

NOTES AND NEWS

INTERFERENCE FIGURES WITH GREATER CONTRAST¹

WILDER D. FOSTER²

The contrast between interference figures and the background can be increased by the use of an iris or fixed diaphragm between the lower nicol prism and the microscope lamp. The efficacy of this diaphragm varies considerably with the type of microscope employed.

A Leitz *SY* microscope was used with a two-iris diaphragm substage and a Spencer microscope lamp with a 110-volt, 100-watt projection bulb. With this model, closing the lower iris diaphragm cuts out much of the scattered light while interference figures are under observation. This lower iris diaphragm was added originally by the manufacturers to have a correctly located aperture diaphragm to work with the low power condenser when the high power condenser lens is swung out.³

The apparent contrast of the interference figures of particles revealed by this procedure is estimated to be about the same as that of particles with about 20 per cent more birefringence, examined by the regular methods for observing interference figures.

Thus in samples containing quartz and feldspar in the less than 20-micron size range, many more interference figures are rendered visible by this procedure than by the usual one.

The interference figures of particles having too much undulatory extinction to be revealed by present procedures, can be rendered visible by closing the slides of the Wright sliding stop eyepiece to produce a much smaller opening than usual and closing the lower iris diaphragm.

This method also was tested using a Bausch & Lomb *LD* microscope, which was the only other type of petrographic microscope available. This had no iris diaphragm below the condenser, so a series of fixed diaphragms was used. It was found that the fixed diaphragm needed an opening of at least 3 mm. and that this had to be placed between the microscope lamp and the mirror, and about 5 cm. from the center of mirror. The interference figure was only slightly benefited by such a diaphragm.

It is possible that with some types of microscopes the correct position of the diaphragm might be inside the lower nicol.

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² Assistant Chemist-Petrographer, Gas and Dust Section, Central Experiment Station, Bureau of Mines, Pittsburgh, Pa.

³ Berek, M., New attachments for the polarizing microscope: *Zeits. Krist.*, **55**, 615-626 (1920).

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ADDITIONAL NOTES ON THE FINAL GRINDING OF
PETROGRAPHIC THIN SECTIONS

A. F. FREDERICKSON, *Montana School of Mines, Butte, Montana.*

Introduction

Not infrequently, while grinding thin sections by hand to the proper thickness, many sections are ground down on one edge while the other edge remains relatively thick. On further grinding in an attempt to equalize the thickness, the thin side, often the portion that is desired for inspection or for photographic purposes, is frequently lost.

Roedder¹ emphasized the importance of an even final grinding plate along with the necessity for inspection, and suggests a method for obtaining a flat plate. Any advantage of using a light under the grinding plate, however, is doubtful for the section must be removed from the plate and washed before it can be properly inspected.

Regardless of the care taken in reducing the section on the fine lap, a section is often produced that is uneven; and the unevenness must be corrected on the final grinding plate if a satisfactory result is desired. The only way to reduce these unevenly ground slides to uniformity is by differential grinding.

The Technique of Differential Grinding

The reduction of the surface of a section to the desired uniform thickness is a separate problem for each condition of non-uniformity. The problem is one of manipulation or technique that can only be acquired by experience. A few possible situations will be considered.

If the section is wedge shaped the procedure that is best adapted to reducing the thick side is as follows:

A strictly clean, level piece of plate glass is placed on a solid table top and wetted. A small amount of grinding compound is placed on the plate with a spatula or spoon and a small portion is spread out over an area of about one square inch. The hands and all other equipment must be perfectly clean for at this stage one coarse grain of grinding compound or grit may ruin the section. The slide is held with the thumb and the second finger with the index finger over the high portion of the section. With a little practice the section can be so held that it can be picked up off the glass plate at any time and still not have the finger tips contact the glass.

¹ Roedder, Edwin, Notes on final grinding of petrographic thin sections: *Am. Mineral.*, **26**, 568-570 (1941).