

## Acceptance speech on Induction to the Scottish Engineering Hall of Fame

### James Watt Dinner, 4th October 2019

Mr. President, Ladies and Gentlemen

It is an understatement to say that I was astounded to receive the notification from Professor Masterton to be inducted into the Scottish Engineering Hall of Fame!

To have my name appear alongside engineering greats, such as James Watt and Thomas Telford, famous for their brilliant engineering achievements, makes me feel rather humble. I am a proud Scot and engineer, but I have never thought of myself as famous. No person can have a greater honour bestowed on them than to be considered alongside these famous names in Engineering and I thank IESIS and the judging panel for selecting me.

I am deeply honoured to be recognised by my Engineering Peers in Scotland through this nomination.

In looking down the list of previous inductees, I see several who had strong connections with aeronautics.

Percy Pilcher made the dream of flight a reality when he flew his BAT glider at Cardross in 1895, proving that reliable flight was possible. This was in advance of the first experiments of the Wright Brothers. Sadly, Percy was killed in 1899 before he could demonstrate powered flight.

Viscount Weir led the development of the aircraft industry in Britain in the early days and was influential in the establishment of the Royal Airforce in 1918.

More recently, Craig Clark has founded a strong and innovative satellite business in Glasgow, where Clyde Space is a world leader in small satellites.

As for myself, I am not a great inventor nor an industrialist although I suspect that I do share with these gentlemen, the will to succeed against the odds.

I was lucky to be brought up and educated in Prestwick where trips to the airport to watch aircraft sparked my imagination. My father worked with Scottish Aviation Limited, as it was in those days, so you could say that aviation was in my blood. I also enjoyed making things, so it was natural that I should aspire to be an engineer and to study at Paisley Technical College or UWS as it is now. I have a lot to thank my Paisley lecturers for, as their excellent teaching of theory, balanced by summer periods in industry helped me immensely in becoming a rounded and practical engineer.

I was fortunate to join Scottish Aviation in 1975, at that time, an enterprising company engaged in aircraft design, manufacturing and maintenance. It was a great place for a young engineer with many different aircraft types to learn from and a small enough company to be able to quickly gain a broad experience. It was expanding and I soon got the opportunity to have my first step in engineering management where I realised that leading a technical team was extremely satisfying and even fun! New aircraft projects followed, and my time at Prestwick, by then part of British Aerospace and developing the new Jetstream aircraft series, was a happy time and an excellent experience for the future.

That future involved moving to France where I spent 17 years working for Airbus as a Chief Engineer, latterly developing the new A350 aircraft in Toulouse. Designing and certificating a commercial aircraft today is a highly complex business. No one person has the knowledge and skill to master all the science and technology that goes into an aircraft design.

Simply put, my role was to take an aircraft from the first concepts and to bring it into reality. Along the way, defining a set of requirements, selecting technologies, designing and testing the aircraft to produce the most efficient and comfortable long-range aircraft in the world. The project took 8 years to complete, it cost around 12 billion euro and, at its peak, more than 10000 engineers worked on the project in Airbus and at suppliers across the world. My job was to ensure that this giant team was fully aligned to meet all the project objectives in terms of safety, performance and reliability.

I believe that every engineer must be prepared to get into the details to be able to challenge and test proposed solutions and to understand complexities to make good decisions.

Having the will to succeed in my job was essential as many of the technologies were new, untried and indeed, in many cases, not ready at all to go into production and be certified. For example, the A350 carbon fibre wing and fuselage, a first in Airbus, brought many new problems to solve, notably, for the aircraft electrical and fuel systems where innovative solutions were needed to ensure safety in this new carbon fibre environment.

Having a highly motivated team is essential for success in any business and providing inspiring engineering leadership was very much part of my job.

Teamwork was the most important ingredient and the supportive relationships that were built between the teams of engineers gave me tremendous personal satisfaction.

Many of the younger engineers on the A350 programme are now the leaders for the future and what an interesting and exciting future is ahead of them.

The Aviation sector is facing many challenges not the least the exponential growth in air travel and the impact on the environment. Aviation accounts for less than 5 % of CO2 emissions of all transportation means however it is very much in the public eye and, with air travel set to double in the next 15 years, the challenge is clear.

Whilst science can project the impacts on climate change and research new theoretical advances, it will be Engineers who will develop the technologies into products which reduce the emissions from air travel. In the longer term, whether the solutions are electric propulsion or hydrogen powered aircraft, we will have to wait and see.

It is surely an exciting time for a young engineer to make their career in the aeronautics industry, potentially as part of Airbus, a great European success story.

I believe the work done by the Institution in inspiring the younger generation to become engineers is so important for our future.

Congratulations IESIS for that work and for promoting Engineering in Scotland and thank you also for this wonderful recognition in the Scottish Engineering Hall of Fame.

Thank you.

**Gordon McConnell**