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INSTRUMENTS AND TECHNIQUES

Gemewizard™ gem communication and trading software. This new computer program was unveiled at the International Colored Gemstone Association (ICA) Congress in January 2003; hands-on demonstrations were later provided in Tucson by Gemewizard Ltd. (Ramat Gan, Israel) and Stuller Inc. (Lafayette, Louisiana) at the GJX and AGTA shows, respectively. Developed by Menahem Sevdermish of Advanced Quality (Ramat Gan), this patent-pending system is designed to assist jewelers and gem dealers in communicating gem colors, managing their inventories of gemstones, and special ordering loose diamonds and colored stones for their customers. It is being distributed in the U.S. by Stuller Inc.

Mr. Sevdermish reported that Gemewizard's gem color communication scheme is based on the colored stone grading system taught in GIA's Graduate Gemology program, and was developed from a database of more than 11,000 digital gem images. It is capable of displaying 1,296 gem colors and nearly 20,000 recreated gem images, directly on a laptop or desktop computer screen. Although the developers recognize that colors may appear different from one monitor to the next, they feel that newer LCD monitors (developed over the last two years) provide good consistency of color across most computers.

According to the company's Web site (www.gemewizard.com), the program can operate in two different modes: Gememode for colored stones (see figure 20) and Diamond Mode for diamonds. Gememode has two separate color selection systems. Using the first, Gemesquare (see figure 21), users can specify hue, tone, saturation, and shape from "sliding rulers," and then search for these parameters among gems in their inventory or the inventories of various suppliers. Using Base Square (Stuller Square in the U.S.), users can display the color spectrum of gemstones available in a supplier's inventory. Base Square can adjust pricing to reflect a jeweler's markup. Information on individual stones can be called up as needed, including measurements, quality of cut, and an image of the actual stone, in addition to gem lore that can assist in the selling process.

Diamond Mode allows the selection of diamonds with various combinations of the "4 Cs." The user can also search based on the presence of a report from a specific laboratory.

The program is intended to serve as a merchandising and marketing tool at the point of sale or over the Internet, allowing users to integrate their own inventories with those of their suppliers for display to customers. Pricing can be shown per carat or per stone. Also available is a gem and diamond market price guide based on actual wholesale transactions. Although the program is a stand-alone system capable of performing most activities without being connected to the Internet, current inventory and pricing information can be automatically updated each day over an Internet connection.

According to Mr. Sevdermish, four versions of

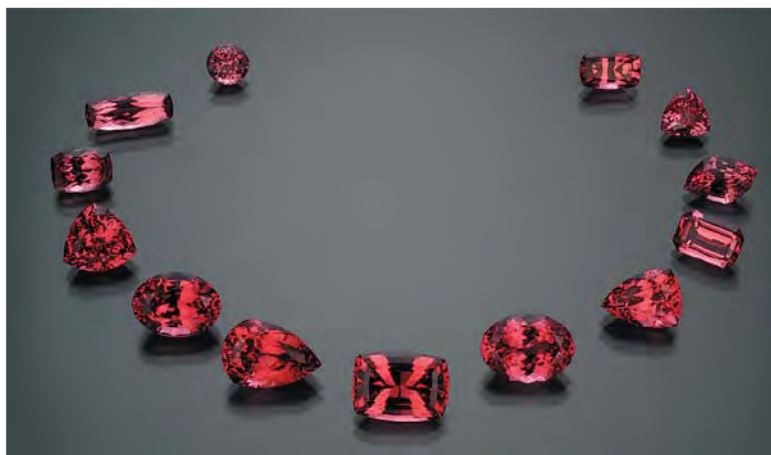


Figure 19. These spinels from Vietnam (1.41–7.94 ct) were all cut from the same piece of rough. The differences in appearance are due to variations in the size and shape of the faceted gems. Courtesy of Zava Master-Cut Gems; photo by Robert Weldon.

Gemewizard will become available. The Jeweler's Pro, intended to be used by retailers, is currently being released. The Dealer's Pro, intended for colored stone and diamond dealers, will include enhanced inventory-management capabilities, and is scheduled to be released by the end of April 2003. These Pro versions will be sold only to members of the trade; a monthly subscription from the Gemewizard Support Center will give the user access to updated price lists, inventory information, upgrades, enhancements, proprietary gem color rulers, and new program functions. The Education version, set for release in

Figure 20. Using Gemewizard's color selection systems, gem dealers and retailers can search for colored stones in their own and their suppliers' inventories. The software can be used to specify gem properties and display color options. Courtesy of Gemewizard Ltd.

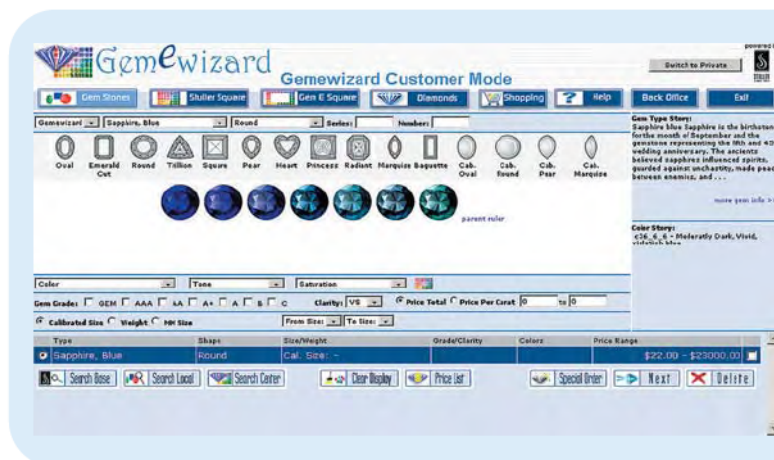




Figure 21. The GemoSquare function provides a comprehensive color communication system that allows users to specify tone and saturation for 36 possible hues. The color nomenclature is based on the colored stone grading system taught at GIA. Courtesy of Gemewizard Ltd.

June 2003, will be tailored to students in gemology. This version will have an enhanced tutorial and gemological section, but with fewer trading capabilities (e.g., it cannot trade gems over the Internet). Finally, the Lab version, scheduled for release in July-August 2003, is planned to offer a more comprehensive and detailed color system.

Thomas W. Overton and BML

CONFERENCE REPORTS

AGTA corundum panel. On February 7, the American Gem Trade Association hosted the panel session "Beryllium Diffusion Coloration of Sapphire—A Summary of Recent Research," which was moderated by Kenneth Scarratt of the AGTA Gemological Testing Center, New York. The panel focused on the controversial bulk diffusion treatment of corundum.

Richard Hughes, of Pala International, Fallbrook, California, recounted the history of the beryllium treatment controversy, saying that dealers and laboratories in the U.S. became suspicious in fall 2001, when large quantities of orange corundum appeared on the market. He added that some of these treated goods had already been sold in Japan undetected.

Dr. Dietmar Schwarz, of the Gübelin Gem Lab, Lucerne, Switzerland, announced that bulk diffusion-treated blue sapphires have now entered the gem trade. These stones are particularly challenging to identify because the diffusion-induced color penetrates the entire stone. The blue color, he said, can resemble that of fine Sri Lankan sapphires. Dr. Schwarz also reported that the treaters are now trying many other types of additives, such as lithium, to create various colors, and warned that the diffi-

cult-to-detect blue material could undermine the market for sapphires.

Tom Moses, of the GIA Gem Trade Laboratory in New York, reported that bulk-diffused rubies have also appeared on the market. Clues to this new treatment process include the unusual color (resembling red spinel), the presence of inclusions that have been significantly altered by the treatment process, and—most importantly—by a shallow orange color zone along the outline of the stone.

Mr. Moses stressed that the terms *bulk* or *lattice* diffusion had been established long before this corundum came to market at the end of 2001. "Labs did not invent these terms. They simply are the scientific terms used to describe the process."

Dr. John Emmett, of Crystal Chemistry, Brush Prairie, Washington, said that currently the only reliable test to identify bulk diffusion treatment in those sapphires where the treatment penetrates the entire stone is chemical analysis using methods such as secondary ion mass spectrometry (SIMS). If beryllium or other elements not found in natural corundum are detected, this proves that the stone has been diffusion treated. While this test is 100% accurate, it is too expensive—at least \$500 per stone, Mr. Scarratt pointed out—to be practical for the general run of commercial material.

Mr. Scarratt also noted that some of the corundum is subjected to a second heat treatment after the bulk diffusion process, which helps create the attractive blue color. He reported that treaters now have access to very sophisticated furnaces for heating stones, which can tightly control the temperatures to better regulate the treatment process. He also pointed out that some of the treated corundum shows traces of a synthetic overgrowth that formed