

Engineering Group of the Geological Society

The 9th Glossop Lecture

Thursday 6th November 2008



Dr. Michael H. de Freitas

Emeritus Reader in Engineering Geology at Imperial College London

'Geology: its Principles, Practice and Potential for Geotechnics'

Preceded by the 2008 Glossop Award presentation by:

Seth Pollak (Arup, New York) on 'Geologic interpretation for design of caverns in an urban setting - A case study of the Seven Line Extension Project, New York.'

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Programme: 17:00 Tea; 17:30 Glossop Award; 18:00 Glossop Lecture; 20:00 Drinks reception and buffet dinner (optional - see overleaf)

Venue: The Great Hall, Sherfield Building, Imperial College, London (map on www.geolsoc.org.uk/engineering)

The event is kindly sponsored by Arup, Atkins, Mott MacDonald & Mouchel.

Synopsis:

Three themes will be developed in the lecture. First, the principles that are basic to the science of geology and thus to its use in geotechnical engineering, viz. those of superposition and uniformitarianism. Then the use of these principles in practice and the difficulties that follow if little thought is given to the unwritten demands they make for their proper use; two common causes for difficulty are considered, using an inappropriate description and working at an inappropriate scale. Finally, the potential geology has for opening new areas of research relevant to geotechnics is illustrated with examples ranging in dimension over almost fourteen orders of magnitude. The largest of these examples involves a regional structure, the London Basin; this is followed by examples that involve progressively smaller volumes; viz. displacements in landslides, the behaviour of rock specimens, the response of mineral surfaces to contact with water, the possible effects of strain energy stored in minerals, and the characteristics of silica gel, a material that could influence and possibly govern the geomechanical and geochemical response of silicate particles. Each of these subjects leads to an understanding of geological materials that could change the development of geotechnical engineering by establishing scientific disciplines to which engineers would refer for solutions to problems in ground engineering and the use of soils as a construction material.

About the Speaker:

Dr de Freitas is Emeritus Reader in Engineering Geology at Imperial College London and Director of First Steps Ltd., a registered company engaged in training and staff placement in geotechnical engineering. He was responsible for the Masters course in Engineering Geology at Imperial College from 1984 to 2007 and has supervised a total of 30 PhD theses. His publications include the authorship of two text books, contributions to three books, editor of six books (including the Geological Society's highly successful 'Handbook Series'), author of 45 refereed papers in geotechnical journals, and of 23 un-refereed publications in conferences. He is currently Chairman of the Geological Society's Fellowship and Validation Committee and has held a number of other high profile positions, including Vice President of the Geological Society (1978-79), Editor of QJEGH (1981-84) and Chairman of the Engineering Group (1990-92).

Convenor: Chris Martin (email: chris.martin@arup.com)



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