



Mystery Object – Silk 1 – Silk Moth Cocoons

These are very light and only about 3 or 4 cm long. They rattle if you shake them.



Are these natural or synthetic (made by a person)?

These are the cocoons made by Bombyx Mori (White Mulberry) Moths for their metamorphosis (change) from caterpillars into moths. They are a natural material.

What is the white case made from?

The cocoon is made from silk.

The caterpillar produces liquid silk that it forces out through openings in their head called spinnerets. The liquid silk solidifies on contact with the air. Over 2-3 days the caterpillar can spin up to 1 mile of silk and is completely wrapped up to protect it while it changes into a moth.

What is inside?

The body of the pupa (the stage between caterpillar and moth) is still inside the cocoon. If it completes its metamorphosis the moth will hatch out by dissolving the silk to make a hole in the cocoon. This destroys the silk so to get a long silk thread, the pupa must be killed by heat (boiling water, hot ovens).



Mystery Object – Silk 1

What were they used for in Macclesfield?

The silk from the cocoons was unwound in a process called reeling. They are put in hot water to melt the gum (called sericin), which holds the cocoon together. A single cocoon thread is finer than a human hair so between 4 and 10 threads are wound together to produce a usable raw silk. Most raw silk was produced in the Far East in China and Japan.

The raw silk would then be sent to Macclesfield, where the town would prepare the thread so it is ready for weaving into fabric. This is a process called throwing and involves putting a twist into the silk thread to make it stronger. Many children worked in silk throwing mills.

Interesting facts

It takes between 1,700-2,000 cocoons to get enough silk for one dress or about 1,000 cocoons for a silk shirt. Around 10,000 are needed for a parachute.

The silk filament from one cocoon can be about 1 mile (1600m) long but generally only around ½ mile (up to 1000m) is usable.

The farming of the silkworms is called Sericulture and comes from the word sericin (the gum the caterpillar produces that holds the cocoon together)

Silk is around 5x stronger than steel, if you were to compare a thread of each at the same thickness.