



Newsletter



Volume 2, Issue 4

December 2011

President's Message

I took up the mantle as 2011/12 President of The Mining Institute of Scotland on 5 October 2011. It is a great honour and a privilege to serve this noble Institute. I have been motivated by the support and encouragement of the enterprising and passionate members of the Board of the Petroleum and Drilling Division of IoM³ notably Steve Bedford, Margaret Copland and our immediate past-President, Craig Durham. I want to thank them especially for their continuing support.

The Mining Institute of Scotland achieved a number of outstanding milestones in 2010/11 including 'local society of the year' award. These are due in no small measure to the enthusiasm and the leadership of the immediate past-President, Craig Durham. On behalf of all the members, I would like to say a big THANK YOU to Craig for all his efforts.

The new tenure has witnessed another milestone with the brilliant hosting of the conference in Edinburgh on 15 November 2011. I understand we had 134 delegates! I want to thank especially Graham Smith for the conference co-ordination and Ian Purdie, the new Senior Vice-President for covering the end of conference address.

In my inaugural address in October, I set out to identify Energy Security and Sustainability as the number one Global Challenge and the biggest threat to that is the limited competent/skilled staff and ageing workforce available to explore and manage new frontiers. This is informed by my privileged background and know-how in the oil/gas industry which I have been associated with in various capacities since 1975 starting off as a mechanical engineer with my BEng degree from University of Benin, Nigeria, MSc/PhD in Petroleum Engineering from Heriot-Watt University, Edinburgh and working in various capacities from field operations through academic research and consultancy service. In these years I have seen the average age especially in the oil/gas industry skewing to about 45-50 years! Thus the marker for The Mining Institute of Scotland is to aggressively promote capacity building of young professionals for sustainable energy.

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YPLC 2012

The Young Persons' Lecture Competition (YPLC) 2012 will commence with a local heat at the University of St Andrews on 8 February 2012 commencing at 1400 hours. This will be the first time that our local heat is held outwith Edinburgh or Aberdeen.

The aim of the YPLC is to provide an atmosphere of friendly competition for young scientists and engineers (aged up to 28 years) so that their presentation skills will improve whilst addressing an informed audience. The Competition, sponsored by the Institute of Materials, Minerals & Mining (IoM³) with support from the Worshipful Company of Armourers & Brasiers, consists of a number of lecture competitions organised by the local societies of the IoM³, from which seven candidates, one from each region, is selected to compete in the National Final. Each region (e.g. Scotland) determines its own method for selecting its candidate for the final. The competition is open to anyone who is following or has followed a course in any aspect of Materials, Minerals, Mining, Packaging, Clay Technology and Wood Science, science and engineering.

A prize of £100 for the winner of the local heat is provided by IoM³ but this amount is increased to £250 by The Mining Institute of Scotland (MIS). Also, the runner-up receives £150 and third place receives £100. The regional winner selected for the final will receive a £150 prize donated by the Worshipful Company of Armourers & Brasiers. All competitors receive a certificate.

A copy of the Rules and an Entry Form are available from the Secretary of MIS (D.Seath@btinternet.com). Completed Entry Forms must be returned by 31 January 2012. If there are more than 6 entries, a pre-presentation will be held to select entrants going forward to the Regional Final.

Travelling expenses (equivalent to Standard Class Rail Travel) will be paid for by The Mining Institute of Scotland for participants entering its local competition. Similarly, travelling expenses (and accommodation where necessary) will be paid for by IoM³ for those selected to compete in the National Final. The winner here will also receive an all expenses paid trip to the World Final where they will represent the UK.

The History Boys Update

In the last issue of the *Newsletter* an announcement was made about the creation of a *History of The Mining Institute of Scotland*. Dr Richard Crockett and Dr Graham Smith will lead the project on behalf of the Council and have already started off the research phase at the National Mining Museum Scotland where the early transactions of the MIS are held.

However, there will also be many members, both past and present, who have publications, information, photographs, and other memorabilia pertaining to the MIS. If you have such items would you be prepared to give our project team access to them? The project team will be more than happy to visit anyone who has any item. We can copy or photograph items and so maintain a record for all to view. Please get in touch with the Secretary or Richard Crockett (rich.crockett@tiscali.co.uk) or Graham Smith (caplaw@hotmail.co.uk) or any other member of Council for that matter.

Any contribution large or small will be welcome. As well as MIS material, we are looking for items from the former bodies of IMEMME and The Institution of Mining & Metallurgy.

Energetic thinking required

Within less than a decade, so the Holyrood administration tells us, Scotland will be a shining example to the rest of the world in its turn away from non-renewable energy resources. *Scottish Energy 2020?* published recently by our sister organisation, The Institution of Mechanical Engineers, is a trenchant criticism of the optimistic thinking behind the claim that 20 percent of the local energy requirement will be derived from renewable sources within this time frame.

The Mechanicals point out that the term 'Energy' is often confused with 'Electricity' in the media and Government communications. Electricity is actually projected to be the smallest component of Scotland's energy demand - heat and transport energy being greater. This leads to the conclusion that the focus of the nation's energy policy on electricity is misplaced. Moreover, even if it were possible for much electricity to be sourced from robust, secure and reliable renewables (i.e. not vulnerable to windless, anticyclonic weather or short and dark winter days), this would barely achieve the 2020 target. The report goes on to suggest that, if a larger contribution from renewables is to be achieved, then the use of predictable resources like biomass and energy-from-waste might be a better option for official encouragement than building yet more wind farms.

Even if the relatively subordinate role of electricity within Scotland's future energy mix is properly understood at top levels, one wonders whether the cost and energy poverty implications of the refusal to consider new nuclear and the Hunterston coal-fired facility is a huge political row waiting to happen.

Richard Crockett

Arkwright Scholarships

In July 2011, David McKinney was awarded an Arkwright Scholarship sponsored by The Mining Institute of Scotland. David obtained a placement at INEOS from 7 – 10 November 2011 arranged through our colleagues in the SPRA. With quite staggering speed our new Arkwright Scholar produced a full report on his time at Grangemouth. The following is an extract from David's report:

"After going through a safety brief on Monday morning I spent time at the Polymer plants, which produce Polythene and Polypropene. I was taken round the PP3 plant, which turns Propylene into Polypropene pellet. This was great to see because we cover this in a very basic level in school. It was a real eye opener as it highlighted the immense amount of effort that goes to getting unwanted additives out of the final product and recycling unused materials. I spent some time talking with the Polymer plant manager discussing potential career paths and jobs that would need to be filled at the plant itself, this was good for me as I could see what sort of jobs are covered in the very large category of 'Engineering'.

On Tuesday I was taken around the Innorvine 4 plant which is more commonly referred to as Pex. It is the plant which produces Polythene to make products such as plastic bags. I was taken round this by a mechanical engineer who showed a compressor that had broken and explained how it worked. I saw around the workshop and the kind of thing the mechanical maintenance team did as well as some of the components that were undergoing repairs. Meeting up with different people and seeing what they do was a good experience because it's hard to imagine what they do daily. In the afternoon PP3 started running again and so I went out with workers from the control unit to help start the extruder.

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Arkwright Scholarships

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On Wednesday I was introduced to the 'Engineers of the Future' programme. This is where students go through a very rigorous selection process and if successful INEOS will fund you through further education. I got the chance to meet with a current Engineer of the Future who highly recommended the scheme to me and explained how it has helped him a lot with getting started after school. I also got the chance to speak to another mechanical engineer about what he did. He told me about how his team was in charge of making sure all the mechanical aspects of the plant (pumps, compressors, etc) were working up to standard.

On Thursday I met with two chemical engineers and for me this was probably the most interesting part of my visit because this is the branch of engineering I am particularly interested in. I was introduced quickly to some university-level maths, which at first seemed very ominous but with some help I managed to dissect the variable equation used to calculate the flow rate through pipes. For the first time I got to see what a chemical engineer's day job was and what kind of problems they were involved in solving. In the afternoon I was working with another chemical engineer who showed me a problem they had been given and the way they had gone about solving it, as well as the very long process of actually getting permission to make the changes. Meeting with these two engineers was a great experience as it showed what kind of thing I would be doing with a career in chemical engineering. If it had been possible I would have liked to have spent more time with them to see how they go about solving problems.

Looking back on the whole experience I feel more than anything it has shown me what the 'real world' is like. I enjoyed speaking to lots of different people and seeing what kind of thing they were doing from day-to-day. I feel I've learnt a lot about the way the plants operate and how they are run. Thanks to everyone I've worked with during my time at the plant."



Pictured: David McKinney (left) receiving his certificate from Richard Crockett

Petroleum and Drilling Engineering (P&DE) Division Update

2011 has been another good year for the Division with: continued membership growth, a visible presence at Offshore Europe, regular features in *Materials World*, a programme of continuing professional development activities, accreditation of the Shell and BP personnel development programmes, a website that has remained in the top 10 for the Institute of Materials, Minerals & Mining (IoM³) and active participation within IoM³.

Over the last few weeks the Division Board has been developing the programme for 2012 with the results of the 2011 P&DE member survey being a key input. One hundred and twenty four Division members from 15 countries completed the survey. The primary reason given for belonging to the Institute was to gain and retain professional qualifications, so the Division will continue to focus effort on supporting this aspiration through further personnel development programme accreditations, mentoring and sponsorship of candidates for professional qualifications, supporting the professional review process (including interviews by video conference for those in remote areas) and providing opportunities for continuing professional development. There was a clear request for more information on, and access to, Division activities with 87% of respondents stating that they would like to receive information by email - possibly not a surprising response to a survey issued by email! However the survey also showed that while 96% of respondents had visited the IoM³ website only 46% had visited the Division microsite. Accordingly, the Board is looking to initiate an electronic newsletter for members and to influence IoM³ to increase the visibility of the Division microsite. A Division brochure will be produced in 2012.

One quarter of the UK-based Division members reside in the South East of England, with 28% residing in the North East of Scotland. To increase the Division offering to the members in the South East of England the Division is planning to run a non conventional gas master class in the City of London. Virtually all the survey respondents were either working in the oil and gas industry, associated academic courses or were retired from the oil and gas industry so the Board will focus on the Oil and Gas Industry.

The Board needs more support to continue to grow the Division and meet member requirements. Accordingly, the Board will be looking to engage some of the 67 people who expressed interest in getting involved with the Division.

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COUNCIL 2011/12

PRESIDENT: BABS OYENEYIN *

SENIOR VICE PRESIDENT: IAN PURDIE *

JUNIOR VICE PRESIDENT: ALEX CROSSLAND*

SECRETARY: DAVID SEATH

TREASURER: IAN PURDIE

BENEVOLENT FUND: JIM WISHART

YOUNGER MEMBER REPRESENTATIVE: BERAN TANILIR

STEVE BEDFORD (P&DE DIVISION BOARD)

GORDON BEETHAM (MIS TRUSTEE)

SIMON BRASSEY

MARGARET COPLAND* (P&DE DIVISION BOARD)

MARTIN COX* (P&DE DIVISION BOARD)

RICHARD CROCKETT (ARKWRIGHT SCHOLARSHIPS)

RICHARD DEVÉRIA

MARTIN DOWNING (INDUSTRY LIAISON)

CRAIG DURHAM* (P&DE DIVISION BOARD)

MARK FRIEL (INDUSTRY LIAISON)

JOE HEFFERNAN (UNIVERSITY LIAISON)

STEVE JEWELL (P&DE DIVISION BOARD)

JON LATIMER

KEN MACKIE MBE (MIS TRUSTEE)

GRAHAM SMITH (CONFERENCE ORGANISER)

JIM SOMERVILLE (UNIVERSITY LIAISON)

ALLAN THOMSON (MIS TRUSTEE)

VACANCY

*** DIRECTOR OF THE MINING INSTITUTE OF SCOTLAND**

SPECIFIC ROLES OF INDIVIDUAL COUNCIL MEMBERS ARE GIVEN IN BRACKETS.

President's Message cont'd

This we want to facilitate through the aggressive recruitment of young professionals supported by attractive technical programmes. We have embarked on achieving this goal firstly through the election of two 'young professionals' (Alex Crossland of EV, Aberdeen as the Junior Vice-President and technical programmes director, and Beran Tanilir of BP as the Younger Members' Representative). Thanks to Alex and Beran for agreeing to take up this challenge and the MIS Council for approving the changes we proposed.

Secondly, we have put together a new technical programme that is energy focused. The 2011/12 MIS year started with a presentation on 9 November 2011 by Professor Gokay Deveci of the School of Architecture at Robert Gordon University who focused on energy conservation in housing development with his presentation title: *Passivhaus – Ecology and Environment Design*.

The New Year will encourage more joint Institute technical programmes. We have ended the year with an excellent turnout [Over 60 attendees] at the joint IoM³/IMEchE event, which we hosted at BP Dyce on 7 December 2011. The presentation by Michael Blakely of Merlin ERD was on *Drilling for Profit-Extended Reach Drilling*, a subject area I am passionate about!

We will be continuing with similar varied themes in the New Year starting with the joint MIS/Energy Institute event on 7 February 2012 at Marcliffe Hotel, Aberdeen. The event will be preceded by a President's Dinner and Council Meeting in Aberdeen. We look forward to the migration of all Council members to Aberdeen for this event. I can't wait!

Our success in 2011 has been due to each and every one of us and the commitment to service. I want to thank you all for the opportunity to serve. I wish you and your family a Merry Xmas and a bountiful 2012!

Remain Blessed

Professor Babs Oyeneyin b.oyeneyin@rgu.ac.uk

Third of Forth

In the *Geoscientist* magazine a feature article written by John Brown and Tom Berry from Arup revealed how ground investigations for the proposed Forth Replacement Crossing are redefining the geology of the Firth of Forth. The article described the history of the crossing of the Forth at Queensferry and the reason why a new crossing was required. The proposed Forth Replacement Crossing will not only maintain this historically important crossing, it will also complement the other two bridges in that they illustrate the evolution of bridge design from balanced cantilever, through suspension and finally multi-span cable-stay.

Three phases of ground investigation works were undertaken in 2008, 2009 and 2010. These ground investigations revealed important information about the geological history of the area, including the process of sill emplacement, the increase in the geographical extent of the Sandy Craig Formation to beneath Beamer Rock, and the possible presence of a volcanic vent. From the geological and geotechnical information gained from these investigations, the Jacobs Arup Joint Venture developed the specimen design for the main crossing, the third generation of iconic bridge engineering to cross the Firth of Forth.

Georesources 2011 Conference

'Scottish Georesources in a Changing World' was a 1-day conference organised by The Mining Institute of Scotland and the Central Scotland Regional Group of The Geological Society. The conference was held at the Scottish headquarters of the British Geological Survey in Edinburgh on 15 November and was a great success with over 130 people attending from all sectors across the georesources sector in Scotland.

The conference was opened by Fergus Ewing MSP, Minister for Energy, Enterprise and Tourism in the Scottish Government and provided the first comprehensive review in the 21st century of Scotland's geologically based natural resources. Through eighteen papers, four of which were given by invited keynote speakers, the conference considered the nature, extent and availability of resources in energy minerals (including oil and gas as well as coal), construction materials, and metalliferous minerals (particularly gold). Papers also looked at the planning framework for mineral extraction, innovations in exploration and geological interpretation together with future technologies such as underground coal gasification, geothermal energy and carbon capture and storage.

Further details on the conference and copies of some of the presentations are available on the conference website (www.georesources2011.com).

P&DE Division Update cont'd

The Board was very pleased to welcome Ian Merchant to the Board at the November Board meeting, Ian is a Principal Materials Engineer with the Offshore Engineering Division of Technip UK and is very well positioned to represent the large number of materials engineers who work in the Oil and Gas Industry, particularly the subsea sector, in which the United Kingdom is the world leader. In 2012 Ian will be focusing on building the relationship with the Institute of Corrosion. In summary the P&DE Board focus areas for 2012 are: professional development, communication and growth.

For more information on all the Division activities I would commend the Division website at www.iom3.org to you. May I wish everyone a very happy Christmas and New Year on behalf of the Board of the P&DE Division and I look forward to updating you on the Division activities in 2012.

Steve Bedford
P&DE Division Chairman

Industrial Visit

A party of 18 MIS members from far and wide across Scotland assembled at the Green Welly Cafe at Tyndrum for a visit to the Cononish gold deposit, which had been the subject of a technical meeting earlier in the year. The site is set in a dramatic location on the hillside below Beinn Chuirn adjacent to the Eas Anie waterfall with the white quartz waste rock from the exploration adit driven in the early 1990s standing out against the hillside.

The granting of planning permission just days before cast a much more positive air on the gathering and the group was initially joined by a journalist from a national newspaper following up on extensive media coverage earlier in the week.

The mine currently consists mainly of an adit some 600m in length running roughly south west. This adit was driven 20 years ago primarily for exploration and encounters the gold bearing vein around 500m in. There are other side roads which are blocked off which were driven at the same time. Ventilation is natural through to other minor access points and boreholes. The majority of the material excavated from the mine has been used to form the hardstand where the buildings and parking area are situated.

Future mining will be by sub-level open stoping with diesel powered LHDs and trucks with access to the levels by spiral ramp. The present adit will be opened out and rock bolt support installed where required to form the main haulage drive. Although stope backfill is not part of the mining method, tailings will be placed in the finished stopes later in the life of the mine. This was a key point in allowing the tailings facility to be reduced in size and re-modelled following the original planning refusal in August 2010.

In addition to the underground visit, the party was given an insight to the potential reserves of not only gold but other metals that could exist in Scotland.

Only time will tell if the 14-month planning delay during a period of record high gold prices will affect the future of the mine but Chris Sangster, CEO of Scotgold Resources Ltd said he is happy to welcome further visits as the project progresses. Finally, Graham Smith thanked Chris on behalf of the visitors.



A group photo taken before heading back to Tyndrum

AN INSTITUTE EVENT IS THE PLACE TO MEET FRIENDS AND COLLEAGUES BOTH OLD AND NEW, WHY NOT JOIN WITH US?

CALENDAR OF EVENTS

TECHNICAL MEETINGS

THE DATES FOR YOUR DIARY IN 2011/12 ARE:

7 FEBRUARY 2012* - 5.30PM AT MARCLIFFE HOTEL, ABERDEEN
Sakhalin Development
SPEAKER: MIKE GUNNINGHAM, MAERSK OIL

8 FEBRUARY 2012* - 2.00PM AT UNIVERSITY OF ST ANDREWS
Young Persons Lecture Competition

29 FEBRUARY 2012 - 7.00PM
Mining in Columbia
SPEAKER: MARTIN DOWNING, WARDELL ARMSTRONG

22 MARCH 2012* - 6.00PM AT GARVOCK HOUSE HOTEL,
DUNFERMLINE
Mines Rescue in the 21st Century
SPEAKER: ANDREW WATSON, MINES RESCUE SERVICE

26 APRIL 2012* - 6.00PM AT LOCHSIDE HOTEL, NEW CUMNOCK
TBA

Video-conference links usually enable Technical Meetings to be attended at Heriot-Watt University, Edinburgh; BP, Aberdeen; or University of West of Scotland, Paisley. Anyone wishing to attend at BP **must** make contact beforehand with Sarah Freeman at Sarah.Freeman@uk.bp.com or 01224 833844.

* Video-conferencing links will not be available for these events

SOCIAL EVENT

9 MAY 2012 - 12.00NOON AT LOCHSIDE HOTEL, NEW CUMNOCK
Retired Members' Lunch (Ayrshire)

TRAINING COURSE

28 & 29 MARCH 2012 - 8.45AM AT ABERDEEN PETROLEUM
CLUB, MILLTIMBER

DOWNHOLE METALLURGY - SELECTION FOR OILFIELD
PRODUCTION AND INJECTION WELLS

DETAILS ON WEBSITE AT:

www.mining-scotland.org/pdfs/downhole_metallurgy_course.pdf

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Scottish Engineering Hall of Fame

The first inductees to the Scottish Engineering Hall of Fame, announced at The James Watt Dinner held on 30 September 2011 in Glasgow, were (in alphabetical order):

Andrew Meikle

Andrew Meikle (1719 - 1811) was an Agricultural Engineer. He is credited with designing and making the first successful threshing machine, in 1786.

Percy St Clair Pilcher

Percy Pilcher (1867 - 1899) was the first person to make repeated heavier than air flights in the United Kingdom. This he accomplished in his 'Bat' glider during the summer of 1895 at Cardross.

Thomas Telford

Thomas Telford (1757 - 1834) was a renowned civil and structural engineer. His development of infrastructure in the Scottish Highlands created trade and wealth opportunities for what had been a remote and impoverished part of the nation.

William Thomson

William Thomson, Lord Kelvin (1824 - 1907) was a renowned engineer and physicist. His most notable engineering achievement was his contribution to the first successful laying of a transatlantic telegraph cable in 1866.

James Watt

James Watt (1736 - 1819) was a renowned inventor and engineer. His steam engine design developed into a form that could be applied effectively to power machinery in mines, mills and factories.

William Douglas Weir

Lord Weir (1877 - 1959), First Viscount Weir of Eastwood was a world leader in the design and manufacture of auxiliary machinery mainly for the naval and merchant marine industry. He was a Director, Managing Director (1902 - 1915) and Chairman (1910 - 1953) of the now Weir Group.

James Young

Dr James 'Paraffin' Young (1811 - 1883) succeeded by distilling cannel coal at a low heat which produced a fluid resembling petroleum. He found that by slow distillation he could obtain a number of useful liquids, one of which he named 'paraffine oil'. He co-founded E W Binney & Co, at Bathgate in 1850, which became the first commercial oil-works in the world, selling oils and paraffin extracted from locally-mined torbanite, shale and bituminous coal.

The Mining Institute of Scotland is a private limited company registered in Scotland with Number 311798