

# The Woman Engineer



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## WES Annual Report 2021-2022

Yearly summary from WES Trustees on the activities of the Society for the year ended 31 March 2022.

Centre pull-out

## From the editor's desk

*As we approach the end of 2022 there is much to celebrate at WES and in the wider world of engineering. We have held some successful events this year and our army of enthusiastic and committed volunteers have also been busy instigating new initiatives and bringing like-minded people together to champion inclusive workplaces.*

In this issue we look to the future, thanks to the Early Careers Board, the Apprenticeship Board and the University Groups Board and we take the opportunity to look back at some of the projects WES has been involved with and the people we have worked with in the *WES Annual Report for 2021-2022*. Please note that the report published in *The Woman Engineer* is a summary detailing the breadth of projects that WES manages or supports. A more in-depth *Annual Report* is available from head office.

Whilst the end of a year is a time for reflection, it is also a time to embrace new challenges, set new resolutions and look to the future with optimism. Of course, it is particularly challenging this year as it has been for the past couple



Lynn Postle, FICME

of years. We know we are in the midst of an energy crisis, are still having to cope with supply issues and are coming to terms with much change and disruption in our daily lives. We mourn the loss of a monarch who has been a guiding force for all our lives, but we are thankful for the example that has been set and we look to the future with optimism because of so many accomplished years of service.

I would like to take this opportunity to celebrate the news that there has been an increase in numbers of women working in engineering and we thank all those allies who are working to continue this momentum.

I thank all our contributors this year and I look forward to sharing more fascinating career and life advice from inspirational women and men in 2023.

Next issue: Spring 2023, contribution deadline – 10 January 2023



## President's Message

I cannot believe that another year has passed, and it is time to consider the Trustee Board and who might join us this year to help steer and shape WES so that we continue to deliver for our Members and Partners. First, I want to thank wholeheartedly our retiring Trustees; Adriana Vargas-Colwill, Emma Nicholson, and Pauline Smith. Their dedication and hard work have been greatly appreciated and I know that they will all stay connected and continue to provide help and support through the various Director's Committees or Special Interest Groups. I am always keen to see the nominations coming forward to join the Board and am thrilled that we have had a rich selection through already. By the time this journal goes to print the new Trustees will have been announced at the AGM on 29 October.

It is great to see that we are attracting new Members all the time and that activity is continuing to grow. Notably, we now have cluster leads in 21 regions with only one vacancy in the West Country (Devon and Cornwall) left. Engagement from our Members is essential to ensure that we are delivering what is important to you. So, if there is anyone in the West Country who would like to complete the full suite of cluster leads then please do get in touch!

We have had a full diary of events and sessions over recent weeks and into the coming months; the Lottie tour, which is always really well supported, an apprentice showcase, the first in person *Student Conference* since 2019, and a continuing series of Partner and Member webinars with a different theme each month (September was advocacy and October was black history month). Do join in and also offer feedback, for example, if there are any particular themes you would like to see for the webinars then please do let Elizabeth and the team know.

Dawn Childs FREng

# don't miss

Check the WES website for events and updates at:  
[www.wes.org.uk/events/wes-events](http://www.wes.org.uk/events/wes-events)



**The Women's Engineering Society** is a charity registered with the Charity Commission No. 1008913 and a company limited by guarantee registered in England No. 162096. All correspondence regarding membership and the work of WES should be addressed to:

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# A 'TRACK' RECORD of engineering experience

WES is delighted to be able to support a new initiative to educate people about local transport heritage in Gloucester. The Vale of Berkeley Railway Trust is keen to encourage women engineers to engage and help the trust to deliver an important message to the community.

Based at Sharpness in Gloucester, The Vale of Berkeley Railway Trust is a new charity which has been established to educate the public about the local transport heritage, particularly the railways, and their historic contribution to the life of the local area. The region is a unique place with an interesting heritage combining sea faring, canal transport and the railway system.

Sharpness is one of very few inland docks remaining in operation now, linking the River Severn with Gloucester via the Sharpness and Gloucester Canal. Local people talk of the chocolate 'crumb' that used to arrive by sea destined for the Cadbury factory up the canal at Frampton and further up to Bournville, and how a strong community grew up in the area, until it started to decline in the 1980s. It is also an area where coal was brought down from the Forest of Dean and South Wales, for transportation around the world.

The trust began in 2015, working out of an old shed on Sharpness Docks where a group of enthusiasts began to set themselves up to take over the short four-mile railway line that links the docks to the main line between Bristol and Birmingham. Although they haven't achieved that yet, they have gathered a lot of equipment in the meantime and grown to become a group of about 400 members and over 100

volunteers, many with great engineering experience and expertise gained from working for prestigious engineering organisations such as Airbus, Rolls Royce, Babcocks and in the defence and nuclear industries.

Howard, a spokesperson for the trust said: "We are acutely aware though, that like so many railway groups, we are mostly male and belong to an older generation! We have huge motivation to achieve our railway dreams but to survive and really thrive as an organisation, we need to attract a new generation of younger people who have the enthusiasm to learn new skills that will benefit them in their future careers."

The trust benefits from a very well-equipped machine shop that provides opportunities to develop skills in producing finished components for rebuilding railway locomotives, carriages and wagons and there is a site that is now starting to be developed into a railway centre; the opportunity being to learn the basics of railway track engineering, known as Permanent Way.

Howard continued: "We know from our contacts in the rail industry that skilled people in this area are in great demand by Network Rail, who are very keen to employ women with these skills. We can provide a good platform for any woman



who wishes to enter the rail industry.

"Above all, we pride ourselves on our friendliness and we very much welcome young women who seek an engineering challenge that we believe will stand them in good stead for the future. Railways may not be first choice of many women, but our experience is that once you have been bitten by the railway 'bug', you are hooked! So, please come and join us!"

For more information, visit <https://vobr.org.uk> or look for the 'Vale of Berkeley Railway' on Facebook.

For an informal chat about what might be involved, or to arrange a visit, ring or message Howard on 07866 727743. Email: [valeofberkeleyrailway@gmail.com](mailto:valeofberkeleyrailway@gmail.com)



## Partner News

### Partner support for the South

We are delighted to welcome Meurig Lloyd, our new Partner Manager for the south to WES.



Speaking about his new role he says: "I am delighted to introduce myself as your new Partner Manager, working alongside Kathryn Tighe.

"WES partners play a significant role in helping to support businesses and institutions to attract and retain women in engineering. My role is to support our growing network of partners in the south and help them meet their diversity goals.

"I am passionate about science, technology, and equity of opportunity. It is a privilege to be able to combine all three in my role at WES and work alongside such illustrious colleagues.

"If you work for an organisation that is not yet a partner or have suggestions to develop our service to existing partners, I would love to hear from you. The partnership team can be contacted direct at [partners@wes.org.uk](mailto:partners@wes.org.uk). I look forward to working with you."

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WES is also delighted to welcome our new Partners, Proctor and Gamble, and Collins Aerospace who have joined us as Company Partners and University of Greenwich and Colchester Institute who have joined us as Education Partners.

We also welcome RNLI as a new Not for Profit Partner, DP Squared as a new SME and AXIAH Ltd as a Start-Up.

We are also grateful to our renewing Partners which include Johnson Control, Pure Data, JLA, Cadent Gas, Arup, and Freudenberg Sealing Technologies

Partnership and Sponsorship enquiries, contact: [partners@wes.org.uk](mailto:partners@wes.org.uk)

## Early Careers Board

Happy to offer advice and support, the WES Early Careers Board continues its series of Engineering Agony Aunt columns for The Woman Engineer readers.

### Engineering Agony Aunt Acting Inclusively

The theme of National Inclusion week this year was 'Time to Act: The Power of Now'. In line with this theme, the Engineering Agony Aunt answers the question "how can I act inclusively and with impact?"

To answer this question, we asked members of WES' Early Careers Board to share acts that they have experienced that made them feel included. It is with these small acts that we can promote an inclusive culture. The following is their response:

#### Show genuine interest

"The best sure-fire way to make me feel included is to show genuine interest in me, my work, and my life outside of work. Short small-talk always feels awkward and shallow to me – but getting to know people and building strong relationships with them (whilst of course still considering and maintaining personal boundaries, etc.) always makes me feel more comfortable, more included, and a part of the team. The people that make the effort to get to know me more tend to be greater advocates and allies where there are cultural differences, and therefore greater collaborators and colleagues on the whole."

#### Show encouragement (especially if the person is quiet/less visible)

"I'm not always great at speaking up – particularly in a group setting, and in a new or unfamiliar environment. As a brown woman in an environment filled with white men, it's easy to feel like the odd one out. Colleagues who make the effort to include and support me when I've been the 'quiet one' have always become the best friends and teammates and made me feel so much more comfortable. Then, as I come out of my shell, they struggle to keep me quiet!"

#### Give opportunities for people to contribute

"I had just started in a new job and was in a meeting but was apprehensive to contribute, my manager asked me a technical question directly that I could answer, so I was able to contribute and make a good impression on my other colleagues and senior management."

#### Take action when concerns are voiced

"I was recently in a situation where another colleague made me feel very uncomfortable. I told my line manager, and action was taken swiftly, acknowledging my experience without challenging or diminishing. It allowed me to trust the organisation that I work for and feel more comfortable at work again."

#### Take a stand

One for the allies: "I was part of a working group where I was often the only female in the room with 20 or so males. One guy in particular would keep interrupting me or cutting over me when I tried to speak. The chair of the group took the opportunity to thank the man for his contribution and point out that I had been trying to say something for a while, and that he thought it was now my turn to speak. The man who spoke over me was a little embarrassed, but it was clear most of the other members in the room agreed with the chair's statement. I was able to add my contribution, and they listened to my contributions much better going forward. The chair used his position within the group to highlight that I should be heard and my contribution valued in the group. It wasn't a lecture or a telling off, but just a well-timed comment which highlighted the issue and how he wanted people to behave going forward. It felt good to know the guy at the top had my back."

#### Create Opportunities

"When I started a new place of work, one of the team made a point to let me know that a group of them tended to get a coffee at particular times in the day. There was no rule or requirement to attend, but it's a thing they do, and I was invited. It was good to be included in the unofficial social side of work, rather than feeling like I had to invite myself or break that wall down myself."

## Cluster News

### New faces at Tyne and Tees Cluster

The WES Tyne and Tees Cluster is delighted to welcome three new members, Abigail Bell, Sally Postle and Mansoureh Zangiabadi, to the organising committee.



On joining the committee, Abigail Bell (pictured above) said: "WES is such an important organisation that provides help, support and encouragement for women to venture into the career they want, regardless of whether it is the norm. Without strong female teachers throughout my education, and the support of my family and partner I would never have believed I could thrive within an engineering and scientific based job role! I am honoured to be a part of the committee to try and help others as I have been lucky enough to have the support around me."

Sally Postle (pictured below) said: "I wanted to get more involved with the WEST&T



Cluster to be able to give something back and help promote and develop women within engineering. I wanted to be a Civil Engineer since I was a teenager, and I am passionate about the industry and I hope I can share some of that passion through being involved with the committee. It's been interesting being involved so far and getting to see what goes on 'behind the scenes' to plan and bring together the content for the region – I'm excited to get more involved in these activities going forward!"



Mansoureh Zangiabadi (pictured above at work) added: "I received my PhD in electrical engineering in 2012 from Iran, and, as an Iranian woman, I have faced so many obstacles and barriers to studying and working in Iran." Mansoureh stands with Iranian women who are fighting for their basic rights for decades. "I joined the WES community in 2018, and the cluster committee this year, and have always been an advocate voice for STEM and the women in engineering community and have participated in such activities."

The WEST&T committee has lots of exciting plans for the coming academic year, including an event on writing winning nominations and what it means to award winners, and the return of our ever popular *Mentioning the Unmentionables* series, this time focusing on neurodiversity, both of which will be hosted online and available to all WES Members. The committee is also planning an in-person event with five local universities, following the success of the cluster's hybrid event last year.

Jo Douglas-Harris, Cluster Co-ordinator, said: "It's great to see the cluster going from strength to strength. Just four years ago the cluster was dormant and now we have an amazing group of female engineers organising great events for WES Members and others in the region and continue to benefit from the national and even international reach we can achieve by going virtual. We're excited to grow the committee with Abigail, Sally and Mansoureh and see what else we can achieve."

## Tune in Now

The London Cluster has a new podcast 'Humans of WES', which showcases and celebrates the amazing women working in engineering sectors.

Hear from some truly inspiring and successful engineers who talk about their career journey to date, barriers to women in engineering and the advice they'd give their younger self.

Check out Spotify for current episodes and follow the London Cluster for more wonderful guests coming soon!

To become a future guest on the show or to get involved with suggestions, email: [londoncluster@wes.org.uk](mailto:londoncluster@wes.org.uk)



## New Members

WES welcomes the following new Members:

Christianah Modupe Abiodun-Ojo, Melissa Ah-Kan, Suzannah Bourne, Jodie Bowman, Dilek Ozgit Butler, Eliz CESUR, Elish Chambers, Eleni Chatzilakou, Claire Churchill, Shirley Course, Victoria Czajkowski-Bell, Louise Deason, Amina Deji-Logunleko, Nazeefah Edo, Jennie Gallagher, Shauna Higgins, Chetna Jain, Cilpha James, Sonia Kamara, Sophie Malcolm, Beverley Marayen, Lynne McDonald, Ana Moya, Victoria Neill, Amber Oliphant, Mary Rechain, Martha Ribeiro Simas, Melissa Riggs, Jenny Roberts, Emily Rolfe, Alexis Salter, Adelin Skirth, Charlotte Wason, Olivia Williams

# University Groups Board

## A supportive community of women and male allies

**C**hair of the University Groups Board (UGB), Toni McLaughlin talks to *The Woman Engineer* about her aspirations for the coming year.

Toni is in her fourth year studying an MEng in Aeronautical Engineering at the University of Glasgow. As a member of the University of Glasgow's WES Affiliated Student Group – FemEng – Toni is keen to encourage collaborative work between the student groups.

"I am passionate about ethical and environmentally conscious engineering methods to ensure global responsibility is at the forefront of my engineering practices," she explains. "I hope to go into the field of aviation engine design, taking a sustainable approach to ensure a better world. Due to this interest, I resurrected an Engineers



Without Borders UK Chapter at the University of Glasgow in 2020 where I have been President for the past two years. I am still involved with EWB Glasgow (as their Liaison Officer), but I will be focusing more on my role as one of

Engineers Without Borders

UK's Student Strategy Champions through the promotion of their movement and strategy as well as supporting other engineering students around the UK. "I am also a huge believer (and hopefully advocate) for female empowerment within engineering and therefore have been involved with the WES affiliated society at my university, FemEng, for all four years of my university career. I have been lucky to get involve with WES during my time at university and have met incredibly inspirational women in STEM. To me WES is a community of women and male allies at different career stages supporting others and, as Chair of the WES UGB (University Groups Board), I want to play a part in this."



Toni has some clear objectives as she works towards her ideal in the coming months. "My goals this year are to facilitate support between all of the WES affiliated university societies and to ensure that experiences, skills and knowledge are shared through events where 'safe-spaces' are strongly encouraged so members feel they can grow professionally and personally without judgement – importantly having the chance to fail and learn," she explains. "We have different events planned for this semester from a 'Committee Role Mixer' where societies bring their committees to chat and learn from each other – this directly supports the UGB. However, additionally, and more widely, the UGB is to host a workshop at the *WES Student Conference* in November entitled: *Building Confidence through Presenting*."

"I am looking forward to this year and hope you are all keen to follow along. Please feel free to reach out directly at: [ugb@wes.org.uk](mailto:ugb@wes.org.uk)" [www.wes.org.uk/content/university-groups-board](http://www.wes.org.uk/content/university-groups-board)



## Her Majesty Queen Elizabeth II

The Women's Engineering Society was extremely saddened to hear of the death of Her Majesty the Queen and all at WES extend our deepest condolences to the Royal Family.



HM Queen Elizabeth II was a remarkable woman who has tirelessly led this country for over 70 years, inspiring many generations of women along the way. From her role as a mechanic in the second world war to her patronage of many engineering organisations across the UK, HM Queen Elizabeth II has been a role model for many and will be deeply missed.

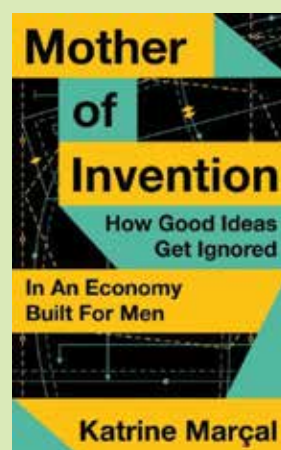
Our thoughts are with His Majesty the King and the Women's Engineering Society wishes him and all the Royal Family all the best for the future.

**Dawn Childs FEng, President**

## Heritage Open Days 2022 – TEN WOMEN IN TEN DAYS

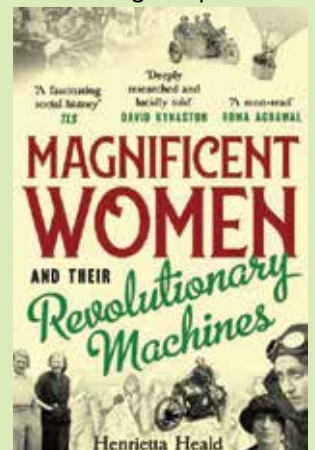
In September, WES took part in the Heritage Open Days Festival.

This year's theme, *Astounding Inventions*, gave us the opportunity to explore the lives of ten of our historical women engineers in a series of in-person and online guest speaker



events. In addition, WES donated copies of Henrietta Heald's *Magnificent Women* and Katrine Marçal's *Mother of Invention* as prizes for participants. If you missed the live online events head over to the WES Heritage YouTube Channel to catch up.

Unfortunately, due to the death of HM Queen Elizabeth II, the first and last online talks were cancelled (Caroline Haslett and Dorothy Robson at the Stonefall Cemetery). Keep an eye out as these will be rescheduled.



## The Big Bang Fair returns for 2023

*The Big Bang UK Young Scientists and Engineers Fair will be returning to Birmingham's NEC from Wednesday 21 to Friday 23 June 2023. Young people from across the UK will once again have the chance to be excited and amazed by STEM.*

The fair is the largest celebration of STEM in the UK and is free to attend. Young people will have the opportunity to get involved in hands-on activities and impressive workshops to explore what the world of STEM has to offer.

Over the three days, students will get to hear first-hand from real-life scientists and engineers about the endless possibilities and exciting careers in STEM. The fair will represent the breadth of STEM and STEM careers, with a particular focus on the environment and making the world a better place.

The *Big Bang Fair Unlocked* session will return for the second year on Wednesday 21 June from 4.30pm to 7.30pm to invite families, home educators and community groups to get involved in the fun.

Schools can register for a space at *The Big Bang Fair* from January 2023 and in the meantime should sign up to the Big Bang newsletter to be the first to hear about plans as they are announced.

For more information visit: [www.thebigbang.org.uk/the-big-bang-fair/](http://www.thebigbang.org.uk/the-big-bang-fair/)



### WES News

## Apprentice Board

### Watch this space for new projects

*The WES Apprentice Board has been working hard with some exciting new projects planned for the new year.*

A new podcast series will be starting soon, it will feature personal stories from the Apprentice Board about their own experiences in the engineering sector. The podcast can be found on Spotify using the search: 'Women's Engineering Society Apprentice Podcast'.

The Apprentice Board will also be launching a completely new project which will feature a series of guides to help female engineers or those considering an apprenticeship in engineering. This series will start off with a 'Meet the Members' edition, where the twelve members of the board will introduce themselves and their engineering discipline. This edition will be a great opportunity to get to know a little bit more about the members of the board.

After reviewing their aims and objectives, the Apprentice Board has decided that they want to try and create a network of female apprentice engineers. There are plans in the making for a virtual 'coffee style' morning to build this network, with the hope of creating in-person events where female apprentices have the chance to network and gain an insight into different engineering disciplines.

*To hear more about the exciting projects the Apprentice Board are working on, be sure to follow their social media for the latest updates! The APB can be found on LinkedIn, Twitter and Instagram @WESAPB; where you can also find further information about the board members and get updates on the board's progress.*

## Over 6,200 engineers and technicians professionally registered in 2022

*During 2022, over 6,200 engineers and technicians have become professionally registered with the Engineering Council, following a successful assessment of their engineering competence and commitment. Professional registration is an internationally recognised mark of quality, as it is a standard set by the engineering profession.*

With the 2,387 engineers and technicians who became registered during quarter three, the total for the year increased to 6,280.

Unlike a purely academic qualification, registration demonstrates a person's competence (gained through practical experience) as well as their knowledge and understanding. The engineers and technicians who achieve professional registration are skilled professionals who have chosen to have their expertise independently verified. Registrants can use post nominal letters after their names to show they hold one of these legally protected titles, demonstrating their professional status:

- Chartered Engineer (CEng)
- Incorporated Engineer (IEng)
- Engineering Technician (EngTech)
- Information and Communications Technology Technician (ICTTech)

In the third quarter of 2022: 1,283 people achieved CEng, 332 people achieved IEng, 740 people achieved EngTech, 32 people achieved ICTTech.

Congratulating those who had registered, Engineering Council CEO Alasdair Coates BEng(Hons) MSc CEng FICE MCIHT CMIOASH said: "We understand what a milestone professional registration represents – both professionally and personally. Congratulations to every single person registered this year on that huge achievement!"

"Every professionally registered engineer and technician has chosen to have their competence independently assessed. As a condition of maintaining registration, registrants commit to maintaining and enhancing that competence, as well as to working in an ethical and sustainable way. This means society, employers and customers can have confidence in registrants as engineering professionals."

The Engineering Council licenses 39 professional engineering institutions (PEIs) to assess individuals for professional registration, which is open to any competent practising engineer or technician, with different levels and pathways to registration available.

*To view the steps to becoming professionally registered, visit: [www.engc.org.uk/professional-registration](http://www.engc.org.uk/professional-registration)*

# HM Queen Elizabeth II (1926-2022) and **ENGINEERING**

Author: Dr Nina Baker DL, PhD, BSc, FIES, HonMWES

*In The Woman Engineer (TWE) volume 7 issue 9, 1953, WES tendered its sincere wishes for a long and happy reign on the coronation of the former Princess Elizabeth as Queen Elizabeth II. This was not of course the first or last time our late Queen featured in our journal. She, her mother the Duchess of York, later Queen Elizabeth the Queen Mother, her grandmother, Queen Mary, and later her daughter HRH Princess Anne, have all been supporters of our efforts to promote the position of women in engineering.*



The young Princess Elizabeth and her sister Princess Margaret were the last generation of the British Royals to be home educated rather than sent to school however, Princess Elizabeth's destiny was fixed as soon as her father unexpectedly ascended to the throne, so her choices and interests were limited by the lifelong duties.

Near the end of the Second World War, in 1945, aged 18, Princess Elizabeth insisted on joining the Auxiliary Territorial Service where she had training in driving and maintaining army vehicles. The following year, the war then over, her grandmother, the Dowager Queen Mary, continued her self-imposed role in broadening the young princess's horizons with visits away from the Palace. Queen Mary and Princess Elizabeth set off on a series of industrial visits. TWE (Vol 6 No7, 1946) reported on their visit to the GEC laboratories at Wembley where they met Caroline Haslett and WES member Lesley Souter. Lesley showed them a sample of the anti-aircraft fuses on which she had worked during the war. A previous visit to Battersea Power Station must have made an impression on Princess Elizabeth, as she showed a 'keen interest' in the research work being undertaken on electric generators. The royal party had recently also met Caroline Haslett when she was showing them around a factory converting from armaments back to its peacetime work making stockings.

In 1947 Princess Elizabeth was made an honorary member of the Institution of Civil Engineers and was already patron of both the Institution of Mechanical Engineers, the British Institution of Radio Engineers and the Institution of Electrical Engineers.

The post war optimism was reflected in the famous *Festival of Britain* in 1951, nowadays viewed as very much emphasising modernity and the hopes for industrial innovation. However, the author of the short article about it in TWE vol 7 seemed to find it depressingly traditional, despite the uses of new materials and despite the strongly matriarchal presence of Queen Mary and Queen Elizabeth the Queen Mother.

TWE mentioned that WES had sent condolences on the deaths of King George VI (1952) and Queen Mary (1953) and the coronation good wishes mentioned above in 1953. Claudia Parsons provided an article describing her experience of watching the Coronation procession with all the throngs in London. In the 1960s HM Queen Elizabeth II was often seen supporting engineering and manufacturing, opening new factories, bridges, colleges etc. In 1965 she gave her approval for the long running *Queen's Awards for Industry* to encourage innovation in the UK. In 1966 she opened *The Engineers Day* exhibition at the London Science Museum. In 2011 the *Queen Elizabeth Prize for Engineering* was launched, aiming for it to be a very high

status global award (like the Nobel prizes) for engineering innovation. Sadly, no women have yet been recipients.

Our late Queen has had an extraordinary life by any measure, with obligation, public service and duty being its keywords. She will have had few totally free choices about her activities during that time, but her keen interest in what was shown to her through all those decades of visits will have meant a knowledge of the many facets of engineering that will have been wider ranging than even the most multi-disciplinary engineer could hope to see. Engineering historian and WES member Nina Baker recalls: "I had the privilege to meet her daughter, HRH The Princess Royal on a visit she recently paid to a STEM programme of which she was patron and was enormously impressed by her knowledge, considering the scant education even she was allowed to have. She pointed out to me that her whole life was meeting the top people in such fields, and one couldn't help but learn and I feel that Queen Elizabeth will have been the same: never an engineer but with a deep understanding of the many industries and fields which combine in engineering."

Whilst many will mourn her passing, the British and global engineering community can remember with gratitude a monarch who was a friend to engineering and women's place in it.