NEW LIFE FOR AN ANCIENT MILL

I

visitors from centuries past

returned to a familiar footpath by

the River Cowry in northern

England, they might be shocked

by changes that have taken place, but

there would be one comforting sign—

the old mill with its large water wheel

(although our visitor would probably

be surprised to see a steel wheel

rather than a wooden one).

Powered by a stream diverted from

the river, the wheel works through
gears to grind wheat into flour for

making bread.

Inside the mill the wheat is ground

between two flat millstones, a method

employed for hundreds of years.

However, our time traveler would likely

be puzzled by some of the equipment

in particular an electrically driven

centrifugal sifter.

The Centri-Sifter centrifugal sifter,
as it is called, was supplied by US

company Kason Corporation and

receives the mill’s two basic products:

white and whole meal flours.

There has been a water mill at the

site since the 13th century, but the

present building—Walk Mill—is no

older than the sifter, despite its

aged appearance. Rebuilt as a replica

of an earlier mill, the new facility

started up in 2008.

The last mill on the site ceased

production in 1915 and only the

footprint of the building was left, says

Ben Jones (pictured), a partner in the

family-owned business, who is in

charge of mill operations.

“We dug the foundations to find the

footprint of the building and we also

had a lot of photographs of the old

mill. From the footprint and the

pictures we were able to construct a

building that is exactly like the old mill

on the outside.”

Located on the fertile Cheshire

plain, close to the historic city of

Chester, Walk Mill is surrounded by

roughly 405 hectares of wheat fields

that were acquired by the Jones

family some years ago.

“We have always been farmers,
says Jones, “and after we bought this

land we decided to rebuild the mill.”

Wheat is harvested from the fields,
dried to reduce the moisture content

and cleaned to remove chaff. It is then

taken to the mill in a loaded trailer

and loaded into a hopper on the first

floor. The hopper has a capacity of

2,000 kg, which is enough to meet

the mill’s needs for four to six days,

depending on the rotation speed of the

water wheel.

From the floor hopper the wheat is

moved by an auger conveyor to a

smaller feed or transit hopper of 50 kg

capacity, located above the

millstones. The grains fall from

the bottom of the feed hopper to the

millstones, where they are ground into

flour.

Walk Mill uses two bunt stones,

made of hard, dense French granite.

The stones are positioned horizontally,

one above the other.

The lower stone, called a beater,

is fixed, while the upper one (the

runner stone) rotates. Wheat from

the hopper falls into a hole in the center

of the upper stone and gradually

moves to the periphery of the stones

via shallow grooves in the stones.

The tiny gap between the stones is

adjusted to produce white or whole

meal flour, the latter being more

coarse because it contains bran.

Both the stone rotation and the

feed rate from the hopper are

governed and synchronised by a shaft

that is geared to the water wheel. The

bottom end of the shaft is attached to

the runner stone and carries the

weight of the stone as well as rotates it.

Grain trickles from the hopper

druring a vibrating wooden trough,
called a shoe. The vibration is

imparted by a forged metal device,
called a damsel, that is attached to

the upper end of the shaft. The

damselfly, incidentally, was retrieved

from the earlier mill.

The relatively slow, gentle and cool

process avoids overheating of the

flour, he says, and preserves all the

good parts of the grain: protein, oils,

vitamins, sugars, starches and bran.

As the flour leaves the periphery of

the millstones it is swept by a blade

to the upper stone and falls into a

12.5 kg transit hopper. An auger

transfers the product to a spout that

feeds the Centri-Sifter sifter, which

separates the desired flour from the

rest of the material.

Walk Mill uses two screen sizes

one for white flour and another for the

coarser whole meal flour.

“Typically we produce white flour

for four days. Because we sell more of

it, and wheat flour for one day,” says

Jones.

The company found the centrifugal

sifter through an Internet search and

bought it after seeing a demonstration

of Kason’s facility in Stoke-on-Trent,

England.