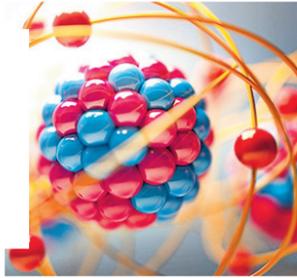


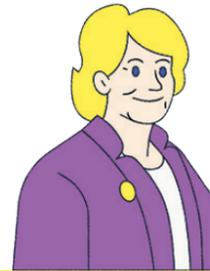
DAME SUE ION BORN 1955

One of the UK's leading nuclear experts, best known for her fuel recycling work. She chairs the UK Nuclear Innovation Research Advisory Board. The first woman to receive the Royal Academy of Engineering President's Medal.

**DAME ANN PATRICIA DOWLING**

BORN 1952

A mechanical engineer and a world authority on combustion, acoustics and vibration. She became the first female Cambridge engineering professor in 1993. She is the first female president of the Royal Academy of Engineering.



I WAS A MINORITY WITHIN A MINORITY

Mechanical engineer and broadcaster **Dr Shini Somara** is delighted to see more women entering the sector, but says we need to ensure all ethnicities are represented too



It's not easy being a female engineer. You have to be courageous and bold; to smash through outdated stereotypes; to tussle with unconscious bias and have the tenacity to push through failures. I know because I had to draw on my own reserves to qualify as a doctor of mechanical engineering 16 years ago.

LASER-FOCUSED

Luckily for me, I had support at home in the form of Dad, an engineer himself. He always welcomed inquisitiveness, and so my two sisters and I questioned everything. We had such a hunger to learn and understand, and unsurprisingly we became sisters in STEM: an engineer, architect and a veterinarian.

While I had support from my family, I'm not a natural – maths and physics were never my forte, but it didn't stop me staying laser-focused on qualifying. Like other women in STEM, I was one of very few of my kind. Only 7 per cent of my university class were female. Baggy clothing, no make-up and sheer hard work helped me reach my end goals.

ATTITUDINAL EVILS

I got my first job as a research engineer at 20. I was the only woman among 45 engineers and I faced a cocktail of attitudinal evils. The patriarchal system, racism, insecurity, sexism, cultural differences, ego, objectification.

I experienced it all. I was an easy target, with my brown skin further outnumbering me – a minority within a minority.

Disparaging comments such as "Are you computer modelling today or fashion modelling?" gradually wore down my sense of humour. There was nothing amusing about having my expertise undermined. Instead of following advice to "lighten up" or "relax" I chose to withdraw. Without allies, being different was diminishing, so I left my engineering job after five years to try something different.

HUMILIATED AND BULLIED

My podcast, *Science*, reveals that my experience was not unique. Guests of a similar generation or older describe an insufferable "brotopia". Women were having to walk a tightrope between assertiveness and aggression, kindness and self-defence. They report being regularly undermined, humiliated and bullied. Women would have to work twice as hard to prove themselves among less-qualified men.

These women did not drop out of engineering. They were pushed out.

Currently 12.7 per cent of the UK engineering workforce are female. No statistics exist to indicate what proportion of this percentage are ethnic minority. In short, it is difficult to quantify how things have changed since I was an engineer over the past decade or two.

But things are changing. #MeToo, the gender pay-gap debate and social media have helped bring a voice to the voiceless.

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Companies must continue to encourage openness and acceptance of diversity and inclusivity in the workplace

A FUTURE WITHOUT QUOTAS

Mentoring and role models over the past couple of decades are starting to bear fruit and I certainly hear greater levels of confidence and assertiveness in my younger guests on *Science*, thanks to these schemes.

But there is still more the industry can do. Companies must continue to encourage openness and acceptance of diversity and inclusivity in the workplace. Assessing the quality of work delivered, rather than focusing on how the work is delivered, embraces differences in

work practices. And productivity and morale increase when employees are trusted with flexible and remote-working options, especially to accommodate childcare. Similarly, promoting more women to the boardroom will lead to more empathetic and compassionate decision-making over issues such as paternity/maternity leave, day care and retraining employees after long periods of absence.

I'm optimistic these changes are coming, and fast, as companies have begun to recognise the positive impact diversity and inclusivity have on their business and are keen to hire. We must all take advantage of these enterprising times. Only then can we imagine a future where gender and racial quotas are redundant.

▶ *Dr Somara's podcast Science is available on iTunes, Spotify and YouTube*