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The STORY of the DIAMOND

The Blue Diamond

The WISS Store
665 Broad St.
Established 1848
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The Story of the Diamond

THE old saying that a little knowledge is a dangerous thing, is particularly apt when it comes to buying diamonds for nowhere is the layman's judgment more hazardous.

You may, no doubt, be quite capable of recognizing a fine diamond when you see it—know all qualities considered most desirable—but experience has shown that everything depends upon where you see it.

Here is a ring, for instance, which seems to contain a splendid white stone, but a platinum mounting will frequently obscure a tinge of yellow, especially under a shaded electric light, as a gold mounting will sometimes throw an appearance of yellow color into a clear white stone.

Now you are shown a square shaped diamond which you are

told weighs three carats, but you do not believe it—why—because it is lying next to a group of brilliant cut or round stones in a velvet lined tray, which appear larger than the square diamond though they are all exactly the same weight.

These are only a few of the many features that may easily delude the average person buying diamonds if the dealer chooses to do so. The trained eye is badly handicapped when examining stones under ordinary display conditions.

Important Points

When a gem expert appraises a diamond, he takes it unmounted into a strong north light and examines it under a magnifying lens. He blows his breath upon it to gauge its color and holds it at different angles to look for flaws. There are also other tests. A flaw is any imperfection or carbon spot in the body of the stone. Very few diamonds are without defects of some sort, though in many a flaw is imperceptible to the naked eye and

does not in any way mar the stone's brilliancy. .

Since color, brilliancy, size and the degree of perfection are the most important factors governing the value of a diamond, these are the points to be considered in buying a stone. But inasmuch as there is no infallible method for the layman to judge color, brilliancy and perfection, there is only one means of safety and that is to buy from a reliable jeweler whose word can be trusted. A jeweler of reputation cannot afford to make mistakes in the value of the stones he sells. His whole business is founded upon his personal integrity and standing in the community which might easily be injured by only a few disgruntled customers.

The diamond is universally recognized as the peer of gems. It is the hardest, the most imperishable and also the most brilliant of minerals. These qualities alone have made it supreme as a jewel since early times. Yet the real brilliance of the stone is not seen until it has been polished by the work of the lapidary, an art

which has been greatly improved within the past 200 years.

The Diamond an Investment

The diamond is not merely a good investment. It is one of the best of all investments from the standpoint of stability, continuing to enhance in value over a period of years. This is due to certain factors which may be briefly related.

The world's total supply of diamonds is limited. No one can tell how many carats of the precious stones may be hidden in the earth, but the fact remains that only a few important bearing fields have been discovered. When these deposits become exhausted there is no telling whence a new supply of gems may be obtained.

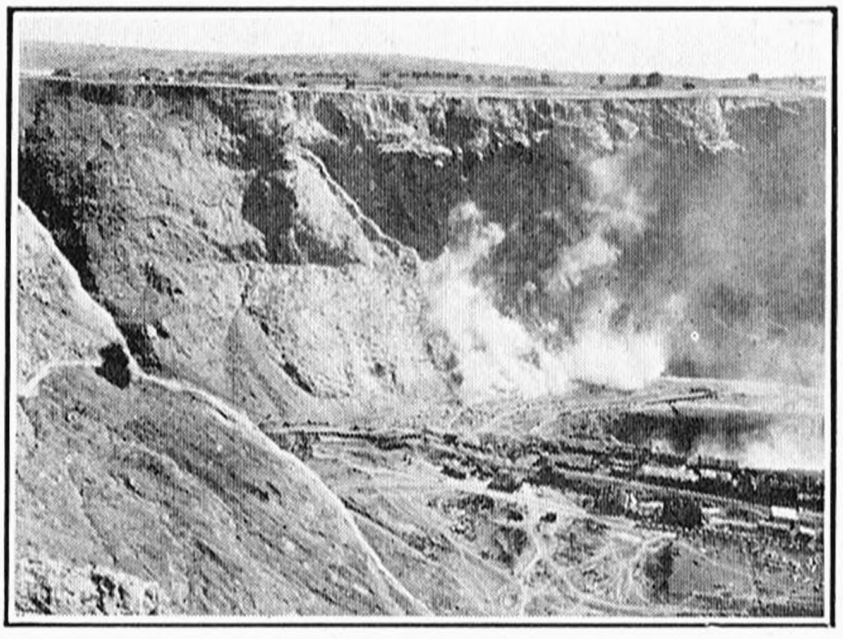
The diamonds being mined, cut and marketed today, were formed by natural forces ages ago. While the actual conditions under which the gems came into being are not definitely known, science reveals that their formation took place millions of years ago.

According to gem experts, the

total value of all the diamonds in the world today is over $5,000,-000,000 and a large share of these are in the United States.

Diamond Mines

Diamonds are mined from two types of deposits: alluvial or "river" mines, and pipe mines. The former produce about two-thirds of the world's diamonds and the latter one-third. In the first the diamond is one of the pebbles making up the gravel and mining of them resembles that of the placer Gold Mines of the West.

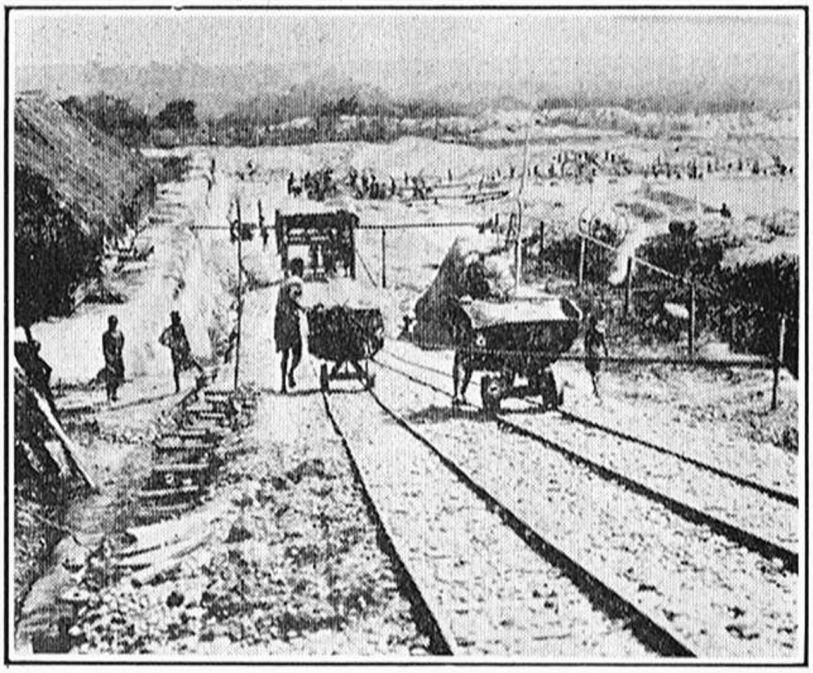


BLASTING IN DIAMOND MINE

The South African diamonds occur as one of the minerals of a

rock which fills a volcanic pipe of the explosive type. The pipe mines consist of deposits of blue ground which have been excavated to such depths that diamond "mines" is the only correct term for them. Fields they were when the first few stones were picked up on the surface, but all the picking was done many years ago. It is now necessary to dig deep into the earth for the stones.

When the rich South African fields were discovered the diamonds were found in a layer of top soil only a few feet deep. The diggers, however, exhausted this and soon came to hard



TRANSPORTING BLUE CLAY FROM MINE TO MILL

ground after which they usually abandoned the fields. One enterprising miner, however, refused to quit. He suddenly penetrated the hard stratum and discovered the rich blue clay which has since yielded such fabulous wealth.

If these pipes of blue clay should happen to terminate or if it should give out as suddenly as it was discovered—and this is a possibility — the world's most constant supply of diamonds would probably fail.

Rough Diamonds

A rough diamond is in some cases a very homely object. It looks much like a small piece of soda; the most common crystal forms being the octahedron. These crystals are often round and distorted and may be twinned. Only by highly skilled and careful cutting are all of their color and brilliance revealed, and diamond cutting as it is practiced today is an extremely modern—and chiefly American—invention.

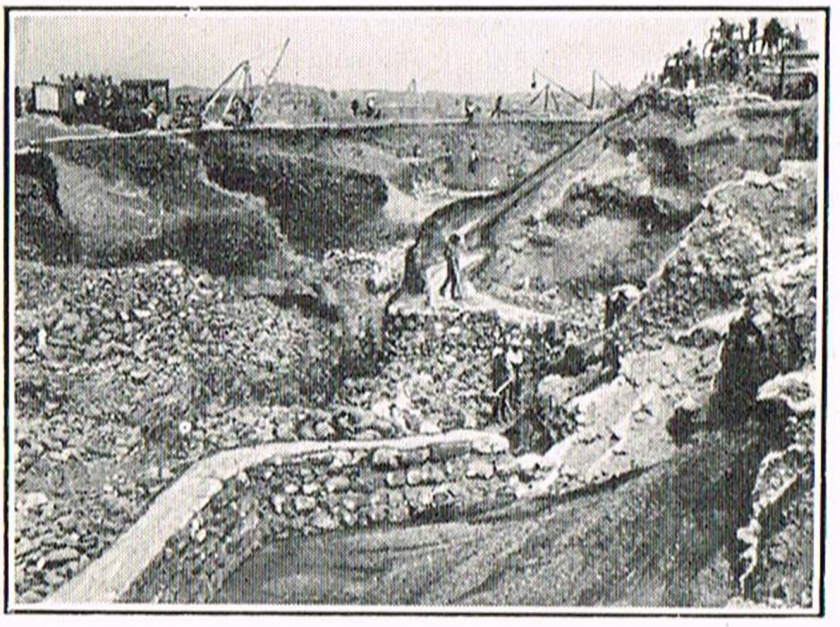
Not until the year 1456 did anyone reveal the greater part of

the hidden beauty of the diamond. Up to that time diamonds were only cut in a rude fashion. Then a Belgian found that by rubbing the stone with a combination of diamond dust and oil it could be cut and polished into some form to reflect the light in a sublime manner. It was two centuries later, however, before the "brilliant" cut was discovered—that cut which gives a stone 58 facets or separate little reflecting surfaces, bringing out its full light and beauty. Then, at last, diamonds assumed their rightful place in the front ranks of precious stones and have been widely employed in jewelry since the late seventeenth century.

Previous to 1720 when diamonds were first discovered in Brazil, nearly all of them came from India, but in the latter half of the nineteenth century when the Brazilian mines were beginning to show the strain of overwork, came the news of a surprising diamond discovery in South Africa.

Diamond Mining

To watch the workings of a great diamond mine, such as one of those at Kimberley, is among the most interesting sights in the world. At a short distance from the pipe which contains the blue clay, a wide shaft is sunk into the ground, and from this shaft tunnels lead into the diamond-bearing earth within the pipe. The uppermost tunnel is forty feet below the surface, the second one is forty feet further towards the center of the earth, and other tunnels are cut through the rock farther down, each one forty feet from the one above it. In the Dutoitspan Mine there are



A DIAMOND MINE

thirty-eight miles of these underground tunnels, the lowest one being about 800 feet from the surface.

In the pipe itself are a number of deep shafts which extend from top to bottom and adjoin the tunnels. When the diamond clay is loosened by blasting, it is loaded into little cars which are then drawn along the tunnel to one of these shafts where their contents are dumped out and fall to the bottom. From here it is hoisted to the surface where it is, put in other cars which carry it to the "weathering floors." These are simply wide fields, often covering an area of four to five thousand acres, where the ground has been rolled perfectly smooth and hard. The blue earth containing the diamonds, which is as hard as a rock when it first comes from the mine, is spread out here and left to weather for a year or more in order to soften, for it would be impossible to separate the diamonds from it in this condition.

The weathering fields are actually "fields" of real diamonds. There may be many million dol-

lars' worth of precious stones spread on the ground at one time —if one could only see them, but that is impossible for they are hidden away in the hard lumps of clay. It is equally as impossible for anyone to get near the diamonds as it is to detect their presence in the blue earth. Every field is surrounded by two high barbed-wire fences, about thirty feet apart, each of which is highly charged with electricity. Between these fences are stationed armed guards who are always on hand in case the electric current should fail.

After the clay has weathered for a year or more it is taken to the washing machines. There is usually a certain amount that has not been sufficiently softened by the long exposure to the elements and this has to be put in powerful crushers that crumble the hard lumps to powder without injuring the diamonds embedded in them. The mass of clay is then washed to get rid of the loose earth, and what is left after this process is the gravel which contains the diamonds.

Sorting and Grading

Now comes the crucial point of the whole proceeding—the separation of the diamonds from the stones and chips with which they are almost inextricably mixed up. The gravel is first put into a "hopper" out of which it is allowed to drop a little at a time onto a table that is covered with a layer of sticky grease. Over the grease a steady flow of water, which carries off the gravel, is kept moving while the heavier diamonds drop down into the grease which clings to them. When a certain amount of gravel has been dropped upon a table the grease is carefully scraped off and put in a perforated steel container which is then submerged in a vat of boiling water. The heat melts the grease which rises to the top of the water, leaving the diamonds behind.

Now the sorting and grading of the rough stones takes place. Not nearly so arduous a process as one might suppose, considering the whole fields of clay that have gone over the tables. The

truth is that the diamond content is very scarce. In a room fifteen feet square and ten feet high, or 2,250 cubic feet, the mining companies would recover but one-sixteenth of a cubic inch of diamonds, only a part of which would be suitable for jewelry purposes. To be more exact, each wagonload of blue clay containing sixteen cubic feet averages about one-eighth of a carat of diamonds which may or may not be of good color.

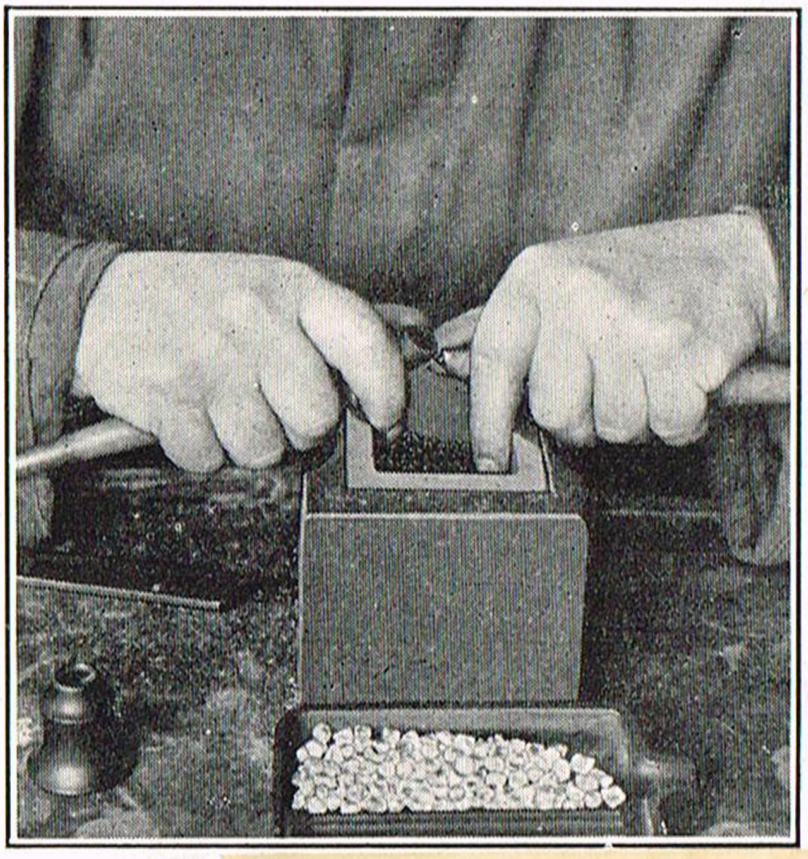
The stones vary enormously in grade of purity and color, but they must come within a certain standard in order to be selected for jewelry purposes, otherwise they are destined for drill points and used mechanically where hardness alone is the essential quality. Fine white diamonds, free from flaws, are extremely rare. Even rarer are flawless blue diamonds.

Marketing of Diamonds

The rough diamonds are now sent to London, Antwerp, Amsterdam or New York, to be cut and polished—the most import-

ant stage in their career. Belgium and Holland have developed very large diamond cutting plants and many of the diamonds, especially the smaller ones which require infinite pains, are sent there. Others, including the finest quality stones are shipped directly to New York, which is also a big diamond cutting center.

The rough diamond is a very tricky piece of raw material to handle. Although so hard and generally indestructible, the mistake of a single stroke in cleav-



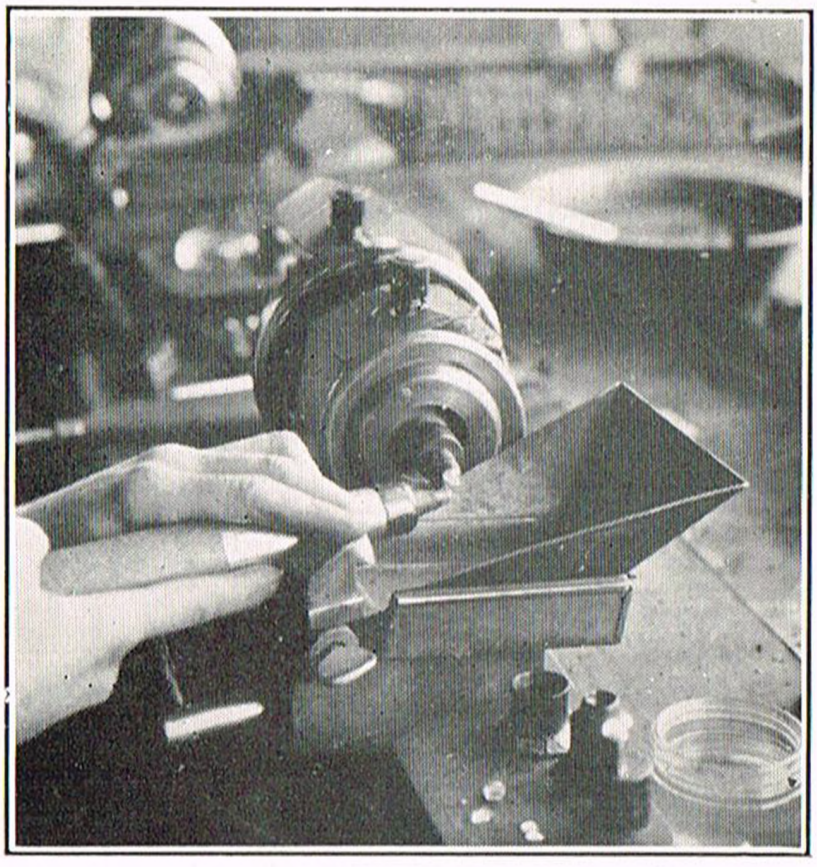
MAKING GROOVE BEFORE CLEAVING

ing a stone may shatter it to pieces. Many diamonds in the rough are full of imperfections, with only certain parts clear and the skill comes in saving as much of the stone as possible and providing it with some 58 facets. With a diamond a small groove is made in the stone where the splitting is to take place and if this groove is misplaced to the slightest degree it is likely to bring on total ruin.

Sawing Diamonds

The invention of the diamond saw so improved methods of manufacture as to save much material which formerly had been wasted since it permits the manipulation of larger stones in ways heretofore impossible by allowing divisions in directions at variance with the cleavage of the stones. This marvelous little tool measures about one-thousandth of an inch in thickness and is turned at a speed of several thousand revolutions a minute. But even such an amazing device as this can cut through only a single carat of diamond in a day. For-

merly a diamond could be cut only by splitting it along its line of cleavage.



CUTTING STICK AND LATHE

There is a dramatic element ever present in the process. As the saw, whirling at bewildering speed, slowly cuts its way through the diamond, it sounds a characteristic humming note which the expert diamond cutter learns to recognize. If the saw should strike a flaw in the gem this note changes ever so slightly, sounding a note of warning. Let the saw continue for the slight

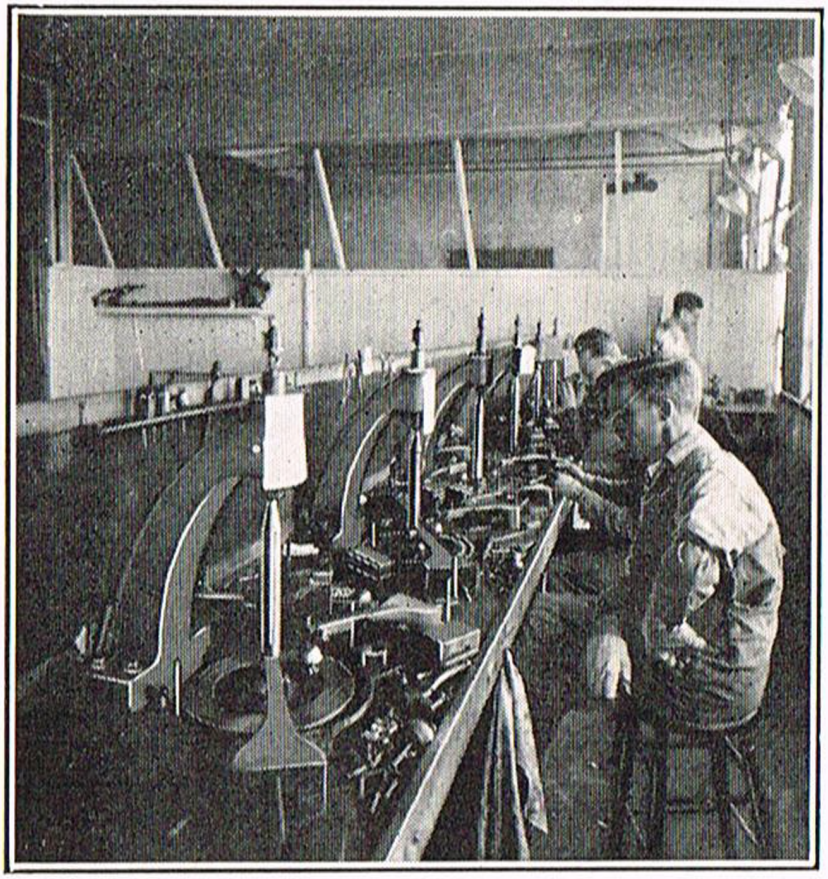
fraction of an inch and that particular stone will never get into a lady's ring or necklace.

Each diamond is the object of separate study and analysis to determine the nature of its latent beauty. The brilliancy of the finished gem depends, of course, upon the relation of the facets to each other, which governs the amount of light reflected. Sometimes it is necessary to sacrifice a large portion of the stone in order to place the facets at best advantage and bring out its maximum brilliancy.

Polishing

Still another American invention reduces the polishing of the face facets to an exact science. The "tong" is now constructed so that the facet of the diamond is determined with mathematical accuracy. When one of these brilliant little facets has been polished, the workman is enabled, by this new device, to revolve the stone IfiO", so that the next facet may be placed directly opposite the first, at the proper angle. No matter how experi-

enced the diamond cutter may be, his eye proves less accurate than this instrument, so that the new practice eliminates the element of chance which is always costly.

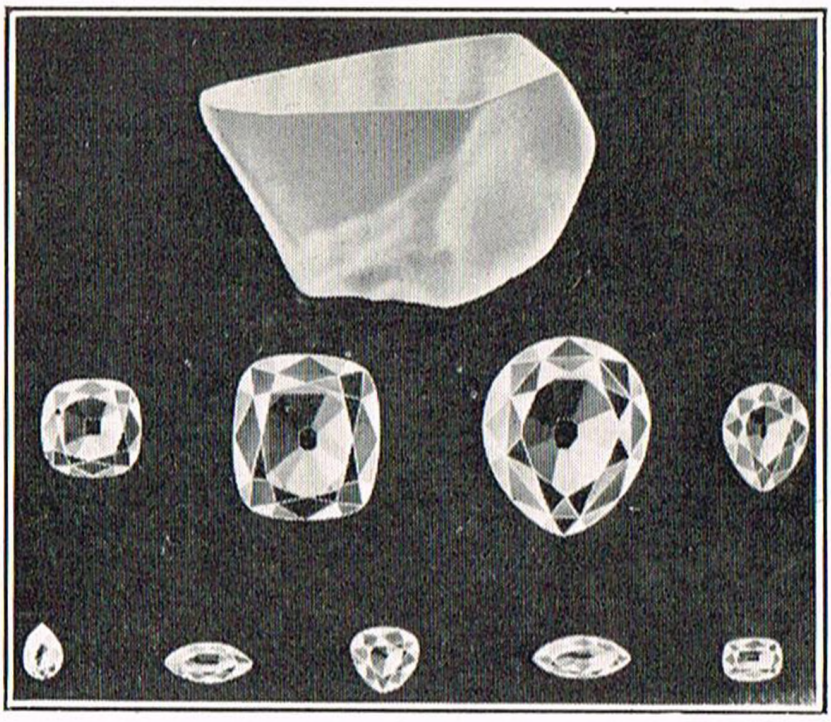


POLISHING WHEEL AND "TONG"

The greatest problem in diamond cutting ever presented occurred with the discovery of the huge Cullinan Diamond, the largest the world has ever known. This stone was casually picked up by a workman from the floor of a South African mine in January, 1905, and when placed on the scale was seen to have the stag-

gering weight of 3,024 carats, or about one and one-half pounds. Up until then the largest stone found had weighed 971 carats, so it is easy to picture the sensation this one created.

To cut a single stone that size was practically out of the question, and to market it would have been as difficult. It was, therefore, decided to cut the Cullinan into several stones, two very large and others in various sizes. Accordingly it was sent to Holland and a certain old cleaver of special reputation was selected to cleave it. The preliminary grooves were made and at length the day came when the cleaver was to do his job. A doctor and two nurses were on hand, so great was the strain. Just a little rap in the wrong direction and the whole thing might have been ruined. But, as it turned out, it was very skillfully done and a whole colony of little Cullinans was the result. The great parent stone was presented to King Edward VII, while the others were sold in various quarters, some of them to Americans.



CULLINAN GROUP

There are only a few diamonds in the world which come anywhere near being in the same class with the Cullinan and most of them are museum exhibits rather than personal ornaments. The famous Koh-i-noor diamond, supposedly found in India in 1304, which finally after passing through many hands, was presented to Queen Victoria.

Another famous diamond of great size was the Regent, which now lies tranquilly in a velvet lined case in the Apollo Gallery of the Louvre in Paris.

The marvelous Hope diamond which was found in India and sold to Louis XIV of France, was

stolen in 1792 and turned up years later in London. After passing through many hands, it finally came into the possession of an American and the stone now reposes in the United States.

Another famous diamond is the Orloff, which was eventually presented to the Empress Catherine the Great, who had it set in the upper part of the Russian imperial scepter, below the golden eagle surmounting the staff, where its size and brilliancy should symbolize Russian power. So far as is known it is still there today.

Trade Ethics

While it frequently happens that one jeweler is asked to appraise the goods sold by another, few reputable jewelers are willing to do it and the ethics of the business frown upon it just as certain practices are outlawed in the medical profession. Advertising exerts a great influence in the selling of diamonds as in everything else and some few dealers do not hesitate to take ad-

vantage of it. A misstatement of fact, which may be ridiculous to anyone who knows diamonds, when expressed frequently and repeated persistently, will draw thousands of unsuspecting customers. This is all the more deplorable since the majority of people buy diamonds not only for personal adornment but also as an investment. No other form of wealth will bring so nearly its full value at a forced sale as diamonds. Fur coats wear out and become old-fashioned and motor cars require a constant outlay for upkeep, but diamonds are permanent, they can be reset as fashions change and they cost nothing after they are once paid for. Furthermore, every once in a while they go up in price—rarely down.

It is advisable to buy diamonds only from a responsible jeweler, whose reputation is at stake. Let the buyer explain to the jeweler the kind of stone he wants and what he is able to pay and leave the rest to the jeweler for even if the buyer knows much about diamonds, the jeweler from long

experience will know much more and he has the additional advantage of knowing what the diamond cost.

The various shapes of diamonds are known as ~

Round

Square

Emerald Cut

Pear Shape

Baguette

Hexagon

Pentagon

Kite

Triangle

Trapeze

Half-Moon

Lozenge

Marquise