



Figure 30: These silver earrings contain a glass imitation of malachite (9.5 mm in diameter). Photo by J. Hyršl.

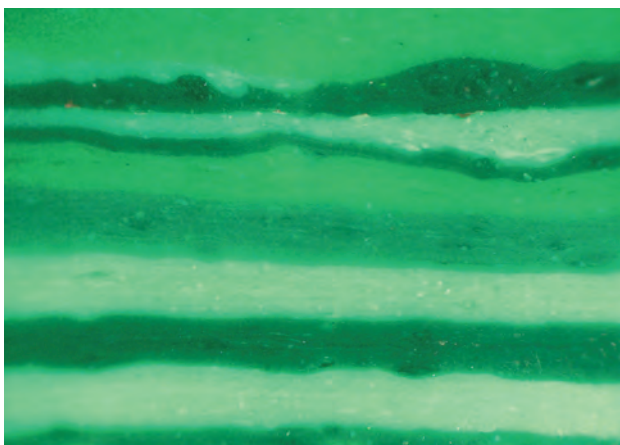


Figure 31: Viewed with the microscope, the glass imitation of malachite consists of irregular layers showing various amounts of green coloration. Photomicrograph by J. Hyršl; image width 4.0 mm.

decorative objects since the 19th century and is still popular there. After some of the historical sources of malachite were exhausted, synthetic malachite entered the market in the 1990s. This material was prepared in Moscow, but it proved too expensive in comparison with the natural stone.

This author recently examined some sterling silver earrings (probably manufactured in China) that appeared to be set with malachite (Figure 30). The gems showed typical parallel banding with light green, green and green-black bands that varied in width from 0.3 to 1.0 mm. The spot RI was 1.57 and the typical birefringence 'blink' exhibited by carbonates such as malachite was not seen. The cabochons were inert to short-wave UV radiation, but the light green bands fluoresced white to long-wave UV. These properties identify the material as a glass imitation. Microscopic observation showed an irregular thickness and inhomogeneous structure of the bands (Figure 31) that were probably caused by successive solidification of different-coloured layers of glass.

Natural malachite from the DRC is still quite cheap and abundant in the market, and it is surprising that such a time-consuming process was used to imitate such material.

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Dyed Quartzite and Chalcedony Beads Imitating Amazonite

Amazonite, the green-to-blue variety of microcline K-feldspar, is an attractive ornamental material that is commonly impregnated with various materials due to its platy structure and its susceptibility to damage along cleavage planes. Recently submitted to Stone Group Laboratories for identification was a suite of bead jewellery (earrings and a necklace) that reportedly featured amazonite. We presumed that the atypical appearance of this 'amazonite' (Figures 32 and 33) was the reason for its submission.

The beads in the earrings were a muted, uniformly coloured pastel greenish blue (e.g. Figure 32), and showed faint mottling and subtle banding with a granular texture. Their colour was too pale for typical amazonite, and they did not

exhibit the iridescent platy structure commonly associated with this mineral. Raman analysis with a GemmoRaman-532 instrument readily identified them as quartz, and their granular texture indicated that the beads in the earrings were quartzite.

The beads in the necklace (Figure 33) varied broadly in both colour and pattern, but all of them tested as quartz with Raman spectroscopy. Most of the beads were of the chalcedony variety, although four of them had the granular texture of quartzite. Microscopic observation of the chalcedony beads revealed typical agate structures and banding, and a few would be best described as carnelian due to their reddish brown colour.



Figure 32: This 'amazonite' earring (16 mm in diameter) was found to consist of dyed quartzite. Photo by B. Williams.



Figure 33: The wide variation in colour and pattern seen in these 12 mm beads provided a strong indication that they were not amazonite. The beads proved to consist of chalcedony and quartzite, most of which had been dyed. Photo by B. Williams.

In some beads, faint dye concentrations could be seen along fissures and areas of greater porosity, but many of them showed no evidence of dyeing other than an unnatural colour for quartz. While it was not possible to confirm the type of dye used, traces of Cu were detected in the greenish blue beads by EDXRF

spectroscopy; copper salts are commonly used as a blue dye.

Amazonite is readily available and affordable, so there is little reason for such imitations. These days it seems that anything can be imitated, even less expensive, plentiful materials.

Cara and Bear Williams

MISCELLANEOUS

Gem Notes from Myanmar

The jadeite mining area near Hpakan was closed to mining for nearly two years due to armed fighting between government forces and the Kachin Independent Army. Mining was allowed to resume at the end of September 2014 under a peace agreement. At present in the Hpakan region there are 808 private mining companies registered, with a total of 15,638 claims. Twenty-two percent of the companies are in partnership with the Myanmar government. These larger companies control 302 mining plots. Now 36 companies are preparing to start mining jadeite.

A jade and gems emporium was held 15 October 2014 in Naypyidaw for domestic gem

merchants paying in local currency (kyats). There were nearly 7,000 rough jadeite lots shown, all classified as 'utility jade' (low-quality material), and some sold for higher prices than expected. In the gemstone section, 160 lots were displayed (51% ruby, 17% sapphire, 14% peridot and 12% other gems). The outcome of this sale has not yet been announced.

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