Sussex Mineral & Lapidary Society

Newsletter

Issue 09 February 2025

Malachite, DRC, Photo Credit Commons Wikimedia

From the Editor

Welcome to the ninth edition of the SMLS Newsletter. Thank you to all this months contributors, I hope you enjoy the selection. We look forward to spring arriving and getting back out on the beaches and in the hills searching for treasure.

Samantha

Inside this issue

From the Chair

Dear Members,

I trust everybody enjoyed their Christmas and New Year activities. The shorter days, and maybe not so inviting weather at least gives some time to catch up on mineral reading and mineral cataloguing. I am pretty bad about labelling and cataloguing but I have made some real progress. I think 90% of my specimens are now labelled, photographed, valued and listed in a spread sheet, hopefully you are more disciplined than me.

It was good to see so many members attending the talk by Frank Ince in January, a lively bunch and a great talk. If you missed it, the recording link is in the Newsletter. If you are new to Zoom please join the talk by Phil Taylor on 7th Feb, it is a very enjoyable way to spend an hour. Simply select the link in the email I send out or in the Newsletter, that's all there is to it.

Thank you to the many members who have paid 2025 membership subscription, and a reminder to those still thinking about it, including me!

It will be an important year for SMLS as the Committee finally makes decisions on the future direction of the Society. The Committee has been reviewing and discussing this issue for 2-3 years but we feel 2025 is now the time to take some actions. We will be engaging with all members some time in February so please take time to give us your feedback.

Although still some weeks away the next field trip is Sheppey in March, weather permitting. It is a regular haunt but an enjoyable start to the year, if somewhat physically challenging. Please let me know if you intend to come along, but an email will go out mid February.

In the mean time, stay warm and hopefully talk to you on Zoom on February 7th.

Colin

Mining in the DRC, Photo Credit txfnews.com

Events

7th February – Club Meeting "The Charles Rashleigh Collection" by Phil Taylor, Zoom here

3rd February – Gideon Mantell Talk, Lewes

8th February – Lewes Fossil Festival

9th February – Gideon Mantell Walk, Lewes

22nd February – Essex Mineral Show

5th March – Field Trip to Sheppey

7th March – Club Meeting "Mining Adventures in the Congo" by Tomek Praszkier, Zoom link here

15/16 March – South of England Mineral Show – Ardingly Showground RH17 6TL

16 March – Oxford Mineral Show

19 March – Field Trip Samphire Hoe

4th April – Club Meeting "Northern Ireland Field Trip" by Nick Hawes

Next Club Meeting – Friday 7th February

"The Charles Rashleigh Collection" by Phil Taylor

Read about Charles here and here

Read about his brother Philip here

SMLS Annual Subs Overdue – If you have not paid your subs for 2025 please get onto it ASAP. SMLS/Account 01050455/ Sort/30-92-92.Adults £10, Families £18.

Click icon for SMLS 2025 programme

News

Dinosaur highway – photo credit Oxford University Museum of Natural History.

Fossils

Major new footprint discoveries on Britain's 'dinosaur highway'

Alien plant fossil in Utah doesn't belong to any known species

Discovery of a rare new fossil sheds light on NZ's extinct dolphin-like reptiles

Prehistoric fossil in NT museum found to be new species of large carnivorous turtle

8 Fossil Discoveries That Changed Our Understanding Of Life On Earth

555-million-year-old worm-like fossil discovered, first from Precambrian era

Tiniest known cat fossil unearthed at 300,000-year-old site in east China

The Othniophyton elongatum fossil. (Image credit: Florida Museum photo by Jeff Gage)

Minerals & Rocks

Emeralds for Sale: The Taliban Look Below Ground to Revive the Economy

Spectacular Native Silver: Rarer Than Gold

Amethyst from Newfoundland, Canada: Geology, Internal Features, and Fluid Inclusion Microthermometry

The Ice Cream Drop Meteorite

New minerals found at world's largest rare-earth mine can boost defense tech

China discovers NEW Mineral on Moon

Why artisanal miners need a digital investment marketplace

Frank Ince's talk on "Minerals from Leicestershire" – listen here if you missed it in January

Tucson 2025 – survival guide could be handy for a club trip in 2026? (Nick)?

Live from The Barlows at the Rockyard 2025

(Full coverage of the show in the next Newsletter)

Native Silver from Kongsberg Norway - Photo Credit Abobe Stock/Björn Wylezich

News

Use Ctrl + Click on the underlined text to link straight to the articles.

Gems & Lapidary

40 best jewellery quotes of 2024

All about Dolomite

Cutting a rare Black Harlequin Opal (video)

The Most Valuable Auction Jewels of 2024

Favourite pieces of the week from 2024

GIA enhances emerald reports

The Museu Do Tesouro Real (Royal Treasure Museum), Lisbon

All about Apatite

The Eden Rose - Photo credit Rapaport/Christies

Apatite – photo credit Gemworld

Videos & Podcasts

13 volcanoes seen from space

Top 10 most dangerous minerals

Coyamito agates

Quartzsite 2025 Desert Gardens Gem and mineral show

Quartzsite AZ 2025 Road stop number 2

Ring of the month

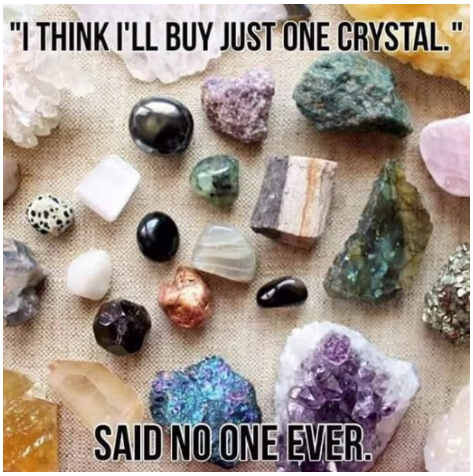
Paraiba Tourmaline ring with Brazilian Paraiba pavé and Diamonds, 24.23 CT
£446,557.18
Photo credit – 1stDibs

Quote of the month

"Charles Darwin viewed the fossil record more as an embarrassment than as an aid to his theory.."

Stephen Jay Gould

Chuckle Corner



Black Vietnamese Tektites: A Geological Perspective on Impact Glass

Black Vietnamese tektites are naturally occurring glasses formed by the extreme heat and pressure generated during a meteorite impact. These tektites are primarily found in southern Vietnam and are part of the Australasian strewn field, the largest and most extensive tektite distribution area, covering nearly 10% of Earth's surface. Their formation, composition, and distribution offer valuable insights into the processes that occur during high-energy extraterrestrial impacts.

Formation and Composition - Tektites are classified as impact glasses, created when terrestrial rocks and soils are melted and ejected into the atmosphere during a meteorite impact. The extreme temperatures (likely exceeding 2,000°C) and pressures associated with the impact liquefy the local material. This molten material is propelled into the atmosphere, where it undergoes rapid cooling and solidifies into glass. Black Vietnamese tektites are notable for their deep black appearance, which, when examined under strong light, reveals a translucent brown hue (mine is more of a green colour). They are primarily composed of silica (SiO_2), with smaller amounts of aluminium oxide, iron oxide, and trace elements such as magnesium, calcium, and potassium. This composition is indicative of the terrestrial origin of the source material, with minimal contamination from the impacting body.

Vietnamese Tektite (5 x 4 cm) - Photo credit Geminlogical

Link to the Australasian Strewn Field - The Australasian strewn field is dated to approximately 790,000 years ago, based on radiometric dating of tektites and associated sediments. It is believed to have been caused by a massive meteorite impact somewhere in Southeast Asia. While the precise location of the impact crater remains uncertain, recent research suggests it may be the hypothesized Lake Bosumtwi-like crater buried under sediments in Laos or another nearby region. Vietnamese tektites are particularly abundant and well-preserved due to the country's proximity to the impact site, likely placing it near the central ejecta zone of the event. Their aerodynamic shapes, such as teardrops, disks, and dumbbells, result from their high-velocity ejection and subsequent cooling during atmospheric re-entry.

Scientific Importance - Black Vietnamese tektites provide valuable information about impact dynamics, including ejection velocities, cooling rates, and compositional variations. Their homogeneity and lack of internal crystal structures suggest rapid cooling, while their chemical composition allows geologists to infer the nature of the target material.

Vietnamese Tektites (continued)

Studies of their distribution and chemical fingerprint have also contributed to understanding the scale and effects of the Australasian impact event. The event is hypothesized to have had significant environmental consequences, possibly influencing regional climates and ecosystems.

Significance for Earth Science - Tektites like those found in Vietnam are natural laboratories for studying impact processes on Earth and other planetary bodies. They provide analogues for understanding cratering events on planets such as Mars and the Moon, where similar glasses have been found. The study of Vietnamese tektites also highlights the resilience of geological materials to extreme forces and contributes to broader discussions about Earth's geological history and extraterrestrial interactions.

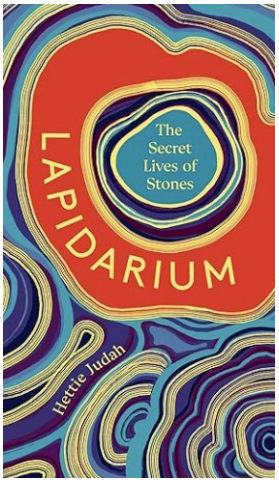
Conclusion - Black Vietnamese tektites are more than just fascinating natural artifacts—they are windows into one of Earth's most dynamic geological processes: meteorite impacts. Their unique formation, distribution, and composition continue to inspire scientific exploration and deepen our understanding of planetary geology.

Vietnamese Tektite under strong light - Photo credit Geminlogical

Lapidarium – The Secret Lives of Stones

'A real cabinet of curiosities' Sunday Times

From the hematite used in cave paintings to the moldavite that became a TikTok sensation; from the stolen sandstone of Scone to the unexpected acoustics of Stonehenge; from crystal balls to compasses, rocks and minerals have always been central to our story.



3,000 years ago Babylonians constructed lapidaries - books that tried to pin down the magical secrets of rocks. In Lapidarium, renowned art critic Hettie Judah explores the unexpected stories behind sixty stones that have shaped and inspired human history, from Dorset fossil-hunters to Chinese philosophers, Catherine the Great to Michelangelo.

My favourite Etsy find this month – an AAA flawless 11ct purple taaffeite for £37.57. Who said that taaffeite was exceptionally rare and expensive! I didn't buy it! My guess glass or synthetic sapphire…….

Red Beryl – Nature's rare gem

Red beryl is a dazzling and rare gemstone that captivates collectors and gem enthusiasts alike. Known historically as "bixbite," it is the red variety of the mineral beryl, a family that includes other well-known gemstones like emerald, aquamarine, and morganite. Red beryl owes its striking hue to trace amounts of manganese, setting it apart from its counterparts in both appearance and rarity.

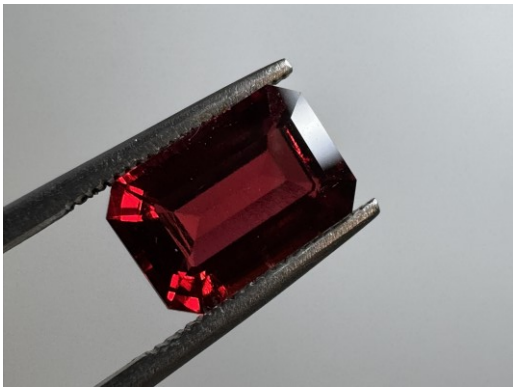
Beryl is a versatile mineral that manifests in a range of colours, each caused by different trace elements:

- Emerald (green): Coloured by chromium and/or vanadium.
- Aquamarine (blue-green): Gets its colour from iron.
- Morganite (pink): Coloured by manganese.
- Heliodor (golden): Iron gives this variety its yellow hue.
- Goshenite (colourless): Pure, with no colouring impurities.

Red beryl is the rarest of them all, prized for its vibrant red colour, which results from the presence of manganese.

The name "bixbite" was originally given to red beryl in honour of the mineralogist Maynard Bixby, who first identified the gem in Utah. However, confusion with "bixbyite," a completely different mineral species, led to the widespread adoption of "red beryl" as its official name. This clarification helps avoid mix-ups in gemmological circles and among collectors.

Natural red beryl crystal (Utah) - Photo credit Geminlogical



Synthetic Red Beryl 3.73ct - Photo credit Geminlogical

Rarity and Locations - Red beryl is among the rarest gemstones in the world, with a scarcity that rivals or exceeds that of diamonds. It is found primarily in the United States, with its most famous locality being the Wah Wah Mountains in Utah. Small occurrences have also been noted in New Mexico and Mexico, but these are not commercially viable sources.

The sizes of red beryl crystals are typically very small. Most gem-quality specimens are under one carat, and stones exceeding two carats are exceptionally rare. The combination of its limited geographic distribution and small crystal sizes contributes to its extraordinary rarity and high value.

Red Beryl (continued)

Interesting Laws and Facts

- Mining Restrictions: Most red beryl is found on private land in Utah, with mining operations requiring strict adherence to property and mineral rights laws.

- A Collector's Gem: Red beryl is approximately 1,000 times rarer than diamonds, highlighting its extraordinary exclusivity."

- Historical Missteps: Due to its early misidentification and naming confusion, red beryl's scientific and gemmological recognition came much later than other beryl's.

A Collector's Treasure - Red beryl's scarcity and vibrant red colour make it a coveted item among gem collectors. Its limited supply ensures that prices remain high, and its uniqueness elevates its status as a collector's gem. Despite its beauty, red beryl is not as commonly used in jewellery as emerald or aquamarine. Its rarity and typically small sizes mean that pieces set with red beryl are often bespoke or intended for collectors rather than mass-market jewellery. However, its hardness of 7.5–8 on the Mohs scale makes it suitable for use in jewellery if handled carefully.

A friend received a gift of a necklace and earring set mounted with both red beryl and benitoite, from Tucson. Two of the rarest gemstones set together – quite incredible. There is some "red beryl" jewellery available online but I would expect that a high proportion of it is either synthetic or something else.

Synthetic Red Beryl: Challenges and Innovation - Unlike other beryl's, such as emerald and aquamarine, red beryl is exceedingly difficult to synthesize. The reasons for this are twofold:

Complex Chemistry: The conditions required to replicate the presence of manganese in the crystal structure are challenging to achieve.

Limited Demand: The rarity and niche appeal of red beryl mean there is less commercial incentive to produce synthetic versions.

While synthetic emeralds and aquamarines are widely available, synthetic red beryl remains scarce. One notable player in the field is Tairus, a Thai-Russian collaboration known for producing high-quality synthetic gemstones, including red beryl. Tairus uses hydrothermal growth techniques to create synthetic red beryl, mimicking the natural conditions of its formation. However, even their production is limited, and synthetic red beryl remains a rare find.

Tairus had sold out so I bought my piece from Gemtasy on Etsy, it was a bit of a risk however it is genuine and I am delighted with it. Gemtasy specialises in creating high quality synthetic gemstones. I am saving up for a synthetic alexandrite……..

Mindat links

Gideon Mantell: Pioneer of Palaeontology

Gideon Mantell (1790–1852) stands as one of the foundational figures in palaeontology, a discipline that was just beginning to take shape during his lifetime. Born in Lewes, Sussex, Mantell was a man of many talents: a physician by trade, a self-taught geologist, and an avid fossil collector. His work laid the groundwork for understanding the ancient history of life on Earth, particularly the age of dinosaurs. Mantell's most significant contribution was the discovery and description of Iguanodon, one of the first dinosaurs ever identified. In 1822, while examining rocks from a quarry near Cuckfield, Sussex, Mantell and his wife, Mary Ann, found a large fossil tooth. Mantell recognized the tooth's similarity to that of modern iguanas but noted it was far larger, belonging to a previously unknown species. This discovery, coupled with additional fossil finds, led Mantell to propose the existence of giant reptiles that lived millions of years ago. Mantell's work predated Charles Darwin's On the Origin of Species and contributed to a growing awareness that Earth's history was far older and more complex than previously believed. Despite his groundbreaking insights, Mantell's life was far from easy. He faced professional rivalries, particularly with Sir Richard Owen, who coined the term "Dinosauria" but often downplayed Mantell's contributions. Additionally, Mantell endured financial difficulties and declining health later in life, which overshadowed his achievements.

Beyond Iguanodon, Mantell also studied fossils from the Weald, the region of southeast England where he lived, and provided important evidence of prehistoric ecosystems. His detailed observations and writings, such as his book The Wonders of Geology, helped make geology and palaeontology accessible to a wider audience. Though often overshadowed by contemporaries like Owen, Mantell is now recognized as a pioneer whose dedication and curiosity expanded our understanding of the prehistoric world. His story serves as a testament to the power of persistence and passion in the pursuit of knowledge.

Read more about Gideon here

Sales, Wants & Swaps

I found these handmade fossil mugs, they are a lovely blueish grey colour and have a three dimensional ammonite on one side and trilobite on the other. Very unique and a really good size (big), 9cm tall and 9cm wide. Boxed £20 each, contact me for details.

Wanted

Lab grown minerals and gemstones – I collect synthetic ones, if you have any that you would like to sell please let me know.