GEM NEWS

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DIAMONDS

Australia.

Loan for Argyle development. European Banking Co. Ltd. has announced the signing of a 12-year loan of US$32 million for Northern Mining Corporation's 5% interest in the Argyle Diamond Mine in Western Australia. (*Mining Magazine,* July 1984)

India

The Golconda "D" diamond resurfaces. In the 17th century, the wealth of India was concentrated in the Kingdom of Golconda, now part of the State of Hyderabad. All that remains now is a ruined fort near Hyderabad.

The most famous diamond mines were at Kollur, in the gorge cut by the River Krishna. From this ancient source have come some of the world's finest and most famous diamonds, such as the 108.93-ct Koh-i-noor (now among the Crown Jewels of England) and the 70.20-ct Idol's Eye.

Among the great diamonds to be unearthed from Golconda was a magnificent piece of rough that yielded a polished stone of over 50 ct. At that time, Shah Jehan, who built the famous Taj Mahal, was Mogul Emperor of India, and it is believed that this 50-ct diamond, like the Koh-i-noor, may have been set in his fabulous Peacock Throne. In 1739, Persia's Nadir Shah invaded India, captured Delhi, and seized the Peacock Throne. Nothing further was heard of the 50-ct brilliant-cut diamond until it reappeared in Bombay recently. Laurence Graff in London purchased the stone and had it repolished in New York.

The gem now weighs 47.29 ct and has been named the Golconda "D," honoring both its Indian origin and its body color. (Graff Diamonds Ltd., London, England)

Thailand

Noted gemologist and author John Sinkankas has provided Gems News with the following information on diamonds in Thailand:

"I cannot recall seeing previous mention of the occurrence of alluvial diamonds in Thailand and submit this note for the information of readers of *Gems & Gemology.* The basic reference is 'The geology of the tin belt in Peninsular Thailand around Phuket, Phangnga and Takua Pa,' by M. S. Garson, B. Young, A. H. G. Mitchell, and B. A. R. Tait, London, *Institute of Geological Sciences Overseas Memoir No. 1,* 1975. It is a portfolio with pocket maps and an illustrated text of 112 pages.

"Diamonds, occurring in cassiterite-wolframite concentrates, are described and discussed in chapter 16, pp. 77–85, with maps and a fine photo of typical small crystals of diamond keyed to a table that provides descriptions of 20 crystals, giving weights, form, luster, and special features such as fluorescence, inclusions, etc. The diamonds are very small, the largest stone being only 0.89 ct and the lot of 20 weighing 6.28 ct altogether. The photographic plate shows that the crystals are mainly rounded dodecahedra, some quite ball-like, and only a few display good octahedral form. Sampling and prospecting have failed to uncover kimberlite-related minerals, e.g., pyrope, diopside, etc., and the source of the diamonds is unknown."

U.S.A.

A diamond is melted. A laboratory accident at Cornell University in Ithaca, New York, has resulted in the melting of a diamond and the production of liquid carbon. Using a powerful infrared laser, Jon S. Gold, a graduate student in geology, was heating a mixture of graphite and potassium bromide between two diamond "anvils" in a special press. The pressure at the time of the accident was greater than 120,000 times that of the atmosphere. Although the temperature could not be accurately measured, researchers suspect that it was close to 4000°C. The laser had been accidentally set at a higher power than planned. The graphite was converted to diamond, and the laser melted a furrow about one-tenth of a millimeter long across the face of the diamond anvil. The furrow was bordered by rounded glassy ridges of melted diamond. The researchers now involved in this project say that the next step will be to accurately determine at exactly what temperature the diamond melted. (*Science News,* September 1984)

Punch Jones diamond sold. The Punch Jones diamond, a 34.46-ct greenish-gray octahedron was sold at auction last October by Sotheby's in New York. This stone is the largest alluvial diamond ever found in the United States. It was discovered in 1928 at Rich Creek near Peterstown, West Virginia by Grover C. Jones and his son William P. "Punch" Jones while they were playing horseshoes.

However, it was not until the stone was tested at the Virginia Polytechnic Institute in 1943 that it was identified as a diamond. The Punch Jones has been on display at the Smithsonian since 1944.

World's largest uncut diamond displayed at Smithsonian. The world's largest existing uncut diamond—890 ct—was placed on display at the National Museum of Natural History, Smithsonian Institution, following its unveiling by The Zale Corporation in Frankfurt and New York (figure 1). The date and place of the stone's discovery are not known.

Cutting of the stone was scheduled to begin immediately after the close of the exhibit on January 6, 1985. The undisclosed cutter estimates it will take 18 months to finish the faceted gem. The final shape has not yet been determined, although the modern pear, oval and briolette are among the cuts being considered.

Only three rough diamonds larger than this one have ever been found—the Cullinan (3,106 ct), the Excelsior (995.2 ct), and the Star of Sierra Leone (968.9 ct). The largest individual polished diamonds are the Cullinan I and II, which weigh 530.20 and 317.40 ct, respectively, and currently rest among the British Crown Jewels. Some experts feel that Zale's diamond could yield a cut stone larger than either of these.

The diamond is owned by Christ, the European subsidiary of The Zale Corporation.

Figure 1. The 890-ct Zale diamond, the fourth largest rough diamond ever discovered, with its 1-ct faceted counterpart.

USSR

Soviets claim production of large synthetic diamond. Moscow's World Service recently reported that scientists at the USSR Academy of Science have produced a 2-kg (9,988-ct) synthetic diamond crystal for use in that country's laser and optical industries. The report stated that the synthetic diamond was grown in an experimental pressure chamber in temperatures higher than those at the sun's surface. (*Rapaport Diamond Report,* August 1984)

GEM NEWS Editor's note: The proposed use of this material in lasers and optics suggests a crystal with at least some areas of high purity. Yet there have been no other developments in the field to suggest that the level of technology necessary to produce an optically pure synthetic diamond crystal that is over three times the weight of the largest known natural gem-quality diamond crystal (the Cullinan, 3,106 ct) exists.

COLORED STONES

Chrysoberyl found in Queensland. A yellow-green chrysoberyl from Anakie, Queensland, Australia, was found in a parcel of yellow-green sapphires from the same area. The rough chrysoberyl appeared to be so similar to the sapphires that its true identity was not detected until after it had been cut and polished and was subjected to standard gem-testing techniques. The refractive index obtained from the 0.43-ct faceted chrysoberyl was: alpha = 1.756, beta = 1.761, and gamma = 1.768. The specific gravity was 3.74, and in the spectroscope a broad absorption band was noted between 425 and 458 nm. Gemologists should be on the lookout for more chrysoberyl from this locality. (*Australian Gemmologist,* August 1984)

Irradiation of yellow sapphires. X-ray equipment at the Sri Lanka Cancer Institute in Maharagama is being used to treat pale yellow sapphires. While the deep orangish color obtained by irradiating the pale yellow stones is very pleasing, it is not permanent; when exposed to sunlight the stones will fade to their original color in a matter of hours. (*Jewellery News Asia,* July—August 1984)

Large Mexican opal found. A nearly flawless, fist-sized fire opal displaying all of the spectral hues in its vivid play of color was reportedly found earlier last year in an opal mine in the state of Querétaro, Mexico. This opal has been described as one of the largest and finest gem-quality opals ever discovered in this mining area. It has been on display in the city of Querétaro since it was unearthed. The Mexican opal mining industry is currently very active, especially in Querétaro and near Magdalena in the state of Jalisco. (*Lapidary Journal*, August 1984)

Notes on danburite, zircon, and andalusite. The following three short notes were translated from the *Boletín de la Asociación Española de Gemologia* for Gem News by Elise Misiorowski, of the GIA library.

Golden brown danburite. Golden brown danburite from Madagascar, first discovered in 1920, has reappeared on the market. The crystals and crystal sections are reportedly of "good size and relatively clean." The stated color ranges from an intense pinkish orange topaz to a paler sherry-brown. This contrasts sharply with the usual colorless to near-colorless nature of danburite.

Australian pink zircon. Some samples of gemmy pink zircon from Australia have been seen recently in London, England. It is reported that the pink is fairly dark in tone and closer in appearance to pink diamond than to pink sapphire. The exact place of origin of these zircons is not yet known.

Colorless andalusite. A report from Brazil describes a colorless andalusite cut from a bicolored crystal. This andalusite displays low optical properties (R.I. 1.630–1.634–1.638 and birefringence 0.008), and is believed to have a low iron content.

Treated Moroccan anglesites. Gem collectors are not the only ones who must be wary of treatment practices; treated minerals are now causing major problems for specimen collectors. It was recently discovered that the large, fine, gemmy anglesite (lead sulfate) crystals and crystal groups from Touissit, Morocco, have been treated to give them their amber-red color. The color is produced in the pale yellow and near-colorless crystals by dipping them in a strong bleach solution. The chemical reaction that changes the color takes only a few seconds. A Moroccan dealer discovered this treatment by accident, and other dealers in Morocco decided to treat and sell the material without disclosing that it had been artifically enhanced. The color is present as a thin skin that covers both crystal faces and broken surfaces. The treatment process leaves the beautiful anglesite luster intact, and the treated color coating will not wash off. Dr. George Rossman, of the California Institute of Technology in Pasadena, discovered that immersion of the treated specimens in a saturated bromine-water solution reverses the reaction without damaging the luster. However, bromine is very dangerous and should only be used by experts. (*Mineralogical Record*, July–August 1984)

The Walker emerald from North Carolina. A large and very fine emerald crystal was recently recovered from what has been described as "very rich ground" at the North Carolina Emerald Mines' Rainbow's End mine. The rich green, hexagonal, transparent to semitransparent crystal weighs 63.70 ct and measures approximately 28.30 × 16.75 × 15.69 mm. It was discovered by Mr. Fred Walker, Vice President of Carolina Emerald Mines, Inc. This area has also yielded an 1,800-ct translucent specimen-quality emerald crystal, a splendid amethyst cluster, and some blue sapphire crystals found in albite feldspar. (Carolina Emerald Mines, Inc., September 1984)

PRECIOUS METALS

Alaskan gold. Anaconda Minerals Co., a subsidiary of Atlantic Richfield, has reported finding significant gold, zinc, lead, and copper deposits on the west side of Cook Inlet, about 96 km southwest of Kenai, Alaska. Exploratory drilling has indicated gold values as high as 41.4 g per ton. (*Mining Magazine*, April 1984)

Refinery opens in Singapore. The first precious metals refinery to be set up in Asia outside of Japan is now open and operational in Singapore. The refinery was a joint project between Handy and Harman Manufacturing, a U.S. metal refiner, and King Fook Investment Company of Hong Kong. Because of their experience in this area, the new refinery will be operated by Handy and Harman Manufacturing. (*Jewellery News Asia*, July—August 1984)

Sri Lankan gold jewelry to be hallmarked. The Sri Lankan government will introduce legislation to make gold hallmarking mandatory. Sri Lanka's state gem corporation wants fineness stamped on all gold jewelry that is sold in or exported from Sri Lanka. Sri Lanka has also applied to join the International Federation of Hallmarking in London, England.

Other Asian countries have already incorporated or are planning required gold-hallmarking programs. India has announced plans to begin its own gold-marking system, and Hong Kong will begin a hallmarking program for all gold jewelry above eight karats beginning January 1, 1985. Singapore has been using a system of voluntary hallmarking since 1980. (*Jewellery News Asia*, September/October 1984)

SYNTHETICS

Gem-quality synthetic jadeite created at G.E. Scientists at the General Electric Research and Development Center in Schenectady, New York, announced last November the creation of the first synthetic jadeite. One of the last gemstones to be synthesized, the man-made jadeite

was formed at high pressures and temperatures in the same laboratory used to create synthetic diamonds.

To synthesize jadeite, the G.E. scientists began with the same materials as in the natural stone—sodium, aluminum, and silicon oxides. The materials (in powder form) are mixed together and heated in a furnace to about 2,700°F, causing them to melt. The molten liquid is then withdrawn from the furnace and allowed to cool into a glassy solid. Next, the glass is crushed and "re-fired" at about the same temperature in a tiny (1" × ½") furnace inside a diamond-making press. There, the material is simultaneously exposed to pressures of up to 440,000 pounds per square inch. The end result of this process is a cylindrical piece of white jadeite.

By adding small amounts of other minerals to the starting powder mix, the G.E. scientists are able to synthesize jadeite pieces of varying colors, such as green (by adding chromium), black (by adding larger amounts of chromium), and lavender (by adding manganese). In addition, the G.E. team has synthesized samples featuring layered combinations of colors, such as green and white, as often occurs in nature.

The cylindrical jadeite samples (½" thick × ½" long) represent the first jadeite to be produced in sufficient size and quantity suitable for gemstone purposes. According to a G.E. spokesperson, the company does not have any plans at this time to produce the synthetic jadeite commercially.

Russian hydrothermal synthetic emeralds. Recently submitted to both the Los Angeles and New York offices of GIA's Gem Trade Laboratory, Inc., were several faceted examples of a sophisticated type of synthetic emerald. The stones resemble in many ways synthetic emeralds of Russian hydrothermal manufacture that were recently obtained by Mr. Thomas Chatham in Hong Kong (see figure 2) and generously provided by Mr. Chatham to the Los Angeles lab for research.

Some of the optical and physical properties of most of the Russian hydrothermal synthetic emeralds examined to date are similar in many respects to those of some of their natural counterparts, in particular, emeralds from Zambia. Because refractive indices, birefringence, specific gravity, and luminescent reactions may overlap with some natural emeralds, it is essential to become more familiar with the unusual growth features and other characteristic inclusions, as well as with the unusual absorption spectrum, observed in these Russian hydrothermal synthetic emeralds. The latter is due in part to an abundance of iron, which also affects the reaction to ultraviolet radiation and the color filter (inert for both).

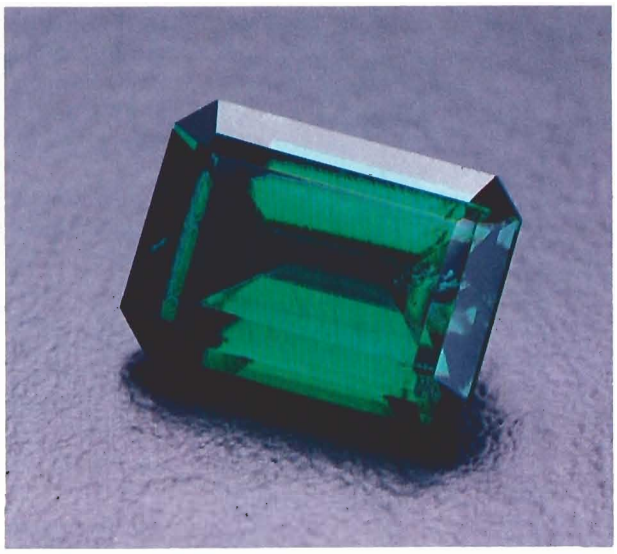

Figure 2. A 0.88-ct hydrothermal synthetic emerald manufactured in Russia. Photo © 1984 Tino Hammid.

A detailed article on the unusual properties and identification of synthetic emeralds of known Russian hydrothermal manufacture will appear in an upcoming issue of *Gems & Gemology*.

ANNOUNCEMENTS

Ashberg diamond on display. The 102-ct light yellow Ashberg diamond is currently on display at the Gem and Mineral Hall of the Los Angeles County Museum of Natural History. The Ashberg is the largest faceted diamond currently on public display in the U.S. According to Laurence L. Copeland in *The Book of Diamonds . . . Famous, Notable and Unique*, the Ashberg, as shown at the 1949 Amsterdam Diamond Exposition, "was mounted in a necklace with other diamonds and gemstones. It is said to have been part of the ancient Czarist Russian Crown Jewels that were brought to Sweden after the Bolshevic Revolution in 1917."

Important jewelry exhibition. The famous Tiffany Iris Corsage, a turn-of-the-century brooch with 120 American sapphires from Yogo Gulch, Montana (figure 3), is one of the highlights on display in the cross-country jewelry exhibition, "Objects of Adornment: Five Thousand Years of Jewelry from the Walters Art Gallery in Baltimore." According to Walters Gallery documents, the brooch was purchased in 1909 by Henry Walters, an avid jewelry collector who patronized con-

Figure 3. The gold and platinum Tiffany Iris Corsage set with American sapphires as well as diamonds, demantoid garnets, and citrines. Photograph courtesy of Intergem, Aurora, Colorado.

temporary artists. His jewelry collection includes many fine pieces by Tiffany & Company and Rene Lalique.

More than 200 pieces of historical jewelry from this collection will be on display. The traveling exhibition opened last October at the Cooper-Hewitt Museum in New York, and will visit the Chrysler Museum, Norfolk, VA; the Carnegie Institute Museum of Art, Pittsburgh, PA; and the San Antonio Museum of Art, San Antonio, TX. The tour will conclude on February 8, 1987, at the Toledo Museum of Art in Ohio.

The Tucson Gem and Mineral Society's 31st Annual Show will be held February 7–10, 1985, at the Tucson Community Center, 260 South Church Avenue, Tucson, Arizona. Dioptase will be the featured mineral. There will be exhibits of gems, jewelry, lapidary, and fossils, as well as related instruments, equipment, and publications. The show will provide the background for the annual meeting of the Mineral Museums Advisory Council. For further information, please contact: TGMS Show Committee, Box 42543, Tucson, AZ 85733.

Association of Women Gemologists plans national meeting. The third annual meeting of the Association of Women Gemologists will be held in Tucson, Arizona, February 3, 1985, from 8 a.m. to 12 noon in the Holiday Inn Holidome on Palo Verde Boulevard. For further information, contact AWG, P.O. Box 1844, Pearland, TX 77588; (713)485-1606.

ICA to sponsor colored gemstone congress. The International Colored Gemstone Association (ICA) will sponsor a colored gemstone congress to be held in Idar-Oberstein, West Germany, May 20–22, 1985. For further information, please contact Maureen E. Jones, ICA Administrator, 22643, Strathern St., Canoga Park, CA 91304; (818) 716-0489.

Burma emporium. The 22nd Burma Gem, Jade and Pearl Emporium will be held in Rangoon at the Inya Lake Hotel in February 1985. For information on this event, please contact the organizer: Myanma Gems Corp., 66 Kaba Aye Pagoda Rd., Rangoon, Burma. Telephone: 60904. Telex: 21506 GEMCOR BM.

Australian jewelry fair. The Australian International Watch, Clock and Jewelry Fair will be held in Sydney at the Wentworth and Hilton Hotels February 16–20, 1985. Further information can be obtained from World Trade Promotions Pty. Ltd., 291 Sussex Street, Sydney, N.S.W. 2000, Australia.

Basel fair, Switzerland. April 11–18, 1985, are the dates set for the annual European Watch, Clock and Jewelry Fair held in Basel, Switzerland. For additional information on this event, the organizers may be contacted at P.O. Box CH-4021, Basel, Switzerland. Telex: 62685 FAIRS CH.

AGTA makes stand on gemstone treatment. At their August 30, 1984, meeting in Dallas, Texas, the Board of Directors of the American Gem Trade Association authorized release of the following statement:

The Board of Directors of the American Gem Trade Association, in full support of the principles of gemstone treatment disclosure, recommends to its members and the trade that gemstone purchasers be made aware that natural stones are processed from the moment they are extracted from the earth by one or more of the following traditionally accepted trade practices:

a. shaping, cutting, and polishing
b. heating to effect a permanent change of color
c. the application of colorless oil
d. bleaching

and more recently,

e. nondetectable irradiation to effect a permanent change of color

It is not acceptable to offer for sale, without full disclosure, gemstones that have been subjected to the following treatments:

f. dyeing, tinting, and laser drilling
g. irradiation and heating when the color change is not permanent
h. coating, glossing, and other surface modification
i. impregnation, such as wax, paraffin, glass, plastic, and colored oil
j. composite process, overgrowth, and surface diffusion

AGTA recommends to its members that all relevant information be readily provided to a prospective purchaser or consignee.

Any treatments not included in the list above, once brought to the attention of AGTA, will be considered as possible additions on a case-by-case basis. AGTA will be providing a more detailed list of all treatments, indicating the gemstones to which they apply.