in the first place? **WHY** is the Old Stone Mill in Delta the only designated stone grist mill that is a National Historic Site? **WHY** was the production of flour important to the population? **WHY** did local flour milling eventually become a redundant trade? And lastly, **WHY** does any of this matter??

Avoid a machine-gun delivery of facts — do not spit out facts that do not have a point or bearing to your objective. History isn’t merely facts. It is the interpretation of those facts that really matters. Feel free to throw in a few tidbits of information that are interesting but try to tie them into the story you’re telling. Also, you are encouraged to mix the different methods of storytelling above, hence creating your own interpretation of the Mill’s history.

Remember that the tour guide’s job is to paint a picture with words, presenting first the broad outline, and then colouring in the masterpiece in certain sections for more detail.

**Be a Hypodermic not a Sponge**

A sponge simply absorbs facts and then gushes them out, a hypodermic injects ideas into the audience, allowing them to gain a greater understanding. Make your audience think – ensure that they understand the concepts you are telling them. Many concepts (such as the mechanical distribution of the rotational power of a water wheel) may be foreign to them. Milling and 1800s terminology (see Glossary of Terms) may also be unfamiliar – ensure that your audience actually understands what you are saying.
A. DESIGNING and SITING the STORY

1. ORIENTING the visitor is critical!

*Where* they are in terms of geography – it is important to make the visitor understand why the Mill was located here. What factors made this location a good choice for the mill to be successful. Why is a mill *here*? What water or other power source is there? Is this a grain-growing area, or where does the resource to be milled come from? What kind of transportation is there to bring the resource here for milling, and to ship it out? Where is a nearby port? Where is the mill pond, dam, canal, or other aspects crucial to a mill?

*When* the mill was built and in operation. The visitor should understand the period in history that you are asking them to relate to at any given point in the tour. Mention technology, inventions and the lifestyle of the people at the time. Provide them with cues as to what has already happened at the time of your story or just after, and where we are in terms of technology and inventions – these will help to orient your visitor in time. You will not insult your visitors’ knowledge; those who know will just nod knowingly in agreement.

*Who* the key players are—introduce a few relevant people they may know, and then those crucial to the story that it is unlikely they will know. Never assume that all your visitors *know* these people! Don't be a mill snob!

Whenever you *introduce* a new personality or event, don’t automatically presume your visitor knows who or what they are – give them a *cue*. But – don’t bore folks with excessive or unnecessary amounts of background. Just a *quick cue* to get them with you will do! [Think of good introductions at a party... *and bad ones!*]

All these are important to hand out in a non-insulting way since the historical experience of the visitor will vary amazingly. Visitors aren't stupid or ignorant; they just come into the story you want to tell with differing background knowledge or with that knowledge stored further back in their memories. Most people don't spend their days milling, nor have they spent time in the 18th or 19th century lately. [Still, visitors say the darndest things!!]

2. *“Picture-painting” seems to be the key to interesting historical interpretation.* Don’t get so lost in a sea of facts that you forget that the key to history is a good, compelling story—details you can *see, hear, smell, FEEL*. The people need to be able to see, hear, smell, feel that story. Images/words that evoke sensations are crucial, and using the historical environment you are in to emphasize these (the mill buildings, the landscape, the rooms/floors of the mill, the artefacts) is important since your story needs that backdrop to work.
3. A good story flows—logically! It's sort of like telling a good joke—lose the logical flow and nothing makes sense. An interpretation at a place has to be a story—not just bits and pieces as in most “tours.”

4. On-site interpretation should use the SITE!! Otherwise, why not just read about it at home on the website? Ask yourself—what is it about being there at your mill that makes the visceral difference? What are the visual as well as sound and smell cues? Why is it so special to feel the mill shake as the millstones turn? Can they touch a millstone to feel the grooves and rough surface? Can they see the dust in the air? Hear the water flowing over the waterwheel? Can they touch the wall or floor in the mill office where someone in the past stood? They need to be glad they came to this site! Let them interact with it—Look! Listen! Touch! Smell! Place a hand against a wall or floor or object, and close the eyes to remember the feel! NOW—how do you do this at your site? What sensory cues are there and how do they work into your story to make it more real/memorable?

5. Not everyone is a history buff who comes to our site— but they potentially are. Make them understand, too, through your story, through the imagery and provocation of your interpretation, Make them care too. It is a good idea to ask about everything you throw in SO WHAT? WHY SHOULD ANYONE CARE? We often are history snobs writing off the less informed. Remember, interpreters function as salesmen and teachers, provocateurs and pied pipers. Experience shows that the one who gets the most from your tour may be the one you thought was getting the least. How do YOU know what the visitors are thinking? Some people never smile.

6. Be on the lookout for the quote or account that just makes this site and story come alive, and use it. Be sure to make the quote pithy enough, and short enough. If you write the quote on paper, make it ancient—maybe ratty—for that physical quote becomes a prop (always useful to have) and a visual asset to your story.

7. Consider carefully the backdrop/siting you will use to tell each part of your story so that one enhances the other. In a mill, for each part of your unfolding stray, consider in which room, on which floor, at which location to tell it—and where the visitors will be standing in that room and what they (not you) will see. You may well wish to include that background in your story, but face your audience, not the backdrop, when using it

8. End in moving fashion! Your group should wish there was more— do this where? End with what? Think!

9. What have you reinforced through your story/interpretation? A visit to an historic site is best part revelation, part provocation, part curiosity-invocation, and part personal growth experience. Give this thought!
B. TELLING the STORY

1. **Introduce yourself, your relationship to the site and consider getting to know the audience a bit with a few questions.** How many are from Australia? Virginia? Northern Virginia? The North? *Build a bond …*

2. **Face your audience, “keep within spittin’ distance”, and attain and retain eye contact.** Avoid the annoying habit of talking with your back to the audience as you point out something! Keep your group *close* to you to maintain control and contact. A group at a distance you have *disengaged.* [Oh—do brush your teeth!]

3. **Always position yourself so the visitors focusing on you are also viewing the object which you are discussing.** Be aware of the field of view of your audience, it should be you and the object (i.e. interpretation panel, artefact display, etc.).

4. **Pull your group in to you before you speak at any stop along the way.** Wait until *all* the group has caught up before you begin. Make it clear when you are just being conversational with the first to catch up and when you are actually *interpreting* by a change in voice. Don't be afraid to ask/urge people to move closer.

5. **Speak loudly enough!** Watch for cues from your audience that they cannot hear you.

6. **Speak slowly enough and clearly.** Perhaps this is obvious. But—let your speed vary with the story's action. It is also crucial to avoid mumbling certain words or letting sentences trail off to nothingness after a key point

7. **Remember that this is a good STORY.** It should be *told* that way. It's like how you tell a good joke...

8. **It is alright in let a little of your own feelings and finding about the place/event show.** This is a way of conveying why you take the time to volunteer/work here. When was the first time you *saw* this site? When and *why* did it first grab you? Some interpreters accidentally (and *effectively*) let them-selves in to the story—"*In Aldie WE were terribly excited that day...*" This effectively shows *ownership!* But strive for *balance* over *bias.*

9. **Use your HANDS to *tell* the story.** As one interpreter was heard to comment, "If you put your hands in your pockets, they'll wonder what you're up to." Hands are useful for indicating size, direction, emphasis, frustration, speed, etc. Hands attached to a stick can also draw some pretty neat maps in the dirt... Most people are *visual!*

10. **Don't let your interpretation go too long!** For many of us, this is a challenge—but a story can always be tapered to a close when you become aware that you've strayed and gone on too long. It's a good idea to know of some logical early-ending points in your story. *Not everything* has to be told! Oh—*always have & use* a watch!

11. **Remember to avoid what you hate about other guides and interpreters when you visit historic sites.** Visiting other historic sites can certainly be useful in making you a better interpreter yourself! Watch, listen, react, and *learn*—both in terms of information and technique. Then apply what you've observed to *your* tour.
WHY IS THE HERITAGE OF THE OLD STONE MILL IMPORTANT?

The vision of The Delta Mill Society is “Instilling a Passion in Our Heritage” – which can be expanded to “Instilling a Passion in Our Heritage to all we meet” – so you, as a DMS interpreter, are charged with that “instilling” part. It is your enthusiasm and knowledge that can infect others. As discussed above, there are many and varied reasons why heritage is important and why the “our” part is important, since it’s a shared heritage for all. Sheila Fraser, perhaps said it best in her 2003 Auditor General of Canada’s report, when, in her discussion of why it’s important to preserve and protect Canada’s built heritage said:

These places recall the lives and history of the men and women who built this country, and they foster awareness of how Canadian society evolved. They help us to better understand the present and prepare for the future. They contribute in important ways to Canadians’ sense of belonging to their community.

The Old Stone Mill certainly served that role in spades and remains today, as a tangible reminder of our rich past, of how our country grew. It was there at the very beginning, creating community, helping early pioneers make a living, allowing families to prosper and grow.

OLD STONE MILL and COMMUNITY

Today we see a beautiful old stone building in the middle of a well developed village. But back when it was built, essentially in the middle of the wilderness, it would have been a spectacular sight. Rough dirt roads led to and through Delta, roads that allowed the area homesteaders to bring their grain to the mill. With the regular visits by farmers came other services; blacksmiths, merchant shops, taverns – all leading to the growth of the village. By 1816 we see that “downtown” Delta contained about 10 buildings with a total of 20 buildings reported for the area.

Delta was the earliest inland community in this region – founded in about 1796 when the first wooden mill was built, providing the nucleus for a community. There were no other inland communities nearby – local villages such as Athens, Philipville and Elgin were to come later. Lyndhurst, which had a brief early run with a foundry (1801-1811), was fading as Delta was growing with the establishment of the Old Stone Mill.

It was the mill that contributed to regional settlement, the grist mill providing a product central to everyday life; flour. The adjacent saw mill providing boards for construction of homes and barns. These spurred on the development of community.
MESSAGES OF NATIONAL HISTORIC SIGNIFICANCE

A goal of The Delta Mill Society, and in fact any owner of a National Historic Site of Canada, is to convey knowledge and understanding of the site, and why it was commemorated as a National Historic Site, to as many Canadians as possible (we communicate to visitors from around the world, but our main obligation as a NHS is to ensure Canadians understand why the Old Stone Mill is a National Historic Site of Canada).

The background historical information in this document serves to provide a deeper understanding regarding why we are a National Historic Site. You'll find the exact wording of our full NHS designation later in this document.

The following will provide some guidance regarding the three main points of our NHS designation

1) It is one of the earliest surviving mills in Ontario:
   • The Old Stone Mill is one of three surviving mills, still in its original location, from the pre-1812 period, out of about 200 built, and the only surviving stone mill;
   • Stone mills were quite rare in early Ontario;
   • After the American Revolution, early settlement in Ontario was focussed on the St. Lawrence frontier and then gradually moved northward;
   • Good mill sites (rapids & waterfalls) were in high demand and were developed very soon after initial settlement;
   • The mill has survived because it was well built and its machinery and usage was modified in response to changing market conditions.

2) It is a fine example of early Canadian architecture
   • When constructed in 1810, the Old Stone Mill was a large building for its time particularly in the remote backwoods of Canada.
   • The quality of the stonework, the strong aesthetic qualities applied to an industrial structure, e.g. the symmetrical arrangement of doors and window openings, fine proportions, and detailing in the design and construction are evidence of a high degree of craftsmanship, and make it a significant architectural achievement for the period.
   • The vestiges from the mill’s early period provide insight into its original operation.
   • The mill was an early application in Canada of the technologically advanced Oliver Evans automatic milling system. The height and scale of the building and the
configuration of the roof truss system were designed to accommodate the automatic milling system.

- This system, introduced in 1795, revolutionized milling by improving the movement of grain throughout the building thus greatly increasing production.

3) The mill was associated with the early industrial development of eastern Ontario.

- The mill site (original rapids) at Delta was developed first as a saw mill in support of initial settlement and then as a grist mill as the land was being cleared and farmed (Abel Stevens' original wooden mills).

- The Old Stone Mill played an important role in the early economy of Leeds County by allowing farmers to convert their own wheat to flour and feed thus stimulating more economic activity in the region.

- Water power sites were of critical importance in establishing the settlement pattern and communities.

- Saw and grist mills were critical in fostering agricultural settlement.

- The mill at Delta illustrates the impact of these industrial buildings on their immediate surroundings, in this case the expansion of Upper Beverley Lake as a millpond and the establishment of the village of Delta.
FIRST FLOOR

STATION 1 – Our Daily Bread & Grist mill display: flour’s importance to civilization, the basic principle of grinding grain into flour.

What is Grist Milling? (Station 1)

INTERPRETATION NOTE: The tour begins at the mortar & pestle display. Briefly talk about the importance of flour and bread and how they can be linked directly with the development of civilization. Note that milling is the crushing (or cutting) of grain into flour.

- Wheat was an essential component in healthy diets stretching back 10,000 years to southwest Asia, the “fertile crescent” (parts of today’s Egypt, Turkey, Syria and Iraq), where it was first cultivated.

- The objective of grinding is to crush the grain to create flour. This grinding process separates the components of grain, the endosperm (food for the seed – about 83% of the seed), germ (the fatty root of the seed – 3%) and bran (outer shell of the seed – 14%). Screens (i.e. in a bolter) can be used to separate these components of the flour. The endosperm produces light coloured superfine and fine flour; a mix of coarser endosperm, germ and fine ground bran produces middlings and shorts; and the remaining coarser parts of the outer layer form bran. If not bolted, the flour is pure whole wheat flour.

INTERPRETATION NOTE: Stand in front of the storyboard telling of the mill’s NHS designation. This is where you can note why the Old Stone Mill is different that other mills – its importance to this area of Ontario (development of community), a rare surviving example of an early Oliver Evan’s design automatic mill and the fact that it’s the oldest surviving pre-1812 stone grist mill in Ontario.

Mention to adults that when we are grinding we use locally grown, organic Red Fife wheat from heritage seeds that have not been genetically altered. Red Fife was developed in 1842 by David Fife at his farm near Peterborough Ontario, and became the milling standard wheat through to the early 1900s.
Abel Stevens – The First Mill in Delta – Development of Community

INTERPRETATION NOTE: Abel Stevens is part of the History Board near Station 2. Normally we skip the Abel Stevens story unless someone is specifically interested.

- Abel Stevens, a United Empire Loyalist, arrived in this area with his family and five others in February 1794 and squatted on the land.

- Abel Stevens had the first mill built in Delta (a wooden sawmill). It was in 1796 and was located on the original watercourse of Plum Hollow Creek (today’s Delta Creek), near the foot of the original rapids. That location today is likely somewhere near the corner of the Jubilee Building, the intersection of King St. and Mathew St. (see map in Appendix C).

- As a United Empire Loyalist, loyal to the British Crown during the American Revolution, Stevens was eligible to obtain land in Upper Canada. In May 1793 he went from Vermont to the Niagara area and petitioned for land (an entire township) on the Thames River. This was turned down but that summer he and his eight children were granted land near present day Scarborough. He turned this down since he now had his eyes set on the iron deposits on Lower Beverley Lake and the Great Falls on the Gananoque River (today’s Lyndhurst), suitable to power a foundry. However, he wasn’t the only petitioner for that site, so instead he decided to squat on the land near Delta, where there was a set of rapids suitable for a mill. Settling in the area would help with his Lyndhurst area petition.

- In February 1794, Stevens journeyed from Vermont to the Delta area with six families (his own and 5 others). They came via Brockville, building a rough road to the area of Delta. The six families settled on the upper reaches of Plum Hollow Creek and Stevens petitioned for land around present day Delta.

- The area was unsurveyed, Stevens and the families were squatting. A prominent local loyalist family, that of Justus and Thomas Sherwood, claimed the land as their own. Nothing could be settled without surveying in lots and concessions and so in July 1794 government surveyor William Fortune ran the first survey lines in the area (the final part of a survey that Fortune had started in January 1794).

- By March 1795 Stevens listed the names of 24 heads of families that he had settled in what was to become Bastard Township. Surveyor Lewis Grant was now busy surveying the region and in 1796 sufficient surveying had been done to establish Bastard Township and grant Stevens and families land in the area (on June 2, 1796). A full survey of the township was done by Grant in 1797.
After land title had been established in 1796, Abel Stevens (or his cousin William) had a wooden sawmill built on the rapids between the Upper Beverley lakes (then 2 small lakes) and Lower Beverley Lake. Grant’s 1797 survey notes show it as “Wm. Stevens mill.” To gain a greater head of water, and to impound more water, Stevens dammed the outlet of the Upper Beverley lakes, flooding the area to enlarge the lakes, the lower lake is shown on a Grant’s 1797 survey map as Lake Abel (today’s MNR dam raises the water higher than Stevens’ dam did). He later added a grist mill (likely operated from the same waterwheel as the sawmill) to serve the local homesteaders, who were now starting to grow wheat. It was noted in 1805 that Stevens also had a 70 gallon still.

Stevens’ mill became the nucleus for the small community of Stevenstown* (later changed to Stone Mills c.1812, then to Beverley c.1827 and then to Delta in 1857). *It is likely that Stevens' original (1794/95) references to Stevenstown were to the township (Bastard) and not to a village.

**Story:** An interesting, but untrue tale of the naming of Bastard Township is that Abel Stevens was summoned to York to report on his township. When he was asked what it was called, he was overcome with shyness and hesitated to say “Stevenstown”, whereupon a flippant clerk remarked, "As it has no father, it must be a bastard", and henceforth, the township was called Bastard. The factual explanation is that it was named after John Pollexfen Bastard, a British MP for Devon.
In 1816 the village had about 20 buildings, a letter by Col. Cockburn in March 1816 stated that he stayed overnight with “a Mr. Jones who lives in the village which consists of about 20 houses, where is an inn, a saw and grist mill (both excellent) and a distillery.” A July 1816 map shows 10 buildings in the core of Delta (Appendix C). An 1828 map notes “Beverley is composed of abt. 30 houses.” By 1851 the population was 250, by 1897 it was 500, and in 1976 it was 310.

The location of the Stevens’ mill is presumed to have been on the southeast side of the original creek which ran along today’s Recreation Drive and through or near the present location of the Mill Drive Shed (it’s shown on that side on Grant’s 1797 map). That location today is dry land near the intersection of Matthew Street and King Street (approximate, not actually known – see Appendix C). The water going into the Old Stone Mill is on an excavated channel diversion of the original creek.

Stevens leased his mill to Nicholas Mattice from 1803 to 1808. It was both a sawmill and a grist mill, with 2 runs (sets) of stones, likely operated from a single waterwheel.

Abel Stevens’ wooden mill burned down twice according to the memoir of Niel Sliter, an early pioneer in the area. There is some speculation that it burned down the second time after William Jones had purchased it (1808), sparking Jones to build a new mill, the Old Stone Mill. This may have happened in late 1809 since in that year Ira Schofield (Jones’ business partner) is shown with a grist mill and a still (same size still as that shown for William Jones the previous year – so likely the old Stevens’ mill). However, in 1810, neither Jones or Schofield are shown as having a mill (hence the implication that it might have burned down).

In June 1808 Stevens sold his mill and the property around it to William Jones for £375 (a very large sum in those days)

Story: At this point, you could tell the visitors an amusing anecdote: In 2008, a young couple asked to be married in the Mill. The bride was a direct descendant of William Jones, the groom a direct descendant of Mattice. This was the first wedding held in the Mill. They were invited back for the Mill’s 200th Anniversary in 2010. However, their first child decided to arrive then, so they had to miss the party.

Story: An interesting anecdotal tale is that in about 1827, Sir John Beverley Robinson offered to donate a bell for St. Paul’s Anglican Church (1811) on the condition that village of Stone Mills be re-named Beverley. The village was so renamed and the church got its bell. When a new post office (which required a unique name) was applied for in 1857, it turned out there already was a Beverley in Ontario, so a new name, Delta (for its geographic location), was chosen.

In June 1808 Stevens sold his mill and the property around it to William Jones for £375 (a very large sum in those days)
Oliver Evans and the Automatic Mill (Station 2)

- In 1795, an engineer named Oliver Evans, from northern New York State, wrote a book, “The Young Mill-Wright & Miller’s Guide,” laying out how a mill could be run with only one operator and no manual labour from the time that the wheat came into the door, to the time when the farmer picked up the finished product. It became known as the Automatic Mill. While it seemed unbelievable, a Canadian, William Jones, read the book and said, “I’ll do it.”

- Before he published his book on automatic mills, Oliver Evans built the first prototype of an automatic mill on Red Clay Creek near Newport in Delaware. Known as the “Watt of America,” Evans was an inventor and engineer, a man ahead of his time. Evans invented many other things such as first known self-propelled amphibious vehicle, a high pressure steam-powered wheeled dredging barge (although it is disputed whether it actually was able to move under its own steam power).

William Jones and Ira Schofield – Building the Old Stone Mill

- For the details of this, please read “Building the 1810 Stone Mill in Delta, Ontario” by Ken W. Watson, 2018.

- William Jones, in 1810, was in partnership with Ira Schofield, running a merchant shop in Stevenstown. Prior to this, in 1808, Jones purchased Stevens’ old mill and the land around it. Jones and Schofield’s idea for a new mill, one built out of stone, meant it couldn’t be placed where the old Stevens mill was located, it needed to be built on bedrock, the only exposure of which was located to the north of the original stream channel.

- Construction of the Old Stone Mill started in March 1810 and was completed sometime in 1811 (it’s referenced in March 1812 as “the Stone Grist Mill” indicating it’s built). It is unclear who paid for the construction. William Jones
owned the land (purchased from Stevens in 1808) so one might assume that it was Jones, but the mill is shown subsequently to be operated by Schofield (1812), Jones & Schofield (1813-1815), Jones (1816), Jones & Schofield (1817), etc. – a bit confusing. While usually attributed solely to William Jones, Ira Schofield was also clearly involved, likely as a business partner in the venture. Some early maps show the mill as “Jones & Schofield”.

- Jones and Schofield didn’t do the construction, they would have hired an expert millwright for the design and construction of the mill. A millwright was generally an expert carpenter. He may have also been skilled in masonry, if not, an expert mason would have also been hired.

- The Old Stone Mill’s height, scale, and roof truss configuration were designed to accommodate Oliver Evans’ automatic milling system. The Mill is a Georgian style building, 50 x 35 feet (15.4 x 10.8 m) in size, 3½ storeys high plus basement. Virgin timber for the framing was cut on the spot and the stone was quarried likely north of Delta (location of the quarries unknown).

**INTERPRETATION NOTE:** When discussing the size and shape of the original mill – note that the wall between the mill and the turbine shed is the original back wall of the 1810 mill. Point out that it lacks windows at this level because of the sawmill that was built behind it (where the turbine shed is now).

If your visitors are from the USA, you can throw in a comment about hands across the border, or neighbours working together. ‘Here is a Canadian, in a settlement in the backwoods of Canada, only fifteen years after an American wrote the book, putting the idea into practice!

**Geology Note:** Most of the stones that make up the walls of the Old Stone Mill are Potsdam Sandstone – of late Cambrian or early Ordovician age (deposited ~ 485 million years ago, much younger than the rocks of the Frontenac Arch which are 1.0 to 1.3 billion years old). This type of sandstone was valued as a building material in the early 1800s due to its high compressive strength, attractive reddish coloring, and resistance to weathering. Local marble (crystalline limestone) was also used (i.e. some of the corner stones of the mill). See Geology Section in Appendix C.

- William Jones was fortunate in choosing Delta for his Mill. A boundary between the contorted hard rocks of the Frontenac Arch and younger flat lying sedimentary rocks goes through Delta. The area around Upper Beverley Lake and Plum Hollow Creek is flat lying sandstone with fertile soil cover, good for the growing of wheat. The area around Lower Beverley Lake is mostly crystalline limestone with thinner soil cover, not as good for farming (of any kind). See Geology section in Appendix C.
The mill was built on solid bedrock on the northwest side of the original creek (different location than the original Stevens’ mill). Once the mill was built the creek was diverted to the mill which acted as its own dam. There was also a bywash (a bypass channel to control the millpond level, similar to what we have today – to make sure the mill didn’t get flooded).

- The mill raised the level of the Upper Beverley lakes higher than Stevens’ original dams, forming one lake where there originally had been two.
- All the power for the mill came from a single water wheel which was connected to a main vertical shaft that went right to the top of the building. The shaft was connected to every machine in the building by a series of wooden shafts and gears. When the water wheel started, everything started at once (gnashing and crashing and grinding and whirring!)
- William Jones’ dream did come true: he did go down in history for having built an innovative automatic grist mill in a Georgian architecture building.

**The Automatic Milling Process**

- The automatic milling process was as follows:
  - A farmer’s grain would be dumped into the first bin and weighed;
  - It moved by an elevator (leather belt with wooden or tin buckets) up to the third floor and was dumped into the grain cleaners;
  - From the cleaners it went into storage bins (garners);
  - From the garners it was sent to the hopper above the mill stones;
  - The hopper conveyed the grain to between the stones, where it was cut, by the sharp edges of grooves cut into the hard stones and then ground by the flat areas on the stones;
Milling heated the grain/flour and the hot flour was elevated to the third floor and dumped into the “hopper-boy” where the flour was stirred to speed up cooling and to prevent sticking. Previously the hot flour was manually raked, usually by a young boy, so the machine was sometimes called a “raking boy”;

The flour then fell to the bolter on the second floor. The bolter contained an open cylinder set on an angle. The outside of the cylinder was covered with cloths of varying fineness. Flour was fed into the upper end of the cylinder. As the cylinder spun, the flour moved along, the first cloth, an expensive fine bolting silk, sifted out the light coloured flour, the superfines and fines. The next cloths were coarser, allowing the middling and shorts to fall out. Bran continued to the end of the bolter. Visitors can see the bolter on the 2nd floor.

Each separate grade of flour fell down its own chute into its own bag or barrel on the first floor. Presto! From grain to sorted flour with no manual labour.

While the elevators to and from the third floor were installed during restoration, the separate set of chutes that originally existed from the bolter have not been, except for one chute, Station 5.

**INTERPRETATION NOTE:** Adjacent to Station 2 is the spot where it is presumed Dr. Schofield gave his temperance lecture. Mention that early mills usually distilled liquor (they had the raw materials) and then bring up the temperance movement and Dr. Schofield’s lecture.
Mills and Stills

- **Where there were mills, there were stills.** In the 1805 assessment, Abel Stevens is shown as having a 70 gallon still. In 1806, William Jones is shown with a 150 gallon still. Of course, there would be others throughout the new settlement as it continued to grow. Stills are not specifically mentioned for the Old Stone Mill. By 1828 there was only one licensed still in Bastard Township (in Harlem). However this didn’t slow down alcohol consumption by the populace leading to the start of the temperance movement.

- **Given the amount of liquor being produced and locally consumed it should then be no small surprise that the temperance movement in Upper Canada started in Delta.** On June 10, 1828, Dr. Peter Schofield, an eminent medical doctor, distressed by the impact of drunkenness on society, delivered in this Mill the very first temperance sermon preached in Canada. The sermon lasted for 4 hours.

  **Story:**
  - A highlight of the sermon is Dr. Schofield’s rather vivid description of death by “spontaneous combustion.” He noted that “it is well authenticated, that many habitual drinkers of ardent spirits are brought to their end by what is called spontaneous combustion” and then went on to describe in some detail an event he’d witnessed. (Leavitt, p.32)
  - Visitors love to have their picture taken on the spot of the first temperance sermon!

**INTERPRETATION NOTE:** Skip the big history board (Stevens, millers, etc.) at this point – way too much information – you can simply reference it as something they can come back to. Move on to the millstones.
The Millstones—In Dressing Position

(Station 3)

• Now on to the millstones. The best millstones are made of French burrstone—a type of quartz rich rock. This particular burrstone is found at La Ferté-sous-Jouarre in the Marne Valley of north central France. French burrstone came in small pieces which were cemented together with plaster and then bound with a red-hot iron band to create the finished millstone. Grooves (called furrows) were cut into the stone to form sharp grinding edges. This type of hard stone is preferred for grist mills since it is less abrasive than softer stones, cutting rather than abrading the grain, resulting in whiter coloured flour (due to better separation of the endosperm).

• The French burrstones used in the Old Stone Mill weigh about 1,200 lbs (550 kg) each.

• When a millstone wore down or became uneven, a professional dresser and perhaps an apprentice would visit the mill to dress the stone. The runner stone would be lifted away from the bedstone, exposing the grooved surfaces of both stones. The wooden Miller’s Staff, coated with red ochre, would be moved over
the stone, leaving red marks highlighting raised areas. These would be chipped down using a pick (a millbill) to form an even surface, and the furrows (grooves) in the stone deepened to re-establish sharp cutting edges. This process, known as dressing the stone, could take 140 man-hours.

**INTERPRETATION NOTE:** for those interested, you can mention that we have a video of the dressing of our millstones (the ones under the vat) on our website: [www.deltamill.org](http://www.deltamill.org) (that’s worth a view by any person interpreting the stones to better explain what dressing the stones is all about).

- **The millstone on view as one walks into the Mill is composed of local granite, softer and with a different purpose than the French burrstones.** It may have been introduced in the mid-1800s replacing the 2nd run of burrstones when the mill started grinding softer grains such as oats and corn for animal feed. These granite stones would last about 60 years whereas the quartz rich burrstones, if maintained properly, lasted over 100 years.

**INTERPRETATION NOTE:** when you finish describing the millstones you can then bring them to the working stones which are hidden by the vat, describing how that works (they'll already have a basic understanding now that they've had the visible stones described to them. This can be kept brief since they already have the concept for the description of the automatic mill.

**The Millstones – Working Stones under Vat**

- **The heavy millstones sit on a robust timber foundation known as the husk.** It has to be strong enough to take the weight and vibrations from the operating stones. The husk stands on bedrock, isolating much of the vibration (to prevent the building from being shaken apart). A shaft from the water wheel led to gearing that controlled the speed of rotation of the runner stone. The original mill had 2 runs of stones, but in 1836 owner James Macdonell rebuilt the husk to allow for 3 runs of stones – however by 1840 he was back to operating only 2 runs of stones. Today we have one run of stones, sitting on a rebuilt (2010) husk and operated by an electric motor.

- **The bottom millstone is known as a bedstone.** It remains fixed in place, it doesn’t move. The top stone is known as the runner stone. It sits just above
the bedstone and rotates today at about 92 rpm. The thickness of the gap between the stones determines the fineness of the flour. The miller can control the gap by adjusting the spindle on which the runner stone rotates. (note the control wheel on waterwheel side of the millstones). Historically the stones likely rotated a bit faster, up to 120 rpm for a 4 foot stone. We operate them at a slower speed today to prevent overheating the flour (to preserve nutrients).

- The grain is fed from a hopper into a "shoe", a wooden trough that controls the flow of grain into the hole in the centre of the runner (top) stone. The grain hits the bedstone and fans out, the rotation of the runner stone forcing the grain outward, between the small gap in the stones. It is here that the grinding takes place, the whole kernel of the wheat ground into flour by the cutting action of the furrows in the stones and the grinding action of the lands of the stone.

- The flour emerges on the outer rim of the stones and is contained by the vat (wooden covering). The miller, who can control the gap between the stones, ensures that the stones are maintaining a constant grind. The flour is swept by the rotating runner stone into a hole leading down to an elevator, which carries the flour up to third floor (originally to the hopper boy) and then down to either the flour grade sorter, known as a bolter, on the 2nd floor or directly to the bagging chute on the 1st floor (for unsorted whole wheat flour).

- Our milling rate today is about 150 lbs (2.5 bushels) of wheat per hour with our single set of stones. The milling rate in the past was more, the stones moving at higher rpm and 2 sets of stones being used at once except when one set was being dressed. Milling rates from 5 to 10 bushels per hour, per set of stones, are reported. That would produce 1 to 2 barrels of fine flour, per set of stones, per hour.

- The miller uses his senses to ensure a high quality product. Some of the phrases describing this have come into everyday English language use.

  - Listening: for a consistent gentle rhythmic rumble of the millstones. Listening for the sounds of the elevator and the bolter to make sure they are accepting and processing the flour.

  - Smelling: for a magnesium / sulphur odour (like when you hit stone with a hammer) indicating that the stones are too close together (that they might be touching). The phrase “Nose to the Grindstone” comes from this practice.

  - Feeling: the flour coming from the millstones between index finger and thumb. With experience a miller can feel when it's just right. Not too coarse and not too silky. The phrase “The Miller's Touch” comes from this practice. Although likely of another origin (to do with beer), the phrase “The Rule of Thumb” also applies.

  - Sensing: the heat of the flour coming out. Too much heat decreases the flour quality. Our millers today lower the heat by reducing the amount of grain flowing into the stones. As one of our millers noted, as a volunteer, time is not money, so a slight drop in production in order to maintain top quality is not an issue.
• The French burrstones we use today to grind grain come from Québec (we installed them in the mill in 2010). They are real French burrstones, but not original to our mill.

STATION 4 – Waterwheel: the main story here is the water wheel, how it powered everything in the mill, how it obtained its water power (mill acting as dam with a bypass) and how that rotational power was transferred to all parts of the mill.

The Water Wheel (Station 4)

INTERPRETATION NOTE: direct the audience attention to the waterwheel interpretation board. Keep in mind that many will be unfamiliar with how “power” was generated before electricity – that a physical connection to the spinning wheel was required (shafts and gears). Note that the waterwheel and all the shafts and gearing was hand built on site.

• Archaeology at the mill has indicated that the original waterwheel was about 12 feet (3.7 m) in diameter. The present day waterwheel is a 10 foot (3 m) diameter wheel which spins just above the present day “floor” of the wheel pit. But the original pit floor was deeper – over the years the wheel pit has become filled with debris. The Delta Mill Society installed the smaller 10-foot wheel in 2007 so as not to disturb the base of the wheel pit (allowing for a proper archaeological investigation in the future).

• Based on archaeological work, the original waterwheel was a “breastshot” wheel, water arriving near the middle of the wheel. The most efficient wheel is an “overshot” wheel, where water is introduced to the top of the wheel. An overshot wheel is about 60% efficient in capturing the energy of the flowing water. A breastshot wheel is about 45% efficient and an undershot wheel is about 30% efficient. Topography and water levels of the mill pond dictate what type of wheel can be installed. Since we don’t have the rights to use the water flowing past the mill, our current wheel is a “no-shot” wheel, with a sump pump providing water to the wheel.

• The net head for the waterwheel was likely about 7 feet (2.1 m).

• Wooden water wheels require a lot of maintenance and the average lifespan was about 15 years before the wheel needed replacing.

• The Mill was operational during the winter. It had the huge advantage of having the wheel inside the building, which allowed much easier winter maintenance. There are records of casualties in other mills while men were breaking ice around the waterwheels during the winter.

• It may have been inside a waterhouse. Related to the above, the wheel may have been in its own enclosure called a waterhouse. The original Oliver Evan’s Automatic
mill design had a waterhouse. The door through the south wall adjacent to the water wheel may have been the outside entrance into the enclosed waterhouse. We think it likely that there was a waterhouse but we don’t know for sure.

**STATION 5 – Chute from the 2nd Floor: originally one of several chutes from bolter**

**Chute from 2nd Floor (Station 5)**

- **Chute leading down from bolter to bagging area.** There would have originally been several chutes, one for each grade of flour. Superfine and fine flour went into barrels destined for sale or export (it was all called “superfine”). Middlings may have been reground (as recommended by Oliver Evans to produce more merchantable fine/superfine flour). Shorts and bran went into bags for use as animal feed.

**INTERPRETATION NOTE:** open up the inspection hatch and have the visitors feel how smooth the inside is. Do the rodent check.

**STATION 6 – Walter Denaut and the Turbine Shed: about the new technology of the turbines, of how Walter Denaut returned the mill to profitability.**

**Walter Denaut and the Turbine Shed (Station 6)**

**INTERPRETATION NOTE:** when taking visitors through the arch between the mill and turbine shed tell them that they are now stepping forward in history, from 1810 to 1860.

- William Jones died in 1831, leaving no will, so the building passed to his brother, Charles Jones. Charles sold the mill for a nominal sum (4 shillings) to William’s widow Amelia who then sold it to Henry Jones. Amelia re-married, to James Macdonell, and they purchased the mill back from Henry Jones in 1836. James Macdonell died in 1847 (at the age of 53) and Amelia continued to operate the mill. The mill ran into financial difficulties during Macdonell’s ownership and it became heavily mortgaged.

- **In 1850, the mill’s poor fortune was to be reversed by a new owner, Walter Denaut, who was about to make profound changes.** Born in Prescott, Denaut worked in Delta (then Beverley) from 1825 to c.1828 when he moved to Brockville. But he returned permanently to Delta in 1839, opening up a general store. In 1849
Denaut built himself a very impressive family home in Delta, today’s Denaut Mansion Country Inn. In 1850 he bought the Old Stone Mill from the previous owner, Amelia Macdonell. The mill in 1850 was shown as having 2 runs of stones and a sawmill. Denaut paid off the mortgages and invested heavily in mill renovations, the 1851 census noting that the mill was “under repair”.

Story: Another bit of local history: tell your guests that the records of one stagecoach driver show that on one occasion Denaut had both Sir John A. MacDonald and Thomas Darcy McGee together as passengers from Westport to Delta and they stayed overnight at Denaut’s mansion. It has been rumoured that every Prime Minister from Sir John A. MacDonald to Pierre E. Trudeau has visited or stayed at that mansion.

• Denaut’s contributions to the mill and Delta were many, but the most important in terms of the mill was the construction, c. early 1860s, of the turbine shed and the installation of two 48 inch Swain turbines. This particular style of turbine was designed by A.M. Swain in 1855. Turbines had many advantages over water wheels. They were much more efficient, the Swain turbines in the order of 70+% compared to the 45% or less of our breastshot water wheel. They rotated horizontally and so required much less water to operate. They were made of metal and were much more durable than a wooden water wheel and required less maintenance. It’s a little unclear to exactly when these were installed, a date of c.1861 has been suggested, but the actual date is presently unknown. So c. early 1860s is best used.

INTERPRETATION NOTE: the turbines don’t need much explanation – show your visitors the interpretation boards that they can return to later.

• The sawmill, a wooden structure, likely originally located where the turbine shed is today, was rebuilt by Denaut adjacent to his new turbine shed. It remained in operation up until 1949 (and perhaps sporadically after that) and was removed sometime prior to 1970.

• Denaut also built a drive shed for customers’ carriages and horses beside the mill. A second storey made of brick with stone quoins and stepped gable parapets was built on top of the shed. That upper floor of the building served as a town hall, theatre, and courthouse – roles later served by the Old Town Hall (built c.1880). It’s unclear if the carriage shed and brick hall were built at the same time, or the hall added later. The second brick storey was removed c.1960 and replaced with a smaller metal clad wooded framed structure. The DMS purchased this building in 1992 and today it houses our blacksmith’s shop and our collection of large artefacts.
• One item not in the storyboards is that Walter Denaut installed a French window in the turbine shed (as opposed to the sash windows in the rest of the mill). Local lore has it that this was done to match the French windows in his mansion (or it may simply have been an extra window left over from the building of his home).

• **Denaut’s timing was good** since by the 1860s wheat production from Bastard Township had reached an all-time high – from 32,269 bushels in 1851 to 57,787 in 1861, declining to 28,000 by 1871 as yields per acre decreased with soil depletion and farmers moved to animal (i.e. cows) farming. In 1860 Denaut produced 6,000 barrels of fine flour (from milling ~30,000 bushels of wheat).

> **Interesting statistics** for kids (and parents) is that bushel of wheat contains about 1 million kernels and weighs 60 pounds (27 kg).

• **Denaut was doing both feed and merchant milling.** Feed milling likely started before him, but as farming in the area included more animal husbandry (cattle herds, chickens, etc), the demand for animal feed would have increased, the Old Stone Mill would have adapted to this need. Granite stones may have been used to produce animal feed.

> **Interesting fact:** On an elevator on the 1st floor is a stencilled logo for 196 Superfine Fall Wheat – the 196 is the weight, in pounds, of the flour in a barrel. This was the U.S. standard net weight (the weight of the flour) of a barrel of wheat flour.

• During Denaut’s time the Old Stone Mill was known as “Denaut’s Mills”

• **Walter Denaut goes down in history for having resuscitated the mill, taking it from a money losing operation to a money making one through the use of good business practices and innovative technology. He changed the power for the mill to more efficient turbine technology and rebuilt the sawmill to maximize financial gain from his new power source (turbines).**
George Haskin and the Roller Mill (Station 7)

- In 1893, George Haskin became owner of the Mill. Haskin invested in a more advanced milling technology, installing a roller mill to replace the millstones.

- This technology had the advantage of being both faster than millstones and requiring much less power to run. They didn’t heat up the flour as much as millstones and required much less maintenance – so many mills converted from millstones to roller mills.

- A problem with roller mills it that nutrients were lacking in the white flour it produced. A perceived advantage of the roller mill at the time is that it stripped both the bran and the wheat germ from the kernel, leaving just endosperm to be ground into flour. It is the oils (fat) in the germ that can make flour go rancid and, because of the lack of germ, the pure white flour product from a roller mill had a much longer shelf life. However, what also got stripped away with the germ were nutrients and vitamins. In the 1930s, the FDA in the US ordered that vitamins (Niacin, Thiamine and Riboflavin) and Iron be added back to roller mill white flour (creating “enriched” white flour). White flour from conventional millstones (bolted whole wheat flour – superfines and fines) contains a certain amount of germ and fine bran and retains many of the vitamins and nutrients.

Steam Engine

- In c.1899, Haskin installed a steam engine in the northern end of the Turbine Shed. It operated until c.1903 after which it was removed (for reasons unknown), the mill returning to water power. The stack (chimney) for the steam engine can be seen in some c.1900 photos of the mill. Steam engines were popular since they didn’t require moving water (just water for the boiler)
Hastings Steele (Station 8)

- Hasting Steele, another innovative man, bought the Mill from Haskin in 1913. For a brief time, in 1929, he had a dynamo running from the turbines, generating electricity for some houses in Delta and Lyndhurst. In c.1913 electricity had just (or was about to) come to Delta by way of transmission lines from a power plant in Lyndhurst (est. late 1911 in the mill of George Roddick). In 1929 Ontario Hydro bought out the Lyndhurst plant and shut it down as they worked to connect this area to their grid. At that time Steele installed a small dynamo in the Old Stone Mill, powered by the turbines, to restore power to several houses in Delta and Lyndhurst. By 1930 Ontario Hydro had connected the community to their grid and electrical power generation from the mill ceased (except perhaps for some internal lighting).

- Electricity provided a new source of revenue for Steele, not by generating it, but as an electrical contractor, wiring homes to that they could get connected. By September 1929 Steele was selling and installing electrical equipment to area homes, allowing them to get hooked to the grid. From 1938 to 1952 he also operated an electrical supply store from the mill.

Electricity Anecdotes (some perhaps a bit fanciful)

Each household in Delta was allowed one light bulb. One lady’s house was beautifully lit, giving the illusion that she had several light bulbs in her house. The miller marched up to her house to verify but was quickly put in his place when he discovered that instead of multiple light bulbs she had many mirrors set-up around her house to best reflect the light.

Not everyone was a fan of electricity. Before electricity, changing the height of a courting candle would determine the amount of time a young man could stay at his beloved’s house. With the advent of electricity, a young man could stay only until the lights were turned off at the dynamo circuit. This ruined the courtships of many young men working on rural farms. By the time these men finished their chores, got cleaned up, and rode into Delta, there was little-to-no time left for courting. The introduction of electricity resulted in an era of bachelordom for many in the surrounding area.

When electric irons were invented, Delta women were ecstatic – especially on those hot summer days, no more firing up the wood stove to heat the irons. However, power was not plentiful enough to run everyone’s irons. The women drew up a timetable so that Mrs B. could iron Monday morning, Mrs. D. Monday afternoon, etc. and no one else would use electricity while the neighbour was ironing. It worked!
• Steele had taken over the Old Stone Mill in a period of decline for small local mills. Flour production in the mill ceased sometime between 1939 and 1944 (gap in the records – still producing flour in 1939, no longer in 1944).

• Steele continued to operate a feed mill (grinder) and the sawmill up until 1949 when they were both shut down.

• Steele continued with a feed store until 1960 when he shut the doors on the mill for good.

• In 1963 Hastings Steele made one of the most momentous decisions in the history of the mill – he deeded it for the sum of $1 to four trustees, the nucleus of what was to become The Delta Mill Society, charged with the preservation of the mill and opening it to the public.

The Grinder

• In c.1923, Hastings Steele purchased a Champion Grinder to grind chicken and horse feed and calf meal for local farmers. The grinder was the last machine used in the mill (1949) and either turbines or electricity could run it (it was last run using the turbines).

Sawmill (Station 9)

• A sawmill has been part of the Old Stone Mill, as a separate wooden building, from the very beginning. An 1835 sale notice for the Old Stone Mill described the sawmill as “a large wooden building in which there is a Saw Mill, a Mill for cutting, and polishing marble, and a Carding Machine.” Initially there was just the sawmill with the carding machine (for wool) – the marble cutter came later (c.1830).

• We don’t know for sure the exact location of the original sawmill, but the lack of windows on the west wall of the 1st floor of the original building indicates that the sawmill was likely built adjacent to or near the west wall. When Walter Denaut built the turbine shed c. early 1860s, he attached a wooden sawmill to the west wall of the turbine shed (just a sawmill at that time, no marble or carding). The sawmill had to be close to take advantage of the power from the waterwheel and then the turbine (physical connection via a shaft in the original sawmill and later with belts). In the turbine era, the sawmill was operated using power from the downstream turbine. It operated up until 1949 and was torn down in the late 1960s.
SECOND FLOOR

The bolters were located on the second floor and flour from the hopper boy on the 3rd floor would have been sent by chutes down to the bolters to be sorted. Prior to c.1922 there was no second floor in the south end of the mill (it was an open area over the millstones which sat on an elevated husk).

**Miller’s Office (Station 10)**

- Built for Walter Denaut. The original miller’s office was on the 1st floor (current gift shop), but Denaut wanted his own a private office (no public access).
- Note the beautiful woodwork and trim. The plaster was restored by heritage workers in the 1970s, not renovated with modern methods. There was no water “on tap’. During the restoration, volunteers spent months scrubbing and cleaning after constantly trekking up the stairs carrying tools, plaster, etc.
- Hasting Steele's mother or grandmother sewed the blanket. The bed is circa 1800 and the desk is original to the Mill. There are more doors in the desk than the one visible and they were used as a filing cabinet.
- A few items are not of the period as it was necessary to deviate to demonstrate the ongoing changes in prices, bookkeeping, billing, technology, etc.

**The Bolter (Station 11)**

- The bolter is the machine used to sort the flour into different grades. It was powered by the waterwheel and later by the turbines.
- Inside the bolter is a hexagonal cylinder covered with bolting cloth. The flour would fall from the third floor down a chute into one end of the covered cylinder. The cylinder would spin and the flour would slowly work its way down to the end of the bolter, sifting flour through the mesh into the different grades.
• The bolting cloth at the beginning of the cylinder was very fine, allowing only the finest flour out. The following screens were coarser, the holes growing bigger as the flour progressed, sifting it into different grades along the way. Typically, from right to left, the different grades were as following: superfine, fine, middlings, shorts, bran. Superfine and fine are made up mostly of endosperm, naturally light in colour. This produces the best flour for things like cakes, pies, cookies and fluffy white bread. Bran and coarser flour (shorts and middlings) were often used for animal feed. Today we value the nutrient value of whole wheat flour, but back in the 1800s, white (superfine & fine) was the most sought after flour product. Oliver Evans recommended re-grinding the middlings into fine flour but we don’t know if that was done in the Old Stone Mill.

Wheat Production – Early Agricultural Equipment (Station 12)

• The equipment and tools behind the bolter show some of the technology developed over time to harvest grain.

• The sickle, flail, winnowing basket, and tally all relate to wheat production.

INTERPRETATION NOTE: Ask visitors to guess what the tally is used for before explaining it. Be sure the door is closed, so they do not see the counter.

• The other items were later improvements, especially the grain cradle. It is very heavy, and usually 2 men would work together, taking turns. One would swing it, the other grab the grain and make a sheaf. Several sheaves were stood upright, leaning against each other to make a stook which finished drying in the field before going to be threshed. The Alford family, who patented over 200 agriculture inventions in the Ottawa Patent Office, invented this grain cradle in the nearby hamlet of Harlem.

• The plough on display is a Percival Plough, manufactured in Merrickville, the first in that particular line. The mower is a Cossit Mower, donated by Jennifer Cossit.
(her husband was a former M.P., as was Jennifer after his death). She took great interest in the Mill, and chose it over the Museum of Science and Technology in Ottawa to receive this artefact.

**Story:** More local colour: One time, when a group of Dutch tourists visited the Mill, a local Dutch lady translated. One old gentleman was nearly bouncing up and down with excitement when he saw the flail. After the German invasion during the Second World War, people in Holland were soon stripped of all food.

The German Watch marched through the village every 20 minutes. As a young lad, his job was to leap out of bed as soon as they had passed and flail anything they had managed to scrounge. 20 minutes later, when the Watch marched back, he was once again quietly in bed. This continued until they had enough seed for his mother to pound between 2 stones and make flat bread. His family survived, while thousands around them died of starvation. He felt he owed his survival to the flail.
THIRD FLOOR

Take visitors up the stairs beside the harvesting exhibit so that they arrive at the impressive scene of Upper Beverley Lake

13  STATION 13 – Lake Display and Indigenous Use: exhibit about use of Upper and Lower Beverley lakes.

Lakes Display and Indigenous Use (Station 13)

- Explain that this exhibit, created in 2010 for the Mill’s 200th birthday, tells the story of the two lakes: Upper and Lower Beverley.

- Note the Native artefacts, and draw attention to the artefact in the middle. It dates back to 2000 BC. Let them guess what it is: a fishing weight.

- Why the boat and fish nets: yes, there was commercial fishing on Lower Beverley Lake.

INTERPRETATION NOTE: bypass the animal sounds display otherwise you’ll have your visitors stuck there for the next 10 minutes.

14  STATION 14 – Roof Support Architecture: the various styles of architecture that can be clearly seen while looking up at the roof ceiling.

Roof Support Architecture (Station 14)

- Here one can see examples of architecture from three different countries: the Netherlands, Germany, and England. As settlers came to “the new world” from all over Europe, they brought their different architectural styles with them.

- The ridgepole is made from a single virgin pine, cut and hand-hewn on the spot in 1810. It is 50 feet long, hand planed. The unusual, 5-sided shape derives from an extremely rare Dutch architectural style in which the beam is fastened into place with “treenails”, wooden dowels with a pointed end. In some spots you can see the pointed ends protruding from the sides of the pole. Yes, it is the original pole!

- The wind-supports (aka wind braces) at each end kept the roof from swaying which is probably one reason the Mill has stood for so long. This is English architecture; rare in Canada, especially at the time it was built.

- Next, one sees the Queen Beams (aka Queen Post Truss). This German architectural feature called roof seats or roof stools support the large horizontal
roof beams (purlines) that support the rafters. The short, slanting spine beams form triangles. Queen beams sit on every third crossbeam on each side of the roof.

Left: Wind supports (diagonal bracing) on either side of the ridgepole. Right: Queen beam (angled post support of the purlin (horizontal roof support beam)

**INTERPRETATION NOTE:** one of the messages with three styles of architecture from different countries is how well they work together and complement each other. You can also point out the extreme care taken in our 1999-2003 restoration, new wood blended with old (we saved as much of the original fabric as we could).

Story: These beams fascinate some German tourists. One admitted that no one ever thought to go into the attics of their own large buildings to see if the same type of construction is evident there.

**STATION 15 – Grain Storage Area:** example of accordion lath and plaster – used to provide a vermin proof room. Tapered floorboards and slits in floor (partitions for bins).

**Grain Storage Area (Station 15)**

- Many people know about old **lath and plaster** through renovating or gutting of an old building. This is not ordinary lath, however, it’s an earlier form known as **accordion lath**. A wide green piece of hemlock board is split (as opposed to sawn) on alternate sides into lath widths until you can open it up like an accordion and nail it up between two studs. The cracks in the board are then plastered which seals up the openings. Once dry a finishing smooth coat of plaster was put over the ceiling. This room was created as a vermin-proof room to store grain waiting to be ground if there was a glut. (But cats may have been used to help, too!)
• The **tapered floorboards** are another European method. The wood was cut the length of the tree, not squared first, so nothing was wasted. Then the boards were alternated or arranged so that one ended up with a square floor.

• Someone may ask about the little **filled-in slits on the floor**. Old barns used a similar idea. One could put in temporary partitions to make wider or narrower bins to store different grains, according to the yield that year: perhaps lots of wheat, but only a small amount of oats.

• Some may ask about the use of the big **wooden doors** at the end of the building: these were to facilitate getting machinery in and out of the upper storeys of the mill (using a pulley to haul up large machinery).

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**Story:** One day, a visiting construction company owner noted that he is not allowed by law to build stone arches any more. He must build a steel arch and then fasten material over it to appear to be stone. The reason? Someone found a [defective] computer program that stated an arch cannot sustain weight and will collapse. This amused other guests in the group familiar with wonderful Roman architecture!

Another visitor, an architect this time, observed the construction under the roof where the original cross beams needed no restoration. Seems that the skill and knowledge does not exist today – or if it does it would be too costly to reproduce. The cross beam was hewn to lock over the sill of the roof and the rafter dropped down to lock the 3 pieces together: not even a wooden peg was needed to secure the structure!

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**STATION 16 – Gearing:** some of the gearing used to distribute power to different machines – note blackened areas (due to animal fat being used as lubrication).

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**Gearing and Blackened areas (Station 16)**

• Was there a fire, as we see **black burn marks**? Since animal fat (tallow) was used as lubrication, it got hot and black where a metal part passed through the wood.

• Note **gearing** part of the intricate system to distribute power from the waterwheel and later, the turbines, to equipment in various parts of the mill.

• Note that all the original (1810) gearing was **made of wood**. Over time this was replaced by metal gearing.

• Also note **elevators** from main floor and switch that will send the flour down chutes to either the bolter or directly to the bagger (we use these elevators and chutes when we are milling).
CONCLUDING THE TOUR

INTERPRETATION NOTE: At the conclusion of the tour, bring your guests back down stairs. Take a moment to show them the large front door.

- The front door is original, and the original key is on display in the case in front of the miller’s room. Note the Norfolk hinges on the door and especially note William Jones’ signature on the front door.

- Owners got the credit – but they were not the builders. A millwright would have designed and built (he was an expert carpenter) the mill. A blacksmith would have assisted in creating the metal parts and items such as nails. Masons were used to create the mortar, choose and lay the stones. Some would carve their initials in a stone to leave a lasting legacy of their work. One such stone can be found on the Mill in the front right hand corner as you are facing it (not clear if these are really from original masons or later graffiti – but still interesting).

EXTERIOR TOURS

Exterior tours are usually just given for those expressing that specific interest or with a large group tour (which sometimes starts outside – talking about the building and NHS designation). The mill’s position on the landscape and how it harnessed water (artificial channel) is an important part of the Old Stone Mill’s story. Interpreters should read “Building the 1810 Old Stone Mill in Delta Ontario” for a full understanding of the mill’s placement on the landscape and the various exterior features (several now gone – imagination has to be used).

Several outside elements can be pointed out.

- **Geographic Location** – the mill’s location on the landscape, Upper Beverley Lake above, Lower Beverley Lake below. Point out where original rapids were located, note that mill is located in a constructed (blasted out) channel.

- **Topographic Location** – point out that it’s the difference in water levels of the incoming water (Upper Beverley Lake) and the receiving water (Mill Creek/Lower Beverley Lake), known as the “head of water,” that provided the power to turn the waterwheel and later, the turbines. The net head was about 7 feet.

- **Mill Stonework** – note that each course of stone is different in height, because the masons were working with natural sandstone layers which were of different thicknesses (they made use of what was available locally). Point out the initials on
the cornerstone (long ago by one of the stone masons or just graffiti?). Note that the main stones are sandstone while some of the corner stones are marble – all locally sourced.

- **Raceways and Dam** – For those interested in how the mill was powered, a view of the north wall (at the bridge) and the MNR dam are required elements. Note that the dam is a much later (1962) addition, built after the mill closed. That the height of water against that dam used to be against the mill. Key points are that that the mill sits in an artificial channel, that it acted as its own dam with a bypass channel, that the water level of Upper Beverley today used to be up against the mill.

- **Buffer Wall** – An important flood protection feature of the mill (now gone), required because of bringing the full head of water up against the mill. You can point out part of the base of a buffer wall that was used to keep debris and ice out of the mill (forcing it around to the bywash). The c.1870s photo by R.E. Denaut (which shows the buffer wall and the height of water against it) can be used as a visual.

- **Bywash** – the channel that allows water to go around the mill was always a feature of the mill, originally with a stop-log dam at its head. Today’s bywash, which was built at the same time as the turbine shed (c.early 1860s) was sealed with cement in 1974-75) – the floor of the original bywash was bedrock. It provides a good visual of a flood protection feature of the mill.

- **Tailraces and Wildlife** – Take them between the mill and the drive shed to look at the tailraces. If you’re lucky, there may be some local wildlife to see (heron, mink or some other animal).
BLACKSMITH’S SHOP

INTERPRETATION NOTE: We don’t do tours of the blacksmith’s shop, but if outside you can point out where it is located and note the importance of a blacksmith to the mill. Note that we have the blacksmith’s shop open with blacksmithing demonstrations on special occasions.

We have a forge located in the Mill Drive Shed which we use on special occasions to demonstrate the largely unknown art of blacksmithing under the direction of Blacksmith Art Shaw. A blacksmith was a necessity of 19th century life – everything from horseshoes to many types of iron implements. A blacksmith was also a necessity for the mill – all sorts of iron parts would have been made, repaired or modified by the local blacksmith(s). A blacksmith also sharpened and hardened metal, such as the picks used to dress millstones. Delta would have had a blacksmith from the very beginning.

The forge in today’s blacksmith’s shop likely dates to the 1920s, installed by the new owner after Hastings Steele sold the building.

We actually have a bit of a first hand look at early blacksmithing in Delta from the “The Sweeney Diary: the 1839 to 1850 Journal of Lockmaster Peter Sweeney.” He lived at Jones Falls (in the defensible lockmaster’s house, today known as “Sweeney House”) and made numerous trips to “Beverly” (usually several times a month) – to do a bit of drinking, buy whiskey, buy pork and flour, get wheat ground and also to go to the blacksmith to get his horses shod and metal runners put on his sleigh. For instance, on December 27 1839 he wrote “left a sleigh there to be ironed” and February 16, 1840 he wrote “I went to Beverly to the blacksmith’s shop” (plus many more blacksmith references). This serves to illustrate the importance of Delta as a service centre (milling, blacksmithing, etc.) to the region in the 1800s.

We spruced up the Blacksmith’s Shop a few years ago to make it more “public friendly” but we plan to make it an even better place to demonstrate this important heritage art to the public. We continue to seek grants to be able to do that work.

Blacksmithing Demonstration

This photo shows Blacksmith Amanda Van Bruggen working the forge during the Delta Harvest Festival. A common perception of a blacksmith is that of a burly bearded man – and while we do have lots of those ☺, Amanda provides a modern take on this heritage art.
OLD TOWN HALL

INTERPRETATION NOTE: We don’t do tours of the Old Town Hall, but have a set of washrooms open to the public during the operating hours of the mill. If your tour group is outside, or if it comes up in conversation, you can mention our ownership and the history of the OTH. We also rent out the hall (we have established rates and a rental form).

The Old Town Hall (OTH) was built in 1879/80 as a joint venture between the local township (Bastard & South Burgess) and the local Masonic Lodge (Harmony Lodge #370). The bricks for the building were made locally by Jasper Russel. The lodge occupied the 2nd floor and the main floor served many functions, including a courthouse and jail (in the basement), the municipal offices, a community theatre and of course as a general community hall.

The building was almost lost to a fire in February 1888, but the citizens of Delta rallied, men, women and children forming a bucket line to douse the fire with water – saving the building.

In 1979, the municipality and lodge both vacated the building (may have coincided with the expiry of the lodge’s 99 year lease) and it was used for a time by the Delta Lion’s Club.

In 1994 (Dec), it was purchased by The Delta Mill Society (DMS) from the Township of Bastard & South Burgess. The initial use of the building was for office space and for our heritage collection (artefacts & documents) storage. It was converted into a Museum of Industrial Technology in 1999 when the Old Stone Mill was closed for restoration. Several of the exhibits in the mill were moved at that time to the OTH. It operated as a museum until closed to that function in the fall of 2011 since it was too expensive for us to keep both the mill and OTH open as museums, and the mill is our main focus.

In 2010 the DMS added a roof over the front porch (to improve the façade and protect the front brickwork) and in 2013 the DMS extensively renovated the building ($104,000 – with support from an Ontario Trillium Grant) including new front steps, adding a platform lift (adjacent to the front porch), a commercial kitchen and an accessible washroom. The hall itself had a face lift with a new coat of paint on the tin ceilings and on the plaster walls. The wooden floor of the hall was refinished. These renovations allowed the DMS to return the hall to its original use, that of a town hall, able to host events that serve as fundraisers for The Delta Mill Society.

The areas adjacent to the hall area on the 1st floor remain as the DMS office, an open area for meetings and our Christmas Gift Shop, the commercial kitchen for events, and washrooms. The second storey remains our artefact and document storage area.

Photo: A stage-eye view of the hall interior after renovations showing the open space and the 14 foot (4.3m) high ceiling.
DELTA

The story of Abel Stevens is the story of the founding of Delta. The story of the Old Stone Mill is also the story of the growth of Delta as a regional service centre. So, in essence, as we talk about the mill, we are also talking about Delta and its growth as a community. The owners of the mill, such as Walter Denaut, played significant roles in the community.

Although Delta has been struggling in recent years, the empty buildings speaking to that struggle, it has been the keenness of volunteer groups, such as the Delta Mill Society, that have kept the community alive. In addition to the DMS there is the very active Delta Agricultural Society, the Delta Beautification Committee, the various church groups and others that all help to keep the sense of community alive.

The mill of course speaks to its broader heritage, that of Ontario and Canada – in fact for many years, many of the volunteers with The Delta Mill Society were people from outside Delta who fell in love with the beautiful old building and the role it played in the early development of Canada. Presently we have a nice mix, people who live in Delta and those who live outside, bonded together by a common love of the Old Stone Mill.

We (DMS) speak to the early development of Delta and to its continued relevance. Our work in restoring the mill and keeping it open year after year to the public, draws thousands of visitors to Delta, helping to keep Delta on the map and helping the economic viability of the Township of Rideau Lakes.

We don’t do this in isolation, we help and support other activities in town such as the Delta Maple Syrup Festival and the Delta Agricultural Fair (one of the oldest in Ontario), both sponsored by the Delta Agricultural Society, and Celebrating the Season on weekends leading up to Christmas, sponsored by the Lower Beverley Lake Park Board. And of course they support us in our activities, including the Delta Harvest Festival (formerly the Thanksgiving Festival). Many of our volunteers work with these and other local groups.

Bottom line is we are part of the local community of Delta and that community is part of us.
FARMING

The story of the mill is directly tied to the story of farming in the region (mostly Bastard and Kitley townships with the early mill). Our second floor agricultural display speaks talks to that.

We don’t have specific information on early farming in terms of production, but we know a number of generalities. This area was forested when the first settlers arrived, to create farmland the forest had to be chopped down. That was all done by hand by a settler using a felling axe (saws didn’t come into use for felling trees until the late 1800s). A settler could clear about 3 acres (+/-) per year. It was backbreaking work. In some cases, a patent for land was conditional on the settler first clearing 5 acres of land. A period reference (1840 quoted in Lockwood’s Rear of Leeds & Landsdowne) optimistically states that 5 acres a year could be cleared – that likely bounds the top end of what a single settler could do.

A soil map of the area (shown in “Building the 1810 Old Stone Mill”) tells the agricultural settlement story. To the north and east of Delta is good soil (loam), to the south is poor soil (a soil unit appropriately called Rockland). This is due to the underlying geology which defines topography and soil development, poor soil on top of the rocks of the Frontenac Axis, much better soil on top of the sedimentary rocks flanking the Frontenac Axis. This is why the first settlers were in the Plum Hollow area, the land around Plum Hollow had very good soil. So we see early settlement in that area and also into the Irish Lake area (Kitley).

The first crop was usually potatoes. They were very easy to grow, could be put in pretty rough land (only digging, not tilling, required) and they provided immediate food (no processing required) and could be easily stored. Once sufficient land had been cleared, wheat was often the next crop since it was needed for a daily essential, bread. Initially a settler could only produce enough wheat for his own family’s needs. That’s why early gristmills were custom mills, taking a toll (1/12) of the grain and returning the rest to the farmer (minus losses) as flour. Merchant mills required a region where farmers were producing a surplus of wheat beyong their own family’s needs.

It was noted in a period (1840) reference that after the first crop of wheat the land would be planted with grass to produce pasture and then left that way for six years to allow time for the stumps in the field to rot to a point where they could be removed. After that the land could be properly plowed and wheat planted again. If this cycle held true, then in year 7 the settler had his first full 5 acres of wheat (as opposed to wheat planted among stumps), in year 8 he’d have 10 acres and so on.

Wheat had the best potential in that era to be a cash crop, so as more land was cleared, more wheat was planted. Yields were low, the first numbers seen for this area come from the 1851 census. Yields shown for Bastard are about 13 bushels of wheat per acres, with 10.8 bushels per acre for Kitley. Yields actually decreased after that due to soil depletion. The 1840 reference indicates 15 bushels per acre but that appears to be an optimistic high end (as with the 5 acres a year of land clearance in that same reference). The 1851 yields are very low by modern measure, yields with current cultivated wheat non-organic farming are in the order of 100 bushels of wheat per acre. Our miller, Chris Wooding, who does 100% organic farming using a heritage wheat (Red Fife, developed in 1842) gets 18 to 23 bushels per acre.

In 1851, about 25% of tillable land was dedicated to wheat. Glenn J Lockwood in his book, “Kitley, 1795-1975” provides a full breakdown of what was grown in 1851. Bastard was a bit more populated, but the figures would likely be similar:

Of 43,425 acres of land held in the township in 1851,17,553 acres were under cultivation with 10,856 acres devoted to growing crops, 6,621 acres devoted to pasture, 76 acres devoted to garden, and 25,872 acres composed of woods and wild lands.
Following are figures for the amounts of crops produced in Kitley for the year 1851:

- Wheat, 3027 acres, 32,781 bushels; Barley, 16 acres, 245 bushels; Rye, 79 acres, 928 bushels; Peas, 643 acres, 8,400 bushels; Oats, 2126 acres, 43,994 bushels; Buckwheat, 349 acres, 4,284 bushels; Indian Corn, 344 acres, 7,038 bushels; Turnips, 24 acres, 2,715 bushels; Clover, Timothy and other grass seed, 60 bushels; Carrots, 188 bushels; Mangel Wurtzel, 8 bushels; Beans, 197 bushels.*

In 1851, 64 pounds of hops were produced, 3,734 tons of hay, six pounds of flax or hemp, 14,431 pounds of wool, 17,256 pounds of maple sugar, 570 gallons of cider, 3,518 yards of fulled cloth, and 9,369 yards of flannel.

There were 924 bulls, oxen, and steers; 1,783 milk cows; 1,812 calves or heifers; 1,141 horses; 5,166 sheep, and 2,066 pigs in Kitley in 1851. That year 121,746 pounds of butter were produced as were 8,933 pounds of cheese, 299 barrels of beef, and 1,596 barrels of pork.


* Potatoes aren’t listed, but later (on page 56) it’s mentioned that 10.5 bushels of potatoes were grown per person. Population was 3,525 at the time, indicating 37,000 bushels of potatoes.

We have no early records for the mill, so it is uncertain what the ratio of custom to merchant milling might have been. Also uncertain is when grinding for animal feed might have started. Those all relate to the type of farming being done in the region, an area that was growing in population and evolving in the type of farming it was doing. We can see that in 1851 that animal husbandry was quite extensive.

This was not the case in the early years. Abel Stevens is recorded as arriving in 1794 with a yolk of oxen, a milk cow and a horse (and likely some chickens). The purpose grinding of grains for livestock didn’t start until the early-mid 1800s. Initially it was just the “waste” product of the mill, (referred to as offal), the coarse middlings, shorts and bran, that was sold to farmers for use as animal feed (often horses). There was no purpose feed milling. That developed in the mid-1800s, with crops such as oats being purpose grown for animals. Walter Denaut may have had some good business making animal feed, but that wouldn’t have been the case for William Jones. The feed industry took off in the late 1800s when the benefits of animal nutrition became better known.

The mill evolved as agriculture evolved in the region. We see granite stones associated with the mill for the milling of softer materials such as oats and corn (uncertain as to when these were introduced). In terms of wheat, the Old Stone Mill was a small mill by mid-1800s standards. Its peak recorded year in 1860 of 6,000 barrels of fine flour represented the milling of about 30,000 bushels of wheat (assuming a 63% return of fine flour). But production in Bastard Township alone for that period was 57,787 bushels of wheat (1861 figure, from Ranford). There was likely just a much grown in Kitley at that time, plus other local (i.e. S. Crosby) wheat farming areas. The Old Stone Mill was in competition by the 1820s & 30s with much larger mills. There were people in the area that were buying wheat (wheat brokers such as Benjamin Tett of Newboro who, in the 1830s/40s, was buying wheat for the MacKay mill in Bytown) for large mills located as far away as Montreal.
THE DELTA MILL SOCIETY

In 1963, the last owner of the mill, Hastings Steele, deeded the mill, for the sum of $1, to four trustees: Mildred Sweet, Albert Frye, Elizabeth Robinson, and Robert Tuck. Steele’s wish was that the mill be preserved and become open to the public as a museum of milling technology.

The trustees found others with a similar heritage interest in the Old Stone Mill, forming an informal Delta Mill Society. Work in the 1960s focused on what was needed to restore the mill in a heritage appropriate manner. The group was also working towards getting the mill designated as a National Historic Site of Canada – that designation was obtained in 1970.

Before any physical work could be done, the society needed to be incorporated (to have an incorporated entity look after details such as financing and insurance). Accordingly, on August 17, 1972, “THE DELTA MILL SOCIETY” was incorporated as a non-profit corporation with charitable status.

To quote for our Letters of Patent:

Mildred Sweet, Married Woman, Harold Russell and Richard Davy Ussher, Gentlemen, and Howard Knowlton Jones and Ronald James White, Farmers, all of the Township of Bastard and South Burgess, in the United Counties of Leeds and Grenville in the Province of Ontario; Elizabeth Louise Robinson, of the Borough of Scarborough, in the Municipality of Metropolitan Toronto, in the Province of Ontario, Married Woman; Albert William Frye, Farmer, and Myrla Ann Elizabeth Saunders, Married Woman, both of the Township of the Front of Leeds and Lansdowne, in the said United Counties of Leeds and Grenville, and Robert Franklin Tuck, of the City of Chicago, in the State of Illinois, one of the United States of America, Dentist: constituting them and any others who become members of the Corporation hereby created a corporation without share capital under the name of

THE DELTA MILL SOCIETY

For the following objects, that is to say:

TO preserve as an historic landmark the old stone mill at the village of Delta, in the said United Counties of Leeds and Grenville; to promote interest in the historical development of the Delta mill; to provide a suitable repository for irreplaceable objects marking the historical development of the Delta mill; and subject to the Mortmain and Charitable Uses Act and the Charitable Gifts Act, to accept donations, gifts, grants, legacies and bequests; …

THE FIRST DIRECTORS of the Corporation to be Mildred Sweet, Elizabeth Louise Robinson, Harold Russell, Albert William Frye, Robert Franklin Tuck, Myrla Ann Elizabeth Saunders, Richard Davy Ussher, Howard Knowlton Jones and Ronald James White, hereinbefore mentions; …

On September 5, 1972, the original trustees (Elizabeth Robinson, Mildred Sweet, Albert Frye and Robert Tuck) deeded the mill for the sum of $1 to The Delta Mill Society.

The incorporation of The Delta Mill Society and the transfer of the mill to that corporation allowed work to start on rescue rehabilitation of the mill. It also allowed the society to pursue the opening of the mill to the public, which it did in 1983. A listing of notable events can be found in the Chronology of the Old Stone Mill.

The Delta Mill Society has evolved over time in its focus, first to stabilize the mill building, then to open it to the public, then do completely restore the mill, then to have it as an operating mill.
Of course that’s glossing over the tens (hundreds) of thousands of hours of volunteer time that have gone into preserving and presenting the mill.

We’ve done a number of strategic plans over the years. In 2015 we sat down to re-look at our mission and to come up with a vision statement for the Delta Mill Society and an updated mission.

**Vision** - Instilling a passion for our heritage.

**Mission** - It is the mission of the Delta Mill Society to preserve and present the Old Stone Mill National Historic Site for the education and enjoyment of the community and the visiting public. To accomplish this mission, we collect artifacts and documents related to the Mill’s development and we research and interpret its history, design, and evolution as it pertains to the early development of Eastern Ontario.

The vision statement took much discussion to come up with – it is based on a commonality with everyone who volunteers with the Delta Mill Society – we are all passionate about various aspects of heritage, in this case “our” heritage which references what the Old Stone Mill represents – grist milling, pioneer development of Eastern Ontario, agriculture and even the history of Delta (as it pertains to the mill) – these are all tied together. Most of our work is geared towards the public understanding and appreciation of the mill – hence the “instilling” part. In hindsight, our vision statement might be better expressed as “**Instilling a passion for our heritage in all we meet.**”

The biggest challenge to the Delta Mill Society is financing. Contrary to what many people think, as a privately held National Historic Site of Canada, we get no special support from the government (unlike government held National Historic Sites). As the owner of three heritage buildings we have a high level of fixed costs just to keep these buildings open – that includes insurance costs (Old Stone Mill, Old Town Hall and Drive Shed), heating/cooling (Old Town Hall), accessibility costs (lift at Old Town Hall), fire monitoring (alarm) costs (Old Stone Mill) and the on-going maintenance these old heritage buildings require.

At a municipal level we get a modest bit of support. Museums and heritage sites in most other communities receive sustainable grant funding (often enough to hire staff and conduct programming), this is not the case with the Delta Mill Society which receives a small grant (currently $5,000 which covers just over half our insurance costs) from the Township of Rideau Lakes (subject to a yearly council vote) for our administration of the Old Stone Mill and the Old Town Hall (Delta’s community hall). This compares to grants to community museums for tiny Westport ($22,000 in 2016), Gananoque ($61,500 for 2016) and Perth ($197,000 for 2016).

Our biggest source of revenue used to be charity Bingo. The Delta Mill Society participated in charity bingo (in Brockville) for over 21 years. It was bingo that paid for much of our share (over $600,000) of the restoration of the mill in 1999-2003. The Bingo Team was a dedicated group of volunteers – people such as Peggy Bond, Mary Byrd, Mary Freiday, Anna Greenhorn, Evelyn Saunders, Bronte Smith, Carmel Watt, and Lyall Whaley. But changes in Ontario legislation, including the introduction of casinos, killed bingo in the mid-2000s. The casino model for Ontario does not help rural communities such as the Township of Rideau Lakes.

We’ve made good use Trillium funding (Ontario program funded by lottery tickets), but Trillium is for projects only (you have to have a “project”) it doesn’t provide sustainable funding. That funding opportunity dried up in 2013 (last year we received a Trillium grant). We used to get a CMOG (Community Museum Operating Grant) grant from Ontario but they changed their criteria (introduced requirements for climate controlled storage of artefacts), something we couldn’t do in our old heritage buildings, so we lost that. It did allow us to switch to a HODG (Heritage Outreach Development Grant) for Ontario (you cant get both CMOG and HODG). HODG is a much more modest grant that helps with our outreach efforts (i.e. newsletter, website).
There are no federal grant programs that support heritage. The “Department of Canadian Heritage” (aka “Heritage Canada”) is a misnamed department since its role is to support “arts, culture, media, communications networks, official languages, status of women, sports, and multiculturalism” – it deals with contemporary cultural issues and doesn’t support heritage as we define it. Parks Canada, which looks after National Historic Sites that it owns, does not have funding programs for privately held National Historic Sites other than its Cost Sharing Program (which is project specific, it is not sustainable funding) – that’s the program we used to help with the 1999-2003 restoration of the Old Stone Mill.

So we rely to a large degree on memberships, donations, gift shop sales and fundraising events. We also seek grants, using the Canada Summer Jobs program and the Young Canada Works program to partially fund summer student mill interpreters. We also seek foundation grants for specific purposes. However, without sustainable grants, we remain a volunteer only organization (no staff), people who contribute hundreds of hours of their own time to helping the Delta Mill Society.

We keep the mill admission free for two reasons. The main reason is that we don’t want to restrict access to the public – the main goal of the Delta Mill Society is the public understanding of the heritage that the mill represents. The second reason is that it’s actually a better business model for a small heritage site than charging admission. For example, the Kingston Historical Society, who operate the Murney Tower Museum, changed from admission to no admission in 2017. That year they made more money from donations only than previous revenues of admissions and donations. We’ve also had the same experience with our yearly Giant Book Sale held during the maple syrup festival. We used to charge by the book – but a few years ago switched to donation only and our return went way up.

Within the mill we like to keep our requests for donations balanced between subtle and aware. We don’t want to be demanding in any way – but visitors should be aware that they can make a donation (so the “make a donation” in the Gift Shop should always be front and centre). Most do, particularly those who receive a tour – they appreciate the value they’ve received from our tour guides and the work we’ve put into mill to make it an interesting place for visitors – old and young alike. That’s what the Delta Mill Society is all about.

Just as a bit of encouragement, here is a recent review we received on TripAdvisor.

**A tour for all ages!**

Saw a sign for the Old Stone Mill & decided to check it out. Wow! This was one of the most informative & intriguing tours we have been on in a long time. The Mill itself is beautiful. The guides are very knowledgable & passionate about the history of this Mill (Anna was our guide through the mill). They make you want to hear more. We didn't have children with us. However, if we did, I know the guides would have had them just as excited to hear more. There isn't a fee to tour. However, they do accept donations which I hope everyone who tours is generous enough to donate. I would hate if they ever had to close such a beautiful place. I hope to come back again!

*Posted by dphoto5, Baldwinsville, NY – August 2017*
Frequently Asked Questions:

We don’t just interpret the mill, we are also ambassadors to this area, to Delta, to the Township of Rideau Lakes and to the surrounding region. We get visitors from all over, they will ask you questions about the mill and about the surrounding region. So you should be prepared to answer these. In addition to the many mill specific questions, other questions can range from “where is the washroom to where I can eat”. The following are just a few – please add any more that you’ve frequently heard so that we can be better prepared. Plus, if you find issues with any answer (need for more clarity or any errors) – please let us know so that we can improve this list.

Mill Questions

Q. Does the mill still operate?
A: Not as a commercial mill, but yes, we operate it on special occasions. Explain that our miller grows his own grain and that we mill a few times during the summer (make sure you have the milling schedule handy).

Q. Does the mill still operate by water power?
A: No, it last used water power (the turbines) in 1949. Note that the Ontario government took control of the water in 1961, that we don’t have permission to use it. Today we power the water wheel using an electric sump pump and the millwheels using an electric motor.

Q. Is the equipment original?
A: Yes and no – certain equipment such as Champion Grain Grinder is original to the Old Stone Mill as are our turbines and much of the gearing and some of our chutes. Other equipment, such as our operating millstones and bolter, are not, but they correct to the period (very old). Our waterwheel is a replica, built in 2007. [ed note: I haven’t seen a list – good idea to compile one at some point if we haven’t already done so]

Q. Are the millstones original to the mill?
A: No – but they are real French Burrstones, the same kind ones that were used in the mill. The original burrstones appear to have been sold (ed note: check provenance of millstones on display – they may have been used in the mill – a burrstone (or pair, unclear) was given to the mill in 1975.)

Q. Is the ridgepole original and what type of tree is it made from?
A: Yes, the 50 foot ridgepole is original to the mill. It is made from a single piece of local Eastern White Pine.

Q. Why does some of the wood in the mill look new?
A: Because it is new wood – replacement sections of wood installed during conservation restoration in 1999-2003. The conservators preserved as much of the original wood as they could but some sections needed to be replaced due to problems such as dry rot and insect infestation.

Q. How dusty was milling?
A. Very dusty – fine flour settling over everything. Millers were described as “forever sweeping” and there were many cures offered for “miller’s asthma.”

Q. What are the doors on each floor for?
A. To bring in equipment to up to each level of the mill. It was easier to hoist heavy equipment from the outside of the mill and than to try to move it up from inside the mill.
Q. How did the mill make money in the early days, barter or cash?
A. Mostly cash in the case of the Old Stone Mill– the mill was purpose built as a merchant mill (the Oliver Evans’ design is that of a merchant mill), a mill capable of producing fine flour for sale or export (by law whole wheat flour could not be exported, only fine flour). The miller would be paid in cash for this. It also means that the miller purchased the grain from the farmer and then could do what he wanted with the finished product. Earlier mills were custom mills where the miller took a toll of 1/12 of the grain in payment and returned the rest to the miller as ground flour. This 1/12 was mandated by law in Upper Canada (in 1793) - the miller couldn’t change those terms. However, by the time of the Old Stone Mill, merchant milling was becoming more common in this area since there was now a surplus of wheat beyond simple sustenance levels. The mill would have done some custom milling, but its main source of revenue was fine flour that could be sold for cash.

Q. What is a bolter and why was it used?
A. The flour from the millstones is 100% whole wheat, containing every element of the grain. But for many baking applications lighter, finer flour is preferred (rises better, less “heavy”). The bolter separates out the various fineness grades of flour, including the sought after lighter (white) superfine and fine flour. The coarser parts, middlings*, shorts and bran were often used for animal feed. So a bolter was always used (until roller mills came along which did a similar separation) to produce the marketable finer grade of flour. Bolters were an original feature of the 1795 Oliver Evans design for an automatic mill – it allowed for merchant milling.

*Evans recommended regrinding the middlings to produce more fine flour – this may have been done at the Old Stone Mill.

Q. What is the building located beside the mill?
A. It started off as a carriage shed built by Walter Denaut, likely in the early 1850s, a building with large openings in the front where customers could park their wagons and carriages. A brick upper storey on the carriage shed was used as a town hall. In the 1920s it was sold and a blacksmith’s forge was installed. The brick was torn down in the 1960s, replaced with the metal clad top we see today. We use it today for our blacksmithing demonstrations and for large artefact storage.

Flour Questions

Q. Is the flour for sale ground here?
A. Yes, it is ground using the millstones under the wooden vat (show them the vat).

Q. Where does the wheat come from?
A. Our miller, Chris Wooding, operates a farm called Ironwood Organics, located south of the mill, where he grows his own organically certified Red Fife wheat – a heritage wheat that was very popular as a bread making flour in the mid-late 1800s.

Q. What is Red Fife Wheat?
A. Red Fife is a variety of wheat well adapted to cooler climates. It was developed in 1842 by David Fife at his farm near Peterborough Ontario. Fife got the seeds from Scotland, but those seeds appears to have originated in Ukraine. Fife bred it for Canadian conditions and it became the milling standard wheat through to the early 1900s. It was superseded by higher yield and more disease resistant wheats but still has the reputation as being one of the finest bread wheats.
Season/Hours

Q. What are the hours when you are open?
A. We open each day at 10:00 am and close at 5:00 pm.

Q. When are you open?
A. In the summer we are open from Victoria Day to Labour Day, from 10 am to 5 pm each day.

Q. Are you ever open outside of the summer season?
A. Yes, we are open for special events in Delta. These include the Delta Maple Syrup Festival, held on the third weekend in April, the Delta Harvest Festival which is held on the Saturday prior to Thanksgiving (usually the first Saturday of October, but can be the last Saturday of September in some years) and we are open during the evenings (Fridays and Saturdays) of Celebrating the Season in Delta, in late November and December, where visitors can enjoy the thousands of lights in Beverley Lake Park.

Local Services Questions

Q. Is there a washroom?
A. We have washroom available in the Old Town Hall (show them the OTH and how to get to it).

Q. Where can I eat?
A. (update this as needed). Find out where they are headed and advise accordingly: There is usually a chip truck open in Delta, there are restaurants in Athens (several), Elgin (Elgin Pizzeria, Savoury & Sweet), Chaffey’s Lock (Opinicon – requires reservations) and Westport (the Cove and several others).

Q. Are there other Heritage Sites in this area?
A. Find out what kind of heritage sites they are interested in. Hand them the Heritage map of the Township of Rideau Lakes which can be used as a guide to several heritage locations. Two local National Historic Sites are the Lansdowne Iron Works in Lyndhurst (just a sign – but the old bridge is interesting) and the Rideau Canal (ideal spots are Jones Falls for the flight of locks, great arch dam, blacksmith’s shop and Sweeney house, and Chaffey’s Lock – the lock plus the Lockmaster’s House Museum). We also have several heritage walking tours of local villages.

Q. When can I stay in Delta?
A. Delta currently has two places to stay, the Denaut Mansion Country Inn, or, if camping, Lower Beverley Lake Park (note their respective websites). There is also at least one Airbnb listing in Delta (and others located nearby).

Q. How long will it take me to get to …?
A. The contemporary map of Leeds & Grenville in Appendix C has the distances and times to various communities listed.
Funding / Society Questions

Q. Can I join the Delta Mill Society?
A. Yes – membership is only $20 for an individual, $30 for a family (give them a membership form).

Q. Can I make a donation to the Delta Mill Society?
A. Yes – we welcome donations – we are registered charity and can issue a tax receipt for the amount of your donation if you leave your name and mailing address (have them fill in a membership/donation card to properly record this information – make sure we can read the name and address – that it is legible).

Q. Is there admission to the mill?
A. No – but if you like your tour of the mill, we welcome donations (point out the donation jar – best to (gently) solicit a donation at the end – once they get excited about the mill, its history and the work the DMS is doing to preserve and present the mill). If they want elaboration, note that we don’t charge admission in order to maximize public access (our main goal is to present the mill and its history, not make money from it, but then note that we are self funded).

Q. Is the mill run by the government (federal or provincial)?
A. No – it is owned and operated by The Delta Mill Society, a group of volunteers.

Q. Does the government support the mill because it’s a National Historic Site?
A. No – our National Historic Site designation does not bring along any funding. The DMS is a self funded group of volunteers. The Ontario Government does have a small grant available because we are a heritage organization. The federal government does not have an equivalent program – their available support grants are for summer students.

Q. Do you get any government support?
A. Yes and No. We do not get any sustainable support; we have to seek yearly grants. The Township of Rideau Lakes provides us with a small grant, the amount varies based on a yearly council decision. The township recognizes both the heritage and economic value of the Old Stone Mill to the community (we attract visitors to the township who then spend money here). The current amount of that grant covers less than the cost of our insurance for the mill. We use the HODG (Heritage Organization Development Grant) program from Ontario which provides a modest grant. In the past we’ve used Trillium Grant Funding (from the Ontario lotteries), but that is only available on a project specific basis (and we haven’t had any luck with that in recent years). We also use Federal Government student grant programs which varies from year to year (never 100% of what we need).

Q. Who pays the students?
A. The Delta Mill Society pays the students – we do take advantage of federal government student support grants that cover a portion of those costs – those amounts vary year by year (but never cover 100%).

Q. How can I help support the mill?
A. As a self-funded volunteer group we accept any type of help we can get – volunteering (various types of jobs depending on the interest of the volunteer), donating in-kind services, taking out a membership and/or making a donation.
THE MILL BUILDING

The mill we have today is a snapshot of several time periods. At various times in the mill’s history, portions of its physical configuration changed. About the only constant is the original 3 ½ storey 50’ x 35’ stone building.

The most obvious building change is the c. early 1860s addition of the turbine shed, but internally in the mill many changes have occurred over the years. One of the biggest changes is the location of the husk. It was originally much higher, almost to the second floor. In the original mill there was no second floor over the area of the husk. That placed it above an enclosed waterhouse containing the 12 foot waterwheel and allowed room for all the gearing from the waterwheel to the millstones. The husk may have been expanded in the late 1830s when a 3rd run of stones was added. It may have been extended to the west wall (over the waterwheel area) when the switch was made to turbines and the waterwheel removed. It was lowered (to the level of the main floor) in the 1920s when a feed mill was installed. Original timbers were re-used, but new timbers were also added.

These changes of the husk position are reflected in the rest of the building. Doors turned into windows. Chutes and pulleys moved with holes cut in floors to accommodate those changes. Stairs added and removed. In one case one of the main support beams had a large section removed, presumably to accommodate a new use for that area (see if you can find that location).

There is no historic documentation for these changes to the inside of the building, it is the physical evidence found in the mill, notches in timbers, holes in floors and walls, newer timbers and fastening methods in some locations, all serve to provide clues to prior configurations. But they don’t provide detailed information to what the mill looked like at any given point of time (other than a few exterior photographs dating to the late 1800s). Several of the support columns you can see today date to the Denaut era, their design and location different than the original support columns. Some of this is detailed in “Building the 1810 Stone Old Mill” (Watson, 2018) and also in the Delta Mill Conservation Report (Scheinman, 1996).

The waterwheel raceway, which has a bit of an odd angle to it, likely contained a wooden chute (flume) to control the flow and direction of water, delivering that water directly to the waterwheel. Evidence of such a chute is gone but there are remains of a support structure at the upstream end of the wheel-pit. This was originally interpreted to be a water control gate (a stand alone feature spanning and blocking the entire raceway) or the downstream end of the flume – most likely the latter.
A significant part of the planning for the 1999-2003 restoration (Appendix D) was what exactly to restore, what configuration of floors, stairs, windows and doors to choose? What periods to represent? One obvious choice was to expose the wheelpit so that we (DMS) could illustrate both the waterwheel period and the turbine period. It is very fortunate for us in Walter Denaut’s re-design of the mill that he chose to create a new raceway for the turbines, perhaps simply to keep the waterwheel in operation while he installed and tested this new technology. So the original mill wasn’t disturbed and many elements of the waterwheel era, including its own raceway, were preserved.

We’re also very lucky with the building which, unlike many small local mills, was never abandoned; it continued to operate as a mill up until 1949 and continued as a feed store up until 1960. On the flip side, Delta was never in a good enough location – either for transport or for water power, to have the mill expanded or rebuilt (as did happen in places such as Merrickville) other than the addition of the turbine shed. So many of the elements of the original mill have been preserved.

Many of the changes to the 1810 mill have been external – the c. early 1860s addition of the turbine shed, the c.1960 removal of the salt shed, the c.1960 removal of the 2nd (brick) storey of the drive shed, the 1962 construction of a new dam, the 1963 construction of a new road bridge, the c.1968 removal of the sawmill, the 1974-75 sealing of the bywash with concrete, the 1999 removal of the buffer wall. All of these have had some impact on the visual character of the area, arguably the biggest being the MNR dam which changed the water configuration (the mill no longer its own dam), lowering the mill pond in front of the mill by 1.4 m (4.6 feet).

The buffer wall, which was added to the mill sometime prior to the turbine shed being built, was partially removed when the concrete raceway was done and completely removed during the 1999-2003 conservation to fully reveal the north wall and the raceway entrances. Elements of such as the foundation for a trash grate at front face of this structure (in front of a chute leading to the flume headgate in the mill) were discovered during the archaeological work in 1999. A similar configuration appears to have been in place for the turbine raceway (see image on next page). The foundational remnant of that buffer wall (the stone “walkway”) is all that remains visible today. See the further reading (reference documents in the DMS files) below for details.

The bottom line is that today’s restored mill is based on very detailed research by the conservators, carefully choosing which elements to preserve or restore. It’s not the exact 1810 mill, nor the exact 1860s mill nor any other specific period – but a combination of those time periods with a few required additions (such as 2 safety exits from each floor).

Further Reading

To get a sense of what the original mill looked like – read “Building the 1810 Old Stone Mill in Delta, Ontario” by Ken W. Watson, 2018 for a lengthy discussion of the original mill.

Some of the factual information for that document can be found in the three pre-restoration reports, The Delta Mill Wheelpit Excavation, BdGa-34, Public Archaeology Program, by Susan M. Bazely, 1994; the Delta Mill Conservation Report, by André Scheinman,1996; and Archaeology at the Delta Mill National Historic Site, BdGa-34, 1999, Delta, Ontario by Jonathan Moore, 1999. Scheinman’s 1996 report is the most thorough discussion of changes that occurred in the mill through time. All those reports are available from the DMS as PDFs.
The top pre-1876 photo (scanned from Paul Fritz’s book) is the earliest known 19th century view of the mill showing the water level of the mill pond against the mill. The buffer wall sits against the north wall, a foundation to hold a trash grate for the waterwheel raceway, and also for the turbine raceway. The water level shown is close to that of Upper Beverley Lake today. The level was controlled by stoplogs at the head of the bywash. The lake level is controlled today by the MNR dam (also using stoplogs) by the road bridge, not the mill.
HISTORY – A Cautionary Tale

Do we know it all? – no. There is still much that we don't know about the history of the mill.

Have we got it all right? – no. There are undoubtedly errors of history in this document – we just don’t what they are … yet 😊

That errors of history exist is an absolute concerning the history of the Old Stone Mill (and pretty much any other history you might read). Since there is so little of the history documented during each period, and since many things have changed, it makes much of our history educated guesses. The examples below are mentioned not just as examples, but also because some of that information lives today on the Internet, so you may come across some of these while browsing the web.

We are also biased in our history (again, this is common with all histories), based on our own personal interests and also on what information is available. History has many gaps, what survives the ravages of time doesn't present a well balanced picture – it’s easier to talk about what we know (what is well documented) versus aspects of history for which little information exists today. So be aware of those biases when trying to present a balanced view.

In terms of historical accuracy, in some cases in our past interpretation we’ve made a few too many assumptions or put too much faith in anecdotal history. A general rule with anecdotal history is not to initially believe it – most contain errors of fact. Keep in mind that no one alive today (or even for most of the 20th century) has heard a first hand account of what went on in the mill’s early period. Humans are notoriously poor at remembering things correctly, even societies with oral traditions. The most common problems are mixing of facts from different time periods, selective memory, and the embellished/changed memories that are passed from one generation to the next. Stories about the Old Stone Mill have not been immune to these altered “memories.” So when you hear a story, try to source facts that support it. Unlike the old newspaper adage “don’t let the facts get in the way of a good story” we do want to make sure we have facts that support our stories – we have lots of very interesting factual history to tell without resorting to fiction, make sure what you’re saying is as correct as it can be.

Example 1 – Power Generation: one example erroneous history is our original interpretation of electrical power generation. You’ll see documented in some histories that the Old Stone Mill started to supply power to Delta in 1911 – and that it represented a major function of the mill. The fact is that a dynamo in a mill in the area was installed in 1911, not in Delta but in Lyndhurst, in the mill of George Roddick. By 1914 Roddick was also supplying power to Delta. In a 1925 list of Roddick’s Delta customers we see H. Steele (presumably his house), charged at a rate of $1.25 per month. If Steele was generating power in the mill at that time he wouldn’t have been paying Roddick for it. In 1929 Ontario Hydro bought out the powerplant (owned by the A.C. Brown Granite Company at the time, Roddick died in 1924 and his widow later sold the powerplant) and shut his generator down. Ontario Hydro was busy at the time hooking up communities to the regional grid. As best as we can determine (and this is an assumption and so could be incorrect), that is when Hastings Steele installed a dynamo in the Old Stone Mill. Steele, who was also in the electrical installation business, reconnected several people to power being generated from his dynamo. This lasted until Ontario Hydro hooked the area up to the grid (1929/30).

The Old Stone Mill's dynamo would not have been large (the OSM had nowhere near the excess generating capacity of Roddick’s Lyndhurst mill) and likely only served some of the general public for the period between Roddick’s power being shut down and Ontario Hydro connecting this area to the grid. It may have seen continued use in lighting the mill – history is so far silent in that regard. Our original tale contained all the elements: a dynamo in a local mill in 1911, power coming to Delta from a mill, Hastings Steele being in the electrical hookup and supply business. Those are facts, just put together the wrong way. So while electrical power makes for some interesting stories (i.e. courting candle), it’s actually a minor point in the history of
the mill. The main story of electricity is not power to Delta, but the illustration of the evolution of water power, from mechanically transferred power to electrically transferred power that we are used to today – both coming from the same source (moving water).

Example 2 - The Abel Stevens story: This also provides an illustration of errors of fact. A book about the Stevens family, written by a descendent, credits Abel with discovering the iron deposits in the area. That was likely taken from Leavitt’s History of Leeds and Grenville (1879) which makes that exact statement (in error). The iron deposits may have been discovered by Lt. Gershom French in 1783 (first documented survey of the region – see map in Appendix C). We know that in 1784, his former boss, Major Edward Jessup, expressed an interest in setting up an iron foundry in Lyndhurst, so clearly the presence of iron was known at that time. When Abel Stevens first scouted the area in 1793, ten-years after French did his survey, he was most likely already aware of the iron deposits in the area and the water power at Lyndhurst (he continually applied to get both), in fact that is most likely the reason he investigated this area in the first place. Bottom line is that it wasn’t Stevens who first discovered the iron.

Example 3 – The origin of the Old Stone Mill: you’ll even see in our Statement of Significance for the Canadian Register of Historic Places that “Construction of the mill began shortly after the first settlers arrived in the Delta area in 1796. Between the late 1790s and completion of the mill in 1810, a number of businesses and services in Delta were well underway.” Who wrote that statement mixed up the original Stevens’ wooden mill(s), c.1796 and the later Old Stone Mill (1810-11) – two separate buildings, two separate locations. They also got the date of the arrival of the first settlers wrong. One of the sources for that was My Own Four Walls, written in 1985. We’ve learned much more since that time with deeper research into the mill and its origins.

We can even get it wrong when facts are staring us in the face, two examples are the anecdotal history of the flooding of the Upper Beverley lakes and the dimensions of the mill.

Example 4 – Upper Beverley Lake: Anecdotal history has the mill dam flooding 2,000 acres of farmland (you’ll see that number in some older write-ups). But a quick fact check shows that the current “footprint” of Upper Beverley Lake, which is flooded today to the same level as it was during the mill’s operation (or even higher – MNR raised the level in the 1990s), is only 1,350 acres in total area, so clearly the 2,000 acre number is bogus. The original two lakes (9 feet (+/-) lower than they are today) occupied about 400 acres. With the flooding presumed to have been caused by Stevens’ mill dam, c.1796, which is prior to any farming in the area of the lakes, an additional 300 acres (+/-) of lake was added. So the flooding from the higher dam (the level the bywash dam for the Old Stone Mill), done in 1810-11, was in the order of 700 acres, much of that low lying swampy land (as indicated on Lewis Grant’s 1797 survey map which shows the level of Stevens’ flooding), not farmland. To be sure there may have been farmers in the area that got ticked off at the mill in 1810-11 when more land was flooded – perhaps it was their descendants that embellished the historical record with an inflated number.

Example 5 – Size of the Mill: the best example of “facts staring us in the face” are the dimensions of the mill. Up until 2017 we’ve been using 60 feet x 40 feet as the building dimension (original building). This was presumably based on the 1835 sale ad for the building which stated those dimensions. But the actual measurements of the outside dimensions of the building are about 50’ x 35’ (50.4’ x 35.5’ – 15.4m x 10.8m). The inside dimensions (the working size of the building) is even less, 47’ x 31’ (14.3 x 9.4 m). Outside of it being a good example of lack of truth in advertising – it is an illustration of why it’s worth checking what appears to be a solid fact (particularly when it’s very easy to check).

These examples may seem like belabouring a point, but it is a very critical point. Be aware when you’re making assumptions (or when a statement of historical “fact” is clearly making assumptions) or taking something written about the mill (even in this document) at face value. Think – question – if something doesn’t seem quite right – question the “facts.” We don’t have it all right and we have much more to learn.
Mysteries

There are many mysteries still remaining to be solved. We have a reasonably coherent history of the mill but there are a number of things that we (or at least your author) are still uncertain about. It is mysteries that drives historical research, questions that can direct avenues of research. To learn more about the mill we have to know what we don’t know and then try to make those unknowns into knowns.

The following is just a partial list:

Who Designed and Built the Mill? – while we credit William Jones, with or without Ira Schofield, with the building of the mill, neither of those men likely took a direct design/build role – rather they would have hired an expert millwright to do the design and carpentry work. Clearly they knew what they wanted, an Oliver Evans Automatic Mill, and that’s what they got. Local lore indicates that two of the masons may have been Isaac Whaley and Jasper Russell but that’s been proven wrong (Whaley was born in 1810, Russell in 1817). There are some differences in the stonework on the 3rd level which might indicate a change in masons as construction proceeded. But bottom line is that much of the original construction remains a mystery. Information about how the mill was built can be found in “Building the 1810 Old Stone Mill” (Watson, 2018).

When was the Mill Built? – we use the 1810 date since that appears to be the start of construction. The stone mill is used as a boundary reference in a deed of sale from Abel Stevens Jr. to Curtis Smith dated March 12, 1812, so it appears to have been in place by that date. Ira Schofield, in 1812, is assessed for a grist mill with 1 additional run of stones (so 2 runs of stones), a sawmill and a merchant shop. That would indicate that the Old Stone Mill was clearly in operation with 2 runs of stones in 1812. But we don’t have a documented “first stone laid” date or a “millstones first started turning” date. However, we think the dates we use are pretty close. Planning for the mill likely started earlier, perhaps as early as 1808 when William Jones purchased the land from Abel Stevens.

Waterwheel – there is no documentation regarding the original size or exact elevation of the waterwheel. Archaeology suggests that it may have been a 12 foot (3.7m) wheel with the centre located at a bit below 94.53 metres above sea level (masl), the present level of Upper Beverley Lake. There are three reasons for that supposition.

1. One is that the maximum head of water was less than 9 feet, most likely in the order of a 7 foot net head. That supports the idea of a breastshot water wheel, which with a 7 foot net head could have been from 10 to 14 feet in size.
2. Portions of timbers were found in the 1999 archaeology that have been interpreted to be the downstream support for a flume and/or portions of a gate support. Those supports sit 13.2 feet from the back (south) wall, leaving that as the maximum room for a waterwheel.*
3. The axle position for the wheel has been estimated to be a maximum of 94.52 MASL (Scheinman), the level of Upper Beverley Lake. Based on bedrock elevation, the lowest possible mounting position was 93.70 (Moore). Lower Beverley Lake today is 91.82 MASL. If that was the level in 1810 (uncertain – depends on the elevation of a dam at Lyndhurst at that time), then that sets what would be the lowest desired level of the waterwheel**. The bedrock elevation under the tailrace arch is 91.30 MASL. Assuming that the bottom of the wheel to be above the receiving water level (91.82 MASL), that produces a range of a maximum radius of 6.2 to 8.9 feet – so a maximum diameter of 12.4 to 17.8 feet.
Putting those three elements together produces our current estimate, a 12 foot wheel with the centre of the axle positioned below the current level of Upper Beverley Lake, very approximately 94 MASL.

* There is an alternate explanation for this gate structure. While it appears to be an original structure, it could have been built as late as the turbine shed. One of the timbers had wire nails in it, those nails date to the mid-1800s. This doesn’t mean the structure dated to that period, just that someone put in nails of that period into the wood. If you remove that structure from the equation then a larger wheel could have been used. But current thought is that it dates to 1810-11, and that limits the size of the waterwheel to less than 13 feet.

** Normally you don’t want the bottom of a waterwheel in standing water since the water provides resistance to the wheel, slowing it down and if too much, stopping it. A breastshot (and undershot) wheel is slightly tolerant of this (backwater) since the bottom of the wheel moves in the direction of the water flow. But ideally, the bottom of a waterwheel should never be in standing water since it reduces the power the wheel can produce.

Wheel-Pit – a puzzling feature discovered during archaeology is that there is a hole below the waterwheel, referred to as the wheel-pit. It’s puzzling since there is no logical explanation for its existence. The bottom isn’t definitively known (it was never fully excavated), but it is at least as deep as 90.46 MASL, making it 0.84 m (2.76 ft) below the bedrock level of the tailrace (4.5 feet below the present level of Lower Beverley Lake). The waterwheel couldn’t have been sitting in it for the reasons described in the previous section (standing water). Plus with our assumed size and position of wheel, the bottom of a 12 foot wheel would be well above this area. Outside of a useful, presently unknown reason for the pit, there are a few speculative explanations. It could have been a design error, excavating to the low (no dam) level of Lower Beverley Lake (90.37 MASL) before it was realized that Lower Beverley was normally a lot higher. This supposition is based on the fact that they didn’t excavate the entire tailrace to that depth which they would have if the normal 1810 level of Lower Beverley Lake was closer to 90.37 MASL than its current 91.82 MASL. Alternatively it could be simply a blasting error, or the overeager excavation of loose material (we see evidence of that on the east side of the waterhouse area), or some other reason.

Another possible explanation is that it has nothing to do with the waterwheel, but maybe for the placement of a turbine in the waterwheel raceway (either as a third turbine or before a decision was made to put in 2 turbines in a purpose built area). The seating of the turbines in the turbine shed are not that low, so it’s a less likely explanation.

A second puzzling feature of the wheel-pit is that it contains a lot of 20th century fill, discovered during the 1994 archaeology – specifically “Large pieces of asphalt were uncovered in this lot along with chunks of water deposited clay, wire nails, coffee cup lids and pieces of plywood”. The 1994 archaeology associated those items with the demolition of the stone bridge (and presumably asphalt deck) in 1963. How or why that material ended up in the wheel-pit inside the mill is a mystery – particularly since the headrace entrance was assume to be sealed with concrete at that time.

Waterhouse – was there an enclosed waterhouse for the water wheel? It’s a feature of an Oliver Evan’s automated mill and archaeology showed that there was originally a door on the outside (south) wall adjacent to the wheelpit, very similar to one show in Evans’ design as leading into the waterhouse. It was a window prior to restoration, but it was put back to its original door configuration. This door may have led into an enclosed space, the waterhouse. So while a waterhouse is speculated, it is uncertain if one actually existed in the Old Stone Mill – there is little directly supporting archaeology. However, given how closely the mill follows the Oliver Evans design, it is likely there was one. It would have been made of wood (most likely white oak)
and would have sealed off the waterwheel area from the rest of the mill (one of the reasons there is a door leading into it from the back wall). Some period references indicate that there would have been a fireplace, or fire area inside the waterhouse to keep it heated although no evidence of that exists today.

One of the reasons for the door to the waterhouse (noted by Oliver Evans) is to access the far side of the axle of the waterwheel to check the gudgeon and bearing surfaces and lubricate as necessary. That side of the axle wouldn’t be easily (or at all) accessible from inside the mill with the waterwheel in motion.

The waterhouse would have been removed when the waterwheel was removed to recover that space (the husk may have been extended into that area to be closer to the turbines).

**Husk** – the heavy wooden foundation on which the millstones sit was much higher than our present husk, almost to the level of the second floor. This allowed for clearance for the shafts and gearing from the waterwheel as shown in Oliver Evans’ guide. The husk may have been changed in 1837-38 when a 3rd run of stones was added. It may have been changed again in the 1860s when the turbines were installed (allowing for an expansion of the husk into the area formerly occupied by the waterwheel) and then lowered in about 1922, down to 1st floor level in preparation for the chop mill (feed grinding). Both research evidence and the Oliver Evans design point to the original husk elevated to just below the 2nd floor (there was originally no floor over the area of the original husk – we can see that from the 2 storey high support column and the positioning of the floor beams). However we have no direct archaeological evidence of the exact positioning of the original husk (other than the apparent lack of a 2nd floor in that area), but it would have been 5 to 6 feet or so above the present first floor level (Evans’ shows three steps going from the husk up to the 2nd floor). With the axle of the waterwheel at about 94.0 MASL and the bottom of the present 1st floor at about 94.8 or so, there would have been no room for the required gearing if the husk was at first floor level. So not a mystery that it was elevated (it must have been), just a little bit of a mystery regarding its exact elevated position.

**Raceway** – was the waterwheel raceway open, the water flowing over bare bedrock or was there a wooden sluiceway (flume) that directed the flow to the water-wheel? A wooden structure at the upstream (headrace) side of the wheel-pit may have been a water control structure or it may just be a support structure (only bits of it remain today). In the 1994 archaeology report it states “The post [for the water control structure] may also have been used as support for some sort of raised wooden sluice way along the mill race or a wooden wall along the east side of the wheelpit where the bedrock is very irregular.” It would have been anomalous not to have had a flume, it was a conventional feature of any waterwheel mill, a flume or sluice always led to the wheel. We do have a bit of oblique evidence for a flume, if you look at the foundation plan of the mill (Appendix A), you’ll see that the waterwheel raceway is not straight – that is support that a wooden sluiceway (flume) must have been used to control the volume and direction of water flow. It was also part of the Oliver Evans’ design, he recommended a penstock and a “shute” to direct the water flow to the wheel (see the breastshot wheel images in Appendix C). So we’re pretty certain there would have been a flume inside the raceway.

**North-South orientation of the mill** – a mystery of the mill is its exact north-south orientation, something that appears to have been very deliberately done by the builder of the mill (presumably the millwright). That orientation actually skewes the mill by about 5 degrees from the orientation of the waterwheel raceway which was the first thing to be built (the mill walls and the raceway should be parallel to each other, but they are not). Why? The answer may be in freemasonry beliefs since it faces the entrance door to the mill due east. This goes back to a belief that the
tabernacle which housed the Ark of the Covenant had one entrance door which always face due east (original tabernacle was a big tent). It was noted in a memoriam to Ira Schofield that he was “a most zealous freemason” – it is likely that William Jones and the millwright who designed and built the mill were too.

**Buffer Wall** – archaeological evidence points to a buffer wall being against the north face of the mill for most of its operating life (extending out from the mill wall by about 2.2m / 7.2 ft – that figure derived from the documented position of the base of a trash grate which was located at the front face of the buffer wall). But when exactly was it first installed? One thought based on the way some of the bottom stones were keyed to the mill foundation is that it was original to the 1810 mill. But it could have been installed later. The archaeological evidence points to a buffer wall being in place prior to the turbine shed being built. It may have been done to incorporate the trash grate, to prevent debris from entering the head gate – perhaps to solve a problem of the headgate getting jammed with trash. A trash grate at the front of the buffer wall did exist (the base of it was found during archaeology in 1999 and the grates can be seen in early photos of the mill). A head gate at the top end of the headrace (entrance into the mill) appears to have existed based on archaeology. There are several possible configurations but the most likely appears to be a buffer wall with a trash grate in front of a wooden chute through the buffer wall leading to the headgate of a flume in the mill’s raceway. It seems most likely that the buffer wall was original to the mill, but it could have been added later – so the chronology remains a mystery.

**Turbines:** we (DMS) have used a date of c.1860 for the building of the turbine shed and the installation of turbines. Some people have suggested they may have been installed later. In the archaeology reports they quote an 1861 date but state that this date came from the DMS – the origin of that date is presently unknown. Most agree that the early 1860s is the most likely period – so using c. early 1860s (plural, indicating the decade) is best.

**Turbine Tailrace:** William Trick (Conservation Report) questioned the open archway for the turbine tailrace – according to Trick it’s a configuration better suited for a waterwheel than it is for a turbine. He suggested that the turbine shed might have originally been built for a waterwheel with the turbines added later. An internet search shows that an arched tailrace was common in old turbine stone mills, usually partially sealed with wood. The reason for this was to create a secure opening in the stone wall, masons of the period appeared to be most comfortable building arched opening to prevent the collapse of the opening. Later steel supports became more common, allowing for a wide low horizontal opening without an arch.

**Waterwheel to Turbines:** How was the switch made? Something that is currently niggling your author is that the two earliest photos we have of the mill, the R.E. Denaut early 1870s photo and the c.1880 photo, both appear to show an open trash grate in front of the waterwheel raceway (in addition to the turbine raceway). These are time periods when the flow of water should only have been through the turbine shed. So why is there still a trash grate in front of the waterwheel raceway, 20 years or more (in the c.1880 photo) after the mill switched to turbine power. It implies the waterwheel raceway was still open. There may be a perfectly reasonable explanation for this (including misinterpretation of the photos) – but none jump to mind at the moment.

**Internal Building Configuration:** As noted in the Mill Building section, the internal configuration of the mill has undergone many changes. Different floor configurations, changes to the husk elevation, changes in support column positions, many different chute configurations – it was a dynamic building as it was adapted to different systems. The conservation reports note some of
these with speculation on why certain changes might have been done – but for the most part we
don't know the exact sequence or extent of these changes – just that many changes were made
over the years. You'll see lots of evidence of that in the support beams, spots that clearly show
where former columns, now long gone, were mortised into the beams. In one spot we even see a
large section of support beam removed, presumably to provide room for some new equipment
(see if you can find that location in the mill). We have some problems though, during early,
undocumented rescue conservation (1972-75) a large part of the first floor was repaired/replaced,
obscuring evidence of the location of original chutes and equipment.

We have some speculation by André Scheinman (1996 conservation report) about some
configurations, but we don’t have a well documented chronology of all the changes that have
taken place inside the mill.

**Original Process Flow:** An Oliver Evans’ mill could be configured in several different ways. We
have the general flow (weighing, grain elevator to top floor, cleaning, storage or directly to
millstone hoppers, grinding, flour elevator to top floor, hopper boy, bolters (2nd floor), packing (1st
floor)). But what about conveyors, drills and descenders? Those were machines to move grain
or flour horizontally or on a downward slope. The most obvious use of those is the movement of
grain from storage since the storage was not necessarily directly over chutes leading to the
millstones. For instance, if the accordion lath plastered section at the north end of the 3rd floor
really was for the storage of cleaned grain, conveyors were likely needed to move the grain from
the cleaners (which were also on the 3rd floor) to that storage area and then back again to the
hoppers above the millstones which were on the husk located against the south wall of the mill.

But how exactly did it all work and how was it all connected (all the power to those machines was
the direct connection of wooden shafts and wooden gears). We know the general configuration
but the exact configuration of the early mill remains a mystery.

**Production:** How many barrels of flour a day did/could the mill produce? No records of early
production have been found. Of the known records, peak production was in 1860 with the
production of 6,000 barrels of flour. But even that doesn't tell us daily production capacity since
we don’t know how many operating days that represented. You’ll find speculation about this in
“Building the 1810 Old Stone Mill in Delta, Ontario” but as noted there, there are too many
variables to make any kind of firm determination. It is worth considering though and may well be
a question that is asked. It can be broken down into several components, all relating to how
gristmills work:

1) **How many days a year did the mill operate?** There are two main variables, the availability
of water and the availability of grain. There is no definitive answer for this, as a guess it would be
some number under 200 days a year.

**Grain:** The wheat harvest was in the fall, it’s unclear when in this area when the planting of
winter wheat (harvested in early summer) started (allowing for two crop harvests) – most
likely much later in the 1800s. The 1810 mill would only have benefited from a single
harvest period. Grain, if cleaned and dried, could be stored for some time, so the main
determination is how much grain was available overall. We have no figures for early grain
production in the region, the first full numbers come with the 1851 census. Early settlers in
this area were able to clear their land at a rate of 2 to 5 acres per year (basically one guy
with a felling axe). By 1812 the area had been settled for a maximum of 18 years, so it
wasn’t a huge amount of acreage under tillage. And only some of that was for wheat
(although at the time, it one of the main crops). 1812 Kitley had 57 heads of families (~250
people). The population of Bastard was a bit higher.
Water: The other issue is water, when the water was low, the mill couldn’t operate. In some years that could have gone from mid-summer to mid-fall. The early 1880s photo we have shows the mill not operating, the water is too low. In low water, the mill would shut down until the millpond came back to a level in which the mill could operate. The miller would wait until there was sufficient water to run for at least a few days – he’d have experience with his millpond (in this case, Upper Beverley Lake), knowing the season and how fast the lake would replenish.

2) How many hours in a day did the mill operate? We generally assume that mill operated with a 10 hour day. Evans describes an automatic mill working 24 hours a day (with a miller always on shift), but the Old Stone Mill didn’t have the need for that. Plus operating during daylight hours was preferred since it was fairly bright in most of the mill (light into the mill is the main reason for all the windows in the mill) – candles and lanterns didn’t produce a lot of light and could be problematic in some areas of the mill (fire risk due to grain and flour dust). It also likely operated 6 days a week (taking Sunday off).

3) How much flour could the millstones produce: This has several variables including how much wheat per hour could the stones grind and what percentage of fine flour was produced. We actually have a good answer for the latter question – it’s a number in the 63% range. Our miller, Chris Wooding, has done this calculation. When he mills hard red spring Red Fife wheat (15.8% protein) he gets 62.5% fine flour, 25% middlings/shorts and 12.5% bran. Oliver Evans also did this calculation for various types of wheat (white and red). His numbers for fine flour ranged from 59% to 67% with an average of 63.3% - almost exactly what Chris gets with his Red Fife. To throw a monkey wrench into this is that Evans recommended regrinding the middlings, if that was done, part of the 25% middlings/shorts would be converted to fine flour. So that might up our 63% to 70% or more.

If we assume 63%, then 5.2 bushels of wheat would be required to produce 1 barrel (196 lbs) of fine flour. If we assumed 70%, then only 4.7 bushels of wheat would be required per barrel of fine flour.

So then we have to look at how much can be ground per hour. Chris Wooding has our current numbers. With our stones rotating at about 92 rpm, he can process 150 lbs (2.5 bushels) of wheat per hour. Keep in mind that Chris’ main aim is to produce top quality flour, he wants a proper grind without heating the flour, hence a slow rotation rate and slow rate of feed. When we look at period (1812) mills, the stones rotated faster, but we don’t know the exact number. A common number for 4 foot stones is 120 rpm (Evans used 97 rpm for a 5 foot stone, 4 foot stones could be rotated faster since they didn’t weigh as much). It was up to the miller, it depended on the type of wheat he had (how hard), the type of millstone, the dressing condition (how sharp) of the millstone and the quality of flour being produced. The few numbers seen in the literature range all over the place, from 5 bushels per hour to 10 bushels per hour. If we assume 7.5 bushels per hour, then with a 63% percent return, each set of stones would make about 1.5 barrels of flour per hour. With 2 stones in operation we’d get, 3 barrels per hour, or 30 barrels in a 10 hour day. But it’s a lot of assumptions (hourly production, hours in a day, were both sets of stones always operating together - ??)

Production Answer: As seen from the above, there is no definitive answer. We know the mill operated with 2 runs of stones (assessed for 2 runs), and if both of those were used at the same time, we might assume a production rate in the 20 barrel per day range with a likely maximum of 30 barrels per day. Those would be the ballpark numbers.

People: we have the basic information about the mill ownership (see Mill Owners in the Chronology section), but there are still many outstanding questions. What was the business
relationship between William Jones and Ira Schofield as it related to the mill? Who were the actual people that built the mill? These and many other people questions have been lost to history. The one name that may have a bit of credibility is “the great-grandfather of L. Hill” who worked as a mason in building the mill – we don’t have his name (yet), but we know that L. Hill is Leonard Hill, born in 1877 (and right now it’s leaning to a great-grandfather on his maternal side).

William Jones and Ira Schofield – as noted previously, we don’t know the exact relationship between the two, or their exact involvement in building the mill. At the top of the main door there appears “William &” with the remainder painted or washed out. Maybe William & Ira? – with Ira removed when the partnership dissolved in about 1820? Another mystery.

Iron in the mill – are there any iron items in the mill that were forged at Lyndhurst? In a letter (c.1815) William Jones wrote about the furnace at Lyndhurst and noted “Likewise the Wrought Iron Works were made to produce 4 [hundredweight] per Day consisting of bar Iron, Mill Irons, Plow Irons &c.” (Lockwood, p.66) – note the reference to mill irons. The foundry burnt down in 1811 which was the same time the Old Stone Mill was being built. They could have sourced iron items for the mill from the foundry in 1810. So there is a likelihood that some of the iron in the original mill, perhaps some of the original nails that still exist today, or even the fittings for the main door, could have come from the Lyndhurst foundry.

Quarries – where were the stones for the Old Stone Mill quarried? There are lots of anecdotal stories regarding this, it’s uncertain which, if any, are true. What we do know is that stones that make up the mill are predominantly Potsdam sandstone, plus some local “marble” (crystalline limestone) used as corner pieces. Potsdam is defined as a geological age, generally mid to late Cambrian, the rocks in this area about 485 million years old. They lie uncomfortably on much older pre-cambrian rocks, that is, they were deposited (as shallow marine sediments, beach sands and such) on top of much older rocks that had undergone hundreds of millions of years of erosion. They are made up of many depositional layers, some of those layers are better than others at forming building stones. So while there is lots (and lots) of local Potsdam sandstone, layers that contain stone of building quality are much rarer.

We can see that the masons were not overly selective, although the stones in the original Old Stone Mill are of better quality than those used for the turbine shed. We do have a bit of clue, many of the stones contain trace fossils, or more correctly traces of the tubes left behind by worm like creatures. A geological tour guide describes these as “the best array of Potsdam trace fossils available anywhere” There are vertical tubes known as Skolithus and U-shaped burrows known as Diplocraterion visible in many of the stones. Since you can tell the orientation by the shape of the tubes it was noted that many of the stones in the mill are upside down in terms of their original orientation. So the original quarry (or quarries) would have contained abundant stones with these fossil traces.

One previously suggested location is Willow Mountain, at the north end of Lower Beverley Lake. The lake is surrounded by older pre-cambrian rocks which also make up Willow “mountain”, so while that could have been a location for some of the marble, it would not have been a location for Potsdam sandstone. Some suggest it was near Philipsville, that is a possibility (we do know of local quarries used for church building stones in that area) – an early road in the area is the one that goes through Philipsville (heading to Rideau Lake), it could have been used as a haul road. Some have suggested sandstones on the east side of Lower Beverley Lake (there are old quarries there although the known ones appear to date to later periods). Another possible source are local farmers who may have been paid for suitable stones brought in from their lands (in which case we’re looking at multiple spots). We know that builders would have preferred stones
sourced as close to the mill as possible (due to the difficulty and expense of hauling them) – but we really don’t know where exactly.

Of interest is that iron for the furnace at Lyndhurst likely came from iron rich layers in Potsdam sandstone located between Delta and Lyndhurst. The rocks for the local locks of the Rideau Canal (Jones Falls, Davis and Chaffeys) also came from Potsdam sandstone, a quarry just north of Elgin. It’s to be noted here that “quarry” doesn’t mean a big hole in the ground, in the case of the Elgin quarry (Halladay’s Quarry) – they were mining one or two layers of sandstone over several kilometres, so wide in area, not deep. Those stones are of superb building quality, better than the ones used for the mill.

**Millstones:** What type of millstones were first used in the mill? Were they French burrstones? Did Jones and Schofield re-use the 2 sets of stones that were in Abel Steven’s mill (bought by Jones in 1808)? Even if the Stevens’ mill burned, the millstones might have survived. Millstones were often reused (they were very valuable). It seems likely that given the scale of the stone mill and it purpose as a merchant mill (requiring high quality flour), that French burrstones were used. We know that granite stones were also used, but they may have come later when grinding softer materials (corn, oats) for animal feed became common (burrstones are the best for wheat).

Were the millstones completely abandoned after the roller mills were installed? We do see photos taken in the 1900-1905 period that show millstones sitting outside the mill (presumably no longer in use). Gord Grey, who worked for Hastings Steele, in an oral interview in the 1970s (transcribed by Kim Proud) said that he remembers the last set of stones to be in place, he describes as solid rock bedstone (a granite stone) with a sectioned banded stone (French burrstone) as a runner stone. He then goes on to say that “they never ground any in my time there with the stones.” In the same interview, Grey says that he remembers Hastings Steele selling a French burrstone (an iron banded stone) to someone in Newboro.

**Mill Drive Shed:** there are two mysteries here – when was it built and was the drive shed portion and the brick upper hall built at the same time. They are vastly different architectural styles so an initial conclusion, based simply on that fact is that they were built in two different time periods (kww in consultation with Sue Warren). In “My Own Four Walls” it puts a date of 1849 on it as well as it being built by Walter Denaut. Denaut didn’t buy the mill until February 1850 so either the date is wrong, or the fact that it was built by Denaut is wrong. That same reference has it that the brick upper storey was added later (reason for that conclusion not stated).

Perhaps the stone carriage shed was built by the Macdonells (1849 date) and then Walter Denaut added the brick upper storey during his renovations (he did massive renovations in 1851 – but we have no details on the work, just the assessed value of work at £2,600. What was that work? – we have the turbines as early 1860s, so, if that’s correct, it wouldn’t have included the turbine shed and turbines. Perhaps it includes doing the brickwork for the hall above the carriage shed?

There was a brickyard in town – we know that the Old Town Hall was built (1879-80) using bricks made by Jasper Russel, there is a reference (Masonic Lodge files) of Jasper Russel offering bricks at $4 per 1,000 in 1879 (that price was accepted). When did the brickyard start? We also have the name Johnny Brown associated with brick making in Delta (perhaps a partner of Jasper Russel?).

If you know the answer (full or partial) to any of these mysteries, please let us know so that they can be incorporated into the next version of this manual.
Feel free to list your own mysteries and don’t hesitate to ask questions to any of the DMS history “experts” – we won’t be offended. These might be avenues for future research.

**List your history mysteries here:**
## A FEW GOOD NUMBERS

<table>
<thead>
<tr>
<th>Location</th>
<th>MASL</th>
<th>FASL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Beverley Lake</td>
<td>94.53</td>
<td>310.1</td>
</tr>
<tr>
<td>Current Mill Pond</td>
<td>93.12</td>
<td>305.4</td>
</tr>
<tr>
<td>Lower Beverley Lake – post-Lyndhurst dam (current level)</td>
<td>91.82</td>
<td>301.2</td>
</tr>
<tr>
<td>Lower Beverley Lake – pre-dam minimum (bedrock above rapids)</td>
<td>90.50</td>
<td>296.9</td>
</tr>
<tr>
<td>Waterwheel Headrace bedrock high</td>
<td>92.26</td>
<td>302.6</td>
</tr>
<tr>
<td>Waterwheel Tailrace bedrock high</td>
<td>91.30</td>
<td>299.5</td>
</tr>
<tr>
<td>Turbine Headrace bedrock high</td>
<td>92.90</td>
<td>304.8</td>
</tr>
<tr>
<td>Turbine Tailrace bedrock high</td>
<td>91.20</td>
<td>299.2</td>
</tr>
<tr>
<td>Bedrock south of mill tailraces (about 2 m south)</td>
<td>90.00</td>
<td>295.3</td>
</tr>
<tr>
<td>Wheel-pit depression (bottom)</td>
<td>90.46</td>
<td>296.8</td>
</tr>
<tr>
<td>Wheel-pit length (from gate/support timbers in raceway to south wall)</td>
<td>4.03m</td>
<td>13.2ft</td>
</tr>
</tbody>
</table>

* MASL = metres above sea level. FASL = feet above sea level

A few more numbers:

Upper Beverley Lake level to current millpond level: 1.41 m (4.62 ft)
Upper Beverley to Headrace Bedrock: 3.13 m (10.27 ft)
Headrace to Tailrace difference in elevation: 0.96 m (3.15 ft)

Historic Lower Beverley water level at base of mill: 90.50 masl low to 91.85 masl high

Postulated water wheel axle = 94.53 masl - Lowest possible = 93.70 masl (Moore, p.29)

Head of Water – the maximum head which is the level of Upper Beverley Lake (94.53) to the bedrock in the tailrace (91.30) is 3.23 m (10.6 ft). But that maximum head is unlikely, the depth of water over the tailrace is presently 0.52 m (1.7 ft) and that would be the case as long as a dam at Lyndhurst was present. Today there is a 2.7 m (8.9 ft) difference between the two lakes. A “best guess” of a net head of about 2.1 m (7 ft) is generally assumed. A 1949 letter to Steele about new turbines used a net head of 7 feet. The placement of turbines (c. early 1860s) is consistent with the current tailwater level (the current level of Lower Beverley Lake)
### Size of the Old Stone Mill
(numbers from conservation reports and direct measurements)

<table>
<thead>
<tr>
<th>Location</th>
<th>MASL*</th>
<th>FASL*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor – Turbine Shed</td>
<td>95.33</td>
<td>312.76</td>
</tr>
<tr>
<td>First Floor Mill</td>
<td>95.36</td>
<td>312.85</td>
</tr>
<tr>
<td>Second Floor</td>
<td>98.29</td>
<td>322.48</td>
</tr>
<tr>
<td>Third Floor</td>
<td>101.0</td>
<td>331.35</td>
</tr>
<tr>
<td>Attic Level (approx)</td>
<td>103.8</td>
<td>340.55</td>
</tr>
<tr>
<td>Eaves - bottom</td>
<td>103.5</td>
<td>339.57</td>
</tr>
<tr>
<td>Peak of Roof</td>
<td>106.5</td>
<td>349.41</td>
</tr>
<tr>
<td>SW Corner – base near tailrace exit</td>
<td>91.80</td>
<td>301.18</td>
</tr>
<tr>
<td>NW Corner – base near waterwheel headrace</td>
<td>92.26</td>
<td>302.69</td>
</tr>
<tr>
<td>SW Corner (rear left) – height to eaves</td>
<td>11.70</td>
<td>38.39</td>
</tr>
<tr>
<td>Height of Building – front face – S Corner (from sidewalk)</td>
<td>11.65</td>
<td>38.22</td>
</tr>
<tr>
<td>Height of Building – front face – N Corner (from sidewalk)</td>
<td>11.08</td>
<td>36.34</td>
</tr>
<tr>
<td>Height of Building – 1st floor to peak of roof</td>
<td>11.14</td>
<td>36.55</td>
</tr>
<tr>
<td>Height of Building – back of building – foundation base to peak</td>
<td>14.70</td>
<td>48.23</td>
</tr>
</tbody>
</table>

* MASL=metres above sea level. FASL = feet above sea level
OUR NATIONAL HISTORIC SITE DESIGNATION

In 1970 (listed as January 1, 1970) the Old Stone Mill, including the turbine shed, was designated a National Historic Site of Canada (NHS). We received our NHS plaque, affixed to the front of the mill, in 1973. The NHS designation means that the site is considered to be of national historic significance.

It should be noted that this is simply a designation, recognition of the heritage value of the site to Canada. Contrary to popular belief, our NHS designation doesn’t come with any government support, the Delta Mill Society has to self-fund the preservation, protection and presentation of the Old Stone Mill. There are many NHS sites owned by the Federal government, managed Parks Canada (supported by our tax dollars), but most of the NHS sites in Canada are not. As of 2016, 171 sites were administered by Parks Canada, 976 were in the hands of other levels of government (i.e. municipalities) or privately held (i.e. Delta Mill Society). With the privately held NHSs, it is the keenness and hard work of the volunteers in the organizations that own these sites that keep them protected and presented. The Delta Mill Society is a shining example of such a private organization (see “Commemorative Integrity” following this section).

The following is our official NHS designation:

Description of Historic Place

The Old Stone Mill National Historic Site of Canada is a three-storey high stone, grist mill comprised of an 1810 mill and an attached turbine shed, built in the 1860s. The Old Stone Mill is a water mill located on Delta Creek in the small village of Delta, nestled between Upper and Lower Beverley lakes, in the Rideau Lakes area north of Kingston. The formal recognition refers to the mill structure including the turbine shed.

Heritage Value

The Old Stone Mill was designated a national historic site of Canada in 1970 because:

- it is one of the oldest surviving mills in Ontario;
- it is a fine example of early Canadian architecture;
- it is a reminder of the pioneer industrial development of eastern Ontario.

Built in 1810 by William Jones, the Old Stone Mill in Delta is the earliest surviving stone mill in Ontario. The mill features high-quality stonework and was technologically advanced for its time. The building’s height, scale, and roof truss configuration were designed to accommodate the Oliver Evans automatic milling system, a late-18th-century innovation that improved the movement of grain through mill buildings.

Typical of early-19th-century mills in eastern Ontario, the Old Stone Mill played an important role in the settlement and economic development of Leeds County. The existence of the mill encouraged agricultural settlement in the area and led to the development of the village of
Delta. The mill was in continuous use from 1810 to 1949. The replacement of the original waterwheel with cast-iron turbines in 1860 (housed in a new turbine shed), and the instalment of roller-milling machinery in 1893, showed the mill’s attempts to remain commercially viable in the late-19th century.

Sources: Historic Sites and Monuments Board of Canada, Minutes, February 1970; Commemorative Integrity Statement, January 1999.

Character-Defining Elements

Key elements contributing to the heritage value of this historic site include:

- its location;
- its three-storey, rectangular massing [we’re not sure why three-storeys is used, the “attic” was floored and used, so it is in fact a 3 ½ storey high building];
- its composition of five-bay façades with three-bay end elevations;
- the industrial design elements related to the automatic milling process, including the three-storey height of the building, the raceway, window arches, and the scale and configuration of the floor;
- the surviving original structural and ornamental details, interior fittings, and finishes;
- the elements of its layout which relate to the early industrial use of the building, including its open spaces, and circulation patterns;
- its masonry construction with exterior walls of uneven coursed local stone with heavy stone corner quoins;
- its neo-classical, exterior detailing, including its bays trimmed with graceful, segmentally arched, stone voussoirs, and the return eaves at gable ends;
- its roof truss system;
- its virtually intact upper floor;
- the remaining mill workings and machinery including the 1869 [should be 1860 – presumably a typo] turbine drive system;
- any archaeological remains, including the basement, raceways and areas adjacent to the foundation of the structure relating to the early 19th-century occupation and operation of the mill;
- any vestiges of and signs of wear from 19th-century milling machinery.
COMMEMORATIVE INTEGRITY

A concept, developed for Parks Canada’s administration its National Historic Sites, is Commemorative Integrity (CI). It’s a bit of an ethereal concept relating to the health, wholeness and honesty of the commemorative elements of the site. Those would include the heritage values and character defining elements of the site.

A national historic site possesses commemorative integrity when:

- the resources directly related to the reasons for designation as a national historic site are not impaired or under threat;
- the reasons for designation as a national historic site are effectively communicated to the public, and;
- the site’s heritage values (including those not related to the reasons for designation as a national historic site) are respected in all decisions and actions affecting the site.

The heritage values and character defining elements include both the built heritage (i.e. buildings) and the landscape those buildings are positioned on – both speak to the heritage of the site – why the building is where it is and why it looks like it does. Part of your job as a tour guide is to communicate that to the public and by doing so you’re helping to maintain the Old Stone Mill’s commemorative integrity.

What counts when it comes to CI is not what is written but what actually gets done and this is where the Delta Mill Society has always shined brightly, its volunteers following CI principles even if they’ve never heard the term. We’ve been presenting the Old Stone Mill to the public since 1983 (except for the time it was closed for restoration). We’ve raised hundreds of thousands of dollars in order to do restoration, purchase equipment and develop interpretive signage and exhibits. We maintain a collection of artefacts and document following proper curatorial principles.

Bottom line with all these wonderful words and heritage concepts as they relate to the OSM is that it’s not what you say, it’s what you do, and the DMS have always been, and will continue to be, a group of doers – preserving, protecting and presenting the Old Stone Mill NHS.
OLD STONE MILL – Statement of Significance

Note: this was written a few years ago and contains several errors of historical fact (see if you can find them all) and is too building architecture centric when it comes to character defining elements (our NHS designation has a much better list). Do NOT use this for interpretation - kww

A requirement for having the Old Stone Mill listed in the Canadian Register of Historic Places is to have a Statement of Significance, and the following is what was written for the Old Stone Mill:

DESCRIPTION OF HISTORIC PLACE

The Old Stone Mill is a three and a half-storey rectangular stone structure with classical proportions and a long facade, located on Main Street in the Village of Delta. Currently owned and operated by the Delta Mill Society which has conducted a number of restoration projects and sponsored a series of public exhibitions.

The Township of Bastard and South Burgess recognizes the heritage values of the Old Stone Mill in Delta in By-law No. 477.

HERITAGE VALUE

This stone mill was constructed by 1810 under the ownership of William Jones. It stands as one of the oldest remaining mills in Ontario and is a lasting reminder of early settlement and pioneer architecture in Delta. Serving as the focal point for economic development in Delta in the early 19th century, the mill employed the most advanced mill technology of the time, using Oliver Evan's book on automatic milling, published in 1795, as a guiding source for operations. The mill soon became the centre for local industry in the Village of Delta and surrounding areas.

Construction of the mill began shortly after the first settlers arrived in the Delta area in 1796. Between the late 1790s and completion of the mill in 1810, a number of businesses and services in Delta were well underway. During this time pioneer trades and crafts, general stores, a variety of smiths, hotels, a tannery, distillery, foundry, brickyard, cheese factory and even a hospital emerged. This development was centered around the Old Stone Mill and its accompanying dam on Upper Beverley Lake. The technological innovation used at the Old Stone Mill and its resulting economic stimulation served and impacted the nearby villages and communities such as Chantry, Elgin, Forfar, Harlem, Jones Falls, Lyndhurst, Morton, Philipsville, Plum Hollow, and Portland. The Old Stone Mill also spurred the development of a local distillery in the Village of Delta, which produced 15,000 gallons of whiskey and subsequently became the site for the first temperance sermon in Canada.

The Old Stone Mill embodies social and cultural values as it has been documented as a place that cultivated community congregation through the adjacent horse shed and concert hall. The adjacent horse shed served to house the horses of patrons while they shopped at the mill. A second-storey room in the shed was used as a courthouse, school, and meeting room. This meeting place allowed patrons an opportunity to discuss the affairs of the day, both local and global. The concert hall located adjacent to the mill also served as a courtroom and a meeting place for the township council. This concert hall is now operated as the Museum of Industrial Technology.
A landmark for pioneer architecture, the Old Stone Mill is a fine example of an early Georgian Industrial architectural style and is reputed to be the second oldest building of its type in Ontario.

**Sources:** Township of Bastard and South Burgess By-law No. 601; Diane Haskins, My Own Four Walls: Heritage Buildings in Bastard and South Burgess Township, Council of Bastard and South Burgess Township (1984); Rideau Lakes L.A.C.A.C, “Heritage Tour of Delta” (2002)

**CHARACTER-DEFINING ELEMENTS**

Character defining elements include the:

- stone exterior
- low-pitched, gabled roof covered with wood shingles
- projecting eaves and verges along the roofline
- segmental, double-hung windows with a twelve-over eight panes
- stone voussoirs above the windows and doors
- plain wood trim around the windows and doors
- recessed doorway in the centre of the front facade
- segmental structural opening on the doorways on the front facade
A BRIEF CHRONOLOGY OF DELTA and the OLD STONE MILL

- 1793 – Abel Stevens journeyed from Vermont to Canada and explores the area around Plum Hollow Creek in June. He petitions the government for land in that area in December 1793. He might have known about the area from his older brother, Roger Stevens, who settled on the Rideau River near Merrickville in 1790 and built the first mill there.

- February 1794 – Abel Stevens together with six families (his own and 5 others) journey from Vermont to the Delta area. They build a rough road from Brockville to the Plum Hollow area for their oxen drawn wagons. Stevens is said to have had a yoke of oxen, a cow and a horse along with his family and household possessions. He also brought in mill irons. The families settled on the upper parts of Plum Hollow Creek. Stevens petitions for all the land around Delta. They are squatters, surveys have yet to be done, no land has been granted. Stevens is after both the land around Delta, including the water power of the rapids, plus the Great Falls at Lyndhurst and the iron deposits in the area (his main objective in fact, one he was never to obtain). The iron and falls were previously known, they were first sought after by Edward Jessop back in 1784.

- Summer 1794 – surveyor William Fortune runs first survey lines into area what was to become Bastard Township.

- March 1795 – Stevens lists names of 24 heads of families who he has settled in the area (to reinforce his petitions for land grants). His is identifying his location as Stevenstown in these petitions (in reference to the township, not a village). He notes in some petitions that he has brought in “mill irons” and is ready to erect a mill.

- 1795 – surveyor Lewis Grant does initial surveys in the area (from Gananoque up to Sand Lake on the Rideau).

- 1796 – sufficient surveying of Bastard Township is done by Lewis Grant to allow Stevens to be granted his land.

- 1796 – Stevens is granted land on June 2, 1796 which includes the rapids between Upper and Lower Beverley lakes (he was granted 5 lots; 3 in area of Delta, 2 over the upper portion of Upper Beverley Lake, which nominally would have been 200 acres each, 1000 acres in total – but the land grant shows 700 acres due to some of the land being covered with water). At some point after this, Abel Stevens, or his cousin William Stevens, build a wooden sawmill at the rapids. The mill is noted in Grant’s 1797 survey as “Wm. Stevens Mill”.

- 1796 to 1798 – at some point in this time period Stevens has a road built from Delta to Lyndhurst (he’s still after the rights to the Great Falls and iron deposits near Lyndhurst).

- 1797 – Lewis Grant completes his survey of Bastard Township and produces a map – it is the first known map that shows a mill in Delta.

- 1797 to 1803 – at some point Stevens adds a grist mill to his sawmill (most likely powered by the same waterwheel). A 1799 deed references “Abel Stevens & Nicholas Mattice mills” (plural mills). Mattice was either a business partner or lease holder with Stevens.

- 1798 – Abel Stevens and Matthew Howard have a road built from Lyndhurst to Kingston Mills (to the front road leading to Kingston Mills). This is part of Stevens’ continued effort to get the rights from the government to establish a foundry at Lyndhurst.

- 1803 to 1808 – Stevens’ mill is leased to Nicholas Mattice. Shows as a grist mill with 2 runs of stones and a sawmill.
• **1808** – there are now two separate mills operating in Stevenstown. The second is owned by Abel Stevens Jr., on property his father sold to him in 1799 – likely located near Hickock pond on Foundry Creek (aka Cowans Creek, aka Robertson Creek).

• **June 1808** – Abel Stevens sells his wooden mill(s) and surrounding property to William Jones for £375.

• **1809** – Stevens’ old grist mill, now Jones’ grist mill, is shown being operated by Ira Schofield.

• **1810** – neither Jones or Schofield are shown operating a mill – however they are shown as operating a Merchant Shop & Storehouse. Speculation is that the old Stevens’ wooden mill burned down sometime prior (maybe late 1809) and this “sparked” the building of the Old Stone Mill. Anecdotal history (Hiel Sliter) has the Stevens’ wooden mill burning down twice.

• **March 1810** – construction of the Old Stone Mill begins.

• **1811** – construction of the stone mill is likely completed sometime this year.

• **1812** – the newly constructed stone mill opens – it has 2 runs of stones and a sawmill (wooden structure behind the mill – needed to be adjacent to get power from the waterwheel in the mill). Ira Schofield is listed as the miller (Jones served with the militia and may have been involved with the war that year – he also got married that year).

• **1812 - 1817** – millers show as either Ira Schofield (1812), William Jones and Ira Schofield (1813-15 & 1817) or William Jones (1816).

• **c.1815** – a map shows the mill’s location as “Jones & Schofield”

• **1816** – Stone Mills is referenced in a letter as having about 20 houses – an 1816 map shows 10 buildings in the “village,” including the Old Stone Mill.

• **1817** – in the Statistical Account of Upper Canada for 1817 the mill is described as “unquestionably the best building of the kind in Upper Canada” That same account shows that the village of Stone Mills had 3 stores and a blacksmith shop.

• **1818 - 1819** – miller shown as James Schofield Jr.

• **1820 - 1825** – miller shown as William Jones.

• **1826** – not operating.

• **1827 - 1828** – J.K. Hartwell & Schofield (James Jr.?) millers.

• **1828** – a map shows that “Beverly is composed of abt. 30 houses”.

• **1829** – ? (no info).

• **1830** – not operating.

• **1830** – marble cutting may have started near this time by Christopher Allyn who moved to Beverley c.1830. The cutter cut marble blanks for use as tombstones. The marble cutter was located in the wooden building housing the sawmill (see note for 1835).

• **1831** – William Jones dies. Mill & property goes to his brother Charles Jones who then sells it (4 shilling) to William Jones’ widow, Amelia. Amelia sells it to Henry Jones (deed for that, £500, not done until January 1836).

• **1832 - 1834** – mill leased to Edward Matson by Henry Jones. Shown only as grist mill (no sawmill listed for Matson – the sawmill was likely leased separately as the 1835 sale notice indicates).

• **1835** – mill put up for sale by Henry Jones – a sale notice dated Sept 17, 1835 states in part “The mills consist of a Stone Grist Mill, 60 by 40 feet, three stories high, with one run of
Stones in operation, and sufficient room to place one or two run more; - a large wooden building in which there is a Saw Mill, a Mill for cutting, and polishing marble, and a Carding Machine:- with Mill Yard and out Buildings; the last mentioned Mills are rented at £50 per annum, the lease expires on 5th March 1837; the Grist Mill is not at present leased or occupied; ...” It is presumed that this is origin of the incorrect dimensions of the mill unless they were including the width of the buffer wall (~7’) – the stone building is 50’ x 35’.

- **1836** – mill purchased by James and Amelia Macdonell (Amelia was the widow of William Jones). Not operating that year.
- **1837 – 1847** – operated by James Macdonell with 2 runs of stones, except for 1838 & 1839 when he had 3 runs of stones. Sawmill reappears in the records in 1844 (likely leased to someone else prior to that).
- **1848 – 1849** – James dies in 1847 and his wife Amelia Macdonell continues to operate the mill.
- **1850** – Walter Denaut purchased the mill in February 1850. He pays of the mortgages on the mill and starts extensive repairs. The mill in 1850 is shown with 2 runs of stones and a sawmill.
- **c.1850s** – Denaut creates Miller’s Room on 2nd Floor.
- **1850s** – Denaut builds a one storey stone carriage shed beside the Old Stone Mill (today’s Mill Drive Shed). A 2nd brick storey is added sometime later (assumption), but prior to 1861 (it shows as a Hall on Walling’s 1861-62 map of Delta).
- **c. early 1860s** – Denaut builds the turbine shed, installs two 48” Swain turbines and rebuilds the wooden sawmill onto the back side of the turbine shed (on top of the bywash). The sawmill is powered by the downstream turbine.
- **c.1870s** – a smutter may have been added to the mill during the Denaut era (uncertain).
- **1889** – Walter Denaut dies (March) and the mill goes to his wife Carolyn. His son, James L.S. Denaut operates the mill.
- **1893** – George Haskin buys the mill for $6,000 on October 5, 1893.
- **1893 - 1899** – likely at some point in this time period, George Haskin installs the Roller Mill. The NHS designation uses 1893 as the installation date.
- **1899 - 1903** – Haskin installs and operates the mill with a steam boiler (located in the north end of the turbine shed). It was likely supplemental power to the turbines (i.e. in times of low water).
- **1904** – for reasons unknown the steam boiler is removed at about this time.
- **1913** – Hastings Steele and James Huffman (brother-in-law) purchase the mill for $8,000 on March 14, 1913.
- **1914** – Steele’s partnership with Huffman is dissolved (apparently Steele bought out Huffman).
- **1914 - 1921** – Steele is in partnership with Omer P. Arnold
- **c.1922** – the husk is lowered, rebuilt at the level of the first floor.
- **c.1923** – a chopper (“Champion Grinder”) to make animal feed is installed.
- **c.1920s** – Drive shed is sold and a forge subsequently installed in it.
- **c.1920s** – Salt shed (to store salt for livestock) built between mill and drive shed.
• **1929** – Steele installs a **dynamo** in the mill when the Lyndhurst power plant is shut down by Ontario Hydro. Likely only lasted until Delta and Lyndhurst were connected to the Ontario Hydro grid (c. late 1929).

• **1939 - 1944** – **flour production ceased** in this period. The mill was producing flour in 1939, but no longer in 1944. Some use a date of **1942** (splitting the difference) as the end of flour production, but the exact year is presently uncertain.

• **1949** – last year the feed mill and sawmill are operated. Of note both were powered by the turbines which were still in operation. Steele continues to operate a feed store.

• **1960** – the **feed store is closed** and the **mill shuttered**.

• c.**1960** – second storey of carriage shed demolished by owner Gordon Grey and replaced with smaller wooden frame second storey.

• c.**1960** – **salt shed** (between mill and drive shed) removed.

• **1962** – **new dam** built upstream of mill by MNR. Mill no longer used as a dam.

• **1963** – the old stone road bridge is demolished and replaced by current **concrete road bridge**.

• **1963** – Hastings Steele deeds the mill, for the sum of $1, to **four trustees**: Mildred Sweet, Albert Frye, Elizabeth Robinson, and Robert Tuck. Steele’s wish was that the mill be preserved and become open to the public as a museum of milling technology.

• **1963 - 1972** – the four trustees remain owners but form an informal **Delta Mill Society**.

• **1968** – floor of **wooden sawmill** collapses – the superstructure of the sawmill appears to have been previously removed sometime prior to this (early 1960s?).

• **1970** – The Old Stone Mill in Delta is designated a **National Historic Site of Canada**.

• **1972** – “**The Delta Mill Society**” is incorporated in Ontario as a non-profit organization and given charitable status on August 17, 1972.

• **1972** – on September 5, 1972, the **mill is deeded** from the original 4 trustees to the newly incorporated “**The Delta Mill Society**”. The incorporation allows work to start on rescue rehabilitation.

• **1972-1975** – **essential structural repairs (rescue rehabilitation)** were carried out on the Mill - this project included general masonry repair, re-roofing with new cedar shakes, jacking of floors to level, replacement of windows, sash and glazing, and structural framing stabilization. Work on this started just after incorporation (Sept 1972).

• **1973** – The Old Stone Mill receives its **National Historic Site Plaque**.

• **1974-75** – MNR seals the old bywash with **concrete**. Part of buffer wall (in front of the turbine raceway) and all elements of original bywash (i.e. stop-log dam) are removed.

• **1978** – The Old Stone Mill is **designated under the Ontario Heritage Act**.

• **1983** – The Old Stone Mill NHS opened to the public as a museum of milling technology and industrial heritage.

• **1992** – The DMS purchases the **mill drive shed** (from Fred and Jane Gray for $22,000).

• **1994-1999** – **Extensive archaeology and research** is done in preparation for a large scale restoration program. Two archaeology reports and a conservation report are produced.
• **1994 (Dec)** – The DMS purchases the **Old Town Hall** (purchase of the land from the Corporation of the Township of Bastard and South Burgess, for $12,000 – building reportedly sold for $1).

• **1999-2003** – **an extensive renovation program** is done on the Old Stone Mill costing $1,171,920 with Parks Canada contributing $466,000, the Province of Ontario $100,000 and the remaining $605,920 coming from the Delta Mill Society. Entire building stabilized, stonework redone, new timbers and flooring where required. Work done based on 1996 conservation report.

• **1999** – The **Old Town Hall is turned into a museum** (Museum of Industrial Technology) while the mill is closed for restoration (exhibits in mill moved to hall).


• **2004-2007** – **extensive interpretive signage** is added to the interior of the mill.


• **2007** – a **wooden waterwheel** (electric sump pump powered) is installed in the mill (cost ~$13,000).

• **2008** – **period milling equipment** (a pair of burr millstones, vat and grain hopper, grain cleaner (Vac-A-Way seed cleaner), smutter and 14 foot long bolter) are purchased by the DMS from Rene Proulx in St. Sylvere, Québec (cost $35,000). DMS launches a “let’s get grinding” fundraising campaign to get these installed in the mill by our 200th anniversary in 2010.

• **2009-2010** – a new exhibit for the 3rd floor is designed and installed.

• **2010** – a **new husk is built** and the **millstones and bolter** (both electric powered) are installed. In October 2010 the mill makes its first stone ground flour in over 100 years.

• **2013** – The **Old Town Hall** undergoes renovations ($104,000: accessible platform elevator, new washroom, commercial-grade kitchen and hall ceiling and floor renovations).


• **2018** – The Delta Mill Society publishes a document **“Building the 1810 Old Stone Mill in Delta, Ontario”**, by Ken W. Watson (as a book and a free PDF on website).
The Owners

As previously noted, in some cases it’s hard to distinguish an owner from a miller (sometimes one in the same, sometimes different) in the historic records. Thanks again to Wade Ranford for figuring this out.

1810-1818: **William Jones** possibly with Ira Schofield. The business/owner relationship between Jones and Schofield is uncertain. Likely that Jones was owner with a business relationship with Schofield – but records are unclear. Schofield left Delta (moved to London, Ontario area) in 1818.

1818-1831: **William Jones.** Leased in 1827-28 to J.K. Hartwell and James Schofield Jr.

1831: **Charles Jones,** then to **Amelia Jones** then to **Henry Jones**

1832-1836 **Henry Jones.** Leased to Edward Matson from 1832-1834

1836-1847: **James and Amelia Macdonell** (Amelia is William Jones’ widow – shown as Amelia Jones above)

1847-1850: **Amelia Macdonell** (a widow again)

1850-1889: **Walter H. Denaut**

1889-1893: **Carolyn Denaut** (Walter’s wife) or **James L.S. Denaut** (Walter’s son – appears that he was operating the mill in this period but it was likely owned by his mother)

1893-1913: **George Haskin**

1913-1914: **Hastings Steele** and **James Huffman**

1915-1921: **Hastings Steele** and **Omer P. Arnold**

1921-1963: **Hastings Steele.** He was assisted by his son, **W.R. Steele** in the 1920s & 30s.

1963-1972: **Mildred Sweet, Albert Frye, Elizabeth Robinson, and Robert Tuck** (as trustees)

1972-present: **The Delta Mill Society**
GLOSSARY OF TERMS

A list of some of the terms specific to mills and milling used in this document. Feel free to add to this list with terms you’re not familiar with, or that you’ve found a visitor is not familiar with.

**Barrel of Flour**: The standard net weight of a barrel of flour (the weight of the flour in the barrel) was set in the U.S. as 196 pounds (sometime in the 1700s). Origins of that are unclear but it is directly equivalent to a weight of 14 stone. A barrel was always referenced as containing “superfine” flour – although it was in reality a mix of fine and superfine (and likely even re-ground middlings).

**Bedstone**: The bottom stone of a pair of millstones. The bedstone remains stationary during the grinding process.

**Bolter**: A machine which separated flour into different grades of fineness.

**Bran**: The hard outer layer of grain.

**Burr Stone** (Burrstone, Buhrstone): A type of siliceous (quartz-flooded) sedimentary rock, locally known as “pierre meulière,” quarried at Ferte-sous-Jouarre near Paris, France, and used to make millstones. The millstones constructed of this very hard stone were of the highest quality. The first reference is in 1614 to “Burrs of Millstones” – the use of the spelling buhr starts in the early 1800s. It’s unclear if “burr” refers to the roughness of the stone – it was this original roughness, due to cavities in the stone, that did the grinding before the idea of cutting grooves in the stones came along – or whether it referred to the individual pieces of stone used to make up the millstone, as later usage of the term suggests.

**Bywash**: a by-pass channel to control excess water flow. A weir (water control structure) is often located at the head of a bywash – usually using “stoplogs” (horizontal timbers stacked on each other that can be lifted in or out of the weir) to control water level.

**Chop Mill** (aka Feed Mill): using a grinder to chop up dried whole ears of corn, wheat, or rye, including the unhulled grains, some stems, and the husks, to create animal feed (horses, chickens, calves, etc.).

**Conveyor**: The conveyor, was designed to move grain or flour horizontally from one place to the next. It was essentially a large wooden screw (auger) set in a trough. It uses the principles of an Archimedes screw and is still used today to move coarse materials (today called a screw conveyor). As it turned the grain or flour was moved along the trough to the desired location.

**Distillery**: equipment used to make alcohol, usually from fermented grain. Many early mills had distillation equipment since they had a ready supply of grain.

**Drill**: an endless belt with rakes attached. The rakes swept the flour or grain along in a horizontal trough.
**Elevator:** the elevator is an endless leather belt with small tin buckets attached. The belt was attached to pulleys at the top and bottom and was used to lift grain and flour in the buckets attached to the belt. The elevator moves the grain or flour from one floor to the next.

**Feed Mill** (aka Chop Mill): milling grains (i.e. corn, oats) for animal feed.

**Flume:** A wooden trough to carry water from the source (i.e. dam) to the waterwheel or turbines. See also Sluice.

**Furrows:** The grooves that were cut into the millstone to cut the grain. The geometry and spacing of these in the runner stone and bedstone created a cutting action.

**Grist:** any grain that has been separated from its chaff and is ready for grinding.

**Head Gate:** a water control gate at the head (start) of the raceway.

**Head race:** the part of the raceway ahead (upstream) of the waterwheel or turbine.

**Head of Water:** the difference in elevation between the level of the mill pond at the headrace of the mill and the level of water in the tailrace. Determines (along with volume of water) how much power a waterwheel or turbine can provide.

**Hopper Boy:** a shallow round container within which, a rake was attached at the bottom of a vertical shaft with arms that extended outwards from the centre. The rake stirred the flour as it cooled to prevent it from clumping together.

**Husk** (hurst or hursting): the robust timber framework on which the millstones sit. They keep the millstones level and isolate the vibration of the stones from the building (to prevent shaking the building apart).

**Lands:** the flat high area between the furrows (grooves) of a millstone. The lands grind the grain after the furrows have cut it.

**Mason:** a person who works with stone as a building material.

**Merchant Milling:** when grain is purchased outright from the farmer (as opposed to custom milling where the mill takes 1/12 of the grain as payment) and the flour bolted to produce the fine flour required for export. All the flour is sold by the miller.

**Middlings:** the coarse starchy particles of wheat and the fine bran. Oliver Evans recommended that these be reground to produce more fine flour.

**Millbill** (aka Miller’s Pick): A steel adze fixed in a wooden handle, used for dressing millstones.

**Mill Irons:** the parts of a sawmill that cannot be made from wood, for example the saw blade, the bull wheel (winch used to haul in the logs), gig wheel (used to drive the blade up and down if it was a vertical blade) and gudgeons. These heavy items were transported into a site (i.e. rapids in virgin forest) by a miller looking to build a new mill. Abel Stevens mentions mill irons several times in his petitions to government.

**Millpond:** water, usually impounded by a dam, used to power a waterwheel or turbine for a mill. The level (height) of the millpond compared to the water level exiting the mill (after going through the waterwheel or turbine), together with volume and rate of flow, determines the available power. Upper Beverley Lake is the millpond for the Old Stone Mill.

**Millwright:** a person who designs and builds mills and maintains milling machinery. Generally a expert in carpentry in addition to his knowledge of mill design and operation.

**Raceway:** the channel in which water flows to and from the power generating device – a waterwheel or turbine.

**Runner Stone:** The top stone in a set of millstones. It rotated over the stationary bedstone. Oliver Evans recommended a rotation rate of about 97 rpm for a five foot stone. We use a
rotation rate of about 92 rpm for our four foot stone so that we don’t overheat the flour. Merchant mills used a higher rpm rate, 120 rpm was common for a 4 foot stone.

**Run of Stones**: A run is a single set (runner and bedstone) of millstones.

**Sluice or Sluiceway**: an artificial channel (excavated) for directing water to the waterwheel or turbines. The amount of water in the sluiceway usually controlled by a sluice gate. See also Flume.

**Stop logs** – squared timbers stacked on top of each other in a holding mechanism (weir) to dam water and control the level (timbers put in lifted out to raise or lower the water level ahead of the weir (the MNR dam by the bridge in Delta has stoplogs).

**Tail Race**: the part of the raceway below the waterwheel or turbine

**Trash Grate or Trash Rack**: a grate placed in front of a raceway or bywash entrance to keep out debris.

**Treenail** – essentially a dowel – a wooden peg used to join two pieces of wood – used in place of iron nails (which were either unavailable or hard to obtain in the early days). You can see the ends of “treenails” sticking out of the ridgepole of the Old Stone Mill.

**Turbines**: a metal device with horizontal impellers used to capture the force of running water. More efficient than a wooden waterwheel and less expensive to operate.

**Waterhouse (aka Wheel House, Water Room)**: an enclosed room in which the waterwheel was located – a feature of Oliver Evans Automatic Mill (spelled as “water-house” in his guide). It kept the waterwheel area separate from the rest of the mill. It allowed the area to be heated (the rest of mill generally was not) and in the event of flooding kept the area sealed from the interior of the mill.

**Waterwheel**: a wheel usually constructed of wood that turns with the force of water pushing against the blades or buckets of the wheel. The turning motion is used to power equipment such as millstones or saw blades. There are three general types, an **overshot** wheel is when the water arrives at the top of the wheel, a **breastshot** wheel is when the water arrives near the middle of the wheel and an **undershot** wheel where the water arrives at the bottom of the wheel. The type of wheel is determined by the available head of water.

**Weir**: a water control structure at the head of a bywash. Incorporates a method to control how much water is let into the bywash (i.e. horizontal squared timbers known as “stoplogs”). Usually operates as an overflow system (the height of the top log set to desired height of mill pond).
SELECTED REFERENCES

The following are a few of the documents used in the preparation of this guide. All of these books are held in the Delta Mill Society reference collection. Some of the research reports may also be available in digital form (PDF) – see notes below.


Watson, Ken W., *Building the 1810 Stone Mill in Delta, Ontario*, The Delta Mill Society, 2018 (PDF available)

Suggested further reading.

In addition to these above, you might wish to read:


Evans, Oliver, *The Young Mill-Wright and Miller’s Guide*. We have a digital copy of the original 1795 edition, the fourth edition (1821) and the twelfth edition (updates and corrections by Thomas P. Jones), 1848. A bit of a slog to read, but this is the book that started it all. (PDF available)
APPENDIX A: Guided Tour Stops (Cheat Sheet)
Old Stone Mill Guided Tour Stops (General Tour 1 aka Anna’s Tour)

These are not absolute, tours can and should be adjusted based on the interests of your audience and how busy the mill is. If the mill is busy a few options for a different tour route are:

- From Station 1 go to the third floor, to the cutaway image of the mill located on the back wall. That is equivalent to Station 2 below. Then do the 3rd floor tour (architecture, two lakes) and work your way down. Note that the 3rd floor is where the process started in an automated mill (grain being cleaned).

- Take a group outside and start there. Show them the main exterior features, the mill’s location on the landscape and then bring them inside.

It is best to always start with the Daily Bread stop (Stop 1), to provide them with the basic concepts of what a grist mill is and why this one is special (our NHS designation and role in developing community).

An alternative to doing stops in the 2, 3, 4 order is to do 4, 3, 2 – staring with how the waterwheel powers everything, then how millstones work and then how the automated mill puts that all together.

See floor plans in Appendix B for tour stop locations.

FIRST FLOOR STATIONS

1 – Our Daily Bread & Grist mill: flour’s importance to civilization, the basic principle of grinding grain into flour. Also our NHS designation.

2 – Automatic Mill Display: show them the diagram and take them through the process. Note that they can come back and look at this in detail (the diagram mostly speaks for itself). Speak about who Oliver Evans was and how William Jones used his design for an automatic mill to the Old Stone Mill.

- Optional but when finished with the display, point to the spot in the floor where Dr. Schofield is presumed to have stood when he delivered his 4 hour temperance sermon in 1828 (and the irony of the location since a still was generally part of most early mills)

Note: between stops 2 and 3 to ignore the big history board on the back wall. That is way too much information at this point in the tour – you can simply reference the board as something they can come back and read in detail later – proceed to millstones

3 – Millstones in Dressing Position Display: tell them that these are French burrstones, the best kind of millstone due to its hardness. It’s a constructed stone, small pieces bound together. Furrows cut into the stone provide an edge that cuts rather than crushes the grain, resulting in better quality white flour. Note that the furrow orientation between those on the runner stone and those on the bedstone provides a scissor (shearing) action, cutting the grain. Once this explanation is done show them the working stones (hidden under vat) and briefly explain how that works.

4 – Waterwheel: the story here is how the power of water, harnessed by the waterwheel, powered everything in the mill. Keep in mind that many people are not familiar with waterwheels and how its rotational power was transferred to equipment throughout the

building by means of physical connections (shafts, gears and belts). Note the raceway and how the water power comes from the higher level of Upper Beverley Lake (the “millpond”).

5 – Chute from 2nd Floor (smooth inside with rubber rodent). This is where one type of flour from the bolter came down to be bagged. Show the opening, how smooth the inside is, how it allowed the miller to check his product. Note that there would be separates chutes for each grade of flour. Do the rodent check.

Note when walking through the archway between the mill and the turbine shed that we are now stepping ahead in history – from 1810 to the 1860s.

6 – Walter Denaut and Turbines: Walter Denaut’s ownership of the mill and the introduction of the new technology of turbines (note the interpretation boards that they can return to later for details). Denaut restored the mill to profitability, built the turbine shed and re-built the sawmill (1860s) and built the adjacent drive shed (1850s).

7 – Roller Mill: a major technology change in milling, faster and less expensive than millstones. We think the roller mill may have been installed in the 1890s by George Haskin. Roller mills created pure white flour as a result of complete separation of the endosperm, but also stripped that white flour of nutrients. In the US, the FDA in the 1930s mandated that vitamins and minerals (iron) be returned to the flour. Stone ground flour retains more of the vitamins and minerals since even the bolted white fine flour include some of the germ and bran.

8 – Hastings Steele: Mention about Steele’s involvement with the electrical business and tell the tale of the courting candle and the effect of electricity on that practice. Note when the mill stopped making flour (c.1942), when it stopped producing animal feed (1949), when it finally closed (1960) and when Steele sold it for $1 to the DMS (1963).

9 – Sawmill: an attached wooded building housing a saw mill has been part of the Old Stone Mill from the beginning. Note that it was always adjacent to the mill since it derived power from the waterwheel and then the turbines – so it had to be close by. Original blade may have been a vertical blade, later replaced by a round blade. Shut down in 1949. Removed c.1968.

SECOND FLOOR STATIONS

10 – Miller’s Office: note that Walter Denaut had this build as his office. Briefly point out the various items in the office

11 – Bolter: the bolter was an important innovation, allowing the separation of the whole grain flour, particularly the desired white flour component. In the automatic mill there would have been chutes leading down to a bagging area on the first floor (shown to them previously).

12 – Early Agricultural Equipment: the type of equipment used by the settlers of this area – some are local innovations – point out the grain cradle invented by the Alford family of Harlem who obtained over 200 patents for various types of equipment. Show them the tally and have them guess its purpose.

Go to the 3rd floor use the back wall stairs – enter into Beverley lakes display
THIRD FLOOR STATIONS

13 – Story of 2 Lakes and of Indigenous Use: point to native artefact display. Point out the 4000 year old sinker and ask them to guess what it is.

14 – Roof support architecture – look at the roof, what do you see? (have them describe the ridge pole). All made from locally sourced wood, beams are single pieces. Note the blending of the Dutch ridgepole design, the English wind supports, the German queen beam supports – all working together in harmony. Architecture of building one of the reasons for the NHS designation. Also point out the extreme care taken in our restoration – new wood blended with old.

15 – Accordion Lath and Plaster – point out methodology, a pre-cursor to sawn lath. Purpose was to create a vermin proof room for the storage of extra grain. Show tapered floor boards which made use of the entire trunk of the tree – no wastage.

16 – Gearing and blackened areas (looks like burnt wood) – question audience as to why those areas are black (what caused it?). Gearing to help run various equipment.

This concludes the formal tour. You should have a sense of what your visitors want (to head out and go home or stay in the mill and explore). Let your visitors know that they are free to stay in the mill as long as they want, remind them of the gift store

EXTERIOR AREA

Exterior tours are not normally given – usually just to those expressing that specific interest or with a large group tour (which sometimes starts outside – talking about the building and NHS designation).

Several outside elements can be pointed out.

- **Position on Landscape** – point out Upper & Lower Beverley lakes, indicate original channel (dip in topography at Drive Shed) where the rapids between the two lakes used to be. Note the topographic difference that created the water flow used to power waterwheels.

- **Mill Stonework** – note that each course of stone is different in height since the masons were working with natural sandstone layers which are of different thicknesses (they made use of what was available locally). Point out the initials on the cornerstone (long ago by one of the stone masons?)

- **Raceways and Dam** – For those interested in how the mill was powered, a view of the north wall (at the bridge) and the MNR dam are required elements. Key points are that the mill sits in a constructed channel, that it acted as its own dam, that the water level of Upper Beverley Lake today used to be up against the mill. You can point out part of the base of a buffer wall that was used to keep debris and ice out of the mill (forcing it around to the bywash). The c.1870s photo by R.E. Denaut can be used as a visual.

- **Tailraces and Wildlife** – Take them between the mill and the drive shed to look at the tailraces. If you’re lucky, there may be some local wildlife to see (heron, mink or some other animal).
Concise History of the Mill

If you’re here because you are just starting out with the Old Stone Mill, here is a highly abbreviated history of the mill:

- Abel Stevens, a British Loyalist from Vermont, settles here with several families in 1794 – drawn by the water power potential of rapids at Delta and at Lyndhurst. In 1796 he is granted the land that is Delta today and has a wooden sawmill built and later adds a wooden gristmill.

- In 1808, William Jones buys the land and mills from Stevens. At some point after this, perhaps in 1809, the wooden mill(s) burns down. Planning for a new stone mill starts in this time period.

- In 1810, William Jones, in partnership with Ira Schofield, has construction started on the Old Stone Mill. The 3 ½ storey Georgian architecture stone design is that of an Oliver Evans’ automated mill. The mill is built on solid bedrock, to the north of Steven’s old mill. A new channel from Upper Beverley Lake is constructed to the head of the mill. A wooden sawmill, adjacent to the stone mill, is also built. That sawmill also housed a carding mill. The Old Stone Mill, built using local stone and timber, is completed likely sometime in 1811 and is in operation by 1812.

- The mill is designed as a merchant mill (bolting flour that could be sold or exported) and was the only grist mill in the area, leading to the development of Delta as a regional service centre (blacksmiths, inns, merchant shops, roads leading to Delta).

- The mill goes through a series of owners and falls on hard times (heavily mortgaged). In 1850, a new owner, Walter Denaut takes over the mill. He invests heavily in renovations, bringing the mill back to profitability. In the early 1860s he builds the turbine shed and switches the mill's power from a waterwheel to two turbines. He re-builds the wooden sawmill adjacent to the turbine shed. He also builds the adjacent mill drive shed (for horses and carriages) with a brick hall on top (exact chronology of the shed vs hall uncertain). Denaut may have introduced feed milling (producing animal feed in addition to flour) as that demand grew in the region.

- Likely in the 1890s, the next owner of the mill, George Haskin, switches the mill from using millstones to using roller mills for flour production. This was a more cost efficient way of producing flour. The mill remains profitable.

- The last mill owner, Hastings Steele, continues milling flour up until the early 1940s. The mill then continues to produce animal feed up until 1949. In 1949 both the feed mill and the sawmill stop operating. Steele continues to keep the mill open as a feed store up until 1960, when it closes.

- In 1963 Steele sells the mill for $1 to four trustees, who then form the Delta Mill Society (incorporated in 1972). Rescue rehabilitation is done in 1972-75 by the DMS and in 1983 the mill is opened to the public. The DMS has extensive conservation renovation is done in 1999-2003 to create beautifully restored mill that we see today. High quality interpretation signage is also added. A waterwheel was installed in 2008 and in 2010, on the mill’s 200th anniversary, operating millstones were installed.

The next level of detail to the above can be found in the Brief Chronology section.
APPENDIX B: Old Stone Mill Floor and exterior plans
Old Stone Mill
National Historic Site
Second Floor Plan
Turbine Shed Roof
(only to 2nd floor)

Old Stone Mill
National Historic Site
Third Floor Plan

KWW 2017
Old Stone Mill
Delta, Ontario

* the current water level of Upper Beverley Lake is likely close to the 1811 dam (mill & weir) raised level (~ 9' / 2.7m above original lake level).

** The present dam (Lyndhurst) raised level of Lower Beverley Lake is 4.75' / 1.45 m above its potentially (bedrock) lowest level - the turbine placement indicates current LBL level at that time (1860s).
Figure 61. Delta Mill, BdGa 34, Longitudinal Profile of the head-race, wheel-pit, and tail-race, facing east, showing lowest probable mounting position for a 12 foot (3.66m) diameter water-wheel. The following elevations ranges are provided (in masl): (a) 91.30-91.85, between present tail-water elevation to bedrock elevation at tail-water; (b) 93.13-93.68, range of minimum axle elevation for 12 foot wheel (with 1.83m radius) based upon range (a), assuming that the breast of the wheel would not have projected lower than the tail-water elevation; (c) 93.50-94.35, top and bottom elevations of aperture in west wheel-pit wall; (d) 94.53-91.85, present head-water and tail-water elevations. The water-wheel detail was traced from Evans, Plate XIII, then plotted to scale. The water-wheel axle, as scaled-off, has a ~16 inch diameter. East head-race wall detail derived from Bazely and Noakes, 1994. Drafting by Jonathan Moore, November 1999.
Insert **PROFILE VIEWS of MILL**

*(for v.2 – still being worked on)*
APPENDIX C: Maps, Diagrams and Photos
*Bastard Township amalgamated into the Township of Rideau Lakes in 1998

Distances to/from Delta
- Lyndhurst = 8.4 km (7 min)
- Elgin = 13.0 km (11 min)
- Westport = 28.5 km (25 min)
- Brockville = 39.3 km (35 min)
- Smiths Falls = 42.0 km (35 min)
- Kingston = 58.2 km (50 min)
- Ottawa = 120.0 km (1 hr, 30 min)
This map is illustrative only. Do not rely on it as being a precise indicator of routes, locations of features, nor as a guide to navigation. Designed and produced by United Counties of Leeds & Grenville. Source of information: Universal Transverse Mercator, Grid Zone 18, North American Datum 1983, with data supplied under licence by members of the Ontario Geospatial Data Exchange (OGDE).

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Some Early Maps  
Lt. Gershom French, 1783

The first map of the area is one based on Lt. Gershom French’s 1783 survey which started at Carillon on the Ottawa River and ended at Gananoque on the St. Lawrence River. The map on the right is a modern day map showing the actual geography of the route. French’s map presents us with a bit of a mystery (keep reading – we’ll get to that mystery).

At the time there was no settlement, French had a native guide showing him the native canoe route from the Ottawa River, which took them up the Rideau River, into the Rideau lakes and from there into Lower Beverley Lake (which is where that water flowed to at the time, the former White Fish River (now drowned except for the Morton Creek remnant) connecting Sand Lake on the Rideau with Lower Beverley Lake, and down to Gananoque. He was doing a survey in preparation for settlement (not for navigation), looking at the quality of land. Every so often he
would stop and send a survey party a league (3 miles) inland to check out forest and soil conditions.

On the evening of October 11, 1783, French and his party camped on Lower Beverley Lake – likely in Oak Bay at the west end of the lake. He describes his journey the next day as:

[October] 12th. – Steered South 12 Degrees, E. about 4 miles where the Gananoncui received a River from the East. We continued in the same direction 8 miles further in Dead Water with large Marshes on each side, and Ledges of Rocks behind, from whence I sent out a Party on the East and went myself on the West, but did not Discover any good Lands.

From there we continued about Ten Miles in the same course nearly meeting with nothing but Swamps, Rocks and Stagnated Water.

An interpretation of this (kww) is that the “River from the East” is Plum Hollow Creek. While some arguments could be made that it’s Wiltse Creek (from Charleston Lake) the better fit based on French’s description is Plum Hollow Creek. Starting from Oak Bay, 4 miles would take him to about Plum Hollow Creek (the lower end of that today called “Delta Creek”). The “Dead Water” in his description is Lower Beverley Lake (a pretty dismal description of what was then, and is now, a beautiful lake). Now to the map mystery.

If you look at section of French’s map shown on the previous page, you’ll see that that he shows three portages, called “Carrying Places.” The three he shows are those for the Isthmus (today’s Newboro), a portage around Chaffey’s Rapids and a portage around Jones Falls Rapids. After that nothing, even though he would have had to do several other portages: White Fish Falls [Morton], Great Falls [Lyndhurst], Marble Rock and some of rapids above Gananoque. If we jump ahead to 1795, we see Surveyor Lewis Grant noting portages at all these places. You can see the actual looping, sinuous route that French would have followed, yet his map simply shows a straight line to the falls at Gananoque. His description of this section is not favourable:

From our Entrance into the River Gananoncui to its fall into the St. Lawrence, I did not discover as much good land conveniently situated as would serve one Farmer.

On his map it show this section as the “River Gannanocui” with the description: “Stagnated water half a mile” and “Broad with a swamp on either side” – not very inviting.

So why does he have reasonably accurate mapping and description from Ottawa to Jones Falls and then a distinct lack of information and inaccurate mapping from Jones Falls to Gananoque? Clearly he would have known about the “Great Falls” at Lyndhurst (he had to portage around them). A few months later, in 1784, his former army commander, Major Edward Jessup (French was a Lieutenant with the King’s Loyal Rangers also known as “Jessop’s Rangers”) expresses an interest in the mineral and water rights in the area of Lyndhurst. How did he know about the iron and the “Great Falls” at Lyndhurst? It’s possible that French’s party discovered both, or it’s possible that Jessup found the iron while scouting the falls. Neither are mentioned in French’s report or shown on his map. We don’t know if French discovered the iron but he certainly knew about the Great Falls.

In fairness to French, he never took advantage of any of this knowledge himself, he had just moved to Quebec City that year and after his survey he returned there. The straight line on his map and lack of information about the rapids and waterfalls in that section remains a mystery.

It was the iron deposits and the Great Falls at Lyndhurst that attracted Abel Stevens into the area, leading to the development of the first mills at Delta and eventually the Old Stone Mill.
Delta & Region in 1795.

This map, by surveyor Lewis Grant, is from Grant's initial survey in 1795. You can see the word “Stephen's” located in the area of Plum Hollow Creek and the Upper Beverley lakes. Above that, the notation Good Land is on the good soils overlying the local sandstone. Elsewhere on the map you see “Mountainous Country and Rocky” which is the topography of the Frontenac Axis. It’s a good illustration of the prime location of Delta for early settlers, water power adjacent to good farmland.

Grant in this survey is tying into William Fortune's earlier survey lines. This was new country to Grant, when he first went up the Gananoque River he made a wrong turn and ended up in Charleston Lake (shown on the lower right) by mistake. He then had to backtrack to the Gananoque River and head up into Lower Beverley Lake. He then continued up the White Fish River into Sand Lake.

"Sketch of the Ganonoque" by Lewis Grant, 17th June 1795, Archives of Ontario, AO 1532
This annotated c.1795 map (community names added), attributed to Lewis Grant, shows the Stevens’ settlers located on the upper reaches of Plum Hollow Creek. The numbering appears to be lots on Concession X of Bastard Township, but not exactly what it is today (map is not very accurate and not to scale). For instance, the mill today sits on Lot 23 of Concession IX meaning that Lot 23 (Conc. X) shown on this map should be near the word “rapids.” Today’s hamlet of Plum Hollow is located on Lot 6 of Conc. IX and X (at the boundary), so presumably somewhere near the Lot 6 shown on this early map.

On the map it says for the lower section “Abel Stevens asks for 2000 acres” – presumably the 10 blank lots shown on this maps (lots are nominally 200 acres in size). In the end, June 2, 1796) he was granted got 5 lots – Lots 23, 24, & 25 of the 9th concession and Lots 11 & 12 of the 10th.

Also note Abel’s initials, AS are shown beside the Great Falls at Lyndhurst, indicating Abel’s desire to be granted that spot for a foundry.

The inset map is Walling’s 1861-62 map – not 100% accurate but you can see the lots and concessions around Delta.
Bastard Township – Lot and Concession Map

A lot and concession map (MNR, 1993) of the former Bastard Township. The lots granted to Abel Stevens, Lots 23, 24 and 25 of the 9th concession (present day Delta) and Lots 11 and 12 of the 10th concession have been added for clarity. While nominally totalling 1000 acres, you can see how water occupies part of the lots, hence the revision to 700 acres (of land). Water levels in the lakes would have been lower in 1796, but still enough to remove 300 acres from Abel’s 1000.

A bit later Stevens also got Lot 22 (Conc. 9) and Lot 10 (Conc. 10).
This may be the earliest map that shows the Old Stone Mill, labelled as “Jones and Schofield.” The reference to “Hawksins Mill” should be “Haskins Mill,” today’s Morton, and Furnace is today’s Lyndhurst, dormant after the furnace burned down in 1811.

It only shows a few of the local roads (see the 1816 maps on the next page for more roads), but the roads it shows are telling, up along Plum Hollow Creek and over to Irish Creek and Lake – some of the early farm development in this area.

No. 37 Trent & Rideau Communications” by unknown, [1815], Library and Archives Canada, NMC 44765.
Two different maps views from 1816. The annotated top map shows the “Kingston Back Road” highlighted – those roads were constructed under the direction of Abel Stevens. The lower map shows 10 building in Stone Mills, including the Old Stone Mill. A March 1816 letter indicated about 20 building in all – perhaps including other smaller buildings (i.e. log cabins) that weren’t noted by Joshua Jebb in his 1816 survey. “White Fish Lake” is Lower Beverley Lake and “Small Lake or Mill Pond is Upper Beverley Lake, shown at or near the size it is today. Furnace is Lyndhurst. Haskins Mill is Morton.

Top Map: untitled map, Upper Canada Sundries, RG 5, A1 vol. 27, p.12288.

Bottom Map: Plan of the Water Communication from Kingston to the Grand River by Lt. J. Jebb, July 8, 1816, National Archives of Canada, NMC 21941
Map of Delta, c.1861-62

From H.F. Walling's Illustrated historical atlas of the Historical Atlas of Leeds and Grenville, Canada West. 1861-62

On this map you can see "Grist Mill" shown for the Old Stone Mill. The mill drive shed is shown as a "Hall"

Also of interest is the sawmill on Hicock pond – likely the same location as Abel Stevens Jr's earlier mill. The foundry in that location was built by Philo Hicock in 1841.

Note the toll gate at the north end of town (many roads were toll roads in the era).

You can also see the extent of Walter Denaut's holdings (count the number of times W.H. Denaut is listed).
Portion of an 1897 Fire Insurance Map for Delta

Of note on this map is that the mill (located by the 10) is shown as a Flour and Feed Mill operated with water power (indicates that the steam boiler not yet installed). The Jubilee business block is just under construction at this time.
Stevens’ Original Mill

Where was the first mill in Delta? We don’t know exactly. What we do know is that it would have at or below the foot of the rapids between Upper and Lower Beverley lakes. Lower Beverley was not dammed at Lyndhurst prior to 1801, so it would have been up to 1.4 m / 4.7 feet lower than it is today (that number based on the bedrock elevation ahead of the current dam at Lyndhurst). Upper Beverley was two lakes, with a water level about 2.7 m / 9 feet lower than today. That would indicate the original rapids had a drop of about 1.4 m / 4.6 feet. If Stevens erected a 5 foot dam (approximate number based on the rise of “Lake Abel” shown on Grant’s 1797 survey map of Bastard Township), he would have had maximum 9.5 foot head. Given that Lower Beverley Lake was a bit higher than the bedrock level at Lyndhurst, something in the order of a 7 foot net head (same as the OSM) is likely.
**Geology of the Delta Region**

Delta lies at the northern edge of the Frontenac Axis, an exposure of very old rocks (avg. age 1.2 billion years), the eroded remains of a portion of a mountain range (the Canadian Shield and Adirondack Mountains are also rocks of this mountain range). The mountain building happened some 900 million years ago when continents collided, bending and metamorphosing the original rocks (just like the Rockies, Andes and Himalaya mountain ranges today). With mountain building done, erosion began, the mountains wearing down over hundreds of million years. With continental drift, the now well eroded mountain range ended up near the Caribbean, with beach and shallow marine sediments being deposited on top of it (520 to 460 million years ago). Over many millions of years continental drift brought this old mountain to where it is today, being exposed again as the overlying sedimentary rocks are eroded away from it – an erosion process that is still taking place today.

![Geology Map](image-url)

From "Fall Geology/Ecology Boat Tour, St. Lawrence River – 1000 Islands" by Al Donaldson, Dave Forsyth, Chris Findlay & Bud Andress, 2010.
Delta lies in the Leeds Knobs and Flats physiographic region. The knobs are large exposures of granite which are a feature of the Frontenac Axis. Those include the Lyndhurst granite pluton, the best known exposure of that being Rock Dunder on Morton Bay.

The harder rocks of the Frontenac Axis, metamorphic rocks such as crystalline limestone (marble), gneiss, schists, and quartztie, and plutonic rocks such as granite, form greater topographic expression (hills & valleys) and it is this region that hosts most of the area’s lakes and rapids. It is the latter, drops of water over a short distance that attracted millers, providing power for their water wheels.

On either side of the Frontenac Axis are younger sedimentary rocks, mostly sandstone in the vicinity of Delta. It was those relatively flat lying sedimentary rocks and the thick soil development on top of them that attracted the early homesteaders, providing rich land on which to grow crops. Locally, those rocks (Potsdam sandstone) also provided the building blocks for the Old Stone Mill and many other stone buildings in the region.

Delta owes its start to the iron deposits on Lower Beverley Lake and the fall of water at Lyndhurst. The iron may have been discovered in 1783 during the first documented survey of the Rideau route done by Lt. Gershom French. It was certainly known by 1784 when Major Edward Jessup expressed an interest in acquiring the rights to the iron and the fall of water at Lyndhurst.

It was the iron and water power at Lyndhurst that attracted Abel Stevens to this area, he applied for the mining rights to the iron deposits and for the water power at Lyndhurst at the same time he squatted in the Delta area and applied for land around the rapids there. Lyndhurst offered the Great Falls, an 11 foot (+/-) waterfall*, in contrast to Delta’s 5 foot (+/-) set of rapids. But the Lyndhurst site had the added complexity of a mineral resource grant (reserved to the British Crown) plus the fact that he wasn’t the only one after the iron and Great Falls, the Sherwood family was after those as well. So nothing happened for a number of years.

The iron deposits and foundry site were eventually awarded to Wallis Sunderlin in 1801, Stevens never got them. But it left a legacy for Delta since many of Steven’s efforts that were directed at obtaining the Lyndhurst site, such as having a road built from Lyndhurst to the Kingston Front Road in 1798, also benefitted Delta. Not the least was the fact that these deposits attracted Stevens here in the first place and that led to the founding of Delta.

The local geology was used to build the mill – the stones for the magnificent 3 ½ storey building locally quarried, mostly from layers of Podsdam sandstone. The soils overlying the sedimentary rocks were used to grow the grain that fed the mill. The underlying geology, the depressions formed by the erosion of softer crystalline limestone, host the area’s lakes. The set of rapids between two of those lakes, Upper and Lower Beverley, creating water power for a mill.

Eighteen thousand years ago this area was under a kilometre and a half of ice, part of a continental ice sheet. The weight of that ice depressed the entire landscape by about 175 m (575 feet) below the elevations it is today. Under the ice, rock was being ground into boulders, pebbles and rock flour. Then, 14,000 years ago, as the climate warmed up, the glaciers started to retreat. As they did so, they left behind large deposits of till (gravel). Melt waters were filling up what is today Lake Ontario, but back then, with the glaciers blocking the outflow of the St. Lawrence valley, a very large lake formed, one that extended as far north as Perth and Smith Falls. Known as glacial Lake Iroquois, it left lake bottom deposits (clay and silt) over the drowned topography. Then, about 13,350 years ago, the ice dam broke near Rome, N.Y. and the lake drained down to its present day size.

With the weight of ice removed, the land rose, a process called isostatic rebound. Vegetation, animals and man followed the retreating glaciers. This set the stage for the eventual arrival of Abel Stevens, the building of the first mills, and then the building of the Old Stone Mill.

* the overall drop at Lyndhurst is reported as ~ 7 m (unverified), which would be over the 0.9 km length of Lyndhurst Creek below the bridge, the initial drop which powered the foundry & upper mills was much less.
Oliver Evans illustrations of a breastshot waterwheel (Plate XIV, Young Mill-Wright's Guide). In it he shows the water arriving at various points on the wheel and has tables calculating the resulting efficiency.
A Few Heritage Photos

You can go on-line to our website for many contemporary photos of the mill, these are just a few older photos.

Mill in the 1880s

This is likely the 2nd oldest photo we have of the mill (next to the 1870s R.E. Denaut image which only shows part of the north wall of the mill – see the Mill Building section). You can see the carriage shed with second floor brick hall on the left. Of note is a view of the buffer wall against the north face of the mill and on the far right of that the stop-log dam in front of the bywash (at the very edge of the photo).

The photo on the right is c.1900, you can see the stack for the steam boiler. Note that an awning has been added over the front door – the reason for that might be the birdhouse that sits just under the eaves (and/or perhaps to keep water dripping from the roof off customers as they enter the mill). Also note the millstones sitting in front of the mill – likely now superfluous with the c.1893 installation roller mills.

Old Stone Mill c.1900
Mill in the 1930s or 40s

This photo shows the sawmill (hidden behind the out buildings in the foreground) in full operation (note the logs). Repairs have been done to the building, an upper window which had a crack through it in a c.1900 photo (see Restoration page) has been sealed. You can also see the back of the salt shed located between the mill and the hall/drive shed (on the right).

The mill in 1957 – the last photo we have before the mill was closed in 1960. You can see the advertisements for Robin Hood Flour.
North Wall – Old Stone Mill

Photo assumed to be pre-1968 since it appears to show a portion of the floor of the sawmill intact (it collapsed in 1968). The portion of the buffer wall in front of the turbine raceway has been removed (by MNR).

Mill in 1972 – right photo shows the start of rescue rehabilitation in the fall of 1972
APPENDIX D – 1999-2003 Restoration

The Old Stone Mill c.1900

You can see the rough shape of the mill even back in c. early 1900 (date based on the visible steam boiler stack). The shaking of the building to that point, over almost 100 years, caused structural damage to the outer walls (note the crack in the top left window – later sealed in). Prior to the 1999 start of major restoration, this section of the south wall was actually bowed out by about two feet and close to total failure. The sawmill (left side) also looks in rough shape in this photo (although it did operation up until 1949).

When the mill was deeded to the four original trustees in 1963 it was in rough shape. There had been no economic incentives for Hastings Steele to do any extensive repairs – he was just operating a feed store in the final years. The people of Delta were resigned to the fact that this landmark of their community would be eventually be torn down (or fall down on its own).

That changed when Hastings Steele, shortly before his death, deeded the mill to the 4 trustees who then formed the Delta Mill Society. This keen bunch of people started working to ensure the mill would survive for generations to come. Once the society had been incorporated (1972), work on the building could begin and at that time some emergency work was done such as jacking up floors and stabilizing the walls. This was funded in part by the new Ontario Heritage Foundation. Unfortunately records were not kept (or at least not in the DMS files) of what was done or exactly what was there before, but the work did keep the building from collapsing.

In 1986, Parks Canada announced a new Cost Sharing Program by which privately owned National Historic Sites could get 50% funding to cover "eligible costs" of restoration. The list of prerequisites was long and very expensive. The Delta Mill Society formed a restoration committee to study the matter and in 1987 decided to move ahead with a major restoration program.

It took 12 years for us to work our way through the system, to satisfy both Federal and Provincial requirements. At the same time we were building a restoration fund, using fundraising vehicles such as charity bingos (our most lucrative fundraising activity which ceased in the late 2000s as Ontario focused on casinos which unfortunately does not help places such as Delta).
In 1992 we engaged the support of the Cataraqui Archaeology Research Foundation to start the required scientific work that was a pre-requisite to any restoration. Some 13 volunteers donated 544 hours in the field and 55 hours in lab. It was a joint effort between the CARF and the DMS. It was the first serious archaeology done on the mill and in 1994 a report was produced by Susan Bazely of CARF and Susan Noakes of the DMS titled: The Delta Mill Wheelpit Excavation, BdGa-34, Public Archaeology Program.

The ball was now rolling and in 1995 we put up $25,000 of our own money to have a conservation report written. That research was led by André Scheinman, a heritage conservation consultant (a heritage architect). He called on the expertise of William T. Trick an engineering consultant, McNeely Engineering Consultants and M.D. Smith. He was assisted by the restoration committee of the DMS; Peggy Fry, David Mess and Art Shaw and also by Anna Greenhorn and Myrla Saunders. He benefitted greatly from the historical files of the DMS that had been compiled by Sue Warren. Manuel Stevens, the regional planner for Parks Canada, helped André identify what would be required on the part of Parks Canada in order for the DMS to get funding. In May 1996 André produced the Delta Mill Conservation Report which estimated the cost of restoration at $800,000.

The proposed work was divided into phases, Stantec Consulting Ltd. of Kingston was hired in 1998 by the DMS (our own funds) to prepare and evaluate the tenders. The winning tender for Phase I was A. Santin Mason Contractor Ltd. with a bid of $399,331.49 – most of this was foundation and stone repair and stabilization. This was a bit higher than expected and we shifted some work from Phase I to Phases II and II. Total project cost was now estimated at a little over $1,000,000 and we arrived at a cost split with Parks Canada for $466,000 from them and $540,000 coming from the Delta Mill Society. In February 2000 we were pleasantly surprised by a $100,000 grant from the Province of Ontario – this funding was able to be used for our required $540,000 contribution (bringing it down to a mere $440,000).

In 1999 we again engaged the Cataraqui Archaeology Research Foundation ($10,000) and a team led by archaeologist Jonathan Moore did archaeology on the newly exposed areas around the north wall (dewatered in preparation for the masonry work) and inside the raceways. Their team was supported by the DMS including Art Shaw, Tony Barlow, David Mess, Wendy Gillespie and Peggy Fry. Moore produced the final archaeology report that we have – Archaeology at the Delta Mill National Historic Site, BdGa-34, 1999, Delta, Ontario.

Phase I ended up costing $454,020. Phase II, done in 2000, consisted of masonry and carpentry work. The original Phase I group did the work with the addition of sub-contractor Sentwood Mercer of Perth (carpentry). It cost $293,600. Phase III was done in 2002 at a cost of $299,225 and Phase IV, done in 2003 cost about $125,075. So the grand total from 1999 to 2004 (when the dust finally settled) was $1,171,920, which expressed as 2017 dollars would be $1,600,000.

The high quality of that work and attention to proper heritage detail shows throughout the mill. The extensive masonry work is mostly hidden, but much of the carpentry work is visible, mostly on the 3rd floor. As much of the original fabric of the mill as possible was preserved (you can see new wood spliced into old wood). All repairs were heritage appropriate, the only changes, such as 2 stair/exits from each floor done for legislated safety reasons.

The mill sits on solid bedrock (something the original geotechnical work revealed) and now with the masonry and timbers of the mill properly restored it will stand for at least another 200 years (hopefully forever) if properly maintained.

It also shows what dedicated volunteers can accomplish, people bound together with a common goal, to protect and present this remarkable piece of Canadian heritage. Thousand (and thousands) of volunteer hours went into the restoration – everything from local heritage expertise to our bingo team who provided much of our funding. The Board of Directors of the Delta Mill
Society took risks, at times authorizing work in advance of available funding. It was a bold venture for a small volunteer organization; it shows what people dedicated to a cause can do.

It’s to be noted that the Delta Mill Society didn’t rest on its laurels once the work was done, it was ever “onward and upward” – we sought and got funding for a professional curator (Paul George), who led us on our next series of adventures, developing interpretation and signage inside the mill and then purchasing and installing period correct milling equipment so that we could have the mill operating by its 200th anniversary in 2010. All of that done was done while welcoming thousands of visitors each year to the mill, our prime activity, one that continues to this day.

Photo on left appears to be just prior to the 1972-75 rehabilitation work. You can see the upper window sealed in and the turbine tailrace cemented over (but still open at the bottom). The turbine shed is a bit saggy and the sawmill has been removed, but a bit of its stone foundation remains against the turbine shed.

On the right is part of Phase I restoration (1999) – fixing up the bowed out south wall including restoring the sealed in window. The interior picture is part of Phase II restoration (2000), a worker booting a replacement queen post truss into place against an original purlin.
Part of Phase II restoration (2000).
APPENDIX E – Factoids, Timelines & Stories

Factoids (a brief bit of factual information – 40 words or less)

We use factoids on our donor board – a short bit of information that might of interest to a visitor. The following is a list of those we presently have (not all are included on the donor board). These can also be tossed in at appropriate points in a tour. Feel free to add your own – we can always use more.

1. In 1963, Hastings Steele, the last owner of the mill, sold it for $1 to Albert Frye, Elizabeth Robinson, Mildred Sweet and Robert Tuck. They formed The Delta Mill Society.

2. The Old Stone Mill was built in 1810 as an automatic grist mill (requiring only one person to run it), based on the principles put forward by American mill designer Oliver Evans.

3. In 1970, the Old Stone Mill was designated a National Historic Site as one of the oldest surviving mills in Ontario and a tangible reminder of pioneer industrial development in Ontario.

4. The first mill, a wooden sawmill, was built near here by Abel Stevens after he was granted land in this location in 1796. He later added a wooden grist mill.

5. The community was first known as Stevenstown, after founder Abel Stevens, but the name changed to Stone Mills after the Old Stone Mill was built in 1810.

6. In 1826, Chief Justice John Beverley Robinson offered to present a bell to the Anglican Church if they would name the village after him. Stone Mills was renamed Beverley and the church got its bell.

7. In 1857, the village was officially named Delta due to the shapes of Upper and Lower Beverley lakes, and the village between, which form triangles, the shape of the Greek letter Delta.

8. The ridge post that supports the roof of the mill was hand planed on site from a single tree and is approximately 50 feet long. It is five sided and fastened in place with wooden pegs.

9. The Stone Mill was built by William Jones and Ira Schoefield in 1810. It is 3 1/2 storeys tall, built using local Potsdam sandstone, featuring Georgian style architecture.

10. In 1861 the Old Stone Mill was producing 6000 barrels of flour per year.

11. Upper Beverley Lake was originally two smaller lakes. The Stone Mill, which acted as its own dam, raised the water, creating a larger lake, which was used as the mill pond.

12. GRIST: Grist is any grain that has been separated from its chaff and is ready for grinding. In general, any material being processed by the mill.

13. The Old Stone Mill was the centerpiece of the village, attracting other services such as blacksmith shops, inns, taverns, breweries, distilleries, and general stores.
14. The earliest recorded accounts of the use of a hand quern are those of Cato between 232 and 247 B.C.

15. By 1891, the Old Stone Mill was one of 1,034 mills operating in Ontario.

16. The Old Stone Mill is the only stone grist mill designated a National Historic Site of Canada.

17. A sawmill used to be part of the mill. Originally a wooden building located where the Turbine Shed is today, and then a structure built on the side of the Turbine Shed.

18. Built in 1880, the Old Town Hall served several roles, including a Court House (with a jail in the basement). The hall is now owned and operated by The Delta Mill Society.

19. BREASTSHOT WATERWHEEL - a water wheel where the water is delivered to the centre of the wheel. This is most likely the type of wheel originally in the mill.

20. MILLSTONES: The bottom stone, the “bedstone,” doesn’t move while the top stone, the “runner” does. Together, they are known as a “run.”

21. The Old Stone Mill is likely the fourth oldest remaining mill in Ontario after Backus Mill, the mill at Glenora, and Ball’s Gristmill.

22. HUSK: the substantive timber foundation used to support the heavy millstones and the mechanism used to control the height of the runner (top) stone.

23. BOLTER: a machine used to separate flour into different grades of fineness.

24. ELEVATOR: In the mill, an endless leather belt, with small wood or tin buckets attached, powered by the waterwheel (and later the turbines) was used to move grain and flour between floors.

25. Delta was the earliest community in this region since, with the only grist mill in the area, all roads literally led to Delta, making it the local centre of commerce.

26. In 1835, a sale ad for the mill stated that there was a separate wooden building that contained a saw mill, a carding mill, and a mill for cutting and polishing marble.

27. The mill was built over 100 years before electricity arrived in Delta.

28. In 1810-11, when the mill was built, the total population of Upper Canada (Ontario) was 77,000 people – it has 14,000,000 people today.

29. Our operating millstones are French burrstones which come from the Marne Valley in France.

30.
Stories

In the main tour guide section several stories are listed. These stories serve to illustrate, in an interesting way, a certain section, timeline or person involved with the mill. Please list any stories you’ve heard that could be used to enhance interpretation. Cite the source(s) of the story and try to verify the “facts” of each story as best as possible (we don’t want tall tales).

List the stories you’ve heard here (feel free to add pages as needed):
APPENDIX F – Working Notes

You’ve been reading version 1.5 of our tour guide and history notes. This version incorporates some new information based on research for “Building the 1810 Stone Mill in Delta, Ontario”. It’s v.1.5 (rather than 2.0) since it’s not a rewrite, but rather an update. It will continue to evolve.

The following are simply working notes, information collected from various sources waiting to be processed. Some may make it into version 2 of this document, some may not – this is a spot to simply put unsorted facts and information. Feel free to add your own notes as you come across interesting information – we’ve left a blank page for that – add as many pages as you need.

Please pass that information on to Ken Watson (rideauken@gmail.com)

Original Lakes: In older documents you’ll see references to 1st, 2nd, 3rd and 4th Gananoque Lakes. The 1st and 2nd are the two original Upper Beverley lakes. The 3rd is Lower Beverley Lake and the 4th is Lyndhurst Lake.

An early name for Lower Beverley Lake was “White Fish Lake” since it was at the foot of the White Fish River which had its headwaters in the Jones Falls Rapids which flowed from Sand Lake. Jones Falls Rapids had a drop of 60 feet over a distance of 1.5 miles, the river then flowed through today’s Morton Bay (which was 25 feet lower then than today), over White Fish Falls (where Lemuel and Carey Haskins built a sawmill c.1803) and then into today’s Lower Beverley Lake, which was about 4 feet lower then than it is today. Today’s Morton Creek is a flooded (from the dam at Lyndhurst) remnant of the original White Fish River. Today Whitefish Lake on the Rideau Canal is a man-made lake (a result of the flooding from the canal dam at Upper Brewers).

Original Rapids: references to “falls” in old reports can refer to either rapids or actual waterfalls – “falls” were any fall of water. So when Abel Stevens notes “There are two different Falls … The Lowermost are to be preferred” – the upper “falls” were the rapids at Delta, the lowermost were the “Great Falls” at Lyndhurst.

The original rapids at Delta were in the order of a 5’ (+/-) drop. The pre-dam level of Lower Beverley Lake was a bit above 90.50 masl (which is the bedrock level upstream of the bridge and dam at Lyndhurst today). The depth of the channel at the outlet of the lower Upper Beverley Lake is about 91.8 masl. The difference between the two channel bottom levels is 1.3 m (4.3 feet). We don’t know the level of water above those channel levels in 1796 – but assuming they are about equal, the original drop was a bit over 4 feet (hence the use of 5’ +/-)

The original drop of the “Great Falls” at Lyndhurst is estimated to be in the order of 11 feet (+/-). The overall “falls” stretched over 0.9 km (from today’s bridge to Lyndhurst Lake). Various reports quote 21 to 24 feet (avg. 7m) which would be the overall drop from Lower Beverley Lake to Lyndhurst Lake. That number has yet to be confirmed (it seems high). The first drop, the drop that powered the foundry and mills, was much less, current best guess is about 11 feet (bedrock level of the top of the rapids to the bedrock level of the tailraces of those mills). The level was likely dam raised early on – the current dam elevates the water above bedrock by 1.45 m (4.7 feet). Art Shaw had indicated that the current drop is 16 feet, which would include the 4.7 feet of dam raised water. The exact number will become known once the bedrock elevation in the stream channel where the mills were located is measured (one of these days).

Original Dams: A guess by your author (kww) of the height of Steven’s original dam is about 4 to 5 feet. That’s based on the hydrography of Upper Beverley Lake and Grant’s 1797 maps which shows a separate Lake Abel. Today’s MRN dam elevates the lake by 9 to 10 feet, creating a single lake where there were formerly two, but that wasn’t the case with Stevens, it was still two lakes in his day, the lower and possibly also the upper, dam elevated (upper lake with a 2nd dam). Adding 4 to 5 feet to the lower lake gives the approximate appearance of Grant’s 1797 lake, but it remains an educated guess.
Abel Stevens (Sr.) – born late 1754 or early 1755 – died 1826 (one source shows October 9, 1826). Date of 1816 seen in some documents is in error (guessing a typo, using a 1 instead of a 2). He was buried in Denaut Cemetery (exact location unknown – headstone never found, may have been destroyed – the cemetery has been vandalized over the years).

June 2, 1796 – Abel Stevens granted 5 lots – Lots 23, 24 and 25 in the 9th concession, Lots 11 & 12 in the 10th. Land grant shows 700 acres – area of lakes (water) subtracted off what should have been 1000 acres (1000 is crossed off on the grant document with 700 written beside it. (see Fritz, pg. 9)

Stevens Petitions: Stevens wrote a lot of petitions to the government. In one (date uncertain) he states “that your Petitioner came from Vermont and settled on Lands on the Gananoqua River, County of Leeds, has made considerable progress in cultivating: Prays a Grant for the Rapids between the 2’d and 3’d Lake [between Upper and Lower Beverley – present Delta] and likewise for the Falls between the 3’d and 4th Lakes [present Lyndhurst] in Said River, to Erect Mills upon …”

On January 15, 1796 he notes in a petition “… your memorialist has the mill-irons on hand and Mill-right ready to set up a Mill as soon as your memorialist is established in the Falls above cited [Lyndhurst]. Note the reference to a millwright – Jones and Schofield would also have used a millwright to design and oversee the construction of the Old Stone Mill.

Turbines – William Trick calculated that with a 7 foot head each of our 48” Swain turbines could have generated 33 horsepower each if operated at 75 rpm with a 1.45 cubic metre per second water flow (3050 cubic feet per minute). Both turbines rotated clockwise (when looked at from above) and rotated the mill layshaft at 225 rpm.

No Smoking – in the 1994 archaeology report it’s noted that a low number of clay pipe fragments were found (given the prevalence of clay pipe smoking in the 1800s). It was speculated that perhaps the mill had a no smoking policy due to the potential fire hazard (wood, flour dust, etc.) Just speculation.

Exterior Bypass (bywash): we have the advantage today of a cumulated mass of knowledge. In the 1994 archaeology report, it states, in error, that “there is no evidence to suggest that water was intentionally made, or left to flow around the exterior of the mill in the form of a flood water by-pass channel until sometime between the 1960s and 1980s. While we cannot be 100% certain about the original mill, in Denaut’s time there clearly was a bypass channel (you can see it in photos of that era). It was an Oliver Evan’s recommendation and it is assumed that is most likely the mill always had a bypass channel along the west wall – with the sawmill elevated above it. It would have been a foolhardy design not to have a bypass channel.

Some of the confusion appears to come from local anecdotal stories that the headrace was controlled by stop-logs. These stories appears to have mixed up the bywash, which had stop logs (it appears to have had those in Denaut’s days) and the headgate for the millrace, which would most likely have had a more sophisticated headgate control. Perhaps these stories came about because the buffer wall concealed the headgate while the stop logs of the bywash were visible to the passing public (and people’s non-understanding of how a mill worked).

Sets of millstones: the 1994 archaeology showed cutouts in the husk structure for 3 sets of millstones, two towards the east side of the husk (basically from the area of the stairs to our present millstone location) and one over the area of the wheelpit (close to the original north wall (today’s wall between old mill and turbine shed). The inset circles are 54” in diameter

Likely one set (east) was moved to the west (on top of the former waterwheel area) when mill switched to turbines in order to reduce the distance for the belts and gearing.

1972-75 restoration – no detailed information yet found, we have lists of general information (roof shingles re-done, window sills re-done, etc). 1994 archaeology report indicates that most of the 1st floor of mill was
replaced at that time (obscuring locations of chutes and equipment that might have been evident from the floor layout).

That restoration also obscured some of the structural features since stone and cement was used to add support to some sagging sections of the mill – moving some original foundation stones to new locations.

THE MILLER’S DAY

The daily duties of the miller and his assistants remained constant over time; they simply adapted to the changing technology.

- Clearing of any debris or obstacles that might damage the water wheel, later the turbines.
- Adjusting the sluice gate to allow more or less water over the water wheel.
- Taking in the grain and weighing it.
- Adjusting the gap between the millstones (tentering).
- Checking to make sure there was enough grain to feed the stones.
- Checking, fixing, adjusting, and greasing gears, belts, pulleys and other machinery.
- Checking the bolter and grain cleaner.
- Sweeping the floors.
- Collecting flour dust.
- Nailing, weighing and marking the casks (flour barrels).
- Logbooks were kept to keep records of repairs, amount of grain brought in and flour sold.

WHO WORKED IN THE MILL

There had to be at least one person on duty at all times to ensure that everything was working smoothly and that there was enough grain to grind. Between 1861–1865, during the time Walter Denaut was miller, there were four people working in the mill – the miller, a millwright and two assistants (note that some such as the millwright was likely for the renovations/re-designs that Denaut was doing). After World War II, Hastings Steele employed two men in the mill and between seven and nine men when the sawmill was in operation.

MILLSTONES

The best type of millstone were those that came from quarries located in La Ferté-sous-Jouarre in the Marne Valley of France. This area featured a particular type of silicious (quartz flooded) sedimentary rock that was filled with small cavities. This type of hard rock was known as “pierre meulière”. The exposure of the cavities in the rock formed sharp cutting edges for the grinding of grain (grooves were not originally cut into millstones – it was the edges of the cavities that did the cutting). The “millstone” layers varied in thickness (from about half a meter up to about five metres) and the hardness and amount of cavities also varied. Generalities cannot be made, the quality of stone varied within individual quarries (variations within the layers).

These pierre meulière stones were ideal for grinding grain since not only were they very hard, but as they wore down during grinding, more cavities, and therefore more cutting surfaces were exposed. These early stones didn’t need dressing other than to remove glazing (polishing) that sometimes occurred and to keep the stones flat.

In the early days all millstones were extracted as single pieces and shaped into millstones (known as “monolithic” millstones – meaning single piece). They were generally 1.8 to 2.25 metres in diameter. There were over three hundred quarries opened in the area. The quarries competed with each other to produce the best quality stones. By the 1700s, monolithic stones big enough to form a millstone were becoming scarcer and the idea came along to put together smaller pieces, which were easy to obtain, into a single stone, forming what we would call a burrstone today, a stone made up of multiple smaller pieces of stone.

The term burrstone is a bit of a mystery. The first reference to the name is in 1614 as “Burr of Millstones” – later references are to “burrs for Millstones” (1657). It appears that the usage meant the individual pieces
used to construct a millstone – this seems to be the common usage – a burr being one of the smaller pieces of stone. The spelling “buhr” doesn’t appear until 1821, it appears to be a Scottish variation of the spelling.

It is likely that idea of a constructed stone came from quarries that were running out of monolith size stones, but had lots of smaller size stones. History is silent on who might have invented this technique, but it became common as these smaller stones were more readily available. In 1833 for instance, production from La Ferté was 2,350 monoliths and 190,000 burrs.

Initially the pieced stones used large pieces, 4 or 6 would make up a single stone. But as time went on, pieces became smaller, requiring more pieces to be used. The trick was to choose pieces of the same quality to ensure a consistent grind.

The idea of grooves (furrows) as we know them today is lost to history. One credits a Franciscan Friar (a document from 1761) who recommended that 45 to 50 radial grooves be cut into the stones. The more extensive use of grooves appears to have been developed in England, so much so that grooved stones became known as “English” stones. The shape and number of grooves was refined in the 1800s. The English also favoured smaller, 4 foot stones which could be rotated faster (since they weighed less) than larger stones.

There was quite a technique for selecting burrs. The construction started with choosing stones for the centre, around the eye (opening) of the stone. In some cases harder stones were used here (since they performed the initial cutting of the grain) with softer burrs towards the outer edge. In all cases the size and thickness had to be chosen to ensure that the stone was balanced, so that it would spin true (not wobble). These burrs were cemented together using plaster of paris (using locally sourced gypsum) and small bits of stone. There was a high degree of skill to doing this in order to maintain the balance of the stone and achieve the desired cutting/grinding action. Later on cement was used in place of plaster of paris.

Burrstones for export were done in a number of ways. Some stones were simply shipped as ships’ ballast, but in others, partially assembled stones (no backing and cold banded together) were shipped. Due to the need to have a properly chosen set of burrs (for cutting action and balance) it was best if the stones were shipped partially assembled or as a set.


We don’t know exactly when burrstones were introduced to the Old Stone Mill. We assume these were the type of high quality millstones that Jones and Schofield would have originally procured, but we don’t know for sure, however the likelihood is very high. In Oliver Evan’s 1795 guide, he shows a set of French burrstones and a set of “country stones” (which could be sandstone, granite or any other local hard rock). But given the scale of the mill and that softer material (i.e. oats, corn) was not likely being ground at that time, French burrstones makes the most sense. Today we have two of them in the mill, one set used as a display of what the stones looked like and how they were dressed, and a second operating set (obtained in 2008 from Québec) which we use to grind our grain. We may have received the display set in 1975 (references to getting granite and at least one burrstone at that time). In an interview with Gordon Grey he stated that Hastings Steele sold one of the mill’s burrstone to someone in Newboro.

Sweeney Diary (1839-1850)

Peter Sweeney, as mentioned in the Blacksmith section of this document, went to Delta (“Beverly”) from his house (Lockmaster’s House) at Jones Falls several times a month. In the winter he often took a shortcut, crossing the ice of Lower Beverley Lake. In addition to going to the blacksmith (which he did quite often) he was also buying flour and bran from the Old Stone Mill – he has several mentions of this. He was also buying pork and oats in the village (and of course whisky – Peter and his family had a bit of a drinking problem).

On November 23, 1848 he “went to Beverly with wheat in a wagon” – two days later he writes “went to Beverly for flour” – perhaps the flour from the grinding of his wheat? On January 3 1849 he writes “went to Beverly got wheat ground home at 10 p.m” He also mentions going to the tailor and also getting his hair cut in Beverley. He also notes that there was a court house in Beverley. And as previously mentioned
(under Blacksmith’s Shop) – Sweeney was going regularly to the blacksmith to have his horses shod and metal runners put on his sleighs.

Uncertain as to exactly which roads he took – but he mentions a few times crossing the ice of Lower Beverley Lake in the winter (shortcut) – he also has a reference to someone losing a team of horses through the ice.

Lyndhurst Ironworks

The story of the mill is tied to the Lyndhurst ironworks in a number of ways. It was clearly one of the most sought after economic opportunities in the areas – the reason Abel Stevens came to this area (outside of founding a Baptist community) and hence the reason Delta was founded and, later, the Old Stone Mill built.

William Jones and Ira Schofield were also part of this story. Ephraim Jones, the father of William Jones, became an associate in the furnace project. In 1804 he advanced money (£1,189 + change) to Wallis Sunderlin in exchange for one quarter interest in the furnace and forge (plus some land and a one-half interest in the sawmill). It appears that Sunderlin never paid it back (deadline was January 1809 to do that) so Jones retained that interest. In 1815, William Jones said that his family was willing to sell their interest in the property for £3,000.

After the foundry burned, Ira Schofield expressed an interest in obtaining the property, stating that he was “somewhat experienced in erecting and superintending such works” and had gone “to the expense of procuring every implement necessary to carry the Iron Manufactory into effect.”

(info from Lockwood’s Rear of Leeds & Lansdowne)

Art Shaw is presently (May 2018) compiling a full report with the currently known history of the ironworks.

There are several sources for the iron – period references show at least four different geographic locations for the iron. The initial source for the iron was “adjacent to the ironworks” and may be a section of iron rich Potsdam sandstone just north of Lyndhurst. In Wallis Sunderlin’s petition of Feb 9, 1807 he states “the Ore adjoining the Works did not turn out as expected” Sunderlin also made petitions to access iron that had been discovered in other areas, specifically on Lot 10 of the 11th Concession of Lansdowne and Lots 11, 12 & 13 of the 13th Concession of Lansdowne.

There is also iron in Bastard Township near the shore of Lower Beverley lake but it is unclear if this was ever mined for Sunderlin’s ironworks. In 1815, Ira Schofield, in his attempt to obtain the rights to the ironworks, says that he made a “Discovery of in all probability a valuable Mine of Iron Ore, situated on a Water Communication to the falls on the Gananoqui River ...” – he may have been referring to this area which is on a “water communication” with Lyndhurst. We know it was mined for iron in the 20th century “From October 1918 the Draney Brothers of Toronto worked these deposits, except in winter, until November 1919. In August 1919 the Consolidated Iron and Steel Corporation took over the property. Three small shafts and some prospect pits were sunk and four carloads of ore were shipped, which according to the smelter records, averaged 68 per cent iron. About one carload of ore was left on the dump.”

Some crystalline chalcopyrite (copper mineral) has been found in that area leading to the mention of “copper mines” in Bastard – that’s not true (no economic mines), but a bit of copper does exist in the area.

Barter vs Custom vs Merchant

We sometimes see a custom mill referred to as a barter mill. But they are not really synonymous, a custom mill had a fixed toll that was mandated by law in Upper Canada to be 1/12 of the grain (miller got 1/12 as toll for milling the grain, the other 11/12 belonged to the farmer) – there was no bartering. In 1793 (Jan 1, 1793) it became the law in Upper Canada that the toll a miller could charge for grain was 1/12 of the grain brought into be milled (an increase from the previous 1/14 as levied in Quebec). The law also said the miller didn’t have to grind grain that didn’t have the name of the farmer marked on the bag (issues in the past with bags getting mixed up because groups of farmers brought in unmarked bags of grain). (Leung p.21)

That didn’t mean the miller didn’t barter – just that he officially couldn’t do it for milling flour – he could do it for selling, or bartering his own flour.
Custom mills didn’t need to produce a high quality flour – the flour was sometimes returned to the farmer as whole grain flour (not bolted). This is likely how the original Stevens’ gristmill operated.

Merchant mills on the other hand demanded a higher quality flour which meant that a bolter was a necessity to create the desired finer quality flour. Only fine flour could be exported and in that time period it was only fine flour that was a desired product for baking. The flour also had to be dry for merchant use (otherwise it would spoil too soon when packed into barrels).

The Old Stone Mill was built as an Oliver Evans Automatic Mill – a purpose designed merchant mill. At this time (1810-12) there was likely a surplus of grain in the area (Bastard & Kitley townships) and a nearby market (Kingston, both local and the port for exports). This is not to say that the Old Stone Mill only did merchant milling, there may have been a combination of merchant and custom in the early days.

There is a quote in Leung from a miller in Ancaster in 1804 that “he considers grinding for Toll (1/12) not worth the expense.” Jones & Schofield likely had that same thought – although like any good businessmen, they were likely flexible. Charles Jones (brother of William), noted in the

Charles Jones, in 1836, noted the customary practise of giving a farmer 1 bushel of flour for every 5 bushels of wheat. He’s referencing bolted fine flour. From 5 bushels (300 lbs) the miller would get about 189 lbs of fine flour (63%) and give 60 lbs of that to the farmer in payment, keeping 129 lbs for himself to sell. Jones noted that as an operator of a large mill (Yonge’s Mills) he didn’t benefit from this as much as a local gristmill, where the “offal” (middling & bran) could be sold to local farmers for animal feed. Jones didn’t have a large enough local farming population to sell his offal to. Jones was buying wheat from as far away as the Toronto area to feed his mill. As a large mill (he was producing 12,000 barrels of flour per year for export) he didn’t like the 5 wheat / 1 flour arrangement – it wasn’t as profitable. His Dictionary of Canadian Biography entry says that he was doing about ¼ custom milling and ¾ merchant milling in the mid-1830s.

Flour back to the Farmer from custom milling

While the miller took 1/12 of the wheat, it didn’t mean that the farmer got 11/12 of the wheat back as flour. If the flour was bolted, the farmer might get 63% of that 11/12 back in good flour, 13% as middlings, 20% bran and offal. There were losses from the millstones and bolter, plus dirt cleaned from the grain – adding up to about a 4% loss. (Leung p.21)

As noted above (Charles Jones) – in the 1830s the arrangement seemed to be 1 bushel of fine flour to the farmer in payment for every 5 bushels of wheat delivered to the mill. Unknown at this time when the 1/12 toll mandate was abandoned.

Weight of Flour.

In 1793 the Winchester measure for a bushel of wheat set it at 60 pounds of wheat (a bushel of wheat was, and still is, a measure of weight, not volume). Known as the Winchester bushel. (Leung p.21) American wheat bushel was also the same (which one came first?).

Markets

Where and how did the flour go? Any custom milling would have gone back to the farmer, but with merchant milling there were several choices. There were local markets (Bastard, Kitley, etc.), there was the Kingston market (population 2,000 in 1812) which included both civilian and military and there was the export market, most likely from the Port of Kingston, the Britain or the U.S. (although not in 1812-14). We know that Kingston did exports since it was in 1794 that the first official export from Upper Canada was done – from Kingston to Montreal and from there abroad (Britain & Europe). 896 barrels of flour, 83 barrels of middlings, and 12,000 bushels of grain (Leung p.22)

The first Mills

We’ve noted that the Old Stone Mill is a very early stone mill. It was built less than 30 years after the very first mill in Ontario (1783 near Niagara). The second mills in Ontario were built not that far away from Delta, the King’s Mills located on Cataraqui Falls, today’s Kingston Mills. A sawmill and grist mill were built there by the government in 1784, one year after the English occupation of Cataraqui, the founding of
Kingston. At that time mills were being built by the government to serve incoming Loyalists – to help ensure successful settlement.

**Timber for the mill**

Timber for the mill would have been sourced locally, mostly eastern white pine and white oak. In that era (and up until the late 1800s) trees were felled using axes – saws were not used in the bush. Squared timber was prepared in the bush by skilled axemen. In Upper and Lower Canada, square timbers prepared by axemen was common up until the mid-1800s – it wasn’t until the 1870s that the square timber trade went into decline, supplanted by sawn timbers (Industries and Industrialists of Merrickville, William Tatley, PC MSR 423, 1979 – p.112-113). The support timbers for the mill are all axe squared (you can see the chatter marks in the wood). Floor planking, done with pine, may have been sawn at the local sawmill.

For wet areas, the waterwheel, waterhouse and flume, white oak was preferred since it was strong and resistant to wet rot. For applications where a strong wood was required, such as wooden gear teeth, hardwoods such as maple and beech were preferred.

The millwright who designed and constructed the mill would have been familiar with the best types of wood to use for each application.

The roof would have been done with shingles or shakes. This was a transition period between hand made shakes and sawmill shingles. They were generally narrow (less than 10 inches) to minimize warping (cupping). Lightweight wood was preferred (affected the weight of the roof), locally that could have been cedar or even white pine. Sometimes white oak was used due to its resistance to rot.

**Holes in the Mill walls**

There are various holes and places where there used to be holes in the walls (you can see some of these in pre-restoration photographs). A few of these were fancifully called “gunslit windows” in early (1960s) reports. An example are the two vertical slits in the wall between the turbine shed and the original mill in the area of the waterwheel. We know today that those are holes put in for drive belts, they line up perfectly with the locations of the upstream and downstream turbines. But the presence of these and others like them led to tales of them being used to defend the mill against “Indian attack”. Outside of the fact that local indigenous populations weren’t attacking anyone – it’s an example of a complete misinterpretation of a fact (holes in the mill) and wild assumptions with no foundation in factual information.

In most cases holes in the mill were either to provide access to shafts or belts to power equipment, or in some cases perhaps for hoisting mechanisms (to provide a vertical lift for equipment in that location).

**Grain Cleaners**

In a written memory of A.V. Hicock (b.1880, d.1970 – memories not dated, but mentions that he’d left Delta 60 years before) – says that Haskins (sic) built the sawmill when he took over the mill [likely a rebuild of Denaut’s sawmill since we know that Denaut had a sawmill]. He notes separators which he says were located on the top floor. “I think there were two of these separators, about 10 to 12 feet long” The term separator is generally used for a grain cleaner (and if located on the top floor they would have been grain cleaners).

**Marble Cutting**

Memories of “Miss Allyn”, n.d. “Beside the creek was the marble-works established in 1830 by my grandfather, Christopher Allyn, where blocks of limestone were sawn into slabs by oxen. Some of these slabs may still be seen in the old cemeteries, bearing his name, or the name of my father as workman. The shop for making of tombstones was afterwards moved to the lot where my father built his house nearly ninety years ago.” We know that original marble cutter was in the sawmill beside the Old Stone Mill (1835 sale ad for the mill). It appears that the marble cutting operation moved to Lyndhurst for a short time (under different ownership) and then returned to Delta. By mid-1800s, Christopher and his son Christopher were operating a marble cutting operation in Delta. They were also importing white marble since the local marble was grey with variations in tone (the move to Lyndhurst and back to Delta and white marble info from Lockwood’s Rear of Leeds of Landsdowne – information provided by Keith Sly)
Hicock Foundry

Originally set up at site of Abel Stevens Jr’s sawmill. “Later the foundry was moved down near the present garage of Mr. M. Steele and was operated by A. E. Hicock and Melvin Day” (Miss Allyn)

Drive Shed Hall

“The grist mill is the oldest building in the village’ and in my young days was owned by Walter Denant (sic). The brick building adjoining it also was owned by Mr. Denant and was the Town Hall, Clerk’s office and was the scene of concerts, socials, and such events.” (Miss Allyn)

Old Stone Bridge

“I remember when the present [old stone] bridge was built, taking the place of a narrower bridge with a wooden deck.” (Miss Allyn). Miss Allyn notes that she was first learning to write in 1870. So when was this memory of the stone bridge being built? Likely late 1860s or early 1870s. Further research needed to find an exact date. What did the original bridge look like. All we know from Miss Allyn is that it had a wooden deck. Was the whole bridge wood – maybe stone abutments and a wooden deck – or ??

Abel Stevens

– From “History of the Church at Phillipsville Read at the Hundredth Anniversary” This is a synopsis of a speech given in 1903 by R.M. Stevens (“written by Miss Stephen’s grandfather”). Of note, reference is to Delta Baptist Church, not Philipsville. Abel Steven’s Senior was made an Elder (minister) in 1804. In 1803 there was the establishment of the Baptist “church” (a congregation, not a physical church). Stevens was ordained as a Elder (minister) in March 1804. First physical church was started in 1811 in Delta but was not completed – only the shell was put up and then they ran out of money. The church was completed by the Anglicans in the late 1820s.

“Among the number that crossed the line [U.S./Canada border] in the winter of 1792-3 [actually February 1794] was Elder Abel Stevens – from the State of Vermont [Pittsford – although originally born in Quaker Hill, NY], with a yolk of oxen, a cow and one horse conveying his family and household effects, he having been in previously [scouted area in 1793] and blazing his way on trees through the woods from Milton Town to Plum Hollow , and settled at a place now known as Bullard’s bridge.”

Fairly clear from various articles that Stevens’ goal, outside of milling and getting the Lyndhurst forge, was to establish a Baptist community (a religious community). A criteria for the settlers he invited was that they all be Baptists.

March 1807 Reference to the “Twenty Mile Woods” as road from Stevenstown to Kingston “Road thro’ “The Twenty Mill Woods” in bad condition so did not go to Kingston but went back to NY on May 28 by Oswegatche, now Prescott. (from “The Baptists in Upper and Lower Canada before 1820” by Stuart Ivison and Fred Rossen, Univ. of Toronto Press, 1956.)

Church in 1803 = 14 members

“Rev. Joseph Cornell – Cornell’s “little vine” of 1803 had been planted. [a reference to creating the 1st Baptist Church – date of Feb 12, 1803 mentioned] Found another candidate [for ordination] in Abel Stevens, founder of the settlement, whose American ordination was in question. Both [Stevens & Daniel Derbyshire] were ordained the first week in March. [1804]

Old town hall – reference (1966) – possibly from Lloyd Irwin – Present Twp Hall & Masonic Temple (1879-1880) – Lodge Books speak of Jasper Russels’s offer of brick at $4.00 a thousand – accepted
Milling Start-Up Procedures

(present day procedure)

1. Check and clean up any signs of mouse occupation or spider webs anywhere.
2. Take off the hopper and horse and shoe. Remove the cover from the top opening in the skirt, remove the skirt. Vacuum stones thoroughly: top, inside, sides.
3. Put the skirt back on, install the damsel, and replace the shoe, horse and hopper.
4. Vacuum the boot of the elevator in the basement. The ends of the boot slide out for cleaning.
5. Check the direction of the valve on the third floor. Ensure that it is pointed in the direction of desired use.
6. Be sure a bran bag is attached at the end of the bolter (if using the bolter) and/or that a bag is attached to the bagging chute (if bypassing the bolter).
7. Check that the power switch and rheostat for the mill stone are in the off position.
8. Fill the hopper with wheat.
9. Remove the wooden plug from the flour outlet at the side of the skirt, and cover the outlet with the canvas bag (or not; the chute will work with the plug in place).
10. Turn on the power in the basement.
11. Start the elevator. Be sure the belt is running and not slipping.
12. Start the bolter (if using the bolter).
13. Turn on the power to the mill stone (toggle switch).
14. Turn the rheostat until the stone starts turning. Lower the mill stone one turn on the tentering wheel. Speed up the stone. Lower the tentering wheel another half turn. Turn the rheostat until the white dot is at the bottom. Lower the stone until the pointer is parallel with the watercourse.
15. Check the flour coming out for texture. Adjust tentering wheel to optimum flour texture.
16. Discard first 2-5 lbs of flour to ensure that the flour is clean.
17. Change the valve as required during milling to direct the flour to the bolter or directly to the bagger (bolter by-pass chute).
NOTES: (add your own notes)