



Virgil Gârbacea (2013),  
**RELIEFUL DE GLIMEE**  
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The landslides are a real attraction for geomorphologists because the dynamic, the resulted forms, the impact upon the slopes and the effects upon human activities.

As in Romania one third of the territory is or was affected by these phenomena, the interest of romanian geomorphologists to investigate landslides is particularly increased and the results are materialized in hundred of materials (studies, chapters of scientific books, articles, maps). Attempts to synthesize this topic were also in the past but the book *Relieful de glimee* written by prof. V. Gârbacea is an attempt to order and synthesize, in an analytical and synthetic vision, all the knowledge related to this particular type of landslide.

The above mentioned book, fruit of a long theoretical and practical concerns upon "*glimee*", comes in a moment when more and more archaeologists, historians, try to explain, without scientific arguments, the anthropic origin of these forms, considering them as tumulus. The book has the merit to make order in the manner of identification, mapping, the age of these, "*glimee*" massive landslides.

The term *glimee*, proposed by T. Morariu and V. Gârbacea, was adopted at the International Congress of Geography, New Delhi, India, in 1968, and is defined as the landforms resulted after massive landslides which affects significantly either superficial deposits and the lithological base (tens on meters).

It is surprising how the author conduct the analysis-synthesis report, presenting these processes. Thus, although the titles of the chapters and subchapters indices the idea of a detailed analysis, the content is very synthetic and it is always supported by original examples or taken from other authors.

The book is structured in 13 chapters, logically linked, beginning with the definition of the term *glimee* and ending with the chapter related to the economic value of this microrelief form. In a synthetic vision we can divide the book into four major parts content.

In the first part are presented the general aspects: definition of the term *glimee*, general aspects (chapter 1), names, toponymies, the history of the research, classifications (chapter 2), the position within the slope, absolute altitude, the role in the evolution of the relief (chapter 3). Note, however, that although *glimee* occupies the upper part or the half of the slope, they could be found either on interfluves.

The second part of the book deals strictly with the problems of *glimee*: morphological and morphometrical features (chapter 4), factors and conditions influencing the appearance of these landslide types (chapter 5), morphodynamic of the *glimee* (chapter 6), slump and landslides on unstratified rocks (chapter 7), geomorphological processes subsequent the formation of *glimee* (chapter 8), the age of (chapter 9), the causes (chapter 10). The most significant aspects from this part are:

- the depth of the groundwater is the main cause which lead to different types of glimee;
- the shape of the slided mass is often as a mound (conical, elliptical, prolonged ridges) but it is possible to appear as horizontal surfaces on monocline structures;
- the presence of the sliding glacis;
- referring to the longitudinal depressions between slided masses, the author's opinion is that there is no subaerial modelling process after the sliding phase able to create such depression;
- as far as concerning the role of the composition of the expandable clay minerals from the sliding surface within the sliding process, it is important just one moment in sliding morphodynamic, namely that of displacement;
- the slides are translational not rotational ones;
- related to the age of the glimee, the author's makes a detailed analysis of different geomorphologists, geologists, paleobotanists opinions from Romania and from Europe and conclude that were established different chronological phases and classes when slides were more often to occur without clearly specifying which ones;
- as far as concerning the causes of these processes, V. Gârbacea's opinion is that morphoclimatic changes which produces erosional stress are decisive.

The third part of the book, related to the occurrence of glimee in Romania (chapter 11, 12), the author's opinion is that there are differences, sometimes significant ones, among different natural units. Particular emphasis is placed on glimee from Transsylvanian Depression where these phenomena affects tens of hectares and the depth vary from 3- to 50 meters. The author presents few representative examples from Târnavelor Tableland (Saschiz, Saeş, Movile, Româneşti-Păucea), Transsylvanian Plain (Bozieş, Pădureni) and also from other parts of Romania (Getic Tableland, Moldavian Tableland, Curvature Carpathians).

The general conclusion, related to the impact of the glimee within the natural system of the occurrence areas, is that they cause the extreme microgeographic mosaic of the landscape, cause also the variety and exposition of the relief, the features of the groundwater table and human actions (chapter 13). This is the reason why the author emphasize that the research of these landslides must be followed by studies related to the landuse of the affected areas.

The issues addressed, the way in which the book is written, clear, systematic, concise, always supported by examples and/or citations from tens of authors, through observations and original ideas, the book of prof. V. Gârbacea is a model of fundamental and applicative research of a certain type of relief, namely the glimee.

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