

A very close look at

Rockley Mill's French Burr Stones



By Anne and Les Dollin

A VERY CLOSE LOOK AT ROCKLEY MILL'S FRENCH BURR STONES

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A very close look at Rockley Mill's French Burr Stones.

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Images on front cover:

Right, Anne Dollin beginning her study of Rockley Mill Museum's three millstones in October 2024. Photograph by John Wagner.

Left, three of the 1 millimetre wide fossils that Anne found in the Rockley Mill Museum millstones – more details in Chapter 4. Photographs by Anne Dollin.

Find out more at: www.singletonmills.com

CHAPTER 1

ANNE'S VISIT TO ROCKLEY MILL MUSEUM IN 2024

THE ROCKLEY MILL & STABLES MUSEUM

Rockley Mill was an historic mill that produced flour for the district from 1862 until about 1890. It is located at Rockley, 35 km south of Bathurst, New South Wales, Australia. The beautiful old mill building now houses the [Rockley Mill & Stables Museum](#), which presents an outstanding collection of Australian milling equipment.



Above, the fascinating Rockley Mill & Stables Museum, 35 km south of Bathurst, NSW, Australia. Photograph source: this is one of a beautiful collection of photographs, kindly taken for us on the day of our millstone study, by John Wagner.

FLOUR MILLING MACHINERY FROM THE STEAM ERA AT ROCKLEY MILL MUSEUM

The [Rockley Mill & Stables Museum](#) also exhibits an impressive collection of milling machinery from the [Steam Flour Mill era](#) of Australia. The substantial remains of Rockley Mill's original **steam engine** are on display. In addition, Gillespie's Flour Mill at Gilgandra, NSW, donated a **roller mill**, a **centrifugal dresser**, a **purifier**, an **immense tubular dust collector**, and **other steam mill equipment** to the museum.

In due course, we will present detailed photographs and information about Rockley Mill Museum's fascinating steam-era exhibits on our [SingletonMills website](#).

THE MILLSTONES AT ROCKLEY MILL MUSEUM

Rockley Mill Museum has **three magnificent, full-sized millstones** in their display, two of which are described as French Burr Stones. The identity of the third millstone had not been established prior to my visit.

In October 2024, I was warmly welcomed at Rockley Mill and Stables Museum by their volunteers, who generously allowed me extensive access to their collection of milling artefacts. I sincerely thank them for their support and assistance during my visit!

My main goal, during this visit, was to examine, in great detail, their three special millstones.

Find out more at: www.singletonmills.com

CHAPTER 2

ABOUT FRENCH BURR STONES

Numerous French Burr Stones were imported into Australia for use in our flour mills, during the mid 1800s. The stones were highly prized, because they could mill a fine white flour that was much in demand at the time.



[French Burr Millstones](#) were made from a choice grade of chert stone, that had been quarried near Paris from the 1400s until the 1800s. Due to the exceptional milling qualities of this stone, French Burr Stones were widely recognised as the best millstones available anywhere in the world.

Left, a French Burr Millstone, proudly displayed by M. Joseph Markey at the Steenmeulen windmill in France in 2012. Photograph by Les Dollin.

Below, tradesmen dressing French Burr Stones in the Société Générale Meulière workshop at La Ferté-sous-Jouarre, near Paris, France.



Most mill owners in Australia purchased sets of French Burr Stones for their flour mills, as soon as possible, so that they could produce the highest quality flour and compete with other mills. For example, [at least four of the five early watermills established by the Singleton Family in New South Wales had been fitted with French Burr Stones by 1842.](#)

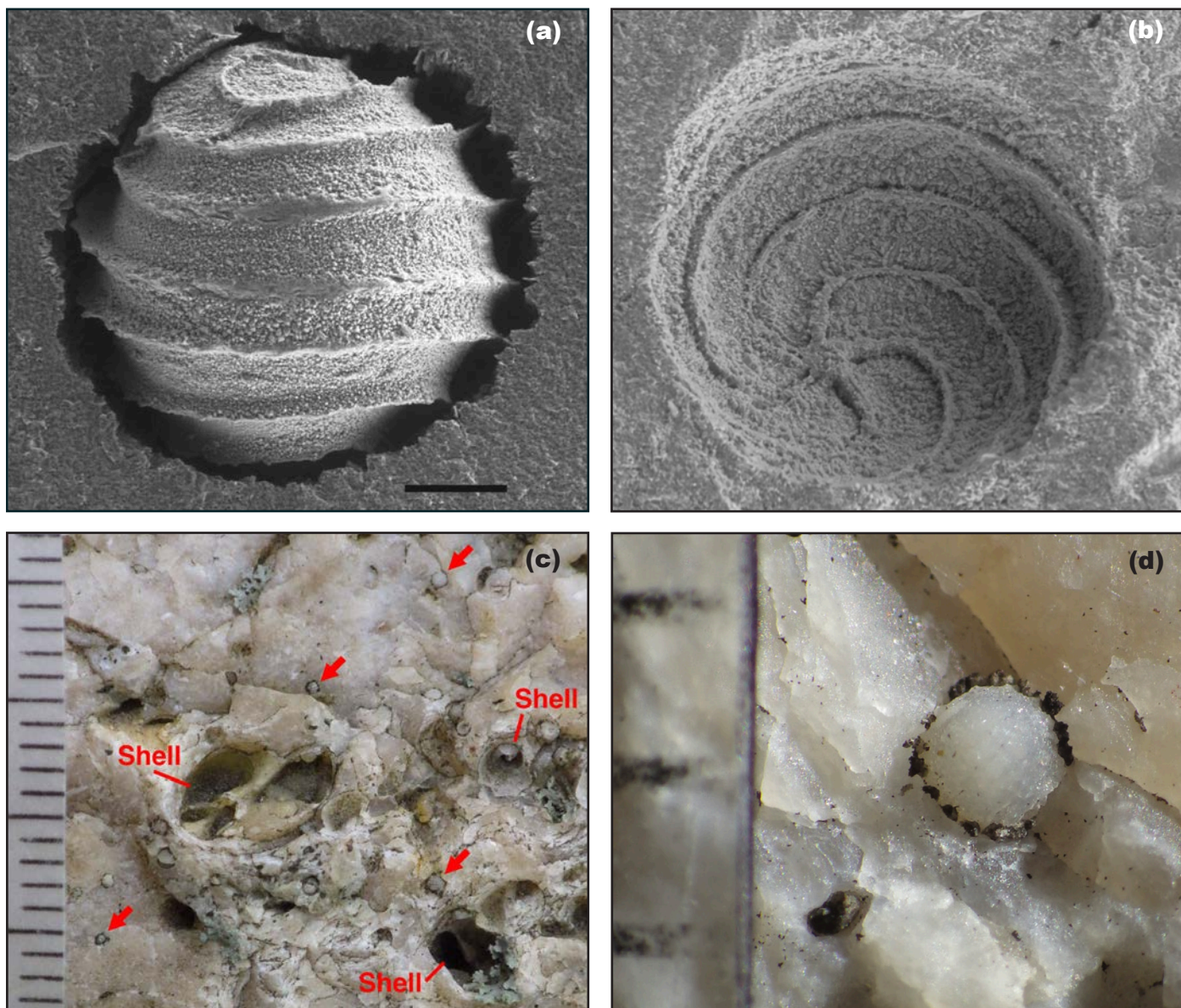
Find out more at: www.singletonmills.com

TINY FOSSILS CAN BE FOUND IN FRENCH BURR STONES

In 2014, **Dr Joseph Hannibal** of the Cleveland Museum of Natural History, Ohio, USA, and his colleagues, published an effective method for identifying millstones which had come from the quarries near Paris.^[1]

Many blocks of French Burr Stone contain distinctive, 30 million year old fossils of an extinct fresh water alga. If you find these fossils in a millstone, then that stone would have been quarried in France.

The fossils used by Dr Hannibal in his work were from a group of freshwater green algae called **charophytes**. The charophyte fossils found in French Burr Stone were small spherical structures that were used in reproduction (**gyrogonites**), from the alga, *Gyrogonia medicaginata* – see photographs, below. There were also fossils of charophyte stems and branches, as well as miniature freshwater shell fossils, in the stone. Not all segments of French Burr Stones had these distinctive fossils, but some had them in large numbers.



Above, images of the characteristic charophyte fossils in French Burr Stones, kindly provided by Dr Joseph Hannibal of the Cleveland Museum of Natural History, Ohio.

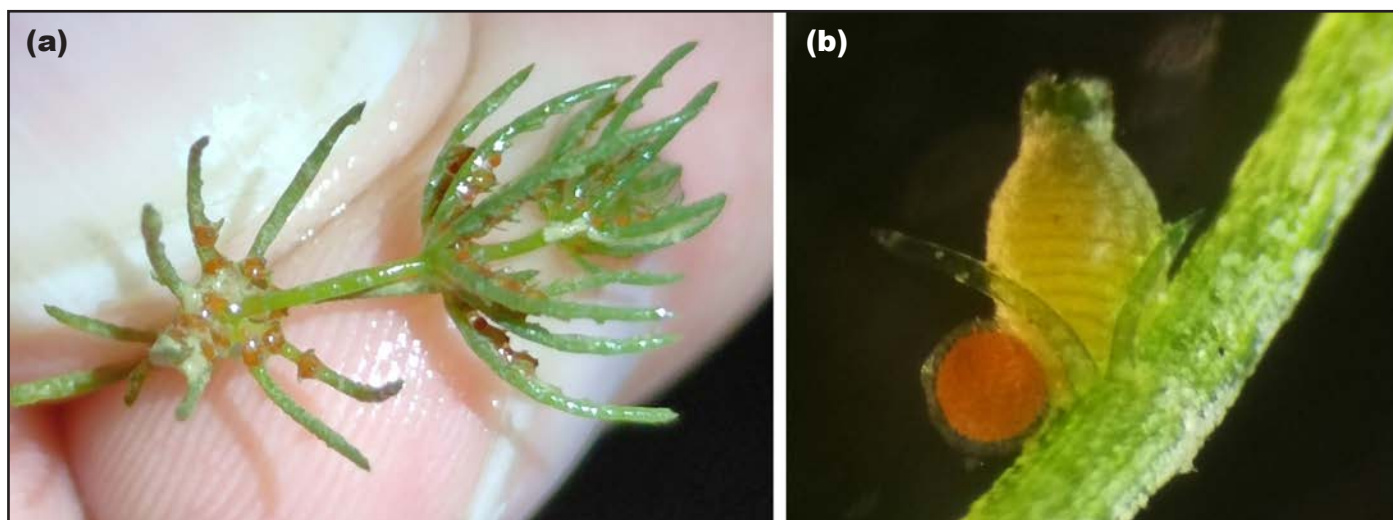
(a). On the side surface of this well-preserved fossil of a gyrogonite (spherical reproductive structure), shown here, prominent parallel bands can be seen, wrapping around it. The black scale bar in this image is one fifth of a millimetre long. Scanning Electron Microscope image.

(b). On the bottom tip of this gyrogonite fossil, the bands can be seen spiralling towards a tiny, pentagonal structure. Scanning Electron Microscope image. (c). A lower-magnification macro photograph of charophyte gyrogonite fossils (some indicated with red arrows) in a piece of French Burr Stone. A number of gastropod snail-like fossil shells (some labelled 'Shell') are also seen in this piece of stone. The ruler on the left is marked in 1 millimetre intervals. (d). A higher-magnification macro photograph of a gyrogonite, beside a ruler marked in millimetres.

Images (a), (b) and (d) are from a scientific paper by Dr Hannibal ^[2], [CC BY-NC](#).

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Modern species of charophyte green algae are still found today, throughout the world, mostly in freshwater streams, ponds, and lakes. The photographs, below, show a modern-day species and its miniature reproductive structures. Thirty million years ago, charophytes, similar to these, produced the intricate structures we can now see in French Burr Stones.



A modern-day charophyte species, Chara globularis.

(a). A tiny stem and branches of *C. globularis*, with orange-brown reproductive structures, are held in a person's fingertips. **(b).** A magnified view of the male (left) and female (right) reproductive structures of *C. globularis*. Notice the distinctive parallel bands that are visible inside the female structure. For further information about modern Australian charophytes, see the research of Michelle Casanova.^[3] These images are from the iNaturalist website. Photographs by: a, Victor Hoyeau in France; b, Thomas Nogatz in Germany, [CC BY-NC](#).

Imported French Burr Stones were being used in numerous countries by the 1800s, because of their exceptional flour milling qualities. These fascinating millstones can still be seen at historic mills and in museums in many parts of the world today.

The spherical fossils of the charophyte, *Gyrogona medicaginula*, described by Dr Hannibal, clearly characterise Burr Stone that came from the quarries near Paris. By looking for these fossils in a millstone, it is possible to find out whether it had been quarried in the Paris Basin.

For example, there are many millstones in Ohio, USA, that are made from chert, and look very similar to French Burr Stones. However, some of these stones had actually been quarried from local American chert. Dr Hannibal looked for these characteristic fossils in the Ohio millstones, and was able to identify millstones that had been quarried from the chert deposits near Paris.^[1] This valuable technique can help local historians around the world learn more about the millstones in their collections.

I was eager to see if I could find any of these fossils in the millstones at Rockley Mill Museum!

Chapter 2 References

1. Hannibal, JT, Reser, NA, Yeakley, JA, Kalka, TA and Fusco, V (2014) Determining provenance of local and imported chert millstones using fossils (especially Charophyta, Fusulinina, and Brachiopoda): examples from Ohio, U.S.A. *PALAIOS*, 28, 739-754.
2. Hannibal, Joseph T (2019) Widespread North American occurrence of millstones made of imported French chert (French buhr) containing charophytes. In: Anderson, TJ and Alonso, N (eds) (2019) *Tilting at Mills: The Archaeology and Geology of Mills and Milling*. *Revista d'Arqueologia de Ponent* extra 4, 283-293.
3. See, for instance, Michelle T Casanova (2005) An overview of *Chara* L. in Australia (Characeae, Charophyta). *Australian Systematic Botany* 18, 25-39; and many more papers by this researcher that are listed in Google Scholar.

Find out more at: www.singletonmills.com

CHAPTER 3

ROCKLEY MILL MUSEUM'S THREE MILLSTONES

Rockley Mill Museum has three millstones on display, that are each 1.22 metres (four feet) in diameter:



I examined these three millstones in great detail, and my findings were as follows:

MILLSTONES 1 AND 2

Millstones 1 and 2 were described in the Museum signage as French Burr Stones. They are both made from angular segments of stone that had been precisely cemented together.

- Millstone 1 is a [Runner Stone](#) made from 16 segments of stone. It is structurally intact and has three iron bands supporting its outer edge.
- Millstone 2 is a [Bed Stone](#) made from 13 segments of stone. It is mostly intact, but some segments on one side have become dislodged. It only has one surviving iron band supporting its outer edge.



The segmented structure of these two millstones is consistent with their identification as French Burr Stones. Centuries ago, in the Paris chert quarries, pieces of stone large enough to make full-sized millstones ('Monolithic Millstones') became depleted. After that time, smaller blocks of the chert stone were cut in the quarries. [These were cemented together into full-sized millstones known as 'Composite Millstones'.](#)

This assembly work was either done in France, or in workshops in the country where they were to be used, such as in England or USA.^[1] Layers of cement were also added behind the stone segments, to smooth out the back of the stone, and ensure that the stone would balance evenly when used in a mill.

Left, the Burr Stone segments which have become dislodged in Millstone 2 clearly show the precise way in which these very hard stones were cut, so that they could be pieced together into a smooth, complete millstone. What skill the stone masons must have had to achieve this! Photograph by Anne Dollin.

Find out more at: www.singletonmills.com

The workshops that assembled the Composite French Burr stones would often use different grades of stone in different parts of the millstone. They could, for instance, choose one grade of stone for the centre part of the millstone, and a different grade for the outer part. This could improve the milling qualities of the millstone.

Sometimes the different grades of stone in a French Burr Millstone are easily noticeable – they can vary in colour from a whitish grey to a nutmeg brown (see photograph on page 4). However, the segments in Millstones 1 and 2 at Rockley Mill do not show distinct colour variations.

The grinding surfaces of Millstones 1 and 2 are displayed uppermost. On each stone, a [dressing pattern](#) consisting of multiple furrows can clearly be seen, chipped across the whole of the grinding surface (see photographs on page 7).

MILLSTONE 3

Millstone 3 was simply described in the Museum signage as ‘*of a different construction*’. It is displayed face down. That is, the grinding surface of this stone faces towards the floor. This stone no longer has any iron bands supporting its outer edge.



The back of this millstone, shown uppermost, is covered with a grey-white cement. An iron name plate is embedded into the back of this stone. The iron plate bears the text, ‘Corcoran, Witt & Co. Manufacturers, Mark Lane, London’. This is the company in England that made this stone (see Chapter 6 for more details).

Millstone 3, which would weigh approximately one tonne, is displayed on a steel frame that only elevates it a short distance from the floor. So, the grinding surface, on the underside of Millstone 3, is very difficult to view. However, by using a mirror, a torch, and a digital camera, I managed to explore the underside of this stone. I could see that this surface is now concave, and criss-crossed with broad, irregular bands of whitish cement-like material (see photograph below).

Then, to my excitement, I found some small pieces of stone, which would once have been part of the original grinding surface, still in place under the left side of Millstone 3.

A close examination of these fragments revealed the hidden history of this millstone! (See more in Chapter 5.)

Above left, the back of Millstone 3 bears an iron nameplate stating that the manufacturer was Corcoran, Witt & Co. The small iron chamber, seen at the bottom of this photograph, was a device used to help balance the weight of the stone when it was being spun at high speed during milling. There were originally four of these chambers, evenly spaced around the edges of the stone. The miller could put ball bearings into these chambers to adjust the balance of the millstone.

Left, this photograph of the underside of Millstone 3 revealed that it was criss-crossed with irregular, broad bands of cement.

Both photographs are by Anne Dollin.

Chapter 3 Reference

1. Hockensmith, Charles D (2009) The Millstone Industry: a summary of research on quarries and producers in the United States, Europe and elsewhere. McFarland & Company, Inc., Jefferson, North Carolina, and London.



Find out more at: www.singletonmills.com

CHAPTER 4

A FOSSIL HUNT ON MILLSTONES 1 AND 2

I eagerly settled down beside Millstones 1 and 2 to examine the grinding faces of these two stones.



The tiny spherical fossils, that Dr Hannibal said might be found in these stones, are only 1 millimetre wide.

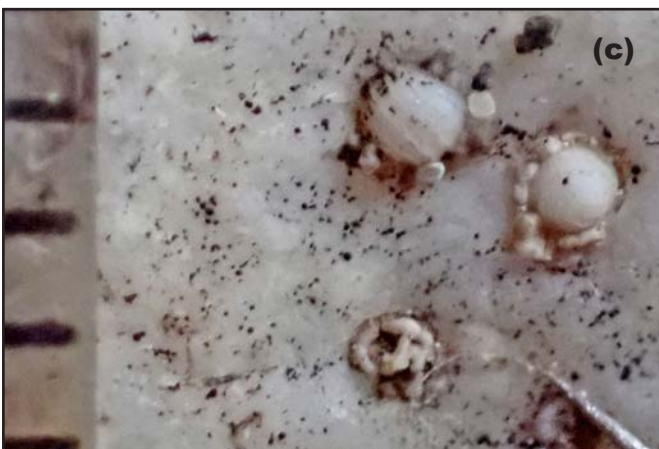
This meant that I needed to study the stone using a strong magnifying glass, and a specialist macro photography camera.

Left, Anne on the fossil hunt! Photograph by John Wagner.

Dr Anne Dollin has been an independent researcher since 1999. She previously worked for the CSIRO and then for CAPRAL Aluminium for 16 years, specialising in light and electron microscopy.

Very soon, I saw the fossils!

Amongst the grooves of the dressing pattern, that were chipped into the stone surfaces, there were some tiny, white, spherical structures, embedded in the stone surface. My macro camera revealed that these structures closely resembled the fossils of the extinct green algae (*Gyrogona medicaginula*), that Dr Hannibal had described.



Some fossils found in Millstone 2.

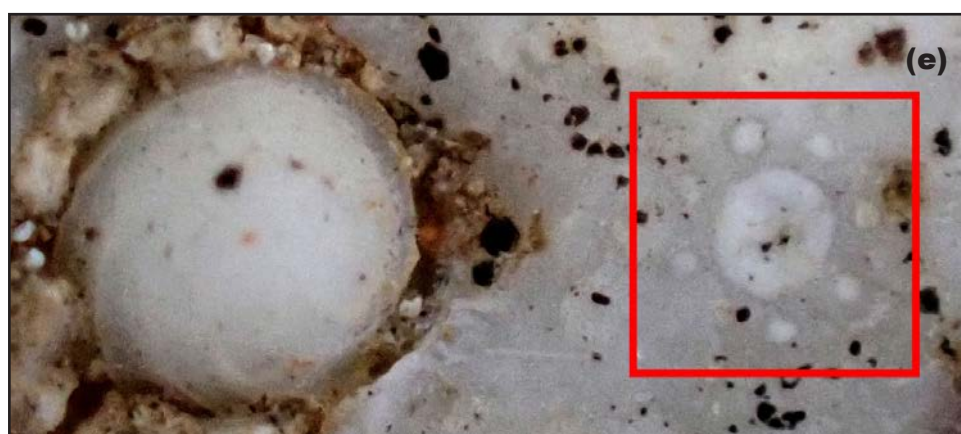
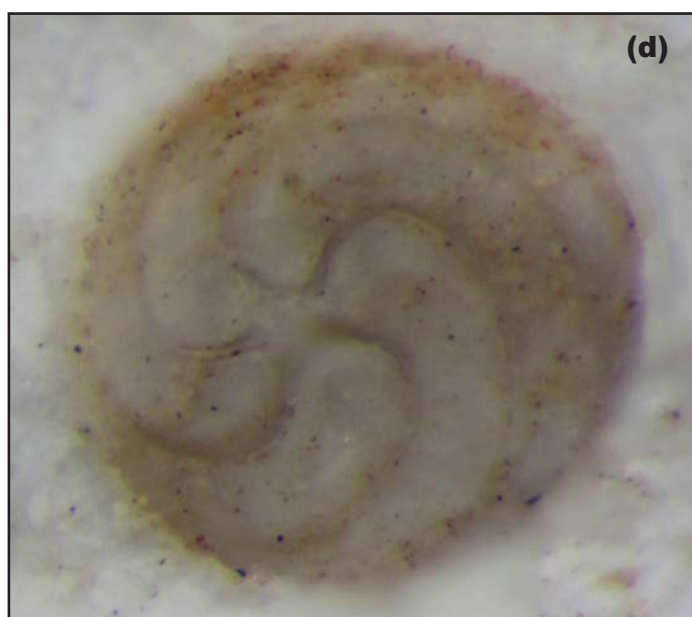
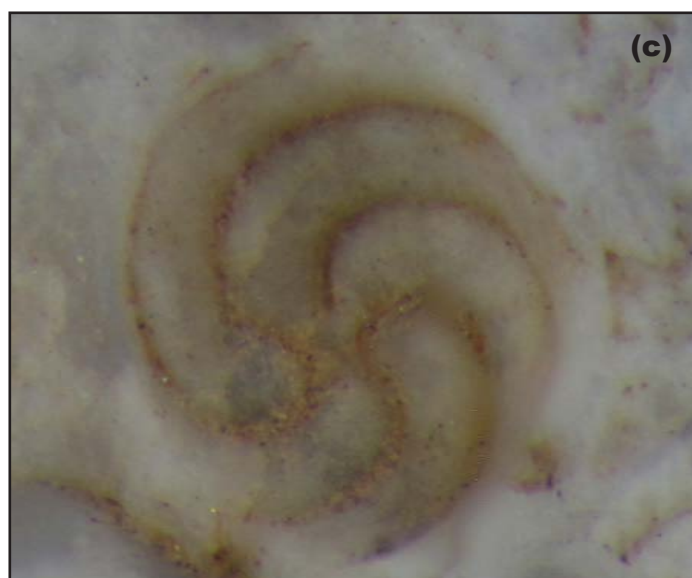
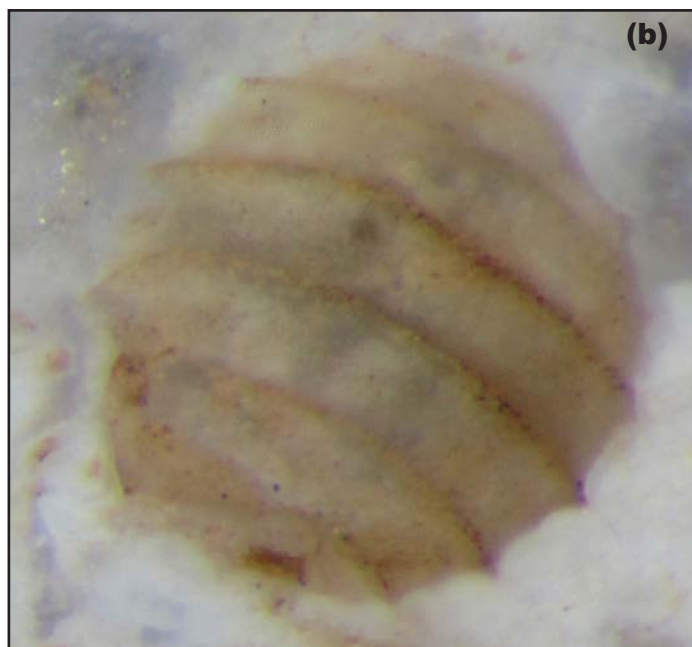
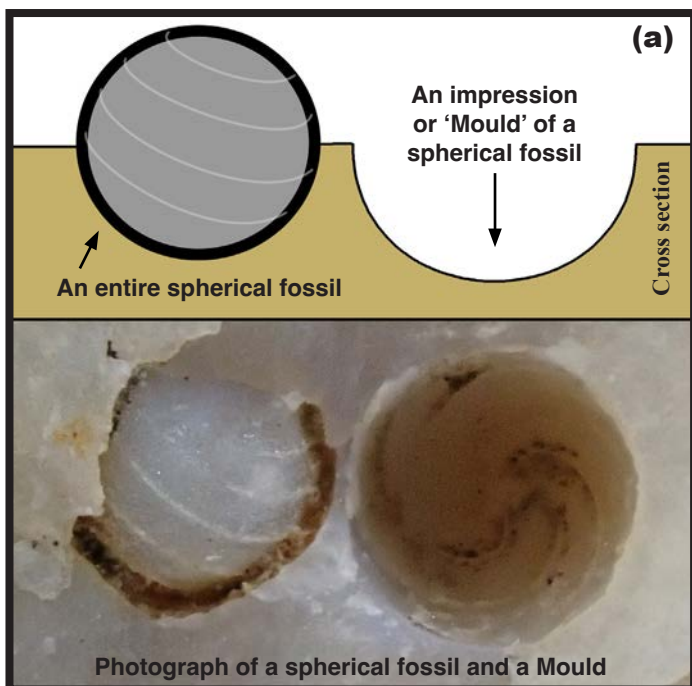
(a). On the end tip of this well-preserved fossil, five bands can be seen spiralling towards a central area – this is very similar to the structures seen in charophyte fossils by Dr Hannibal (compare with photograph (b) on page 5).

(b). This is the side surface of the same fossil seen in photograph (a). In this side view, prominent parallel bands can be seen wrapping across the fossil. Compare with Dr Hannibal's photograph (a) on page 5.

(c). A lower-magnification view of two spherical fossils in Millstone 2, with a scale marked in 1 millimetre intervals.

All photographs are by Anne Dollin.

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More fossils found in Millstone 2.

(a). Two varieties of spherical fossils can be seen in French Burr Stones. This diagram explains how they differ.

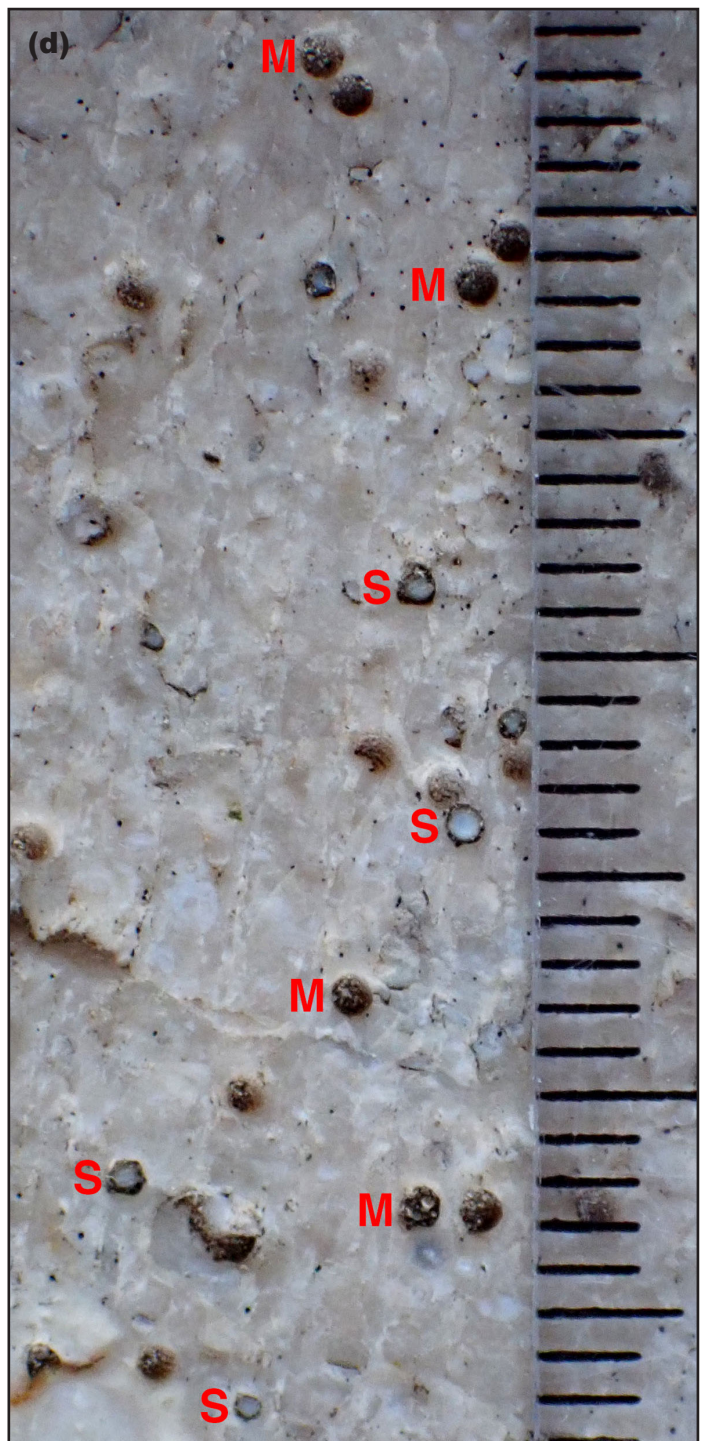
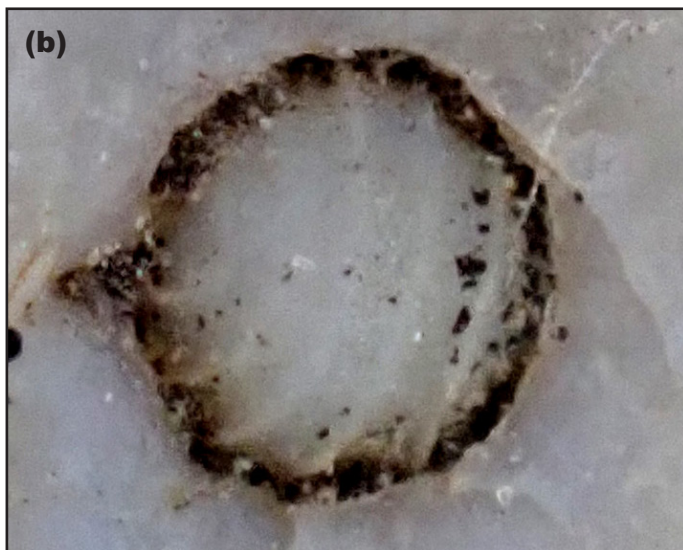
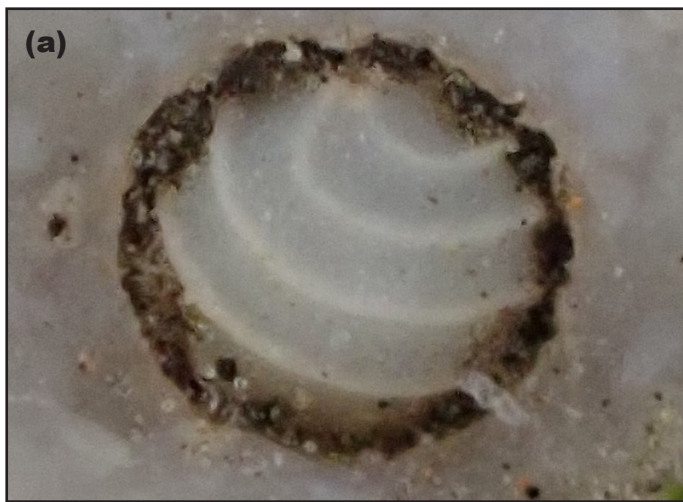
Sometimes **the entire spherical fossil** is preserved and protrudes from the stone surface, as shown on the left.

At other times, the spherical fossil itself has been lost. However, **an impression or 'Mould'** of the structure can still be seen as a depression in the stone surface, as shown on the right. Many details of the fossil surface can still be seen.

(b). A Mould showing details of the prominent parallel bands that once crossed the fossil's surface. Compare with Dr Hannibal's photograph (a) on page 5. (c) and (d). These two Moulds show details of the bands that once spiralled in towards a pentagonal structure on the fossil's surface. Compare with Dr Hannibal's photograph (b) on page 5. (e). The structure highlighted in this red box has the characteristic shape of a cross-section of a charophyte stem, with a solid inner tube surrounded by a ring of up to ten, smaller, evenly spaced tubes. This cross-section is slightly smaller than the spherical fossil seen on the left.

All photographs by Anne Dollin.

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Some fossils found in Millstone 1.

(a) and (b). Spherical fossils with prominent parallel banding, similar to those seen by Dr Hannibal (compare with photograph (a) on page 5).

(c). A lower magnification view showing some white spherical fossils, and some shallow, brownish Moulds that retain some details of the banding patterns.

(d). A low magnification overview of a dense group of fossils in Millstone 1. Both entire spherical fossils (some marked 'S') and Moulds (some marked 'M') can be seen. Note that these Moulds are filled with dust or debris, but they can be gently cleaned with water and a very soft, fine brush, if you wish to see more detail. The scale bar on the right is marked in 1 millimetre intervals.

All photographs are by Anne Dollin.

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After my visit, I emailed some of my photographs to Dr Hannibal, and he kindly confirmed that I had indeed found the charophyte fossils (*Gyrogonia medicaginula*), that are characteristic of Burr Stone from the quarries near Paris.

This confirms that Millstones 1 and 2 are indeed genuine French Burr Stones.

I was only able to find these fossils in a minority of the stone segments in Millstones 1 and 2 – though the fossils can be very difficult to see if the stone surface is worn. However, those segments where I did find fossils, had them in reasonable abundance.

Left, the impressions or Moulds of some coiled, snail-shaped freshwater shells, seen in Millstone 2.

One of the banded, spherical charophyte fossils can also be dimly seen in the far right of this image. Photograph by Anne Dollin.

Now it was time to study Millstone 3!

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CHAPTER 5

THE IDENTITY OF MILLSTONE 3 IS REVEALED!

As described above (see Chapter 3), I found a few small pieces of stone from the original grinding surface, that were still in place underneath the far-left hand side of this millstone.

I could not examine these stone pieces directly with my magnifying lenses, as they were too close to the floor.

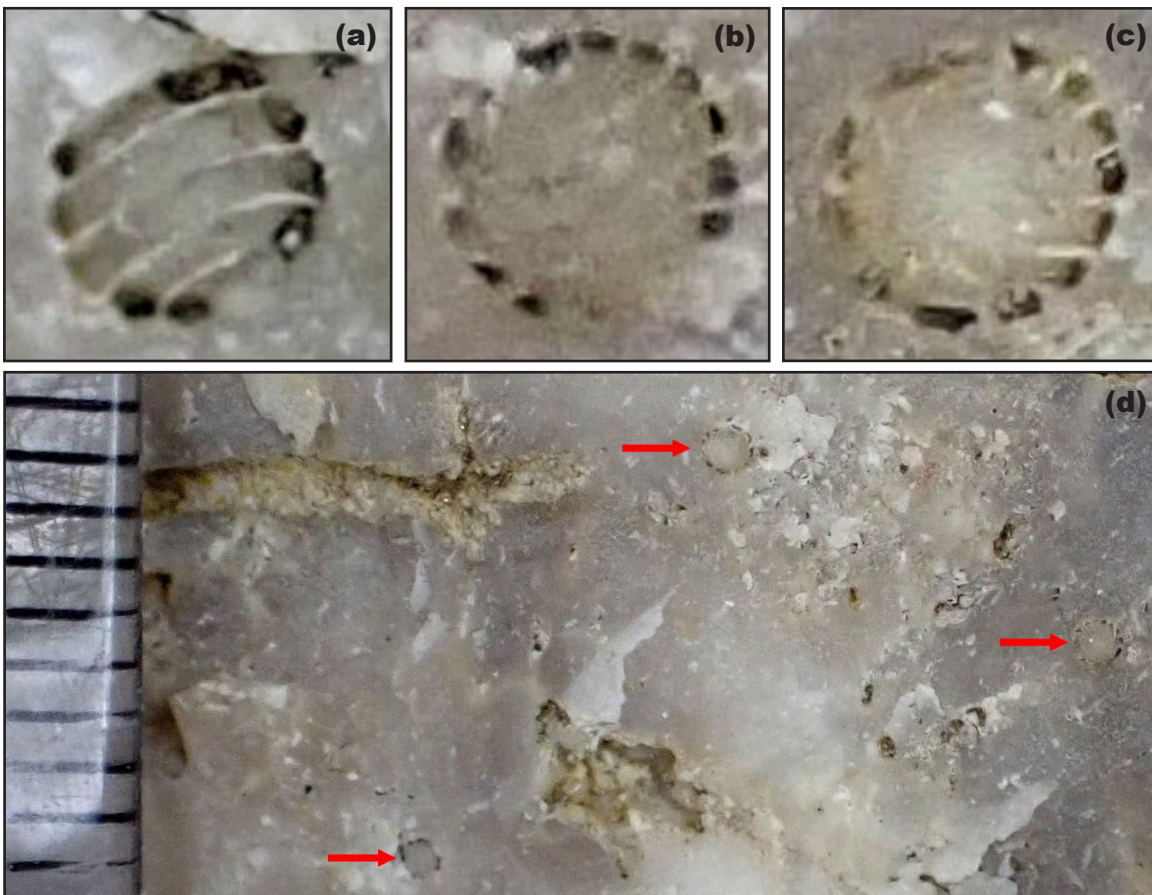
However, by inverting my macro camera and shooting blindly, relying on the camera's autofocus and ring light, I was able to image the underside of these stone pieces.



Above, one of the small fragments of stone from the original grinding surface, still in place on the edge of Millstone 3. Photograph by Anne Dollin.

This led to an unexpected breakthrough!

By studying my photographs, I was able to identify some areas of great interest. The textures of these stone pieces greatly resembled French Burr Stone. Furthermore, my photographs revealed that some also contained 1 mm wide fossil structures, resembling those characteristic of French Burr Stone!



Some fossils found in Millstone 3.

(a) to (c). These charophyte fossils were found in the digital images taken underneath Millstone 3. It was not possible to take high magnification photographs of the individual fossils, as all the photographs were taken blindly, with the camera held upside down underneath the millstone. However, traces of the prominent, parallel bands, characteristic of charophyte fossils, are still clearly seen. *(d).* A lower magnification view showing a group of charophyte fossils (marked with red arrows), with a scale bar marked in 1 millimetre intervals.

All photographs by Anne Dollin.

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Millstone 3 was manufactured in London, according to the nameplate on its back (see page 15). Millstones other than French Burr Stones were manufactured in England during this period, such as those quarried from [Millstone Grit](#). However, it is very unlikely that pieces of stone containing charophyte fossils would be found in any of those other kinds of English millstone.

This evidence suggests that Millstone 3 is a French Burr Stone too, just like Millstones 1 and 2.

Millstone 3 appears to have lost most of the segments of chert that would have originally made up its grinding surface.

So, now, all that can be seen on its grinding face are the underlying layers of cement that once bound the backs of the French Burr Stone pieces together.

*Right, our research suggests that all three of Rockley Mill Museum's millstones are French Burr Stones.
Photograph by Anne Dollin.*



Fortunately, those few small fragments of the original French Burr Stone material did survive on the edge of Millstone 3, and they reveal that this millstone, too, is a French Burr Stone.

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CHAPTER 6

WHERE DID ROCKLEY MILL'S FRENCH BURR STONES COME FROM?

For **Millstone 3**, there is an important clue to its origin: the nameplate that is set into the cement on its back surface. The nameplate says, 'Corcoran, Witt & Co, Manufacturers, Mark Lane, London'.



CORCORAN, WITT & Co

In 1780, the Corcoran family founded a major millstone-making business in England. Along with many other milling businesses, this firm was based in Mark Lane, London. This was adjacent to the London Corn Exchange, a major commercial centre where merchants would come to trade their grain.

The founder's son, Bryan Corcoran, went into partnership with George Pawsey Witt in 1868, to form the new firm, Corcoran, Witt & Co. This was the company name on the plate on Millstone 3,

Left, the iron name plate on the back of Millstone 3.

Photograph by Anne Dollin

An advertisement in 1876 extolled the qualities of the French Burr Stones made by Bryan Corcoran, Witt & Co, as follows:

'Bryan Corcoran, Witt, & Co... Beg to call the attention of Millers, Millwrights, and others, and invite their inspection of their large stock of personally selected French Burrs and Millstones of the best qualities, for which they are justly celebrated, having supplied the principal Millers, both in London and Country, for many years...'

'They have just erected new and spacious Millstone Sheds, upwards of 200 feet in length, at Cubit Town (close to North Greenwich Station), where generally upwards of 100 pairs of various sizes ready for delivery may be seen....'

'We select these Burrs personally, and can confidently recommend the quality as being the very best ever produced for Grinding all sorts of English and Foreign Wheat, Barley, Indian Corn, &c.'^[1]

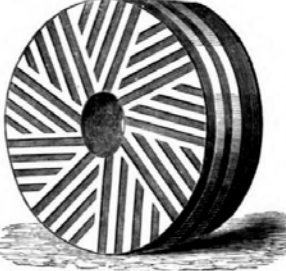
450 MILLSTONES.

BRYAN CORCORAN, WITT, AND CO.

(ESTABLISHED UPWARDS OF A CENTURY),

Successors to and purchasers of the old-established business of BRYAN CORCORAN AND CO., of Mark Lane, London.

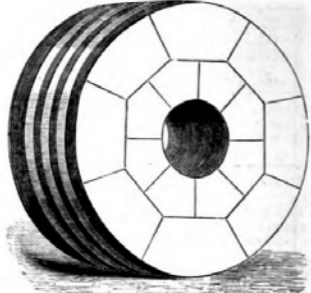
Beg to call the attention of Millers, Millwrights, and others, and invite their inspection of their large stock of personally selected French Burrs and Millstones of the best qualities, for which they are justly celebrated, having supplied the principal Millers, both in London and Country, for many years. They have just erected new and spacious Millstone Sheds, upwards of 200 feet in length, at Cubit Town (close to North Greenwich Station), where generally upwards of 100 pairs of various sizes ready for delivery may be seen.



BUILDERS OF FRENCH MILLSTONES,
Of Best Selected Free-Cutting Brown Nutmeg Burr.

With B. C., W., and Co.'s Improved Dress of 9 quarters, 4 furrows, and 3½ drift.

N.B.—We select these Burrs personally, and can confidently recommend the quality as being the very best ever produced for Grinding all sorts of English and Foreign Wheat, Barley, Indian Corn, &c.



BUILDERS OF FRENCH MILLSTONES,
For Grinding Roman and Portland Cements, Coprolites, Artificial Manures, &c. These Millstones are built edge and end ways, of specially-selected Burrs of a very hard and tough nature, as supplied by us to all the principal Grinders in the United Kingdom.

N.B.—We guarantee all our best Stones to have a perfect joint from face to back.

FINE GRIT WHITE PEAK STONES,
Specially selected for Rice Shelling and Barley Mills.

DERBYSHIRE GREY PEAK STONES,
Of best quality, for Grinding Barley, Oats, Peas, Beans, &c.

COLOGNE STONES,
Of finest Quality, for Paints, Colours, White Lead, Peas, Printers' Ink, &c., &c.

HARD PEAK RUNNERS,
For Oil Mills, &c.

MILL BILLS,
Of the finest Cast Steel.

BILL THRIFTS.

CORNISH AND SCOTCH GRANITE EDGE RUNNERS,
NEWCASTLE AND OTHER GRINDSTONES OF SUPERIOR QUALITY.
MAHOGANY STONE STAFFS, CAST-IRON STONE PROOFS, &c.

MILLSTONE MAKERS, WIRE WEAVERS, BRUSH MAKERS, &c.
Manufacturers of all kinds of Flour-Mill Machinery, and every article required by Corn and Rice Millers, Cement and Coprolite Grinders, Maltsters, Paper Makers, &c. Dealers in Paper, and General Merchants.

BRYAN CORCORAN, WITT, AND CO.,
MARKET BUILDINGS, 28, MARK LANE, LONDON, E.C.

Right, the proud advertisement for French Burr Stones in an 1876 Bryan Corcoran, Witt, and Co. catalogue.^[1]

Find out more at: www.singletonmills.com

Corcoran, Witt & Co had an Australian agency in Melbourne, Victoria, according to a newspaper advertisement in 1882:

They proudly stated that they were:

- ‘Builders of Millstones...’ and
- ‘Manufacturers of Improved Roller Mills...’,
- with ‘Three Prize Medals Melbourne Exhibition.’

‘Fresh shipments of Millstones ... constantly arriving.’^[2]

Right, a newspaper advertisement in 1882 for millstones and other products, by the Melbourne agent for Corcoran, Witt, & Co.^[2]

Based on these historical details, the journey of Millstone 3 to Rockley Mill may have been as follows:

- stone blocks were cut in a French Burr Stone quarry near Paris;
- the stone blocks were exported from France into England;
- stone segments, cut from the blocks, were assembled into a millstone in a Corcoran, Witt & Co workshop in London;
- the millstone was sent to Australia by sailing ship;
- Rockley Mill purchased the millstone from an Australian agent;
- finally, a difficult overland journey by wagon, and possibly steam train, would have brought the millstone to Rockley Mill.

What a long history for this millstone, before its working life at Rockley Mill even began!

Chapter 6 References

1. Bryan Corcoran, Witt, and Co. Trade Announcement (1876) In: Spons' Engineers' and Contractors' Illustrated Book of Prices of Machines, Tools, Ironwork, and Contractors' Materials for 1876. Internet Archive.
2. The Australasian (Melbourne, Vic. : 1864 - 1946), 19 August 1882.

Find out more at: www.singletonmills.com

CHAPTER 7

CONCLUSION, AND HOW YOU CAN BE INVOLVED!

Visiting Rockley Mill & Stables Museum was a marvellous experience for me. I was fascinated by the steam-era flour milling machinery, and the many other relics of the past displayed in this excellent museum. But for me, personally, the **outstanding highlight** of my visit to Rockley Mill Museum was the chance to study their three historic millstones.

Thanks to the kind hospitality of the volunteers of the Rockley Mill and Stables Museum, I was able to make an in-depth study of their magnificent millstones.



Above, Anne engrossed in her millstone study at Rockley Mill & Stables Museum. Photograph by John Wagner.

What did I find?



It was a privilege to examine **Millstones 1 and 2** in detail, and learn about the way these historic millstones were constructed. But **what a thrill it was to find the tiny fossils in them**, just like the characteristic fossils described by Dr Joseph Hannibal of Cleveland Museum of Natural History, Ohio, USA!

Hour after hour, I searched for these tiny fossils with my strong magnifying glasses – each fossil was about the size of the full stop in this sentence. The position of each fossil that I found needed to be immediately marked by placing the tip of a minute pin near it – so I would be able to find the fossil again through my camera lens. Finally, I saw, on the screen of my macro camera, the microscopic bands circling these miniature fossils, suggesting that I had indeed found the ancient fossils from Paris!

Left, one of the tiny charophyte fossils in Millstone 1. Photograph by Anne Dollin.

Later, Dr Hannibal examined some of my photographs of fossils from Millstones 1 and 2, and confirmed that these were the 30 million year old charophytes characteristic of French Burr Stone.

Millstone 3 presented even greater challenges! This millstone was displayed with its grinding surface face down.

- Could I lift the stone up? No, these millstones weigh about a tonne.
- Could I look underneath the stone? No, its face was very close to the floor.

Then I discovered that I had just enough room to slide my macro camera underneath the stone and take photos of it that way.

My digital camera revealed that this stone too contained tiny charophyte fossils.

Find out more at: www.singletonmills.com

NEW INFORMATION FOR ROCKLEY MILL & STABLES MUSEUM

What a pleasure it now is to be able to contribute this new information to the Rockley Mill & Stables Museum, and add to their knowledge about the history of their three millstones.

Our research suggests that:

- All three of Rockley Mill Museum's millstones are genuine French Burr Stones from the quarries near Paris; and
- All three millstones contain the characteristic, 30 million year old charophyte fossils that occur in chert from the Paris quarries.



*Above, the fascinating Rockley Mill & Stables Museum.
Photograph by John Wagner.*

CAN YOU HELP US EXTEND THIS STUDY?

During the 1800s, hundreds of these exceptional French Burr Millstones were imported into Australia for our flour mills. Yet Dr Joseph Hannibal told me that little substantial information has been published about the French Burr Stones in Australia. **To my knowledge, this is the first time that these minute characteristic fossils have been documented in any millstone in Australia.**

Furthermore, French Burr Stones are not the only kinds of millstones that were imported into Australia. Other kinds of millstones, that we used in our flour mills, were quarried from [special high-silica sandstones](#), or from [basalt](#), from the United Kingdom and from Europe. These too have a fascinating history.

We would like to learn more about the various millstones that were used throughout Australia. Your town or your historic flour mill could be part of this story!

Do you have any millstones on display in your town or in your museum? **We could help you learn more about the history of your flour mill, and the millstones that you have preserved.**

We would love to hear from you!

Please contact us as follows:

Email:

les@mymacmail.com

Postal address:

PO Box 74, North Richmond NSW 2754.

*Please feel free to print out this article or to email copies to your friends,
providing it is kept in its full and unaltered form including SingletonMills contact details.*

Find out more at: www.singletonmills.com

ARE YOU INTERESTED IN MILLING, OLD MACHINERY, STEAM ENGINES,
OR JUST AUSTRALIAN HISTORY IN GENERAL?

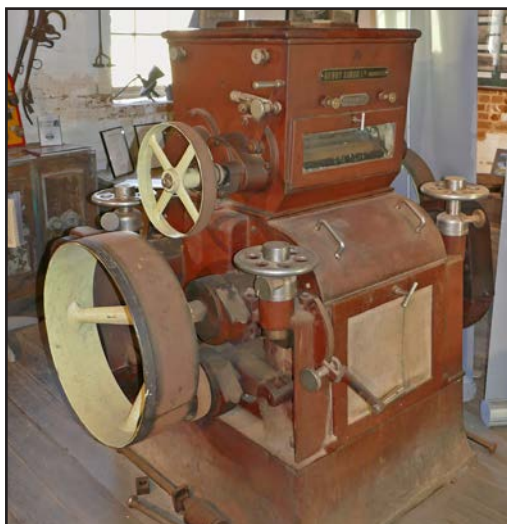
WE WARMLY RECOMMEND THAT YOU VISIT **ROCKLEY MILL & STABLES MUSEUM!**

ROCKLEY MILL & STABLES MUSEUM

Address: 12 Budden Street, Rockley NSW 2795

Opens: Sundays 11:30 am to 3:30 pm

Website: <https://mgnsw.org.au/organisations/rockley-mill-and-stables-museum/>



Photographs by John Wagner.

Find out more at: www.singletonmills.com