

NOTES AND NEWS
GELATINCOATED SLIDES FOR REFRACTIVE
INDEX IMMERSION MOUNTS

H. W. FAIRBAIRN,

Massachusetts Institute of Technology, Cambridge, Massachusetts.

The purpose of this note is to call attention to the use of gelatin coated slides for refractive index immersion work, as advocated more than ten years ago by Vedeneeva and Melancholin.¹ These investigators made use of the gelatin coating on standard lantern slides to embed grains intended for oil immersion work. As this procedure involved processing of the photographic emulsion and cutting of the plates to a suitable size prior to their use as mounts, Eastman Research Laboratories, at the writer's suggestion, coated a few dozen standard petrographic slides with hardened gelatin for general testing. The results were highly satisfactory, and although recognition of their work is belated, it appears that Vedeneeva and Melancholin have made a substantial contribution to the oil immersion technique used so commonly on this continent. The following description of the method is largely taken from their paper, with some slight additions.

The procedure is simple. First determine with a sharp point which side of the slide is coated. Then apply a drop of water over the area where the grains are to be scattered. The writer finds a small dropping-bottle useful for this purpose. Shake off the water after a few seconds and immediately scatter the grains to be examined over the softened gelatin. As the position of the grains cannot be altered after emplacement on the gelatin, care must be taken that the sample is dry so that it will scatter evenly over the moistened area on the slide. Place in as cool a place as is available until the gelatin is set. If "dry ice" is used the setting will be practically instantaneous; otherwise five or ten minutes is necessary, depending on the temperature of the room. Test the hardness of the moistened area by running a sharp point across the contact into the unmoistened area. The embedded grains are next capped with a cover glass and immersed in a suitable refractive index oil. The mount is now ready for use. After examination with one oil, the grains may be studied repeatedly with other oils by discarding the cover glass and carefully washing off the used oil with carbon tetrachloride or other suitable solvent. The writer keeps a small wash-bottle by the microscope for this

¹ Vedeneeva, N., and Melancholin, N., The theodolite immersion method, etc., *Trans. Sci. Invest. Inst. Industry, No. 503. Inst. App. Miner., Paper 54*, (1932), (Russian and English).

purpose. If the grains have been properly embedded, the washing entails practically no loss of material. The originators of the method found that gelatin is neutral to all the oils in current use and, as the coating is much thinner than the diameter of the grains used, no difficulty was experienced in obtaining the Becke and oblique illumination tests. Several mounts may be made at different places on a slide before discarding it.

The advantages of the method are fairly obvious. Use of the same mount for successive oils is not only economical of material, but permits re-examination of those grains originally found to be most favorable for determinative purposes. Beginners will particularly appreciate this feature as it shortens the search for useful interference figures. The tendency of platy grains to lie flat on the slide is also somewhat lessened. Where the universal stage is employed, much annoyance is avoided and time saved through fixation of the grain selected for orientation. Care must be exercised here to avoid detaching grains through pressure of the hemisphere. After mounting on the stage, the slide should never be shifted unless the hemisphere set screws have first been loosened. It has been found feasible to use ordinary mounting oil (petrolatum, nujol, etc.) underneath the object glass; the correct index oil must be used, however, between the cover glass and hemisphere.

The slides cannot be used for work with crystals easily soluble in water, or with any low-index immersion media which have water as a component. These are minor handicaps, however, and do not apply to the great majority of crystals.

Vedeneeva and Melancholin have also described a method for temporarily transferring a standard, balsam-mounted thin section to a gelatin-coated slide, with the object of determining refractive indices. The writer does not consider this a very practicable method, however, as the manipulation requires much care and several hours' treatment is needed to thoroughly remove the balsam. The mineral powder method, on the other hand, is simple, economical, and effective, and should be better known.

In anticipation of a demand for these slides, the Will Corporation of Rochester, N. Y., is undertaking to supply the 25×44 mm. size at 40 cents a dozen.