than that encountered in the experiments here described. Whether the birefringence of natural (not externally stressed) stones is due to stress is perhaps debatable.

A BERTRAND-LASAULX SLIDER FOR THE POLARIZING MICROSCOPE

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Almost fifty years ago Wright suggested the use of a pair of right-angled prisms in an insertable metal plate to permit observation of an interference figure by the Lasaulx method without the trouble of removing the ocular and replacing it with a pinhole eyepiece. Six years later he proposed that a single rhomboid prism be employed in place of the earlier pair. This apparatus seems not to have been adopted by the microscope makers.

At the time Wright made his suggestion, it was not very common to use the polarizing microscope for determing the indices of refraction of a mineral grain by means of comparison with an embedding liquid. Although this technique has become well-nigh universal since World War 1, and while microscopists recognize the great value of the Lasaulx method when working with crushed grains (or indeed with *small* grains in a thin-section), the reflecting apparatus has not gone into production.

Some years ago the writer approached microscope manufacturers with the suggestion of making a double slider—Bertrand lens one way, Wright-Lasaulx prism the other. This was finally done by the American Optical Company through the good influence of the late Joseph D. Reardon. As first made the new slider replaced the standard Bertrand one and a small auxiliary pinhole tube was clamped along the side of the microscope tube. The latter, while made at my suggestion, turned out to be relatively cumbersome; it also was not easy to have it properly centered over the prism. Accordingly I had our shop replace it with a small pinhole tube attached directly to the slider as shown in the photograph. While this pinhole tube lacks an elegant appearance, it does not get in the way and can be covered easily by a shell vial if one feels that a dust cap is needed. It can be centered once for all by having the pinhole cover held to the top of the tube (or the base of the tube fastened to the slider) by means of three screws going through enlarged holes. If one wishes to use a camera lucida the slider is very quickly removed from the microscope tube; or the slider might be mounted with the Bertrand on its right side, the pinhole tube on the left. Experience indicates that a pinhole 0.04 inches in diameter gives optimum results; this is smaller than the one usually supplied by the manufacturer.

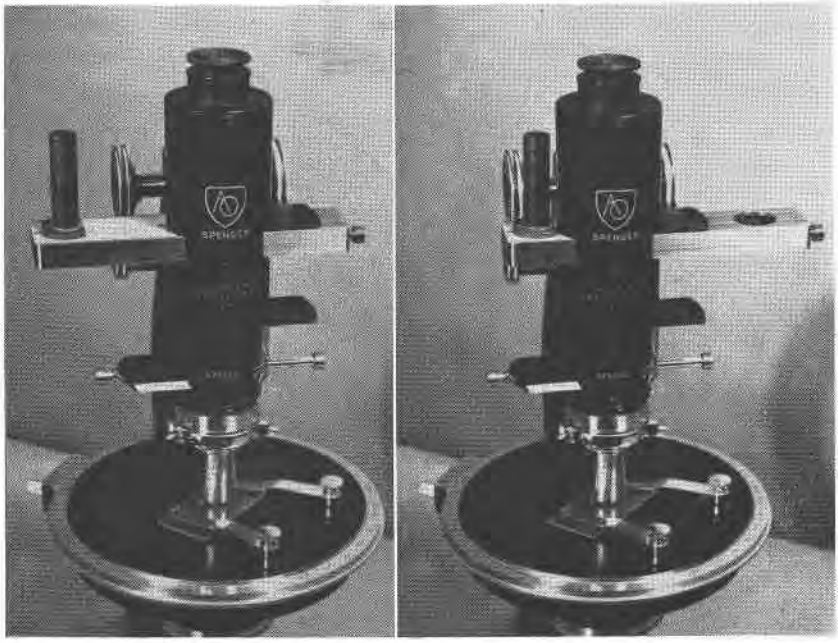

FIG. 1. Polarizing microscope with the Bertrand-Lasaulx slider. *Left,* the slider is in position for ordinary orthoscopic examination. *Right,* the slider is pushed to the Lasaulx conoscopic position; the eye now looks down the small pinhole tube.

Workers who have used the new slider find it highly satisfactory. The sharper and more brilliant isochromes make errors of interpretation much less likely than is true when using the Bertrand; the latter is still valuable where measurements are needed, unless one has a reticle in the objective with a micrometer scale (Lenk) or concentric rings, or an objective Iris diaphragm (Slawson).

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