IES News Bulletin November 2023

The Institution of Engineers in Scotland A Multi-disciplinary Engineering Institution

I am pleased to bring you up to date with IES news. The James Watt Dinner was enjoyed by all and we enthusiastically welcomed Dr Carol Marsh as the latest inductee to the Scottish Engineering Hall of Fame. Carol is, among many other commitments, a Member of IES Council.

Darren McGarvey provided a fluent, robust, thought-provoking after-dinner speech in which he asked us to be aware of prejudices affecting our judgements in relation to a person's accent and use of particular words.

The dinner raised funds for two charities, Skye Mountain Rescue and GalGael. Thanks very much to all who donated so generously. We managed to raise £3200 (including Gift Aid), which has been sent equally to GalGael and to Skye Mountain Rescue.

We received the letter of thanks from GalGael shown opposite:

And we received a telephone call with many thanks for a 'very generous donation' from Skye Mountain Rescue. Fund raising is a continuous struggle for them. Their treasurer explained that they have an annual spend of about £35,000; so the IES donation is a significant 5% of that.

Lectures: We have had two stimulating lectures and are looking forward to the next one on bio-inspired technologies – how nature has influenced the design of, for example, submersibles and aeroplanes – please come along in-person or on-line.

Visits: We can finally restart these after Covid. Our first members' visit will take place later this month to Clansman Dynamics in East Kilbride – it is fully booked but there is a waitlist should a place become free. Other visits are planned but we are always happy to receive any suggestions.

Communications: I have listed some of the communication methods that IES is using, we are hoping to give every member an opportunity to attend a lecture, or to join a discussion, or to express an opinion or to meet other members. If there are any that you would like to find out more about please contact Laura at secretary@engineers.scot

- Zoom/inperson meetings
- Email/ bulletins
- GroupsIO
- Cuppa and Chat
- Linked In

galgael

15 Fairley St | Glasgow | G51 2SN | t:0141 4273070 | f:0141 4274551 | mail@galgael.org | www.galgael.org

30 October 2023

Dick Philbrick
Institution of Engineers in Scotland
c/o 18 Turnberry Road
Glasgow
G11 5AJ

Dear Dick

Letter of Appreciation to the Institution of Engineers in Scotland, with a Copy to Darren McGarvey

As the GalGael trustee who has been your contact, I am writing on behalf of our charitable organisation to express deep thanks for the gift of £1,656.25. A copy of our receipt is attached with this emailed letter.

I am also copying this to Darren, the nephew of one of our founding figures the musician Tam McGarvey, with our thanks for his thoughtfulness in having selected GalGael as the beneficiary. As you will recall, we acknowledged our appreciation of this at the GalGael's community meal when you visited and spoke on 12th October.

For the record here, let me recap that, when you asked for some words about what GalGael does, this is what our co-founder, Gehan Macleod, and I sent to you for sharing with the Institution's members at their annual dinner:

> *26 years ago a group of people, mostly from hard pressed areas of Glasgow and from Govan especially, started the GalGael Trust. The Gal in Gaelic is the stranger, the foreigner, and the Gael are the heartland people. There's a bit of both in most of us, and so we say we're all Jock Tamson's bairns. We bonded as engineers of a kind, building boats, milling our own timber, working wood, stone and metal. Today our participants come from many walks of life and most have struggled with multiple issues in life, whether disabilities, addictions, mental health homelessness, long term unemployment and often several of these. GalGael rekindles community mainly through people working together on our training courses, using their hands and learning practical skills. Often their trainers have been old school engineers from the shipyards. We would deeply appreciate your help to keep our show on the road and our boats in the water.*

We especially appreciate that you are content for us to use this money where it is most needed, as we see fit. These days, with most donors requiring that every penny goes on a pre-specified purpose, it is especially precious to have some funds that can be used flexibly.

Forgive my slowness in getting this letter out to you. Your family will know well the involvement that Quakers have with matters of war and peace, and this month has been exceptionally pressing for many of us, with unexpected radio broadcasts and commentary that has left me personally dismally behind with other matters.

With warm best wishes

Alastair McIntosh, for the Board

(cc. Gehan Macleod)

Reg. Company No: 246912 reg. charity no. SC026824 www.galgael.org

Cuppa and chat: this is an informal gathering on Zoom for any members who wish to attend. It's what it says on the tin – an informal chat normally about a particular topic. The first was on the topic of the Maths lecture. The next is on 22 November at 5.30 pm where the Crossrail lecture will be discussed.

Cuppa and Chat Zoom Meeting 22nd Nov

https://us06web.zoom.us/j/83834920500?pwd=OfLtafMzZUiG5Iy2rsuUXsoAK2PC6B.1

Meeting ID: 838 3492 0500, Passcode: 644635

Legacies: IES funds are carefully managed but the 'nest-egg' we had in 2006 has been affected by the financial crash, inflation and recent global financial difficulties.

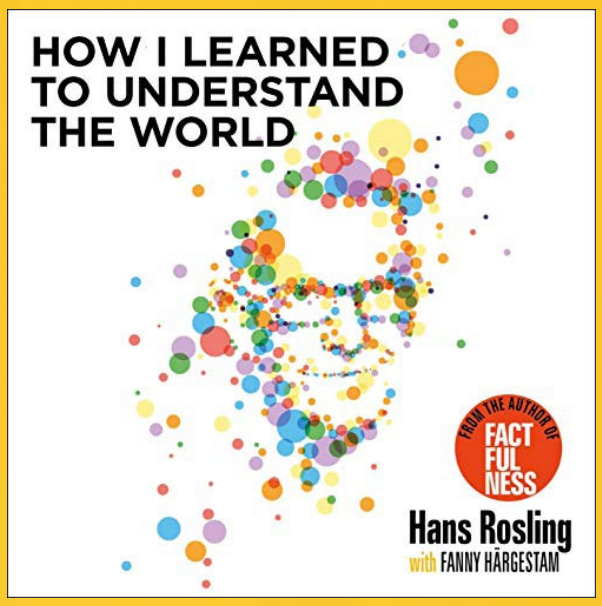
We would really appreciate it if members could consider leaving a legacy to IES in their wills.

Book review

How I learned to understand the world: The autobiography of Hans Rosling

One of the many books that were recommended to me by Iain Macleod was "Factfulness" – a critique of society's worldview written by a Swedish doctor called Hans Rosling. This is an incredibly useful tool for demystifying the numbers that swirl around us every day in news stories, political statements and everyday conversations. Factfulness makes it clear that Rosling was an interesting character in his own right, but it only gives the merest glimpse of his complex and eventful life.

His autobiography, "How I learned to understand the world", fills in the gaps in his life story and delivers an insight that is thought provoking and deeply moving, but also at times extremely funny. It uses his own family history, from his great-grandparents living in extreme hardship in rural Sweden to his own university education to explain how societies can move out of poverty and why reducing infant mortality is such a key factor in achieving this objective. Rosling describes how he worked as a newly qualified doctor in rural Mozambique, including his identification of a mysterious paralysis affecting some of the poorest of the population. This took him to Fidel Castro's Cuba tracking a similar medical emergency there



and then to Liberia at the height of the Ebola pandemic in order to help the epidemiologists make sense of the statistics they were gathering.

If you would like a better understanding of the world around you then follow Iain's advice and read "Factfulness". If you want a better understanding of the origins of the thinking behind it then read "How I learned to understand the world". You can enjoy both of them on e-readers for less than a tenner (or less than £20 in paperback form).

Andy Pearson

John Smeaton

Next Year the Institution plans to celebrate the 300th anniversary of John Smeaton's birth. Smeaton was the first person to describe himself as a "Civil Engineer" (as opposed to the military kind) and although he was born and raised near Leeds and was based there for his whole life, he made many contributions to Scottish infrastructure in the 18th century, including designs for Perth bridge and Peterhead harbour.

Smeaton's biggest contribution to Scottish life was his work in surveying the route for the Forth and Clyde canal and then supervising the engineering, including many designs for locks, bridges and aqueducts.

His birthday is the 8th of June and we hope to arrange a series of activities for schools that will to introduce John Smeaton as the surveyor of the canal and its first engineer, then describe four engineering wonders along the length of the canal that illustrate mechanical principles: the Kelpies (supporting heavy structures on soft ground), the Falkirk Wheel (balanced forces to minimise drive power), the Stockingfield bridge in Maryhill (inspirational design improves local amenities) and the Dalmuir Droplock (innovative solutions to difficult problems). We also plan to include plans for the new 121m long sculpture, the Beithir (a mythical giant water serpent), which is to be installed at Stockingfield in 2024.

If you feel you can support the celebration in any way, for example by sponsoring one of the activities or presenting at one of the events, or simply by offering to be a steward, please let Laura know.

Dr Andy Pearson
Group Managing Director
Star Refrigeration Ltd

Latest inductees into the Scottish Engineering hall of Fame

Carol Marsh, OBE

Carol was born in Edinburgh and is an alumnus of no less than five Scottish universities: Napier, Heriot Watt, Strathclyde, Glasgow and Edinburgh in the field of electronics engineering, specialising in Field Programmable Gate Arrays and is now head of Digital Systems at Celestia UK.

Prior to Celestia, Carol was acting Head of Electronics for Leonardo's Edinburgh operation, she has also given valuable pro-bono work as a Vice President of IET, Council member of IES, board member of Engineering Scotland, member of the Royal Scottish Society of Arts committee, and Past President of the Women's Engineering Society. She was Strathclyde University's Alumna of the Year in 2022.

Sir Nigel Gresley (1876-1951)

Nigel Gresley was born in Edinburgh, but rather by accident, during his pregnant mother's visit there to consult with a gynaecologist. He was raised and educated in England.

He became the Chief Mechanical Engineer to the London and Northeastern Railway and designed the locomotive that still holds the speed record for a steam locomotive of 126 miles per hour. Sir Nigel Gresley cemented his early connection to Scotland by designing the most famous locomotive in the world, The Flying Scotsman, 100 years old this year, and still attracting crowds wherever it goes.

Sir Alexander Gibb (1872-1958)

Alexander Gibb was born in Broughty Ferry to a long line of civil engineers. His great grandfather had worked for Thomas Telford. Educated at Rugby and UCL, then articled to John Wolfe Barry and Henry Marc Brunel in London, he joined his father's company and oversaw their largest project, the construction of Rosyth Naval Dockyard.

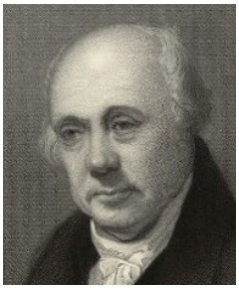
After completing Rosyth Dockyard, Sir Alexander Gibb had a distinguished career in the first world war as Chief Engineer for Ports, knighted in 1918 for his war service, served as Chief Civil Engineer to the Admiralty, then the Ministry of Transport. He founded his own firm. Sir Alexander Gibb and Partners in 1922 and built up the largest engineering consultancy in the UK. He was President of ICHemE in 1927 and of ICE in 1936. He also wrote "The Story of Telford". The Arrol Gibb Innovation Campus at Rosyth is now named after two of our Hall of Fame inductees.

David Kirkaldy (1820-1897)

David Kirkaldy was born in Dundee, educated at the University of Edinburgh, and apprenticed to Robert Napier's Vulcan foundry in Glasgow in 1843, designing steamships, engines and boilers.

By 1847, at the age of 27, he was Chief Draughtsman and Calculator. Later he started a huge programme of testing of iron and steel properties, published in 1862, and resigned to design his own Universal Testing Machine, patented in 1863. His robust slogan "Facts Not Opinions" was inscribed above his new premises.

David Kirkaldy established the Kirkaldy Testing House in Southwark, now a museum, and a business that lasted three generations. They tested materials for the Eads Bridge in St Louis, girders from the Tay Bridge, the Sydney Harbour Bridge, the Festival of Britain Skylon and the Comet crash investigations.



William Symington (1764-1831)

William Symington was born in Leadhills in 1764 and worked in the Wanlockhead lead mines. They bought a Boulton & Watt steam engine in 1777 and young William studied this, and after attending the University of Edinburgh for a few months in 1786, began experimenting with his own variations, building a model steam driven road carriage he patented in 1787. He was 23. A year later he turned to marine propulsion and the first trials of a steam powered vessel were made on Dalswinton Loch in Dumfriesshire, promising but not wholly successful. However, Lord Dundas, Governor of the Forth & Clyde Canal, later commissioned him to build two experimental tugboats.

The tugs were both named Charlotte Dundas, and they worked well, but were not purchased, fearing that their speed would cause bank erosion. Many others, like Robert Fulton and Henry Bell, spotted the potential of steam navigation and Symington had to fight many cases to defend his patent. But he got there first – a true pioneer.

IES

Early details of our lecture programme for 2022-2023

Joint meeting with RINA

Following Nature's lead – Bioinspired technologies

Prof Adam Stokes

Bioinspired technologies – how they work and what can they be used for? Where are the limits? What do they replace?

Tuesday 5th December 2023
In-person at 6.30pm in room TL423, Teaching and Learning Building, North Portland St, University of Strathclyde, G1 1XN – Registration for In-person
Online at 6.30pm – Registration for Online
Full details for all of our events can be found at www.engineers.scot/events/ies-events

Joint meeting with IMarEST

Scottish Marine Technology Park

Speaker tba

Tuesday 9th January 2024

In-person University of Strathclyde, Henry Dyer Building room 1.13
Full details for all of our events can be found at www.engineers.scot/events/ies-events

Building perimeters – the multi-disciplinary work of façade engineers

Gavin Kerr

Façade engineering and it's (little known) importance in our daily lives! Real-life projects, the challenges in finding the best solution for the client and the building user whilst still addressing function, economy, sustainability and visual effect.

Tuesday 6th February 2024
In-person at 6.30pm in room TL423, Teaching and Learning Building, North Portland St, University of Strathclyde, G1 1XN – Registration for In-person
Online at 6.30pm – Registration for Online
Full details for all of our events can be found at www.engineers.scot/events/ies-events

Batteries – the inside story!

Professor Sir Peter Bruce

Batteries play a fundamental role in all our lives for short and increasingly for long term storage. The speaker will provide an overview as well as describing his own research in Oxford.

Tuesday 5th March 2024

In-person at 6.30pm in room TL423, Teaching and Learning Building, North Portland St, University of Strathclyde, G1 1XN – Registration for In-person
Online at 6.30pm – Registration for Online
Full details for all of our events can be found at www.engineers.scot/events/ies-events

Hedgehog or Fox? The new Engineer and the old Philosopher – exploring ethics in 2024

Prof Raffaella Ocone

This talk argues that ethics in engineering is more than the consideration of ethical dilemmas and the application of ethical principles. Ethics in engineering, like philosophy, should determine the course of action.

Tuesday 16th April 2024
In-person at 6.30pm in room TL423, Teaching and Learning Building, North Portland St, University of Strathclyde, G1 1XN – Registration for In-person
Online at 6.30pm – Registration for Online
Full details for all of our events can be found at www.engineers.scot/events/ies-events

AGM – April 2024 – full details will be confirmed in due course