

**STICK (Scottish Transport and Industrial Collections Knowledge network)**  
**Annual Conference**  
**Friday 28 October, Auditorium, National Museum of Scotland**  
**10.00 – 15.15**

**Programme**

10.00 – 10.30	Registration with tea/coffee
10.30 – 10.40	Miriam McDonald (Chair STICK) Welcome
10.40 – 11.00	Dr Xerxes Mazda (National Museums Scotland) Welcome to NMS & overview of new galleries
11.00 – 11.30	Dr Nina Baker (Women's Engineering Society) <i>More than pioneers – some engineers you may not know about</i>
11.30 – 12.00	Dr Klaus Staubermann (National Museums Scotland) <i>Machine tools, the true unsung heroes of Scottish engineering</i>
12.00 – 12.30	Jamie Taylor (Artemis Intelligent Power) <i>Revolutionary hydraulics</i>
12.30 – 13.30	<b>Lunch &amp; opportunity to view new galleries</b>
13.30 – 14.00	Sophie Goggins (National Museums Scotland) <i>Scottish pioneers in prosthetics</i>
14.00 – 14.30	Jim Mitchell (Industrial heritage consultant) <i>Brunelleschi to CAD; drawing for a purpose</i>
14.30 – 14.45	Ian Brown (National Museums Scotland) <i>Sir James Hamilton: not just unsung, but forgotten</i>
14.45 – 15.05	Dr Sam Alberti (National Museums Scotland) Commentary on the day
15.05 – 15.15	Miriam McDonald (Chair STICK) Round up & close

## **Abstracts**

**Miriam McDonald (STICK/Historic Environment Scotland)**

**Welcome**

**Xerxes Mazda (Director of Collections, National Museums Scotland)**

**Welcome to NMS & overview of new galleries**

**Nina Baker (Women's Engineering Society)**

***More than pioneers - some engineers you may not know about***

More than a century after women first accessed enough secondary and tertiary education to equip themselves to enter the engineering professions, many young women engineers are still being told they are pioneers. This talk will look at the barriers and routes into professional engineering in the early part of the 20th century and then go onto some biographies of women from a range of engineering fields, to show that, pioneers or not, women's contributions to engineering are worth noting in their own right. Dr Nina Baker is a retired engineer, former merchant navy deck officer and independent scholar of the history of women in engineering.

**Dr Klaus Staubermann (Principle Curator Technology, National Museums Scotland)**

***Machine tools, the true unsung heroes of Scottish engineering***

Machine tools are the foundation of the engineering enterprise. Without them Scotland would not have been able to build its vast engineering empire during the 19th and 20th century. For the curator and historian they embody historic practices and skills and provide us with tangible insights into the work of engineers, technicians and operators. During the past three years STICK has carried out a Scotland-wide project capturing historic machine tool artefacts and knowledge. This presentation looks at the approach as well as insights gained and lessons learned. It also places historic machine tools into the museum context.

**Jamie Taylor (Senior Project Manager, Artemis Intelligent Power)**

***Revolutionary hydraulics***

In mechanical power transmission systems, the combination of a 'variator' with a modest amount of energy storage can sometimes help to resolve conflicting user, environmental and economic requirements. One of the toughest of such challenges, harnessing the energy of ocean waves, inspired the development in Edinburgh of Digital Displacement® technology, currently on test in the world's largest floating wind turbine and in many other applications. The speaker has been closely involved for over 40 years and will discuss this work in the context of its historical development.

**Sophie Goggins (Assistant Curator Biomedicine, National Museums Scotland)**  
***Scottish pioneers in prosthetics***

In 1963 David Simpson, with the foundation of the NHS Powered Prosthetic Unit at the Princess Margaret Rose Orthopaedic Hospital in Edinburgh, began work on gas powered, user controlled prosthetics for children affected by thalidomide. Innovative problem solving formed the cornerstone of his work and the hospital became a hub of research and development, paving the way for future electronic breakthroughs. In 1998, David Gow and his research team based at the hospital announced the first modular electrically-powered prosthetic limb, EMAS, the world's first 'bionic arm'. Gow went on to create the spin-out company Touch Bionics which invented the i-limb, the first prosthetic to have individually powered articulating fingers, leading to far more movement than previous versions. The new galleries at the National Museum of Scotland shine a light on these Scottish stories in prosthetics but with an emphasis on the users, who drove the invention of these remarkable technologies.

**Jim Mitchell (Industrial heritage consultant)**  
***Brunelleschi to CAD; drawing for a purpose***

Technical or engineering drawing is sometimes defined as drawing for a purpose. Although this definition might imply that any other kind of drawing is without purpose, it does make a point. If we have to design something from scratch or explain an object to a colleague which isn't to hand, we usually sketch it out on a scrap of paper... we don't necessarily switch on Autocad. We draw to describe, define or instruct. The style and complexity of engineering drawing is, or should be, driven very much with the end user in mind. That user maybe a fellow engineer, a client with no great knowledge of technical issues, or indeed a production machine. Was there a golden era of engineering drawing and will it ever be seen as an art form?

**Ian Brown (Assistant Curator Aviation, National Museums Scotland)**  
***Sir James Hamilton: not just unsung, but forgotten***

Sir James Hamilton was born in Penicuik in Midlothian in 1923. He was a graduate in civil engineering but became a project manager before such a term existed. He spent his career in aeronautical engineering, aerodynamic research and aircraft design. He became project director for the Anglo-French aircraft that would become the SEPECAT Jaguar and then Director-General of the Supersonic Transport aircraft project that would produce Concorde. His work is unknown even within aviation circles and yet he was one of the most important engineers in 20th century aviation.

**Dr Sam Alberti (Keeper Science & Technology, National Museums Scotland)**  
**Commentary on the day**

**Miriam McDonald    Round up & close**