CRITICAL MINERALS ASSOCIATION

MARCH 2021

CMA PRESS RELEASE: 15TH MARCH: CRITICAL MINERALS MAKE WAVES IN PARLIAMENT
HUMBER GETS GREEN LIGHT FOR FREEPORT STATUS
CANADA'S CRITICAL MINERALS LIST
WELCOMING TIRUPATI GRAPHITE & CORNISH METALS
ESG GOOD NEWS STORY SPOTLIGHT: DALRADIAN
Welcome to our March Critical Minerals Association monthly newsletter & updates on the critical minerals space.

Read on for:

- APPG Highlights: 'Strategic, Secure & Successful: The Australian Approach to Critical Minerals'
- Humber Gets Green Light for Freeport Status from UK Chancellor - Pensana
- Vauxhall at Ellesmere Port and Battery Manufacturing Strategy - Commons Urgent Question
- CMA Interview: The Royal Society of Chemistry - Elements in Danger
- Welcoming our Newest Members - Tirupati Graphite & Cornish Metals!
- The UK’s Green Future & Mining in the South West
- Roskill: Critical Materials: Canada Unveils Critical Minerals List
- Mkango: Malawi Rare Earths Project Flotation Pilot Plant Success
- Argus: US, Europe RE Supply Chain Emerges from EF, Neo Deal
- Tungsten West - Set to Resume Operations at Hemerdon Mine
- Critical Mineral News
- ESG Good News Story Spotlight
- CMA - This is Us: Ben Lepley & Lucy Crane
- Responsible Raw Materials - 2021 Conference

This month’s newsletter has been put together by CSM MSc Exploration Geology Olimpia Pilch.

Kirsty & Jeff

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Got a suggestion? Want to feature in next month’s newsletter? Contact kirsty@criticalmineral.org

Want to learn more? Check out our website: https://www.criticalmineral.org/ & follow us on twitter @CMA_Minerals
Critical Minerals took centre stage for the first time in the UK Parliament with a morning meeting between the UK and Australia and also the first House of Commons Chamber debate on critical minerals in the evening led by Alexander Stafford MP, Vice Chair of the APPG for Critical Minerals.

Alexander Stafford MP said:

"Critical minerals are absolutely vital for our low carbon industrial capabilities and post-Covid recovery. In fact, these minerals are becoming more and more important by the day. Without them, our society just cannot function.

The consequences of instability in the critical minerals supply chain would be terrible for both the economy and our wider net zero ambitions.

I am so pleased to have been able to lead this important debate. The government must now take swift action to diversify these supply chains and reduce our reliance on unstable providers."

READ ON HERE

THE PARLIAMENTARY DEBATE CAN BE FOUND HERE
The Critical Minerals Association hosted the APPG Critical Minerals event, 'Strategic, Secure & Successful: The Australian Approach to Critical Minerals', on Monday 15th March led by:

- Alexander Stafford MP, Vice Chair, APPG Critical Minerals
- The Hon George Brandis QC, the Australian High Commissioner to the United Kingdom
- Her Excellency Vicki Treadell CMG, MVO, the British High Commissioner for Australia
- David Grabau, Senior Investment Specialist, Australian Trade and Investment Commission

HIGHLIGHTS & RECORDING HERE
Canada’s Minister of Natural Resources, Seamus O’Regan Jr., announced the release of a Canadian critical minerals list during the virtual PDAC 2021 Convention.

**Canada’s Critical Minerals: List:**
- Aluminium
- Antimony
- Bismuth
- Cesium
- Chromium
- Cobalt
- Copper
- Fluor spar
- Gallium
- Germanium
- Graphite
- Helium
- Indium
- Lithium
- Magnesium
- Manganese
- Molybdenum
- Nickel
- Niobium
- Potash
- REEs
- Scandium
- Tantalum
- Tellurium
- Tin
- Titanium
- Tungsten
- Uranium
- Vanadium
- Zinc

For more information, visit our website at [nrcan.gc.ca/criticalminerals](http://nrcan.gc.ca/criticalminerals)
The following Answer to an Urgent Question was given in the House of Commons on Monday 1 March.

“It is my priority as Business Secretary to ensure that the UK continues to enjoy the benefits from our transition to ultra-low and zero-emission vehicles by continuing to build an agile, innovative and cost-competitive supply chain, which we need to secure vital international investment. With that in mind, we remain dedicated and absolutely committed to securing UK battery manufacturing.

As part of the Prime Minister’s 10-point plan, we have already announced £500 million to support the electrification of vehicles and their supply chains, and other strategically important technologies, through the automotive transformation fund over the next four years. We continue to work with investors through the automotive transformation fund, and to progress plans for manufacturing the batteries that we will need for the next generation of electric vehicles here in the UK.”
UK Chancellor Rishi Sunak announced that the Humber will be made a Freeport during the Government’s 2021 Budget on 3 March 2021.

The Humber is one of eight Freeports announced in The Budget and houses the world-class Saltend Chemicals Park, managed by the pxGroup, where Pensana proposes to build its magnet metals separation facility.

Each Freeport will consist of a broad range of facilities that benefit from Customs Zones or Tax sites as part of measures aimed at levelling up and generating jobs and investment.
We're delighted to welcome our newest member to the Critical Minerals Association - Tirupati Graphite PLC! Tirupati Graphite PLC is a fully integrated specialist graphite and graphene producer, with operations in Madagascar and India.

The Company is delivering on this strategy by being fully integrated from mine to graphene. Its global multi-location operations include primary mining and processing in Madagascar, hi-tech graphite processing in India to produce specialty graphite, and a state-of-art graphene and technology R&D centre to be established in India.

They received the 'London Stock Exchange 'Green Economy Mark' which recognises companies that derive 50% or more of their total annual revenues from products and services that contribute to the global green economy.

Welcome to the Group!
The Critical Minerals Association is delighted to welcome our newest member - Cornish Metals!

Cornish Metals is building a portfolio of strategic metals assets in the United Kingdom and North America.

Cornish Metal’s near-term strategy is to focus on exploration and delineation of the near-surface high grade copper and tin mineralization at the United Downs project in Cornwall, UK. Tin is called the "glue" of metals, as it is used to bind things together. Tin is also a critical component of high tech hardware and electrical vehicles, robotics and renewables.

In addition to United Downs, the company owns the South Crofty tin project. South Crofty has a long history of mining, with production commencing in 1592, and continuing up until 1998. The project has an active mine permit (Underground Permission) valid until 2071, Planning Permission to build a new process plant, and an Environmental Permit to dewater the mine.

Welcome to the group!
CMA Interviews The Royal Society of Chemistry - Elements in Danger

The Critical Minerals Association's 'Perception of Mining Group' Chairs, Lucy Crane, Cornish Lithium & Ben Lepley, SRK Consulting did a brilliant interview with the Royal Society of Chemistry about their work on the circular economy and critical raw materials with:

- Dr Karen Stroobants, Science Policy Unit Lead
- Elisabeth Ratcliffe, News and Media Executive, leading on communications and thought leadership campaigns

HIGHLIGHTS & RECORDING HERE
Mkango: Malawi Rare Earths Project Flotation Pilot Plant Success

Mkango has announced the successful completion of the flotation pilot plant programme for the Songwe Hill rare earths project.

- Mkango’s flotation pilot plant programme has been completed at ALS Metallurgy in Perth, Australia, and was effective in scaling up a new, optimised flotation regime for the Project.

- The results of the flotation pilot programme will be announced in due course, and the flotation concentrate produced will be supplied to ANSTO in Australia for hydrometallurgical piloting.

- Pre-piloting test work is already underway at ANSTO in preparation for pilot testing of the front end of the hydrometallurgical processing flow sheet.

- Discussions in relation to sites for a rare earth separation plant are ongoing – this will process the high grade, purified mixed rare earth carbonate produced at Songwe, enriched in high value neodymium, praseodymium, dysprosium and terbium.

READ ON HERE
Tungsten West Limited's Max Denning, CEO & Director, talks to Proactive London about the UK private company that is planning to resume operations at the Hemerdon Tungsten-Tin Mine, located in South Devon.

The Hemerdon Mine, also known as Drakelands was formerly operated by Wolf Minerals who went into receivership in 2018 after having invested over £200 million into the project.
What role does mining play in UK's green future?

Rowan Halkes (Graduate Research Assistant, Camborne School of Mines) considers the challenges and opportunities associated with the UK's drive for a 'green future' with emphasis on mining in the south west of England.

"To meet emissions targets and keep within +1.5oC of global warming the world is increasingly turning to green technologies, such as solar panels, wind turbines, electric vehicles (EVs) and large-scale battery storage."

READ ON HERE

MORE UNIVERSITY RESOURCES CAN BE FOUND HERE

<table>
<thead>
<tr>
<th>Material</th>
<th>Tesla Production @ 20m</th>
<th>Material Required (t)</th>
<th>Production 2019 (t)</th>
<th>% of Production</th>
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As part of its commitment to the environment, Dalradian has helped schools across Northern Ireland plant hundreds of broadleaf native trees.

Working with Carbon Footprint Ltd, a leading sustainability and climate change solutions provider, Dalradian donated 700 broad leafed native species to six primary and one secondary school across Northern Ireland.

As a result of this, and certified carbon offsetting projects, Dalradian, which is developing an underground gold, silver and copper mine in County Tyrone, has achieved Carbon Neutral Plus status, further underlining its commitment to tackling climate change.

This is in addition to the company’s existing Carbon Management Plan to actively reduce carbon emissions. In support of this Dalradian has taken delivery of its first electric vehicle, upgraded its office heating and lighting system to reduce electricity use and switched to 100% renewable electricity supply. The firm is also committed to building and operating Europe’s first carbon neutral (net zero carbon) mine.
There are many fantastic people, working hard behind the scenes, involved in all aspects of CMA. Each month, we will be bringing new faces into the spotlight!

This month's spotlight goes to Ben Lepley and Lucy Crane, chairs of the CMA Mining Perception Group!

Lucy Crane

Chair of Perception of Mining Group, Critical Minerals Association

BSc Earth Sciences at Oxford University & Mining Geology MSc at Camborne School of Mines

Senior Geologist – Business Development, Cornish Lithium

Ben Lepley

Chair of Perception of Mining Group, Critical Minerals Association

Master of Earth Science at Cardiff University

Senior Consultant Resource Geologist, SRK Consulting
Critical Minerals News

The following March news articles from Argus Media, Mining Weekly, Mining.com, Mining Magazine, Roskill and others, provide an overview of critical mineral mining for:

- Cobalt
- Copper
- Graphite
- Lithium
- Manganese
- Nickel
- Tellurium
- Tin
- Tungsten
- Scandium
- Rare Earth Elements

*The Critical Minerals Association takes no credit for any articles and makes no endorsement of any of the content.*
Critical Minerals

• Global (16.3.21)
  - What countries will fight over when green energy dominates.
  - [https://www.mining.com/web/what-countries-will-fight-over-when-green-energy-dominates/](https://www.mining.com/web/what-countries-will-fight-over-when-green-energy-dominates/)

• Europe (12.3.21)
  - A report on battery metals produced by Aperio Intelligence on behalf of Eurobattery Minerals forecasts a considerable increase in raw materials demand for Europe’s e-mobility sector by 2025, which is unlikely to be met by local producers.

  ○ Ireland: KoBold Metals (18.3.21)
    - iCRAG, the Science Foundation Ireland (SFI) is expanding its research activities by collaborating with KoBold Metals.

• Africa
  ○ DRC: Minexx (24.2.21)
    - Minexx has exported minerals with full financial transparency from the DRC, by processing $250k of blockchain certified payments.

• North America
  ○ Canada (22.3.21)
    - Lithium-ion batteries: Canada to build EV battery plant in Québec.
Cobalt

• Global (12.3.21)
  ▪ Booming electric vehicle sales drive surge in cobalt prices. The price of the metal stands at $53,000 per tonne, up 65% this year and around its highest since December 2018.

• Global (22.3.21)
  ▪ Volkswagen use of cobalt now more than Tesla.

• Africa
  ○ DRC: Wanbao Mining (15.3.21)
    ▪ Wanbao Mining has produced the first batch of cobalt hydroxide at its Pumpi copper-cobalt mine in the DRC.

• Europe
  ○ Finland: Latitude66 (18.3.21)
    ▪ Australian-Finnish mining company Latitude 66 Cobalt announced that it has found the fourth-largest cobalt deposit in Europe in the eastern part of Lapland in Finland.
Copper

• **Global (12.3.21)**
  - Vale, Anglo American underline ESG issues as copper demand soars.

• **Africa**
  - **DRC: Ivanhoe Mines (25.2.21)**
    - Development at Kamoa-Kukula is on schedule for production to start in July 2021. Earlier this month Ivanhoe released plans for an expansive exploration effort to identify copper mineralisation in an area adjacent to the Kamoa-Kakula licence.

• **Asia**
  - **Mongolia: Turquoise Hill Resources (15.3.21)**

• **Latin America**
  - **Peru: Southern Copper (14.3.21)**
    - Southern Copper to invest $8bn in in its different Peruvian projects, including Tía María.
Africa

- Madagascar: Tirupati Graphite (8.3.21)
  - Tirupati Graphite PLC says it has been advancing hydropower strategy targeted to meet 100% of the power requirements for the Sahamamy and Vatomina Madagascan projects.

- Mozambique: Syrah Resources (16.3.21)
  - Syrah Resources has recommenced natural graphite production at its Balama operation in Mozambique ahead of schedule.
  - [https://www.miningreview.com/battery-metals/syrah-resources-graphite-mozambique/](https://www.miningreview.com/battery-metals/syrah-resources-graphite-mozambique/)

Europe (5.3.21)

- European Commission begins anti-dumping investigation on synthetic graphite electrodes.

North America

- USA: Urbix (17.3.21)
  - Natural anode-grade graphite to enter the EV race. A new natural anode-grade graphite known as Coated Spherical Purified Graphite (CSPG) may start soon competing with synthetic anodes.
Lithium

• Asia
  ○ China (8.3.21)
    ▪ Higher demand from downstream industries, particularly the new energy vehicle (NEV) power battery and 5G telecommunication sectors, may prompt industry participants to accelerate construction of lithium salt facilities, according to market sources.

• Europe
  ○ UK: British Lithium (17.3.21)
    ▪ British Lithium to open mine by 2026 after UK government’s Sustainable Innovation Fund has awarded the company a £2.9 million grant, which will allow it to have a full-scale lithium mine in operations in South West England within five years.

• North America
  ○ USA: Piedmont Lithium (15.3.21)
    ▪ The road to the first US domestic hard-rock lithium supply chain.

• Oceania
  ○ Australia: Core Lithium (15.3.21)
    ▪ Core Lithium says Finniss awarded major project status by Australia.
Africa

South Africa: Transnet (10.3.21)
- South African state-owned rail utility Transnet has seemingly shelved plans to develop the port of Ngqura in Coega to be the only dedicated export terminal for manganese ore. Recent reports now suggest that both Ngqura and Saldanha will jointly act as the key export routes for manganese ore, from the mid-2020s.

Europe

Czech Republic: Euro Manganese (22.3.21)
- Euro Manganese will raise C$29-million in a private placement to accelerate work at its Chvaletice manganese project, in the Czech Republic.
  - [https://www.miningweekly.com/article/euro-manganese-raises-cash-for-czech-project-2021-03-22](https://www.miningweekly.com/article/euro-manganese-raises-cash-for-czech-project-2021-03-22)

Italy: Alta Zinc (15.3.21)
- Alta Zinc expands Italian exploration pipeline into copper and manganese mining districts.

Oceania

Australia: Element 25 (22.3.21)
- Element 25 halted with capital raising upcoming to accelerate manganese expansion plans.
Nickel

• Global (16.3.21)
  ■ Nickel demand for EVs to outpace lithium and cobalt – report.

• Asia
  ○ China: Tsingshan (16.3.21)
    ■ Silkroad Nickel said on Monday it would supply Chinese stainless steel giant Tsingshan Holding Group with 2.7 million tonnes of high-grade nickel ore in Indonesia by the end of 2022, marking its second major customer win this year.
    https://www.mining.com/web/silkroad-to-supply-2-7m-tonnes-nickel-ore-to-tsingshan/

• Latin America
  ○ Guatemala: Solway Investment Group (4.3.21)
    ■ Operations at Fénix nickel mine in Guatemala suspended following concerns over the environmental impact of its operations.

• Oceania
  ○ Australia: Huntsman Exploration (23.3.21)
    ■ Huntsman Hits High-Grade Nickel and Copper Mineralization Along 3 km Strike at Canegrass Nickel Sulphide Project, Western Australia.

  ○ New Caledonia: Vale (9.3.21)
    ■ Nickel: Vale Nouvelle Calédonie sale agreement revised after resistance from New Caledonian population.
Tellurium

• North America
  ▪ USA: Rio Tinto (8.3.21)
    ▪ UK-Australian mining firm Rio Tinto will build a plant to recover critical mineral tellurium at its Kennecott copper mine in the US state of Utah, strengthening the supply chain for advanced thin-film solar panels.

Tin

• Africa
  ▪ DRC: Alphamin Resources (5.3.21)
    ▪ Alphamin Resources reported its operating and financial results for Q4 2020, during which the company’s tin production rose 13% to 2,898 tonnes, the highest of any quarter.
    ▪ https://www.mining.com/alphamin-sees-record-tin-production-in-q4-shares-up/

• Europe
  ▪ UK: Cornish Metals (8.3.21)
    ▪ Cornish Metals signs important South Crofty leases and agreement for disposal of mine water treatment waste.
  ▪ UK: Cornish Metals (24.3.21)
    ▪ Cornish Metals granted key permit for United Downs.
    ▪ https://www.mining.com/cornish-metals-granted-key-permit-for-united-downs/
**Tungsten**

- **Global (25.3.21)**
  - A new report by Roskill states that the possible uptake of electric vehicles over internal combustion engines may mean tungsten prices and consumption in the automotive sector never recover to 2017 levels.

- **Oceania**
  - **Tasmania: King Island Scheelite (16.3.21)**
    - King Island Scheelite raises $5.6m as tungsten prices post strong gains.

**Scandium**

- **North America**
  - **Canada: Rio Tinto (10.3.21)**
    - UK-Australian mining firm Rio Tinto will supply the first scandium-aluminium alloy produced in North America to Australian additive manufacturer and developer Amaero.
  - **USA: American Rare Earths (1.3.21)**
    - American Rare Earths new samples from the La Paz Project in Arizona, USA, have returned grades 47% higher than the average JORC-compliant resource estimate of total rare earth elements (TREE).
Rare Earth Elements

• Asia
  ○ China: Guangsheng Nonferrous (5.3.21)
    - Chinese rare earths producer Guangsheng Nonferrous plans to build a production plant for high-performance neodymium-iron-boron (Nd-Fe-B) permanent magnetic material in Guangzhou city in south China’s Guangdong province.

• North America
  ○ Midwest Energy Emissions Corp (23.3.21)
    - ME2C Environmental announces new technologies under development to improve REEs processing in North America.

  ○ USA: Energy Fuels (10.3.21)
    - Energy Fuels reported that the first shipments of natural monazite ore have arrived at the company’s White Mesa Mill in Blanding, Utah.

  ○ Canada: Vital Metals (26.3.21)
    - Australia’s Vital Metals is getting ready to kick off mining operations at its Nechalacho rare earths project in Canada’s Northwest Territories, which will make it the country’s first producer of the elements used in magnets for electric vehicles, aerospace, defence and electronics.
US uranium producer Energy Fuels will sell mixed rare earth (RE) carbonate cracked from US monazite to Canada’s Neo Performance Materials, which will separate it into rare earth oxides at its plant in Estonia, creating the beginnings of the first US-Europe rare earth supply chain in decades.

EF anticipates sending all or a large portion of its mixed rare earth carbonate to Neo for several years. It is also evaluating the potential to develop rare earth separation and other downstream capabilities at White Mesa.

Significant quantities of monazite are produced around the world from heavy mineral sand mining operations and there are large resources in the US, Australia, India and South Africa. EF is seeking to secure additional supply of monazite and has set a goal of processing 15,000 t/yr. It estimates that this would only represent 2pc of existing throughput and tailings capacity at White Mesa.
Have you developed a tool you want to share with others?
Have you developed and/or implemented a systematic approach to meeting an ESG objective or measuring impact?
Can you share a case study of the use of such a tool or system?

If so, we would love to hear from you! Please get in touch by emailing: hello@responsiblerawmaterials.com
Thanks to our supporters!
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