

October 2017

Joint Meeting with SCI

In Brief:

- Joint meeting with The Society of Chemical Industry
- Home of ICorr from 1965 - 1980
- Benjamin Franklin's Electricity Experiments
- AC Corrosion on Pipelines – A Serious Hidden Problem
- Vote of thanks from John O'Shea

Winter Meetings:

October 12th 2017

Corrosion Challenges and Considerations for the Design and Installation of 316 Stainless Steel – Simon Bowcock

Skempton Building, Imperial College
18.00 for 18.30 start
(Joint with LMS)

October 19th 2017

From the Foundations of Electricity to Modern Corrosion Failures – Fred Parrett, David Eyre

Society of Chemical Industry, Belgrave Square, London
18.00 for 18.30 start
(In celebration of David Deacon's Life)

From the Foundations of Electricity to Modern Corrosion Failures

On 19th October 2017, London Branch held a joint meeting with SCI (Society of Chemical Industry) at their prestigious premises on Belgrave Square, Mayfair SW1. The evening was chaired by Dr Nicholas Bourne of SCI who introduced the two evening presentations.

Coincidentally the Society of Chemical Industry was home for The Institute of Corrosion from 1965 to 1980 when it moved to The IMF in Birmingham.



Benjamin Franklin's Electricity Experiments

The first presentation was by Dr Fred Parrett, who has over 50 years' experience in business, industry and academia. After an early career in University teaching and research, Fred established his own consultancy company. Originally focusing on the chemical industry this company has grown in the last 30 years and his expertise and knowledge has been used in a variety of fields.

Fred's presentation was a comprehensive look at the life and works of businessman, scientist, inventor and politician, Benjamin Franklin. Fred developed a timeline to show developments in the study of electricity that were sweeping through Europe in 1740's. Franklin wanted to find answers to a number of fundamental questions: what is electricity, how is it distributed in nature, are there two kinds of electricity and why are materials conductors or non-conductors.

In 1751, Franklin published his book 'Experiments and Observations on Electricity made in Philadelphia, America. The famous 'Kite Experiment' where Franklin showed that lightning did produce electricity followed in 1752

November 9th 2017

The role of H₂S in pitting of Stainless Steel in Sour Oil and Gas applications

James Hesketh, Gareth Hinds, Alan Turnbull – NPL, Teddington

Skempton Building, Imperial College

18.00 for 18.30 start
(Joint with Welding and Joining – TWI)

December 7th 2017

Annual Lunch

Royal Overseas League, London

12.00 for 13.00 Lunch

January 11th 2018

Skempton Building, Imperial College

18.00 for 18.30 start

February 8th 2018

Skempton Building, Imperial College

18.00 for 18.30 start

March 8th 2018

Skempton Building, Imperial College

18.00 for 18.30 start

April 12th 2018

Skempton Building, Imperial College

18.00 for 18.30 start

In 1756 Franklin was nominated for Fellow of The Royal Society of London, being described as ‘a gentleman, who has very eminently distinguished himself by various discoveries in natural philosophy and who first suggested the experiments to prove the analogy between lightning and electricity’.



AC Corrosion on Pipelines – A Serious Hidden Problem

The second presentation was by Dr. David Eyre, Dr. David Eyre is an independent consultant, specializing in corrosion management and integrity of buried pipeline with over 35 year’s experience on UK and Overseas projects.

David continued the theme of electricity but moved away from DC and introduced the problems created by modern high voltage AC transmission systems on oil and gas pipelines. David described the policy of routing AC transmission systems in the same corridor as pipelines. The magnetic field created around each AC phase wire running from tower to tower can induce AC voltages and currents in the wall of the buried steel pipelines, under both normal load and fault conditions on the transmission system. These effects can, on the one hand, create unsafe conditions for personnel working on the pipeline and secondly can induce significant AC currents which can cause corrosion on the external surface of the pipeline leading to full wall penetration of the pipeline in extreme conditions.



David indicated that the magnitude of the induced effects depended on many factors, including the transmission system voltage and current loading, the length of parallelism and separation distance of the pipeline from the transmission system, the pipeline characteristics and resistivity's of the soil in which the pipeline is buried.

It was now generally recognised that pipelines can suffer AC corrosion despite satisfying the conventional cathodic protection (CP) criteria based on pipe to soil potentials. New CP criteria have been developed based on measured AC current density values, which can be used to minimise the risk and these details are contained in the latest standard, BS ISO 18086:2015.

It was emphasised that monitoring, and data logging was essential to assess the 'persistency' of the problem and that the longer this monitoring is conducted the better the assessment of risk. Mitigation methods were described, and David admitted that the mechanisms of AC corrosion on pipelines are still to be fully understood.

The Vote of Thanks was given by John O'Shea a Past President of ICorr, who started by thanking Dr Parrett, Chairman of the SCI London Group for initially floating the idea of the Joint Meeting and for all his support in organising this successful event.

John also gave a brief eulogy for the late David Deacon, who would have been 81 years on the following Tuesday, who had done so much for the Institute of Corrosion and worked at this Belgravia address

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