***Dynamics of Rockslides and Rockfalls*, by Theodor H. Erismann & Gerhard Abele, 2001. Springer-Verlag, Berlin-Heidelberg-New York; 316 pages, hardbound, USD 99.00; ISBN 3-540-67198-6**

Rockslides and rockfalls are types of sedimentary avalanches, together with debris falls, debris flows, mudflows, snow flows; they are main processes in the formation of colluvial aprons, in the configuration of land surfaces, and they are largely responsible for the (in)stability of slopes. Consequently, both earth scientists and engineers dealing with geological work try to understand the mechanisms behind these events. However, their efforts are commonly restricted to simple interpretations because of the complex nature of these avalanches. This book makes the study of avalanches much easier, giving mathematical descriptions of mechanisms. In addition, it shows the importance (with respect to intensity and damage) of landslides on rural life, both in the past and at present.

The book, which is dedicated to the memory of Albert Heim (1849-1937), begins with a nice and somewhat poetic foreword by E. Brückl, followed by a Table of Contents (1.Introduction, 2.Case Histories, Geomorphological Facts, 3. Comments on Mechanisms of Release, 4. Mechanisms of Disintegration, 5. Mechanisms of Displacement, 6. From Analyses to prediction, 7. Secondary Effects, Review of Highlights, References, Index) that brings the reader back into the much less poetic reality.

The *Introduction* chapter is also a must for specialists, because it indicates how this book deals with gravitational mass movements and how the authors (H.E. is a mechanical engineer, G.A is a geomorphologist) understand sedimentary avalanches. They are clear in their statement: "*Quantification – a stringent necessity: In the wide field of scientific problems exists a marked difference between mainly academic questions and those bearing practical importance. It may be worthwhile, perhaps, to spend considerable work and money to find out that Mount Everest is two metres lower than assumed previously – and, of course, the value of precise measurements for observation of tectonic processes is incontestable. But nobody except the involved scientists and their sponsors would consider it a catastrophe if a more accurate measurement would add another couple of centimetres to the actually accepted figure. On the other hand, the question of whether an expected rockslide will reach a certain village or not, involves, in the best case, emergency measures (like evacuation) and the loss of substantial material value, in the worst case the risk of inhabitants being killed. Given this background, the following chapters will treat the mechanisms of rockfalls and rockslides with a permanent* ***side-glance to practical application,*** *and special attention will be paid to the basic parameters of displacements"*. This most pragmatic approach makes clear that this book is an engineering work rather than a contribution to sedimentary geology, in spite of its title and the material studied.

The second chapter contains six, well studied, catastrophic landslide examples from different countries. Together with the history of each case, sedimentary bodies are described in detail, supported by black and white photos, maps and drawings. There is, however, insufficient clear explanation; some of photographs and descriptions show debris-flow and mudflow examples. This chapter indicates that all types of gravity mass movements, i.e debris falls, debris flows, mudflows, rockfalls, grain flows, slurry flows, and snow flows have been defined and/or integrated as rockfalls and rockslides, thus ignoring many commonly used sedimentological terms and definitions. It is difficult to interpret why the authors preferred only two terms in the book title rather than a more common term covering the variety of processes,

This may be due to the practical/engineering approach, for even most of the references in the volume use the term ‘landslide’.

In the third chapter, a general discussion of the conditions favoring release of large masses gives way to a quantitative treatment of various impending problems, combined with a brief comparison of the historical usage of related terms. Internal and external causes of the gravity-related movement of masses are summarized; then the main problem, i.e. the relation between cohesion and motion, is explained skillfully. The following chapter (Mechanisms of Disintegration) is the shortest one; it describes static (crushing, grinding, ploughing, delamination) and dynamic (friction, clast collision) ways of particle production from a mass, without touching any geological process. The fifth - largest - chapter of the volume deals first with mechanisms of displacement, distinguishing between coherent or disintegrated motion, then with consequences of velocity-dependent resistance, types of movement (falling, rolling, bouncing), unlubricated sliding, lubrication, fluidization and various other mechanisms. Due to the good presentation and its logical structure, this section gives the reader a good command of landslides, although at least a moderate mathematical knowledge is needed for maximum benefit.

The sixth chapter (From Analysis to Prediction) focuses on determining velocity and size effect of a potential mass movement. It also emphasizes that earth scientists or practitioners can make correct predictions using some standards and formulas derived from 69 well-investigated examples. The last chapter of the book is about secondary effects (i.e., flood waves and damming) of moving rock bodies. It also stresses the significance of these events on daily life. As a matter of fact, tsunamis and seiches, which can be generated by landslides entering into standing water (sea and lake), have sometimes - just like roads that are dammed off by slid down masses - great effects on our daily life. The last part of the book contains a review of highlights, an extensive bibliography and a subject index.

Dynamics of Rockslides and Rockfalls is a valuable resource for both students and professionals, and particularly for practitioners in the field of gravitational mass movements. However, it has some flaws, such as photographs that are sometimes poorly reproduced, and drawings that are not consistent and homogeneous. Moreover, the figure captions, formulas and italic letters are commonly difficult to read because they are small and pale. The absence of any color reduces the attractiveness of the book. My reservations also include the relatively high price. Despite of these negative aspects, my opinion is positive and I recommend the book to both research geologists and those working in engineering geology.

Nizamettin Kazanci
Gebze Institut of Technology
Cayirova Campus,
41400 Gebze, Kocaeli, Turkey