

GEM NEWS

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DIAMONDS

Australia

Another new Australian diamond find. Australian Diamond Exploration NL, ADE, has reported the discovery of a potentially major new diamond find in the Coanjula area of the Northern Territory of Australia. Diamonds have been found in 15 of the 22 kimberlite pipes discovered so far in the area. Altogether, 37 geophysical targets termed "first priority" have been outlined. The \$8 million exploration program was begun by the ADE Joint Venture five years ago. During exploration, an 847,000-km² band stretching virtually across the entire width of the northern territory was covered. The companies in the ADE Joint Venture are Aberfoyle Ltd., AOG Minerals Ltd., and Ashton Mining NL. (*Mining Magazine*, January 1985)

Canada

Diamonds in Canada. The Geological Survey of Ontario, Canada, is trying to encourage exploration geologists to include diamond prospecting in their mineral search efforts. Renewed interest in diamond exploration has been stimulated by the recent discovery of kimberlite boulders in glacial gravels from the vicinity of Hearst Township. Diamonds have been found periodically in Canada for over 60 years, including one early discovery of a gem-quality 33-ct stone from near Peterborough, Ontario.

Most of the diamonds discovered in Canada have been found in alluvial gravel deposits; the great extent to which glacial moraine covers the Canadian shield has caused major problems in geologists' efforts to trace the origin of the kimberlite boulders and the few diamonds found within the gravels.

Some small diamonds have been recovered from kimberlite pipes on Somerset Island in arctic Canada, and kimberlite bedrock has been recognized at Gauthier. However, the exact source of the larger diamonds so far recovered from the gravels remains a mystery. At present, two mining companies are active in diamond exploration in Northeastern Ontario: Monopros Ltd. (a Canadian subsidiary of De Beers), and BP Resources (Canada) Ltd. (*Mining Magazine*, January 1985)

Israel

Israeli diamond industry exports 2.3 million carats in 1984, smaller cuts dominate production. The Israeli diamond industry is entering 1985 on the wave of a

recovery that is said to be stabilizing its traditional markets and opening new ones for this country's largest export branch.

Worldwide sales of diamonds polished in Israel reached \$1.035 billion in 1984, compared to \$1.001 billion in 1983, or an increase of 3.5%. Most important for the industry's renewed growth in 1985 is a 4.7% increase in the volume of gem diamonds exported, to 2,285,000 ct. The increased production of such diamonds in Israel has resulted in an almost 10% increase in the production work force, to almost 8,500 cutters, as well as an influx of new customers.

The American market continues to grow in importance for Israel; the United States accounted for almost half (49%) of all net exports in 1984, compared to 36% only two years ago. The distribution centers of Belgium and Hong Kong accounted for \$147.5 million and \$140 million, respectively, while Japan is the second largest consumer market with diamond imports from Israel of \$133.7 million in 1984. (Burton Halpern News Release, Tel Aviv, Israel, January 1985)

Sierra Leone

Sierra Leone buys out British Petroleum. According to a recent official statement, the government of Sierra Leone has purchased British Petroleum's 49.5% share in Sierra Leone's National Diamond Mining Company for a sum of \$8.5 million. The government of Sierra Leone now has total control of the country's diamond-mining industry, which is its main foreign-exchange earner. (*Mining Magazine*, December 1984)

COLORED STONES

Australia produces 500+-ct opal from a new locality.

Campbell Bridges, of Bridges Exploration Ltd. in Nairobi, Kenya, sends news of a large black opal that was recently found at a new locality in northern New South Wales, Australia (figure 1). Nicknamed the "Big Black," the spearhead-shaped opal weighs 574.09 ct and measures 3 3/4" x 2 3/8" x 1 1/8" (9.5 x 6 x 3 cm). The stone displays all of the primary colors, with red predominating, as well as an unusual range of patterns. The exact location of the discovery, as well as the mining prospects for this new source of black opal, have not yet been released. The "Big Black" is scheduled to be placed on display at the Los Angeles County Museum of Natural History in the near future.

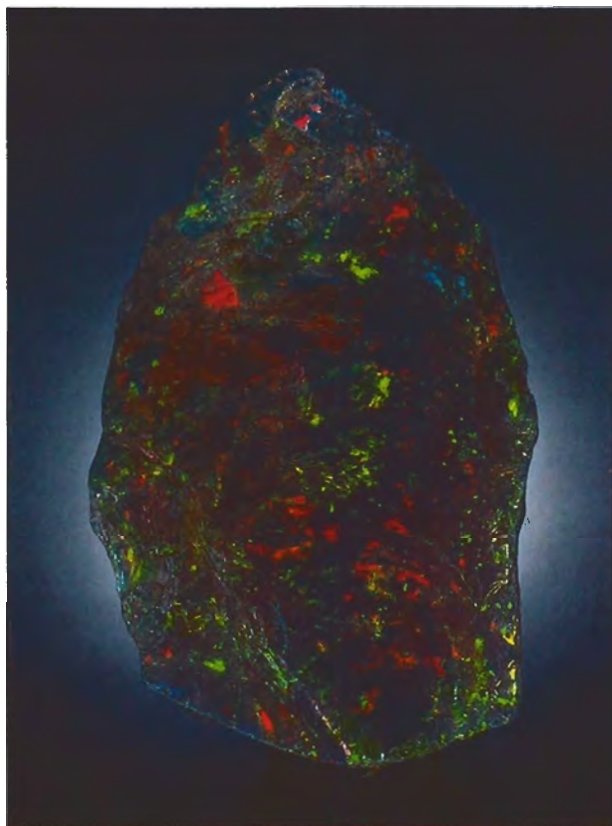


Figure 1. The 574.09-ct "Big Black" emerged from a new opal locality in northern New South Wales, Australia. Stone courtesy of Campbell Bridges; photo ©Harold & Erica Van Pelt.

Sri Lanka looks at mechanized gem mining. The government of Sri Lanka is evaluating a proposal given by Western Australia's Haoma North West Group to mechanize the Sri Lankan gem mining industry. Recently, Haoma has been working in partnership with the Sri Lankan government to increase the efficiency of the gem mining industry, which is currently based on manual methods. Under their present agreement, Haoma, together with the State Mining and Mineral Development Corporation, would provide the exploration and mining expertise while the Sri Lankan government would make available the lands for mining. (*Mining Magazine*, December 1984)

World's largest diaspore? In the summer 1984 issue of *Gems & Gemology* (p. 113), C. A. Schiffman reported on the existence of a large faceted gem-quality diaspore from a deposit in Turkey. Terry Coldham, of Sapphex Pty. Ltd. in Sydney, Australia, recently allowed us to photograph this stone along with a smaller faceted diaspore and two large crystals from this same locality: Mamaris, Yatagan, in the Mugla Province of Turkey (figure 2). He reports that the deposit was found in a

200–300 m vein within aluminum-rich rocks. The material characteristically shows a very distinct color change from green in daylight to pinkish red in incandescent light.

PRECIOUS METALS

Colombian gold. Colombia's Mines and Energy Ministry has announced that an important gold deposit has been discovered in the eastern area of Guainia, near the Brazilian border. No further details of the deposit were provided at this time. However, a technical study of the area done by the Mines and Energy Institute has shown that the geology is similar to that of South Africa's Witwatersrand Basin. (*Mining Journal*, January 11, 1985)

Gold exploration in Nova Scotia. A new mineral exploration consortium, called Scotian Mineral Exploration, plans to spend \$3 million over the next three years exploring for gold and other valuable minerals in Nova Scotia, Canada. Exploration will occur in areas licensed by the Province of Nova Scotia and on lands acquired through joint ventures with local mining groups. A subsidiary of Inco, Canadian Nickel Company Ltd., will manage the exploration efforts. (*Mining Magazine*, January 1985)

Gold in Finland. Gold has been discovered at Laivakangas, near the city of Raahen, on the Gulf of Bothnia. Outokumpu Oy is currently investigating the discovery. So far, diamond drilling has shown the gold to be confined to narrow quartz veins. Values of 5 g of gold per ton have been reported. (*Mining Magazine*, January 1985)

Gold in Mali. Gold production will begin this year at Kalana, in Southern Mali. Mali Geology and Mining Services report that they expect to produce 1,800 kg of gold per year. Other gold deposits and also diamonds have reportedly been discovered during exploration in this area. (*Mining Magazine*, September 1984)

Improved gold-sampling technique. The CSIRO Division of Energy Chemistry in Sutherland, N.S.W., Australia, has developed an ultra-sensitive method for determining trace amounts of gold in water. This new method should rekindle interest in direct hydrogeochemical prospecting for gold, an exploratory technique that uses the gold content of water as an indicator of gold deposits.

The amount of gold found in water in direct contact with gold-bearing rocks usually does not exceed 15 parts per trillion (ppt). An analytical technique useful for measuring gold in water must therefore be able to detect gold down to at least 1 ppt. The new CSIRO technique involves the preconcentration of gold onto charcoal and subsequent neutron activation analysis (NAA); gold in samples can be measured down to 0.3 ppt. For further



Figure 2. The 157.66-ct gem-quality diaspore shown here may be the world's largest. The 26.97-ct diaspore and the two diaspore crystals also shown came from the same locality in Turkey. Stones courtesy of Terry Coldham; photo by Shane McClure.

information, contact Mr. John Fardy, CSIRO Division of Energy Chemistry, Private Mail Bag 7, Sutherland, N.S.W. 2232, Australia. (*Queensland Government Mining Journal*, August 1984)

Loans offered to Chinese gold miners. According to the official *China Daily*, the government of China is offering loans to private groups and individual miners to encourage gold exploration and mining in mainland China. Since China changed its policies in 1978, it is reported that as many as 80,000 individuals have turned to gold mining. These individuals now produce about half of China's production of gold, which is currently estimated at approximately 45 tons per year. (*Mining Magazine*, January 1985)

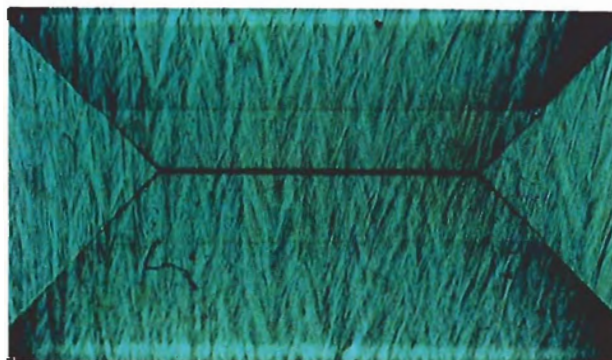
SYNTHETICS

More news on the growth of synthetic gem diamonds. In response to the article on identifying synthetic diamonds that appeared in the Fall 1984 issue of *Gems & Gemology* (Koivula and Fryer), Dr. R. C. DeVries, of General Electric's Research and Development Department in Schenectady, New York, supplied the following additional information concerning the production of cuttable gem-quality synthetic diamonds.

With regard to other growers of synthesized diamond, it is public knowledge that Sumitomo and the National Institute for Research on Inorganic Materials in Japan have grown large gem-quality diamonds. The latter organization recently announced that it had succeeded in growing a 1-cm (3.5 ct) crystal; the stone was grown at 1550°C under 60 kb pressure for 200 hours. De Beers has also grown large single crystals.

More on Russian hydrothermal synthetic emeralds. Dr. Frederick H. Pough, noted mineralogist and gemologist, supplied *Gem News* with the following information concerning the Russian hydrothermal synthetic emeralds that have recently appeared on the colored-stone market. The emeralds show a refractive index of 1.574–1.580 with a birefringence of 0.006. They do not fluoresce to either long-wave or short-wave ultraviolet radiation, and their color-filter reaction is negative. The specific gravity is above 2.67, as would be expected from a hydrothermal synthetic emerald. The emeralds show a unique chevron-shaped internal growth pattern (figure 3), which has not been observed in any natural emeralds. The emeralds are doped with iron which masks the

Figure 3. Chevron-shaped growth zoning in a Russian hydrothermal synthetic emerald. Castor oil immersion. Photo by Dr. Frederick H. Pough, magnified 20×.



fluorescence. The Gem News Editor also has examined some of these Russian synthetic emeralds and his observations support those of Dr. Pough.

TUCSON 1985

Once again, in early February, the city of Tucson, Arizona, was transformed into a mineral and gem fancier's paradise. The show spread from a hub consisting of the Convention Center and the Holiday Inn Broadway, outward to most of the other hotels and motels in the area. A convenient, frequent, and free shuttle service transported visitors throughout this maze of temporary show and sales rooms. The Holiday Inn Broadway was a mix of minerals, cut gems, jewelry, and jewelry findings, while hotels such as the Desert Inn were devoted mainly to minerals and fossils. The largest number of colored-stone dealers were in the Doubletree Inn at the American Gem Trade Association's show.

Aside from the usual trays of rubies, sapphires, emeralds, tourmalines, topazes, etc., we saw a number of new and/or different materials that we felt we should bring to the attention of our readers.

Natural Materials Noted

Beryl. Aquamarines from a relatively new source in Nigeria, both cut and rough, were in abundance. Also noted were aquamarines and golden beryls from Afghanistan, although there seemed to be less of this material than last year.

Diamond. This year at Tucson a surprising number of diamond dealers had booths. They reportedly did very well, especially in the smaller sizes suitable for use as accent stones in fine jewelry.

Garnet. Small andradite (demantoid) garnets of a yellowish green to a beautiful rich green are being mined both in southern Mexico and in New Mexico. Rhodolite garnets were present in large quantities this year. Most of this material is reportedly from Africa, although a few dealers claimed Sri Lanka as the origin for some of their stones. Pyrope-almandine garnets are being found in

Colombia, in the same area that is now producing gem corundum.

Opal. Three unusual types of opal were present at Tucson this year. One type is a faceted transparent stone that is almost pure red with little or no play-of-color. Another type was described as having a fine chrysocolla blue color with just a hint of green. The third type is light purple and transparent.

Parasite. About a dozen large crystals of the rare mineral parasite were offered for sale at Tucson. Found at the Muzo Mine in Colombia, they are many times larger (one weighs 385.66 ct) than any such crystals seen in the past, even those from the state of Montana. Parasite is a rare associate of Muzo emeralds, and these crystals were discovered during the course of emerald mining.

Tourmaline. A relatively new yellow tourmaline from Zambia was more prominent this year than last. This type of tourmaline, a very manganese-rich member of the group, was first found at Tsilaizina, in Madagascar, about 1910. Recently, a number of articles have been written about manganese-rich tourmalines, but none of those reported so far have contained enough manganese to be considered a new species in the tourmaline group. Unfortunately, even though the name has not been approved by the International Mineralogical Association, and the manganese contents reported have been far short of end-member status, many dealers were offering the Zambian material as tsilaizite.

Synthetics

In addition to the Russian hydrothermal synthetic emeralds reported on elsewhere in this Gem News column, many other synthetic materials were also offered for sale. Synthetic amethyst in particular was in abundance.

The Gem News Editor wishes to thank the following individuals who provided some of the information used in this Tucson Report: Bill Boyajian, Dino DeGhionno, Chuck Fryer, Steve Hofer, Robert Kammerling, Robert Kane, James Shigley, and Carol Stockton.

ANNOUNCEMENTS

ISA to host first North American meeting of F.G.A.s and G.G.s. The first North American meeting of fellows and ordinary members of the Gemmological Association of Great Britain, and graduate gemologists of the Gemological Institute of America will be hosted by the International Society of appraisers

during its annual conference May 5-8, 1985, at the Hyatt Regency Hotel in Atlanta, GA. Both David J. Callahan and Richard T. Liddicoat, Jr., will address gemologists and appraisers on the international role of the association. A formal dinner will be held on Tuesday, May 7, with proceeds to benefit the GIA Research

Fund and the British Basil Anderson Fund. For reservations and information, contact ISA at (312) 882-0706.

New gemological journal from Sri Lanka. The Gemmologists Association of Sri Lanka has introduced a new professional

gemmological journal, *Journal of the Gemmologists Association of Sri Lanka*. Issue number 1 was published in October 1984; it is formatted in the style of the British *Journal of Gemmology* and contains color, which is certainly a plus. The printing is good and the articles are of a high standard. After looking over the premier issue of this new journal, the Gem News Editor wishes the association every success and recommends their periodical to all serious gemologists. For further information, write: *Journal of the Gemmologists Association of Sri Lanka*, "Professional Centre," 275/75, Bauddhaloka Mawatha, Colombo 7, Sri Lanka.

World Congress of Jewelry Appraisers to convene. The National Association of Jewelry Appraisers announced that it will sponsor a "World Congress of Jewelry Appraisers" in New York City in 1986. The three-day event will include all major international organizations that address the

subject of jewelry valuation. Preliminary plans call for an international consortium of participants who will present a variety of papers addressing topics of major concern to the jewelry appraisal profession. The program also will include several workshops, as well as an international exhibition/trade show of gemological equipment and appraisal-related products and services.

Additional details may be obtained by writing the National Association of Jewelry Appraisers at 4120 North Brown Ave., Suite A, Scottsdale, AZ 85251.

Hong Kong Jewelry & Watch Fair.

The 1985 fair has been scheduled for September 10–13, 1985. Three venues—the Regent Hotel, the New World Hotel, and the Golden Mile Holiday Inn—will highlight every major line of the jewelry, watch and clock, and gemstone industry. The Holiday Inn will be reserved for watches and clocks and related

accessories. For details, please contact the organizer: Headway Trade Fairs Ltd., 628 Star House, 3 Salisbury Rd., Kowloon, Hong Kong.

"Gemesis"—Gemstones and Their Origins, a new permanent exhibit, opens May 3 at the Los Angeles County Museum of Natural History, Los Angeles, CA. Using exciting graphics and a variety of fine rough and cut gems, this unique exhibit explains the major processes by which gemstones are formed. For more information, call (213) 744-3411.

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, on May 20–22, 1985. For further information, please contact Maureen E. Jones, ICA Administrator, 22643 Strathern St., Canoga Park, CA 91304; (818) 716-0489.

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dealing with irradiation treatments, contains no historical discussion. Instead, it delves into the causes of irradiation-altered color in gem materials and describes the radiation sources and apparatuses used in such treatments. This chapter ends with a discussion of radioactive gemstones, one of today's "hottest" topics.

Treatments other than heating and irradiation are the subject of chapter five. These include dyeing, impregnation, bleaching, and surface modifications such as glossing and painting. This chapter also covers laser drilling, synthetic overgrowths (such as the Lechleitner emerald-over-beryl product), and assembled gemstones.

Chapter six contains an overview of testing for treatment and black-and-white illustrations of the testing equipment. Treatment disclosure is also mentioned. The FTC

and CIBJO rulings are outlined, and treatment disclosure as practiced in the trade is tabulated.

Chapter seven, which deals with specific gemstone treatments, is both the longest (84 pp.) and the last chapter in the book. The entries in this section are arranged alphabetically—abalone through zoisite. The method(s) used to treat each gem, as derived from the existing literature, are spelled out here. Again, Nassau issues the warning to try out treatment processes on insignificant samples before applying them to anything of value.

Four useful and lengthy appendices titled "More on Heating," "More on Irradiation," "Color," and "Purveyors of Supplies and Services," together with a subject index close the volume.

This work is illustrated with many tables and line drawings, 41

black-and-white photos, and an eight-page section containing 28 fine color photographs. As a bonus, each chapter and appendix contains a list of references called out in the text. Aside from a few typographical errors that sneak past any author, there is nothing to criticize about this book. It is a top-quality production.

Dr. Nassau's writing style and organizational skills have made the book easy to read and understand without sacrificing its necessary technical content. With the publication of *Gemstone Enhancement*, Kurt Nassau has provided the gemological community with a long-needed and already indispensable text that is sure to become a classic.

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