Figure 31. These pallasitic peridot specimens came from an undisclosed location in the United States. The slab measures 45 × 30 mm, and the other samples weigh 1.06, 0.50, 0.67, and 3.47 ct (from left to right; photo by Robert Weldon). The 0.36 ct cabochon in the inset shows good chatoyancy (photo by R. Stinson).

content (by luminescence to X-rays and EDXRF spectroscopy) gave results consistent with freshwater origin. We concluded that this was a beadless cultured pearl such as those produced in China.

Chinese pearl farmers typically culture freshwater pearls by grafting numerous pieces of mantle tissue in multiple closely spaced rows in the mantle of the host mollusk. The color of the resulting cultured pearl is directly related to the original location of the tissue in the donor mollusk. The bicolored nature of this sample probably resulted when tissue pieces taken from different locations of the donor mollusk were placed adjacent to one another. The "twin" resulted either because they were too close, or the cultured pearls were left in the mollusk for too long a period of time.

Henry A. Hänni

Interplanetary cat's-eye peridot. Pallasite, a type of stony-iron meteorite first described in the 18th century, is known for the yellowish green olivine that can be extracted from it. Yet pallasitic peridot, the gem variety of olivine, is extremely rare. (For historical background and a gemological examination of nine faceted samples, see J. Sinkankas et al., "Peridot as an interplanetary gemstone," Spring 1992 *Gems & Gemology*, pp. 43–51.)

At the 2008 Tucson gem shows, meteorite hunter Steve Arnold of Kingston, Arkansas, showed the *G&G* editors five pallasitic specimens: one faceted peridot, one oval peridot cabochon showing chatoyancy, a rough piece of peridot, an irregularly shaped cabochon, and a slab of pallasite containing gem-quality peridot (figure 31). Using a metal detector, Mr. Arnold discovered several kilograms of the material in 2006 near a known meteorite location in the United States. He took the rough to Rick Stinson (Stinson Gemcutting Inc., Wichita, Kansas), who observed that some of the peridot was chatoyant (figure 31, inset), a phenomenon that is very rare in terrestrial peridot. According to Mr. Arnold, the American Museum of Natural History in New York later identified the cause of chatoyancy as parallel, tube-like hollow inclusions.

Peridot is a relatively soft gem material (6.5 on the Mohs scale), and the pallasitic material seems more fragile than peridot mined on Earth, perhaps due to the stress of its passage through the atmosphere and subsequent impact. In fact, a small piece of the peridot cabochon chipped off as the stone was being prepared for photography in Tucson.

Because extracting the gem-quality peridot is so difficult and destructive, Mr. Arnold estimates that less than 1% of the total weight of the recovered meteorite material will be converted into finished gemstones. So far 40 stones have been faceted, ranging from 0.20 to 1.04 ct, and only a few cabochons showing chatoyancy have been cut.

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New rubies from central Tanzania. At last April's BaselWorld jewelry fair in Switzerland, the SSEF Swiss Gemmological Institute received a number of attractive rubies (e.g., figure 32) with uncommon features. The stones, which were submitted by different dealers, all had a rather saturated red hue, and their internal features indicated they were clearly unheated. The largest weighed 10.75 ct (figure 33). EDXRF qualitative chemical analysis of all the samples established that Cr and Fe were the main trace elements, while Ga was low and Ti and V were below detection limits. The client was sure of the stone's Tanzanian origin and expected to see the country identified on the test report. Because SSEF had not seen faceted rubies with such characteristics before, it was not possible to specify the origin at that time.

However, we recalled a small parcel of rough corundum

Figure 32. These unheated rubies (2.2–3.6 ct) are apparently from a new locality in Tanzania called Winza, near the town of Mpwapwa. Photo by H. A. Hänni, © SSEF.

Figure 33. This 10.75 ct ruby from Winza has no fissures and shows no indications of heating. Courtesy of Gemburi Co., Chanthaburi, Thailand; photo by H. A. Hänni, © SSEF.

(figure 34) from a new deposit in Tanzania that was supplied in January 2008 by Werner Spaltenstein, a buyer in East Africa. These samples were represented to him as coming from the village of Winza, which is located near Mpwapwa, about 85 km east-southeast of Dodoma. The crystals and fragments displayed various habits and crystal faces, the most surprising of which was an octahedron-like variation of a rhombohedral shape (compare with H. A. Hänni and K. Schmetzer, "New rubies from the Morogoro area, Tanzania," Fall 1991 *Gems & Gemology*, pp. 156–167). As with the crystals described by Hänni and Schmetzer (1991), the triangular faces of the Winza samples had fine lines visible with magnification that represented the surface expression of thin twin lamellae.

A comparison of the material from Winza with the cut stones examined during the Basel fair showed a similar chemical composition, and some of the inclusions were identical. These included bent fibers that were actually hollow channels filled with a polycrystalline substance (probably secondary minerals; figure 35, left), as well as partially healed fissures consisting of idiomorphic cavities with a polycrystalline filling of white and black grains (figure 35, right). Therefore, we concluded that the rubies seen at the fair were indeed from Winza.

The faceted gems we have seen thus far from this new deposit suggest that there is considerable potential for high-quality rubies that in some cases do not need enhancement. But as with all deposits, a considerable amount of lower-quality material is also probably present—in this case, as fractured stones with blue color zones. Such corundum will likely be subject to flux-assisted heat treatment to remove the blue spots and "heal" the fractures.

Henry A. Hänni

Ruby and sapphire mining at Winza, Tanzania. As reported in the previous GNI entry, some fine rubies were recently produced from a new deposit at Winza in central Tanzania. In April-May 2008, these contributors undertook separate field research expeditions to the mining area to document its location, mining, and geology, and also to obtain research samples for characterization. Since foreigners are prohibited from visiting the deposit, we had to obtain permission from several government officials, who also supplied police escorts. We are grateful to Dimitri Mantheakis (Lithos Africa, Dar es Salaam, Tanzania), and also to the Saul family (Swala Gem Traders, Arusha, Tanzania) and Tanzanian broker Abdul Msellem for their assistance in arranging our trips to the Winza mining area. Some preliminary observations from our visits are reported here, and further information is in preparation for an article that we plan to submit to *Gems & Gemology*.

The mining area is located approximately 10 km southwest of the village of Winza, and can be reached by four-

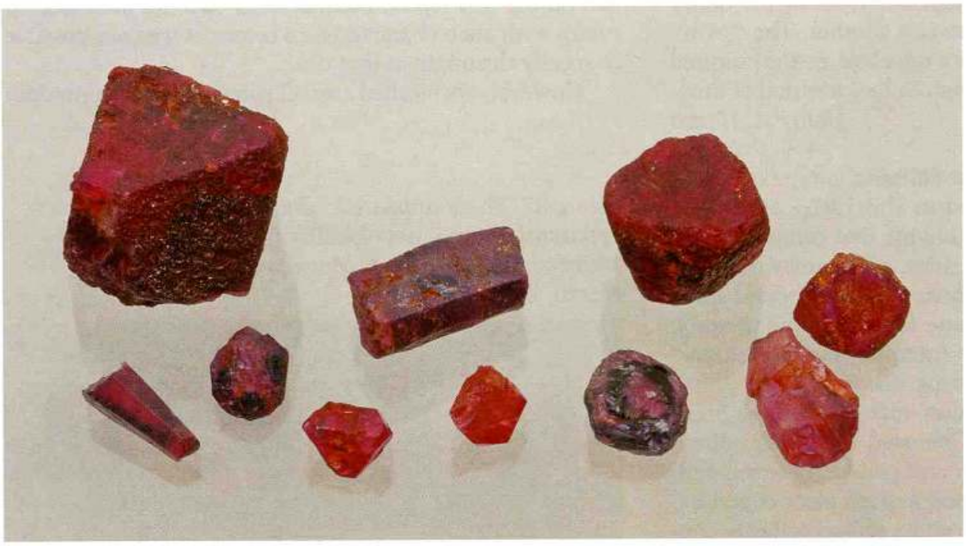

Figure 34. These ruby crystals from Winza display rhombohedral and prismatic habits. Some stones contain blue patches in crystallographically defined zones. The largest crystal is 25 mm wide and weighs 17.6 g. Photo by H. A. Hänni, © SSEF.