

# Flattening Thin Section Billets

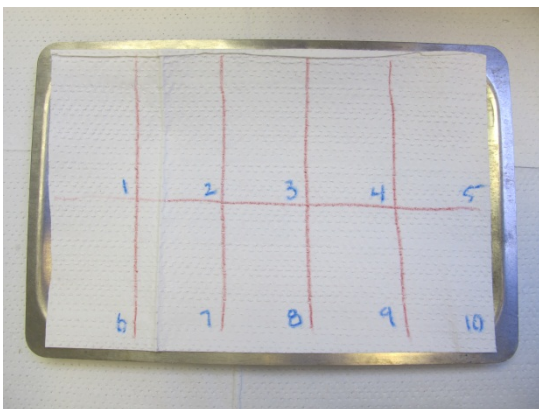
## FLATTENING THIN SECTION BILLETS: USER GUIDE

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This user guide will help thin section technicians prepare billets for bonding to microscope slides. For more information refer to the [Logitech Thin Rock Section Production](#) manual, available in the Thin Section Lab both on a Logitech thumb drive in the bookcase and computer under the "Manual" folder on the desktop.

### SAMPLE PREPARATION

1. Log all the thin section billets into the thin section log and assign them a number.
  - a. Label the billets with their corresponding number and orientation, if applicable, with a wax pencil. It is very important that these do not get mixed up. Also, write the assigned number on the sample bag and request form.
2. Make a sample tray by cutting a wypall (heavy duty paper towel) in half. Place it on a metal tray and draw a grid on it. Write the numbers assigned to the billets on the grid (Fig. 1).
  - a. It is helpful to draw a small picture of the billet and orientation arrow next to the number for later reference.
  - b. The tray will help you to carry samples around the lab safely.

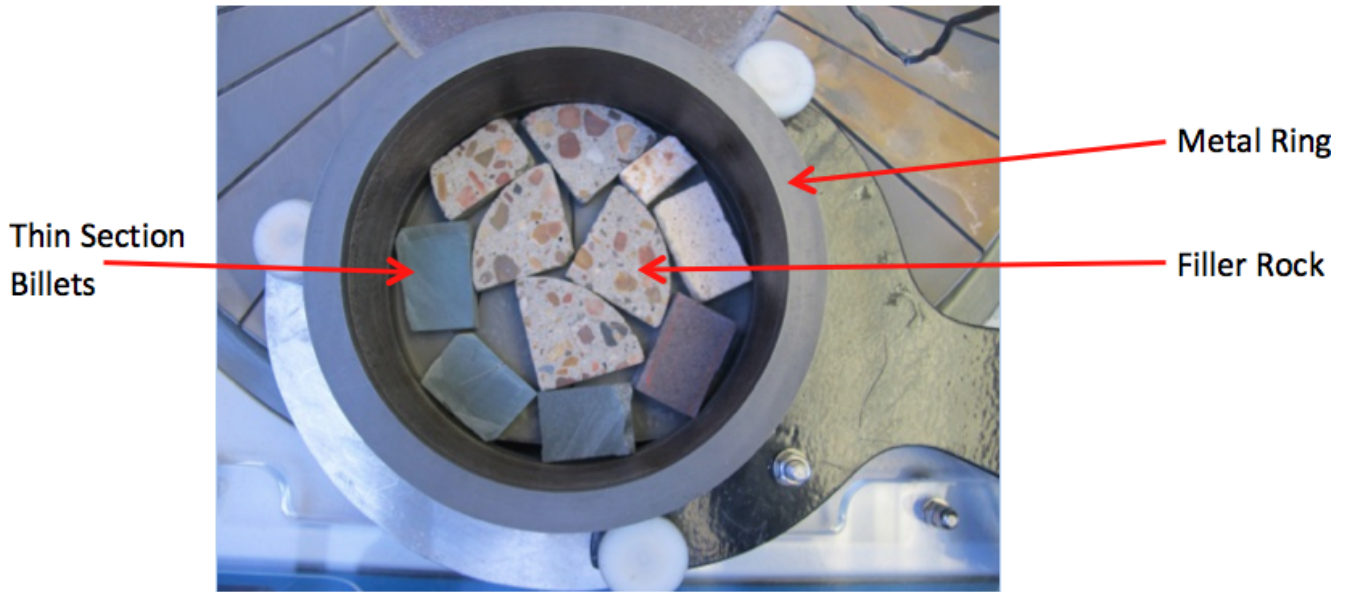


*Figure 1*

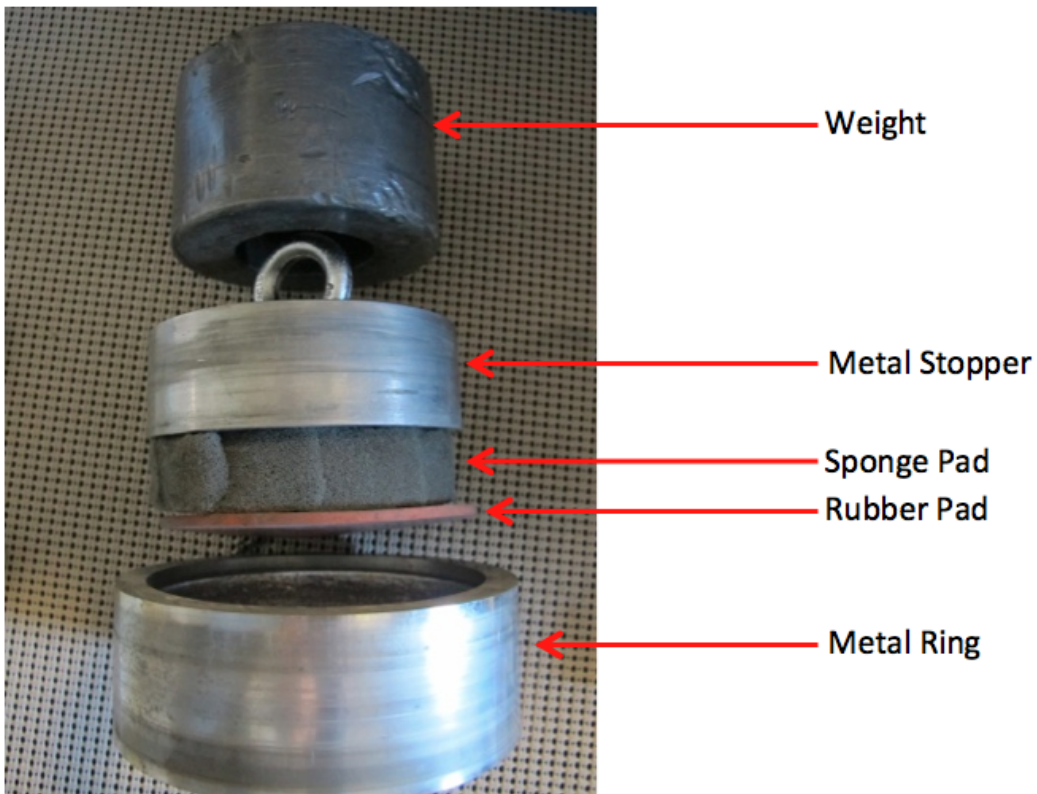
### LAPPING BILLETS ON LP50

1. Use the LP50 for flattening hard rock billets. For soft, water soluble or vesicular billets see: Flattening Billets by Hand on page 4.
2. Place metal ring in the forward arm (Fig. 2 and 3).
  - a. Place the billets around the outer edge of the ring (Fig. 2) with their number facing up. If there is a small billet it should be placed in the middle.
  - b. The billets should be all the same thickness. If not, add a filler rock on top to make it level with the others.

3. Fill in the empty space with filler rocks (Fig. 2).
  - a. All the rocks should fit loosely. Do not wedge them in.

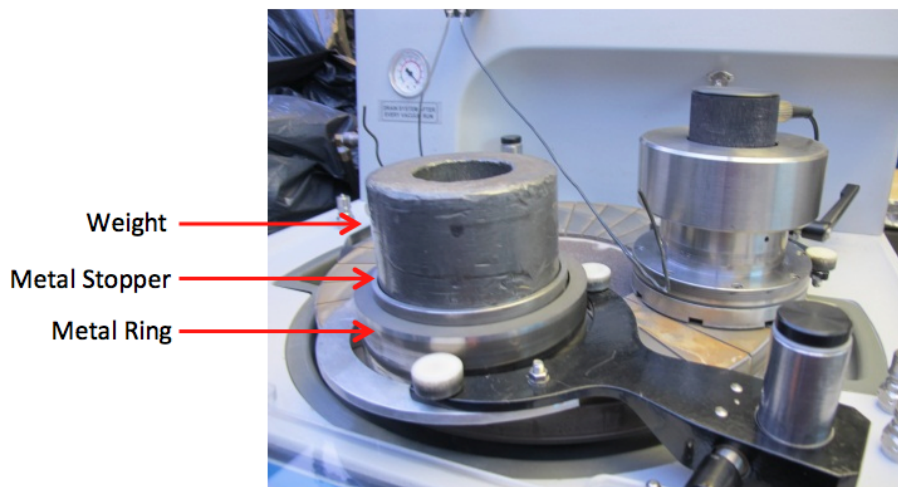


*Figure 2*



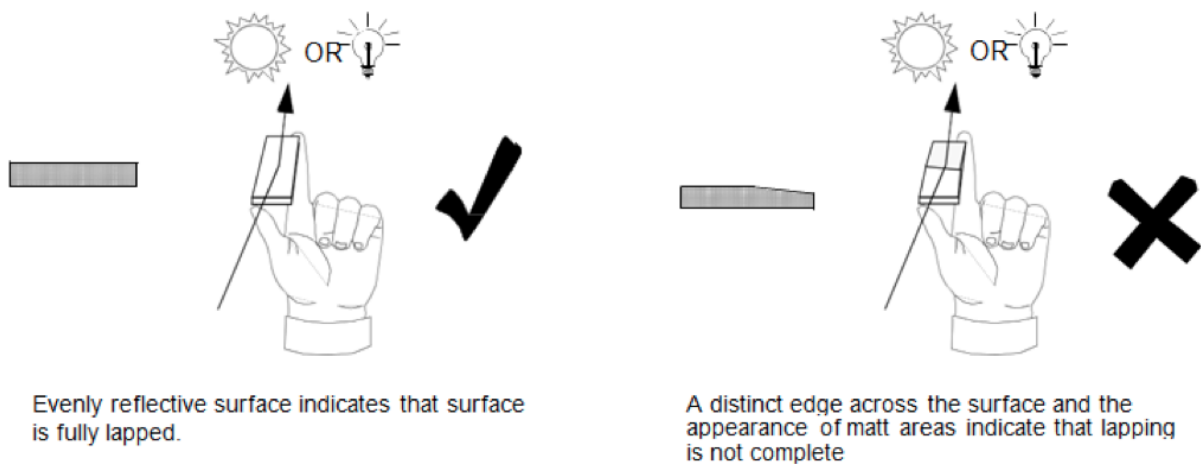
*Figure 3*

1. Put the rubber pad on top of the rocks (Fig. 3 and 4).
2. Sponge pad next on top of the rubber pad (Fig. 3 and 4).
3. Then metal stopper on the sponge pad (Fig. 3 and 4).
4. With the weight on top of the stopper (Fig. 3 and 4).



**Figure 4**

5. Turn on the abrasive drum by overriding it and make sure it is dripping properly.
6. Reset timer and set it for 15 to 25 minutes, depending on how hard the samples are.
  - a. It is better to leave the sample on longer if it is hard material. You can never make it "too" flat.
7. Check the plate speed, it should be set to 5rpms.
8. When the plate is wet press **Start**.
9. Increase the plate speed in increments to 58rpms.
10. After the time has elapsed remove the weight, stopper, pads, ring, filler rocks, and samples.
11. Clean the ring by wiping it down with a kimwipe and isopropyl alcohol.
12. Rinse and scrub the billets and filler rocks with a soft brush and warm water.
13. Place the billets lapped side up on the hot plate to dry. Spraying the billet with isopropyl alcohol will speed up the drying.
  - a. Hot plate should be set to 70 degrees C or 160 degrees F.
14. When finished the flat side of the sample should reflect light and feel smooth to touch (Fig. 5). If any parts look dull or feel rough it may need more time on the lap wheel.

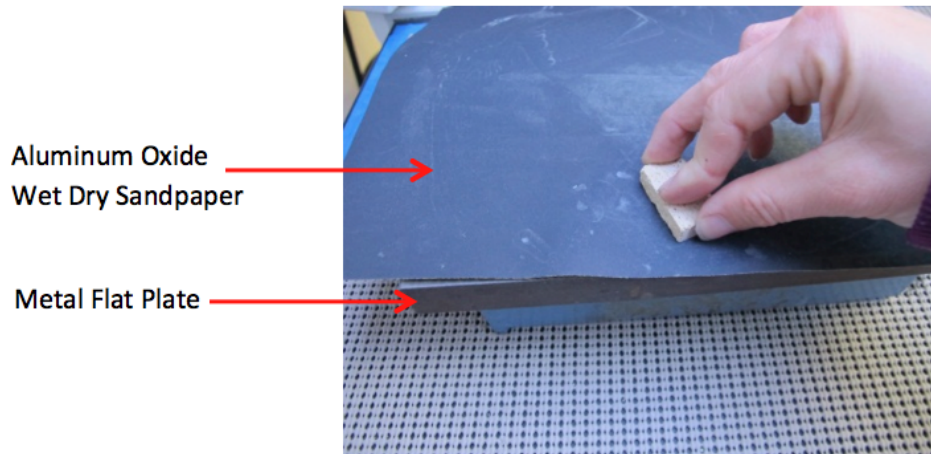


**Figure 5** (Logitech Thin Rock Section Production Manual)

### **FLATTENING BILLETS BY HAND (For billets too soft, water soluble or vesicular)**

1. Use the metal flat plate and Aluminum oxide wet dry sandpaper (Fig. 6).
  - a. Start with lowest grit and move to highest.
    - i. 240 grit will flatten the sample, but will leave it scratched.

- ii. 400 grit will help remove scratches left by the 240.
    - iii. 600 grit is the finest and will make the billet smooth for bonding.
  2. Hold the billet flat by applying equal pressure across the sample and move in a figure 8 motion on the paper (Fig. 6).
    - a. Move the figure 8 slowly across the whole surface.
    - b. Rotate the billet from time to time.



*Figure 6*

3. When finished, the flat side of the billet should reflect light and feel smooth to touch (Fig. 5). If any parts look dull or feels rough, it may need more time sanding.
  - a. Some materials will remain dull if very soft.
  - b. If the billet has been impregnated it will reflect light.
4. Wipe the billet clean with a kimwipe and isopropyl alcohol.

## Credit

Original version created by Emily Fisher

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## Archived version

- [Flattening Thin Section Billets 374.docx](#)