A MODIFICATION OF LEMBERG'S STAINING METHOD

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Lemberg's solution is commonly prepared by boiling the following constituents together for about 25 minutes:

6 parts logwood chips
4 parts aluminum chloride
60 parts water

Several factors, such as time and concentration, enter into the differential staining properties of this solution. The concentration of the active principle of logwood cannot be controlled by using the above formula. A variable amount of haematoxylin and hematein, active principles of logwood, are obtained by boiling logwood chips. In fact certain varieties of logwood contain a very small amount of this material. This explains why uniform results have not been obtained in staining experiments using a solution of this nature.

The writer has used the following modification of Lemberg's solution with excellent and uniform results:

0.24 grams haematoxylin
1.6 grams aluminum chloride
24 cc. water

This solution is brought to the boiling point and then cooled. A small amount of hydrogen peroxide is then added.[1]

Calcite is distinguished from dolomite in thin section by removing the cover glass and balsam and then applying the stain. If the section has not been recently prepared the cover glass should be easily sprung off with a thin knife blade. The balsam, which cemented the cover glass to the section, is then removed by a brief immersion in xylene. If the section has been recently prepared or the cover glass is not easily removed, the section is placed in xylene until sufficient balsam has been dissolved to permit the cover glass being removed by sliding off over the rock slice. This procedure requires great care otherwise the rock slice will crumble to pieces. The uncovered section is then immersed in the cold solution for about 5 minutes and then rinsed without

[1] The ground or chipped logwood of commerce has been prepared as a dyestuff by being exposed in large moist heaps until haematoxylin has been converted by oxidation to hematein. The solution will not stain calcite without hydrogen peroxide having been added to produce this oxidation.

danger of removing the stain. Upon examination the calcite will be found to have become deeply stained while any dolomite present will remain unaffected. The cover glass may be remounted by placing one drop of a thin solution of balsam in xylene on center of section and then placing cover glass on this drop. Fragments may, of course, be treated in a similar manner.

THE TRANSMISSION OF LIGHT BY CITRINE

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In a recent paper[1] the writer concluded that citrine is probably colored by sub-microscopic particles of hydrous ferric oxide. This belief was based on analyses, and on a comparison of the color of citrine with that of solutions of colloidal hydrous ferric oxide.

Since this former note was published, the writer has measured the transmission of light through two specimens of Brazilian citrine, and through a colloidal solution of hydrous ferric oxide. The measurements were carried out in the Physical Laboratory of this University, by means of a photospectrometer. The percentage of incident light which emerged after passage through the sections was determined, at intervals averaging about 20$\mu\mu$, from 457 to 704$\mu\mu$. Curves plotted from the results so obtained are shown in Fig. 1.

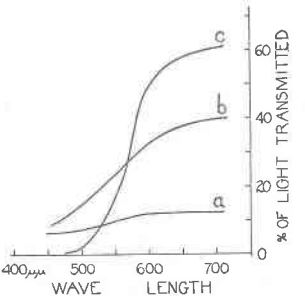

FIGURE 1. Transmission of light through citrine and through a colloidal hydrous ferric oxide solution. (a) Citrine. Color: 19″ 'b (Ridgway); pale yellowish. Thickness of section, 1.7 cm. (b) Citrine. 9k; deep amber. Thickness 0.55 cm. (c) Colloidal hydrous ferric oxide solution. 0.07 per cent Fe_2O_3. 2.0 cm. thick.

[1] The Color of Three Varieties of Quartz. I. Note on the color of citrine. *Am. Min.*, **8**, 117-118 (1923).