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Page 10 — The Editor would like to hear from you; where in the world are you? We understand the confines of employer confidentiality and the GDPR but send us a photo and brief write up of your activities to inspire the next generation to take up Mineral Processing & Extractive Metallurgy (and see the world).
Extraction 2018 was born out of a membership initiative within the three US and Canadian metallurgical societies to reduce the number of extractive metallurgy meetings normally held in the two countries. It was modestly heralded as “the industry’s first global metallurgy conference focused exclusively on extractive metallurgy” and it came to fruition as a result of close collaboration by the staff of the three sponsoring societies. The Metallurgy & Materials Society (MetSoc) of CIM (Canadian Institute of Mining, Metallurgy & Petroleum) organized the logistics for the conference. The Society for Mining, Metallurgy & Exploration Inc. (SME) mobilized its team to manage the trade show and sponsorship, while The Minerals, Metals & Materials Society (TMS) was instrumental in supplying the backbone of the conference for abstract management, author interaction, and marketing. Several volunteers from each society were also critical to the organisation of the event, which comprised a number of both regular, and special, technical symposia, as well as short courses, industrial tours, and poster presentations. The symposia were: (i) the 7th International Symposium on Advances in Sulfide Smelting; (ii) the Peter Hayes Symposium on Pyrometallurgical Processing; (iii) Hydrometallurgy 2018; (iv) the Gordon Ritcey Symposium on Advances in Hydrometallurgical Solution Purification Separations; (v) Processing of Critical Metals; and (vi) Sulfide Flotation.

Extraction 2018 was held in Ottawa, Canada’s green and pleasant capital, from 26—29 August 2018, at the Westin Ottawa hotel in the centre of the city. Over three very full days, 348 papers were presented orally, together with another 59 poster presentations, to more than 750 delegates, hailing from over 40 different countries. With so many papers to squeeze in, parallel programming was inevitable and at times there were up to ten lecture rooms in use at once!

Two special symposia were held to honour two veterans of the industry – Peter Hayes and Gordon Ritcey. Peter Hayes, a pyrometallurgist, is a Brit who was educated in the UK at the Universities of Newcastle and Strathclyde, but has spent most of his professional life in Australia as an academic at the University of Queensland. In contrast, Gordon Ritcey, the doyen of solvent extraction, was born and bred in Canada and spent the majority of his career in industry and at CANMET, the Canadian government’s metallurgical laboratory. Gordon, now well into his 80s, retired from CANMET in 1988 and since then has pursued a very successful second career as an independent consultant in hydrometallurgy. Both these distinguished experts were present at their respective symposia, which added extra lustre to the proceedings.

As a delegate and presenter at Extraction 2018, I can vouch that the conference was in the main a great success. It brought together a significant number of extractive metallurgists from around the world and presented them with a very interesting and wide-ranging selection of papers, from the highly academic to the thoroughly practical. Given the large number of presentations, it was a very crowded programme, which was not exactly easy to navigate around, particularly as the layout of the printed conference programme added to the confusion, rather than aiding it! However, on the whole, the session chairmen stuck to their instructions and kept the presenters to the published timetable, so that it was generally possible to move from one session to another to catch a particular paper of interest, in spite of the large number of parallel sessions.

On the lighter side, the social programme provided opportunities to network and to catch up with friends and former colleagues, although, when you reach my age and stage, it’s mainly a matter of meeting new, younger, people, as many of my contemporaries have already gone out to pasture! The social mixers and the coffee and tea breaks during the technical sessions took place in the exhibition area, where 40 companies exhibited their wares and services to the metallurgical industry. The highlight of the social programme was the conference dinner, which was held in the Canadian Museum of History, a very impressive, huge, ultra-modern building on the Quebec bank of the Ottawa river, opposite Parliament Hill. The dinner was held in the Main Hall of the museum, amongst the largest collection in the world of totem poles and other artefacts from the First Nation tribes of British Columbia.

Continued on next page ....
MP&EM Board Activities Summary, September 2018

- The Board is pleased to report that the Camborne School of Mines of Exeter University is offering a taught, 1-year full-time MSc Minerals Processing course from September 2018 to serve our industry. This has been an objective of the Board for some time and deserves support. Details about the course can be found online: http://www.exeter.ac.uk/postgraduate/taught/mining-engineering/minerals-msc

- The Board is supporting the Conference “Flexible and Mobile Processing in the 21st Century” to be convened at 297ER from 5—6 December this year. This event is free to members and registrations are open via the Institute’s website.

- 2019 is the 150 year anniversary of the founding of IOM3 through the Iron & Steel Society. The Division is contributing with the other Extractive Divisions to a one day event at 297ER on March 20 next year, The Iron Cycle – "150 years of extracting, processing & recycling the material that built the modern world". The draft programme has been drawn up and provides a very impressive list of distinguished speakers. The IOM3 Conference department are preparing a website. See also the article by Tim Smith on page 6 of this Newsletter.

- The Divisional Board is contributing to the SGA Conference to be held in Glasgow on 27 – 30 August 2019 (refer to - https://www.sga2019glasgow.com).

- The Board is in the early stages of organising “Future Prospects in Minerals & Metals” at Trinity Hall, Cambridge in 2020.

- The International Extractive Industry database “OneMine” is live and available to members as part of member benefits. This complements IMMAGE.

- Please check your member profile at www.iom3.org/user to make sure that you have the correct preference selected for your technical division. IMMa is no longer available as a preferred technical division, being an umbrella body for the four resources divisions. All members selecting one of the four resources divisions as their preferred technical community automatically become members of IMMa.

- The third Board meeting of 2018 was convened at 297 ER on 27 September.

- The technical journal representing our discipline, IMM, Transactions C published by Taylor & Francis is free to download. The journal publishes high quality refereed papers at the leading edge of MP&EM.

- The MP&EM annual report for 2017 is available to all IOM3 members from the website.

- The CPD facility on the IOM3 website is available for members via the member profile page.
Frances Perry Reports on the Library and Information Services of the Institute

The library has been quiet over the summer. Activity has continued on two major fronts: digitising including for OneMine and additional library collections for the National Archive of Minerals & Mining.

OneMine and IOM3 Virtual Library

The first batch of journals to be returned from scanning is being processed and the data is being mapped across for adding to OneMine; meanwhile, a second batch is with the scanners and a third has been prepared.

With regard specifically to Trans. IMM C, Mineral Processing & Extractive Metallurgy and the former IMM’s corresponding conference proceedings, the position is therefore as follows:

Trans. IMM C 1971: scanned for pilot project; mostly on OneMine; last batch of 96 to be added shortly;

Trans. IMM C 1990, 1998-1999: scanned; ready for mapping to OneMine – later this autumn?

Trans. IMM C 1991-1997: scanned; metadata still to be added – OneMine next year;


Batch 2, currently with the scanners includes only Trans IMinE, not Trans IMM.

Meanwhile, the software for the IOM3 Virtual Library – which will contain the scanned IMM and IMInE publications along with those of the other constituent institutions is still being finalised. At the latest, the Virtual Library needs to go live to members in the anniversary year, 2019, as the scanned material includes volume 1 of the Iron & Steel Institute’s transactions from 1869 onwards.

Members are enjoying the benefit of access to OneMine. Access by logging onto iom3.org and click on the Publications tab, scroll down to One Mine National Archive of Minerals & Mining

Activity at the library in Grantham continues with cataloguing the outstanding material from Rio Tinto and John Monhemius. Progress is slow to make space for, unpack and sort new collections:

1. Finally, the store in Stoke has been cleared and in September the remains of the old ceramics library arrived, publications of the British Ceramic Society/Institute of Ceramics are at last on our shelves and a very few clay-related items for the minerals and mining library have been identified.

2. A fortnight later, an interesting small collection of books and research reports came in from Marshalls, a firm manufacturing tooling machinery since 1850.

3. All being well, a collection from BISRA (British Iron and Steel Research Association) is expected this autumn, after which a decision will be made on how much of the valuable resource from World Metal Index can be accommodated, without catalogues it’s not much use but there is no space for them.

Diane Aston, who manages the IOM3 schools programme and is based in the Grantham Office, now has oversight of the library and is working on putting together a library business plan.

IMMAGE and IMM Abstracts

Improved financial management has resulted in outside abstracting being curtailed and more being done in house. Sadly this coincided with the sudden death of Bill Jackson from pancreatic cancer, after years of meticulously preparing 100 abstracts a month. Bill was a former IOM editor and is greatly missed; his last batch of work was returned half-finished by his widow and entered to IMMAGE – papers from the European metallurgical conference EMC 2017. The number of records in IMM Abstracts has been reduced from 500 to 400 per quarterly issue in line with the cut-backs. The June issue went out on time but September is yet to reach its target. The reduction was felt an inevitable necessity, given the decline in IMMAGE subscriptions although there is a new IMM Abstracts subscriber this year.

Frances Perry—IOM3 Technical Library & Information Services.
Mineral Processing and Extractive Metallurgy, IMM Transactions C

Available free to IOM3 members through the Taylor & Francis website.

**Volume 127, 2018 - Issue 3**

Contents:

- Optimisation of fine auriferous pyrite recovery using anionic and non-ionic collectors, Dongfang Lu & Yuhua Wang
- Effect of microbubbles as flotation carriers on fine sulphide ore beneficiation, Nickolaj Rulyov, Tussupbayev Nessipbay, Turusbekov Dulatbek, Semushkina Larissa & Kaldybayeva Zhamikhan
- Recovery of Au(CN)\(_2^-\) by adsorption using reduced graphene oxide/ascorbic acid hydrogel, Kaige Sun, Weijun Peng, Tianyi Zhang & Shaoxian Song
- Hydrochloric acid regeneration in hydrometallurgical processes: a review, Caitlyn McKinley & Ahmad Ghahreman
- Preparation and characterisation of lithium ion exchange composite for the recovery of lithium from brine, Saeid Zandvakili & Mohammad Ranjbar
- Investigation on ammonium perrhenate behaviour in nitrogen, argon and hydrogen atmosphere as a part of rhenium extraction process, Shaya Sharif Javaherian, Hossein Aghajani & Hamed Tavakoli

**Volume 127, 2018 - Issue 4**

Contents:

- Reduction kinetics of iron ore pellets with coal and coal dust: reduction relation with crystalline phases, Deepak Dwivedi
- An investigation of factors influencing freeze lining behaviour, Tijl Crivits, Peter C. Hayes & Evgueni Jak
- The Synergistic Copper Process concept, William Hawker, James Vaughan, Evgueni Jak & Peter C. Hayes
- The Elkington specimen of cathode copper, A. E. Wraith, P. J. Mackey & R. W. Horton
- Characterisation and treatment of spent deposited sludge of transformer oil (DSTO) by acid leaching and solvent extraction, Alafara A. Baba, Joshua S. Ayodele, Oloduowo M. Ameen, Abdulrasaq Jimoh, Uduakobong Johnson, Bilikisu A. Jimoh & Amudat Lawal
- Using aluminothermic reduction of nickel oxide in formation of AlNi intermetallic compound, E. Jajarmi, M. Soltanieh & H. Nasiri
- Phase equilibria study of the ZnO–FeO–SiO\(_2\)–MgO system at Po\(_2\) 10\(^{-8}\) atm, Hongquan Liu, Zhixiang Cui, Mao Chen & Baojun Zhao
- Dephosphorisation of steel slags by leaching with sulphuric acid, Yong Qiao, Jiang Diao, Deman Liu, Jianfeng Yang, Dongwei Guo, Siyu Gong & Bing Xie
In 1913, UK relied heavily on imports of high grade haematite ore, mainly from Spain – which supplied 87% of all imported ore – with the remainder imported from Sweden, to feed its 495 blast furnaces – of which 340 were in blast.

A joint partnership mining company, Orconera Iron ore Company, had been formed in 1873 to exploit reserves near Bilbao in N Spain. This was owned in equal shares by Guest, Keen & Nettlefolds Ltd, Consett Iron Co Ltd, a Spanish company and Alfred Krupp. On the outbreak of war, court action was brought under the ‘Trading with the Enemy Act’ against Friedrich Krupp to seize their share of the company and administer it by the government appointed ‘Public Trustee’. However, since northern Spain soon came under German control, no further ore could be imported by Orconera for the duration of hostilities.

Imports were being disrupted, particularly on the East coast of the UK, by enemy action – mainly from submarines – and British Admiralty restrictions. In 1914, imports of ore to Middlesbrough on the East coast, for example, fell to their lowest value since 1904 – a 26% drop from 1913. What ore was still imported to UK ports suffered sharply rising freight costs.

The then Minister of Munitions, Dr Addison, called on output from domestic mines to be greatly increased underlining his statement by saying that for every ton of iron ore not imported sufficient imports of flour to bake 70,000 loaves of bread would result.

He called for iron output to be increased by 3Mt a year to solve the shortage of shipping which was being lost to enemy submarines. He wanted to increase the number of ships built in British yards by 250% in 1917 over those built in 1916. (The enemy had calculated that if shipping losses could exceed 600kt a month Britain could not sustain the loss).

Of the 8.9Mtons of pig iron made in 1916, 4.3Mtons (48.4%) was produced from imported ore.

According to a review paper of 1917 by Mr CG C Lloyd(1), UK had a reserve of 39.5 billion tons (ton = 1016kg) of iron ore – of which 30bnton was stratified carboniferous and just 500Mt haematites and magnetite. The iron contents of the richest ores reached 65%, but lower grade ores predominated ranging in Fe typically from just 19% to 40%.

The workforce rallied to the call. In South Wales, the workforce volunteered to increase their working hours to 12 hours a day (an average of 70.8 hours per week for a 6 day week), to ensure sufficient supply to the local blast furnaces. By March 1915, 11842 iron ore miners were in employment across the UK, and this number excludes those in open pit ore mines and where ore was associated with coal mining – an industry then employing nearly three times as many workers at 135155.

The Cleveland district of N E Yorkshire was by far UKs largest producer of ore. In 1914 it mined 5.2Mton of low grade carbonate ore averaging 27.4% Fe content (37.2% when roasted), 0.43%P and 0.2%S. This was followed by Lincolnshire (Frodington), 2.6Mton averaging 33%Fe; Northamptonshire 2.5Mton of limonite sands – mainly by open-cast mining, and Cumberland & Lancashire 1.5-2.0Mton of haematite mainly with an Fe content range of 50-55%, but some as rich as 66%. Other regions of the UK, together produced around 3.0Mton in 1914 and some 17 locations of ore were identified in Ireland that had been worked in earlier times, but output here was minimal.
Attendees at MPEM September Board

New Board Member: Frances Perry ProfGradIMM

Frances Perry is a library and information professional who has spent most of her career in the field of technical material on minerals and mining. Frances started at the former Institution of Mining and Metallurgy (IMM) as a librarian and then added technical abstracting to her remit; she also includes foreign-language abstracting for The Welding Institute among her many skills. Originally a historian, her graduate trainee year was spent at the Chatham House Library. On joining the IMM she enhanced her geology and chemistry “A” levels by adding an Open University degree in geology including modules on oceanography, mathematical modelling and astrophysics. Since the merger to form IOM3 in 2002, Frances has continued to be responsible for the IMMAGE database and IMM Abstracts and is now closely involved in integrating the mining- and mineral-related content of all the IOM3 predecessor publications with One-Mine, another benefit for IOM3 members. Frances has over 30 years’ experience of the worldwide technical literature of mineral processing and extractive metallurgy, mineral deposits, exploration and mining. Much of her time is currently spent on digitising the former IMM journals and conference proceedings and attending to members’ information requirements.

L to R

Tony Frances FIMMM (chair)
Francis Minerals Consulting Limited

Professor Hylke Glass FIMMM
Camborne School of Mines

Dr Arun Vathavooran FIMMM
Tetra Tech

Professor John Monhemius FIMMM
Formerly Dean Royal School of Mines
Director Anglo Asian Mining

Dr Vasant Kumar FIMMM
Trinity Hall, Cambridge

Dan Goodman
Jacobs Engineering

Also present:
Mike Cave FIMMM
Obituary: J. Burgess Winter, past President and CEO, Magma Copper

Extract from document prepared by:
Jack Holmes
(formerly Technical Director, Anglo American Corp.)
Tony Eltringham
(formerly Vice President, BHP Base Metals)
Roger Brummitt
(formerly Metallurgical Manager, Rhokana)
Stewart Smith
(formerly Vice President Hudson Bay Mining)
Ken Severs
(formerly Group Metallurgical Executive, Rio Tinto)

We are sad to record the death, on Monday 17 September 2018, of J. Burgess Winter who served the mining industry with honour and distinction for 45 years. Burgess was born of Jim and Mary Winter on 3/3/33, in Magheramorne, a hamlet in County Antrim, Northern Ireland. He graduated from Belfast College of Technology in 1956 with a Diploma in Chemistry and he was first employed in Carrick Fergus. He married Isobel Farmer – also an analytical chemist – from that town; and they went in 1959 to Kitwe, Northern Rhodesia to work in the laboratories of Rhokana Corporation (a subsidiary of Anglo American Corporation of South Africa).

In 1963, Rhokana managers were recruiting metallurgical staff from the UK but first they surveyed the talent already available on the mine. As a consequence, Burgess was offered and accepted a transfer into the ranks of the metallurgist – a move that was to prove most successful and rewarding for all. His first assignment was in the R&D Hydrometallurgy Section but he was quickly promoted to plant metallurgist at the cobalt plant, and then to assistant superintendent of the smelter.

He resigned from Rhokana mine (Zambia) in 1972 to become operations director for a local firm contracting to the industry: but in 1973 he went to South Africa and rejoined Anglo American at its head office in Johannesburg, working in the New Mining Business Department. He was involved in consulting roles in South Africa, Swaziland, Brazil and the USA. Significantly – certainly in terms of Burgess’ career – Anglo’s Toronto-based operation (headed by Peter Gush) had at that time acquired a controlling interest in Inspiration Consolidated Copper Co, Arizona, and Peter was seeking technical and operating assistance from Johannesburg. As part of the help duly provided, Burgess was transferred in late 1976 to be assistant superintendent of the smelter operations; and this was the beginning of his outstanding North American career. He progressed through smelter superintendent and manager, and by 1979 he was Vice President and General Manager of Inspiration Copper.

Amongst many contributions to improving the company, one of his greatest was in the field of reform in employee-management relations. In 1983, Burgess moved to the Kennecott, Utah Copper Division of Standard Oil of Ohio (SOHIO), as Senior Vice President Operations. This important appointment included responsibilities for not only Utah itself but for all other facilities outside the state: these, at peak time, included copper operations at Chino, Ray and Ely, plus gold operations at Barney’s Canyon and Alligator Ridge. He guided the company through the difficult period of the 1985 temporary closure and he remained in his Senior VP role until 1988.

Late in 1988 Burgess was hired by Magma Copper Co as President and Chief Executive Officer, this following the sudden death of the incumbent Magma officer, Brian Woolfe. It was at Magma that Burgess notched up his finest achievements. He was universally credited with turning around the Magma Copper Company which at the time was the third largest copper company in the USA. He achieved this by a combination of improvements, expansions and acquisitions, the last-mentioned referring to the 1994 purchase of the Tintaya mine, in Peru, and the Robinson project in Nevada. The improvements within Magma included the upgrading of plant technology and increases in worker productivity, leading overall to a drastic reduction in production costs. The key to these improvements being made possible was, however, the success of the negotiations by Burgess and his management team, with the strongly-unionised labour force: these negotiations resulted in the 1991 signing of a 15-year labour contract with a 7-year no strike clause.
Burgess Winter Obituary (continued from previous page)

This was followed in 1992 by the formation of a 140-person (half union and half management) cross-section of the entire staff of 5,000, who then thrashed out a vision for the future of the company, a vision that included worker participation in management, and a system that Burgess called “People Technology.” This organisation was called the “Voice of Magma” and functioned for the remainder of Magma’s life, with quarterly three-day meetings.

So impressive and successful were these achievements in labour relations that Burgess was summoned to The White House, in Washington DC, to explain them to President Clinton, the House Majority Leader Richard Gephardt and Labour Secretary Robert Reich!

In January 1996, Burgess negotiated the sale of the, by then, highly successful Magma Copper Co to Broken Hill Proprietary (BHP) of Australia, at a price that greatly satisfied his shareholders. As part of the agreement, Burgess undertook to work for one year leading BHP’s Copper Division. He continued to live in California but made regular commutes to the BHP headquarters in Melbourne. He retired from BHP in 1997 and shortly thereafter relocated with his wife, Patricia, to live in England.

He continued with some private consultancy work for a number of companies, including for Lonmin and Minoro: and he worked with trust funds and did much fund-raising for charities in the UK and the USA. He was on the advisory board of the Paul Newman Foundation, an international philanthropy group (newmansownfoundation.org), whilst Patricia and he supported the University of Arizona through the Winter Scholarship Program and the Magheramorne Foundation that they had set up. Both received the Distinguished Service Award from the university’s Eller College of Management.

During his most successful career, Burgess received many other accolades and awards. In 1994 he was inducted into the American Mining Hall of Fame, whilst by 1995 he had won the two highest awards offered by the Society for Mining Engineers, namely the William Lawrence Saunders Gold Medal Award and also the Daniel C. Jackling Award. The former quoted “For his innovative leadership in bringing union and management together as a team that revitalised Magma Copper Company as an efficient and low cost copper producer.” Notably also, he was one of 10 finalists nominated by readers of Chief Executive journal for the 1995 Chief Executive of the Year award and received the Financial World CEO of the Year Award. He had also, in his career, held directorships of the American Mining Congress, the American Business Conference, the National Mining Hall of Fame and the Tucson Electric Power Company.
We would like to hear from you!

We’re always interested in hearing from our members! If you would like to share a story, publish an article or just provide some feedback on the newsletter, please get in touch! All enquiries can be sent to our editor:

Mike Cave

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How do I join?

Individual membership of the MP&EM Division is achieved by joining the Institute of Materials, Minerals and Mining. You can join IOM3 online at www.iom3.org/join to get immediate access to member benefits, or you can complete our printed membership application form. For details of membership grades and professional qualifications visit: www.iom3.org/membership

Company membership: More information about Industry Affiliate membership and an application form are available at: www.iom3.org/ias

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