

MTD NEWS AND VIEWS

Introduction

2020 has been beset with Covid-19 and it would seem the UK may be heading towards another lock down as the rest of the world fluctuates between a resurgence of Covid and increased cases in others. There is a saying “When the world has a crisis invest in Gold” and since February 2020 (c £1,200 /oz) gold prices have increased (September 2020 £1,500 /oz). This is double what it was in 2016 (£760 /oz). <https://www.bullionbypost.co.uk/gold-price/5-year-gold-price-chart/>

It’s Autumn already, this year seems to have flown by for me. Like many of you, I am still working from home with all my mining site visits also on hold. But surprisingly that’s not stopped my workload increasing (gold mining and lithium research), indeed my “take home message” to you all from me is “use technology to do things differently”.

Being able to be flexible on the times of day I work for the “day job” has given me opportunities to finish a technical paper, be co-author on another and catchup on the MTD work. MTD have been very active even though we have not been able to meet in person and indeed, this quarterly newsletter is just a tip of the iceberg of what we all do collectively and independently as our “pay back” to the mining industry.

MTD also welcome a new member to our board, Bill Tinsley. Many of you will know Bill, but not know how he assists IOM3 younger mining members. MTD look forward to supporting Bill in his work.

Christine Blackmore **MTD CHAIRMAN**



STOP PRESS

See MTD webpage for latest articles:

- ♦ **Education/Training: Major Hazard Control and Competence.....full article**
- ♦ **New season of local society talks has started for 2020/21.**

Web Address: iom3.org/mining-technology-division

Note: Abbreviation (MTD Board Member—MTDBM)

CONTENTS

Page 2: Wyn Griffiths—How I got in to mining
Page 3: Robin Dean’s Mining News Roundup
Page 4: Laurence Morris on Constructing a new Mine
Page 5: Andy Birtles Global Mining News
Page 6: Reimar Seltmann talks about Indium

Page 7: Neil Battison on Education and Training
Page 8: Alan Auld—WG23-ITA Working Group
Page 9: Pat Foster—CSM Mining Engineer Degree Programmes
Page 10: John F Tunnicliffe Medal
Page 11: Local Society news/Heritage/Events

EDITORIAL TEAM AND CONTRIBUTORS:

Christine Blackmore Dr Rod Stace contact via Frances Perry (frances.perry@iom3.org).

PEOPLE: HOW I GOT IN TO MINING by Wyn Griffiths



At the tender age of eighteen, after spending time at my local FE college, I was ready for a change. By chance, an advertisement appeared in the local newspaper offering apprenticeships within the then National Coal Board. With the encouragement of my parents, I applied for one of the posts being advertised and to my surprise was offered an interview; after a medical I started work as an Apprentice Draughtsman just before Christmas 1978. My career in the Coal mining industry would last over 35 years, culminating in being part of the HQ Engineering Dept. of UK Coal, being the Coalface Design Engineer and Asset Manager.

Now, one interesting thing to note is that whilst at school, the boys in my class were offered trips underground at the local coal mine, to see if they would be interested in becoming miners. But not me, as the careers teacher thought I had much more potential than working at the pit, a bit ironical I would say. Little did the careers teacher know about the breadth and depth (pardon the pun) of the mining industry?

Most people still think mining is flat caps and whippets. Picks, shovels, and very hard work, but that is how the media likes to stereotype sections of society. They are right about the very hard work, along with the dirt, dust, noise, and wet; sometimes very hot and in other places very cold conditions. As an apprentice draughtsman, I followed a detailed training plan, spending time in the drawing office learning my craft, with time in numerous other departments learning how they interacted with each other. There were secondments to mines to learn the "Pitmatics" of how a mine runs. I attended my local FE college, finishing off the course I'd left to join the NCB, as well as training at the NCB's own engineering workshops. Basically you had one of the best industrial training courses you could ever wish for and you only realise how good it was many years later when you compare what you see on offer now. As a young engineer in the Drawing Office, you took on a huge variety of engineering projects, both large and small; schooled and mentored by the more senior draughtsmen and senior engineers. You learned a lot and developed as well as growing up – variety was definitely the word.

With the contraction of the UK mining industry, this brought both new challenges and opportunities. Challenges in a reduced workforce, opportunities in embracing new technology, IT systems, CAD systems, communication and automation systems. Remember the flat caps and whippets..., if you told the average person there was a piece of mining machinery being automatically controlled and monitored 800m below their feet 7km away, they wouldn't believe you.

The mining industry is more than just the miners themselves. It takes Engineers, both Mechanical and Electrical, Geologists, Ventilation Engineers, Planners, Procurement specialists, System Engineers, the list goes on.

So if you like hard work, variety, good training schemes, a positive health and safety culture and the ability to work in a multi-disciplinary team of engineers, a career in mining might be what you need.

WHAT'S IN THE NEWS: ROUND UP by Robin Dean (MTDBM)



Coronavirus

Due to the second wave (or is it first wave resurgence) and its impacts on new countries, it is not easy to determine what is happening overall within the mining sector. It does seem as if the industry is getting back to some sort of normality although things do appear to be still fluid at the moment. China is blasting forward again and the rest of the world is improving. But we shall see!

Lithium

The EU has realised they need lithium as a critical material for European battery manufacturing. Every metal used in EV's and battery manufacturing is critical if China keeps control of its mining and refining industries as it does with so many metals.

Lithium is critical for Li-ion batteries but its processing and refining is concentrated in two countries, Chile and China.

It is reported that European car makers will need some sixty times more Lithium and ten times more rare earths for EV batteries and energy storage by 2050. Chile provides 78% of Europe's current lithium demand whilst China provides a whopping 98% of rare earths.

There is much lithium in hard-rock pegmatites in Europe but economic deposits are few and far between and the spodumene concentrate still needs to be processed in China.

MTD Comment - "Europe needs to stop shying away from the difficult issues and support the mining and processing of Lithium and other minerals. It has been said that only a thriving sustainable mining industry can support the environmental challenges we face and the changes to 'green' energy. Mining is a solution to a problem, not the problem it is accused of being".

Is the moon rusting away?

Apparently the moon's polar surfaces have iron-rich rocks similar to haematite (livescience.com). Solar winds which contain hydrogen normally remove any oxygen from the moon preventing oxidation and rusting but it is thought that trace amounts of oxygen from Earth's atmosphere are reaching the moon and rusting the iron around its polar regions.

The oxygen travels from earth to the moon along an elongated extension of the planet's magnetic field called a "magnetotail", which can reach all the way to the near side of the moon, where more of the haematite was found. At full moon, the magnetotail blocks 99% of the solar wind, allowing oxidation to occur and rust to form.

Tunnelling

One good thing from the coronavirus episode is that investors and some governments are looking at the juicy large capital projects to boost jobs and growth.

To put the two latest initiatives together Swiss investors are apparently keen to build a system of tunnels with self-driving vehicles to transport goods between Zurich and Geneva at an estimated capital cost \$36bn by 2045 (Cargo sous terrain) backed by BKW, Credit Suisse and Zuercher Kantonalbank, SBB and two large retailers.

We said some governments but the Swiss government is not about to put public funds into the project!

MTD Comment - "OK its not strictly mining but it does use a similar skill set and these projects can create jobs and are in keeping with what is happening in the world".

Gold

Two bits of news

1. The price of gold topped the landmark \$2000 per ounce mark on the 4th August 2020, mainly on the bad financial and economic messages that were coming out. Gold is seen as a safe haven for investors, when times are tough!
2. Two gold nuggets weighing 3.5kg and worth US\$250,000 were found in Australia near Tarnagulla, Victoria, Australia, during a reality TV show for the Discovery channel. Gold discoveries made over the last 100 years led to the development of the historic Ballarat and Bendigo gold mines. There are a number of junior exploration companies looking for gold resources in the region, not funded by TV shows, but finding resources in a nuggety gold field is fraught with difficulty.

MTD Comment - Good on yer blue! Makes for good television but before everyone grabs a shovel and heads off to the outback, finding nuggets requires a large amount of luck, which is not the best sales pitch to a keen investor.

FEATURE: CONSTRUCTING A NEW MINE by Laurence Morris (MTDBM)



Every silver lining has a cloud, and whenever I go to a new mining operation, I try to find the cloud. This can be anything that seriously constrains operations; in past jobs it has been inrushes of water, a leaking leach pad, an inappropriate mining fleet; and not just technical issues – poor quality management, aggressive mine financiers, a host government that does not like mining.

I landed a job in one of the few mines still working in this time of plague. It is a mine construction, and by dint of careful management and its remoteness in the Central American mountains, it has kept the virus out. It was also one of the few mines that has almost completed a processing plant so far on time and on budget.

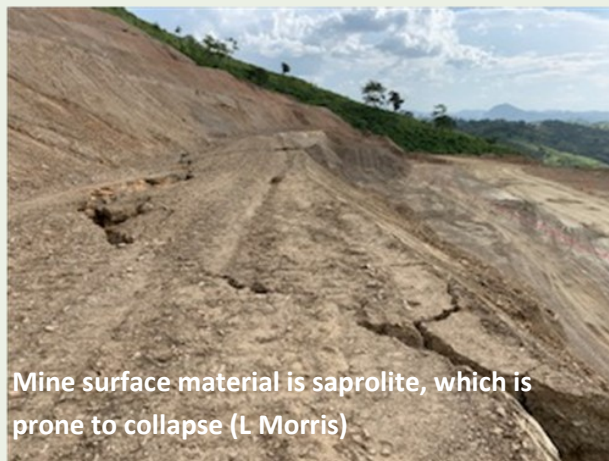
And the cloud – err, building a sandcastle on the beach. As soon as they get wet the pit walls collapse, and it rains heavily at site. The surface material is saprolite, a mix of sand and clay, and we don't hit fresh rock until much lower down. We are now dozing out recent wall collapses and having to lay the walls back to less than 25 degrees, a time consuming and even dangerous task.

So what is it really like at the mine? Situated high in the mountains, it is eternal spring – refreshingly cool weather even at mid-day. Green mountain pastures lie side by side with cloud forest remnants and coffee farms, even commercial fir plantations that remind me of Welsh mountain sides. However, our mine is an intrusive and ugly brown scar upon the mountain-side; no wonder the greenies don't like mining, although we bring development and wealth to poor mountain communities.

The small local town is half developed with good houses and half by shacks of corrugated sheets and mud bricks. Likewise, the wealth disparity: well-to-do coffee farmers mix with ragged peasants. Flashes of the mineworkers' fluorescent orange and green high-vis jackets now inject a reminder of modern world on this once timeless scene.

The miners are the highest paid workers in the communities. This is not uncommon in most reputable mines, despite the widespread belief that mineworkers are poorly paid and badly exploited. There is keen competition for a job in the mine reflected in our long waiting lists.

But it does breed envy. When construction began last year, the mine bought most of its food locally. Then prices started to rise, and we



Mine surface material is saprolite, which is prone to collapse (L Morris)



Cloud Forest / Fir Plantations (L Morris)

found out that shops were charging a higher price to our workers, even those that lived locally, and to staunch that we switched to the capital for supplies. Central Americans have a strong sense of communal entitlement – if you have more than me then it is your duty to give me some of that, maybe a result of never having a social security system, relying on family and friends instead. Many households live with one heroic wage earner supporting grown-up children, their aunts and uncles, third cousins twice removed, the bloke next door.

People are fairly passive, preferring to argue rather than use physical violence, though there can be spectacular machete fights if enough rum is consumed. There is another sense of timelessness; despite clocks, watches and smart phones, appointments are late, discretionary or disregarded completely.

This morning I asked for the excavator to come down from the pit in order to dig some mill footings. The machine never came down. When queried, the pit supervisor said he might send it down later if he felt like it; my reaction is unprintable.

No-one went into mining for an easy life. Once we can stop the pit walls from falling down like a local drunk, no doubt other challenges will then arise to test us.



The trouble with being a regular contributor to this Newsletter, and being of a certain age, is that it becomes all too easy to forget what was written previously! So for this edition I thought I would try and inform you readers of what is happening around the globe, in terms of COVID-19, interesting events and happenings from the English speaking Professional Institutes and try and generate a platform for you, the readers, to interact.

The IOM3 has published an article on COVID-19, entitled *The Impact of COVID-19 on Materials, Minerals and Mining Communities*, and can be accessed here (<https://www.iom3.org/news/2020/jul/02/impact-covid19-materials-minerals-and-mining-communities>) or from our humble microsite ([iom3.org/mtd](https://www.iom3.org/mtd)).

Deloitte have also published an article (*Understanding COVID-19's impact on the mining & metals sector: Guidance for mining & metals executives*), which is a very easy to read "one pager".

Mining.com have indicated that COVID-19 has disrupted \$8.8 billion of global mining output, but indicates that global mining has escaped the worst of COVID-19 in terms of production disruptions because major producing nations recognised mining as essential industries.

And finally, Herbert Smith Freehills "*COVID-19: Pressure Points: The Global Impact on the Mining Industry*" gives a country by country response to the pandemic, and the effect that recent governmental policy has had on mining operations.

The AusIMM website has some interesting articles relating to COVID-19, as well as some other more general articles, one of which indicates a technology partnership between the AusIMM and Dassault Systèmes, who supply Geovia Products, mining software for geologists, engineers, surveyors, mine management, including Surpac and Gems.

The SAIMM website also has articles relating to COVID-19, as well as notification of upcoming events, which run up to October 2021. The majority of events this year are "online". The Annual General Meeting is using Zoom as the conference "platform". Recently I have been asked to peer review a couple of paper submissions for inclusion in the SAIMM Journal. These are entitled "*Technical Alums Produced from Laboratory Metakaolinite-Containing Ash of Coal Fines Using a Concentrated Sulphuric Acid Solution*," and "*Analysis of the variables: commodity price and discount rate on long-term open pit mine planning*". While these peer reviews are a necessary part of being a member of a professional institution, I long to be able to review a paper with the catch title of "*Huge productivity improvements gained by applying widgets to a continuous miner*".

The Canadian CIM website presents an article relating to COVID-19 on its home page. Going to the "More News" page there are a number of COVID-19 related articles, as well as many general articles. The events page indicates that there are a number of events of interest to all, nicely presented, up to June next year. The CIM also have slightly different uses of the terminology (Communities, Societies) to that used by the IOM3. Maybe there is an opportunity for the Technical Communities Review recently being undertaken.

The new Global Industry Standard on Tailings Management, announced on the SME website is welcome news, especially after the tragic tailings dam collapse in Brumadinho, Brazil in early 2019 that left more than 270 dead. Interestingly there is a link to OneMine, of which IOM3 is a participant. The community page has links for non-members and for upcoming events.

For our Microsite visit www.iom3.org/mining-technology-division. We are trying hard to get feedback from our affiliated members. If any one would like to submit photographs of some aspects of mining, or have some thoughts to share, your contribution would be most welcome. Also if you want to contribute an article, photograph or other written or printed work to this newsletter (published three or four times per year) please contact any of the current contributors. We look forward to receiving your submissions.



Photos courtesy of Andy Birtles

LITTLE KNOWN COMMODITIES: INDIUM by Reimar Seltmann and Alla Dolgoplova, CERCAMS, Dept. Earth Sciences, NHM London

Introduction: Indium is a post-transition metal (atomic number: 49) and has recently become an important high-tech metal. The element was discovered in 1863 by the German scientists Ferdinand Reich and Hieronymus Richter whilst testing zinc ores from the Freiberg mine district, Saxony. Indium is a soft, lustrous, silver-white metal, highly malleable and ductile. A special feature of indium is the high plastic property due to deformation from mechanical twinning. It retains its plastic property at cryogenic temperatures. Indium does not workharden, endures considerable deformation through compression, and is easily cold-welded. Indium dissolves in mineral acids and amalgamates with mercury but is not affected by alkalis, boiling water, and most organic acids.

Geology and Metallogeny: Indium occurs in different types of ore deposits of all ages, from the presently forming deposits at modern, actively-spreading ridges and fumarole precipitates of active volcanoes to deposits in the Archaean volcanic strata of greenstone belts, e.g., in Canada and South Africa. Indium can be enriched in a variety of different deposits. In decreasing order of significance, indium-rich deposits are represented by volcanic- and sediment-hosted exhalative massive sulphide deposits, epithermal deposits, polymetallic base metal vein deposits, granite-related tin-base metal deposits (vein-stockworks, skarns), and porphyry copper deposits (Fig. 1).

Mineralogy: Indium minerals are rare in natural systems. Thirteen indium mineral phases have been defined so far. Roquesite is the most important indium mineral representing a trace component in the principal ore-forming minerals like bornite, chalcocopyrite, and sphalerite (Fig. 2). More often, indium substitutes elements with similar ionic radii, especially those having tetrahedral coordination with respect to the principal metal ion in base metal sulphides. High indium concentrations usually occur in sphalerite, chalcocopyrite, stannite, tin-sulfosalts, tennantite, and cassiterite. Sphalerite is the most important indium-bearing mineral. The mineralogy of indium-bearing deposits is characterized by complex intergrowths and replacement textures containing significant concentrations of metals like tin, copper, zinc, lead, silver, bismuth, selenium, arsenic.

Mining and Metallurgy: Pure indium metal can be found in nature, but most of the element is created as a by-product of smelting of polymetallic ores with base metals containing zinc, copper and tin. The strict co-enrichment with zinc and copper makes copper-bearing zinc ores the most favourable ores for the indium recovery. Indium-rich deposits are usually high-grade, large tonnage base metal massive sulphide ores.

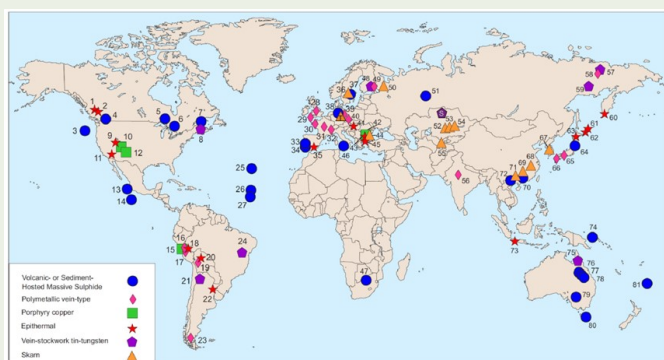


Fig. 1. The global distribution of indium mines, deposits and major occurrences from Schwarz-Schampera (2014).

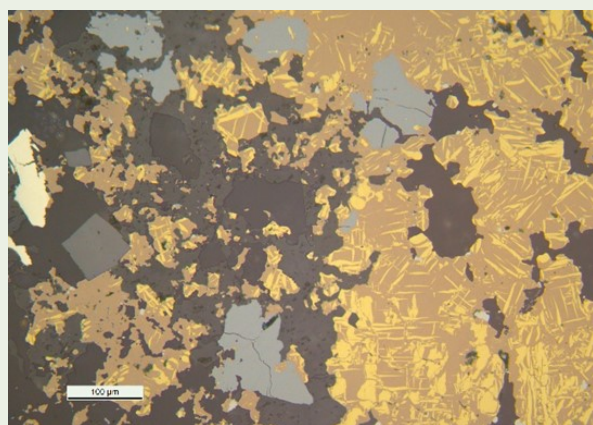


Fig. 2. Reflected light digital image in plane polarized light illustrating the indium-bearing mineral *roquesite* (CuInS_2) which occurs as light grey inclusions together with other sulphides, bornite (brown), chalcocopyrite (yellow) and pyrite (bright cream). Two cuboid grains of cassiterite (mid-grey) can be seen above the scale bar. The dark grey minerals are orthoclase and quartz, respectively. This specimen is from polymetallic veins at the margin of the Lands End granite, Cornwall (Geevor Mine, 15 Level Levant section). Courtesy Dr. Chris Stanley, NHM London.

Use and importance: Indium is frequently used in sputter processes for glass coatings either as solely indium metal forming a mirror surface with equally good reflective properties and more corrosion resistance than silver or in alloys to form transparent and conductive coatings. Since the 1990s the major application of Indium has been in the form of indium-tin-oxide (ITO) in liquid-crystal displays (LCD TV and PC monitors) and as a thin-film coating for electronic devices, dominating the market accounting for half of the indium consumption (Fig. 3). It is also used in alloys and solders, electrical components and semiconductors, and intermetallic compounds.

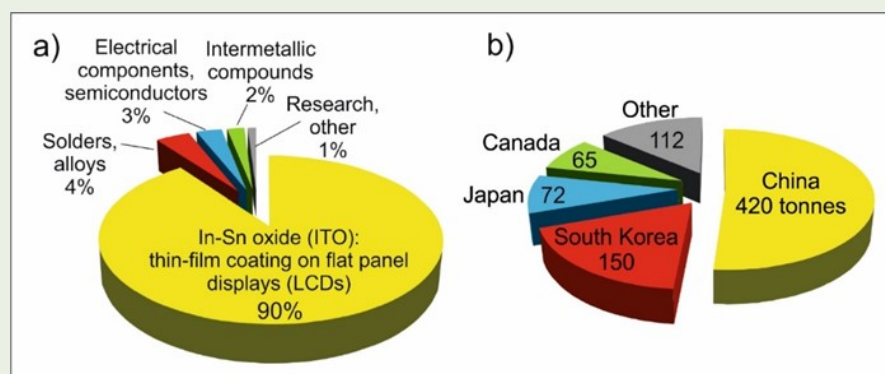


Fig. 3. a) The main end-uses of indium in 2014. b) Global indium refinery production in 2014 per country with China as the dominating supplier. From Paradis (2015).

References:

- Broadbent, C.P., Seltmann, R., Drielsma, J., Reimer, W., Cox, M. (2016). By-product status: implications for reserve estimates. MMTA London, "The Crucible", 5 January 2016, p 16-19
- Paradis, S. (2015). Indium, germanium and gallium in volcanic- and sediment-hosted base-metal sulphide deposits. In: Simandl, G.J. and Neetz, M., (Eds.), Symposium on Strategic and Critical Materials Proceedings, November 13-14, 2015, Victoria, British Columbia. BC Ministry of Energy and Mines, BC Geological Survey Paper 2015-3, pp. 23-29.
- Schwarz-Schampera, U. (2014). Indium. In: Gunn, G. (ed.), Critical Metals Handbook, John Wiley and Sons, Ltd., pp. 204-229.

EDUCATION/TRAINING: MAJOR HAZARD CONTROL AND COMPETENCE by Neil Battison (MTDBM)



Competence the key to underpinning major hazard preventative and mitigating barriers

The Mines Regulation 2014 (MR 14) ([Mines Regulations 2014 \(L149\)](#)) figure one, came into force in April 2015, they replaced 48 mining specific acts and approximately 1000 mining prescriptive regulations with 76 new goal setting regulations.

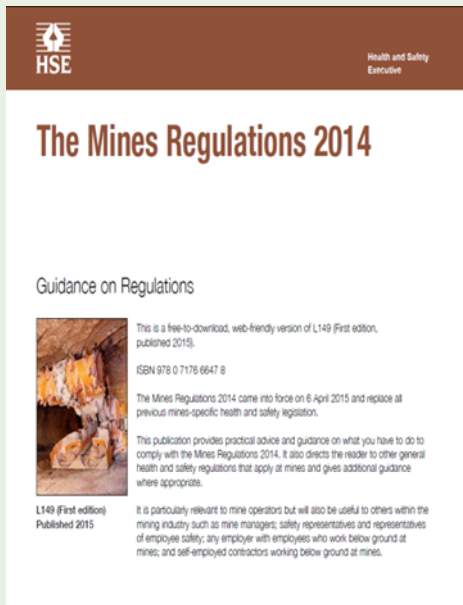


Fig. 1 The HSE Mines Regulations

MR 14 focusses principally on the control of major hazards associated with underground mines in the UK by having an effective safety management system (SMS) underpinned by an effective competence management system (CMS) and monitoring of the preventative and mitigating barriers by the use of safety performance indicators. A major hazard is one in which a single event could lead to a catastrophic outcome causing multiple fatalities.

The Health and Safety Executive (HSE) regulate major hazard dutyholder sites in line with the “*Major Hazard Regulatory Model*” (MHRM) ([Major Hazards Regulatory Model 12/18](#)).

MHRM describes the use of preventative and mitigating barriers in the control of major hazards as shown in figure two. MHRM states, “*major hazard risks have to be managed in a multi-layered way and that the layers of protection or control measures will address technical, managerial and procedural arrangements*”.

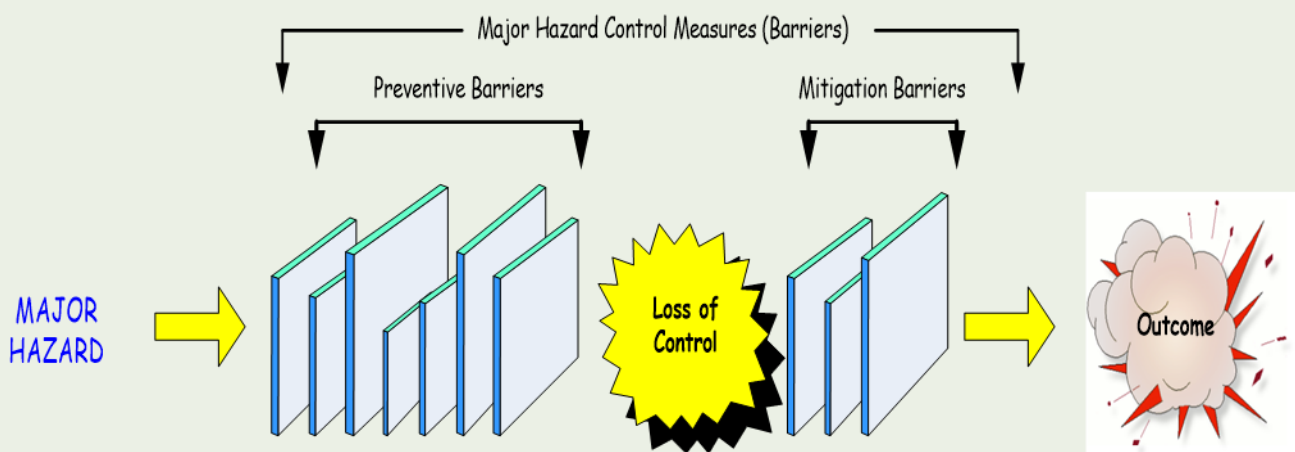


Fig 2 Major hazard controls using preventative and mitigating barriers

<https://www.hse.gov.uk/regulating-major-hazards/major-hazards-regulatory-model.pdf> (page 5)

The principal is that major hazards should be controlled by preventative barriers. However in the event of the loss or erosion of those barriers, and a loss of control occurs then either a fatal or serious business impacting event should still be prevented by a mitigating barrier. At major hazard dutyholder sites these barriers require a bowtie approach as shown in figure three.

MHRM states “*Layers of protection can be depicted as a ‘bow-tie’ to emphasise the way barriers link in sequence in relation to each major hazard scenario*”.

Read the full article on <https://www.iom3.org/mining-technology-division>

FEATURE: WG23-ITA WORKING GROUP ON SHAFT DESIGN AND CONSTRUCTION by Alan Auld (MTDBM)

International Tunnelling and Underground Space Association (ITA). WG23-Working Group on Design and Construction of Shafts

The length of shafts constructed in the world is much less than tunnels, however, shaft construction is much more challenging and riskier than tunnels. The ability to construct shafts more efficiently can surely improve the use of underground spaces and make them more effective in almost all applications. This has led to the proposal of establishing a specialized work group on this subject to the International Tunnelling and Underground Space Association (ITA) which was supported by several member nations.

The ITA General Assembly approved the proposal for establishing Work Group 23 on “Design and Construction of Shafts” in May 2019 at the World Tunnelling Congress in Naples, Italy. At the first meeting of WG23 in Naples 16 members attended from Iran, Brazil, Switzerland, Japan, Turkey, USA, Thailand and Italy.

WG23 is co-ordinated via the Animateur (Chairman), Siamak Hashemi (Iran), The Vice-Animateur, Joe Luxford (Australia) and the Tutor, Tarcisio Celestino (Brazil).

The objectives of WG23 are set out below:

1. To establish the correct terminology and nomenclature for shaft design and construction.
2. To classify the shafts for a more uniform understanding of the design and construction implications
3. To produce literature on shaft design and construction to meet the needs and demands of members
4. To hold technical webinars and offer short courses and workshops for design and construction of shafts.
5. To provide a group to coordinate related sessions at ITA meetings
6. To expand the number of interested members in the group
7. To keep in touch with members via group email and social media by sending updates of activities
8. To prepare relevant technical documents



The following webinars have been held:

1. “Mechanised Shaft and Raise Excavation” by Patrick Rennkamp of the Herrenknecht company, Germany, on 22 January 2020
2. “Design and Construction of Deep Shaft Concrete Linings in the UK” by Alan Auld, Consultant at Golder Associates (UK) Ltd Shafts and Tunnels, on 12 February 2020
3. “Urban Shafts for Metro Construction” by Tarcisio Celestino, Professor in the Department of Geotechnics at the University of Sao Paulo, Brazil, on 5 August 2020
4. “Jacked Pre-cast Caisson Shaft Construction” by Joe Anderson, Structural/Tunnel Engineer at Golder Associates, Saskatoon, Canada, on 2 September 2020

A "Shaft-Photo-Gallery" has been setup into which members may submit their photos relevant to shaft construction (individuals submitting photos confirm thereby that they own the copyright and give the ITA and its members and public the permission to use the photo). The link to access the Shaft-Photo-Gallery is as follows: <https://www.dropbox.com/sh/ybdd5hyqpwk7pd7/AADXb0Eob-OCM1Z8lq2m1jcea?dl=0>

Relevant technical documents currently in preparation are:

1. Terminology and Classification of Shafts
2. Method Selection for Shaft Construction
3. Site Investigation for Shafts

Many engineers around the world were confronted with challenges related to shaft design and construction and have gained some experience in various mining and civil engineering projects. It is certain that many individuals would be interested to join this group and it is expected that engineers around the world where shafts present challenges to their respective industries would benefit from the shared knowledge base to address their issues in this work group.

Interested parties may email their Name, Affiliation, and Email address to the following email address to be added to the WG discussion groups mailing list: Siamak Hashemi (Animateur of WG23) : Siamak_Hashemi@yahoo.com



CSM MINING ENGINEER DEGREE PROGRAMMES by Pat Foster (MTDBM)

MTD Division Members and readers of this Newsletter may already be aware of the recent decision of the University of Exeter to “pause” recruitment for entry onto its undergraduate Mining Engineering degree programmes at the Camborne School of Mines (CSM), for 2021 entry.

It must be stressed that this is a “pause” and that staff and students have been assured of this. There are currently a number of initiatives that have arisen from this that stakeholders can engage with, in particular with respect to promotion of the industry and the role and career of a mining engineer, as well as how to make such undergraduate courses and careers attractive to young people. Recruitment to CSM’s undergraduate programmes in Geology is continuing as is recruitment to its wide range of Master’s courses including MSc Mining Engineering.

The issue with the Undergraduate course is not with the quality of the course or demand for these students graduating. The course has one of the highest employability rates in the College (one company alone has hired 15 of this year’s graduates), and is consistently high in both UK and international League Tables (such as 14th worldwide in the QS Minerals Mining and Minerals Rankings).

The problem is rather with “supply”, with numbers starting the course having reduced then plateaued over recent years. This year, 20 students are starting the course (15 UK/EU and 5 overseas) with another 4 overseas students joining the 2nd year, a number comparable if not slightly higher than recent years. An analysis of trends shows that the intake of students is cyclical, similar to the mining cycle but lagging it by a couple of years. We have been at the bottom of such a cycle in recent years and it has been made clear that the current numbers are unsustainable.

The University has stated that it will “*explore a range of options to allow undergraduates to study mining, possibly through other engineering programmes*”, the “*University is steadfastly committed to mining teaching and research at the Camborne School of Mines*” and that “*there is a strong future for the study of mining at the University of Exeter*”. With this in mind for the duration of the pause, staff and industry stakeholders have been given the opportunity to look at the existing offering and explore ways of making a course more visible, and attractive to young people.

In terms of programme content there is a lot to cover in any such course. A recent document prepared by the Society of Mining Professors has defined mining engineering as being the practice of applying engineering principles to the evaluation, planning, operations, closure and reclamation of mines in a safe, profitable and socially acceptable way, i.e. covering the full life cycle and value chain. There has been a lot of talk about the “digital mine” and mining companies will look to mining schools to upgrade the digital knowledge and skills of their employees.

The question asked of Members is what does the mining engineer of the future look like? What subjects are really core to their required skills and competencies over the next 20 years?

However, all this won’t come to much unless all industry stakeholders come together in addressing the supply issue. This needs to come through promotion of the discipline and improving the perception of the industry. It has been noticed that mining has virtually disappeared from websites and other material promoting careers within engineering and so is pretty much invisible to prospective students despite the interesting and exciting times ahead for the UK and International mining industry. A recent report by the World Bank has stated that the production of minerals is going to increase considerably to meet the growing demand for clean energy technologies and this needs to be part of the message – mining is part of the solution, not the problem. Our Institute has a key role to play in this, ensuring it gives due credence to this area in its outreach activities to promote the subject to young people and to help change and shape the perception of mining.

The question asked of Members is how can we best promote our industry? How do we change any negative perceptions? What more can we do to get an accurate, factual message across?

P.J.Foster@exeter.ac.uk

JOHN F TUNNICLIFFE MEDAL by Bill Tinsley

Registered Charity Number 220208



The North of England Institute of Mining and Mechanical Engineers

Registered Charity Number 1177100



The Midland Institute of Mining Engineers

Background

Professor J F Tunnicliffe (JFT) has been an active member of the Council and latterly the Managing Board of the Midland Institute of Mining Engineers (MIMinE) for over 50 years. During this time JFT has been heavily involved in both local and national mining institutes holding the positions in the Midland Institute of Mining Engineers (MIMinE) of Honorary Secretary from 1974-1979, President from 1978-1979 and Honorary Treasurer from 1985-1992, he was also National President of the IMinE (The Institution of Mining Engineers) from 1987-1988.

JFT has had a long career in the mining industry holding several senior positions. He left the industry in the early 1980's to pursue a career in academia becoming head of and Professor of the mining departments at Newcastle and Leeds universities, bringing his practical experiences to a great many students during that time. He has taken a great interest in the development of young engineers both academically and industrially. John chaired the Royal Academy of Engineering Headstart Board from 1995 to 2013. In collaboration with universities; this five day course was open to Year 12 or equivalent students who were interested in knowing more about science, engineering and technology. It gave students the opportunity to see what university life was like and an idea of what they would be doing, just like first year undergraduates.

JFT has kept a strong interest in the activities of The North of England Institute of Mining and Mechanical Engineers (NEIMME) and has been a member of the Institute for over 30 years. He has promoted closer links with the NEIMME and whenever possible has supported their events.

He initiated the J F Tunnicliffe Paper Competition in 1978 to encourage younger more junior members of the MIMinE to become more confident in public speaking and presentations both at work and in the wider environment.

Due to JFT's outstanding contribution both nationally and locally in institute affairs, his promotion of the mining industry and the development of younger engineers, the Trustees of the MIMinE have agreed to strike a medal – the J F Tunnicliffe Medal to be awarded to young engineers.

John has expressed a wish and fully supported by the Trustees of the MIMinE that this award be also available for young engineers of the NEIMME. This would be with full consultation and approval of the NEIMME.

Conditions

The conditions of this award are agreed by the Trustees of both the MIMinE and NEIMME.

The John F Tunnicliffe Medal will be awarded to younger engineers whose work has been recognised by their employer, higher academic establishment or local Institute as being of outstanding quality.

- The award is open to all younger engineers.
- All recipients shall be 35 years or less at the time of nomination.
- Papers presented at their local Institute's competition will be eligible for consideration.
- All nominees shall be a member of their local Institute.

LOCAL SOCIETY NEWS by Rod Stace (MTDBM)

South Midlands Mining and Minerals Institute

The South Midlands Mining and Minerals Institute (SMMMI) can trace its roots back to its first beginnings as the Incorporated Association of Mine Agents for South Staffordshire and East Worcestershire in 1867. There have been some mergers and a number of different titles it has operated under along the way and the geographical focus has travelled eastwards to include members in Leicestershire, South Derbyshire and Warwickshire.

However, we have now reached a point of decision. The existing council consists of only three people. Mike Richards, the President, David Buchanan and myself. Mining activity in our patch of the Midlands has largely ceased and we have been reduced to holding only two events each year, albeit quite successful ones. These were the Hopley Lecture in January and, until Covid-19 in 2020, the “Minerals Engineering” series Symposia each May. These have been successful because of our close collaboration with the Minerals Engineering Society. Unfortunately, that body has decided to disband for the same reasons we are considering our future, leaving us without obvious partners with whom to continue SMMMI activities.

We have sent a letter to all our registered members, to establish whether we should continue to run SMMMI as a local society of IOM3, with new activities which will have to be under the control of a new council, or whether we should wind things up.

Anita Horton at IOM3 tells me that displaced members can re-affiliate with any other local society of their choice within the IOM3 stable. She states “ There is nothing to stop your current members changing their preferred local society on their membership profile. If they would prefer, this is something we could do for them. The choices closest to you in both area and discipline are Midlands Institute of Mining Engineers (MInME) or Western Institute of Mining & Minerals. I am happy to send out something once a decision has been made.”

SMMMI member or not, if you have any views, please contact Anita (Anita.Horton@iom3.org) who will feed comments through to us.

HERITAGE by Christine Blackmore

I moved house recently, packing up 28 years worth of mementoes, so you can imagine there were many forgotten treasures that suddenly come to light when I unpacked. My family have always kept sentimental things photos, tickets and pieces of paper and indeed, I want to tell you about one of the finds.

My Grandad (1898-1977) John William Dakin (Bill) was a coal miner and worked at Coppice Pit, Shipley, Heanor, Derbyshire. I came across a wallet in a long forgotten old handbag. In the back of the wallet I found a folded sheet of paper full of poems by D A Mackie entitled “Shipley Then and Shipley Now”. On my copy there is no date, but tracing it back through the Heanor History Group it appears to have been written in 1924. On their website is the opening poem, but the poem titled “The Pit” is my favourite. It starts with going down in the cage, gangers going to get the pit ponies, digging with picks, handing the lamps back after the shift and breathing the fresh air that Mackie says “thank God that’s free to all”.

<http://www.heanorhistory.org.uk/shipley.htm>

But I think the words in the dedication are very poignant:

“Written during the first 16 weeks of the strike, when courage in its true sense of the word was shown by men, women and children of the workers` fighting force, for today no one can dispute the fact that miners are the only fighting body that the capitalists dreads.”



EVENTS: CONFERENCE UPDATES

Mining Technology Division (MTD) Conference—Legacies of mineral extraction and sustainability opportunities, Neville Hall, Newcastle-upon-Tyne—Scheduled for First Quarter of 2021

Any questions about the conference, please contact David Seath (MTD-Conferences@iom3materialscycle.org)