Introduction

Model of a Hindu lady, illustrating the mode of wearing jewellery in North India. This figure appeared in Kunz, G.F. (1915) *The Magic of Jewels and Charms*, with permission from the Journal of Indian Art.

The Vallerano Diamond, found during excavations of a ~150 AD tomb in Vallerano, Italy. This figure appeared in [Bedini et al., 2012](https://connect.ubc.ca/bbcswebdav/pid-2559750-dt-content-rid-10494213_1/courses/SIS.UBC.EOSC.118.99C.2014WC.44220/Course_Files/moduleB/lesson08/download/Bedini2012.pdf) (optional reading)

Diamond is the most economically and historically significant gemstone and it is fitting then that it is the first we cover in this course. Most everyone knows about diamonds, their value and historical importance, and appreciates their physical properties. Even with a general understanding of diamond, there continues to be wonder, mystery, and desire associated with these precious stones.

The word diamond originates from the Greek word *adamao*, translating roughly to "I tame" or "I subdue". The Greek word*adamao* is also root for the word adamantine, which describes lustre like that of a diamond. A*damao* was also used to describe items of great hardness, which of course diamond is at the pinnacle of the scale.

Although the common name of this mineral is rooted from Greek, it was actually in India where the first appreciation and mining of diamond occurred. In Sanskrit, diamond was endowed with the name*vajra*, and the earliest record of this word dates to the 4th century BC. In ancient India, diamonds of euhedral shape (e.g., octahedrons) were the most valued. But the fire (its dispersion of light) and brilliance of diamonds was also recognized as a valuable feature.

By the 1st century BC, there was mention of diamonds via the word*adamao* in the Mediterranean around the same period carvings of the hard gemstones ruby and sapphire began to appear. One of the most reliable historical pieces of evidence of diamond's value during Roman times comes from the discovery of a rough diamond set in gold within the tomb of a wealthy young woman. To a lesser extent, diamond carving tools also began to be noted in Chinese literature around this time. The well documented European history of diamonds as gemstones can be traced back as far as the 13th century where these stones started to adorn royal jewellery as symbols of power.

It was also around this time that diamonds began to be faceted, likely starting in Venice or Antwerp. For several hundred years the right to wear diamonds was reserved for royalty, and it wasn't until the 17thcentury that non-royalty individuals started to adorn their own jewelry with diamonds. Of course, these people were hardly peasants but rather wealthy upper-upper class, also interested in diamonds for the show of power.

A shift in jewellery design also occurred during this time period where diamonds (and other gemstones) became the centers of attention instead of the piece of art that they were hosted *within*. It is during this paradigm shift in jewellery where diamond cutting became more important and the existing *rose* and *table cuts* were replaced with the newly developed *old cut*. The old cut was essentially the predecessor to the *brilliant cut* (developed mathematically in 1919 by Tolkowsky) which is commonly seen today. The brilliant cut was designed to enhance the beauty, not power, of the stone and maximized the outward fire and brilliance of the diamond at the expense of total weight. In the last section on diamonds, you'll learn about some of the different shapes of polished gemstones.

Historically, diamonds were extremely rare and sourced from only a few scattered alluvial (i.e., within river gravels) localities. They were first discovered in the Golconda Region of India and then subsequently in Brazil by the 18th century. It has been supposed that a maximum 50,000 carats could have been produced annually from India before the 18th century and that the alluvial sources from Brazil did not produce large amounts.

It wasn't until the discovery of diamond bearing kimberlite at Kimberley, South Africa in 1867 and its subsequent exploitation, that diamonds more commonly came into the hands of not only royalty but also the upper class. Eventually, enough diamondiferous kimberlite pipes were discovered and mined that the middle class was also able to obtain diamonds. Originally, the discoveries in South Africa were made by individuals and mineral claims were hotly fought over. The establishment of the De Beers Consolidated Mines Ltd. in 1888 changed all these, and eventually the face of diamond mining in South Africa.

A map showing the positions of the various holdings at Kimberley Mine in 1883. Figure courtesy of the De Beers Group.

Shortly after the turn of the 20th century, the diamond industry consisted primarily of the De Beers group who were mining the large majority of diamonds from South Africa and also marketing them to the consumer. Having a single organization controlling the majority of diamond production and sales has had a profound impact on the development and evolution of the global diamond industry. From the outset, the diamond mining operations at Kimberley alone were producing on the order of 250,000 carats yearly. By the early 1900's that number had increased to almost 3 million carats annually (compare this to the total production from Brazil at 50,000 carats over several years!). The subsequent rise of competing diamond producers (Soviet Union in the 1950's, Australia in the 1980's and Canada in the 1990's) and the drive by consumers to ensure conflict-free diamonds has significantly changed the way diamonds are mined, polished, and sold.

Today, the global diamond industry has a handful of major corporate players, which means that De Beers' production contribution is now down to about 60% of the global total. A number of government and non-government organizations now regulate the movement of diamonds, a highly valued commodity with significant liquidity, and are working to ensure the civil rights of miners. The Kimberley Process monitors the import/export activity of participating countries, keeping tabs on legitimately mined and processed diamonds.

It is estimated that less than 1% of the global diamond trade comprises stones sourced from conflict zones. This is about 1 million carats of the 170 million carats of rough diamond produced annually across the globe. Applying a value of ~$100 USD / carat, we're looking at about $100 million not traded through the Kimberley Process. For perspective, South Africa now produces almost 15 million carats annually, about 8% of the global production.

Due to the significance of diamonds in history, economics, and social issues, there is a great deal of high quality information regarding diamonds available online. It is provided primarily through governments, museums, educational institutions, and corporate websites. (Note: be wary of inaccurate information from small businesses or uncertified personal home pages!) The resources available have been created for a variety of reasons, but primarily have the goal to educate the general public and consumers of the world about general properties and the history of diamonds. In response to the movie "Blood Diamond", the negative profile of conflict stones has risen dramatically along which have been a multitude of websites that document the breadth of the diamond industry from mine to market.

In the following Lessons, we will be sourcing our learning from several journal articles (available online from the UBC Library) and websites, two documentary films, and through the EOSC118 portal. The first step for these activities is to download the guiding material found here, including journal articles, "journal article guides", and "website guides" (all in pdf format). Use the site and journal guides to help you along and delineate the required reading material from those resources - these are best read before diving into the reading of content. Of course, many of these websites have additional information and you are more than welcome to delve deeper into topics that interest you! Before starting the next section be sure to have read the Scarratt and Shor article on the [Cullinan Diamond](https://connect.ubc.ca/bbcswebdav/pid-2559750-dt-content-rid-10494213_1/courses/SIS.UBC.EOSC.118.99C.2014WC.44220/Course_Files/moduleB/lesson09/download/Scarratt-Shor2006.pdf) **and** the [associated guide](https://connect.ubc.ca/bbcswebdav/pid-2559750-dt-content-rid-10494213_1/courses/SIS.UBC.EOSC.118.99C.2014WC.44220/Course_Files/moduleB/lesson09/download/Diamond-Cullinan-Guide.pdf).