IES News Bulletin
November 2021
The Institution of Engineers in Scotland A Multi-disciplinary Engineering Institution

Message from our President

Dr Andy Pearson

Welcome to the second Bulletin of the 2021-22 session. Our evening talks for the year are now underway. We have held our first hybrid lectures but will revert to an online event for our next lecture in Dec – which will look at offshore wind farms. I hope that you will feel able to join us.

We have become used to conducting much of our business using remote meetings, not only for our evening talks but also for committee meetings and other activities. This has been quite effective but we are very aware that some activities such as schools work and member visits to sites have been impossible, so we are looking forward to a chance in 2022 to get back to a full programme of events once Covid restrictions are eased.

Prof Stuart Cameron

We were saddened to hear of the unexpected death of our Honorary Treasurer, Professor Stuart Cameron, on 7 October. Stuart joined Babcock & Wilcox of Renfrew as a graduate engineer in 1970 and worked there for 40 years, rising to become Chief Engineer before retiring in 2010. He was honoured to be appointed as Visiting Professor in Mechanical and Aerospace Engineering by his alma mater, the University of Strathclyde. He remained active in many engineering societies, serving as Vice President of the Institution of Mechanical Engineers from 2010 to 2013 and as a member of the Board of Governors of the American Society of Mechanical Engineers from 2016 to 2020 as well as contributing significantly to the work of Primary Engineer in the UK as a member of their advisory board. He was a recipient of the Incorporation of Hammermen in Glasgow's Prince Philip prize as a student in the 1960s. A member of the Institution of Engineers and Shipbuilders in Scotland since 2011, Stuart became Honorary Treasurer in 2019 and gave generously of his time, experience and wisdom through several significant changes for the Institution. Our condolences go to his wife, Flora, and family. He was an exemplary role model and will be greatly missed by us all.

Managing our Subscriptions

Thank you all for your very positive response to our MemberMojo subscription reminders. What a success. We have been able to collect more of our subscriptions earlier and many more with Stripe which will give us a greater amount of your fees.

Thank you for your enquiries about additional donations – if you would like to make an additional donation to any of our activities that are close to your heart via MemberMojo you can select 'Visit Store' on your membership page then make your selection, or donate via BACS or cheque.

This system is still fairly new to us - we will be very happy to receive any feedback.

Engineers have something to say

Are there any engineering topics that are interest or even frustrate you? EV infrastructure, energy, the 'Rest and Be Thankful' road closures, transport in Scotland, sustainability, potholes, engineering education……

Why not contribute an opinion piece to our new website? Please visit the site and have a look at the existing opinions – lots there to get you thinking!

You could also bring up your favourite topic at our Cuppa and Chat meetings…….

Scottish Engineering Hall of Fame Inductees 2021

After the very difficult decision was made to cancel this year's James Watt Dinner our spirits were raised with the prospect of the announcement of this year's inductees into the Scottish Engineering Hall of Fame. We were not disappointed – on Friday 8th Oct the inductees were announced during a lighthearted but captivating online meeting. Many friends and supporters joined us and shared the excitement of the 'Grand Reveal'

This year judges paid particular attention to candidates who worked in areas of sustainability

George Balfour – pioneer of hydro power

James Blyth – pioneer of wind power

George Forbes – a polymath who worked on hydro schemes across the world

Graeme Haldane – the first use of a domestic heat pump in the world

Alexander Kirk – pioneer of refrigeration and developer of the triple expansion marine engine

James Newlands – public health engineer who designed the world's first civic sanitation scheme

Stephen Salter (pictured) – inventor of the wave power generator, the "Salter Duck" (pictured)

Robert Thomson – inventor of the pneumatic tyre

Joint lectures with Glasgow University during COP 26

This year to mark the importance of COP26 and all things climate change related we joined with the University of Glasgow to hold two lectures on the theme of sustainability. The lectures were held in the very new, beautifully appointed, James McCune Smith Learning Hub. What joy to see students speaking and studying together! Once we realised that the installed AV was significantly better than our own skills we got on famously!

Those who attended on both nights did not need to fight for seats……reflecting perhaps a combined COP/Covid/Transport/ Weather reluctance - but their efforts were well rewarded with two super lectures and the opportunity to chat face-to-face and ask questions of the speakers off-mic – maybe they were too well-rewarded in this aspect! We had really good turnouts for our online audience – great to be able to offer hybrid meetings – definitely something to continue with.

Our first lecture was on the work being carried out in Bo'ness on converting a retired Scotrail train to run on hydrogen.

Simon Mylius from Arcola Energy took us through the journey from conception to the impending launch (two days after the lecture!). An aspect which I found particularly interesting was how the project addressed the matter of infrastructure and how they balanced the battery/hydrogen combination for maximum power/performance/journey length. It was very heartening to see what progress had been made.

Our second lecture was on district heating systems and heat pumps. This lecture was delivered by Dave Pearson from Star Renewables. Dave was able to take us through the advantages and potential pitfalls of river source heat pumps – from the theory to the application at Queens Quay in Clydebank. It was really inspiring to hear the potential of this renewable energy source. It was also refreshing to hear the real-life hurdles that face widespread adoption. For me the word 'thropportunity' said it all!

[the lectures will be available online very soon – visit our website for further details]

Let's get talking – Cuppa and Chat meetings

Many of our participants have asked for the Cuppa and Chat meetings to be continued. It has been suggested that we invite members to bring a friend along (virtually) and join in the discussions.

The dates for the remainder of this year are:

- Tuesday 23rd Nov 5pm
- Tuesday 14th Dec 5pm

Let us know which date you would like to join, numbers for each meeting will be capped at 10

Glenlee's 125th Anniversary

History

125 years ago on the 3rd December 1896 the 3 masted barque, Yard no. 324, Glenlee, was launched with her masts, yards and spars in place at the Anderson Rodger & Company's yard at the Inner Harbour, Port Glasgow, for Archibald Sterling & Co (colloquially known as the Glen Shipping Company). The ship was registered with Lloyds; her registered dimensions were 245'-6" x 37'-6" x 22'-6" with a Registered tonnage of 1488. She was one of 9 vessels built by the company that year. By the end of 1896, the Glenlee had been fitted out and was sailing to Liverpool to load her first cargo for Portland, Oregon. The ship handled well and in blustery conditions could average a speed of 8 knots.

In 1898 she was purchased by Robert Ferguson & Company of Dundee and renamed Islamount and then purchased by Robert Thomas & Company in 1905. In 1919 the ship was purchased by Societa di Navigazone Stella di Italiana of Genoa and renamed Clarastella and in 1920 the ship was fitted with auxiliary engines and electric lighting.

In 1922 the ship was purchased by the Spanish navy and renamed Galatea for service as an officer sail training vessel and 5 years later converted to a sail training vessel for non-commissioned officers. In 1962 the ship was decommissioned and laid up at La Grana de El Ferrol eventually ending up at Punta Verde where she was later badly vandalized and damaged by fire.

Restoration

In 1992 the Galatea was purchased at auction by the Clyde Maritime Trust and towed from Sevile to Yorkhill Quay, Glasgow, arriving on the 28th June 1993. where at a special ceremony, the ship was rechristened with her original name, Glenlee.

Restoration involved removing the superstructure, fire damaged steelwork, and gutting the internal spaces by removing accommodation and tanks to bring the vessel near to her original condition. The Polar engines fitted in the 1950s and the generator were retained and represent part of her story.

The Glenlee's mast and yards were eventually shipped from Spain in 1997 and by the end of 1998 the Glenlee had been rerigged in time for the Tall Ship Race visit to Greenock in July 1999 where she was one of the main attractions.

Current

The vessel was moved from Yorkhill Quay to the Riverside Museum where she is on display to the public. The Glenlee is owned and operated by the Clyde Maritime Trust who continue to restore and maintain her for future generations as one of the last existing examples of a 19th Century Clyde built sailing vessel. The Glenlee is a popular visitor attraction, often referred to as Glasgow's Tall Ship, and is frequently used for a variety of functions from lectures, music concerts, weddings etc. Entry is free and visitors can experience life aboard ship, view various displays, enjoy the onboard café and visit the shop selling a range of nautical gifts and Glenlee souvenirs.

Anderson Rodger, whose shipyard built the Glenlee, was a member of the Institution of Engineers and Shipbuilders in Scotland and several of the Institution's members have played a part in the restoration and maintenance of the ship since her return to the Clyde.

For further information, visit: https://thetallship.com/

Bookshelf – review by Dick Philbrick

200 Years of Muddling Through – Duncan Weldon

This very readable, if depressing, book explains how Britain lost its dominant position in world trade and provides lessons from the past which could guide us now. In 1870 40% of world exports came from Britain; in 2018 'only' 13% come from China. Weldon argues that the seeds of our decline were sown by the late 19 th century as Germany and the USA invested more and spent more on education and training.

WW1 was a brutal turning point which caused the loss of export markets for 'things' and coal and our dominant position in finance to USA. The difficulties of the 1920's lasted longer in Britain and the series of almost knee-jerk lurches in policy, with endless boom and bust have been a feature of our economy for the last 100 years. Sterling was often over-valued, which penalised exporters, with intermittent spectacular devaluations (30% in 1949 and 17% in 1992), interest rate changes peaked at 17% in 1979, etc… Lurches neither encourage investment nor development of export markets

Successive governments clutched at different initiatives. Legislation giving Imperial Preference for empire countries in 1932 might have brought a little protection but sapped the will to compete as did government fostered company mergers. Shipbuilders were busy in WW2, and enjoyed an orders bonanza after, which meant they continued to rely on craft-based skilled workers rather than the large-scale manufacturing techniques employed with 40% higher productivity in Sweden, Germany and USA. Nationalisation in several sectors created a number of monopolies 'insulated from competition'. Short term measures by politicians have led to long term decline. Companies must plan for the long term too; short-termism is death for both engineering and maintenance of high productivity.

This is not a cheerful Friday evening read. We have neither invested nor traded consistently. Engineering companies that fail to export widely, risk competitors selling high where they face no competition allowing them to dump where they do. In a tough post-Covid world we must learn lessons from the past.

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Remaining Programme for 2021-2022

Joint meeting with RINA
From world's biggest offshore windfarm to world's biggest and best value offshore windfarm
Patrick Harnett, Senior Programme Director for Hornsea 2.
Tuesday 7th December 2021, 18.30pm [this will also be online only]
Hornsea1 is currently the world's biggest offshore windfarm at 1200MW. This lecture will look at how knowledge gained from building Hornsea 1 led to a 60% CFD price drop on the Hornsea 2 windfarm, which will take the crown of the world's biggest operational offshore windfarm in 2022 with a capacity of 1400MW.

Joint meeting with IMarEST
Prof Malcolm Robb,
Tuesday 11th January 2022, 18.30pm [venue tbc – this will also be online]
To be announced soon

Joint Meeting with Heriot-Watt University and IStructE
How do you produce a traditional product in an innovative space?
Ian Stirling, Co-CEO, The Port of Leith Distillery
Tuesday 15th February 2022, 18.30pm [venue tbc – this will also be online]
This lecture will look firstly at the structural engineering challenges of the building. We will then hear how this structure has changed process engineering for whisky production. We will find out the key elements of how to produce a traditional product in an innovative space.

Edison vs Tesla…who was really right?
The Evolution of the Smart Grid for the 21st Century
Dr Nigel Jakeman, Engineering & Business Development Director at TPS
Tuesday 15th March 2022, 18.30pm [venue tbc – this will also be online]
Smart Grids are intelligent networks that monitor the distribution of electricity and enable a two-way dialog where energy can be exchanged between utilities and their customers. This in turn facilitates a demand-supply balance and helps distribution networks deliver electricity more efficiently and sustainably.
This exciting lecture will explain how the Smart Grid works and what we can expect in the future

Boeing Scotland Alliance: research and development project
Craig Knowles, Senior Manufacturing Engineer, AFRC, NMIS
Tuesday 19th April 2022, 18.30pm [venue tbc – this will also be online]
Boeing and Scottish Enterprise have signed a new strategic agreement, called the Boeing Scotland Alliance, which will explore opportunities to work together in Scotland, with the aim of doubling Boeing's supply chain and creating 200 new quality jobs in the next five years. The alliance with Scottish Enterprise, Scotland's national economic development agency and a non-departmental public body of the Scottish Government, will focus initially on sectors like space, advanced manufacturing and digital technologies. It is expected to create significant new opportunities for Scottish companies, universities and regions across Scotland. In this presentation, Craig Knowles will outline the aims and progress of this project

AGM – details to be confirmed
Please visit www.engineers.scot for further the latest and most up-to-date information and registration details