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A LEVELING DEVICE FOR POLISHED MICROSECTIONS

G. J. JANSEN,¹ S. P. MANSFIELD,² AND G. MIEDL, *Republic Steel Corporation Research Center, Independence, Ohio.*

ABSTRACT

A simple, easily constructed leveler for polished microsections is described. In operation the leveler will maintain a microsection in sharp focus at 600X during automatic scanning.

A number of automatic microsection scanners for quantitative microscopy have been introduced in recent years including the Ameda manufactured by Gulton Femco, Inc. All scanners require section flatness and the surface being examined must be kept normal to the light beam, especially at high magnifications. These requirements are absolutely essential, notably so in the instance of the Ameda. Otherwise, during sample scan the image will go out of focus yielding erroneous results.

No commercially available leveler known to the writers will maintain a sample absolutely normal to the light beam and in crisp focus during an orthogonal scan of at least 25 mm in the "Y" direction and 15 mm in the "X" direction which are the normal requirements of an Ameda scan.

Therefore, the leveler shown in Figure 1 was designed and constructed from lightweight alloys. It consists essentially of a disk and hollow cylinder open at the top, each three inches in diameter and held together by a spring loaded screw through their axes. The basal surface of the disk is tapered six degrees from the perpendicular to the axis. Three 48-

¹ Present address: Climax Molybdenum Co., Extractive Metallurgy Laboratory, 5950 McIntyre Street, Golden, Colorado 80401.

² Present address: Republic Steel Corporation, Fayette National Bank Building, Uniontown, Pennsylvania 15401.

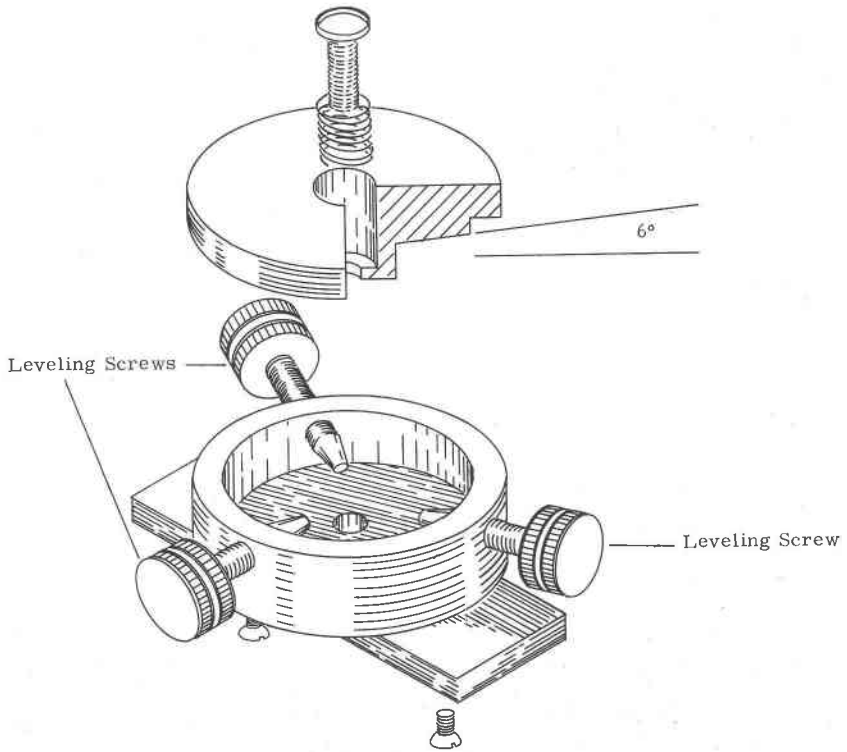


FIG. 1. A leveling device for polished microsections.

threads-to-the-inch screws, positioned every 120 degrees in the cylinder, bear against the tapered surface of the disk. To complete the leveler, the base of the cylinder is screwed to a one-inch by three-inch metal base plate.

In operation the leveling screws are run in tight; a polished microsection is positioned on the disk with plasticene; and the entire assembly is leveled with a conventional hand press. The leveling screws are backed off approximately one quarter turn and the leveler and section are then positioned on the microscope stage. Next, the stage is moved to position one edge of the specimen into the field of view and brought into sharp focus. The stage is then automatically moved orthogonally to the opposite corner of the specimen (in the "Y" direction), and the specimen is again brought into sharp focus by adjustment of the leveling screws. The stage drive is allowed to return the specimen to the starting edge and the leveling adjustment is repeated if necessary. Several adjustments at the

edges will usually suffice to level the section and keep it in crisp focus at magnifications as high as 600 diameters.

It is advisable to check focus periodically during long scans. However, only occasional further adjustments should be required.

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A STAINING METHOD FOR DISTINGUISHING PARAGONITE
FROM MUSCOVITE IN THIN SECTION

D. M. LADURON,¹ *Laboratory of Petrography,
Louvain University, Belgium.*

ABSTRACT

Sodium cobaltinitrite can be used to stain muscovite, to distinguish it from paragonite. The stain is inhibited in the neighbourhood of feldspar crystals.

Everyone who has worked with paragonite-schists knows the difficulty of distinguishing paragonite from accompanying muscovite (either pure, or phengitic muscovite). The following procedure, which has been tested on paragonite-schists and -gneisses from Gassetts (Vermont, U.S.A.) and Vanzone (Italian Alps) and checked under the microprobe, will be helpful in this respect. It derives from the now classical method for potassium feldspar, reviewed and slightly modified by Laduron (1966).

REAGENTS

— Hydrofluoric acid—50 percent solution;
— Saturated solution of sodium cobaltinitrite (6 gr/10 ml) in water;
Fresh acid should be used for each batch of sections. The cobaltinitrite solution can be reused as long as it contains undissolved residue of sodium cobaltinitrite.

TECHNIQUE

1. The uncovered thin section is exposed to HF vapour for three minutes (instead of one minute for potassium feldspar) by inverting the section above a plastic box (such as an ice cube tray) half-filled with hydrofluoric acid. The operation is conducted under a fume cupboard.

¹ Address: Sint-Michielsstraat, 6, B 3000 Louvain (Belgium).