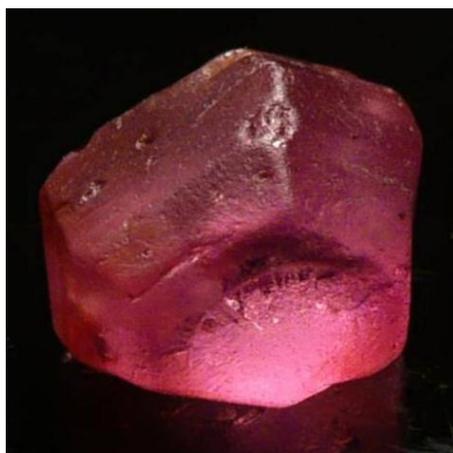


Price Chart Toppers : Some Expensive Gemstones: Part 1

Gemstones have been part of our culture over past thousands of years and will continue to be so primarily due to their sparkling and shiny appearance. They are used in the ornaments, amulets, charms, decorative articles etc. It is well known that minerals that crystallise into one of the characteristic forms will be called gemstones if they are durable, beautiful and rare to attract the attention. Rare gemstones found in nature are generally expensive. A gemstone's worth also depends on many factors like style of cut, colour, weight and the origin from which part of the earth it is mined. The rough mineral crystal should be cut in an artistic way to reveal its unique beauty. Bigger gemstone fetches more value. Information about rare gemstones is available in various books and reports as well as on websites. Gemstones listed by different sources may differ. The ten gemstones chosen, in the increasing order of estimated price, are Taaffeite, Demantoid Garnet, Black Opal, Benitoite, Padparadscha Sapphire, Red Beryl, Alexandrite, Jadeite, Musgravite and Blue Diamond. The objective of this article is to briefly describe 10 most expensive gemstones. As the article is lengthy, it is decided to make into three parts and exclude details about the gemstones some of which are already described and posted on GII website www.giionline.com

1. Taaffeite – \$2,500 per carat



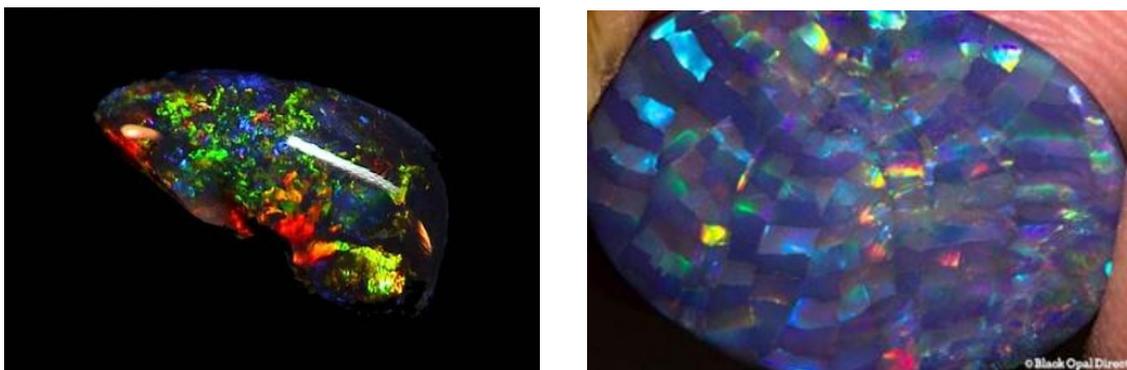
It was discovered in a jeweller's shop in Dublin, Ireland by a gemmologist Richard Taaffe in 1945 and the name Taaffeite is in his honour. The most common colours of this gemstone are purple, violet and pink. It is an oxide mineral with a formula of $\text{BeMgAl}_4\text{O}_8$ and the colour is due to the presence of Cr^{3+} , essentially replacing Al^{3+} ions in the crystal structure. Initially it was identified incorrectly as spinel but in 1951 chemical and X-ray analyses confirmed the principal constituents of taaffeite as beryllium, magnesium and aluminium. Taaffeite displays double refraction that allows differentiation from spinel. The specific gravity is 3.60-3.61 and its hardness is 8 to 8.5 on mohs scale. Until now its has been found only in two locations namely Tanzania and Sri Lanka. That too only a few samples were obtained. Most of them are not suitable for gem polishing.

2. Demantoid Garnet – \$3,300 per carat



Demantoid is a rarest green gemstone and most valuable of the garnets. Demantoid belongs to a variety of andradite which is a member of garnet group minerals and was discovered and identified by the mineralogist Nils Gustaf Nordenskiöld in 19th century in Russia on the western side of Urals mountain. Demantoid name originates from the old German word *demant* meaning "diamond-like," since its brilliance and dispersion exceed that of a diamond. It is due to its high refractive index of 1.88. The chemical formula is $\text{Ca}_3 \text{Fe}_2 (\text{SiO}_4)_3$ and the presence of chromium is the cause of the green colour. It belongs to cubic crystal system having specific gravity of 3.85 and hardness of 6.5 to 7 on Mohs scale. These gemstones are found in small size. The African demantoid tends to be yellowish green, olive green or brownish, due to higher concentrations of iron. Vivid Green demantoid is most valuable stone and price further exceeds if it is properly faceted. "HORSETAIL like inclusions of chrysotile or byssolite" radiate out from a very small chromite crystal and such a demantoid attracts higher price. With the low supply, they are usually seen only on antique jewellery pieces.

3. Black Opal – \$3,500 per carat



Black opal is the rarest variety of the Opal mainly found in Lightning Ridge in New South Wales, Australia. This variety of opals have a dark background or body colour, usually Black, Dark Grey, Dark Green or Deep Blue and displays all the colours of the spectrum resulting from the interference and diffraction of light passing through it. It is a Hydrate Sphere of Silica ($\text{SiO}_2 \cdot n\text{H}_2\text{O}$) in amorphous form, having a specific gravity of 2.15 and hardness 5.5 to 6 on Mohs scale. Due to its low hardness and sensitive to shock and temperature, it should be

handled with care all the time. "Harlequin pattern" is the most valuable in a Black opal and is a rare type of pattern, which keep repeating itself across the face of an opal.

Barry O'Leary's defines a Harlequin opals as "precious opal showing a regular mosaic-like chromatic pattern in rounded, angular, or roughly square patches of about equal size presenting a spangled appearance. Black Opal with a body tone of N1 (darkest body tone) can be worth around \$5,000 to \$30,000 per carat.

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