RUCKLIDGE, J. (1967): A computer program for processing microprobe data. *Jour. Geol.* **75**, 126.

THOMPSON, R. M. (1947): Frohbergite, $FeTe_2$: a new member of the marcasite group. *Univ. Toronto Stud., Geol. Ser.* **57**, 35–40.

——— (1949): The telluride minerals and their occurrence in Canada, *Amer. Min.* **34**, 342–382.

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A WIDE FIELD TECHNIQUE FOR VIEWING ROCK TEXTURES

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ABSTRACT

By manipulation of its optical components the low power magnification range of the petrographic microscope may be extended. The technique described allows a five to ten times increase in the diameter of the field of view; an aid to the interpretation of small scale structures and coarse textures in petrographic thin sections.

When examining thin sections with the petrographic microscope there is often the need to extend the field of view to facilitate the observation of structures and to obtain a representative view of coarse textures. One is limited to a field of approximately 2–3 mm on most microscopes when using the lowest power objectives (2 or 3×), even in combination with wide-field eye pieces. This relatively small field of view can be conveniently extended by 5 to 10 times by employing the technique described herein. The interesting fact to keep in mind is that the area of view is a function of the square of the diameter of the field. Thus an increase in the diameter of the field by a factor of 5 gives a corresponding increase in viewing area of approximately 25 times. By observation of these large areas the interpretation of rock textures may be greatly facilitated.

The technique involves the following manipulations. The objective lens is removed from the microscope and the Amici-Bertrand lens is inserted; with this new lens system focusing is by means of the Bertrand lens focusing knob rather than the regular focusing knob. The latter is now used to control the extent of magnification. On microscopes with no provision for focusing the Bertrand lens one must bring the specimen into the plane of focus by the normal method; thus with this arrangement one cannot vary the magnification. The technique allows one to observe, within a single field, the full width of a standard thin section, or approximately one third of the area of the large (78 × 38 mm) sections.

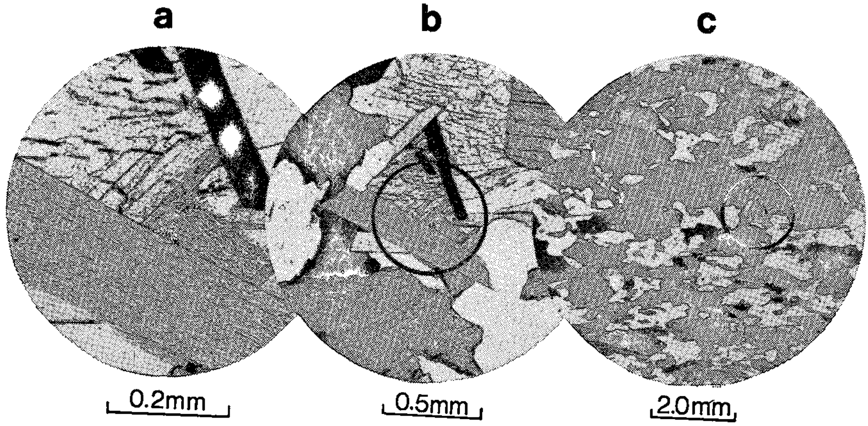

FIG. 1. Photographs show comparative fields of view of the same specimen at various magnifications. (a) represents the field observed with a 10× objective. (b) represents the field observed with a 3.2× objective. (the circled portion of the field corresponds with Fig. 1a). (c) represents the field observed with the objective lens removed, (the circled portion of the field corresponds with Fig. 1b). Comparison of Fig. 1c with Fig. 1b and a shows the great increase in the field of view, thus revealing a preferred orientation which is not readily apparent with normal low power objectives. The rock specimen is a mica schist from Wilberforce township, Ontario.

There are several limitations to the method. First the complete illumination of such a large field is usually not possible with a standard condensing system and thus some modification is required. On microscopes where the top elements of the condenser can be removed (e.g. Zeiss) the field of illumination becomes large enough to employ the technique without further modification. With other microscopes where the top elements of the condenser can not be removed it is necessary either to modify the light from the condenser by means of an auxiliary lens, or to employ a completely new condensing system supplied by the manufacturer. Removal of the entire condensing system to obtain a larger field is not entirely satisfactory as the field is not evenly illuminated.

The method is found to be quite useful for viewing. Due to the curvature of such a large field and the restrictions in the adjustment of the illumination the method is not satisfactory for micro-photography. Considering the magnifications involved macrophotography will give superior results.

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