

The All Party Parliamentary Engineering Group

Career opportunities in the engineering world

Report of the luncheon meeting held on 1 November 2012 at the Cholmondeley Room, House of Lords

Chairman

Professor the Lord Broers

Speakers:

Sir John Parker, GBE, FEng - Chairman of Anglo American and President of the Royal Academy of Engineering

Jo Lopes - Head of Technical Excellence at Jaguar Land Rover

Paul Jackson - Chief Executive at EngineeringUK

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Introduction

Lord Broers welcomed guests and guest speakers, and thanked the Group's sponsors and Jennifer Bryant-Pearson. He then introduced Paul Jackson as the first guest speaker.

Paul Jackson - EngineeringUK

Mr Jackson identified the three things that young engineers look for in a career:

1. Pay
2. Level of interest
3. Enjoyment

He commented that, although it may be an obvious point, the more people know about the engineering industry the more interested they become. Subjects such as science and maths become more desirable 16+ and so if students decided their subject options later on they may indeed come to a different conclusion.

According to a recent survey, three quarters of parents would recommend a career in engineering to their children. However, most of them admit to knowing almost nothing about the industry. In addition, engineering is the fourth most selected career amongst 11-14 year olds. The issue is that not many girls make up this group.

Mr Jackson also discussed the issue of the '11-14 year olds' and stated that more attention needs to be paid towards them. At primary school the same number of boys and girls like science and maths but this dramatically changes in secondary school. Something needs to be done to find out why this is the case and something needs to be done to change it.

The role of careers advisers is also fundamental in increasing the awareness of the opportunities in the engineering industry. Mr Jackson also stated that there is real work to be done in supporting teachers and increasing their knowledge about what engineering is and their awareness of careers in engineering.

Mr Jackson concluded by stating that the swing-o-meter is in our direction but there is still much more to do.

Sir John Parker - AngloAmerican and Royal Academy of Engineering

Sir John began by stating that the UK is still very much in the business of engineering. Currently the UK is the world's 9th largest manufacturing nation. Sir John stated that we can improve our position given that we lead the world in a whole variety of areas such as engineering design, aerospace, high performance cars, life sciences amongst others. "*We are great innovators but we need the right climate for it to flourish.*" This involves increasing the number of opportunities available, the level of education and the standard of training.

A survey recently carried out by the Royal Academy of Engineering focused on two questions:

1. Is engineering sufficiently important to the UK economy?
2. Are engineers' skills sufficiently important to the UK economy?

The answer to both was a resounding yes.

Sir John also pointed out how reassuring it is that people outside the engineering community are also beginning to pay attention to its importance. The issue of engineering skills was even debated in the House of Lords recently. In addition, Business Secretary Vince Cable gave a speech at the CBI where he stated his alarm that such a shortage of engineers had developed.

Sir John listed the benefits of a career in engineering:

- Growing wage premium
- Unlikely to be unemployed
- Experience unexpected excitement
- Vast a hugely rewarding
- Width and breadth of opportunities

He then talked about 'frontier engineering', citing the work of Dr Eleanor Stride at Oxford University, exploiting drug development for cancer patients, and Dr Tom Enders with regard to 3D printers. He said that such technological advances will certainly help accelerate the engineering industry.

Sir John concluded by highlighting some of the aspects that need working on:

- Need to increase the number of young engineers
- Must ensure the education system is fit for purpose
- A large majority still see it as a career for men
- Currently women only make up 8% of those in the industry. This is fewer than any other European country
- Need to ensure that all young engineers have a good STEM education at school

Jo Lopes - Jaguar Land Rover

Mr Lopes began by stating that he is a "*bit of an optimist*" and this includes his view on the state of the engineering industry. This is because it employs 24,000 people and contributes £3bn to the UK economy. However, we face a twofold challenge; the subjects taught at secondary school and teaching the right type of courses at university and colleges.

He then discussed how the situation can be improved:

- First of all there needs to be an understanding of what engineering is
- Industry must help 'sell' the industry
- The Government needs to promote the shortage of young engineers, how beneficial a career in engineering is and what apprenticeship programmes are available
- Vocational training needs to have the same worth in society's mind as academic training.

Questions and comments

Is it the case that the UK is good on quality and not on quantity?

The volume issue is important but statistics can be misleading.

The issue of pay

Graduate engineering salaries are well above the national average. It is the salaries of jobs in 'the City' that distort it and can act as a magnet, attracting graduates away from an engineering profession. It seems the case that the engineering industry is more inclined to a uniformity of salaries and doesn't necessarily provide the range according to the skills possessed. In this respect we are behind our international competitors.

Engineering enabling you to build your own business

You are more likely to be successful with an engineering degree/background. We should be encouraged by what is going on in universities but we need to work harder in forging new companies and not just relying on the big organisations.

The 'Brian Cox effect' and the role of social media in promoting engineering and science

The role of social media is very important in translating engineering to children and teenagers and engaging them in the process. There also seems to be a new found commitment to covering engineering and science in new ways, especially television programmes.

Women in engineering

1. Role models - ones that aren't terrifying and unattainable. This is a challenging issue especially with today's 'celebrity' culture. 'The Brian Cox model' works as he people can relate to him.
2. Entrepreneurship - those women that have reached the top have got their own businesses
3. Internationalism - many of those at the top are American, Canadian or Australian. They say they are already 'odd' so can get away with it.

Not enough has been done to help develop women in the executive roles. They aren't given the ability to leave work for a few years and then re-enter the workplace. This is a major issue.

Teaching physics at secondary school

- Science teachers need to visit and spend time at engineering companies to see why they should be promoting it to their students
- There is a significant nose dive of interest in physics by girls from year 9 upwards.
- Something needs to be done to address this
- Only about two thirds of physics teachers are actually qualified in physics, this needs to be fixed.

Engineers getting into teaching

More engineers need to be encouraged to become teachers. However, there are barriers:

- they will have to teach all three science subjects and not just physics
- to become a qualified teacher you need to train for a year unfunded.

A similar scheme to TeachFirst should be created to help this process and encourage more people to go into teaching after having an engineering career (TeachSecond?)

Sustainability - promote growth with the resources that are available

Businesses need to know their sustainability targets and policy makers can help drive this with things like recycling initiatives. Fundamentally, the sustainability equation also needs to be the right business equation.

Conclusion

Lord Broers summed up the session commenting on the areas that need to be addressed:

- getting more women in engineering
- getting more bright people involved across the board
- industry needs to devote their resources to public interaction, for instance using
- social media

He then closed the evening by thanking the sponsors, the speakers and all the guests.