

Having obtained his thin slices, either by having them slit with a machine or by detaching with a hammer as thin splinters as possible, the operator may proceed to the preparation of them for the microscope. For this purpose the following simple apparatus is all that is absolutely needful, though if a grinding-machine be added it will save time and labor.

List of Apparatus required in the Preparation of Thin Slices of Rocks and Minerals for Microscopical Examination

1. A cast-iron plate $\frac{1}{4}$ inch thick and 9 inches square.
2. Two pieces of plate-glass, 9 inches square.
3. A Water of Ayr stone, 6 inches long by 2 $\frac{1}{4}$ inches broad.
4. Coarse emery (1 lb. or so at a time).
5. Fine or flour-emery (ditto).
6. Putty powder (1 oz.).
7. Canada balsam. (There is an excellent kind prepared by Rimmington, Bradford, specially for microscopic preparations, and sold in shilling bottles.)
8. A small forceps, and a common sewing-needle with its head fixed in a cork.
9. Some oblong pieces of common flat window-glass; 2 \times 1 inches is a convenient size.
10. Glasses with ground edges for mounting the slices upon. They may be had at any chemical instrument maker's in different sizes, the commonest in this country being 3 \times 1 inches, though this size is rather too long for convenient handling on a rotating stage.
11. Thin covering-glasses, square or round. These are sold by the ounce; $\frac{1}{4}$ oz. will be sufficient to begin with.
12. A small bottle of spirits of wine.

The first part of the process consists in rubbing down and polishing one side of the chip or slice, if this has not already been done in cutting off a slice affixed to glass, as above mentioned. We place the chip upon the wheel of the grinding-machine, or, failing that, upon the iron plate, with a little coarse emery and water. If the chip is so shaped that it can be conveniently pressed by the finger against the plate and kept there in regular horizontal movement, we may proceed at once to rub it down. If, however, we find a difficulty, from its small size or otherwise, in holding the chip, one side of it may be fastened to the end of a bobbin