Gems

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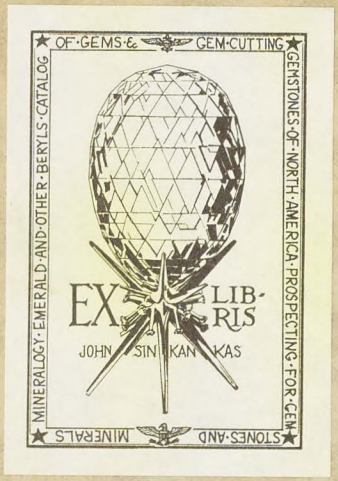
OF·GEMS·& GEM·CUTTING
GEMSTONES·OF·NORTH·AMERICA·PROSPECTING·FOR·GEM
STONES·AND MINERALS
MINERALOGY·EMERALD·AND·OTHER·BERYLS·CATALOG
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Nov 1954

GEMS

by

FELIX B. PYMS

Specialist in Oriental Pearls
and
Precious Jewels

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With Compliments
F. B. Pyms

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PREFACE

At the urgent request of numerous clients I am presenting this little booklet as the result of many years of study of Precious Gems.

I have made a careful investigation of this most fascinating and alluring subject, and hope that the information imparted herein will be of interest to my ever increasing clientele of gem lovers.

I have only touched lightly thereon omitting much of the technical and scientific features that would be beyond the scope of this work.

I would call special attention to the "Romance of the Pearl" and trust that its romantic origin will add greatly to the pleasure of the lovers of this modest gem and so enable it to move in its natural sphere.

FELIX B. PYMS.

July 23rd, 1921
New York City.

FOREWORD

Since the history of man precious gems have been woven and interwoven with historical and traditional allusions, sentiment and superstitions. They have been found in the monuments and relics of prehistoric peoples.

The love of precious gems is deeply ingrained in the human heart, they are held in the highest esteem and are a delight to the eye.

The beauty of a gem lies not only in its coloring and brilliancy but in its durability. The beautiful coloring of a sunset, of verdant foliage, or even the blue of the sky, lasts only for a certain length of time and is subject to continual varying change, but the lustre and coloration of precious gems are today what they were thousands of years ago and will still be for ages to come. This permanency of beauty within a world of continual change has a charm that was very early appreciated.

Thus the three cardinal virtues of a perfect gem are Beauty, Rarity and Durability. Any stone lacking these qualities cannot aspire to a high place in the rank of precious gems.

For ages Nature has been at work creating her fiery diamonds, her blood-red rubies, her vari-colored sapphires. In her subterranean laboratory she has constructed these jewels with thoroughness and precision, yet very slowly, each taking eons of years to form and mould.

To Man, these beautiful earth-made wonders, sought after since the dawn of history for their

great value, and worshipped for their indescribable beauty of color, have always held an attraction more fascinating than gold, more potent than life itself.

No pleasure can be more innocent and justifiable than that infused by the possession of Nature's beautiful gifts.

Part One

PRECIOUS GEMS

The Diamond

Ever since the discovery of the form of cutting, which revealed its wonderful qualities to full perfection, the diamond has held a prominent position among the precious stones. This is not difficult to understand since it combines in itself extreme hardness, high refraction, wide color-dispersion and brilliant lustre.

Brilliant

We owe the introduction of the brilliant to the Cardinal Mazarin, who lived in the middle of the 17th century and the first brilliants were therefore called 'Mazarins.'

It was only in the middle of the 15th century that Agnes Sorel, at the Court of Charles VII. of France, first started the fashion for women to wear diamonds in jewelry. From that time on the demand for diamonds increased rapidly. As the demand increased new methods were devised to produce more attractive and brilliant stones.

A diamond in the rough is no more attractive to the eye than a piece of sal-soda. For this reason the Persians, many centuries ago, placed the diamond below the ruby or emerald and even the peridot. The natives of India, who were the first to realize that a diamond could be ground with its own powder, discovered what a wonderful difference the removal of its coat made in the appearance of the stone. They made no attempt to shape it, but merely polished the natural facets. The full lustrous beauty of a diamond is only brought out when it is cut in brilliant form.

Composition

Of all the precious gems, the composition of the diamond is the simplest; it is merely crystallized carbon, which is the more remarkable, as graphite and charcoal are chemically identical. That Nature never seems to exhaust herself with her miracles is indisputable.

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Mythology

Diamonds occur of every hue and according to Maundeville "seem to take pleasure in assuming in turn the colors proper to other gems." According to mythology, the God of the Mines one day called his ministers together and bade them seek far and wide and bring him all known gems. He found them to be of all colors and tints and varying in hardness, such as the sapphire, ruby, emerald, quartz and many others. From them all he took one of each kind, crushed and ground them together and said, "Let there be something that will combine the beauty of all, yet it must be pure and invincible." He had no sooner uttered these words than behold, the diamond was born, pure as the dew drop and invincible in hardness; and when its ray is resolved in the spectrum it displays all the colors of the gems from which it was made.

First Use

At first diamonds were almost exclusively used by priests and princes. The priests used them in temple ornaments and bejeweled idols. Many an Indian Buddha has diamond eyes. The princes wore them as the emblem of wealth and power, as well on account of the alleged quality of bringing good fortune to their owners. Then again the princes being almost always at war, diamonds were desirable as condensed and liquid wealth, easily carried in case of flight.

Various Colors

Diamonds when absolutely limpid and flawless, are said to be of the "first water" and are most

valuable when devoid of any tinge of color, though the kind having a very light-blue tint are in demand.

Stones with a slight tinge of yellow, are termed "off-color" and are much less valuable. Those of a canary-yellow color, however, belong to a different category and have a certain attractiveness. Green-colored stones are not uncommon, though a fine shade of this color is rare. Brown stones are more common and have very little value. The pink stones are less prevalent and red and blue stones are a rarity. Those with a sapphire-blue color are very seldom met with and would for this reason command very high prices.

Cause of Color

The color in a diamond is believed to be due to the presence of minute particles of metallic oxides. The most common of these is iron oxide. The particles are so small that they are invisible under the microscope, but when white light, which consists of all the colors of the spectrum, passes through the diamond the light of certain colors is absorbed more than the light of other colors, with the result that the light which emerges from the material is no longer the same white light as when it entered.

The iron as a colorant, produces as a rule, yellow or brown tints. Diamonds having a very light-blue color (which is probably brought about by the presence of some other metallic oxide), while rare are more in evidence than the really snow-white stones. Apart from those having a pronounced color, the shades grade down very finely to such an extent that the presence of color is very hard to detect even by one who may be skilled in the detection of color. The presence of color can be observed only by a real specialist or by direct comparison with stones that are known to be perfectly white.

Occurrence

Indian Mines

The diamond fields of India have been celebrated from remote antiquity. All the diamonds known to have existed many years ago were obtained from the so-called Golconda mines in India. Golconda itself, now a deserted fortress close by Hyderabad, was really the trading place where the diamonds were bought and sold. The actual diamond-bearing district was spread over a very wide area on the eastern side of the Deccan. The richest mines, where the largest historical stones were discovered, are in the south near the Kistna River. The were found in sandstone or conglomerate or the sands and gravels of river-beds.

Brazilian Mines

The famous French traveler and jeweler, Tavernier, visited these mines about the year 1669 on a commission for Louis XIV. Towards the end of the 17th century the mines had apparently become exhausted, for no large stones seem to have been recorded after Tavernier's visit. India enjoyed the exclusive privilege of supplying the world's demand for diamonds until the discovery in 1725 of the Brazilian diamonds.

Native miners washing the sands for the gold they contained at Tejuco, now known as Diamantina, about eighty miles from Rio de Janeiro, found small hard stones of peculiar shape, which they at first considered as of no value and as such threw them away. It was not until an inhabitant of Serra do Frio, in the gold district of Minas-Garaës accidentally discovered the true nature of these stones. He had seen the rough diamonds in India and the resemblace of those found were so

striking, that he took a number of them to Portugal for sale. The natural course of events followed with the result that the Brazilian Diamond Mines became established.

Quality

They have proved very productive, but chiefly in small diamonds; those of over a carat being infrequent. The largest stone discovered in 1853, weighed in the rough 254½ carats. The quality of these diamonds is very good, many of them having the highly-valued, bluish-white color and are easily recognizable.

Production

The industry was greatly stimulated by the discovery in 1844, of the remarkably rich fields in the State of Bahia, where carbonado or black diamond first came to light. Due to the difficulties of supplying labor, the unhealthiness of the climate and the high cost of living, the production of the mines fell off and with the discovery of the African Mines their importance dwindled entirely. The total production from the entire Brazilian diamond districts was estimated up to the year 1850 to exceed 10,000,000 carats.

First Discovery of African Diamond

The discovery of the South African diamond, like the preceding finds was by accident. Near Hopetown on the banks of the Orange River, one of the children of a Boer farmer, named Daniel Jacobs, picked up a curious looking "pebble" while playing. This discovery early in 1867 was destined not only to mark the commencement of a new era in the record of diamond mines, but to change the whole course of the history of South Africa.

This "pebble" attracted the attention of the child's mother who called the attention of a friend, Schalk van Niekirk.

He suspected that it might be of some value and offered to buy the stone from Mrs. Jacobs, who was

amused at the idea of buying a common stone. She immediately gave it to him and refused to accept anything for a mere stone. Van Niekirk showed it to a traveling trader, John O'Reilly by name, who immediately undertook the commission of discovering its worth as a diamond which he firmly believed it to be. Everyone he met ridiculed him and advised him to throw the stone away which was actually done by a practical joker and only recovered after much labor and search.

He finally exhibited it to Lorenzo Boyes, the Acting Civil Commissioner at Colesberg, who from its extreme hardness thought it might be a diamond, sent it for examination to his friend, Dr. W. G. Atherston, a mineralogist of Grahamstown. So uncertain, it is said was Boyes of its value, that he did not even seal the envelope containing the stone, much less register it. After carefully examining its mineralogical characteristics, Atherston pronounced it a genuine diamond, weighing almost 22 carats.

The stone was purchased by Sir Philip Wodehouse, Governor of the Cape, for $2,500, who sent it to the Universal Exhibition in Paris held that year, in the spring of 1867. This, however, did not attract much attention as the chimerical tales of diamond finds in remote parts of the world were not unusual.

Star of South Africa

Just two years later a shepherd boy on the Zendfontein farm, near the Orange River, discovered that superb diamond, known afterwards as the "Star of South Africa." Van Niekirk, ever on the alert for news of further discoveries, at once rushed to the farm and purchased the stone from the boy for 500 sheep, 10 oxen, and a horse, which was untold wealth to the boy, but which was only a fraction of the $56,000 which Van Niekirk received for it. This stone was soon after sold to Earl Dudley for $125,000.

This wonderful discovery attracted to that district for miles around numerous fortune-hunting prospectors.

Kimberly Mines

In the months following several finds were made on the Jagersfontein farm and a little later richer finds were discovered on the several contiguous farms. This district was subsequently known as Kimberly, in honor of the Secretary of State for the Colonies. A large prosperous town developed close to the mines which grew rapidly in size and importance and is today the centre of the diamond-mining industry. The magnitude of the industry may be gathered from the DeBeers report covering the twelve months ended June 30, 1920. The number of white employees of the Company at the end of that period was more than 3,000 and of natives almost 14,000.

Method of Mining

At first the mines were worked like quarries, from the surface, and this method is still employed in the Premier mine. Most of the present mines are worked by sinking shafts in the native rock outside of the blue ground and then tunnelled into the diamond-bearing rock laterally. This rock is removed to the surface and allowed to weather on the "floors" until it crumbles, which generally takes from one to two years. It is then crushed and washed and the heavy minerals are then concentrated by gravity methods. The larger diamonds are picked out of the concentrates by hand and the smaller ones including fragments are removed by the "greasers." These "greasers" are shaking tables heavily smeared with grease over which the concentrates are washed and to which the diamonds remain out of all the minerals in the concentrates. The grease is periodically removed and melted and the diamonds gathered.

Production

The amazing productiveness of the South African mines is evident by the fact that the Kimberly

group of mines produced 36,000,000 carats in 16 years. The total output of the Brazilian mines for the whole period during which they were worked barely exceeds 13,000,000 carats. The average yield of the South African mines decreases gradually as the depth of the mine increases.

Quality

A large number of the diamonds found in South Africa are "off-color," generally exhibiting a delicate straw tint; they are none the less extremely brilliant when properly cut. A very fair proportion of these diamonds are of the first water, rivalling in beauty and purity the finest Brazilian and Indian diamonds.

The writer has in his collection a most beautiful and brilliant African diamond weighing slightly over 25 carats. It is cut in marquise form and is believed to be the finest fancy diamond of its kind in the country.

Bort

All diamonds which are too impure for cutting are now known under the general name of "bort." These possess a fixed market value, the powder which they yield when crushed, being used for cutting and polishing diamonds and other stones, and the engraving of gems of exceptional hardness. They are also used for industrial purposes on an extensive scale.

Diamonds in Australia

Diamonds also occur in New South Wales but they are extremely small and remarkably hard; they can only be cut with their own dust, the ordinary diamond dust making no impression.

Diamonds in Borneo

The Borneo diamonds are also distinguished for their extreme hardness. They seldom exceed a carat in weight although a few weighing several carats have been found.

Several isolated finds have been reported in California and other parts of the United States but none has proved of any importance. Approximately 90

per cent of all the diamonds used in the world now come from South Africa, the remaining 10 per cent from Brazil, Belgium Congo, British and Dutch Guiana, Borneo, Sumatra, Australia and China.

Diamond as Emblem

The diamond is the emblem of fearlessness and invincibility. The virtues ascribed to this gem are all directly traceable either to its unconquerable hardness or to its transparency and purity. Tradition has endowed the wearer with superior strength, fortitude and courage.

Historical Diamonds

The extreme costliness of diamonds weighing over 100 carats, in their cut form, while limited in number, have played no small part in the moulding of history.

It is probable that Napoleon might never have realized his successes, such as they were, had it not been for the famous Pitt diamond, which he pledged. The romantic history of such large stones is generally most interesting, but for our purpose a brief sketch only will be made of the most famous gems.

The Koh-i-nor

The history of the Koh-i-nor can be traced back to the year 1304, when it first came into the hands of the Mogul Emperors. The natives claim it to be of more ancient origin, dating back over 4,000 years. The name Koh-i-nor means "Mound of Light."

It remained at Delhi until the invasion of North-West India in 1739 by Nadir Shah, into whose hands it fell, the toll of the conqueror. At his death the great diamond after many vicissitudes came into the possession of Runjit Singh at Lahore. His successors kept it until the native downfall in 1850 when it passed into the hands of the East India Company, in whose name it was presented to Queen Victoria.

It was re-cut from its original Indian form into that of a shallow brilliant which reduced its weight of 186 carats to 106 carats. The wisdom of this course was severely criticised inasmuch as the result

left the stone deficient in brilliancy. With the change in form much of the old historical interest was gone.

The Koh-i-nor is now the private property of the British Royal Family. It is valued at 500,000 dollars.

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The Great Mogul

The largest Indian diamond, the Great Mogul was found in the Kollur mines, in the year 1650.

Its original weight was 787½ carats, but it was so full of flaws that, Hortensio Borgis, a Venetian who was then in India, in cutting it to a rose form reduced its weight to 240 carats.

Tavernier saw the stone at the time of his visit to India, but all trace of it has since been lost.

It has been connected or identified with both the Koh-i-nor and the Orloff diamonds. It has been suggested that these two stones were cut from the Great Mogul.

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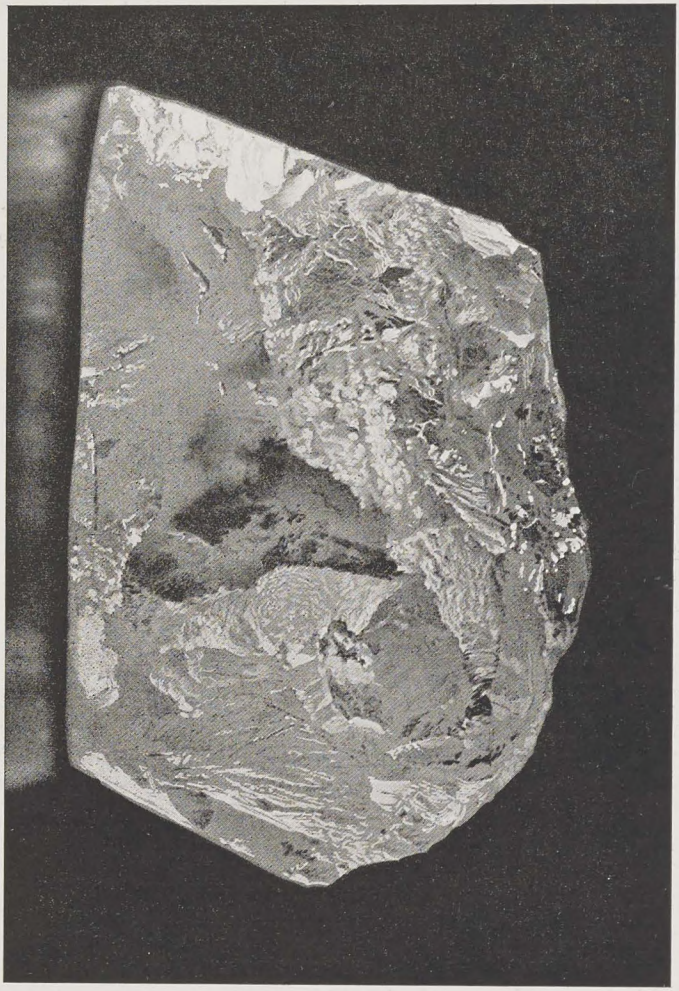
The Cullinan Diamond or "Star of South Africa

The Cullinan diamond, afterward re-named the Star of South Africa, is the largest diamond ever found. The rough stone weighed a little over 3025 carats and displayed three natural facets (as shown in Plate 1), besides a cleavage base. Its shape suggests that it must have been a part of an enormous stone twice its size. It was transparent, colorless and only had a small flaw near the surface.

The Transvaal government bought the stone for 750,000 dollars as a gift to King Edward VII on his birthday, November 9, 1907.

Plate I.



THE CULLINAN DIAMOND
"Original Size"

The following year it was sent to Amsterdam where it was cut in two from which a pendeloque or drop brilliant and a square brilliant were obtained. The drop brilliant is in the British sceptre and the square brilliant is in the crown of the regalia. A few other large stones were cut from the cuttings left over, the largest weighing 92 carats.

The Premier mine, from which the Cullinan diamond was unearthed, has produced several large stones weighing over 300 carats but none has ever reached the proportions of this famous and beautiful diamond.

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The Pitt or Regent

The Pitt or Regent was found in 1701, at one of the Golconda mines and weighed, in the rough, almost 410 carats.

It ultimately came into the hands of Jamchund, a Parsee merchant, who sold it to William Pitt, governor of Fort St. George, Madras, for 102,000 dollars. On his return to England, Pitt had it cut into a perfect brilliant, which weighed almost 164 carats. It took two years to cut the stone at a cost of 25,000 dollars.

The value of this beautiful stone and the constant fear of its theft weighed heavily on Pitt's mind, which caused him to part with it to the Duc d'Orleans, Regent of France, after considerable negotiations. He received 675,000 dollars for it.

In 1792 it was stolen, together with the French Regalia, in the early days of the Revolution. It was eventually returned by the thieves who no doubt either failed, or realized the impossibility, in disposing of such a gem.

It measures about 1¼ inches in length, 1 inch in width, and ¾ inch in depth. It is valued at 2,800,000

dollars and is exhibited in the Apollo Gallery of the Louvre, at Paris.

The Orloff

The Orloff forms the top of the Russian Imperial sceptre, and is reputed to be one of the finest diamonds in existence.

It is rose-cut in form having a flat or cleavage base and weighs 194¾ carats.

Legendary reports claim that it once formed one of the eyes of a Brahman statue, which stood in a temple in the vicinity of Mysore. A French soldier stole it after he had mysteriously prevailed upon the priests to appoint him guardian of the temple. He sold it to the captain of an English ship for 10,000 dollars, who re-sold it to a London dealer for 60,000 dollars.

It then came into the hands of a Persian merchant, Raphael Khojeh, who finally disposed it to Prince Orloff, for the reputed sum of 450,000 dollars and an annuity of 20,000 dollars.

Prince Orloff presented this magnificent stone to Catherine II of Russia for diplomatic reasons of his own.

Hope Diamond

The Hope diamond was found in the Kollur mines in India. It is of a greenish-blue color and weighed at that time 67 carats. Tavernier obtained possession of it in the year 1642 and sold it to Louis XIV in 1668. It was stolen with the French Regalia in 1792 and was never recovered.

In 1830 a stone (see 2 in plate 2) was offered for sale by a London dealer. It was purchased by

Plate II.

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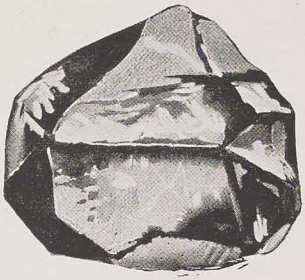

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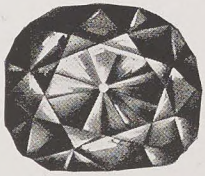


THE HOPE DIAMOND

Thomas Philip Hope, a most ardent gem collector, for $90,000.

This stone with two other known diamonds of similar color when put together resemble the original in form and weight.

The Hope collection was sold in 1867 and the diamond went to America. In 1908 it was sold to Habbib Bey for $400,000. The following year it was auctioned off in Paris to Rosenau for $80,000. Two years later Edward McLean purchased it for $300,000.

The peculiar history of this beautiful diamond bears out the suppositions of ill-luck attending possessors of this stone.

The Ruby

Among the colored gems, the Ruby, by virtue of its beauty occupies a position in the family of precious stones that is incomparable. The Ancients regarded the ruby as the most precious thing in the natural world.

The "Lapidaire" of Phillipe de Valois describes this gem as follows, "the beautiful, clear and fine ruby is the lord of stones; it is the gem of gems and surpasses all other precious stones in virtue." The Hindus claimed that the possessor of a true Oriental ruby was endowed with perfect safety and as long as he possessed this precious stone he could live without fear among enemies, and be impervious to misfortune.

Corundum

The ruby belongs to what is called the Corundum family, which includes the Sapphire with all its shades of color. The corundum gem is next in hardness to the diamond.

Corundums which present a red or reddish color, are the true rubies and as a rule are generally spoken of as Oriental rubies in order to differentiate from such stones as Spinels or Balas. Before mineralogy became a science it was no uncommon thing to call all red stones rubies, so that the Spinel and even the Garnet were mistaken for the true Oriental ruby.

Composition

The composition of corundum is alumina, or oxide of alumina, but it usually contains in addition minute quantities of chromic oxide, ferric oxide and probably other metallic oxides. When pure it is colorless. The various colors of the sapphire are

due to the minute traces of other oxides present. The color of the ruby no doubt is due to the chromic oxide.

Pigeon's Blood

The most highly-prized color is the so-called "pigeon's blood," a shade of red slightly inclined to purple.

Occurrence

Most of the finest rubies have come directly or indirectly from the famous ruby mines near Mogok, about 100 miles from Mandalay in Upper Burma. The pigeon-blood ruby comes from this district. These mines have been so long in existence that their early history is veiled in mystery. The stones from these mines are as a rule very small, the larger ones being rare. According to all authentic reports the large stones that were discovered in the old days, were jealously hoarded by the Burmese potentates.

A few large ones were reported to have been found in Burma, one in particular weighing 400 carats. It was broken into three pieces, of which two were cut, weighing 70 carats and 45 carats respectively, and the third was sold in Calcutta for approximately 233,335 dollars. A number of other large rubies were found and sold for many thousands of dollars.

A ruby weighing 304 carats was discovered in 1690, and is as large as a pigeon's egg. This stone was presented in 1777 to the Czarina Catherine by Gustave III.

Rubies are also found near Bangkok, in Siam. Their depth of color does not equal those found in Burma and are therefore not considered quite as desirable.

Ceylon also furnishes the ruby of a lighter or paler tint than the Siam ruby and is not so valuable as the others. Like the Emerald, a perfect ruby is scarce and would realize several times the value of a diamond of similar weight.

The Sapphire

Color

Corundum of fine blue color is known as Sapphire. The characteristic color of the sapphire that is most admired is known as "corn-flower," which is the color of the little blossom of that name. The more velvet-like its appearance, the greater its value. The blue color of sapphire may be due to titanic oxide.

Various Colors

Although the typical color of the sapphire is blue the same name is used for corundums of other colors except that the descriptive color is named first. So that we have pink sapphires, green sapphires, golden sapphires, white sapphires when they are colorless, and many others.

The composition of the sapphire is the same as the ruby, both being corundum and what has been said of the ruby might well be applied to the sapphire. It is quite heavy weighing four times the weight of water.

Occurrence

The principal sapphire-producing districts now worked are in Burma, Cashmere, Siam and Ceylon. The Cashmere sapphires are the most admired today and have that velvet appearance just mentioned. The sapphires of Siam are also extremely fine; those from Burma are the darkest of all; the Ceylon sapphire is the lighest or most pale in color and for this reason is not so valuable. The sapphires from Australia are greenish-blue to black in color and have little value as they do not possess the beauty of the Oriental sapphire.

Oriental Sapphires

Large sapphires have been discovered, but as a rule these are defective. A perfect Oriental sapphire weighing four carats and upwards is nearly as expensive as a diamond of equal weight. The imperfections which appear at times in the sapphire, with a consequent

reduction in value, are cloudiness, opaque spots, internal fractures, silky looking patches and non-uniformity of color. Although select and fine sapphires are rare, a greater quantity of these are obtained than of rubies, and consequently the price of a large sapphire does not advance in the same proportion as the price of a large ruby.

Sapphire as Talisman

The sapphire is well known as a Regal gem, in testimony of which kings would wear it about their necks as a talisman to protect them from harm. The stone also defended its wearer from envy and jealousy and attracted divine favor. In the eyes of the Ancients the sapphire was the most preferred of gems, this being due in no slight measure to the resemblance of the stone to the pure sky.

The sapphire is named the Autumn gem by reason of its resemblance to the Autumn sky and is symbolical of truth, sincerity, and constancy. Unlike the ruby it typyfies serene calmness and tried affection and is considered appropriate to the Autumn season harmonizing with the tempered brilliancy of the waning summer sun.

The Emerald

Color

The Emerald, at its best, recalls to one's mind the coloring of the exquisite lawns that are to be seen gracing the palaces and mansions of the wealthy. As a precious gem it ranks as the most costly of jewels.

The gem belongs to the species known as beryl, which includes the lovely aquamarine. Emeralds make beautiful ring stones and would no doubt be used in larger pieces of jewelry were it not for their high cost.

Composition

The composition of the emerald is Silica, Alumina and Berylium. The Alumina and Berylium are two oxides the latter being a very rare metal; the berylium is also known as glucinum in allusion to the sweet taste of its salts. The peculiar color of the emerald is due to chromic oxide, small quantities of which have been detected in it by chemical analysis. In hardness it ranks next to corundum.

Cleopatra Mines

All the emeralds known in ancient times are supposed to have come from the so-called Cleopatra emerald mines in upper Egypt, traces of which had been lost for many centuries. These emeralds were highly prized, for Cleopatra gave portraits of herself engraved on emeralds, as presents to ambassadors and plenipotentiaries. During her reign emeralds were considered as strictly royal property. The Cleopatra mines have been re-discovered and the emeralds produced are not of a very good quality, being rather cloudy and pale in color.

Emeralds in Russia

The Ural and Altai mountains now furnish the true emerald. The first mine was accidentally discovered in 1830, by a peasant who noticed a few green stones

lying at the foot of a tree. This led to the commercial production and exploitation of the Russian mines.

Emeralds in Colombia

The emeralds that have been produced from the Egyptian and Russian mines cannot compare in beauty of color to the beautiful gems that are extracted from the soil of South America. In 1558, the Spaniards who were seeking the source of the beautiful emeralds that they had stolen from the natives in their depredations, accidentally stumbled upon the mines, in what is now the Republic of Colombia. These mines have ever since been worked continually. The present mines are situated near Bogota, the capital of Colombia.

The re-discovery of one of the lost mines in Colombia, about ten miles northeast of Bogota, has recently been reported. The mine is called the Chivor and has produced flawless gems of a rich and vivid color, valued as high as $1,000 a carat.

Unlike the majority of green stones the emerald retains its beautiful color under artificial light. According to Pliny, "For neither sun nor shade, nor yet the light of candle, causeth to change and lose their lustre."

Quality

The emerald, like the ruby, is very seldom found perfect, in fact the flaws are characteristic of the stone. The value of an emerald depends upon its color, freedom from flaws and size. A very fine, velvet dark-colored stone is seldom to be found. More even than the ruby, the emerald suffers more from internal fractures or inequality of structure, color transparency or from clouds and spots than all the other stones. As with most precious stones fashion greatly influences the value of the emerald.

A perfect emerald of five or eight carats may be worth $6,000 to $10,000. Pale emeralds only realize a nominal sum as they do not have the life and beauty of the finer quality gems. The finest cut

emerald is said to be one weighing 30 carats which was in the possession of the late Czar of Russia.

Emerald as Talisman

The emerald was held by the Ancients to foreshadow future events. A talismanic emerald, claimed to be the property of the Mogul Emperors of Delhi, has recently been shown in Europe. It is of a velvet deep green, weighing 78 carats and around the edge is an inscription in Persian characters, which reads,

> "He who possesses this charm shall enjoy the special protection of God."

Star Gems

The star-sapphire or "Stone of Destiny," as it is sometimes called, is that variety of sapphire which, when cut " en cabochon," shows a star of light reflected from the domed or convex surface. Three cross lines intersecting at the centre produce a star which moves as a source of light or as it is moved from the source of light. This effect is at its maximum when the stone is under artificial light or direct sunlight.

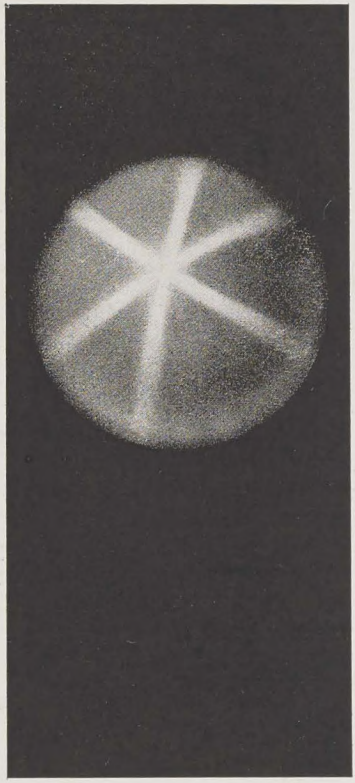
Cause of Asterism

The optical phenomenon presented by star-stones is known as Asterism, and its cause may be traced to the internal structure of the crystal. These stones do not have a homogeneous structure, but contain tubular cavities arranged regularly at right-angles to the crystallographical axis. When viewed in this direction they display six narrow lines of light radiating from the centre at angles of 60 degrees, representative of stars. Although the majority of Asterias are sapphires, the same phenomenon is present in rubies, emeralds and amethysts, but these are more rare.

Color

Star-sapphires very rarely possess the deep-blue color of the fine blue sapphire; they are generally a bi-color of blue and grey, or whitish grey. The grey stones are plentiful and are inexpensive but those of a fine blue and even color are very rare. The writer has in his collection a very fine even-blue star-sapphire weighing nearly 24 carats and oval in form, and a star-ruby weighing 17.36 carats, of a delicate hue, believed to be among the finest type of this kind of gem.

Plate III.



The largest and one of the most perfect star-sapphires known to be in existence. It is two inches in diameter and displays the six-rayed refraction in most remarkable form. This stone forms part of the Morgan collection.

The blue-grey and grey stones very often show a more distinct star, probably due to the fact that there are more tubular inclusions between the layers of the crystals than with the darker blue stones. It is these tubular interference bands that produce this peculiar reflection of light.

Oriental Superstition

The Orientals have a particular veneration for Star Stones and it is only of recent years that Europeans have begun to appreciate the beauty and mystery of this gem.

The three cross-bars which traverse the stone are believed to represent Faith, Hope and Destiny. It is worn as a guiding gem to ward off ill-omen and the Evil-Eye. As the most unique of talismanic stones it is said to be so powerful that it continues to perform its good work over the first wearer though it may pass into other hands.

Cat's-Eye

The true or Oriental Cat's-Eye possesses a somewhat similar phenomenon as the star-sapphire and in this instance is known as Chatoyancy. In this species, however, the cavities are parallel to a single direction and a single, broad band is displayed at right-angles to it. These cat's eyes are also cut en cabochon parallel to the fibres or cavities.

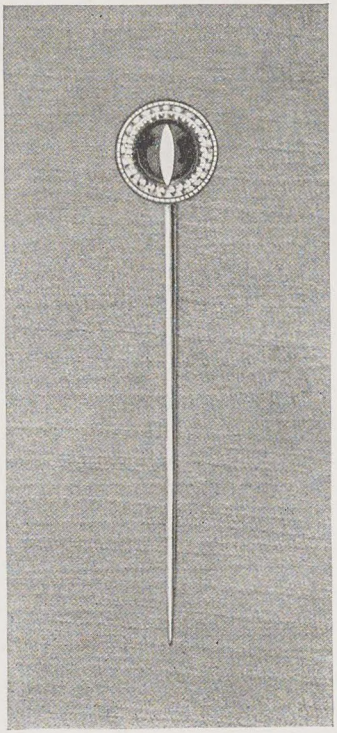
Quality

This cat's-eye is a variety of Chrysoberyl. When of a fine quality, texture and lustre it is quite valuable. Those having the honey-color are the best and most highly prized. The writer has included in his collection a very fine honey-colored Oriental cat's-eye weighing nearly eight carats. This has a circlet of white diamonds surrounding it, giving it a most unique and beautiful appearance.

Occurrence

Siam and Ceylon furnish the majority of star-stones, the Singalese being the most active producers.

Plate IV.



ORIENTAL CAT'S-EYE

Part Two.

THE ROMANCE OF THE PEARL

THE PEARL

Introduction

Of all the gems that have heretofore been considered, the pearl is the most fascinating and unique of them all. The pearl is not a mineral but the product of a living organism. Thousands upon thousands of these living creatures live in a world, very strange and full of enchantment where they are sheltered under the protrusions of the sea and undisturbed by the world above.

Close to the shore where the bottom of the sea is but a few fathoms deep, there are to be found among wonderful creations of the sea, shells of marvelous structure and beauty. Of all these the pearl-bearing oyster is pre-eminent.

From the remote and dim past when the pearl-oyster was first discovered by pre-historic savages searching the shores of the sea for food, these pearly treasures have been constantly desired. During all the ages the pearl has been used as a jewel of adornment and as such is superior to any other precious gem. The constant desire for pearls from time immemorial to the present day has always been predominant. The high esteem in which the pearl has ever been held is reflected in the Biblical allusions to this lustrous gem, where it is often quoted as a symbol of purity, innocence and beauty.

No gem has been quoted in poetry as much as the pearl, where it has been likened to crystallized dew drops. This indiscriminate use of the gem's name, to appropriate its pearly characteristics, is a common poetic license. Shakespeare made frequent reference to the gem when portraying the

magnificence of wealth and station, but he more often assumed a sympathetic nature for the pearl, such as in his Midsummer Night's Dream where Oberon says,

"And that same dew, which some
time on the buds
Was wont to swell like round
and orient pearls."

Many poets have seen in the pearl a simile for raindrops and dew, such as Browning quotes in "Pippa Passes"

"The hill-side's dew-pearled."

The pearl at the acme of its beauty, is not luminous, neither does it flash nor sparkle. Its quality is softly lustrous, as of light that smoulders. It has always been associated with romance and poetry lending itself extremely well through the nuances of its beautiful and lustrous color.

Romance of the Pearl

Antiquity

The first use of the pearl as a jewel or ornament is unrecorded, but our knowledge of this gem dates back many centuries ago, from Pliny who nearly 2,000 years ago collected the chronicles of his day. Prior to this it can only be assumed that the early savages of the tropical seas must have been attracted to them, just as much as children are by bright and pretty playthings. That the mysterious, unfathomable beauty of these objects aroused their wonder, cannot be doubted, for as their intelligence increased so did these pearls become more precious and desirable.

Before the advent of the white man in this country, or even the redskins, sufficient evidence has been gathered that the pearl was used for adornment. A large number of them have been found in the Indian mounds, many of them loose, some strung as necklaces and others fashioned in peculiar and primitive ornaments. As the owners of these pearls were savages the methods used for drilling and otherwise securing the pearls were very crude. A path was slowly burned through the gem with a heated copper wire, which though efficacious, virtually destroyed its delicate beauty. Unconsciously these savages thought very highly of the pearl though its value was not discovered for many centuries.

It is claimed that white settlers who were ignorant of its value to the outside world would often throw back into the sea the good pearls that they accidentally found between the wide-open edges of the pearl-oyster, when fishing.

The use to which pearls were put suggests that the mound builders had attained a degree of refinement that was lacking in the North American Indians.

The many large and beautiful pearls in the collections of the Hindu princes indicate that they must have been used as jewels in India for many centuries. It is quite probable that these pearls may have been gathered from the tropical seas, scattered around the world, and finally found their way by wars of aggression to the various Indian princes or the potentates of other climes.

Origin

The pearl has its origin in certain sea molluscs known as pearl-bearing oysters. The pearl-oyster is known by zoölogists as "Meleagrina Margaritifera," meaning "speckled pearl-bearing mollusc,' and is the most prolific producer of mother-of-pearl and fine pearls combined. Other species of molluscs having mother-of-pearl linings to their shells may produce pearls but most of the pearls that are used come either from the meleagrina or the "unio margaritifera," the latter being the fresh-water mollusc.

The distinctive feature which enables the pearl-oyster to produce the pearl is the possession of the nacreous lining, or mother-of-pearl, for no shell-fish can produce a true pearl without it. This will be readily seen from the nature of the construction of the pearl.

Composition

The composition of the pearl is essentially the same as that which forms the inner nacreous lining of the shell. This consists of calcium carbonate or lime, a small percentage of organic matter, and water. The calcium carbonate in its crystallized form is aragonite which the oyster deposits in very

thin layers in the horny layers of conchiolin, this forming the inner lining of the oyster, which is known as mother-of-pearl. In the normal shell this is all that takes place.

Cause of Inception

The inception of the pearl is only brought about when its interior is invaded by some source of irritation, such as a living thing, or a boring parasitic worm, or a grain of sand, any of which is agonizing to the delicate membraneous lining of the oyster. This is a process of alternate deposit of conchiolin and aragonite, in regular concentric layers, which encircle the intruder, eventually forming a pearl of beauty.

Formations

From this it will be observed that the pearl is built in layers like an onion. It may be spherical in form, pear-shaped, or button-shaped or assume any other regular form. Those spherical in form are most highly valued, and desired. The pear-shaped are the next in demand, then come the button form. All other irregular, fantastic forms are known as "baroques" and are less valuable.

Lustre

The beautiful lustre and iridescence of the pearl, which is its qualifying glory, is brought about by the concentric layer-like construction of the gem. Both conchiolin and aragonite are translucent, as they allow light to pass through. As these layers are extremely thin, light can penetrate a considerable number of them, if not deflected from its course. Reflections are thus obtained, not merely from the outer surface of the pearl, but from the many layers within the gem. All these reflections reach the eye in a blended lustre of great beauty. This lustre is not, therefore, from the surface but from many super-imposed surfaces.

"Orient"

The lustre or "orient," as it is technically known, of a pearl depends upon the number of layers that

take part in the reflection, the translucency of the material and the thickness of the layers. Fine pearls have very many thin layers taking part in this reflection. "Orient" has its origin in the early days when pearls were brought from the Orient and were therefore called "Oriental" pearls. For the same reason the fine mellow lustre, which characterized and made them superior to others, came to be known as the "orient" of the pearl.

Iridescence

Many pearls display iridescence, due to the overlapping of successive layers. The thin layers also help to produce iridescence by interference of light. "Interference," is an optical phenomenon arising from two causes. When light falls upon a very thin, transparent surface covering a denser substratum, not exactly parallel with it, part of the light is at once reflected. That which passes through to the under surface or substratum is in part also reflected through the first surface, and the confusion of rays or "interference" resulting, produces to the eye the sensation of color.

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Color

Pearls are to be found of practically all colors, but the majority of fine pearls are white, which is the ideal color. The fine Oriental pearl generally has a creamy tint. Those most sought after, are pure white, delicate rose pink or creamy white.

The most common color in pearls is yellow, excepting those found in fresh waters, which are generally of a fine pink. Other colors are seldom found except as tints in white pearls, which appear in shades of blue, pink, green and yellow. The differences are sometimes so slight that only by direct comparison are the distinctions visible. Occasionally a black pearl is discovered and on account of

its rarity, commands a price almost as high as that obtained for a fine white one of similar size and quality. The light pink pearls are very rare and are highly esteemed.

Value

The value of pearls is determined by several important factors, the most important of which are orient, color, texture, shape and size. It is far easier to grade and value diamonds than pearls. The assembling of a finely matched string of pearls requires a very keen eye, delicate sense of color and a vast amount of patience. Pearls that are separated a few inches away may seem alike, but when in juxtaposition may disclose differences of texture and shade of color that are very easily observed, and thereby destroy that ideal perfection of purity of which it is emblematical. This was appreciated many years ago, for it was claimed that a perfectly matched pearl doubled the value of both.

Specialist

Only by experience, gained by constant handling of fine pearls, can one hope to become expert in deciding their values. Reliance should never be placed upon one's own judgment when buying pearls, but the advice of a specialist in this work should always be sought.

Care of Pearls

Extreme care should be taken of pearls due to the very nature of their construction. After they are worn they should be wiped each time with a clean piece of silk or chamois skin and carefully put away. They should never be permitted to come in contact with acids, however weak. The calcium carbonate crystals, of which the pearls are formed, dissolve in acids and are affected to a certain degree by the acidity of the excretions of the human skin, enough in some cases to dim their lustre. This, however, is only surface deep and does not result in what some people are wont to call, a dead pearl. Heat and moisture are conditions which

indirectly injure pearls. When not in use it would be advisable to keep them in a dry cool place.

Cleopatra's Pearl

Historians give a lot of credence to that familiar story of Cleopatra dissolving a 300,000 dollar pearl in a glass of wine, to drink to her lover. This, of course, was impossible for although the lime, of which a pearl is chiefly made, will dissolve in acid the gem itself would still remain a pulpy mass, held together by the conchiolin, interwoven throughout the calcium carbonate or aragonite.

The Pearl Fisheries

The pearl-oyster is to be found in all tropical seas, principally off the coast of Ceylon, the Red Sea, Pacific Ocean, Persian Gulf, Japan, California and Mexican Coasts, South America, Brazil, West Indian Islands, Panama and the North-East and North-West coast of Australia. Coral reefs and limestone foundations form the beds on which they propagate.

The ancient fisheries on the Indian coast and those of Ceylon are the most prolific producers of pearls in the world. Australia as a producer of beautiful mother-of-pearl is the greatest of them all.

The pearl oyster is never found exposed but is covered by water to a depth of from 5 to 50 feet and not infrequently from 100 to 150 feet. Although fine pearls are to be found in other waters, the Ceylon, or Madras pearls, as they are sometimes called, are preferred because of their good average color and quality. These banks are situated in the Gulf of Manaar, just off the coast of Ceylon.

Diving

The pearls are obtained by diving, the natives being employed for this work, although a few white men go down in diving dress. Where the natives control the fisheries the naked-diving method is mainly used, which produces greater results. In

some localities native women are employed, as they are preferred for their dependability. They do not consider this a hardship, but a privilege to which they cling jealously, as the wages derived from their work enable them to purchase finery.

Distribution

The chief center of the pearl industry is Lingah, along the coast of the Persian Gulf. Most of the pearls go to Bombay, and are known as Bombay pearls. A large number of them have a distinctly yellow tint. The whitest and finest go to Bagdad and eventually the very best reach Europe. China receives the seed pearls and India the irregular ones, where they are extensively used by the natives of lesser degree.

Government Control

The Ceylon fisheries are now in charge of a British government official, who inspects the various banks for mature oysters and also records the location and progress of the young and immature ones. Fishing is only permitted when the banks are considered ripe. As they mature about every five years the banks can only be fished once in that period.

The best and largest pearls are usually found in mature shells that are distorted. This distortion may probably be due to the sufferings the bivalve underwent during all the years the pearl was in transformation.

Scarcity.

Pearls are becoming more scarce each year due to the enormous destructive methods of gathering the pearl oyster, aided sometimes by the elements of nature. In the countries where pearls have an appreciative value they are pledged as security on loans. Consequently many fine pearls of exquisite beauty find their way in the open market due to the inability of their owners to redeem them.

The Pearl in Fashion

Unlike other gems, pearls once appreciated are never discarded and always maintain their supremacy.

Though of the humblest and lowliest of origin, it takes its place among the noblest, exhibiting that unobtrusive loveliness befitting the aristocrat of gems.

With the advance of civilization the fashion spread from Rome through all the nations of Europe and followed their colonization westward. The fashionable use of pearls in the United States only dates back about two decades.

The world's markets are affected when the pearl becomes fashionable, with a consequent rise in the cost. This tempts the ancient and impoverished families to unlock their jewel boxes. The great public auctions of jewels held in Europe every now and then bear witness to this fact.

As a supreme gift it is always appropriate, and the alluring beauty and fascination of a strand of pearls that are carefully matched in size, shape and lustre, has an appeal for all women.

Their soft tints and perfect symmetry lend refinement and a distinctive touch to any costume, and blend charmingly with all complexions. In a woman's estimation nothing can take the place of the delicate, refined beauty of the pearl that has its birth and growth under the tropic seas.

BIRTH STONES

January	Garnet
February	Amethyst
March	Bloodstone Aquamarine
April	Diamond
May	Emerald
June	Pearl Moonstone
July	Ruby
August	Sardonyx Peridot
September	Sapphire
October	Opal Tourmaline
November	Turquoise
December	Topaz Lapis Lazuli