KULSEN & HENNIG
Nature's Brilliant Colours

Newsletter No. 8 09/2011

In this Edition

Kulsen & Hennig News

Ready to go for the Autumn!

We are back from the summer break, rested and ready to go for the coming autumn season. We would like to thank you for your understanding and your patience during the summer and are looking forward to assisting you in any way we can as you prepare for the Christmas sales season.

This 8th edition of our newsletter will allow you to be even better prepared to advise your customers. Whether it is the subject of the particularities of blue diamonds, fluorescence in general, or completing your specialist's library, we hope that this newsletter will bring you many new impressions.

We would also like to take this opportunity to introduce our new colleague, Ms Susanne Noell, who is enjoying her new position. She has already begun assisting Ms Hennig and Mr Kulsen in their daily activities. Ms Gollwitzer is currently on maternity leave and we wish her all the best!

Warm Regards,

Juliane Hennig

From Our Collection:
A Pear Shaped Fancy Intense Purple Pink 0.57 ct Diamond

Today, we are presenting a very valuable diamond. Its colour has been described as Purple Pink which means that this stone, when compared to a pure pink stone, presents an additional berry tone.

The add-on "Fancy Intense" indicates strong colour intensity and makes the stone even more valuable.The slight inclusions do not reduce the stone's clarity and are absolutely forgivable when one considers that pink stones, by their very nature, often have more inclusions than other diamonds.

If you are interested in this stone, please contact us by email or by telephone at:

Email: info@kulsen-hennig.com
Telephone: +49 (0)30 400 55 93 0

View GIA certificate

All about Natural Coloured Diamonds

Correction: Error in Our Last Newsletter

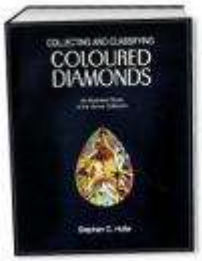
An attentive reader kindly reported an error in our last newsletter. In the article "Test Your Knowledge of Coloured Diamonds", question 4 should have read

"The term 'Fancy' (and not 'Fancy Pink') is only obtained by approximately one diamond out of …..".

Hence, 4c ("100.000 gem quality diamonds") was the correct response.

Question 4...

Recommended Reading
Stephen C. Hofer: *Collecting and Classifying Coloured Diamonds*



Stephen C. Hofer's study deserves the term of "major work" and his
742 page book, weighing in at 4 kilos, can, without question, be called
a "tome".

If you want to know everything, absolutely everything, about coloured diamonds; if you attach as much importance to a work's overall presentation as to its content, then we whole-heartily recommend this classic.

Read more...

The Aurora Pyramid of Hope – The Coloured Diamond Collection at the Natural History Museum in London

When you consider that only one out of about 100.000 gem quality diamonds possesses a Fancy colour grading, it is easy to imagine not only the value of this famous collection, with its 296 natural coloured diamonds, but also its importance to science.

Alan Bronstein and Harry Rodman's Aurora Pyramid of Hope is currently on display at the Natural History Museum in London, in The Vault, the museum's new mineralogy gallery opened in 2007. Finally, an opportunity to admire this exceptional collection in Europe!

Our article will examine what the Pyramid of Hope can teach us about buying and selling coloured diamond and just about everything else you should know on the subject.

Read more...

Gemmology Corner

Diamond Colours: Blue

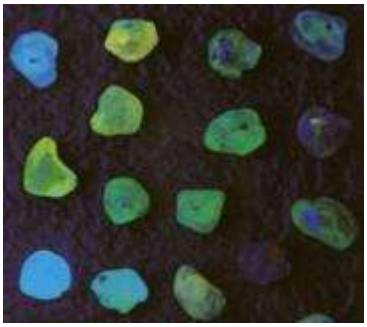
If there is one diamond colour that is well known, it is definitely blue, thanks to the Hope and Wittelsbach-Graff diamonds, two of the most famous diamonds in the world.

In fact, by their very nature, blue diamonds are actually among the rarest of all precious stones. As with all Natural Fancy Coloured Diamonds, the clarity and colour intensity are deciding factors in determining the value of blue diamonds.

What particularities should be observed in the colour graduations of blue diamonds? Why are they so rare? What characteristics make them so interesting for researchers?

Read more...

All about Fluorescence – Questions and Answers



Confusing two similar diamonds could prove to be not only an unpleasant experience but also an expensive one! Luckily, dimensions and weight are easy to verify quickly, excluding any chance of error.

Diamond certificates clearly identify a diamond by indicating its colour, clarity, proportions, and degree of fluorescence. Would you know how to explain to your customer why his diamond is able to glow?

Maybe you know the impact of fluorescence on the price of a white diamond, but do you know that the same is true for coloured diamonds?

Read more...

You will receive our next newsletter end of 2011.
Earlier editions of our newsletter may be found in our newsletter archive.

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Facsimile

COLORED DIAMOND GRADING REPORT

GIA REPORT 5121392336

August 26, 2010

Shape and Cutting Style ..... **Pear Brilliant**
Measurements ..... 6.31 x 4.71 x 3.14 mm

GRADING RESULTS

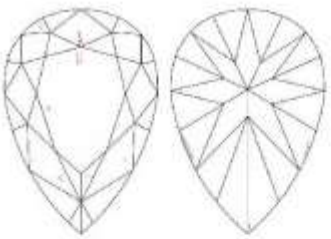
Carat Weight ..... **0.57 carat**
Color
Origin ..... **NATURAL**
Grade ..... **FANCY INTENSE PURPLE-PINK**
Distribution ..... **Even**
Clarity Grade **I1**

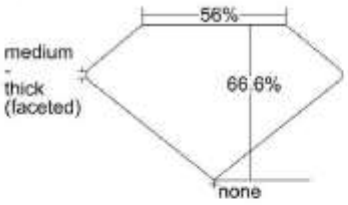
ADDITIONAL GRADING INFORMATION

Finish
Polish ..... Good
Symmetry ..... Good
Fluorescence ..... Medium Blue

Comments:
Clarity grade is based on clouds that are not shown.
Internal graining is not shown.

REFERENCE DIAGRAMS

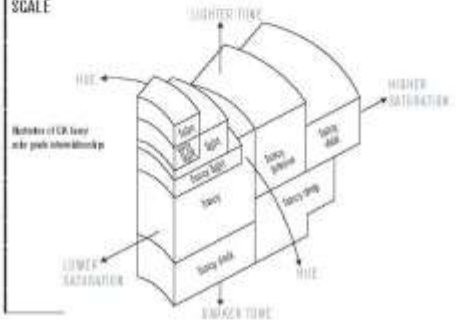




Profile not to actual proportions

GIA CLARITY SCALE

GIA COLORED DIAMOND SCALE



KEY TO SYMBOLS

- Crystal
- Feather
- Indented Natural
- Natural

Red symbols denote internal characteristics (inclusions). Green or black symbols denote external characteristics (blemishes). Diagram is an approximate representation of the diamond, and symbols shown indicate type, position, and approximate size of clarity characteristics. All clarity characteristics may not be shown. Details of finish are not shown.

IMPORTANT LIMITATIONS ON PAGE 2

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All about Natural Coloured Diamonds

Test Your Knowledge of Coloured Diamonds

Here are the questions. Only one response is correct. The answers are given on the last page. Have fun guessing (and being right)!

04. The name "Fancy Pink" is only obtained by approximately one diamond out of...
    a) ... 1 000 000 gem quality diamonds
    b) ... 10 000 gem quality diamonds
    c) ... 100 000 gem quality diamonds

KULSEN & HENNIG
Nature's Brilliant Colours

Newsletter No. 8 09/2011

All about Natural Coloured Diamonds

Recommended Reading
Stephen C. Hofer: *Collecting and Classifying Coloured Diamonds*

The Content
The main subject of this book is the famous Aurora Gems coloured diamond collection (to learn more, read the article "The Aurora Pyramid of Hope – The Coloured Diamond Collection at the Natural History Museum in London" in this edition of our Newsletter). The collection is just as exceptional as the study of each of its diamonds is fascinating.

Additionally, Hofer explains the colour metrics of coloured diamonds and includes in his book a remarkable article on the study of colour. There is even an entire chapter devoted to photography of precious stones. Collecting and Classifying Coloured Diamonds is without a doubt the most complete reference book of our time.

The Author
Stephen Hofer studied gemmology at the Gemological Institute of America (GIA) and at the Gemmological Association of Great Britain (GAGB), graduating with distinction.

Since becoming a member of the GIA Research Department in 1979, he has devoted his career to studying coloured diamonds. In 1985, he became President of Colored Diamond Laboratory Services (CDLS).

He was one of 60 featured speakers at the International Gemology Symposium in 1981. He has published many specialized papers and articles and authored a quarterly column on coloured diamonds for New York Diamonds magazine.

In addition, as a graduate of the American Institute of Diamond Cutting (AIDC), he is an accomplished coloured diamond cutter. Today, Stephen C. Hofer is an independent consultant in natural coloured diamonds for the diamond industry

KULSEN & HENNIG
Nature's Brilliant Colours

Newsletter No. 8 09/2011

All about Natural Coloured Diamonds

The Aurora Pyramid of Hope – A Coloured Diamond Collection at the Natural History Museum in London

The Colour Range of the Diamonds

The *Aurora Pyramid of Hope* consists of 296 diamonds weighing a total of 267.45 carats. The smallest diamond weighs 0.13 ct and the largest one weighs 2.88 ct. These 296 diamonds represent all of the diamond colours that exist in nature, including colours as rare as green, blue, and purple. The collection contains diamonds of all shapes, colour intensity, and shades. There are even diamonds that change their colour, appropriately called chameleon diamonds. It took 25 years for the collection to grow to its current number of diamonds. While observing the *Pyramid of Hope*, a coloured diamond professional observed: "There doesn't seem to be any colour that nature has not created in the shape of a diamond". When one considers, however, how long it took to put the exhibit together, it is easy to understand just how rare some of those colours actually are.

A Collector's Passion

New Yorkers Alan Bronstein and Harry Rodman are the founders of Aurora Gems and have published two books, Collecting and Classifying Coloured Diamonds, and Forever Brilliant (for more information, please read this edition's article, Recommended Reading). They began collecting coloured diamonds in 1989 and in 2006 the *Aurora Pyramid of Hope* was complete. According to Bronstein, "Gems like these were not meant to be imprisoned in a dark underground safe for the momentary pleasure of a few eyes". The primary goal of the Aurora Gems is to educate the general public about coloured diamonds and to support research in the field. For Bronstein and Rodman, the Pyramid of Hope is more than just a pyramid shaped object filled with diamonds; it is a sculpture symbolizing man's relation to the earth.

Lighting the Diamonds

At the Natural History Museum in London, the *Pyramid of Hope* is presented in a display case in which the diamonds are lit up alternately by traditional electric lights and by ultraviolet lights, making it possible to observe how many of the diamonds glow and change colour when exposed to ultraviolet light. Thanks to Aurora Gems, researchers have collected new information about the phosphorescence and fluorescence of diamonds (see the Gemmology article in this edition).

The Aurora Pyramid of Hope under natural light

and under ultraviolet light.

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Gemmology Corner

Diamond Colours: Blue

Colour Graduations for Blue Diamonds

To be able to estimate a blue diamond's value, it is important to know the colour intensities of blue diamonds, intensities caused by nature. Colour saturation as intense as that found in dark blue sapphires does not exist for blue diamonds. That is why the famous *Hope* and *Wittelsbach-Graff* blue diamonds, with their deep colour saturation are so exceptional. The intensity of a blue diamond cannot be compared to that of a yellow or pink diamond. The grades Fancy Intense Blue or Fancy Vivid Blue used in diamond certificates refer to the most intense blue present in nature for diamonds and not an abstract measure of colour. Blue diamonds reach their deepest colour in medium to dark hues.

Origins of Colour for Blue Diamonds

By their chemical composition, blue diamonds belong to the IIb type of diamond. All diamonds are made up of carbon atoms that, aggregated by covalent bonds, make up a stable crystal structure. Those diamonds that contain the chemical element boron in measurable quantities, in addition to carbon, are also Type IIb. This enables the crystal to absorb the yellow parts of the light. Only the non-absorbed parts of the light, in this case the blue parts, can be reflected. This is how the blue colour of these diamonds is formed. Less than 1% of all gem quality diamonds present on the market today belong to this rare category.

Types of Diamonds			
Type 1 contain		**Type 2 contain**	
measurable quantities of nitrogen		no nitrogen or in quantities so low they are difficult to measure	
Type 1a contain	**Type 1b contain**	**Type 2a are made up of**	**Type 2b contain**
aggregate nitrogen atoms in pairs or small groups	single nitrogen atoms	pure carbon	boron atoms

The Electrical Conductibility of Blue Diamonds

All the blue diamonds examined by the GIA have been able to conduct electricity. This ability is distinctive of Type IIb diamonds, differentiating them from all other types of diamonds and, as a result, the vast majority of diamonds. Understanding the electrical conductivity of blue diamonds also has a practical application: by testing the blue diamond's electrical conductivity, the stone's colour can be proven be natural or artificial.

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Nature's Brilliant Colours

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Sources of Blue Diamonds

In the past, most of the rare blue diamonds found in the world came from India. More recently, however, blue diamonds and blue-grey diamonds have been found in South Africa and in Western Australia (in the Argyle Mine). The South African Cullinan Mine was previously known as the Premier Mine. On the occasion of its 100th anniversary in 2003, the mine was re-baptised Cullinan, after the neighbouring city. Four years later, De Beers sold the mine to its current owner, Petra Diamonds. Today, the Cullinan Mine is the only mine in the world where pure blue diamonds are found relatively frequently. Blue diamonds found in the Argyle Mine in Australia present mixed colours like violet-blue, blue-violet, or grey-violet.

Well Known Blue Diamonds

The blue diamond known as the Hope Diamond, weighing 45.52 ct, has attained an international reputation well that goes well beyond a circle of specialists. Its colour is described as Fancy Deep Greyish Blue and the diamond has a clarity grade of VS1. According to recent research, the current Hope Diamond was cut from the historic *French Blue* diamond owned by Louis XIV. Another blue diamond, formally known as *Blauer Wittelsbacher*, is back in the spotlight thanks to its new owner, the London jeweller Graff, and its new cut. The stone went from a clarity grade of VS2 (very small inclusions) to IF (flawless) and its original colour of Fancy Deep Greyish Blue was enhanced to become Fancy Deep Blue. Today, the diamond weighs 31.06 ct and is called the *Wittelsbach-Graff*. Recently, from December 2010 to January 2011, the general public was able to admire it on display at the American Museum of Natural History in New York.

A Selection of Some Famous Blue Diamonds:

Name	Weight in Carat	Colour	Clarity	Shape	Price in USD	Date of Sale
Wittelsbach-Graff	31.06	Fancy Deep Blue	IF	Cushion	23.4 Mio.	December 2008 Christie's Hong Kong
Hope Diamond	45.52	Fancy Dark Greyish-Blue	VS1	Cushion		Donated to the Smithsonian Institution, Washington
Star of Josephine	7.03	Fancy Vivid Blue	IF	Cushion	9.5 Mio.	May 2009 Sotheby's Genève
De Beers Millennium Blue	5.16	Fancy Vivid Blue	IF	Pear	6.4 Mio.	April 2010 Sotheby's Hong Kong
	7.64	Fancy Intense Blue	VVS2	Cushion	8.0 Mio.	May 2010 Sotheby's Genève
Diamond mounted in a ring setting by Alexandre Reza	5.02	Fancy Vivid Blue	VS2	Pear	6.3 Mio.	May 2010 Sotheby's Genève
Diamond mounted in a ring setting	6.60	Fancy Intense Blue	IF	Emerald	5.4 Mio.	May 2011 Christie's Genève

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Gemmology Corner

All about Fluorescence – Questions and Answers

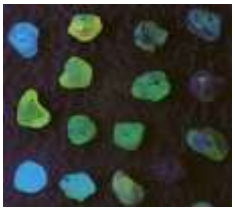
What Exactly Is Fluorescence?
Fluorescence is the emission of light given off by minerals. Fluorescence, then, is one of several types of optical radiation, grouped together under the generic term luminescence. In all the different types of luminescence, radiation occurs when a material goes from an excited state back to its original state. In this case, an "excited state" means that a system has absorbed energy and "going back to its original state" means that the energy has been released. The differences between the various types of luminescence are due to the different sources of excitement. We immediately think of heat or electricity as being responsible for luminescence and that is exactly right. In this case, however, we are referring to the emission of light caused by photons, consequently called photoluminescence. The term photon can be understood as meaning a "particle of light". Photons are the particles that make up electromagnetic radiation (=light!).
In the specific case of photoluminescence, the photons then have brought energy to a system. After, the system returns to its original state: it re-emits the absorbed energy the same way it received it, in the form of light. If the release of light lasts longer than the absorption did, the process is called phosphorescence; if, however, the release of light occurs in about the same time it took to absorb the light, the process is called fluorescence.

Did you know…

… that when on display, the famous Pyramid of Hope coloured diamond collection is lit up alternately with ultraviolet and white lights, making the diamonds' fluorescence visible? Be sure to read the *Pyramid of Hope* article in this edition.

Where Does the Term Fluorescence Come From?
The fluorescence phenomenon was mistakenly named after the mineral fluorite. Today, we know that most examples of fluorite are phosphorescent minerals. Fluorescence was described for the first time in 1852 by George Gabriel Stokes.

What Does Fluorescence Look Like?
The light emitted by minerals can be more or less intense and can take on specific colours depending on the stones. The most common fluorescence colour is light blue; far rarer are purple, green, yellow, orange, pink, red, and even mixed colour fluorescence.



How Many Diamonds Possess the Property of Fluorescence?
Approximately 50% of all diamonds this property.

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How Do GIA Certificates Describe Fluorescence in a Diamond?

None:	No fluorescence
Faint:	Weak fluorescence
Medium:	Average fluorescence
Strong:	Strong fluorescence
Very Strong:	Very strong fluorescence

What is the Purpose of Determining Fluorescence?

Gemmological laboratories use the fluorescence spectroscopy to identify imperfections in a diamond's crystalline structure. These imperfections can often explain many of a diamond's properties (like, for example, what type of diamond it belongs to) and help identify colour treatments or distinguish a synthetic diamond from a natural one.

On diamond certificates, the degree of fluorescence not only guarantees the identity of a diamond, it can also influence its price.

Did you know…

….that during the famous test comparing the Hope and Wittelsbach-Graff diamonds, it was, among other things, the slight difference in luminescence between the two blue diamonds which indicated that they could not have been obtained from the same original crystal.

How Can We See the Property of Fluorescence?

With a long wave (366 nm) or short-wave (254 nm) ultra-violet lamp.

When Buying a Diamond, at What Point is it Important to Consider Fluorescence?

Briefly: when the fluorescence affects the diamond's colour and, as a result, its value.

This effect can diminish or improve the stone's colour. One might think that an improvement on the original colour through fluorescence would automatically increase a diamond's value. For truly white diamonds, however, this would be considered as "deceiving" on the part of the diamond and as a result, its value would decrease. The same white diamond with a strong blue fluorescence may appear to be a rare white + (F) in daylight; when examined with a standardized light source, however, it may perhaps only be slightly tinted white. On a certificate, this diamond would be described as "Slightly tinted white – strong fluorescence". In general, fluorescence in white diamonds is considered as undesirable. The same is true for certain yellow diamonds with a yellow fluorescence.

On the contrary, however, fluorescence can actually increase the value of Fancy colour graded diamonds if, in sunlight or daylight, it brings something unusual or mysterious to the original colour. Diamonds whose original colour is clearly different from the colour of the fluorescence, like for example yellow diamonds with a lemon yellow fluorescence, are sought after by collectors. Diamonds with strong fluorescence, however, can sometimes appear "oily" or "milky" in daylight. In this case, the diamond appears to lose some of its brilliance and its price will be lower than a comparable diamond with less fluorescence. Ultra-violet lights, so popular in night clubs, also affect fluorescent diamonds. Is that the desired effect? A matter of taste ….