



Figure 10. Most of the Luumäki gem beryl from the May 2004 pocket consisted of relatively small fragments. The inset shows a green beryl weighing approximately 15 ct that was cut in Finland. Photos by P. Lyckberg.

1993). Although it would be possible to cut stones weighing several thousand carats from the largest fine gem crystals, these crystals have been sold as specimens to collectors to preserve their natural beauty.

When present, inclusions in the beryl are similar to

Figure 11. Afghanistan has produced attractive hessonite over the past few years. These stones, weighing 2.64, 7.39, and 3.51 ct (from left to right), show the range of color that is commonly encountered in this material. Courtesy of Intimate Gems; photo by Maha Tannous.



those described by Lahti and Kinnunen (1993). For example, a 3 cm golden yellow heliodor studied by this contributor had dozens of parallel channels/tubes along the c-axis, and these were filled by rust-colored clay minerals. None of the beryl was found to contain the clouds of minute inclusions that are typical of Ukrainian beryl.

Approximately 100 large stones (25–50 ct) from the recent production have been cut by Finnish master faceter Reimo Armas Römkä. Most of them are light yellow and some are yellowish green. In addition, about 11,000 round brilliants (10 mm in diameter) have been cut in China. Most of the cut stones are sold into the domestic Finland market.

The 2004 mining season will continue until the severe winter halts activities for the following six months.

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Hessonite from Afghanistan. Over the past few years, Afghanistan has become a significant source of gem-quality hessonite (grossular garnet), and some of the material has been found mixed into parcels with other orange to red stones from this region (see Summer 2001 Gem News International, p. 144). To our knowledge, the gemological properties of the Afghan hessonite have not been published, so we were interested to examine several faceted samples and mineral specimens that were recently loaned (and, in some cases, donated) to GIA by Sir-Farooq (“Farooq”) Hashmi of Intimate Gems, Jamaica, New York. In addition, Peter Lyckberg loaned six faceted examples for our examination. Mr. Hashmi reported that the hessonite comes from eastern Afghanistan; two known deposits are Munjagal in Kunar Province (producing roughly 1,500–2,000 kg/year of mixed grade) and Kantiwow, Nuristan Province (up to 5,000 kg/year). Most of the clean rough weighs 0.5–1 gram, in colors ranging from yellowish orange to red-orange. Although thousands of kilograms of this garnet have been produced, mining has waned in recent months due to lack of demand in the local market (i.e., in Peshawar, Pakistan) and the migration of miners to the kunzite deposits in the same region of Afghanistan.

The specimens we examined consisted of euhedral garnets that were commonly intergrown with anhedral massive quartz. This assemblage formed within massive garnet that was intergrown with quartz and, less commonly, a green mineral (probably epidote) and another white mineral (possibly wollastonite). This mineral association is typical of a skarn-type deposit formed by contact metamorphism of carbonate rocks by a granitic intrusion. The euhedral grossular crystals typically measured up to 1 cm in diameter, although some partial crystals of larger dimension (up to 4 cm) also were present. The crystals contained abundant fractures, but some had small areas that were transparent enough for faceting.

Three representative faceted stones (2.64–7.39 ct; figure 11) were selected for examination by one of us (EPQ), and the following properties were obtained: color—yellowish orange, orange, and red-orange; diaphaneity—transparent, R.I.—1.739 or 1.740; S.G.—3.63 or 3.64; weak to moderate ADR in the polariscope; and inert to both long- and short-wave UV radiation. Weak absorption bands at 430 and 490 nm were observed with a desk-model spectroscope. Microscopic examination revealed transparent near-colorless crystals (one of which was identified as apatite by Raman analysis), needles, “fingerprints,” stringers of particles, fractures, and straight and angular growth lines. One stone showed evidence of clarity enhancement. The R.I. values of these samples are slightly lower than those reported in the literature for hessonite (see R. Webster, *Gems*, 5th ed., rev. by P. G. Read, Butterworth-Heinemann, Oxford, 1994, pp. 201–202). Notably, the three Afghan samples did not show the roiled or oily appearance that is commonly seen in hessonite; nor was this feature noted upon further examination of several additional faceted stones.

BML

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Interesting abalone pearls. In the Winter 2003 Gem News International section (pp. 332–334), this contributor reported on some interesting pearls that had been loaned by Jeremy Norris of Oasis Pearl in Albion, California. Two of those were unusual specimens from the green abalone *Haliotis fulgens* and the red abalone *H. rufescens*. Mr. Norris recently loaned GIA two additional abalone pearls from the waters off Baja California, Mexico.

One of these pearls was an exceptional example of a

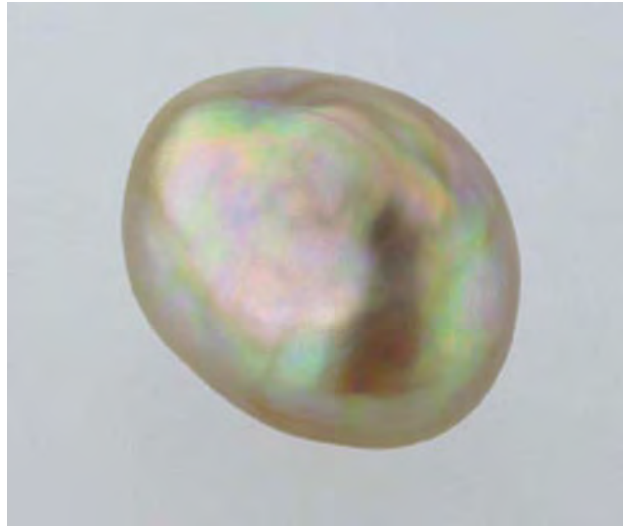


Figure 12. Showing a beautiful array of colors, this 4.90 ct abalone pearl is an exceptional example from the pink abalone *H. corrugata*. Courtesy of Jeremy Norris; photo by C. D. Mengason.

pearl from the pink abalone *H. corrugata*. This 4.90 ct light-toned pearl (11.4 × 8.9 × 6.9 mm) displayed a stunning array of colors (figure 12).

The other pearl was a 41.03 ct horn-shaped specimen (36.6 × 23.0 × 14.5 mm) from *H. fulgens*. What was so unusual about this particular pearl was its remarkable resemblance to an eagle’s head, complete with eye, brow, and beak structures (figure 13). Such horn shapes—a form typically exhibited by abalone pearls—may be solid, but often they are hollow. This particular specimen was funnel shaped, with the narrow end of the hole forming the apparent “eye.” The nacre displayed vibrant hues of blue,

Figure 13. This unusual 41.03 ct pearl from the green abalone *H. fulgens* has a remarkable resemblance to an eagle’s head (left). The funnel-shaped hole, which starts at the wide opening at the back of the “head,” and exits out the eagle’s “eye,” exhibits the same smooth vibrant nacre as the outside of the pearl (right, looking down the wide opening). Courtesy of Jeremy Norris; photos by C. D. Mengason.

