

Once in barrels, the gunpowder was mostly sent by wagon to the Wey navigations and down to magazines on the Thames, and at times some went to Portsmouth. It was used for military and sporting powder, and blasting in mines. The prismatic powder was pressed into hexagonal prisms for large guns.



Gunpowder was transported around the site by punts on the New Cut

Their working clothes would include brimless hats which were designed to keep gunpowder out of their hair. This would avoid accidents at home when they sat by the fire!

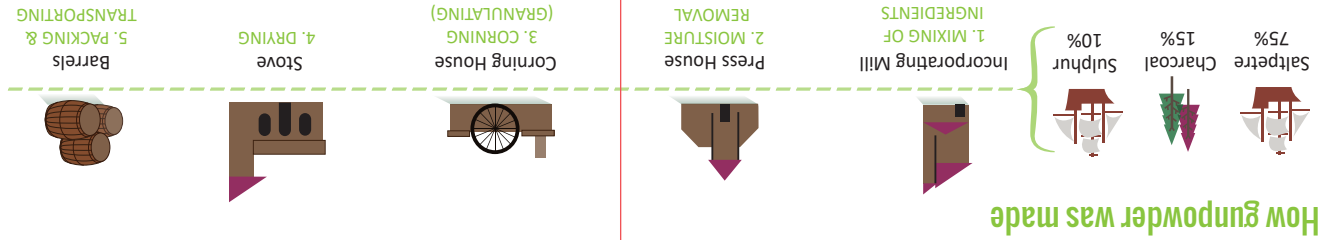


In 1909 there were 300 male and 6 female workers. Most walked to work from nearby villages. Each morning they would be checked for items that might accidentally cause a spark. They would hang their smoking pipes in a nearby tree for collection at the end of the day.



Traditional black gunpowder was made throughout its history with modern explosives, such as cordite, manufactured in the last decades of its operation. Everything that you see on site from the intricate maze of waterways to the raised central track has been created over almost 300 years of gunpowder manufacture. The mills were most extensive and productive in the 17th century and from the 1880's to the end of World War I.

Designated a Scheduled Ancient Monument, this hidden complex of more than 100 buildings is one of the finest examples of this type of gunpowder works in Europe.



How gunpowder was made

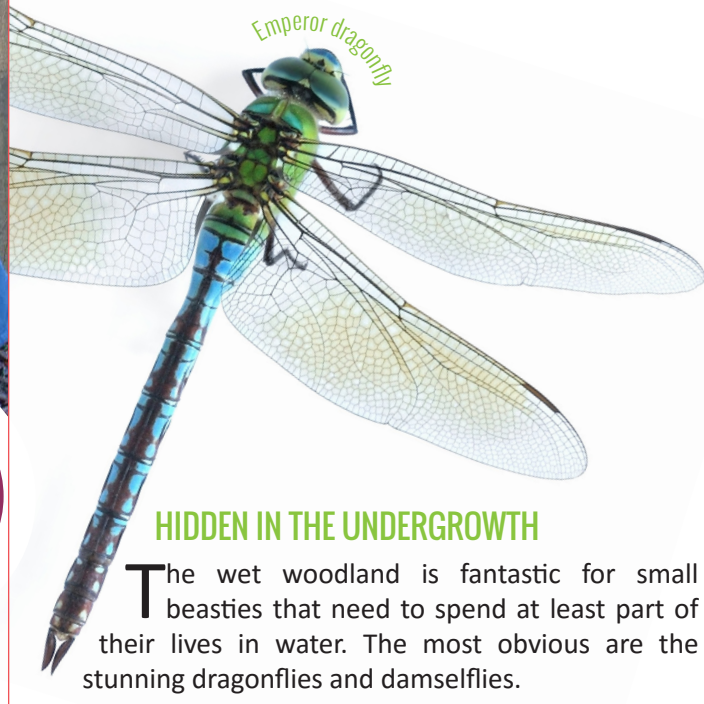
Timeline
 1626 East India Company establish gunpowder mills at Lower Works.
 1636 New owners supply government; Middle Works development started east of Blacksmith Lane.
 1642-52 Mills supply Parliament in Civil War.
 1652-54 First Dutch war; Middle Works built on New Cut.
 1700s Upper Works ceased; Paper mills at Lower Works; Middle Works development continues.
 1809 Paper mills at Upper Works.
 1865 Steam power introduced to Middle Works.
 1870s All paper mills closed.

Timeline Continued
 1882 Smokeless (nitrate) explosives factory built.
 1885 Chilworth Gunpowder Company, subsidiary of a German company, makes new brown powder and starts expanding east on the site.
 1901 Explosion at black powder corning house; six men killed (believed to be caused by a slip on a hobnail boot).
 1915 Admiralty cordite factory built at the Upper Works.
 1920 All gunpowder works closed.
 1922-1963 Various buildings used as residences; known locally as 'tin town'.

Chilworth Gunpowder Mills HERITAGE TRAIL



Delve into the rich industrial heritage of this stretch of the Tillingbourne. Explore more than 2km of paths around the site. Access for all abilities but paths can get a little muddy when wet.



HIDDEN IN THE UNDERGROWTH

The wet woodland is fantastic for small beasts that need to spend at least part of their lives in water. The most obvious are the stunning dragonflies and damselflies.

At first glance these two groups can appear similar, but take a closer look. Dragonflies are stocky with their wings held open at rest. Damselflies are much more delicate with their wings held closed. Dragonflies have eyes that touch or almost touch at the top of their head whereas damselflies have two clearly separate eyes.



Volunteers helping at a work party

GET INVOLVED

Guildford Borough Council Countryside Team lead volunteer work parties at the mills. Take a look at the notice board or for the latest dates and tasks, visit:

www.guildford.gov.uk/parksplaygroundsandgreenspaces

Why not make Chilworth a picnic stop on a longer walk? The site is connected to the Downs Link long distance walking route to the east, or head towards Guildford town via the Chantryes to the West. The area is covered by OS Explorer Map 145.

For more information please visit the Tillingbourne Tales website and facebook page to see how you can contribute to preserving the heritage of the Tillingbourne Valley, or visit Shere Museum to see the new Tillingbourne gallery.

Due to the nature of the site, uneven surfaces and drops are unavoidable. Remember to keep yourself safe; take note of any warning signs, please do not climb on the remains and do wear sturdy footwear!

Find out more...
 A Guide to the Chilworth Gunpowder Mills. G.Crocker, 4th edition 2005
 Damnable Inventions. G & A Crocker, 2000
www.historicengland.org.uk or www.pastscape.org.uk

The more secluded parts of the woodland are home to protected species such as dormice and bats.

On a warm summers evening remember to look up and see Pipistrelle, Natterers or Brown Long-Eared bats feeding on midges up above your head.

Chilworth Gunpowder Mills

HERITAGE TRAIL

The trail visits the Middle Works, a central section in a much larger area of industry along the Tillingbourne.

The Middle Works were operational from the 1650s until 1920. To the east, past the Lockner Farm track, you will find the Upper Works (17th century and 1890s-1920). To the west, on the other side of Blacksmith Lane, are the Lower Works. These date from 1626, and later they become the service area of the gunpowder mills. The Upper and Lower works are on private land and are not accessible to the public.

CRH Corning House
Pressed powder was broken up and sorted into grain sizes. A spark from a hob-nailed boot caused an explosion in 1901 killing 6 men.

MH Mixing House
(Former incorporating mill)
Saltpetre, charcoal and sulphur mixed to make charge for incorporating mills.

PB Pack Horse Bridge and Pili Box
This would have been the route to Guildford, connecting with Halfpenny Lane. Travel away from the mills and you will see more evidence of the area's WWII defences. A pill box sits on the hill and further afield an anti-aircraft gun was mounted at the Chantries.

W Wharf
Punts would have moored up to the wharf to load and unload materials. There are also wharfs next to each Expense Magazine.

PH Prismatic Press House
Powder was pressed into hexagonal prisms to be used in heavy guns. The shape is illustrated by the Chilworth Gunpowder Company Cricket Club logo.

CH Charge House
Prepared the dampened, ground-up charge for the incorporating mills.

SPF Smokeless Powder Factory Entrance
Start of Upper Works. Seen across the road, an old iron entrance gate is behind the modern fence. Further up-stream there is the Admiralty cordite factory. This is on private land with no access. Half of a WWII military road block remains.

To Chantry Woods & North Downs Way

To St. Martha's & Chilworth Manor

Downs Link Path To St. Martha's & Newlands Corner

Lockner Farm Lane



MP Mill Pond
Served the first powder mills in 1626. The large fishing pond is modern.

DH Dusting House
Explosive dust removed from the granulated powder. The dust was collected and returned to the system. This building marks the end of the new cut.

EM Expense Magazines
Stored materials between each stage of manufacturing.

Dragon's Teeth
Conical blocks mark the WWII home defence line protecting London from tank invasion.

Edge Runner Mill Stones
A pair of edge-runners lie where an incorporating mill collapsed. Each weighs around 3 tons.

SB Swing Bridges
Allowed punts to pass up the New Cut. The track would have rotated side-ways to clear the stream.

BA Bridge Abutment
The probable pack horse route from Blackheath. It connected the site to Guildford via the pack horse bridge to the North of the site.

SM Steam Incorporating Mills
2 bedstones, the remains of the boiler house chimney and a steam engine bed remain. The chimney had a 'spark scrubber' fitted to stop flyaway sparks. Worn millstones were stood on their side & covered in earth to provide protection from accidental blasts.

T Tramway

After 1888, the swing bridge carried an extension of the works tramway to a siding at the railway station. Vera's Path follows its exact line today. Narrow gauge wooden wagons (to avoid sparks) carried coal. Today's main paths follow the route of the man operated tramway network. It is the first known example of metric gauge track in the UK.

B Boiler House
The boiler was coal-fired and provided the steam to run the incorporating mills.

CM Chilworth Mounds
Earth filled corrugated iron drums were placed to form blast mounds. They were designed to absorb the energy of explosions. This method was adopted internationally.

1880's Steam Incorporating Mills
Underfloor gear room and blast proof walls remain. A raised wooden floor would have been near to today's foot level where materials would have been taken in from the tramway. Each bay had a pair of iron edge-runner millstones mounted above the remaining engine bases. Lightweight roofing and front screens were designed to direct any blast away from the building and machinery within. A drenching mechanism was put in place that automatically doused all bays in the event of an explosion in any of the others. Look for the metal pulleys just below the roof line. The first RSJs (Rolled Steel Joists) in the UK were used in its construction. See the marking 'BURBACH 1884'.

KEY

- Picnic Area
- Main Paths
- Secondary Paths

*NEW CUT 1656:

A water channel originally 5-8m wide to allow powder punts to travel its length.



To Chilworth Station, Local Shops & Pub

