



Ruby and Sapphire Markets Transformed

Adapted by Russell Shor, GIA senior industry analyst



Fig. 1

The lead article in the Winter 2009 issue of *Gems & Gemology* [figure 1], Russell Shor and Robert Weldon's "Ruby and Sapphire Production and Distribution: A Quarter Century of Change," chronicles these new sources and treatment methods and how they coincided with new sales outlets, such as television and online shopping. It also examines how corundum supplies and prices have been buffeted in recent years by political events and social concerns.

Myanmar (formerly Burma) has been at the center of the ruby story for centuries. The ancient Mogok deposits, the traditional source of the world's finest material, have continued to produce, while a new discovery, Mong Hsu, began to yield large quantities of commercial material during the mid-1990s. By the early 2000s, the country was supplying an estimated 90% of the world's rubies [figure 2].



Fig. 2



Fig. 3

Other sources — Kenya, Vietnam, and Madagascar — also began to supply the market, and ruby became fairly plentiful during the 1990s and early 2000s. Most recently, in 2007, fine stones began to emerge from a new locality in Winza, Tanzania [figure 3]. Prices for medium- and commercial-quality material eased considerably, and with larger supplies available at attractive prices, designers began to turn out lines of mass-market ruby jewelry.

Changes in the sapphire market have been even more profound. While traditional sources such as Kashmir, Thailand, and Cambodia were becoming mined out, new production from Sri Lanka, Australia, Madagascar and (briefly) the U.S. state of Montana poured into the market.

In earlier times, much of this material would not have been mined because it was either too pale (Sri Lanka) or too dark (Australia), or had a less-commercial color (Madagascar). But gem dealers, primarily in Thailand, perfected heat-treatment processes that could consistently improve the colors of these goods. Thus, millions of carats of previously unusable sapphire were transformed into attractive gems.

The treatments, while a boon to the gem market, were also controversial, primarily because many dealers failed to disclose them to buyers. In time, the trade generally accepted straight heat treatment — subjecting ruby and sapphire to high temperatures under controlled atmospheric conditions. But in 2001, treaters took that process one step further, creating a furor that resounds today.



That year, an abundance of pinkish orange "padparadscha" sapphires entered the market. Because such sapphires are normally quite rare, the sheer quantity of these stones prompted gemologists and dealers to suspect a new form of treatment. Eventually they discovered that beryllium was being diffused into the stone during the heating process, radically altering the perceived color. Beryllium diffusion was subsequently used to

Fig. 4 modify blue and other colors of sapphire [figure 4], as well as ruby, expanding the controversy and attracting a spate of negative press reports.

Also impacting the market were the large quantities of attractive ruby that began to show up in the early 2000s. Much of the material, it was quickly discovered, had been filled with lead glass to conceal abundant fissures in cloudy pink sapphires that were otherwise unsuitable for gem use. Fortunately, this treated material is easily identified with magnification.

International politics also affected the ruby and sapphire trade. To censure Myanmar for human rights abuses, the U.S. Congress enacted the Burmese Freedom and Democracy Act in 2003, which banned trade in gems and other products from that country. But the ban left a huge loophole that allowed the import of gemstones if they had been cut in a third country. The vast majority of Burmese gems were cut in neighboring Thailand, so the ban had little real effect.

As repression in Myanmar increased, however, the European Union enacted its own ban on Burmese gems, followed in 2008 by a tightening of the U.S. measure that effectively banned all Burmese ruby and jadeite imports regardless of where they were cut. As a result, more than 50 ruby mines closed down in Myanmar, while buying by foreign dealers reportedly fell by more than half in the latter part of 2008.

The need to identify which rubies were Burmese highlighted another issue: country of origin. Colored stones from certain localities, such as Mogok ruby and Kashmir sapphire, have traditionally commanded the highest premiums. Although many feel that gemstones should be judged by individual beauty rather than source, recent technological advances have given laboratories the tools needed to make more accurate country-of-origin determinations.

As Burmese rubies were being removed from the market, Madagascar, the world's largest sapphire producer in the mid-2000s, abruptly banned export of all rough gem materials in early 2008. A Thai delegation visited the country to negotiate an end to the embargo, but failed to secure an agreement. The ban was lifted in mid-2009 after a coup toppled the president. By then, however, the number of miners working the vast Ilakaka sapphire deposits had shrunk to one-fourth its peak.

Despite these challenges, demand for ruby and sapphire grew strongly during the 1990s and into the 21st century. One 2009 study reported that they accounted for almost one-third of the \$10.3 billion worldwide retail market for colored stones and pearls. A second 2009 study, by mining company True North Gems, broke the numbers down further: ruby accounted for \$2.1 billion, sapphire \$800 million (with \$58 million of that pink sapphire). Note that sales figures for sapphire are lower because of the vast quantities of inexpensive lesser-quality and diffusion-treated material in the market. By comparison, emerald sales totaled \$1.4 billion.

Looking to the future, the colored stone trade is moving to address growing consumer demand for fair trade goods that meet standards of safe working conditions, fair economic returns to miners and their communities, and environmentally sustainable practices. A number of industry organizations are working with mining operations and gem dealers to hasten progress toward these goals.

The future of the corundum market depends on finding new, economic ruby and sapphire deposits. But the trade's understanding of treatments and willingness to disclose them will grow ever more important in maintaining consumer confidence, as will awareness of consumers' desire to own beautiful products that embody positive social, ethical, and environmental values.

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