BRIMM

BRADSHAW RESEARCH INSTITUTE FOR MINERALS & MINING

Minerals and Metals are Fundamental to Our Quality of Life

Feb 2026 scc1

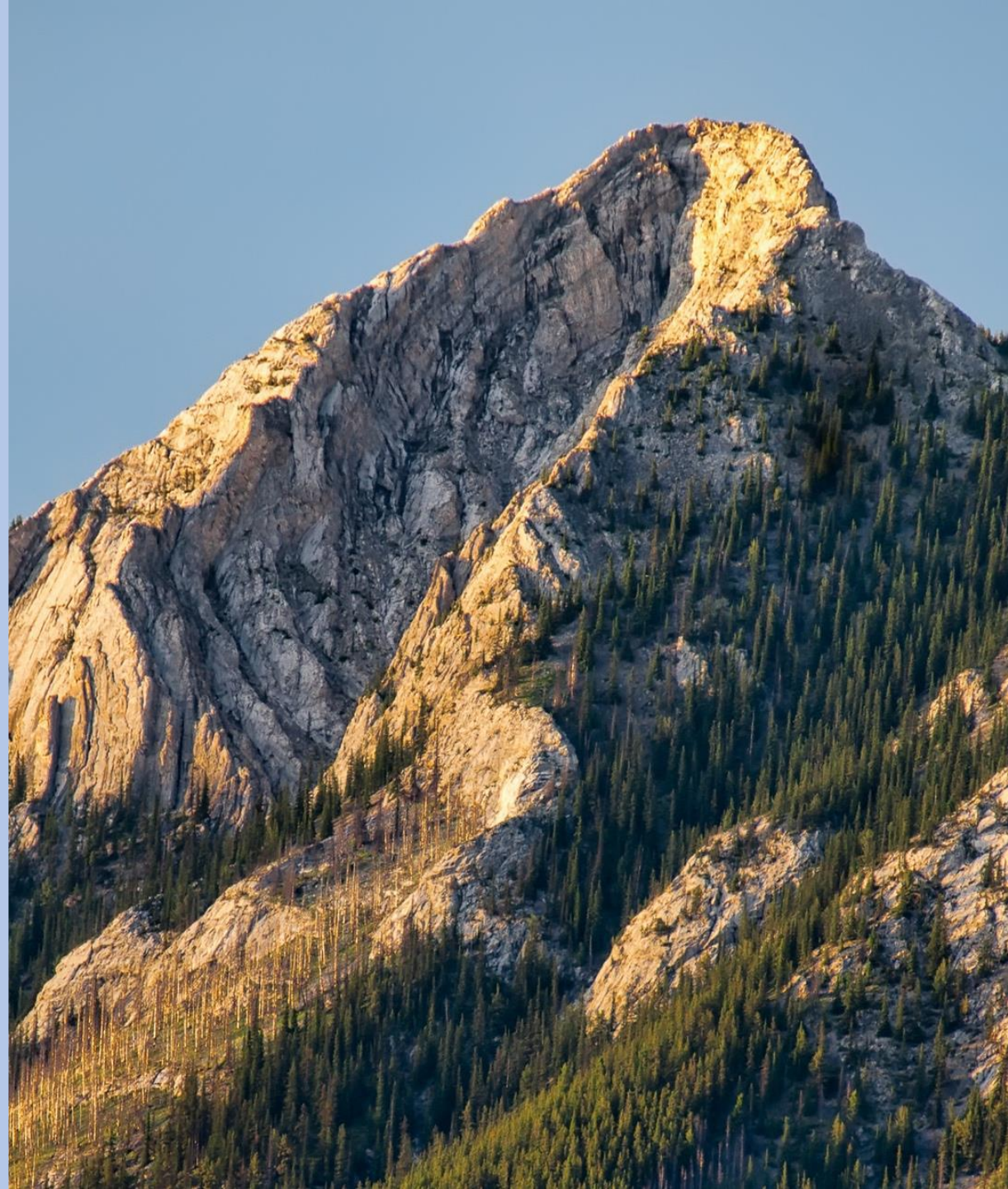
Energy transition is vital to combat climate change
minerals are essential to meet this challenge

Vision

No mining with negative consequences

Mission Statement

BRIMM brings experience, academia and industry together
across disciplines to tackle systemic industry challenges



A World at the Crossroads

We must do more to fight climate change and mining needs to scale – by a lot

One example of this challenge: "global copper demand is expected to grow by over 40% by 2040. Meeting this demand may require 80 new mines and $250 billion in investment by 2030"[1]

BRIMM acts as a catalyst with a small leadership team, and in association with other universities and industry, to stimulate the best research in areas recommended by management and the international advisory board[2]

[1] UN Global Trade update, May 2025
[2] For the evolution of BRIMM see the appendix

A global challenge that requires new ways of thinking and doing

Mining must deliver materials faster and in larger quantities than ever before to support our lifestyle and the energy transition.

The conventional model is of researchers rewarded for working largely in isolation within universities, disconnected from industry, does not deliver the innovative solutions we need, nor at the pace required.

BRIMM's tested and proven solution is unique.

BRIMM does not build its own research team.

Research supported by BRIMM includes people from different departments and faculties, and from other universities nationally and internationally

BRIMM coordinates industry technical and financial collaboration

BRIMM has a Senior Advisory Board[1] of university faculty and international mining executives

Leverages funding by a factor of 2-16X

Encourages rapid commercialization.

The Executive Directors are appointed after an international search and devote all their time to BRIMM

[1]The members of the Advisory Board are detailed in the appendix

BRIMM supported projects are grouped into Themes.

Themes by necessity can have considerable overlap as well as multiple projects. Both may have new ones added. All my lead to commercial operations

Biotechnology Theme – 7 projects.

AI Theme - 2 projects.

Water Stewardship Theme - 3 projects.

Natural capital & biodiversity Theme - 3 project.

Mine Energy theme - 2 projects.

With insights from the Advisory Board and industry partners, research challenges are identified.

BRIMM has tremendous flexibility in selecting projects because it does not have its own research staff so can select the best.

BRIMM is unique in that some projects that receive funding are in early research stages where traditional grants are difficult to secure in a timely manner, if at all.

Once a project has sufficient support from other sources, BRIMM does not need to continue support.

Identification and support for critical research with big impact that leads to commercialization

In association with the Creative Destruction Lab (CDL) and Hatch Venture Builder, successful projects are encouraged to go commercial

Award presented to Peter Bradshaw founder of BRIMM for his contribution to CDL, especially for starting the Mineral Stream

Collectively, Projects have led to 6 commercial operations to date

UBC Support and Interaction

BRIMM enjoys very strong support from the President of UBC, the VP of Research and Innovations, the Deans of Applied Science and Science (who are on the advisory board) and the many researchers who appreciate not only the added research support but also the increased access to industry and guidance from BRIMM

As well as the benefits of attracting significant funding for research, BRIMM has other unique benefits for UBC:

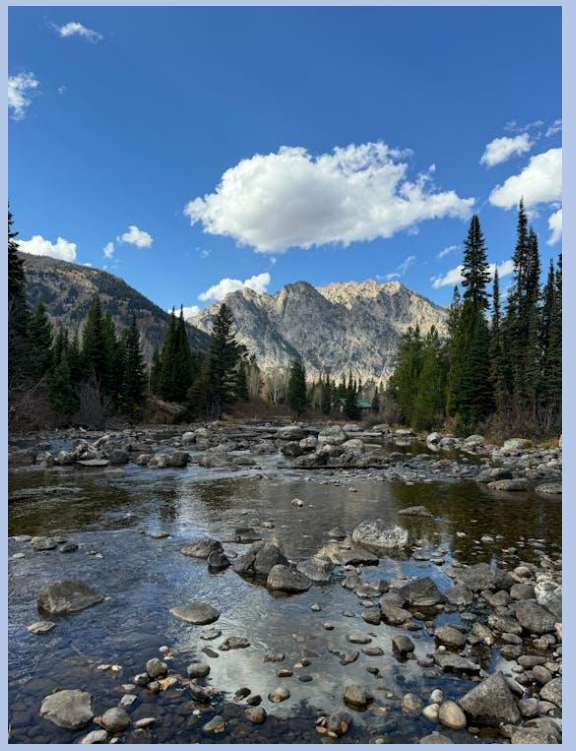
- It provides a clear window for industry into UBC which otherwise can appear very opaque.
- Industry challenges the academic community to tackle pressing problems.
- Greatly encourages assembly of teams across disciplines.

Collaboration

Rio Tinto Centre for Future Materials (RTCFM)

On the 150th anniversary of their first mine Rio Tinto pledged US$150M to be granted over 10 years to 5 international universities for research on an agreed new Grand Challenge each year.

The funding is spread over 10-years and will average ~C$3.4M/year/university.



UBC/BRIMM

Collaboration with others

Canadian Federal Government

MITACS industry university partnerships, innovative projects and much more.
NRCan supports projects enhancing natural resource, indigenous partnerships, R&D and others

Companies

BRIMM works with an extensive network of corporate partners on industry driven outcomes[1]

Foundations and other charities

The Grantham Foundation, FL Schmidt's foundation, Longhedge Foundation

Universities, national and international

BRIMM collaborates many universities both nationally and internationally[2]

[1] A list of 18 current companies are given in the appendix
[2] A list of 10 national and 5 international universities are given in the appendix

Executive Courses to Build Human Capital in the Mining Industry

- BRIMM was awarded $1M CAD from the Global Partnership Initiative (GPI) from Natural Resources Canada (NRCan) to fund scholarships in the **Economic Leadership (EL) micro-certificate** online program and in-person workshops.
- BRIMM was awarded $2M USD (over 5 yrs) from the Grantham Foundation to support the EL online micro-certificate from 2024-2029.
- The EL online micro-certificate was also offered in person in Pakistan and Chile in 2025 supported by FLSmidth.
- Mine Closure, B111: New Perspectives in Mine Closure
  B112: Transitions to Positive Legacies supported by EY and Rio

BRIMM Mining Education won the **Environmental Sustainability Award** at the 2025 Rio Tinto Supplier Recognition Awards in Perth, Australia.
John Steen, director of BRIMM third from left

Natural Resources Canada | Ressources naturelles Canada
Canada
RioTinto
Grantham Foundation for the Protection of the Environment
BRIMM Mining Education
FLSmidth
EY

Indigenous Partnerships

BRIMM supports Indigenous-academic collaborations in natural resources and mining research in collaboration with Indigenous Research Support Initiative (IRSI), UBC

Turtle Island Connection (TIC), Edgard Villanueva-Cruz, CEO

- Consultancy and non-profit with a goal to engage Indigenous youth in natural resource development opportunities.
- Future Minerals Leadership Committee (TIC)
- Partnership with the Yaq̓it ʔa·knuqƛi’it (Tobacco Plains) First Nations

Advisory Board Members

The Advisory Board is comprised of senior industry and academic leaders:

Dr Peter Bradshaw
BRIMM founder and Chairman of FPX Nickel & HTEC Fueling Hydrogen

Dr John Steen
Director of BRIMM & EY Distinguished Scholar in Global Mining Futures

Nick Barlow
Former Anglo-American and Rio Tinto Executive and Chair of BRIMM

Bill Burton
VP BGC Engineering and Vice Chair of BRIMM

Jo-Anne Dudley
Mining Consultant and former COO of Turquoise Hill Mining

Prof. Mark MacLachlan
Dean of UBC Science

Paul Mitchell
Global Leader, EY Mining and Metals

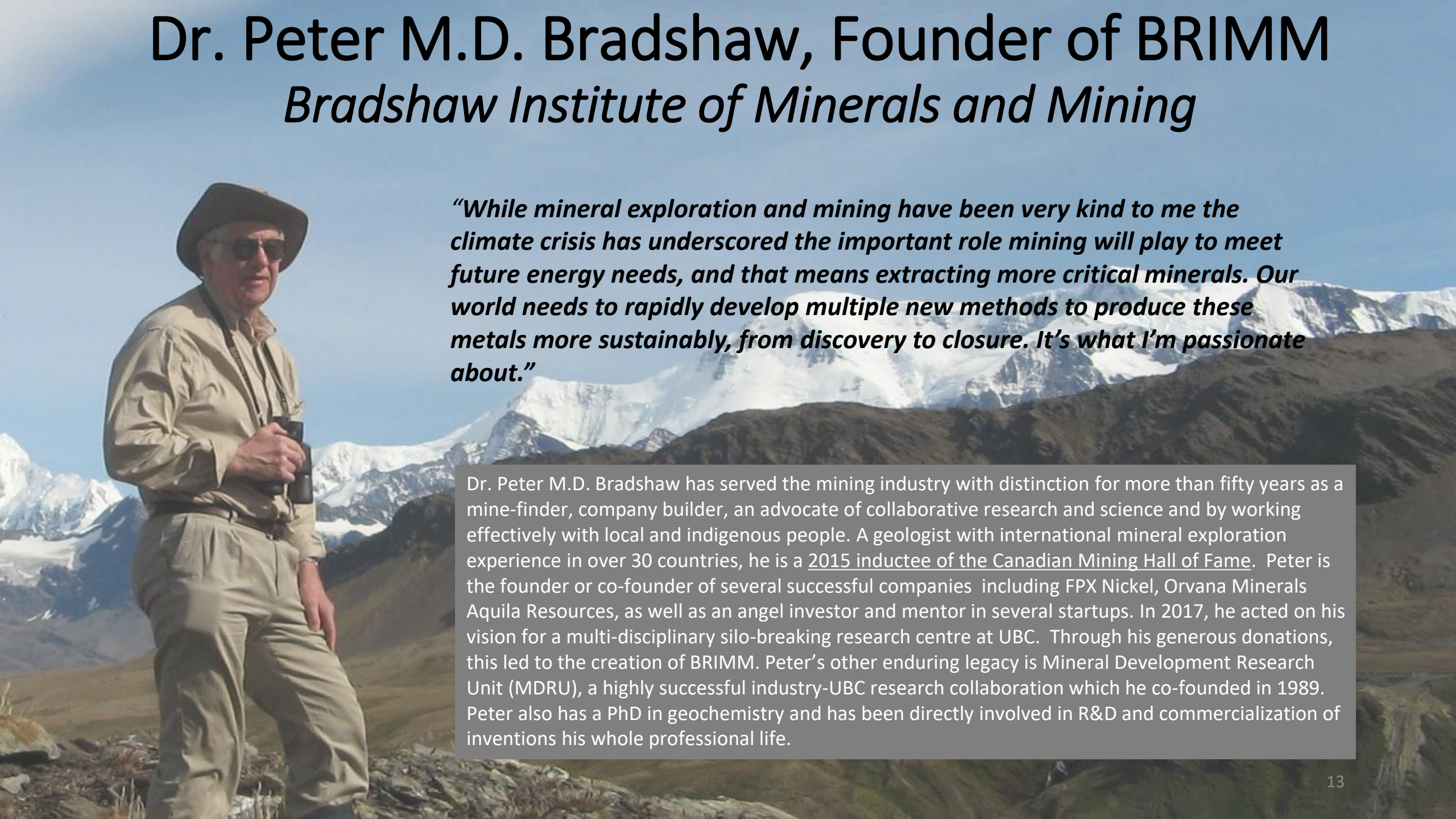
Nalaine Morin
VP Skeena Resources

Prof. James Olson
Dean of UBC Applied Science

Kalev Ruberg
Chairman of Global Mining Guidelines and former Teck Executive

Dr. Peter M.D. Bradshaw, Founder of BRIMM

Bradshaw Institute of Minerals and Mining



"While mineral exploration and mining have been very kind to me the climate crisis has underscored the important role mining will play to meet future energy needs, and that means extracting more critical minerals. Our world needs to rapidly develop multiple new methods to produce these metals more sustainably, from discovery to closure. It's what I'm passionate about."

Dr. Peter M.D. Bradshaw has served the mining industry with distinction for more than fifty years as a mine-finder, company builder, an advocate of collaborative research and science and by working effectively with local and indigenous people. A geologist with international mineral exploration experience in over 30 countries, he is a 2015 inductee of the Canadian Mining Hall of Fame. Peter is the founder or co-founder of several successful companies including FPX Nickel, Orvana Minerals Aquila Resources, as well as an angel investor and mentor in several startups. In 2017, he acted on his vision for a multi-disciplinary silo-breaking research centre at UBC. Through his generous donations, this led to the creation of BRIMM. Peter's other enduring legacy is Mineral Development Research Unit (MDRU), a highly successful industry-UBC research collaboration which he co-founded in 1989. Peter also has a PhD in geochemistry and has been directly involved in R&D and commercialization of inventions his whole professional life.

Dr. John Steen, Director of BRIMM
Bradshaw Institute of Minerals and Mining

An Associate Professor and EY Distinguished Scholar in Global Mining Futures at the University of British Columbia and Director of the Bradshaw Research Institute in Minerals and Mining (BRIMM). John leads major international research studies on the subject of innovation and sustainable development in the resources sector. These include transitioning to new digital business models, technology ecosystems, innovation strategy and performance in mega-capital ($1billion +) resource projects. He has advised the BC Mining Innovation Roadmap for the Mining Association of British Columbia and the BC Provincial Government. John is also the chair of the mining biotech genomics platform consortium, MMAP

Appendices

Evolution of BRIMM- the Start

Bradshaw Research Institute for minerals and Mining

Aug 8, 1989, Peter Bradshaw co-founded the Mineral Deposit Research Unit (MDRU) at UBC with Al Sinclair (head of Geology Dept) and John McDonald (from Esso Minerals). MDRU is:-

- In the UBC Department of Earth Ocean and Atmospheric Science (which includes geology) in the faulty of Science and researches new methods for mine discovery in collaboration with industry
- Hires much of its own research staff
- Has a very successful worldwide reputation and is planning a major 35th year anniversary

Bradshaw having seen the success of MDRU, and (as well as some challenges), wanted to greatly expand collaborative research beyond mine discovery. He conceived in ~2000 and **formally launched BRIMM in 2019** to greatly expand collaborative research beyond discovery i.e. from Preliminary Economic Analysis (PEA) to mine closure and everything in between, including environmental and social issues. To accommodate this vision **Bradshaw committed to fund BRIMM for 5 years** at $500,000/yr to allow time **to provide the proof of concept of a new type structure for an Institute at UBC as set out is slide 4** which is **a very significant departure from MDRU's structure and mineral exploration focus.**

BRIMM continues to work in close association with MDRU especially in projects related to ore body knowledge which cross between exploration (and discovery) and engineering (and operations)

Evolution of BRIMM- Continuation

BRIMM enjoys very significant support from UBC in the form of space, accounting, administration and fund raising and has the deans of Science and Applied Science on the advisory Bard

Currently BRIMM directly supports 15 projects which have led to date to several commercial spin-offs and a further 6 projects to date through the Rio Tinto Center for Future Materials

BRIMM acts very much like a venture capital firm and uses philanthropic funding to direct research into areas which will directly help mitigate the problems of climate change and systemic problems within the mining industry.

“We recognize that we can’t boil the ocean. Our strategy is to focus on the biggest challenges facing industry, with the biggest rewards, ultimately to society, and add more vital research as funding expands”
- Dr. John Steen, Executive Director, Bradshaw Research Institute of Minerals and Mining

Our Corporate Partners

We work with an extensive network of corporate partners to deliver industry driven outcomes

Start Ups

Universities Partners

We collaborate with researchers and leadership at many universities both nationally and internationally

Universities, Government and Agencies Partners

We collaborate with researchers and leadership at many universities, government and other agencies – a critical component to our success.