

## Preface

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# ‘A Preposterous Design’ Engineering and Medicine in Europe

The 7th Conference of the European Society for Engineering and Medicine (ESEM) was held in the Martin Luther University Halle-Wittenberg in September, 2003. The conference was enthusiastically supported by our sister societies, the European Society for Artificial Organs and the European Society of Biomechanics. ESEM 2003 highlighted the successes achieved by bridging the gap between the medical and engineering communities and the challenges and opportunities which lie ahead.

Such cross-fertilisation and cooperation between engineering and medicine have not always been the case. While Borelli, Galileo, da Vinci and others were keen to apply mechanics to biological systems, the medical profession was sceptical. Abraham Colles, a 19th century surgeon, wrote:

‘Our predecessors, dazzled by Newton, conceived the preposterous design of making the science of medicine a subject of mathematical demonstration. Experiment soon taught them that the fixed and immutable laws of mathematics were little applicable to the science of medicine, a science heretofore so unfortunately characterised by the instability of its principles.’

At the start of the 21st century, no fewer than 49 conference topics, from apheresis to urological prostheses, prove such sceptics wrong. Clinical diagnosis and treatment are dependent on engineering principles and the exchange of ideas stimulates and enriches both disciplines. At an educational level, case or problem based teaching methods widespread in medical education are being adapted and used as design centred learning blocks in biomedical engineering.

Support for the conference came from across the European Union – indeed you could argue that our symbol of a bridge connecting engineering and medicine has been adopted on Euro notes. It was very encouraging to see participants also coming from countries which will join the EU next May – the Czech Republic, Latvia, Lithuania and Poland – and we look forward to promoting the society across all 25 EU states. Our friends from further afield – Belarus, Russia and the United States – were also most welcome and reflect the growing worldwide interest in engineering applied to medicine.

Halle provided a wonderful venue for ESEM 2003. At the centre of Europe, the birthplace of Handel, associated with Luther, it was full of interest, architectural beauty and its Mayor and her colleagues made us very welcome. A visit to the Goethe Theatre in Bad Lauchstadt was crowned with an 18th century banquet. We are greatly indebted to Dr Hans-Joachim Hein and his colleagues for providing us with a most interesting and enjoyable conference on the banks of the Saale.

The papers which follow record the scientific work of the 7th ESEM Conference in Halle. Abraham Colles would be impressed.

*Professor Norman Black*

President of ESEM

*Professor Clive Lee*

incoming President of ESEM