Gems & Gemology

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In This Issue:

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Belgian Diamond Exhibit at World's Fair

by

HENRY I. JACOBSON

Gemological Student, New York, N.Y.

The firm of Louis Verbeeck & Sons cut diamonds at the Belgian Pavilion of the New York World's Fair since the opening of that building in the spring of 1939. The exhibition was most ingeniously arranged and hundreds of thousands of visitors walked by the display. They were intensely interested in seeing all the branches of the diamond cutting industry as shown by Mr. Verbeeck, his sons and their workmen. The work was all done behind plate-glass windows, and from the outside a visitor could, in a few minutes, get a good general idea of the many processes involved in the cutting of diamonds.

The exhibition was a miniature diamond factory carried out to the last detail. There were ten diamond saws, a cutting lathe, and four polishing benches. The equipment was all brand new and modern to every degree. The saws were all in use, with the phosphor bronze diamond-coated blades cutting through rough diamonds. One stone in particular was on the blade for several months, as the grain was so twisted it could not be sawed in the ordinary manner. The other machines were finishing on the average of a stone per day.

During the time that this exhibition was open, thousands of carats of goods, with a value of over a half million dollars, were cut by Mr. Verbeeck and his associates. Mr. Louis Verbeeck is a man of fifty-seven, whose looks belie his age. He has been in the business for over forty years and is considered one of the most expert workmen in the trade. His sons have been brought up in the industry in the very best tradition. They are both expert diamond polishers and work quickly and accurately. At the Fair, Mr. Verbeeck operated the sawing machines and also did the cutting of the stones. All sizes and shapes were cut and polished. The largest stone finished at the Fair was twenty-four carats finished weight, and the smallest was a quarter of a carat. Besides the usual round stones, they made many emerald cuts and marquises.

The exhibit was one of the most interesting features of the Fair and did untold good in publicizing the diamond cutting industry and acquainting the public with the high degree of technical skill required.

The Fabulous Treasures of the House of Jewels

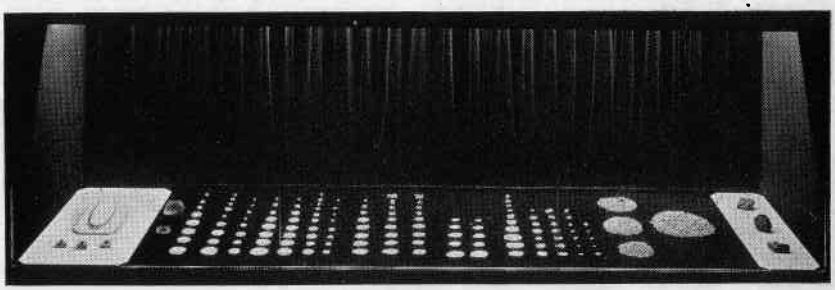
by
JUNE HAMILTON RHODES
New York, N. Y.

The jewels on display in the House of Jewels at the New York World's Fair proved second in appeal only to the $9,000,000 General Motors building.

This is very interesting to the jewelry industry as a whole and has great significance. Fourteen million dollars' worth of jewels, silver, and unmounted diamonds in the building made a very enchanting exhibit.

This was due, first of all, to the architecture and display areas of the building. The De Beers Consolidated Mines' exhibit was shown in a small theater in which one hundred people could stand at six different levels, and both see and hear a lecture synchronized with music. The center of the display was a revolving spiral circled by a band of 1,259 cut and polished diamonds.

The spiral rose from a crucible which rested on a Kimberlite ("blue ground") base; out of the crucible the stones emerged and revolved around the spiral to a platinum and plastic globe which showed in diamond studded plaques the diamond-producing fields of the world.



One of the Side Panels of the De Beers Display at the House of Jewels.

On the inner sides of the bays were displayed cut stones, including two diamond necklaces. One of these was of fine blue-white emerald-cut stones suspending a beautiful blue-white drop weighing twelve carats. The other necklace contained 43 diamonds weighing 290 carats.

Below each necklace were three solitaire diamonds: A blue-white emerald-cut stone weighing 23 carats; a fancy rose-pink weighing 18¾ carats; a sapphire blue weigh-

Accompanying Mrs. Rhodes' article are listings of many of the jewelry pieces, with prices for the majority. This material is being kept on file at G.I.A. headquarters and is available for reference, but lack of space prevents publishing it in *Gems & Gemology*.

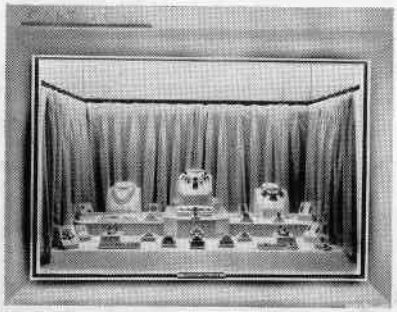
ing 14 carats; an amber-colored diamond; a fine white brilliant weighing 10 carats, and a sapphire-blue stone. The total value of the jewelry was $600,000.

The rough diamonds in each case were displayed as follows:

1. Three diamonds in matrix as actually found in De Beers Mines.

2. A large parcel of mixed diamonds weighing 9,576 carats.

3. Three parcels of industrial diamonds weighing 11,422¼ carats.



Cartier's Exhibit

4. An assortment showing irregular stones and cleavages, varying in size, color, and quality, weighing 4,734 carats.

5. Finally, the well-shaped and good-quality diamonds sorted so as to show color, size, and quality. This parcel weighed 5,318 carats.

The total value of the De Beers exhibit, as stated in the narration which accompanied, was $4,000,000.

Also on display were glass models of:

The Cullinan diamond, which weighed 3,106 metric carats, found at the Premier Mine, Pretoria, South Africa. This was the largest diamond ever discovered, and was a blue-white of perfect quality. This diamond was cut and now forms part of the crown jewels of Great Britain.

The Jonker diamond, which weighed 726 carats, was found at the alluvial diggings at Bynespoort, Transvaal, South Africa.

On the right wall of the building, as one entered, were long floor-to-ceiling windows, flooding the building with clear, natural sunlight. In the center were three silver cases. These cases were filled with the finest silver from the display rooms of Tiffany and Cartier, and from Black, Starr, and Frost-Gorham. The silver ranged from cocktail services, water pitchers, table decorations, candelabra, to elegant dining table sets, cigar and cigarette cases, elegant tea services, fruit baskets, etc. Some very modern design was shown together with classic, neoclassic and antique.

As visitors left the little theater which they first visited, they passed down the aisles of vignettes or cases which were set into the wall.

Cartier, Inc., was the first exhibit. It was an elaborate and costly display. Centered was a magnificent emerald necklace. On one side was a diamond necklace with ruby encrusted pendants, on the other, a priceless three-strand pearl necklace. Pendant enamel earrings, beautiful wide diamond bracelets, ruby and emerald bracelets, handsome rings and lapel decorations presented a noteworthy collection.

In the next case was the *Tiffany* exhibit. Centered against a panel of black velvet was the famous Tiffany diamond, the largest canary diamond in the world, in an exquisite spray and shell design of diamonds, executed in marquise, pear shaped, emerald cut, baguettes and round diamonds, greatly enhancing the brilliancy of the Tiffany diamond, which weighs 128.51 carats.

At the left, in the case, was a pearl necklace. The pearls weighed 705.72 grams.

On the right was an aquamarine and diamond necklace of modern design. The aquamarine, which weighs 217.57 carats, is set in the diamond necklace. The case also contained several distinguished pieces of jewelry, treated in the new and modern kind of stone setting, employing, in the less expensive pieces, both red and green gold.

Tiffany's Display

Black, Starr, and Frost-Gorham was the third case. In this case was a valuable collection of bracelets, as well as two very interesting necklaces.

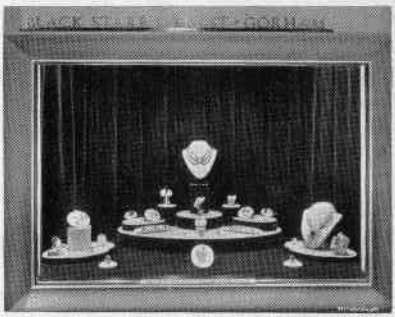
In the center of the display was an emerald-cut diamond and jade necklace, with a soft draping made possible by the center jade ornament. The second necklace was a massive moonstone flower collar of fifty-two moonstones, twenty-seven baguette diamonds and one hundred and thirty-six round diamonds.

A pearl weighing 289.12 grams, said to be the largest ever known, was set in a delicate shell background which was paved with two hundred and thirty-four baguettes, four fancy diamonds, three triangles, and three hundred and fifty-two round diamonds. The pearl was posed at the base of the shell, which was in actual size that of a large scallop. And the diamonds' bands radiated to the outer edge where the scallops were also diamond encrusted.

The eternal beauty of the Oriental pearl was glorified in this particularly successful arrangement, which harmoniously and dramatically combined the softness of the pearl with the brilliancy of the diamond.

Marcus Company featured, both years, a monthly changing display by the talented artist, William Bayard Okie. This added great interest to the entire exhibit and also presented to the visitors less expensive gem stones in some of the jewel designs, and also presented new ideas. Moonstones were first set in flower arrangements by Marcus. These stones were picked up by diamonds, rubies, and sapphires as well as topaz.

Moonlight, starlight, and daylight were represented in three circular displays. Moonstones are used for moonlight, star sapphires for starlight and scintillating opals for daylight.

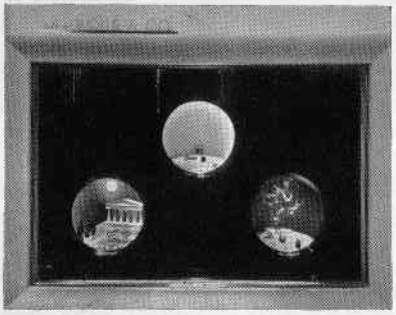


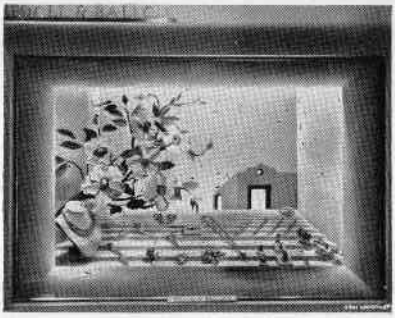
The Black, Starr & Frost-Gorham Window.

Opals are no longer considered "unlucky," because in the light of knowledge superstition has become obsolete. The ill luck attributed to

the opal arose out of the fact that it was difficult to cut and frequently broke. Hence, the cutters gave it a bad name to save their own necks.

Udall and Ballou, employing the clever artist Robert Pichenot, used an unusual and beautiful composite. A series of low, broad steps worked up from the foreground to the back of the case, to a sculptured wall and doorway. On the opposite side, a huge green, white, and pink flower arrangement was used. In the center of these realistic flowers were posed six very handsome brooches. A very fine yellow and blue sapphire necklace with a yellow and blue sapphire bracelet to match were also focal points in the display. Many beautiful jewels, including brooches, clips, bracelets, and necklaces were shown in a fine arrangement on the steps.





The Marcus (left) and the Udall & Ballou Exhibits.

There is little wonder at the interest of young and old in the magnificent jewel display, the finest ever shown in a modern show in the entire history of jewels. The romance, the poetry, the genuine glamour, and the lure of precious stones is as old as life itself. And down through the ages have come colorful and fantastic tales of the part they have played in the lives of great and near great. Emperors and kings, empresses, queens, and courtesans, the church, with its magnificent collections, great merchant princes and men of wealth of all races, colors, and religious persuasion, have collected, enjoyed, hoarded, bought, and sold these precious gems. Some of the jewels have been, at one time, a part of royal collection. Time does not dim their beauty nor lessen their value. The pearl of great price mentioned in the Bible is still the pearl of great price. More precious than rubies, it is still a scale to measure all that is of supreme value.

Jewels again have gained great importance in a world full of refugees. Jewels are the only portable wealth in the world. The money invested in jewels is always commutable, and they alone retain their value from the beginning.

GEMOLOGICAL GLOSSARY

(Continued from last issue)

(With phonetic pronunciation system.)

Terms in quotation marks are considered incorrect.

Turquoise, or Turquois. Also turcos, turkois (tur-koiz′ or tur′kwoiz). A gem species. Blue to blue-green. Opaque. Triclinic system. Refractive index 1.61-1.65, specific gravity 2.6-2.9, hardness 6.

Turquoise Matrix. Turquoise containing an appreciable amount of matrix.

Turtle Back. Chlorastrolite; also, turquoise matrix; also, variscite matrix.

Tuxtlite. A pyroxene from Tuxtla, Mexico, with diopside and jadeite molecules in about equal amounts; previously referred to as diopside jadeite. Named from the locality. See Mayaite.

Twentieth Century Cut. A modification of the brilliant cut bearing 80 or 86 facets.

Twinned (twind). Composed of twin crystals.

Twinned-Pearls. Pearls enveloped together in one or more layers of nacre.

Twins. Crystals composed of two crystalline individuals.

Two-Year Pearls. Cultured pearls supposedly left in the mollusc for two years, to receive a considerable coating of nacre.

Ultralite (ul′tra-lite). Trade-marked name for a red-violet synthetic sapphire.

Unctuous Feel (unk′tue-us). Very smooth and slippery; greasy to the touch.

Uneven Fracture. Fracture producing an uneven or irregular surface.

Uniaxial (ue″ni-ak′si-al). Substances crystallizing in the tetragonal and hexagonal systems, having one isotropic direction or optic axis. See also Biaxial.

Unio (ue′ni-oe). The river mussel; the genus of Unionadae in which fresh-water pearls are found.

"Unripe Diamond." Rock crystal.

Uralian Emerald (ure-rae′li-an). Emerald from the Ural Mountains (Russia).

Ural Chrysoberyl. Alexandrite.

Utahlite (ue′ta-lite). Variscite.

"Utah Turquoise." Variscite.

Uvarovite (oo-va′rof-ite). A green garnet, not found in specimens large enough for gem use.

Value. An attribute of color. Same as Tone.

"Vallum Diamond." (val′um). Rock crystal.

Variegated (var′ri-ee-gate″ed). Having different colors.

Variety (va-rye′ee-ti). A division of a mineral species, based on color, form, or transparency, as emerald and aquamarine are varieties of the species beryl.

Variolite (vae′ri-oe-lite). Dark-green orthoclase (feldspar).

Variscite (var′is-ite). A mineral sometimes used as a gem. Opaque, light yellowish green to light blue-green. Refractive index 1.56-1.59, specific gravity 2.5, hardness 4-5.

Vegetable Fossil. Amber.

Verdite. (ver'dite). Trade-name for an ornamental stone of a rich chrome-green color, found as large blocks on the south bank of the Kaap River, South Africa.

Vein (vane). A crack, crevice, or fissure filled, or practically filled, with mineral matter.

Venus Hairstone. Sagenite.

Verd antique (vurd"an-teke'). A green serpentine marble.

Vermeil, or Vermeille (vur'mil). Orange-red almandite (garnet).

Vermilion Opal (ver-mil'yun). Milky Opal impregnated with red cinnabar. See also Cinnabar.

Vermilite (vur'mil-ite). Vermilion Opal.

Vesicle (ves'i-k'l). A small cavity in a mineral or rock, in many cases produced by the liberation of vapor in the molten mass.

Vesicular (vee-sik'ue-lar). Having steam or gas bubble cavities, as in certain igneous rocks.

Vesuvianite (vee-sue'vi-an-ite). A gem mineral. Same as Idocrase.

"Vienna Turquoise" (vee-en'a). An opaque enamel-like blue glass.

Vinegar Spinel. Yellowish red spinel.

Violan or Violane (vye'oe-lane). A massive blue diopside, of occasional use as a gem.

Violet Stone (vye'oe-let). Cordierite.

Violite (vye'oe-lite). Trade-name for a purple synthetic sapphire.

Virgin Diamonds. A trade-marked name applied by an American importing firm to the diamonds advertised and sold by it.

"Viscoloid." A variety of celluloid.

Vitreous (vit'ree-us). A type of luster possessed by the majority of gem stones. It is the luster of broken glass. See also sub-vitreous.

"Volcanic Chrysolite" (vol-kan'ik). Vesuvianite.

Volcanic Glass. Obsidian.

Wart Pearls. German name for baroque pearls.

Warty. Having small rounded protuberances, like warts.

Wassie. A large cleavage of diamond crystal split for cutting. An octahedron divided into two such pieces.

Water. A term describing the relative limpidity, or transparency, of a diamond. It may also refer to color and relative perfection.

Water Agate. Same as Wax Agate.

"Water Chrysolite." Moldavite.

"Water Opal." Same as Water Stone.

"Water Sapphire." Iolite.

Water Stone. (1) Moonstone variety of orthoclase; (2) Hyalite.

Water-Worn. Crystals of gem minerals worn by action of water rolling them against gravels in river beds.

Wave Length. The length of a wave (of light, water, sound, etc.) measured from a given point on one wave to the same point on the following or preceding wave.

Wax Agate. Yellow agate, with a pronounced waxy luster.

Wax Opal. Yellow opal with a waxy luster.

Waxy. A luster below vitreous, lacking the clear (plane) reflection of a vitreous luster.

Weathering. Disintegration of minerals by the weather.

Wedgewood (wej'wood). A well-known type of semiporcelain (china). It has also been used as a medium for moulded cameos.

Well. Small non-brilliant area in center of a poorly cut brilliant.

Wernerite (wer'ner-ite). Scapolite.

(To be concluded)

A DIAMOND COMPARISON GAUGE

by
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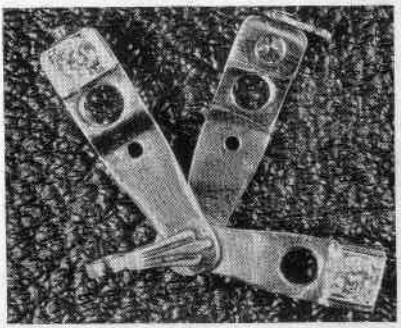
This gauge is used to illustrate the color of a diamond. Practically every customer who comes into a jewelry store upon being shown a diamond, during the course of sale asks if the stone is yellow or if it is "blue white." This gauge is used to show the correct color by a yellow diamond mounted at top of one prong with a hole drilled below, a master stone, mounted at top of the short prong, and a brown diamond (the only other bad color of the trade than yellow) is mounted in the other long arm with an observation hole drilled below it.

When a customer mentions the question of color, the gauge is opened up by a catch at the top and each arm is spread out; the two not in use may serve as a handle. Now if a customer claims a stone to be yellow, swing the arm bearing the yellow stone into position and turn the other two around to a handle. Insert the stone which the customer believes to be yellow in the lower opening and compare it with the yellow diamond mounted above it.

Similarly, comparison with a known brown stone may be made by employing the proper arm. Finally, by using the master stone, which is mounted in the short prong, the fine color of a good-quality stone may be demonstrated. When not in use this gauge can be used as a charm on a chain. From one side, it would appear with two diamonds showing, the yellow diamond at the top and the master diamond showing through the opening below. From the other side, the



brown diamond and the pavilion of the master stone are seen. It is planned to produce the gauge for sale to jewelers if sufficient demand is evidenced. It would be made in silver or platinum, diamonds to be supplied and set by the purchaser. Stones around one-quarter carat are most satisfactory.

IMPORTER TO SUPPLY SERIES OF DIAMONDS FOR USE IN COLOR GRADING

For some time, a prominent diamond importer has been offering for sale a series of brilliant cut diamonds which have been graded by him for color. Each series consists of a range of stones of approximately the same size, each stone of a different color grade. When any stone is sold, another of the same grade can be furnished.

Although this is not the ideal method of color grading which is being sought by the G.I.A., it is a service which offers an advance in the right direction for many jewelers who do not possess such a series for comparison purposes. The name of the importer will be furnished upon request.

THE COOPER CONOSCOPE

An instrument which is in the process of development by Donald Cooper, Certified Gemologist of Bayonne, New Jersey, for the purpose of obtaining interference figures from gem stones, seems to have considerable promise. Mr. Cooper has ingeniously adapted several principles to the problem and has evolved an instrument consisting fundamentally of a spherical vessel of liquid at the center of which the cut stone is placed, and a polarizer and analyzer mounted at opposite ends of an arm which is arranged to turn about a horizontal axis passing through the center of the spherical vessel. A small lamp is mounted on the arm immediately behind the polarizer so that illumination is constant in all positions.

By turning the arm bearing the polarizer and by rotating the vessel of liquid on the glass slide which supports it, universal motion of the polarizers with respect to the stone is achieved.

Though the instrument is yet in rough form, it is possible, with a little practice, to obtain an interference figure from almost any unmounted transparent cut stone. This conoscope is compact and would apparently not be expensive in its final form.

With mounted stones, the conoscope is, unfortunately, of little value since there is no adequate provision for the holding of a ring, brooch, or clip even if it were possible to insert any of these articles through the narrow mouth of the immersion vessel. In its present form the Cooper conoscope does not afford a clear and easily interpreted figure, and more careful figuring of the optic system is necessary. In the development of the instrument it is further essential that provision be made for the insertion, somewhere between the polarizer and analyzer, of accessories such as the quartz wedge and mica and gypsum plates. Furthermore, there is considerable room for improvement in the general design and useability of the instrument; in its present form it is awkward to handle and tends to slip out of adjustment too readily.—*Robert Shipley, Jr.*

DIAMONDS DISPLAY UNUSUAL PHENOMENON*

The great majority of diamond men are familiar with certain types of diamonds, including the type known as premiers, which, due to strong blue fluorescence appear blue or fine white by reflected light, and which appear white or even yellowish or brownish by transmitted light. However, a type of stone which has almost exactly the opposite effect has for some time been appearing in the trade in small quantities. This type of diamond is actually bluer or more colorless by transmitted light than by reflected. Some specimens of this type are fine white by reflected light, others are slightly off color.

*A.G.S. Research Service.

A GEMOLOGICAL ENCYCLOPEDIA

(Continued from last issue)

by HENRY E. BRIGGS, Ph.D.

JADE

The minerals offered as true jade are, Jadeite and Nephrite. Two minerals with a very similar appearance but with a different composition. Jadeite is a member of the pyroxene group. It is monoclinic in crystallization; hardness 6½ to 7, specific gravity 3.3, fracture uneven to splintery, color white to emerald green, luster vitreous to pearly, index of refraction (mean) 1.67, composition sodium aluminum silicate, $NaAl(SiO_3)_2$. Jadeite also occurs in a dark green or nearly black color called Chloromelanite. Jadeite occurs in China, Burma, Mexico and in South America.

Nephrite is the more common of the two jades. It is a member of the amphiboles and is monoclinic in crystallization. The hardness is 6½; the specific gravity 2.9 to 3.1, fracture splintery, color white to green of a leaf to dark shade, often unevenly distributed, luster vitreous and glistening, index of refraction (mean) 1.62, composition calcium, magnesium, iron silicate, $Ca(Mg,Fe)_3(SiO_3)_4$. Nephrite is easily distinguished from jadeite since the gravity is lower and also the index of refraction. Nephrite is found in China, Siberia, New Zealand and Alaska.

Many other minerals are offered as jade which bear some resemblance to it. The one most commonly offered is grossularite garnet. It is found with a fair jade color in South Africa and in southern Oregon. Green serpentine, vesuvianite, amazonite, aventurine, zoisite and many others are also offered as jade of some sort under various deceptive names. However, these can readily be distinguished by their properties.

TURQUOIS

Turquois is a gem that seems to never loose its favor. The delicate color of fine turquois seems to always find favor in the eye of man, and it is one of the first minerals to be used strictly as a gem. It is often cut with the matrix and in the case where the matrix is of a dark brown color the effect is most striking. Very fine gems of turquois matrix have been mined in Nevada, near Tonopah. Large gems of a pure, fine blue are very rare and, in fact, almost unknown. Turquois of good color is more highly valued than are most semi-precious stones and fine gems sell readily on the market.

Turquois is usually considered to be amorphous, although it was found in 1912 in Virginia, occurring in minute crystals. These crystals were triclinic, but with the exception of this one occurrence it has never been found in crystalline form. The hardness is 6, the specific gravity 2.6 to 2.8, color blue to bluish white and green, luster waxy, mean index of refraction 1.63, composition is a phosphate of copper and aluminum, $H_5[Al(OH)_2]6$

$CuOH(PO_4)_4$. Ferric iron often replaces part of the aluminum in the composition, and when iron is present a green shade seems to mingle with the blue. When the iron is present in sufficient quantity the color becomes entirely green. The color of turquois is not stable and care should be taken when wearing rings set with it, not to wash the hands with soap and water without first removing the rings. Soapy water causes the color of turquois to fade and often turns the stones to a greenish color. The color of turquois can be best preserved by cleaning the gem with strong ammonia only and by keeping in a jewel case when not in use. Perspiration should always be carefully cleaned off turquois beads with ammonia before they are laid away.

Many pastes are offered as imitations of turquois, all of which may be easily identified as they do not have the same gravity, etc., as the genuine. Also, attempts have been made to make turquois synthetically, but the results are never the same as the real stone as it occurs in nature. The gravity is usually less and the composition, although near, is not the same. However, little of this material is now on the American market. Many times we find the turquois which is cut in Germany and France to be dyed with analine dye to improve the color. The fraud may be easily showed up by soaking the stone in ammonia, as the color of the dyed stone will fade while that of the natural will be improved, if anything.

A form of fossil bone with a bluish or greenish color is found in France which is offered as turquois. This is called by the gemologist "Odontolite." It is colored blue by vivianite, a hydrated iron phosphate. A slight heating of odontolite causes an offensive odor to arise, which is not the case with turquois. The gravity is not the same, nor is the luster.

Turquois is found in Nevada, Arizona, California, New Mexico, Mexico, Persia, New South Wales and Turkestan.

VARISCITE

Variscite is a hydrated aluminum phosphate ($AlPO_42H_2O$). The color is green to bluish green and it is sometimes substituted for turquois, although the two minerals are distinctly different. The hardness of variscite is 4 to 5 and the gravity near 2.55; luster vitreous; transparent to opaque.

The compact variety, which is more or less mixed with other minerals such as wardite, chalcedony, sodium oxide, iron and others is called "Utahlite" and also is offered to the trade under the name of "Amatrice." A name coined for it from the two words American matrix, for it is distinctly an American matrix.

It is usually cut en cabochon and has enjoyed considerable popularity in some sections, although it has not become widely distributed because of the limited supply and comparatively high price which it brings when of good quality. The gems with the brown streaking and spotting are the most beautiful and command a higher price than do those of the clear-green color.

Variscite is found in Utah in Toole County and in Nevada near Manhatten, and also in the Tonopah district.

(To be continued)

Arkansas' Diamond Field*

by
PHILLIP HENSON
Gemological Student, Little Rock, Arkansas

Neglected during most of the past decade, North America's only known diamond field, located near Murfreesboro, Pike County, Arkansas, may be the scene of renewed activities. Mr. Ray E. Blick, of Chicago, was recently granted an option to purchase all the real estate of the Arkansas Diamond Corporation. The original company, known as the Arkansas Diamond Company, was organized in 1908 by Samuel W. Reyburn, now chairman of the board of Associated Dry Goods, New York City, and the late Charles S. Stifft, Little Rock, Arkansas, jeweler. After W. J. Huddleston discovered the first diamonds on his Pike County farm following a heavy rain 34 years ago, the find was identified as genuine by Mermod, Jaccard & King Jewelry Company of St. Louis, Missouri, and the late Dr. George F. Kunz. Mr. Huddleston still lives near Murfreesboro and is familiarly known as "Diamond John."

At the time of the discovery in 1906, this field created much national interest and excitement was high. Fortune seekers came from far and wide in the hopes of a new bonanza. Old-timers of the vicinity recall the Arkansas "diamond rush" and tell how the landowners in this area staged "candle-light diamond hunts" at night. These hunts were widely advertised and attracted people from miles around. Everyone brought candles or lamps and began the hunt after paying a fee of one dollar. One town sprang up in mushroom fashion, taking its name Kimberly from the famous diamond town of South Africa. Kimberly, Arkansas, is now a ghost village, with less than fifty-six inhabitants and only a very few remaining buildings.

The organizers of the Arkansas Diamond Company found financing difficult and made several ineffectual efforts to interest American capital. After failing to interest sufficient American capital, a delegation of Arkansas citizens went to England to place their proposition before the officials of the De Beers Mining Company, but in view of the fact that these officials insisted upon owning 51% of the stock, they could come to no agreement. There has been general presumption, for many years, that foreign diamond syndicates have owned and controlled the Arkansas field. Foreign capital has never been used in the development of this field. It is safe to say that the control of the field has been held not only in the United States, but principally in Arkansas.

When organization of the Arkansas Diamond Company was finally completed, the Company purchased "Diamond John" Huddleston's entire acreage for $36,000. The original capital stock was $1,000,000 and was later increased to $1,250,000. At this time, the late Mr. John T. Fuller, a consulting engineer, who had been manager of the Dutoitspan mine of De Beers Consolidated Mines, Limited, was brought to Arkansas to make a report on the diamond field. After the completion of Mr. Fuller's report, machinery was installed which cost a quarter of a million

*G.I.A. Research Service.

dollars. This vast expenditure was merely to test the output of the field, but as it later developed, the company was inexperienced and not properly advised as to the methods to be followed in this class of mining and consequently wasted a good deal of money. After a period of idleness, the Arkansas Diamond Company was reorganized, and in 1919 the Arkansas Diamond Corporation was formed and chartered under the laws of Virginia with an authorized capital of ten million dollars. In 1932 the par value of this stock was reduced from $10.00 to $0.10 per share. The corporation attempted to test and develop the field, but it also faced the same difficulties as its predecessor and wasted even more money. In spite of mining difficulties and adverse economic conditions, it is established that some $150,000.00 worth of diamonds were recovered. The number of diamonds that has been recovered since their discovery in 1906 is only partly known, as the figures showing complete production have been withheld from publication. It has been roughly estimated that about ten thousand diamonds, including the very small stones, have been recovered. The diamonds that have been found range in size from a very small fraction to many carats. The average weight has been estimated to be between 0.3 and 0.4 of a carat. The largest diamond produced was found in 1924 and weighed 40.23 carats. One large stone, weighing 18.3 carats, in the rough, was sold to Tiffany & Company for $6,800.00. Most of the diamonds were white, brown and yellow. A percentage of yield of the various colors of the mine run was, at one time, given as: "40% white stones, 22% yellow stones, 37% brown stones and 1% true bort." According to the late Dr. George F. Kunz, there was a large percentage of white stones, most of them of a high grade in color, brilliancy and freedom from flaws. In describing several yellow, brown and white stones, Dr. Kunz said: "They are absolutely perfect and are equal to the finest stones found at the Jagersfontein mine, or that was ever found in India." A few diamonds were found with a blue or pink tinge.

After the unsuccessful attempt of the Arkansas Diamond Corporation, and a long period of idleness, a court order was issued ordering the corporation to liquidate its assets in order to pay off its indebtedness of $90,000.00. At this time, the Arkansas stockholders which held the control of the Arkansas Diamond Corporation, were unable to induce the minority holders of 43.6% of stock, who resided in other states, to assist further, so in order to prevent outside interest from entering the fields, a group of Arkansas citizens invested an additional $125,000.00 and formed The Diamond Mining & Engineering Company. The newly formed company secured an operating lease on all the property owned by the Arkansas Diamond Corporation. This lease was still in effect until very recently, when it was acquired and cancelled by the corporation. With its limited facilities and cash, the Diamond Mining & Engineering Company was able to recover some $30,000.00 worth of diamonds with pick and shovel methods.

The Arkansas Diamond Corporation owns approximately 670 acres of land which covers nearly all of the diamond-bearing area. The actual surface area of the pipe comprises about 73 acres and consists of four

separate exposed areas of peridotite. Only three of the four areas have been known to produce diamonds. The largest and richest area and the only one to gain any prominence is that owned by the Arkansas Diamond Corporation. At one time, five separate mining companies held acreage in the field. No mining operations of any significance were ever carried on, except by the corporation and its predecessor. The area in which diamonds have been recovered is an approximate circle, which may roughly represent the mouth of the volcano. This treeless 73-acre tract of volcanic rock is made up of three rather distinct types of peridotite varying from thoroughly disintegrated soft and crumbly earth of a green, blue and yellowish brown color to the dense, tough, dark green porphyritic rock, showing no evidence of weathering or alterations and known as "hardebank." The peridotite found in the different areas is quite similar in geological characteristics to that of South Africa. Specimens of "hardebank" show phenocryst of olivine in a dark brownish ground mass consisting of the usual mineral, such as augite, biotite, perovskite and magnetite crystals, together with a few crystals of ilmenite and garnet. Core tests show that the "blue ground" extends to a depth of 200 feet, how much deeper the deposit is, no one knows. The greatest depth reached during mining operations was 20 feet. Most mining was done in shallow, open cuts with the material being removed by means of plows and scrapers. Sub-surface operations were never attempted. Hydraulic mining was tried for a short time.

In 1920 the Arkansas Diamond Corporation erected a large washing plant. This plant operated for a total of nine months and processed approximately 18,000 loads of peridotite, each load containing 16 cubic feet of material. The machinery which was installed in this plant consisted of: one 8-foot Harginge tube mill, one gyratory crusher, two 4x12 trommel screens, two 14-inch washing pans, two grease tables, three jig tables, one rotary dryer, one grizzley and a large generator.

The first cut stones were offered for sale in 1921 by Tiffany & Company of New York City and by the Charles S. Stifft Company of Little Rock, Arkansas. The value of the cut stones ranged from $60.00 to $175.00 per carat, with an average of $104.00 per carat. Many of the stones were of remarkable purity and were reputed to have been one point harder and of a finer quality than the South African stones. Some of the yellow stones were of exceptionally fine quality and color.

The depression virtually closed the field, for the third time, in 1930. During the years of 1932 and 1933, the stockholders of the Arkansas Diamond Corporation decided to sacrifice all the machinery for a ridiculously low price, before its only value would be that of scrap iron. During the years of idleness, the machinery deteriorated rapidly. All the machinery was sold and the buildings wrecked. At the present time, there are no buildings nor even a vestige of the feverish activities of a few years ago. The only structure on the property is the home of the custodian. Mr. Lee Waggoner has acted as custodian of the property during the periods of idleness for the privilege of farming the only productive lands in the area. He occasionally finds a diamond after a heavy rain.

It was Mr. Waggoner who picked up the large 18.3 carat stone which was sold to Tiffany & Company for $6,800.00. It is generally recognized that Mr. Waggoner is the best practical authority on this particular deposit of anyone else in the state or elsewhere. Without adequate protection the lands have been invaded by trespassers who enter the fields at night after heavy rains and, with the aid of flashlights, search for diamonds. There have been instances when whole truckloads of the "blue ground" have been taken. Diamonds have occasionally been found in turkeys and chickens that have been allowed to run over the lands.

As stated before, the operating lease of The Diamond Mining & Engineering Company was recently acquired and cancelled by the Arkansas Diamond Corporation, and on June 27th an option was granted to Mr. Ray E. Blick to purchase all the property of the corporation. The option period is for one year at $2,500.00 with the privilege of renewal for a second year upon the payment of $10,000.00 for such renewal. During the option period Mr. Blick has the right to test and explore all the property. If any minerals are produced during the option period, the corporation is to receive one-half of the proceeds of the sale, less selling expenses, and is not to be charged with any of the cost of production. If the option is not exercised, the corporation will become the owner of any buildings, equipment or improvements placed upon the lands. If the option is exercised, Mr. Blick is to pay $176,000.00 for the conveyance of the property.

There is speculation upon the idea that Mr. Blick is principally interested in diamonds for their industrial value, diamonds of gem quality being only a secondary interest. At the date of this article no active operation had been started by Mr. Blick.

"SCIENTIFIC HEMATITE"*

The Ostbye and Barton Company of Providence, Rhode Island, has recently been releasing a series of inexpensive rings set with material which is described as "scientific hematite." Two of these rings were obtained and tested, one in the Eastern Laboratory and one in the laboratory at International Headquarters of the Gemological Institute of America in Los Angeles. The material, which is mounted in sterling silver rings faced with 10-karat yellow gold, is in the form of intaglios; that is, a design sunk in the surface of the "stone." Close observation reveals that the material is not hematite or any related substance, but is indeed a white metal. Tested in the Los Angeles laboratory, the metal was found to be a typical stainless steel, composed principally of iron and chromium with a small amount of nickel. It is, therefore, gemologically incorrect to describe these substances as scientific hematite or as hematite of any sort. Apparently the intaglio design is stamped into the metal and the complete specimen is formed by the same process. Inspection with the naked eye immediately reveals the smoothly curved rather than sharply cut lines, which proves the machine origin of the design. The feature, combined with the white metal color of the specimens, readily distinguishes the substance from hematite.

*A.G.S. Research Service.