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November 30, 2022

Report TypeIdentification Report
 GIA Report Number3455246245
 Shape Cushion
 Cutting Style: CrownBrilliant Cut
 Cutting Style: PavilionModified Brilliant Cut
 TransparencyTransparent
 Color Yellow-Green

RESULTS

SpeciesPallasitic Peridot

Item Description: One loose stone

Weight: 1.11 carats

Measurements:7.39 x 5.10 x 3.96 mm

Comments: Pallasitic Peridot is extraterrestrial in origin and comes from a type of stony-iron meteorite known as pallasite. These meteorites are composed of fr...



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GIA GEMOLOGICAL REPORT

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GIA REPORT 3455246245

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DETAILS -

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Image is approximate



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November 30, 2022

This letter addresses the characteristics of the 1.11 carat Stellar pallasitic peridot described on GIA report number 3455246245.

Peridot is the gem-quality green variety of the mineral olivine and has both terrestrial and extraterrestrial origins. Olivine occurs in igneous rocks, such as basalt and dunite, and has been extracted from a rare type of stony iron meteorites known as pallasite. With both origins having an overlap in optical and physical properties, such as refractive index and specific gravity, a reliable way to separate the two is with the analysis of trace element chemistry. The concentration of six elements, lithium, vanadium, manganese, cobalt, nickel, and zinc, are examined, and this stone has quantities that are consistent with peridot of extraterrestrial origin.



Characterized as a gemstone in 1991, pallasitic peridot are typically small in size. Great care must be used when handling these stones for peridot is heat sensitive and prone to cracking. Pallasitic peridot that have been removed from the iron-nickel matrix are typically fractured therefore rough material is rarely large enough to cut into faceted stones above one carat. The Stellar revealed short needles and minute particles when observed under magnification.

Its larger size of over one carat and extraterrestrial origin make the Stellar pallasitic peridot a notable gemstone.

Sincerely,

GIA Laboratory

PLEASE REFER TO IMPORTANT LIMITATIONS AND DISCLAIMERS ON THE BACK OF THIS DOCUMENT

RAPPORT GEMMOLOGIQUE

GEMMOLOGICAL REPORT

AN IMPORTANT EXTRATERRESTRIAL PERIDOT

STELLAR

Bellerophon | Gemlab

« Stellar »

Gemmological Report No. A7822

Privilege No. 142

Bellerophon Gemlab S.A.S
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STELLAR




ASTER
RARE GEMS & FINE JEWELRY
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- **PREFACE**

Coloured gemstone

“The first objects that we picked up and said this has value for no other reason, it is not a food, not a fuel, not a medicine, it has value purely because of its beauty, these were Coloured Gems”.

_ Author Unknown

INTRODUCTION

*G*emstones have fascinated the human mind since the dawn of time. They have inspired myths, curses, and have been worn by the greatest kings and emperors who often owned the finest gems.

All the gemstones we so greatly treasure and admire come from various depths and locations in the earth's crust.

People have treasured gems for many reasons throughout history. Some of these reasons include the use of gems as beautiful decorative ornaments, religious symbols, good-luck charms, and medicinal purposes. Mainly however, gemstones have been used to display wealth, status, and power.

The Egyptians and later the Romans were among the first to celebrate the power of gemstones. For example, Cleopatra was known for her love of emeralds, which were believed to possess powers of clairvoyance and to defeat spells and enchantments.

T. Rozet

EXAMINATION RESULTS

A Magnificent Extraterrestrial Peridot

- “These gems have life in them: their colors speak,
say what words fail of”

_ George Eliot

Bellerophon Gemlab examined this natural Peridot on 12 February 2023. As stated in the Report No. A7822 this magnificent gemstone possesses extraordinary characteristics and deserves special mention and appreciation.

The described transparent Peridot is cut as a cushion shape with a brilliant crown and a modified step cut pavilion. It exhibits an important size and weight of 1.112 carats combined with a highly attractive intense yellowish green colour.

The few microscopic internal features found during the examination and a combination of well-balanced trace elements in the gemstone are hallmarks of Peridot from Extraterrestrial origin.

Analytical testing revealed that this Peridot has been spared colour enhancement and clarity modification, making its clarity and colour entirely natural.

A natural Extraterrestrial Peridot of this size and quality is extremely rare and as such it is a privilege to possess it.

BY MARTIAL CURTI CEO & FOUNDER



Stellar
Extraterrestrial Peridot - 1.112 ct

Report No. A7822

IMAGE IS APPROXIMATE IN SIZE AND COLOUR



Bellerophon | Gemlab

PRIVILEGE GEMMOLOGICAL REPORT

Report Number:	A7822
Date:	12 February 2023
Weight:	1.112 carats
Measurements:	7.40 x 5.07 x 3.93 mm
Shape:	Cushion
Identification:	Natural Peridot
Colour:	Intense yellowish green
Comment:	No indications of any treatment
Origin:	Extraterrestrial

This combination of size, colour, clarity, and cut is extremely rare, and make the “**Stellar**” the most notable faceted extraterrestrial Peridot authenticated in our laboratories to date.

M.P.H. Curti

T. Rozet

PERIDOT

(Mg,Fe)₂SiO₄ + Ni, Cr ...

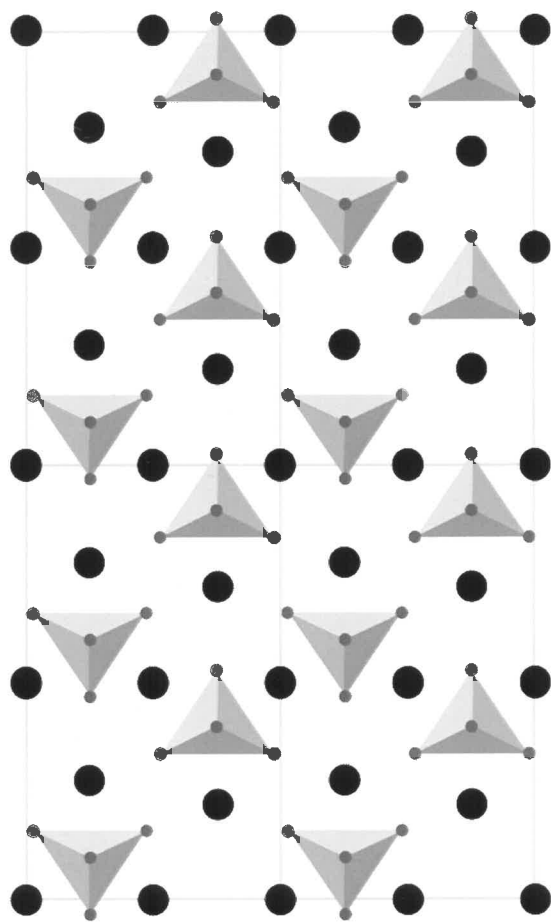
- "A greenish or yellowish-green mineral variety of Olivine".

_ Oxford Dictionary

Peridot is a testament to the wonders of nature. Composed of olivine, it has a remarkable blend of mineral composition, crystalline habits, colour, hardness, and trace elements that make it a highly prized gemstone.

Peridot belongs to the forsterite-fayalite series of solid-solution minerals, part of the olivine group. Its chemical formula is (Mg,Fe)₂SiO₄, where magnesium and iron can be substituted for each other. It generally crystallizes in the orthorhombic crystal system, forming elongated, prismatic crystals. It can also occur as granular masses or rounded pebbles, eroded from volcanic rocks.

Peridot is characterized by its vibrant green hue. Its colour ranges from pale yellowish green to intense olive green, often with a hint of golden or brownish tones. Colour intensity depends on the amount of iron present in the crystalline structure, the presence of chromium and nickel can also influence the shade of green, ranging from yellowish green to pure green. It has a hardness of 6.5 to 7 on the Mohs scale, indicating good durability for everyday use.



Peridot Crystal Structure.

HISTORY & LEGEND

The terms "peridot" has its origins in the French word "peridot", meaning "fuzzy" or "uncertain", perhaps alluding to the gemstone's somewhat blurred appearance when viewed under certain lighting conditions. It may also be derived from the Arabic word "faridat", which translates as "gem".

Peridot has a rich tapestry of legends and folklore. The ancient Egyptians revered it as the "gemstone of the sun" and believed it protected against nightmares. They also associated peridot with the goddess Isis and believed it embodied her healing powers. The Greeks called peridot "chrysolite", meaning "golden stone", and believed it conferred blessings of prosperity and good fortune on those who wore it. It is said that peridot was one of the favourite gemstones of Cleopatra, the famous Egyptian queen. Legends have it that peridot was brought to Earth by meteorites, adding a touch of cosmic mysticism to its appeal.

Across cultures and eras, peridot has been celebrated for its mystical properties and cherished as a talisman of strength, protection, and abundance. Today, its legacy continues to shine, enchanting those captivated by its beauty and embracing the stories woven into its vibrant green depths.



GEOLOGICAL-GENETIC CONSIDERATIONS

- "The beginning is the most important part of the work".

_ Plato

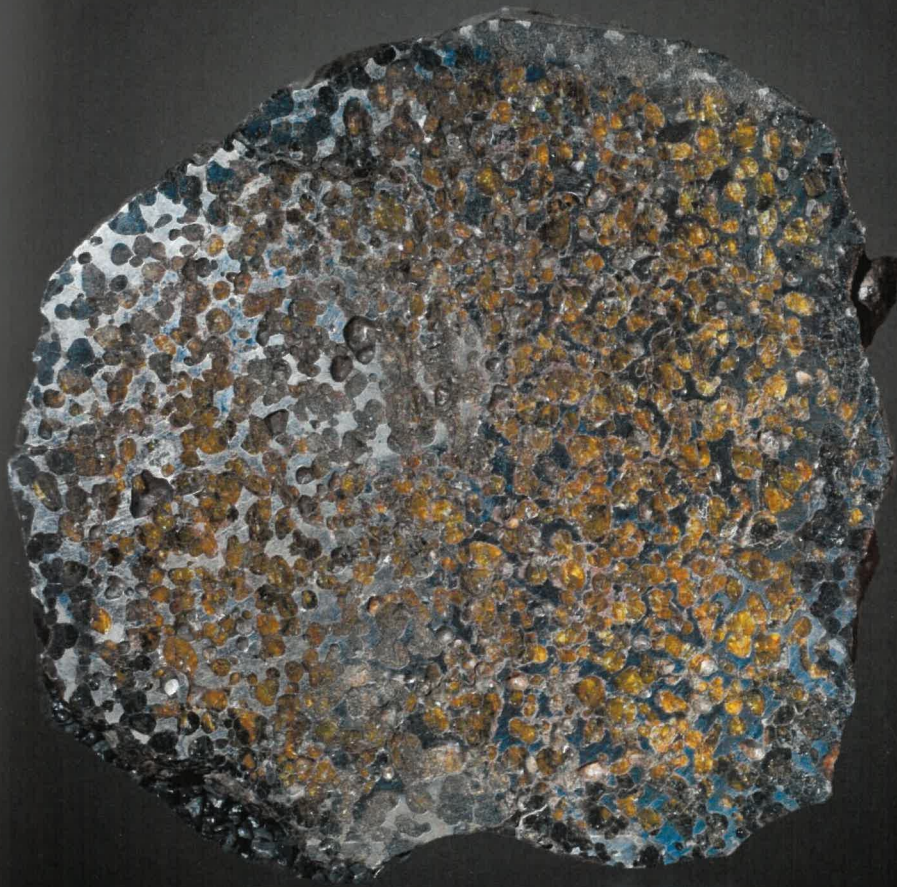
Peridot occurs in specific geological settings, often associated with volcanic activity and processes. It is primarily found in basaltic lava flows, which are rich in magnesium and iron, essential components of the peridot mineral.

Peridot may originate deep within the Earth's mantle, where high temperatures and pressures facilitate the crystallization of olivine minerals. Through tectonic forces and volcanic eruptions, these gemstone-bearing rocks are brought closer to the Earth's surface.

Peridot's presence in these regions can be attributed to processes like mantle upwelling, where molten rock rises from the mantle to form volcanic hotspots. As the magma cools and solidifies, peridot crystals form within the igneous rocks.

Extremely rarely, peridot can be found in meteorites, as it may have formed during the violent collisions and cooling processes within these extraterrestrial bodies.

These extraterrestrial Peridot are extracted from a rare iron nickel meteorites known as Pallasite, great care and precision must be applied when extracting it from its matrix as extremely few peridots managed to survive earth's entry even less managed to be extracted in one piece, not mentioning gem quality crystal.



Crystal of Olivine (Peridot) in sliced iron-nickel based meteorite (Pallasite)



Peridot's allure extends beyond our planet, with the discovery of this captivating gemstone in extraterrestrial realms. Peridot can be found in certain meteorites, specifically in a group called pallasites, which are composed of a mix of iron-nickel metal and olivine crystals.

These extraterrestrial peridot crystals are believed to have formed within the cores of asteroids or the mantles of other celestial bodies. The violent collisions between celestial objects result in the formation of pallasites, embedding peridot in these rare meteorites.

The presence of peridot in meteorites indicates its ability to withstand the extreme conditions of space and survive impact events. Studying extraterrestrial peridot provides insights into the geological processes and evolution of other celestial bodies. The discovery of peridot in meteorites showcases the widespread distribution of olivine-rich materials throughout the universe.

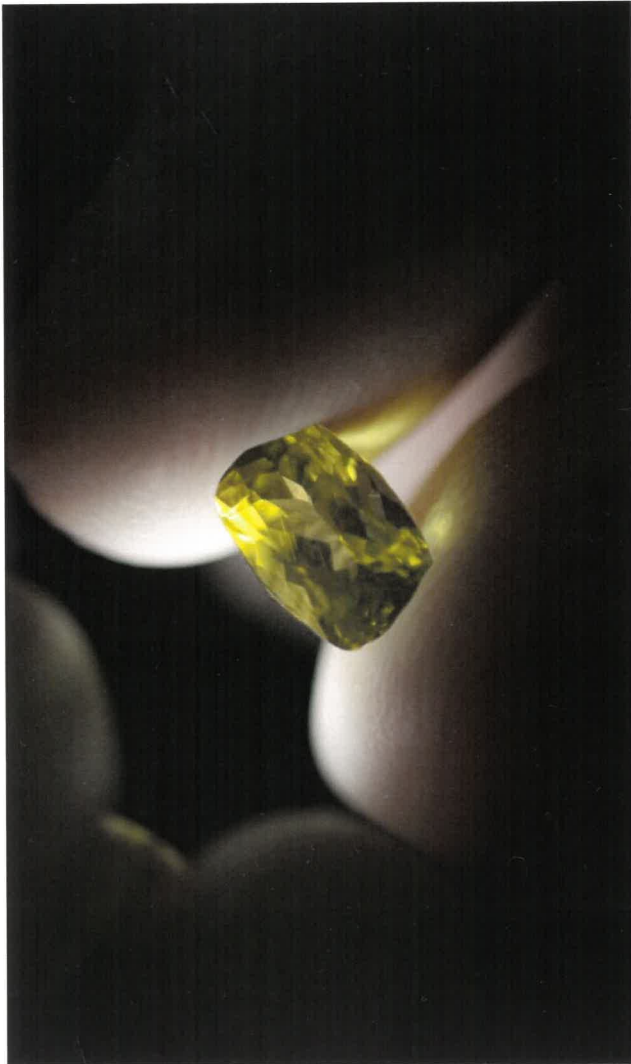
It offers a glimpse into the formation and composition of our solar system billions of years ago. Collectors and gem enthusiasts value peridot from meteorites as exceptionally rare and unique specimens.



COLOUR

PERIDOT

- *A*ll gemstones are gifts of nature.



Colour has the greatest influence on Peridot value, so the preferred Peridot's are intense to vivid colour saturation.

The most valued colour is vivid green to intense yellowish green, in medium to medium-dark tones.

Peridot's captivating colour ranges from pale yellow green to intense olive green, often with hints of golden or brownish undertones. The intensity of the green hue depends on the amount of iron present in its crystal structure. Its vibrant and fresh colour evokes feelings of vitality and renewal. The lush green tones of peridot are often associated with nature, symbolizing growth, abundance, and harmony. The colour of peridot is a visual testament to its natural beauty, making it a sought-after gemstone cherished for its vivid and mesmerizing green hues.



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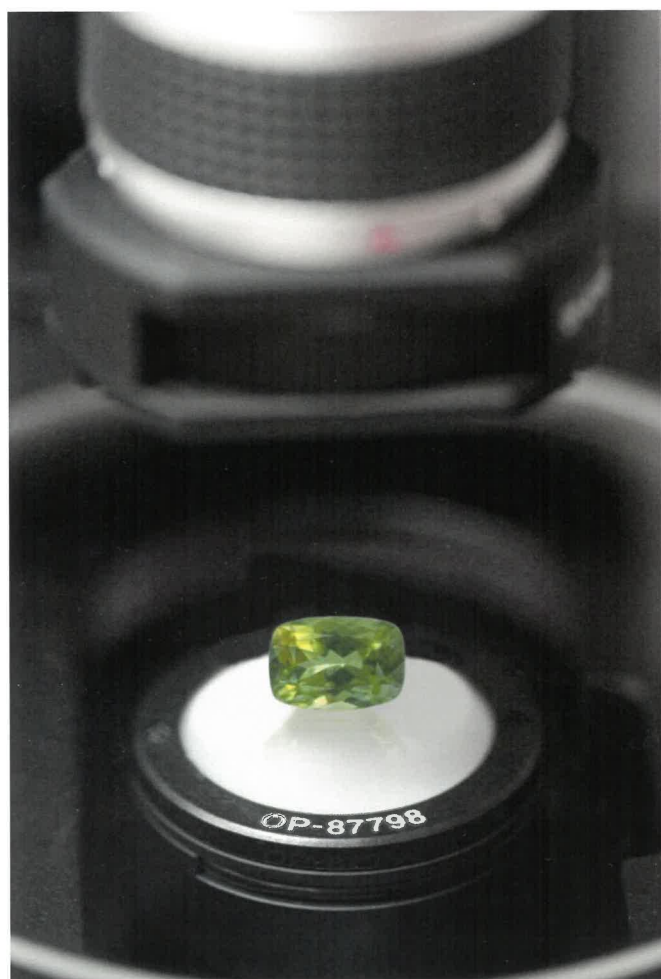
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ANALYTICAL PROPERTIES

I am among those who think that science has great beauty”

_ Marie Curie



The testing of a coloured gemstone at Bellerophon Gemlab involves the full range of analytical methods. Some are traditional such as measuring the refractive index and specific gravity. Others involve state-of-the-art testing such as spectroscopy and laser induced break down spectroscopy. Together, the combined techniques give a deep understanding of the gemstone properties.

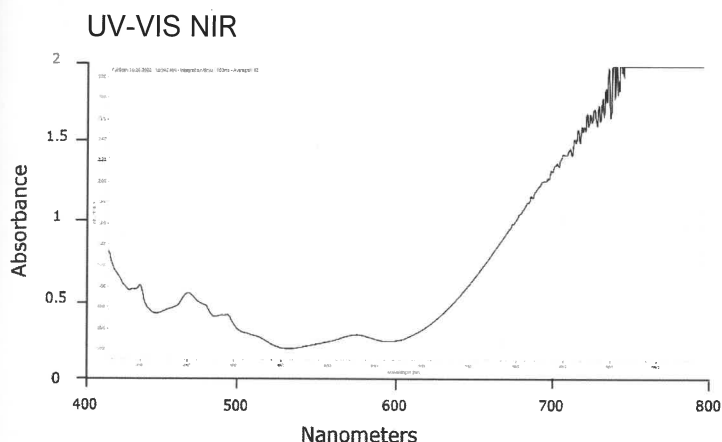
The present gemstone was studied with all available instrumentation by a team of experienced gemmologists. Their combined observation and data interpretation that are detailed in the following pages.

From these data: the chemical fingerprinting, and the spectral fingerprinting in the UV-vis-NIR region and the vibrational fingerprinting (Raman and FTIR range), are the most valuable characteristics for the “gemmological interpretation” of gemstone. The chemical fingerprinting is made using E.D.X.R.F (energy dispersive X-ray fluorescence) and L.I.B.S. (laser induced breakdown plasma spectrometry).

Spectral fingerprinting – UV-vis-NIR

Absorption spectra reveal which portions of light are absorbed by the gemstone and which are contained in the transmitted light. It is the type and quantity of foreign elements that determine how much and which light wavelengths are absorbed.

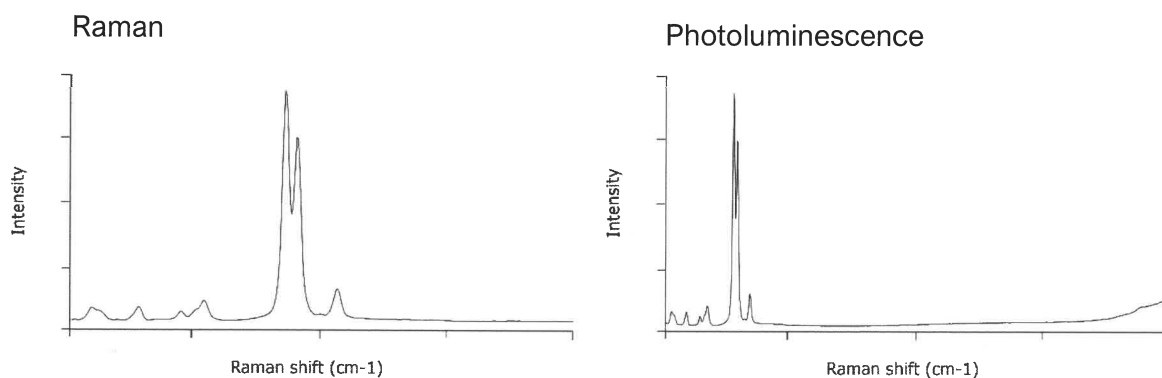
Ultraviolet Visible Near Infrared absorption spectroscopy is a complementary technique to EDXRF for examining chemistry because trace element chemistry controls colour in the gemstone providing information about the colour inducing element it contains.



Raman Spectroscopy

Raman spectroscopy is a non-destructive vibrational spectroscopy. A typical Raman instrument consists of a classical microscope with either, transmitted or reflected light, a low-power laser excitation source, the spectrometer for high resolution light analysis and an appropriate computer for data collection and analysis.

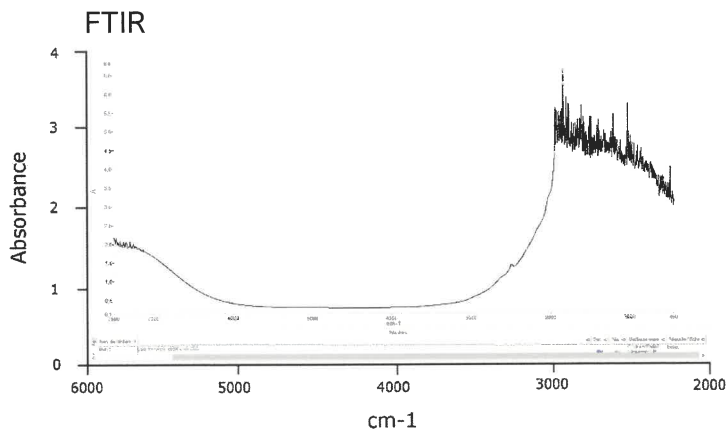
Raman spectrometers are useful for rapidly identifying gemstones since most materials produce characteristic Raman spectra. Most Raman spectrometers can measure photoluminescence as well as Raman scattering.



Infrared spectroscopy

In the infrared, spectral features generally arise from vibrations of molecular and structural components of the crystal. For example, carbon in diamond and water when present in a gemstone, have characteristic signals in the infrared.

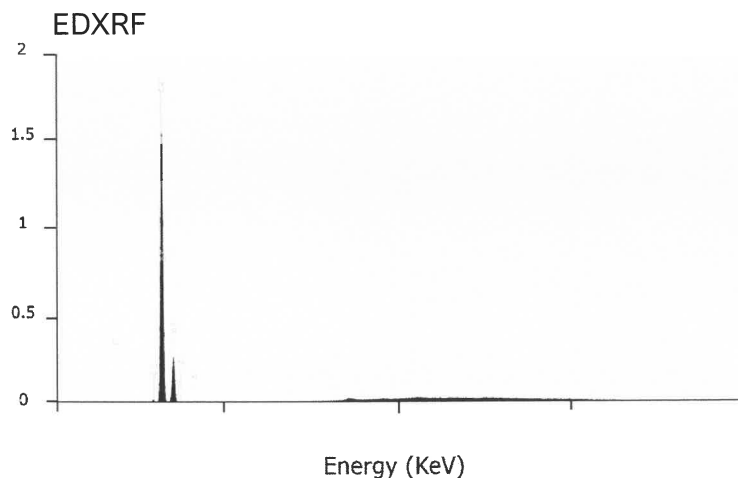
Infrared spectra can be used to help separate one gem material from another or to detect certain types of treatments. The infrared region of the electromagnetic spectrum is the energy range just beyond the red end of the visible spectrum. The unit by which infrared energy is usually measured is the wavenumber (number of waves per centimetre), which is expressed in reciprocal centimetres (cm^{-1}) (Stockton, 1987).

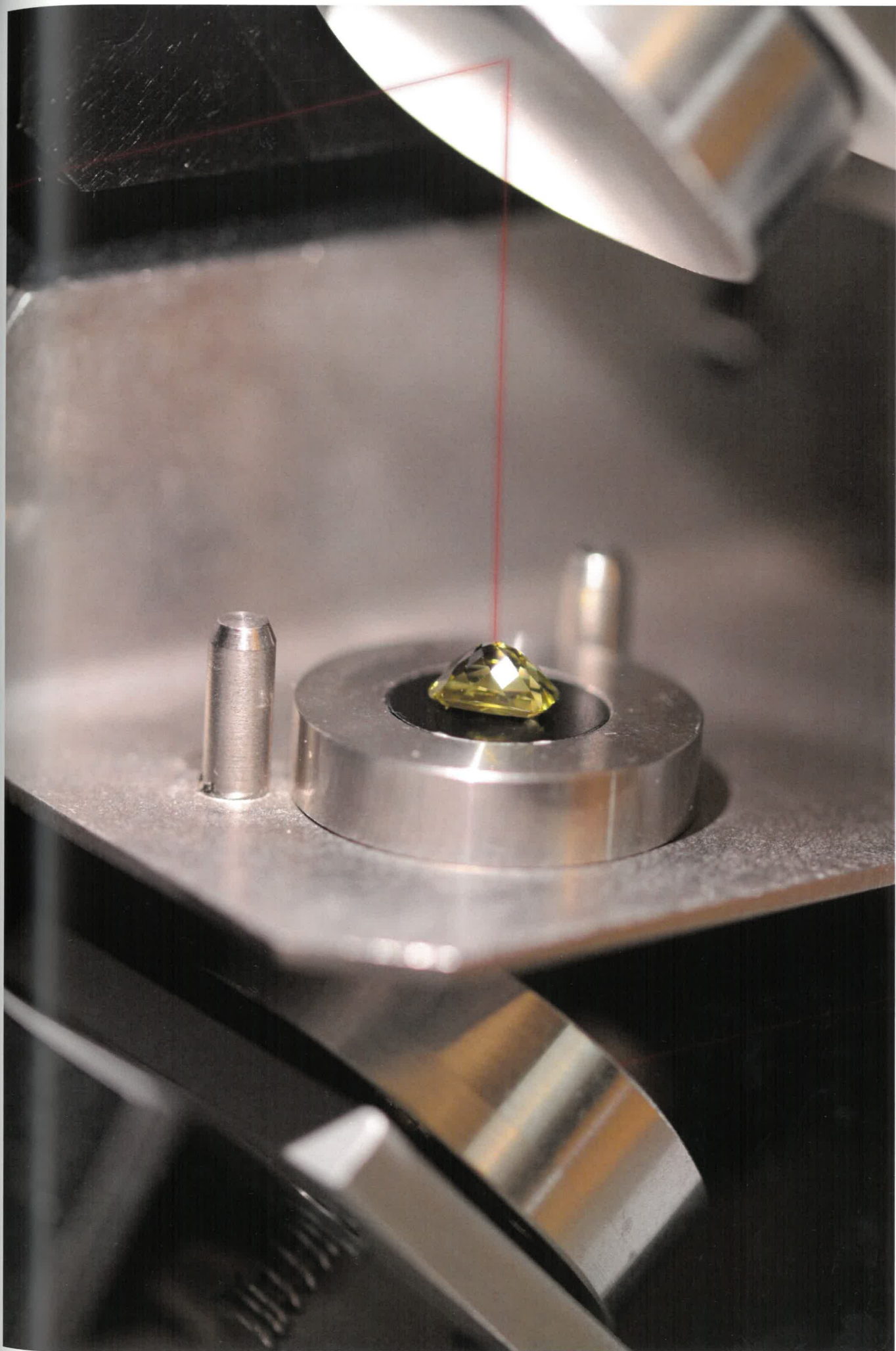


Chemical fingerprinting

The chemical fingerprint of a gemstone reflects the geological-mineralogical environment (composition of mineralizing fluids, host rock composition, temperature, and pressure conditions) at the time of its formation.

It is the contents and the ratios of the relevant elements (e.g., nickel, iron, and magnesium) that define the chemical fingerprinting from different geographic origins and/or from different geologic-genetic environments.

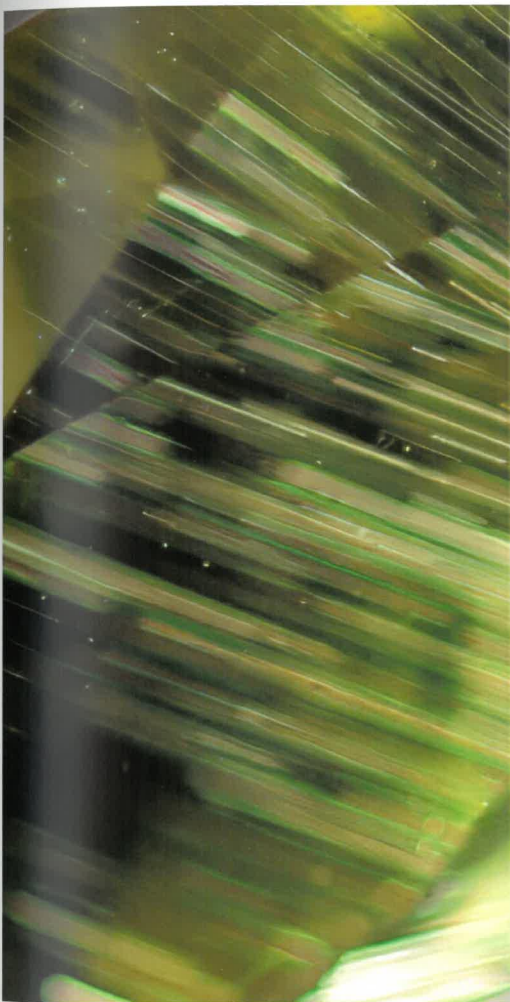






INTERNAL FEATURES

- *E*very gemstone is a reflection of its inner world.

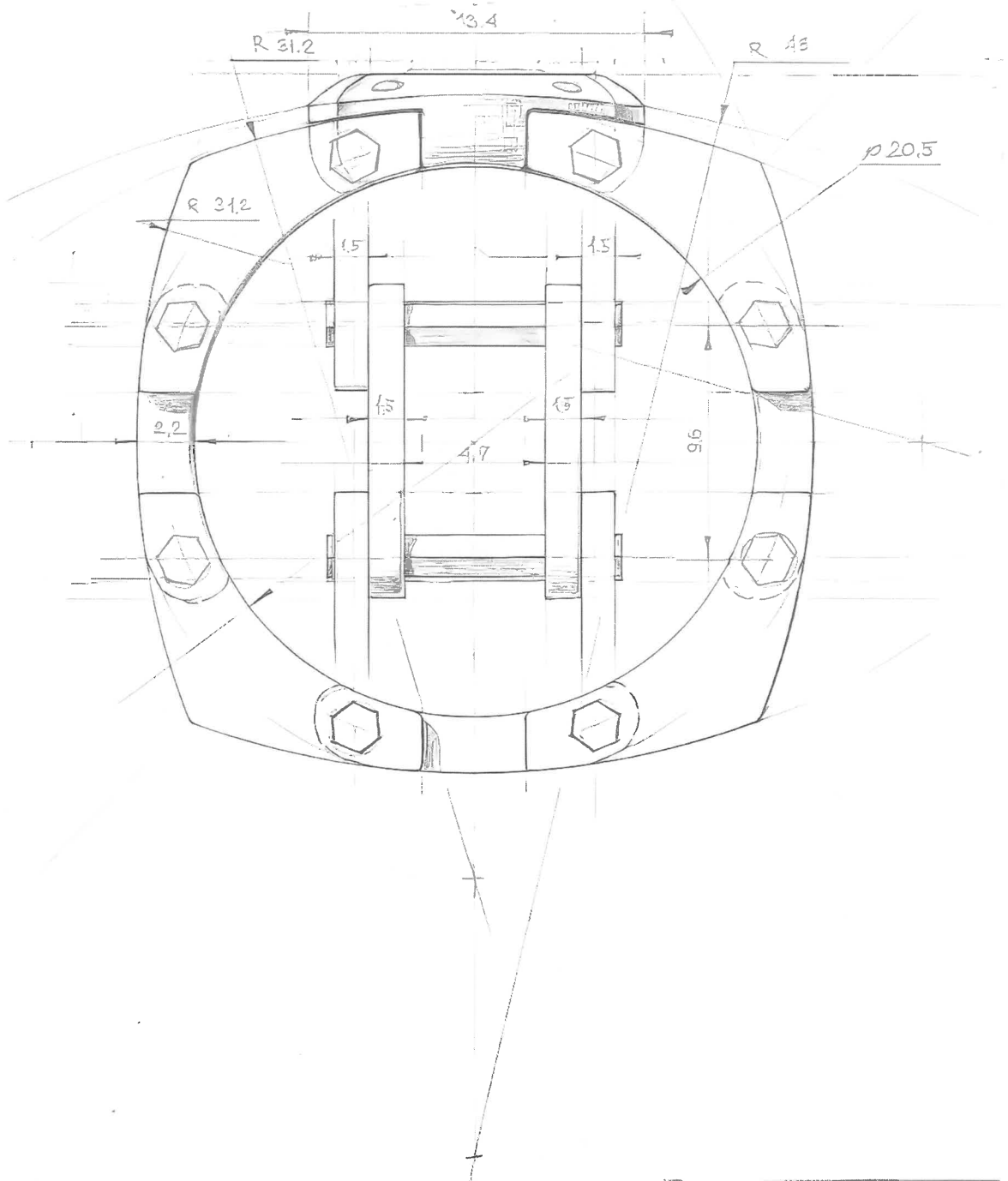


1A

The gemmological microscope is widely considered one of the most useful equipment in a gemmological laboratory. With high quality microscope and multiple illumination techniques, an experienced gemmologist can make detailed observations and highly accurate assessments.

Among the properties used for the characterization of coloured gemstones, the interpretation of the internal features is - in general - still the most common and most important routine examination for the gemmologist at Bellerophon laboratory.

The precise description and the identification of a gemstone inclusions is an important tool in distinguishing between genuine and synthetic as well as in determining the geographic origin. Study and documentation of the inclusion phenomena in the gemmological microscope are essential and an integral part of the testing procedures of a coloured gemstone.



NOTE FROM THE MAKER OF STELLAR

ASTER MONACO is proud to present to you one-of-a-kind platinum and rose gold ring assembled from 50 individually made pieces featuring absolutely unique and extremely rare Extraterrestrial Peridot named the "STELLAR".

Aster Monaco is a Monte-Carlo established jewellery brand renowned for its unmatched collection of fine jewellery creations featuring the universe's rarest gemstones. Every piece of jewellery created by Aster Monaco is truly unique, the exquisite rarity of the jewels we mount is expressed in our limited to only 12 superb pieces of jewellery per annum.

Every excellence we find in a gemstone is reflected by the metalsmith around it, crafted with the upmost precision and attention to details. Exclusive Aster Monaco collection features the rarest gemstones that meet tremendously rigorous quality criteria selection in terms of nature, colour, clarity, cut and the size that makes each gemstone an outstanding treasure having its own name and accompanied with a full set of documents by laboratories attributing its uniqueness and noteworthiness.

NOTE FROM THE AUTHOR

Having seen myself this amazing jewel loose as well as set in the jewellery, I can confidently express my astonishment not only to the incredible rarity of the extraterrestrial gemstone, but the unique and mind-blowing combinations of material, know-how, technology, and metalsmith needed to create this masterpiece.

The attention to details with the engineering applied to this jewellery is worthy of a spacecraft making Stellar an out of this world ring.

M.P.H. Curti, CEO & Founder of Bellerophon Gemlab.

SHAPE & CUT

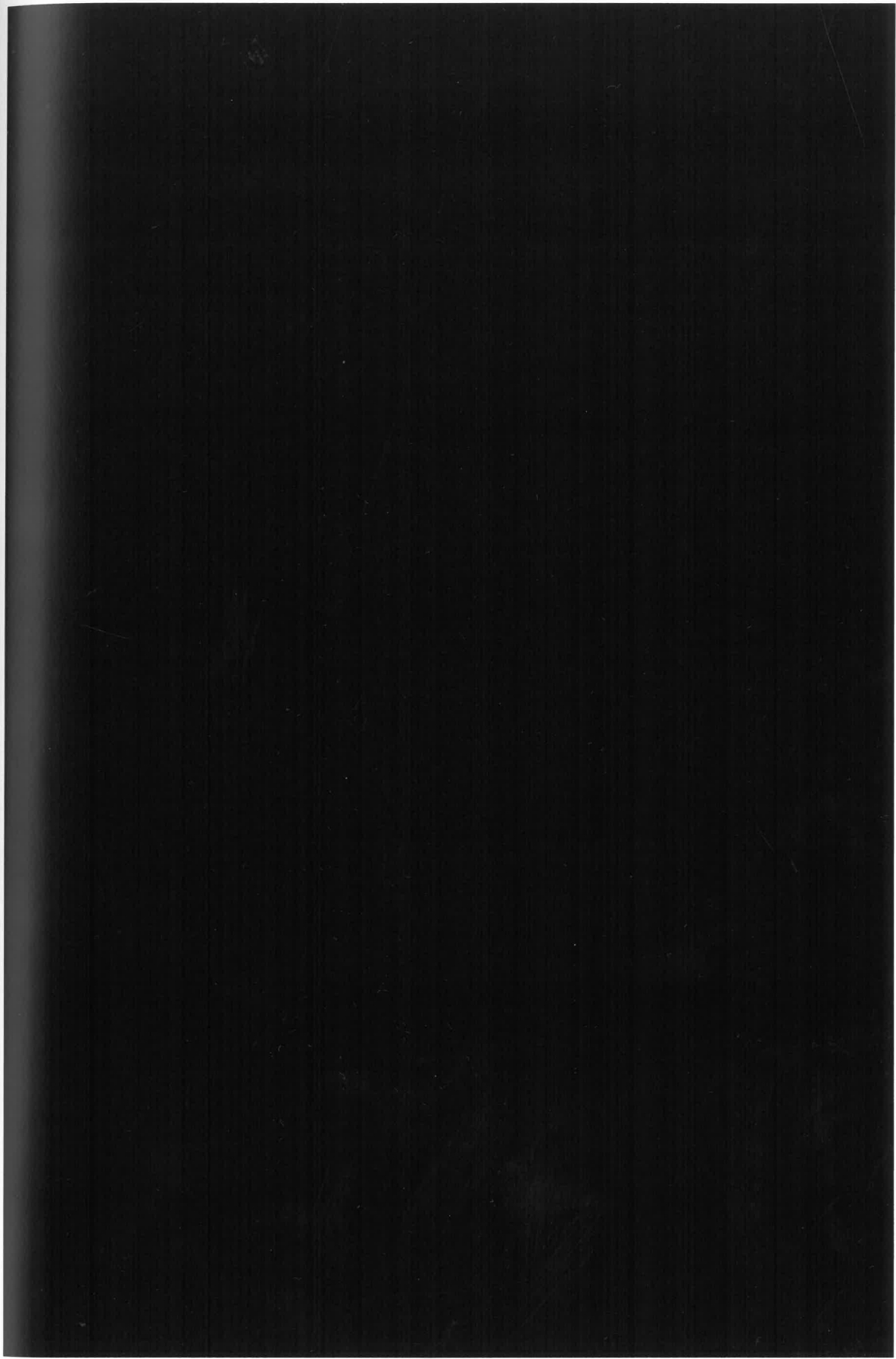
- "The cutting of a gem has to be finished before you can see whether it shines."

_ Leonard Cohen

Cutting rough Peridot present numerous challenges. The colour of the stone can be uneven so the master cutter must choose an orientation in which the finished stone will have an even face-up colour. Peridot is pleochroic, meaning its overall colour is changing depending on the crystal axis.

The present gemstone displays a particularly good brilliancy and good proportions. Achieved through skilful cutting of this Peridot.

The degree of lapidary craftsmanship adds value to the nature of this Peridot and contributes to the well-pronounced colour.



Bellerophon | Gemlab

We are an independent gemmological laboratory created for you to serve you in the attempt to comprehend and grasp the truth in this fascinating and multi facets world named "Gemmology".

We prefer to think of ourselves as more than just a gemmological laboratory. We are pioneers in new frontier where higher standards, transparency, and integrity meet.

With our head office in Paris, France and a full state-of-the art laboratory in Bangkok, Thailand, we are actively creating opportunity to further increase quality and set higher standard in our industry.

- Independent gemmological laboratory
- State of the art technology
- Highly qualified gemmologists
- Complete reference collection
- Unique combination of expertise
- Expert system / Artificial intelligence assisted
- Complete transparency

Technology

Bellerophon's R&D department harnessed thanks to successful partnership with leaders in other fields such as Artificial intelligence, Photography, Optics, Luminescence Spectroscopy, IT and Engineering new opportunities to better serve our customer worldwide and create a paragon of excellence.

Our research centre is equipped with state of the art heating furnaces and cutting facility, used for research and development for authentication of enhancement and research on origin determination only.

- Raman spectroscopy
- Photoluminescence spectroscopy (365nm, 532nm & 708nm)
- Ultraviolet visible near infrared spectroscopy
- Fourier transform infrared spectroscopy
- Energy dispersive X-ray fluorescence
- Laser-induced breakdown spectroscopy
- Ultraviolet imaging
- Refractometer
- Geiger counter
- Polariscope
- 3D scan system
- Keyence microscope

Knowledge

Director | **M.P.H Curti**

M.P.H Curti, Graduate Gemmologist is the director of Bellerophon since august 2018. Started his career as a gemstone cutter in Burma (Myanmar). Worked in Mozambique with Gemfields. Later traveling to many gems deposit and gem centers in Asia, Africa, Europe, and America. Assisted with the discovery of a new mineral, worked with GRS, Thailand, and featured in a GIA article about the discovery of a new gem deposit.

Managing Partner & Gemmologist | **T.Rozet**

T.Rozet, Advanced Training Course from SSEF and Gemmologist from Gem-A (GA) is the Bangkok Managing Partner of Bellerophon Gemlab BOI. Successfully finished the intense gemmological program with a detailed approach to identifying treatment and origin of ruby, sapphire, and emerald.

Research Associate | **Ferdin Joe J.J, PHD**

F.J.J Joseph, PHD is a lecturer in the Thai-Nichi institute of Technology, specialized in data science, with a P.H.D in computer Science and information System. He provides us with reliable system for data processing and comparative analysis.

Research Analyst & Junior Gemmologist | **H.P. Ellia**

H.P. Ellia is the research analyst, a dedicated member of our team with a specialty in analytical operation. He operates instruments such as EDXRF and Raman spectroscope. He provides gemmologists with the required data collection, and study gemmology.

Laboratory Manager & Gemmologist | **E. Marlin**

E. Marlin is the Laboratory manager and a Gemmologist of Paris, holder of the FGA diploma, worked for Cartier Paris, she is a dedicated member of our team with a specialty in analytical operation. She interprets data on instruments such as FTIR and Raman micro spectroscopy.

Gemmologist | **Dr.G. Musilli**

G. Musilli is a doctor in Earth Science, with specialization in Crystallography, Petrography and Mineralogy from the University of Milan coupled with a bachelor in Geoscience from the University of Turin. Her thesis on Ethiopian Emerald received the best year thesis award "Ernesto Fea". She is currently a Junior gemmologist in the Paris team.

best year thesis award "Ernesto Fea". She is currently a Junior gemmologist in the Paris team.

Reference Collection

- Comparative analysis on one of the most complete databases in gemmology.

A reference collection of more than 9000 samples including most gemstones, all known synthetics made, all enhancement ever detected and more than 4000 gem-quality samples for origin determination for Spinel, Chrysoberyl, Opal, Emerald, Ruby & Sapphire. More than 30 countries of origin referenced.

- Identification: +600 minerals recorded
- Treatment: All treatments known for all major gemstone recorded
- Genesis: Collection of all beryl & corundum synthetic
- Origin determination: + 4000 samples for origin

An important extraterrestrial Peridot

This magnificent gemstone was granted
the extremely rare Bellerophon
Privilege Award No. 142

This book is an appendix to the
gemmological report No. A7822

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