

Preface

These notes were originally prepared during the period 1987 to 1993 for undergraduate and graduate courses in rock engineering at the University of Toronto. While some revisions were made in 2000 these were difficult because the notes had been formatted as a book with sequential chapter and page numbering. Any changes required reformatting the entire set of notes and this made it impractical to carry out regular updates.

In 2006 it was decided that a major revision was required in order to incorporate significant developments in rock engineering during the 20 years since the notes were originally written. The existing document was broken into a series of completely self-contained chapters, each with its own page numbering and references. This means that individual chapters can be updated at any time and that new chapters can be inserted as required.

The notes are intended to provide an insight into practical rock engineering to students, geotechnical engineers and engineering geologists. Case histories are used, wherever possible, to illustrate the methods currently used by practicing engineers. No attempt has been made to include recent research findings which have not yet found their way into everyday practical application. These research findings are adequately covered in conference proceedings, journals and on the Internet.

It is emphasised that these are notes are not a formal text. They have not been and will not be published in their present form and the contents will be revised from time to time to meet the needs of particular audiences.

Readers are encouraged to send their comments, corrections, criticisms and suggestions to me at the address given below. These contributions will help me to improve the notes for the future.



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Evert Hoek

Evert Hoek was born in Zimbabwe and graduated in mechanical engineering from the University of Cape Town with a B.Sc in 1955 and an M.Sc in 1958.

He became involved in rock mechanics in 1958 when he joined the South African Council for Scientific and Industrial Research and worked on problems of rock fracture in very deep level gold mines. He was awarded a Ph.D in 1965 by the University of Cape Town for his research on brittle rock failure.

In 1966 he was appointed Reader and, in 1970, Professor of Rock Mechanics at the Imperial College of Science and Technology in London. He was responsible for establishing an inter-departmental group for teaching and research in rock mechanics. He ran two major research projects, sponsored by a number of international mining companies, that provided practical training for graduate students. These research projects also resulted in the publication of *Rock Slope Engineering* (with J.W. Bray) in 1974 and *Underground Excavations in Rock* (with E.T. Brown) in 1980. These books have been translated into several languages and are still used as text books in a number of university programs.

In 1975 he moved to Vancouver in Canada as a Principal of Golder Associates, an international geotechnical consulting organization. During his 12 years with this company he worked as a consultant on major civil and mining projects in over 20 countries around the world.

In 1987 he returned to academia as NSERC Industrial Research Professor of Rock Engineering in the Department of Civil Engineering in the University of Toronto. Here he was involved in another industry sponsored research project which resulted in the publication of a book entitled *Support of Underground Excavations in Hard Rock* (with P.K. Kaiser and W.F. Bawden) in 1995. During this time he continued to work on consulting boards and panels of experts on a number of international projects.

In 1993 he returned to Vancouver to devote his full time to consulting as an independent specialist, working exclusively on consulting and review boards and panels of experts on civil and mining projects around the world. He has maintained his research interests and continues to write papers with friends and colleagues associated with these consulting projects.

His contributions to rock engineering have been recognized by the award of an honorary D.Sc in Engineering by the University of Waterloo in 1994 and an honorary D.Eng in Engineering by the University of Toronto in 2004 and by his election as a Fellow of the Royal Academy of Engineering (UK) in 1982, a Fellow of the Canadian

Academy of Engineering in 2001 and as a Foreign Associate of the US National Academy of Engineering in 2006.

He has also received many awards and presented several named lectures including the Consolidated Goldfields Gold Medal, UK (1970), the AIME Rock Mechanics Award, US (1975), the E. Burwell Award from the Geological Society of America (1979), the Sir Julius Werhner Memorial Lecture, UK (1982), the Rankine Lecture, British Geotechnical Society (1983), the Gold Medal of the Institution of Mining and Metallurgy, UK (1985), the Müller Award, International Society of Rock Mechanics (1991), the William Smith Medal, Geological Society, UK (1993), the Glossop Lecture, Geological Society, UK (1998), the Terzaghi Lecturer, American Society of Civil Engineers (2000).