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## *The Aesthetic Dimension of Light in Metal Jewelry*

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### **ABSTRACT**

Jewelry pieces, especially those with artistic touch are among precious things in all ages and times. The brightness of jewelry has its own character, which ascends to the world of palaces and the rich and ruling classes. The concept of brightness has changed nowadays, it is no longer confined to the reflection of light by precious raw materials and stones used in it, but also extends to include artificial light produced from electricity with its wide and enchanting world. Among all the inventions made in the twentieth century, the invention of the electric light has been the most important extending its use in jewelry as well.

The relevance of this research is to highlight the importance of natural and artificial lighting in the aesthetics of jewelry from ancient times to the present day. We will also discuss the current developments resulting from changes in perception and content related to jewelry.

**Keywords:** *Aesthetics, jewelry, light, modern, traditional.*

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### **1.0 Introduction**

The artistic jewelry pieces formed and are still considered the first name on the list of precious things in all ages and times. The jewelry brightness has its own character, which ascends to the world of palaces and the rich and ruling classes.

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People have competed to make the most expensive and precious jewelry pieces which may be characterized by its incandescent brightness and played a fundamental role in increasing its value. The brightness is brought about by the light shown on the jewelry, the more brightness it brings, the more precious it becomes as the value of the piece increases in terms of price.

The concept of brightness changed nowadays, it is no longer confined to the reflection of light by precious raw materials and stones used in it, but also extends to include artificial light produced from the electricity with its wide and enchanting world. With all the inventions made in the twentieth century, the invention of the electric light has been the most important. This had a significant impact in the enormous development of civilization, including the use of electricity in jewelry with development of low power consumption LEDs (light-emitting diodes). The relevance of this research is to highlight the importance of natural and artificial lighting in the aesthetics of jewelry from ancient times to the present day. We will also discuss the current developments resulting from changes in perception and content related to jewelry.

The research methodology used in this paper starts with identifying the concept and objectives of this research, studying related literature, detailing the concept in a descriptive way and finally gives the conclusion and recommendations.

### 1.01 Research objectives

This research highlights the importance of light as one of the most important elements of attraction in jewelry. We will also study the impact of light, its aesthetic dimension and the changes that happened to its uses as a result of the apparent evolution in the field of jewelry.

#### Research Terminology

- **Light:** “It is an electromagnetic radiation, which is visible to the human eye. The white light is composed of almost equal mixture of all visible wavelengths, which can be separated to give the colors of the spectrum” (Oxford Dictionaries.com/Definition/English/Light).
- **Advertising jewelry:** a kind of jewelry used for publicity and advertising and characterized by bold and striking designs, and often carries logos or writings of the product being marketed.
- **Precious pieces:** the pieces of jewelry that are produced in specific numbers, may be one or two of the same design and tend to be carrying a deep philosophical aesthetic idea turning it into a small art work.
- **Modern jewelry:** the jewelry that follow in its idea and content modern trends in art.

### 1.02 Related research

Given the wide spectrum of jewelry, many types of them were reviewed to understand the importance of light in showing their aesthetic features and beyond, ranging from old to modern and from traditional to Royal jewelry. In old times people began to use and appreciate gold because they believed that if they have gold, they will have some of the sun power (Salisbury, 2001). Therefore, reflected light gave the piece of jewelry some power and domination more than its aesthetic meaning. In traditional jewelry, symbols and patterns engraved on precious metals such as gold increased the richness and brightness of reflected light, giving more preciousness to those jewelry pieces (Alfadda, 2002). In precious and Royal jewelry, as an example, the uniqueness of the design of the Royal necklace was dependent on light and brightness through the gemstone. The glow of the stones through the reflection of light was the key to beauty (Nadelhoffer, 2007). The modern age artists were able to translate thoughts and revolutionary content in the world of jewelry while maintaining the principle of preciousness of raw materials used. Some used many techniques to adjust the surface light contrast of jewelry pieces to strike a balance between preciousness of raw materials and originality of the idea (Grant, 1994 ; Druitt & Dormer, 1995).

Light in the modern era is not only the result of the reflection of sun light on the surfaces of reflective jewelry, but in addition, electrical light has been used as an attracting factor. Many lighting technologies such as Neon (Willett, 2007) and LEDs (Light Emitting Diodes) gave rise to more creative aspects of showing the aesthetic dimensions in jewelry.

In the following, we will first discuss the main topic of this paper which is the importance of light in highlighting the aesthetics of jewelry. Then, we will discuss the use of electrical light in jewelry. Finally, we will present the conclusions and recommendations of this paper.

## **2.0 First: The importance of light to highlight the aesthetic side of a piece of jewelry**

The most important thing that draws the attention of the viewer to the piece of jewelry is the brightness or luster which comes in the first place. There is nothing equivalent to the glow and brightness of a precious jewelry piece and the light reflections on its surface, which in turn translates the beauty and luxury, or even the non-conventional idea carried by the content of the piece of jewelry. The relationship between light and jewelry has a long history and it is a reciprocal relationship in which light serves the beauty of a jewelry piece that reflects it in a distinctive way. We can summarize this relationship in the following stages:

### **A. Light in old jewelry**

The first appearance of jewelry was not probably in the Stone Age, or approximately 25,000 years ago, as it was not intended to show beauty. Instead, it was used as amulets to expel evil spirits and diseases using raw materials that were available from the bones and teeth of animals, shells and wood using simple techniques. For example, Egyptian women in the modern Stone Age used the cowrie shells to protect them from infertility and put amulets that were made from fish bones to protect them from drowning.

The piece of jewelry was an abstract symbol used the simplest techniques and had a great content carried by the user of this piece and lacks the touch of attraction and excitement that was centered around light. Most of the raw materials used in the jewelry piece were natural materials dark or transparent and non-metallic that reflect small ratio of light, and this is far from using it as jewelry adornments. In spite of the diversity and strength of jewelry in the Stone Age, we cannot call it jewelry with its real meaning that is intended to adorn. The age of pieces of jewelry began since the discovery of gold metal. The value of this bright metal increased, because people believed that it gains its brightness from the sun and possesses non-conventional forces. The light reflected from gold increased the value of this metal, therefore people began to use and appreciate it because they believed that if they have gold, they will have some of the sun power (Salisbury, 2001). Therefore, light gave the piece of jewelry some power and domination more than its aesthetic meaning.

### **B. Light in the traditional jewelry**

Traditional jewelry are the popular jewelry that relates to a region, which reflects the culture of people and distinguishes it from others, “either by the used materials or techniques or designs and engraved symbols on it” (Alfadda, 2002). In spite of the difficulty of forming gold at the beginning of its discovery as a pure metal, it was not mixed with other metals and no Bullion were produced from it. It became popular and was frequently used in traditional jewelry in the form of longitudinal plates as the most appropriate for forming. It was engraved or formed into simple formations or was cut in longitudinal chains. The brightness emitted from the gold pieces has a great impact that gives these pieces their importance and high status enjoyed by the wearer of these pieces, resulting in great popularity of gold pieces in all civilizations.

A new equation had been formed, where the light emitted from the brightness of gold was equivalent to preciousness, richness and excellence. Since gold is one of precious metals that not everyone can have, people searched for similar alternatives for gold from other less expensive metals that were almost like gold in brightness such as silver, copper and other metals. They also used other materials like pearls and seashells with wavy brightness and colorful beads and stones. All these materials were aimed primarily to reflect the brightness to give the piece a clear distinction. Our Saudi heritage is full of many popular models and pieces that mainly contain gold or it forms most of raw materials used in those jewelry pieces (Fig. 1).

Fig. 1: A Study of Traditional Jewelry in Hail Region to Produce Creative Jewelry Design, p. 114 (Alfadda, 2002).



### C. Light in the precious and royal jewelry

Precious Jewelry is a unique master jewelry piece or a group of jewelry which contain the most expensive types of gems and precious metals. The beauty trinity in these pieces lies in the perfect industry, outstanding design and light (the amount of glowing of the piece when light is reflected by it). Brightness derives largely from the gemstones used in the making of these precious pieces, since gems are considered the most important receptors and light reflectors depending on the surroundings and the amount of rays in it.

There are a number of conditions to be adopted by the jeweler when choosing the right stone for a precious piece which are the type of the stone, and method of cutting it and its Installation technology in a piece of jewelry. The aim is to ensure the highest percentage of brightness when light gets reflected on it, which is considered here as an attractive acquired element. Royal jewelry has a special position that clearly translates this mutual relationship between the light and the beauty in the pieces of jewelry. In 1901, Pierre Cartier was one of the most famous jewelers of royal palaces was asked to design an unconventional unique necklace that reflects the beauty and luxury of the New Queen of England (Alexandra). To achieve the luxury and dazzling equation, he resorted to light through the stone group that was put in this necklace as the finest Indian stones, which were used extensively in the English royal family jewelry. The necklace design was simple and neat inspired by Indian style and contains seventy-one pieces of pearls, eleven pieces of rubies and Eighty-four piece of emeralds (next page Fig. 2). The uniqueness of the design of the Royal necklace was dependent on light and brightness through the gemstone. The glow of the stones through the reflection of light was the key to beauty, which was adopted by the jeweler for this piece of art” (Nadelhoffer, 2007).

**Fig. 2:** Cartier, Chronicle Box, United States, p. 155 (Nadelhoffer, 2007)



**Fig. 3.** Twentieth Century Jewelry, p.152 (Everett & Lancaster, 2002)



**Fig. 4:** Twentieth Century Jewelry, p. 25 (Puller, 1990)



**D. Technical progress and the light:**

Jewelers developed the technique of cutting and polishing gems to highlight its beauty by showing its pure color and trying to allow as much light to pass through it and shine with its colors. The progress of the jewelry industry technology enabled jewelers to show the highest degree of purity of stones on a piece of jewelry. The platinum metal which recently was used, enabled the installation of gemstones on the surface of the piece of jewelry in a manner that shows the purity of the stone. This results from the penetration of light through the largest possible area of the surface of the piece as in the case of installation of a piece of diamond which exhibits the highest degree of purity and dazzling (Above Figs. 3 and 4).

The use of laser technology recently helped in cutting and designing diamonds and different precious stones to show a new and accurate types of styles of cutting stones which helped to raise the aesthetic level of these stones. We would like to highlight the fact that electric lighting surrounding a piece of jewelry shows the piece in completely different style compared with light emitted by candles and gas, as shown in (Fig. 5).

**Fig. 5:** Twentieth Century Jewelry, p.154 (Everett & Lancaster, 2002)





<b>Fig. 6:</b> One of a Kind American Art Jewelry Today, p.42 (Grant, 1994)	<b>Fig. 7:</b> One of a Kind American Art Jewelry Today, p.22 (Grant, 1994)
	


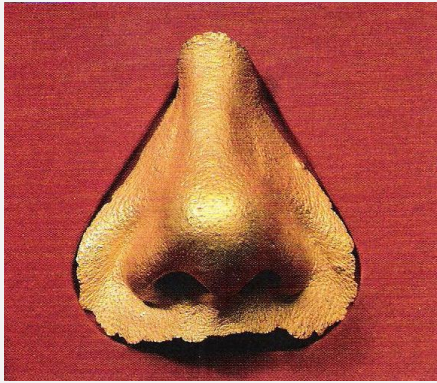

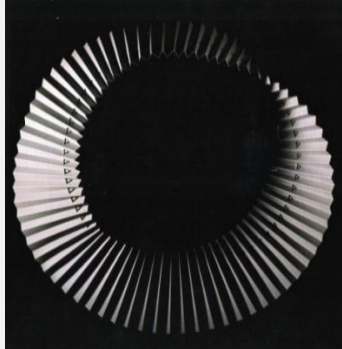
### E. Light in modern jewelry

In 1960, a new wave of expression dominated the forms of jewelry. Artists began to discover the modern aesthetic effect that is added by nature to the designs of jewelry, or to the new materials, or starting a new content that reflects thoughts and spirit of the artist. In the mid-seventies, pieces of jewelry were considered works of art themselves, where many of the Fine Artists entered the field of jewelry design and making. A piece of jewelry became more than just a cosmetic element, towards having tremendous amount of creativity and thoughts and special aesthetic philosophy in addition to high-tech making techniques (Alfadda, 2008).

Despite these enormous changes in jewelry in thought and content, the reliance on light as an important aesthetic element in highlighting a piece jewelry appears clear and evident in some pieces. These techniques greatly relied on the use of shiny traditional metals in jewelry making, but in a new form and content as in the following pieces of jewelry where raw materials relied on gold, silver and a group of gemstones such as diamonds and rubies. These stones reflected light in a modern irregular way and thus achieved diversity in the aesthetic vision of the viewer which was not previously present in traditional pieces as shown in (Above Figs. 6 and 7).

The modern age artists were able to translate thoughts and revolutionary content in the world of jewelry while maintaining the principle of preciousness of raw materials used. These raw materials in turn reflect light in different levels. For example, a jewelry piece by the artist Bruce Metcalf shows another form for the use of the aesthetics of light in modern jewelry. He used shiny raw materials in the design of a jewelry piece such as gold, copper and ivory to show the preciousness to the piece. At the same time, the piece carried new thought and essence which was uncommon and unprecedented in the world of jewelry. In order to strike a balance between preciousness of raw materials and originality of the idea, he reduced the brightness of the light reflected by bright metals and extended the external lines of the piece to deliver the essence and aesthetic philosophy that belongs to him, using the least details as shown in (next page Fig. 8).

This idea was explained by the piece of jewelry by artist Gerd Rothman, where he translated the principle of body art on a piece of jewelry. He used a certain technique aimed to reduce the brightness of light from a gold metallic piece, and he distributed it in a manner that made it concentrated in certain aesthetic areas where the artist wanted to focus on, and not on others as shown in (next page Fig. 9).

<p><b>Fig 8:</b> One of a Kind American Art Jewelry Today, p.148 (Grant, 1994)</p>	<p><b>Fig. 9:</b> Jewelry of our Time, p.154 (Druitt &amp; Dormer, 1995)</p>
	
<p><b>Fig. 10:</b> Jewelry of our Time, p.130 (Druitt &amp; Dormer, 1995)</p>	<p><b>Fig. 11:</b> Jewelry of our Time, p.157 (Druitt &amp; Dormer, 1995)</p>
	

Light might be the most important theme of aesthetic elements of the piece, where it becomes the first driver and most visible attribute. The designer depends on it entirely to highlight the piece and talk about its content by focusing on intelligent and thoughtful optical reflections, resulting from the appropriate choice of materials and techniques used in a piece of jewelry, as shown in Figures 10 and 11 (Above).

The designer may intend to focus the light on a certain specific area on the surface of a jewelry piece to achieve contrast and emphasize a specific aspect, or to complete the aesthetic system of the jewelry piece in a modern way. This is done in order to raise the value of the piece aesthetically and materially by integrating bright precious raw materials with the rest of used formation materials, as shown in Figures 12 and 13 (below).

<p><b>Fig. 12:</b> One of a Kind American Art Jewelry Today, p.85 (Grant, 1994)</p>	<p><b>Fig. 13:</b> Twentieth Century Jewelry, p.94 (Pullee, 1990)</p>
	

### 3.0 Second: The electrical light in pieces of jewelry

Light in the modern era is not only the result of the reflection of sunlight on the surfaces of reflective jewelry, but in addition electrical light has been used as an attracting factor. In the present time, due to technological advancements such as low power consumption LEDs (Light Emitting Diodes), electrical light became an integral part of many products such as fashions, bags and shoes. This is possible since LEDs are powered by small and light-weight batteries such as those used in watches. The designers of artistic jewelry used electrical light in their products in a thoughtful artistic way, to give as much excitement and attraction to the piece and to highlight a new aesthetic side to the viewer. It also translates the intellectual content of the designer and produce unique artworks.

The invention of neon in 1920 by Daniel Moore was a huge revolution in the field of lighting, the neon gives a strong light through low power. It was used in its infancy in appliance and instrument panels until the discovery of LEDs (light-emitting diodes) in 1970 and the huge advances in this technology that followed. Neon is still used in many applications such as advertising and fashion and others (Willett, 2007). As a result of industrial advancements and low cost of production, Neon entered in the field of commercial jewelry where new forms and modern designs have emerged.

Due to the consumerism era, advertising pieces have emerged, in the form of animated billboards that markets a product or any other thing. Light plays an important role to highlight the product or draw attention to it by using different lighting colors. Low cost of production and raw materials and low power consumption contributed to the widespread use of these advertising pieces.

### 4.0 Conclusion and recommendations

- Natural and artificial lighting represent the most prominent aesthetic side in jewelry design.
- Gemstones and metallic metals played the biggest role since ancient times in formation of jewelry pieces field, utilizing the physical properties of these materials which are able to reflect light in a natural impressive way.
- Jewelry designers benefited from industrial developments taking place in the field of artificial lighting, to add new creative aspects to their designs.
- The Aspect of natural light that uses the shining materials such as gold, silver and others is being utilized by jewelry designers at the present time in artistic jewelry pieces. It is being used to highlight certain aesthetic aspects of a piece to confirm a content intended by the designer or to raise the value of the art piece.
- The study recommends to conduct more historical, social and technical studies for this important topic which is represented by the relationship between light and jewelry. This is relevant in order to understand its different aspects, and expand in creating modern distinct jewelry pieces which keep pace with development and needs of this era.
- Another more specific recommendation suggests to explore novel ways for utilization of light in jewelry, such as studying new synthetic materials that have new light reflecting properties. This can also be applied to unusual combinations of existing materials, which adds new dimensions to jewelry design.

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