of the instrument and the care used by the worker, although grain size may be a factor. Using this method the writer obtained in studying a thin section containing nothing but feldspar (identified by twinning) results indicating the presence of ninety per cent feldspar and ten per cent quartz. Greater care reduced this error to five per cent, but it was found that for ordinary work less care and the application of a ten per cent correction factor served the purpose better.

In the application of this method of distinguishing quartz and untwinned oligoclase-andesine the writer has in any one thin section tested from thirty to sixty grains, depending upon the relative proportions of quartz and feldspar present and the accuracy desired. The time required was from ten to thirty minutes.

No careful checks have been made on the accuracy of the results obtained, but the writer has felt justified in assuming an error of less than ten per cent, and careful work would undoubtedly reduce this considerably.

AGUILARITE FROM THE COMSTOCK LODE, VIRGINIA CITY, NEVADA

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Examination of polished specimens of ores from the Comstock Lode has revealed the presence, hitherto unsuspected, of the silver sulphoselenide, aguilarite. Aguilarite was not recorded by E. S. Bastin[1] in the only previous paper on the ores of the Comstock Lode. It occurs in dark gray, sectile masses, intimately admixed with other minerals, and exhibiting a poor cleavage, visible only in hand specimens. It replaces base metal sulphides and calcite, and is replaced by argentite, electrum, and stephanite.

According to Schneiderhöhn and Ramdohr,[2] aguilarite is an isomorphous mixture of the naumannite and the argentite molecules, and is isometric above 133°C., probably rhombic at usual temperatures. The differences, due to inversion, may explain the variations in properties shown in the columns below. In the first column are listed the properties of aguilarite from the Comstock; in the second, the properties as recorded by Farnham[3]; and in the third column, those of aguilarite as given by Short.[4] In the fourth column those of naumannite are cited as given by

[1] Bastin, E. S., Bonanza ores of the Comstock Lode, Virginia City, Nevada: *Bull.* **735C,** *U. S. Geol. Survey*, 1922.

[2] Schneiderhöhn, H., and Ramdohr, P., *Lehrbuch der Erzmikroskopie*, 2 Band, Berlin, S. 272, **1930.**

[3] Farnham, C. M., *Determination of the Opaque Minerals*, New York. p. 21, **1931.**

[4] Short, M. N., *The Microscopic Determination of the Ore Minerals: Bull.* **825,** *U. S. Geol. Survey*, p. 86.

Schneiderhöhn and Ramdohr, the etching properties being taken from Murdoch.

Microchemical tests showed only the presence of silver, sulphur, and selenium. The amount of selenium was apparently variable, judging from the color of the residue resulting from solution in HNO_3, but this may have been due to the difficulty of securing samples free from contamination by argentite. The mineral does not differ sensibly from argentite in its etch reactions, except that it reacts more slowly with KCN, and shows grain boundaries, due to tarnishing in various shades of gray, after a minute or more. It polishes slightly better than argentite, and is isotropic, compared to argentite, or very weakly anisotropic.

	1	2
Etch Reactions	Coats *Aguilarite*	Farnham *Aguilarite*
HNO_3	Negative	Slowly stains brown
HCl	Fumes etch slightly	Fumes slowly stain brown
KCN	Stains gray, brings out structure	Negative
$FeCl_3$	Stains iridescent	Stains gray
KOH	Negative	Negative
$HgCl_2$	Stains iridescent	Stains iridescent
Optical	Isotropic	Isotropic
Talmage hardness	B—(estimated)	A
Color	Gray, darker than argentite, slightly greenish	Gray-white, olive-green with galena
Cohesion	Sectile	Sectile
Light etching	Very slow	Not given

	3	4
Etch Reactions	Short *Aguilarite*	Schneiderhöhn-Ramdohr *Naumannite*
HNO_3	Slowly stains brown	Effervesces, surface roughened
HCl	Negative or slight tarnish	Light brown stain
KCN	Negative	Negative
$FeCl_3$	Tarnish iridescent or stains light brown	Light brown stain
KOH	Negative	Negative
$HgCl_2$	Stains iridescent	Not given
Optical	Isotropic (also anisotropic)	Plainly anisotropic
Talmage hardness	A	B
Color	Gray	White
Cohesion	Sectile	Not given; said to have (100) cleavage
Light etching	Not given	Not given

It should be noted that the determination of Farnham was made, as far as can be judged, on the original aguilarite from Guanajuato, Mexico, as described by Genth,[5] who found the mineral to be sectile, malleable, and of variable composition. At Guanajuato, as on the Comstock Lode, the mineral is associated with argentite and silver, and is replaced by stephanite.

The malleability of the mineral is probably responsible for the failure of earlier workers to distinguish it from the associated argentite.

[5] Genth, F. A., Contributions to Mineralogy: *Am. Jour. Sci.*, vol. **141,** p. 401, 1891. Genth, F. A., Contributions to Mineralogy: *Am. Jour. Sci.*, vol. **144,** p. 381, 1892.