

2008 MEDALS & AWARDS

E.B. BURWELL, JR., AWARD

Presented to Derek H. Cornforth



Derek H. Cornforth
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Citation by Paul M. Santi

Landslides in Practice was selected for this award as a superb example of the interdependence of engineering geology and geotechnical engineering to adequately identify, analyze, and mitigate landslides. Strong chapters covering landslide causes, mapping, investigation, and monitoring focus on the geologic components of these hazards. Chapters detailing laboratory and analytical work, as well as remediation options, demonstrate the engineering side of the equation. A dozen detailed case histories show how the components work together.

As the title implies, the book is, above all, practical. The author elucidates problems that are often short-changed or entirely omitted in slope stability texts. What is the importance of strain rate? What are the typical pitfalls with back analyses? How can reliability and risk-based analyses be incorporated into the evaluation? How are horizontal drains designed and maintained? How is erosion control incorporated into landslide mitigation? All of these issues are accompanied by example calculations, drawings, and charts, many of which are derived from the author's own experience. As a result, *Landslides in Practice* filters a vast array of practical technical literature, through the lens of a practitioner who has applied these principles for over 45 years.

The quality of the writing and illustrations is outstanding. The text is clear and the use of headlines, bullets, and tables

makes the book easy to navigate and quick to track down specific ideas. The figures are immaculate, with numerous 3-D drawings, clearly reproduced photographs, and hundreds of maps and cross-sections, all drafted in a consistent style.

The author, Dr. Derek H. Cornforth, is a highly trained Civil Engineer, with a B.S. from Durham University in England, an M.S. from Northwestern University, and a Ph.D. from Imperial College in London. He has worked primarily out of offices in Seattle, London, and Portland, and his career has led to direct involvement in about 200 landslides. He is the founder of the well-regarded firm, Landslide Technology, whose work has ranged from the Western United States and Alaska, to Africa and New Zealand. Dr. Cornforth has authored numerous technical papers related to slope stability, taught graduate university courses in the subject, and served on a national committee of the USGS and on a Board of Consultants formed to address landslide investigation and mitigation. He resides in Lake Oswego, Oregon.

Response by Derek H. Cornforth

I am most grateful to the Engineering Geology Division of the Geological Society of America for honoring me with the Burwell Award. I also want to thank Professor Santi for nominating my book and for his very gracious citation. I can tell you that this is one of the highlights of my career.

Although trained as a civil engineer, I have spent most of my career working closely with engineering geologists on earth dams and landslides. Therefore, I really appreciate the insights that an experienced engineering geologist can bring to these types of project.

The book *Landslides in Practice* is the result of a fortuitous chain of events, and I will briefly describe a few key experiences. First, I was fortunate to obtain my doctorate degree as a student at Imperial College, London University, where Professors Skempton and Bishop were doing their pioneer work on slope stability and landslides in the late 1950s. After that, I increased my knowledge of soil and rock properties by a two-year stint at the large Soil Mechanics Ltd. laboratory in London. The rest of my career primarily was that of a consultant working on geotechnical projects but it included 12 months on the site of a huge earthworks contract. I also spent a few years working for a contracting firm. These broad experiences helped me to become proficient in both theoretical and practical knowledge of landslide work.

My final piece of luck was that I ended my career as the owner of my own consulting firm. Professor Santi has already mentioned the high quality of the drawings in the book, and other reviewers have been complimentary about them. In fact, there are more than 600 drawings, all drawn to a consistent technique and requiring thousands of hours of drafting time. This would not have been possible if I had not had the resources of my firm available to me.

Landslides in Practice took almost a decade to research and write. It is mostly a collection of the ideas and publications of other people, but it contains some previously unpublished items. I'll mention three of them.

The first is the section of the book describing the use of piles in the stabilization of landslides. When I first wanted to use piles for this purpose, I was rather appalled at the lack of acceptable design criteria. I think this can be attributed to a poor understanding of how piles interact with landslides. I believe that the method described in the book corrects this omission in the published literature.

Another "first" was to provide analytical solutions to the stability analyses of double and triple wedge landslides, both of which are relatively common landslide profiles on larger slides. Previously, these were solved by either graphical procedures or by using non-circular stability analyses on a computer. The analytical procedure allows double and triple wedge stability analyses to be completed relatively quickly by hand. My staff have found that hand calculations often help the designer obtain insights into the most appropriate treatment of a landslide.

The third item concerns the widespread use of "back analysis" in which the designer assumes that the factor of safety F is 1.00 on the landslide. However, the book points out that many landslides are actively moving and the static F is lower than 1.00. It includes an example of how much below 1.00 it can fall. The significance of this issue is that an extra margin of safety has to be included in the remediation of active landslides just to bring the static factor of safety back to 1.00 before improving the slope stability.

In closing, may I thank the GSA again for this honor in recognizing my book. I hope it will achieve its objective of providing sound advice on remediating soil landslides to both new and practicing engineering geologists.