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A Gemmological Mixture

Abstract

In the year 1904 gemmology was not an important factor in the jewellery industry. However, in that year a 1904 carat faceted gemstone featured in the St Louis World Fair as the largest topaz in the world. It was a citrine. That same year, Herbert Smith presented his refractometer.

Today's refractometer, such as an Eickhorst, is much more versatile, and lends itself to a technique termed 'Top Lighting'. As well as enhancing the 'Spot Method' (Distant vision), it allows the user to allocate the colours of a pleochroic gem (uniaxial or biaxial) to the individual rays, as with the alexandrite. A further application of 'Top Lighting' is to distinguish between aquamarine and Maxixe type blue beryl. Another benefit is to resolve the shadows of certain small gemstones which do not register a shadow on the refractometer scale by the normal method of illumination.

Cat's eye alexandrite is a prized gem. A synthetic is sometimes encountered. No star alexandrite has been recorded and yet there is a rare synthetic star alexandrite. Both these synthetics by Kyocera are the result of a secondary synthetic process described as 'Zone refining'.

Occasionally an opal is seen which is set in a gold collar. This prevents the observer knowing if it is a single opal or opal doublet. Ultra-violet light can in some instances solve the problem.

A clever taaffeite scam involves modifying the table facet of a spinel to show two shadow edges on the refractometer. The deception is achieved by selecting a spinel with a colour which is similar to that of a violet taaffeite. By creating two table facets on the spinel; one inclined to the other with a one degree difference, the resultant refractive index shadows fall in the same region of the refractometer scale, and could easily lead to the spinel selling at the much higher value of the matching taaffeite.

寶石學上的混合與混淆

摘要

在二十世紀初期，寶石學在珠寶業界並不被視為重要的一環，然而就在 1904 年裡，巧逢一顆重達 1904 克拉的刻面寶石，在聖路易斯世界博覽會中，以世界最大的拓帕石之名亮相。其實那是一顆黃水晶。同年，赫伯史密斯（Herbert Smith）先生推出了他的一款折射儀(譯者註：世界上第一台寶石學折射儀)。

現今我們所使用的折射儀，例如知名品牌愛科思(Eickhorst)的產品，具有多種功能，並且藉此發展出一個名為"頂部照明 Top Lighing"的技術。除了加強"點測法" (遠視法)的功能之外，它讓使用者得以在分辨具有多色性顏色(一軸晶或二軸晶)，例如像亞歷山大石之類的寶石，在其各自光線(常光線和非常光線)下之顏色；或是像在"頂部照明"的應用下區別出海藍寶石和藍色的馬克西西型（Maxixe）六柱石。還有另一項好處是解決了某些較小寶石在使用一般照明條件下的折射儀測量時不易形成陰影的測量問題。

亞歷山大貓眼石是一種珍貴的寶石，而有時我們會遇到合成的材料；天然材料中目前並沒有亞歷山大星光寶石的存在，然而卻有一種罕見的合成亞歷山大星光寶石。這兩種合成寶石是由京瓷公司（Kyocera）施以二次合成工序的成果，我們稱之為"區域精煉法"（Zone Refining）。

我們有時會看到歐泊寶石以包鑲的方式鑲在金領釦上，這樣就不容易讓人察覺得到是單一的歐泊寶石或是歐泊二層石。採用紫外燈觀察，可以在某些情況下解決這個問題。

一個有關塔菲石(taaffeite)的聰明騙局，是利用修改尖晶石的臺面，讓折射儀顯示出兩個邊緣陰影來誤導觀察者。這個詭計會先選用和塔菲石相似的紫羅蘭色調的尖晶石，然後在尖晶石臺面上切磨出兩個刻面，兩者的角度差為 1 度，在傾斜的的角度差異下，產生符合折射率區域陰影的條件，導致讓尖晶石能夠魚目混

珠，以塔菲石的實質高價銷售出去。