**MAIRE O’NEILL PODCAST 175TH ANNIVERSARY**

**SCRIPT FINAL DRAFT**

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The first students walked through the doors of the new Queen’s College Belfast on a cold November morning in 1849.

We don’t know how their day went – there’s nobody around now who can tell us - and we can’t zoom ourselves back to see. We haven’t cracked that bit of engineering yet – but give us time.

The Queen’s College was established by Royal Charter in 1845 but it took four years to actually design and build it – four years well spent, since the result is the lovely Lanyon building which is still the centrepiece of our university today.

Engineering was on the menu from the start. The Ulster Railway Company had begun operating out of Belfast just a few years previously and it was a railway man called John Godwin who set up the first School of Civil Engineering.

For the princely sum of £150 a year, he gave lectures for two hours a day, two days a week, and on Saturdays he held a drawing class in his office at Great Victoria Street. So already we can see here the beginnings of a relationship between academia and industry, something we value very strongly today.

Of course, it has to be remembered that those first students were all young men. It wasn’t until the 1880s that women were allowed to enrol in the college – after much lobbying, it has to be said. Female students were eventually admitted to science classes in 1883 and the next year one of them, a young woman named Alice Everett, came first in the first year scholarship exam.

There would be many other notable firsts down the years but hers is one we shouldn’t overlook.

There are certainly more familiar names in the history of science at Queen’s, men and women who’ve made an indelible mark on the university and the world around them:

Some were members of staff and some were students - like the Belfast boy John Stewart Bell who went on to become quite simply one of the greatest physicists of the 20th century. In fact, he’s known as the man who proved Einstein wrong. His legendary Bell’s Theorem, which demonstrated the flaws in Einstein’s views on quantum mechanics, continues to have a lasting impact on modern physics.

Or what about Peter Rice, class of 1956, who became one of the most important structural engineers of his generation? Sydney Opera House – the Pompidou Centre in Paris – both the work of Peter Rice. He received much recognition throughout his lifetime but one of his proudest moments came when he was awarded the Royal Gold Medal by the Royal Institute of British Architects. That was in June 1992. Sadly, he died later that year.

Among the staff there have been outstanding figures – like Professor Ruth Lynden-Bell, a distinguished scientist and chemist who developed sophisticated mathematical models to probe the properties of ionic liquids, powerful solvents which are one of the foundations of green chemistry.

She would be followed by Professor Ken Seddon who became known around the world for his innovative work in this field. He co-founded QUILL, Queen’s University’s Ionic Liquids Laboratories, building a multi-disciplinary faculty of chemists and engineers. In 2013, Queen’s ionic liquids research was voted the most important British innovation of the 21st century in a poll initiated by the Science Museum.

His work affects all our lives. There has been massive benefit in areas like greener oil and gas refining but it’s also, for example, in the triggered release of perfume in deodorants or the manufacture of safer lithium batteries.

I have my own favourite among the pioneers of the past. His name is Eric Megaw and he graduated from Queen’s in 1928.

Eric was a wireless fanatic. In 1923, when he was 15, his home-made one-valve set picked up a concert broadcast from Pittsburgh. The headline in one paper said – *Belfast, Ireland – Boy Spans Ocean*.

At 17 he made the first wireless contact between Ireland and Australia. The same year, he became a student at Queen’s. He graduated with honours at the age of 20 and was awarded a Science Studentship of £50. Later he became the youngest research fellow at the Imperial College of Science, on £250 a year, and he gave the £50 back.

It was during the War, with the General Electric Company (GEC), that he would make his most significant impact. He worked on the cavity magnetron, a device that produces the microwave radiation needed for accurate radar sounding.

He managed to increase its reliability and reduce its weight from 50lbs to a mere 6lbs so that it could be flown on an aircraft. Ultimately, this influenced the outcome of the War and for this and other innovations he was awarded an MBE.

At Queen’s, we remember Eric every year with a memorial lecture at the School of Electronics, Electrical Engineering and Computer Science.

Others are remembered in different ways. New buildings have sprung up over the years, many of them bearing the names of individuals who’ve made a significant contribution to the university’s development.

People like the scientist Eric Ashby, later Lord Ashby, who served first as Vice-Chancellor and then Chancellor. The tall building on the Stranmillis Road which houses the School of Mechanical and Aerospace Engineering, part of the School of Electronics, Engineering and Computer Science, is named after him.

As Vice-Chancellor, one of his most important appointments was that of Sir Bernard Crossland to the Chair of Mechanical Engineering. An outstanding researcher in the field of high pressure engineering, he was also a passionate believer in the importance of technological education for society. In fact he and Eric Ashby shared the view that engineers were more widely informed than students of the humanities!

It was after he had retired from the University that Sir Bernard undertook the work for which he perhaps best known. Expert investigator of several tragic accidents, most notably the King’s Cross underground fire in 1987, for which he headed up the scientific committee which established the cause of the fire and made recommendations to prevent such a tragedy from occurring again.

He made significant advances in engineering education at Queen’s. In acknowledgement, the Bernard Crossland Building was constructed on the Malone Road in the 1970s. It has now been re-imagined and rebuilt as the brightly-coloured home of computer science at Queen’s and it continues to shine his light.

But our expansion hasn’t been confined to South Belfast. And for that we have to thank my good friend and mentor Professor John McCanny – or rather Professor SIR John McCanny. John is a true pioneer through his contributions to research in the ever-expanding field of silicon chips, in digital signal and video processing and cryptography.

His knighthood a couple of years ago was a wonderful recognition of his vision. He was influential in setting up ECIT, the Institute of Electronics, Communications and Information Technology, on the derelict shipyard site where it would become the first tenant of the Northern Ireland Science Park. That was in 2004. Five years later CSIT, the Centre for Secure Information Technologies, was set up there too.

Since then, CSIT has become world-renowned, helping Northern Ireland to become the No 1 international investment location for cyber security projects. There is now a thriving cybersecurity ecosystem with 50 companies employing 1900 top professionals and adding £80m to the local economy.

And there is more on the horizon through the Belfast Region City Deal – namely a Global Innovation Institute that will draw together ECIT, our Institute of Health Sciences and the Institute for Global Food Security.

The Science Park is now known as Catalyst Inc. It’s a thriving hub of scientific innovation and it’s just a stone’s throw from where the Titanic was built. As Sir John likes to say, we’ve gone from ships to chips.

This is where I work. I don’t know what the academics of 175 years ago would make of what we do – wireless communications, artificial intelligence, cyber security – engineering in the ether. They’d probably think it was some kind of magic. But I can tell you one thing – Eric Megaw would love it here.

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