Bunbury Mill

Recommissioning of 2nd Mill Stone (April 2023)

The 2nd mill stone has not been operational for many years, although there is no plan to have this stone mill flour during Sunday openings it was thought beneficial to have as an installed and functioning back up. This document details and records the checks and supporting photographs that were taken during this recommissioning.

Note - The recommissioning process involves moving machinery so care **MUST** be taken to:-

a) Operate the water wheel as per normal start-up and running process
b) Be aware of unguarded rotating mill stone while carrying out checks.

Phase 1

Visual check of all: - covers, hoppers, chute, toothed wheel, bearings and stone lifting mechanism.

Completed by KA, MW Date 19/04/2023

Phase 2

1. Strip down all parts of grain feed hopper, stone cover, and test firmness of teeth in drive wheel (Tap lightly with hammer to check firmness of each tooth in holder)
2. Check bearing has been lubricated.
3. Raise stone, manually turn stone to check free to rotate and in balance.
4. Preparation to drive stone from water wheel:-
    a. Inform all present that wheel and stone will rotate.
    b. Hang warning sign.
    c. One person to watch mill stone, one person to watch drive gear, one person to operate water to wheel.
    d. Engage drive wheel. Gentle open sluice gate and regulate water flow to wheel. Water flow must be stopped if any unusual noise or vibration is observed.
5. View rotation of stone and smoothness of gear engagement.

Completed by KA, MW, PJ, NF Date 26/04/2023

Phase 3

1. Replace mill stone cover, drive shaft, grain hopper, feed chute, tension cord and covers.
2. Check flour chute clean, place sack and bin to collect milled flour.
3. Add grain into hopper in preparation for live milling.
4. As above 4 prepare stone to drive from water wheel.
5. As above 5 start stone drive from water wheel.

6. Alter stone height until correct flour coarseness is produced.

Completed by. ??????? Date Planned for 3/05/2023

Phase 4

As the 2nd mill stone will not be used for some time residual grain and flour can harden, therefore carry out a full clean in particular brush between stone faces.

1. Strip down as per Phase 2 - 1
2. Clean all surfaces, remove any grain still in hopper.
3. Reassemble as per Phase 3 - 1

Completed by ????????

Note any follow up actions or discussion that need to be undertaken

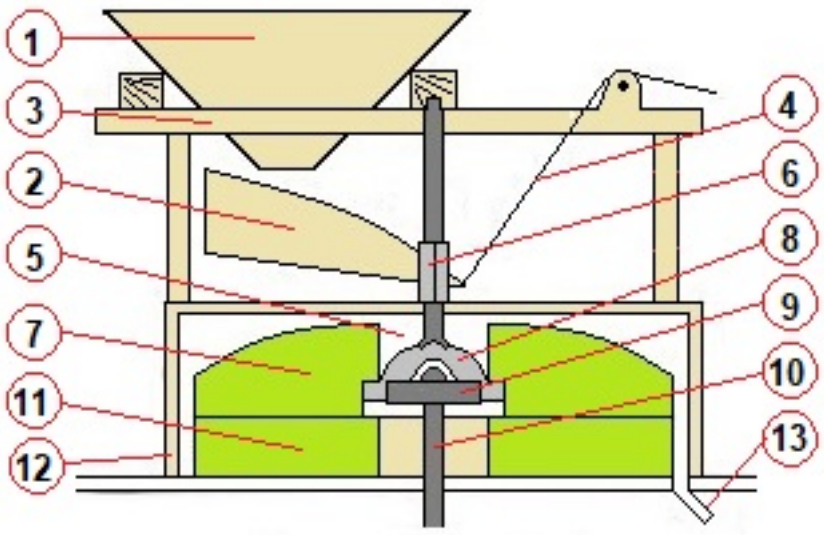
1. Some teeth are showing signs of wear and planned replacement should be carried out. Regular running of the 2nd stone should be restricted until this action is complete.
    i. **Action** - Replace worn teeth

Summary

It was agreed that the 2nd mill stone wooden top works, mill stone, hopper and adjustment systems were in good condition and working order only a few worn drive teeth were identified for further work.

Milling stone general layout diagram

THE HOPPER, SHOE and TUN



Grain stored on the top or 'bin' floor is poured through a small, lidded hole in the floor into the hopper (1) below. The hopper and shoe (2) rest on a frame known as a horse (3). The front of the shoe is supported by the crook string (4) passing over part of the horse, and down through a hole in the floor to a control knob above the flour bin. By tightening or slackening the crook string the angle of the shoe can be varied to adjust the amount of grain entering the eye (5) of the runner stone. The shoe is also held slightly to one side so that it touches the damsel (6) a star shaped rod which rotates with the top grinding stone (7) and shakes grain off the shoe. Of the pair, only the upper or 'runner' stone (7) revolves, supported on the 'rhynd' (8), which itself is supported by the 'mace-head' (9) mounted on the stone spindle (10) so that there is a minute gap (0.3mm or 1/100th inch) between it and the bedstone (11). Encasing each pair of stones is a wooden framework called a 'tun' or vat (12). This helps to contain the flour that is pushed out to the edges of the rotating stone. The rotating movement, aided by a 'sweeper' attached to the stone, moves the flour around to a hole (13) leading down to a wooden chute to the 'meal' floor below.

An overall view of the middle or 'stone' floor

Supporting photographs.

Pre strip down

Strip down

1 Remove hopper

2 Remove hopper support frame note 4 off locating pins

3 Remove grain chute. - Note locating pin

4 Lift off stone top cover and drive shaft

Stone inspection including stone bearing

Stone drive toothed wheel

Damaged drive teeth – Ref action from recommissioning