WESTLAKES RESEARCH INSTITUTE

Working in Partnership with The Institute of Materials, Minerals & Mining

TALKING SCIENCE
FREE LECTURE SERIES

Tuesday 8th March 2005 at 7.30 PM

Westlakes Research Institute
Westlakes Science & Technology Park, Whitehaven, Cumbria

"PISA GOES CRITICAL!"

Prof. John Burland, Imperial College London

The stabilisation of the Tower of Pisa has proved to be an immensely difficult challenge to civil engineers and architectural conservationists. The Tower is founded on weak, highly compressible soils and its inclination has been increasing inexorably over the years to the point at which it was in a state of leaning instability. Any disturbance to the ground on the leaning side would have been very dangerous, ruling out conventional geotechnical processes such as underpinning and grouting. Moreover, the masonry was highly stressed and at risk of collapse. The internationally accepted conventions for the conservation of valuable historic monuments, of which the Tower is one of the best known and most treasured, require that their essential character should be preserved, with their history, craftsmanship, and enigmas. Thus any invasive or visible intervention in the Tower had to be kept to an absolute minimum.

Stabilisation of the Tower was achieved by means of an innovative method of soil extraction, which induced a small reduction in inclination not visible to the casual onlooker. This technique has provided an 'ultra soft' method of increasing the stability of the Tower, which at the same time is completely consistent with the requirements of architectural conservation. Its implementation has required advanced computer modelling, large-scale development trials, an exceptional level of continuous monitoring and daily communication and control. Detail of this delicate operation will be provided by Prof. Burland – a key member of the team – who helped stabilise the Leaning Tower of Pisa. The Tower was re-opened to the public on 15 December 2001.

John B. Burland DSc(Eng), FRS, FREng, FICE, FIStructE

Professor Burland studied civil engineering at the University of the Witwatersrand, Johannesburg, and gained his early practical experience with Ove Arup and Partners in London. He obtained his PhD degree from Cambridge University and then joined the Building Research Establishment where he became head of the Geotechnics Division and later Assistant Director in charge of the Materials and Structures Division. In 1980 he was appointed to the Chair of Soil Mechanics at the Imperial College of Science, Technology and Medicine, where he is now Emeritus Professor and Senior Research Investigator.

EVERYONE WELCOME – NO CHARGE

To avoid disappointment please reserve a seat: contact Wendy McBain on 01946 514112, or email at wendy.mcbain@westlakes.ac.uk