

The Minerals Engineering Society (formerly The Coal Preparation Society)

Horizons

Special points of interest:

- Hopley lecture
- Technical visits
- Message from your President
- Overseas Activities
- Minerals Engineering Symposium 2017.

2017 Hopley Lecture — Energy Union



The 43rd Annual Hopley Lecture, held at Willesley Park Golf Club on Thursday 26 January 2017, was presented by Brian Ricketts, Secretary General of the European Association for Coal and Lignite (EURACOAL). The meeting was opened by the MES President, Neil Jenkinson, who welcomed everyone to the event.

The speaker was introduced by Rod Stace, SMMMI. Brian is a local lad from Lichfield now living in Paris and working in Brussels, trying to uphold the economic case for energy from coal against an increasingly powerful environmental lobby.

The subject matter proved topical with a large attendance of seventy, due largely to the recent Brexit vote to leave the European Union (EU) and also the controversial election of Donald Trump as President of the USA. The disenchantment of the UK public with the bureaucracy and unaccountability of the EU and the scepticism of the new American President towards climate change provided a sound foundation for an extremely interesting evening. Sure enough the audience were not disappointed!

A brief history shows how EURACOAL evolved through various stages, from the original 1952 European Coal and Steel Community to become 'the voice for coal in Europe' in 2002. Today, it comprises 32 members from 18 countries.

Brian presented a detailed and frank appraisal of how, despite the proven significant economic benefits of energy from coal, the aim of the EU is drastically to reduce all fossil fuel use and target zero CO₂ emissions from the power and industrial sectors by around 2058.

The inevitability of this medium to long-term EU policy was emphasised by unequivocal 'official statements' from leading politicians in the European Commission who emphasise that this policy is "irreversible and non-negotiable". In the meantime, the lights must stay on at greatly increased expense to the public and industry, hopefully without an over-reliance on imported Russian gas. A challenge indeed!

It is noted that the EU's fossil fuel import bill increased from 1.5% GDP to 4.2% GDP over the ten years since 2002.

The main objective for EURACOAL is to try to secure coal's position in a sensible European energy mix through appropriate policies, laws and regulations, balancing economic power generation with realistic environmental restrictions. The huge reserves of lignite in Europe can contribute sensibly to the demand for power generation, but with the growing influence of the environmental lobby this is becoming more and more unlikely.

In 2014, coal contributed an average of 26.3% to EU energy production, second only to nuclear.

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In 2015, Germany (178mt lignite), Poland (72mt hard coal) and Ukraine (40mt hard coal) were the most significant coal producers and the EU in total was dependant on 191mt of imports (28% of total on a tonnage basis).

Despite the increasing requirement for energy, coal is certainly not in favour as a major contributor to the EU energy mix. Even so, Brian did highlight three new coal fired power stations being built in the Netherlands and others in South East Europe. He also stressed the beneficial potential in the future of carbon capture and storage (CCS) schemes to prevent CO2 emissions. He gave as an example the 1600MW power station proposed at Kingsnorth which included CCS. Unfortunately, it appears that CCS will not be enough to fit with the political vision of a transition to green energy. Kingsnorth was cancelled in 2010 in the face of attacks by NGOs and lack of government support.

Developments now aim to use the flexibility of coal power generation – which can be as flexible as gas – to balance the growing share of renewable energy whose output falls to zero on windless nights.

Brian concluded his presentation with a three-point clean coal strategy to ensure continued use of coal in the EU energy production mix.

- It is essential to replace older power plants with new higher efficiency plants
- There is a need for continuing research and development to improve efficiency and flexibility
- CO2 capture and storage must be deployable at scale.

Following a short but lively question period, which not surprisingly concentrated on energy versus environment issues, Rod Stace, congratulated Brian for his excellent and well-illustrated presentation. Neil Jenkinson then presented the Hopley Shield to Brian to be retained for one year, together with an engraved tankard and a copy of 'The History of Coal Preparation' as mementos.

The evening concluded with the usual exceptionally good buffet prepared by the Golf Club and sponsored by SMMMI.

The 44th Hopley Lecture has already been booked at the same venue for Thursday 18 January 2018. The subject has yet to be decided ... but it will be good!

Message from the President



Welcome to the Spring issue of Horizons its now 6 months in to my Presidency and as I implied in my Presidential address I have managed to attend all but one of the MES events. Unfortunately the planned visit to the Boulby Potash Mine was postponed, but an alternative visit to the EDF West Burton gas fired power station was arrange quickly arranged to replace it. The Hopley Lecture in January was well attended as usual, and the audience was given a thought provoking talk on 'Coal's role in the EU's planned shift to renewables' by speaker Brian Ricketts; all the visits and technical/social meetings are reported in full in this Newsletter. On behalf of the Society I would like to thank the members responsible for organising the events, and producing and compiling the

articles in this newsletter.

The Symposium and Exhibitions Committee have been busy discussing and planning future events in particular the Diamond Anniversary of the Society which will be held in December 2018. However, the next event for your diaries is the Minerals Engineering Symposium on the 18th May 2017 at the Yew Lodge, Kegworth. Details of the event and the speaker programme can be found with this newsletter and on the Society's website (www.mineralsengineering.org).

In my role as webmaster I continue to update and add content to the website, and encourage members to pay the website a visit from time to time. There is a well viewed picture gallery, with some pictures having over 700 views. If you have any Society photographs that you would like to share with the membership please contact me at webmaster@mineralsengineering.org so that we can arrange the best way for you to send the pictures to me.

I encourage you all to support the Society by attending the events and visits, and I look forward to meeting you at the Symposium and the other events throughout the year

Obituaries



Bill Griffith

5th November 1930 -10th January 2017

WJR (Bill) Griffith - Past President (by Andrew Howells)

Earlier this year the Society lost another Past President when Bill Griffith passed away, he was President in 1985/86 and had the unenviable job of following Vic Phillips and it is to his credit that he undertook the role with the calm efficiency he was renowned for. I was section Chairman in South Wales that year and attended Council as the Section representative and that is exactly how I remember Bill chairing Council and ensuring business was concluded in an orderly fashion, you wouldn't expect anything less from his background in Education. There are many of you out there who are still members who will, I am sure, be forever grateful for the Coal Preparation you learnt from Bill on the 051 C&G courses. He was also a stalwart of North West Midlands Section, which met for some of its technical meetings at North Staffs Polytechnic and whilst the Section only existed for 11 years it was one of the most active both technically and socially during that period

I was pleased to be one of 6 Past Presidents who joined our President in attending his funeral, which is testament to the role he played in what was probably the most exciting decade in the life of our Society. I am grateful to Bill's daughter Miranda for providing me with her notes from her presentation at the church in Keele, which allows me to at least give a flavour of Bill outside the Society. He was born in Liverpool at a time when that city was in its maritime hey day and being only 9 years old when the second world war started these two factors were to shape his life, he was a man renowned for his courtesy and the fact that he treated all with respect and these values he carried with him until the very end. He was above all else a man who loved his family, his home and his garden and he and his wife shared many pursuits through their love of music, travel, walking and nature. He also loved cricket and football and enjoyed discussing them with his extended family as well being a keen photographer with the Newcastle camera club, of which he was secretary for 15 years and then an Honorary Life President.

My memories of Bill span my time in the Society from the early days when he was still a regular attendee at Council meetings and a source of knowledge that helped all to the many chats I enjoyed with him, particularly when he rang to offer his apologies for not being able to attend the Annual General Meeting and we would catch up on Society business and then latterly at two lunches he joined several of us for at the spiritual home of the Society in deepest Derbyshire, the Peacock at Rowsley. The last time being the 90th birthday for my predecessor as Treasurer, Paul Vanags.

It is also sad to report the loss of another longstanding member of the Society

Graham King Graduated from Imperial College, London, worked for Gunsons Sortex on optical and X- ray mineral and food separation. He was involved with NCB on commercialising the X-ray coal sorter at Manor Powis and New Miller Dam collieries and the Phase 3A Ash Monitor. Later joined Mitchell Cotts Mining Ltd as Sales Director

Northern Group visit to West Burton 'B' Combined Cycle Gas Turbine Power Station



EDF Energy is one of the largest electricity generators in the UK. It operates several stations including nuclear, coal and renewables. West Burton CCGT is EDF's first UK-based gas fired station.

On 22 March, eight members of the Society drawn from both Northern and Southern groups attended a truly memorable visit to West Burton. In spite of the cold and windy weather conditions, we received a warm welcome from Lyz James and Adam Nott of EDF who, after a short induction and a warm drink, took the group on a tour of the station.

We were immediately impressed by how well-organised and tidy the site was. The attention to detail on safety, signage and housekeeping was very apparent.

After leaving the Visitor and Development Centre, we moved to the water storage and treatment plants where up to 60,000 tonnes of water, extracted from the River Trent, is processed every day. This water is demineralised to pH7 for use in the Hybrid Cooling Towers. Up to 40,000 tonnes of water is evaporated daily with the remaining 20,000 tonnes being returned to the river.

The water used in the HRSG, Heat Recovery Steam Generator is treated with ammonia to achieve a pH9 and is used in a closed loop circuit to produce steam for the steam turbine. Our next port of call was the Gas Reception facility. 45-55% of the gas on site is imported from Norway, Belgium and Holland into the plant through a 19km pipeline from the National Grid gas main.

After a short stop at the Hybrid Cooling Towers the party moved out of the cold and into the relative warmth of the Turbine Building. Adam then explained the operation of both the Gas and Steam Turbines. The Gas Turbine is an up scaled version of an airplane engine and rotates at speeds of 3000rpm. The hot gas from the Gas Turbine is used to produce the steam for the Steam Turbine, which has three sections: High, Intermediate and Low Pressure Turbines. The HP section is much smaller than the LP because there is much more energy in the HP steam (125BAR/545degC). This allows the blades to be smaller. Within the LP steam, where there is less energy (5BAR/260degC), the blades need to be larger.

The biggest single efficiency loss within the station is the steam turbine condenser. This converts steam exiting the Low Pressure Turbine into water. Combining the Gas and Steam Turbines increases the efficiency of the generation plant to approximately 58%. Power leaves the Gas and Steam Turbines which is stepped up through a transformer to 400,000 volts. It then flows across the overhead lines into the switch yard where it joins the National Grid Network. West Burton has three of these units and can power up to 1.5 million homes.

We ended the tour with a visit to the Plant Control Room where we were able to talk to the staff about the operation of the plant. Lyz and Adam were bombarded with questions throughout the tour and they could not have been more helpful and professional.

This is a visit to be recommended to all our readers should they have the opportunity to partake of a tour of West Burton CCGT.

The MES party then finished the day by reconvening at the Brewers Arms in Clayworth for a pint, lunch and a warm by the coal fire.

Northern Group Technical Meeting - Yorkshire Potash Mine

On Tuesday 7th February the Minerals Engineering Society and the Institute of Quarrying met for their annual joint meeting.

This year the paper entitled “The Yorkshire Potash Mine” was presented by Matt Parsons of Sirius Minerals.

The mine, which will be located just south of Whitby will produce Polyhalite, a much sought after naturally occurring compound with a high value in the fertiliser markets around the world.

The Polyhalite in the area is believed to be the largest high-grade deposit to be found anywhere in the world.

Between July 2011 and August 2013 over 16,000 of boreholes were drilled resulting in an estimated 2.66 billion tonnes in the area with a probable extractable reserve of around 280 million tonnes within the current resource area.

Enabling works commenced in January of 2017 and it is targeted to commence production in the third quarter of 2021.

Initial targets are to produce 10MT of polyhalite per year by 2024 with the option to expand to 20MT per year if demand is sufficient.

The project includes a new port facility at Wilton, near Redcar, a processing plant at Teesside and a state of the art conveyor system running underground at a depth of 360m from the mine site to the processing plant, a distance of some 37Km.

With the deposits at a depth of around 1500m two shafts will be sunk with the majority of the headgear and access equipment being positioned below ground level to reduce the environmental impact. Following the presentation there was a lively Q&A session which reflected the measure of interest that this project has attracted.

Although Matt did his best to provide the answers there were several technical questions that would have required the full project team in attendance to fully satisfy the extremely knowledgeable audience. With an attendance of over 60 people this was once again a successful joint meeting with the members showing their appreciation for what had been a very interesting presentation



Overseas Activities

United States The Society has a reciprocal agreement with the American Coal Preparation Society (ACPS) to exchange newsletters. It should be noted that there will be no CoalPrep 2017 this year but the ACPS are planning to hold one in 2018. Barbara Arnold, Secretary of the CPSC is to replace Dr. Mel Laurila as the US delegate on the International Coal Preparation Organising Committee (IOC).

India The first meeting of the IOC has been arranged to start organising the 19th International Coal Preparation Congress that will take place in New Delhi in 2019. The meeting in November this year will be preceded by a conference on “Coal Washing” from 6th-7th November 2017. Should anyone wish to submit a paper then an abstract should be sent to Mr R K Sachdev at rksachdev0@gmail.com before 15th July 2017.

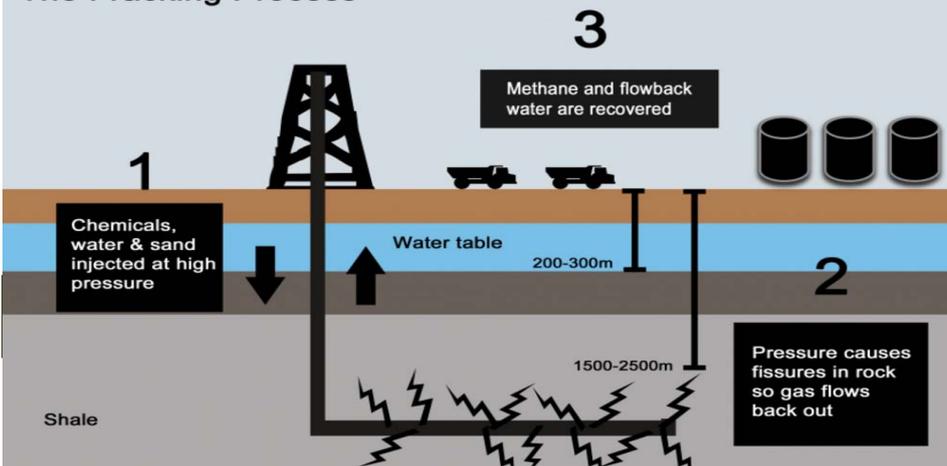
18th May 2017—Yew Lodge Hotel, Kegworth

Minerals Engineering 2017

Minerals Engineering 2017 is the next in an annual series of symposia organised by The Minerals Engineering Society, South Midlands Mining and Minerals Institute and the Fuel & Energy Research Forum. This symposium is **free** to members of these Institutions, however you still need to book your place. Non members fee is £75 which includes one years membership of the MES at Associate level, Student fee is £35. This symposium has attracted a wide range of international speakers from a wide Industry base.

We sincerely hope you choose to participate in our symposium and look forward to welcoming you to the East Midlands in 2017

The Fracking Process



One-day Symposium

This one day symposium organised by the Minerals Engineering Society and co-sponsored by the South Midlands Institute of Mining & Minerals and The Coal Research Forum brings together Industry professionals from all over the UK. It provides an opportunity for equipment and service suppliers, producers, regulators, government agencies and academia to come together under the common goal of ensuring a future for the UK's processing industries through sustainable research and Innovation.

Attendance is encouraged from those interested in the UK's or Global minerals/mining industries with particular interest to government departments, local authorities, academia, mining and minerals companies, equipment manufacturers, consultants, R&D organisations, suppliers, operators and the general public. The programme covers a broad spectrum of mining and minerals in the UK and Europe and will particularly benefit anyone who has an interest in those industries, why not join us to listen to six excellent speakers and take the opportunity to be informed about what is happening in the industry and take part in an active discussion with each of the speakers who are at the forefront of their particular field."



Guidelines for Preparing Mine Closure Plans



A one-day Symposium - Presentations

18 May 2017	Event	Start Time	Finish Time	Paper/Location	Presenter
	Registration	08:00	09:15	Hotel, tea & coffee in Ebony Lounge	
	Opening Address	09:15	09:20	Conference Room	Neil Jenkinson, President MES
Session 1 Chairman, Rod Stace SMMM	Presentation 1	09:20	10:00	Coal in the UK & Europe	Nigel Yaxley, MD CoallmP
	Presentation 2	10:00	10:40	Consultants view of Mining Legacy	Christine Blackmore, Wardell Armstrong
	Coffee / Tea	10:40	11:00	Ebony Lounge	
	Presentation 3	11:00	11:40	History and Development of the DM Cyclone	David Woodruff, Coal Preparation Consultant
	Presentation 4	11:40	12:20	Geopolymers, a low Carbon alternative to Cement	Peter Keeley, Birmingham University
	Lunch	12:30	13:30	Restaurant	
Session 2 Chairman, Douglas Jenkinson MES	Presentation 5	13:30	14:10	Derbyshire Oil Wells of 1918 & Britain's first Fracking experiences	Cliff Lea, Chairman of NE Derbyshire Industrial Archaeology Society
	Presentation 6	14:10	14:50	Mine Closures and Shaft Capping	Stuart Foeweather, former Technical Operations Manager at UK Coal
	Closing Address	14:50	15:00	Conference Room	Greg Kelley, Chairman of S&E Committee
	Tea / Coffee	15:00	15:10	Ebony Lounge	

Venue —Yew Lodge Hotel, East Midlands



The training and conference facilities make Yew Lodge the premier venue for meetings and conferences in the East Midlands. Located on the borders of Derbyshire, Nottinghamshire and Leicestershire, just 6 miles from Loughborough adjacent to Junction 24 of the M1. The hotel offers free parking, free Wi-Fi to all delegates and all rooms are air-conditioned. Tea and coffee are catered for and lunch for all delegates is included in the conference fee. The hotel is also accessible by rail at East Midlands Parkway and by air at East Midlands International Airport



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Supported by:

Future Events

**Christmas Dinner & Dance, Ye Olde Bell, Barnby Moor,
8th December 2017**



Get the festive season off to a start and join old friends and new at our Christmas Dinner and Dance. Tables of 10 are available for companies but individuals and couples are most welcome. This is the premier social event on the Society's calendar and places are limited and do sell out fast, therefore it is advisable to book as early as possible. Menu is traditional Christmas fayre served in elegant and opulent surroundings, complimented by a fantastic selection of wines and cask beers. The evening is rounded off by a superb disco, with a private lounge available for those who wish to relax away from the music



Southern Group AGM — 18th May 2017

The Annual General Meeting of Southern Group will be held on 18th May at Yew Lodge Hotel, Kegworth. This will be held directly after the Minerals 2017 Symposium to enable more of the membership to participate,

Annual Golf Tournament 2017

The Society's Annual Golf Tournament will take place on Friday 7th July 2017 at Styrrup Golf Club, near Doncaster. This is usually an intensely fought competition for the various trophies on offer, for further details please contact Mr Andrew Howells, (Details below)

For further details on any events in this Newsletter, please contact:

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