*Figure 27: Some large gems have been faceted from smoky citrine produced at the Oceanview mine, such as this 1,030 ct Portuguese cut by Joel Baskin. Courtesy of James Zigras; photo by Jason Baskin.*

the underground workings and from the mine tailings by fee diggers—and the largest crystal measured 4.2 × 3.3 cm. Additional small pockets in this area of the mine have produced a few crystals of morganite and kunzite.

Swanger recently completed a new haulage tunnel that will significantly decrease the distance for removing material from the mine. This will increase efficiency and hopefully bring the miners closer to more gem finds in the near future.

*Brendan M. Laurs*

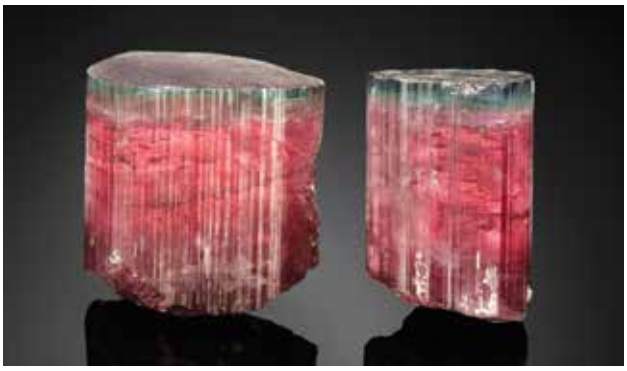

*Figure 28: The Oceanview mine is also the source of these 'blue-cap' tourmalines (each 3.3 cm tall). Courtesy of Oceanview Mines LLC; photo by Mark Mauthner.*

### References

Larson W.F., 2012. "Blue-caps" find 40th anniversary. *Minerals—The Collector's Newspaper,* **5**, pp. 1 and 7–12, http://spiriferminerals.com/foto_artyk/minerals/minerals5-net.pdf.

Mauthner M., 2011. Recent finds at the Oceanview mine, Pala District, San Diego County, California. *Rocks & Minerals,* **86**(1), 41-49, http://dx.doi.org/10.1080/00357529.2011.537174.

## Scheelite from Inner Mongolia

During the 2014 gem shows in Tucson, Arizona, USA, one of us (BML) was informed about an unusual gem originating from Inner Mongolia, China. Gem dealer Mark Kaufman reported that in 2012 some colourless crystals were found at the Huanggang mine that were represented by his Chinese supplier as powellite [$Ca(MoO_4)$]. Powellite forms the molybdenum-rich end member of an isomorphous series with scheelite [$Ca(WO_4)$], which is the tungsten-rich end member. Kaufman obtained one of the crystals in late 2013 that measured about 10 cm long and 3 cm wide, and was broken at its base. He used strong transmitted lighting to detect a facetable area through the naturally etched surface of the crystal, near its termination. He cut a 41.38 ct square cushion, measuring 17.4 × 17.2 mm (Figure 29), and the stone was loaned to authors CW and BW for examination and confirmation of its identity.

The colour of the gem was so white as to appear 'silvery' white, presumably due to the high lustre and refraction. The RI could not be measured since it was over the limit of the refractometer (>1.81). The stone's hydrostatic SG was 5.71. It fluoresced strong chalky yellow to

*Figure 29: This scheelite weighs 41.38 ct and is reportedly from Inner Mongolia. Photo by B. Williams.*

long-wave UV radiation and moderate chalky yellowish pink to short-wave UV. These properties are largely consistent with those reported for scheelite by O'Donoghue (2006), except that the SG values in that publication are slightly higher. However, this would be expected for scheelite that contains some Mo (i.e. some of the powellite end member). The stone was free of any eye-visible inclusions, and microscopic examination revealed only a few small 'fingerprint' inclusions. In addition, the use of darkfield lighting and higher magnification showed some mist-like diffuse lines of pinpoint dots.

UV-Vis spectroscopy revealed a narrow weak absorption at 378 nm and a broad weak absorption centred at 700 nm. EDXRF spectroscopy showed major amounts of Ca and W, as expected for scheelite, as well as moderate Mo and some Yb. Raman analysis confirmed the stone was scheelite.

Facetable scheelite is considered a collectors' stone due to its rarity and low hardness (4½–5 on the Mohs scale). This 41.38 ct stone is the first faceted scheelite from Inner Mongolia that is known to these authors, and its large size and eye-clean transparency are particularly notable for a gem from a new locality.

*Cara and Bear Williams*

*Brendan M. Laurs*

### Reference

O'Donoghue M. (Ed.), 2006. *Gems,* 6th ed. Butterworth-Heinemann, Oxford, 446.

## PEARLS

### Aging Silver-treated Cultured Pearl

The Laboratoire Français de Gemmologie (LFG) recently received a round dark brown pearl for analysis that was taken from a necklace composed entirely of pearls with the same appearance. The owner stated that the necklace was bought in the 1950s and was represented to consist of natural black pearls from the Red Sea region.

The pearl measured 6.8 mm in diameter and was very dark brown with no secondary colour. Magnification revealed an inhomogeneous coloration, as well as a darker area around the drill hole (Figure 30). These features strongly suggest colour treatment.

The pearl was then analysed with X-ray microradiography to observe its inner structures and determine its natural or cultured origin. A round bead was clearly seen inside (Figure 31), establishing that it is a beaded cultured pearl. However, the most interesting aspect of the X-radiograph was a bright-appearing layer surrounding the nucleus. This feature is typically seen within pearls treated with silver nitrate (Webster, 1949; Crowningshield, 1950). In this treatment, pearls are immersed in a silver nitrate solution in the dark. Then the pearls are exposed to light or treated with hydrogen sulphide to precipitate dark-coloured colloidal silver. It is well known that this treatment is used to blacken Akoya cultured pearls. Because the silver nitrate reacts more intensely with organic material, a greater concentration of silver precipitates in the tiny space surrounding the nucleus. Since silver has a much higher opacity to X-rays than the $CaCO_3$ composing the pearl, the X-rays are blocked, producing the bright layer around the nucleus.

*Figure 30: The inhomogeneous colour and darker area concentrated around the drill hole of this 6.8 mm cultured pearl are indications of colour treatment. Photo by O. Segura.*