

Vasile Surd, Veronica Constantin, Alexandru-Sabin Nicula (2017), *Așezările din Munții Apuseni* (The settlements of Apuseni Mountains), Cluj-Napoca, Presa Universitară Clujeană Publishing House, 377 p., refs., 256 figs., 22 fotoes.

This work makes unitary approach to a very complex set of problems, being logically structured and boasting a very ingenious complementariness between text and map.

The authors, members of the Research Centre for Settlements and Urbanism, combine quantitative analysis methods with the geographical interpretation, the result being this exceptional work, a real model for this type of research.

The nineteen chapters of this volume provide the reader with a synthetic time-and-space evolution, of the Apuseni Mountains, the best populated sector in the Roumanian Carpathians. From times immemorial, the inhabitants of the Stone Land (Rom. *Țara de Piatră*) have been known for their diligence, cleverness, skill and boldness, permanently striving for freedom and independence. Horia, Cloșca and Crișan suffered martyrdom for having initiated and headed the 1784 Peasant Uprising; Avram Iancu, a learned redeemer, head of the 1848 Revolution, all are and will stay in the mind and soul of people in the Apuseni Mts. and everywhere in Romania, for their cardinal virtues.

The first Chapter makes a *Morphological and Functional Delimitation of the Apuseni Mountains*, Chapter Two provides pertinent references and offers historical arguments on *Identity Landmarks*; Chapters Three and Four contain a *Comparative-Quantitative Analysis and Documentary Attestation*, respectively, fundamental issues of this deeply Romanian geographical space. The analysis concepts used, the theoretical and methodological relations between Geography and adjacent sciences, emphasise their role in making these analyses highly credible.

The next chapters deal with *The Analysis of Administrative Units, The Altitudinal Distribution of Population and Settlements; The Location of Settlement Hearhs* and *The Relationship between The Natural Components and the Distribution of Settlements in The Upper Basin of the Arieș River; The Morphology of Settlements and Temporary Dwellings; The Spread of Settlements*; From Chapter Twelve on, the authors analyse and comment upon economic phenomena and processes in The Apuseni Mountains: *The Economic and Fuctional Profile of Administrative-Territorial Units; The Settlements of Mining Areas in the Apuseni Mountains*; next, they broach major problems of Geographical space organisation and dynamics, eg.: *A Proposal for a Sustainable Management Model in the Apuseni Mts. Mining Areas-Horizon 2030: Settlements with Tertiary Functions; Land-Use; Development Levels of Administrative-Territorial Units and of Rural Settlements*.

The most deep-going and original chapters are: *The Polarising Potential of Administrative-Territorial Units* and *The Settlements Systems* which underlines concrete ways and means of sustaining the development of this highly important area for Romania, by targeting the planification and polarisation of settlement systems. Intelligent and realistic planification based on a strategic outlook (like that defined by the authors) is the only way to strengthen the present settlement system.

Dragoș Mihail Baroiu

Briciu, Andrei-Emil, *Studiu de hidrologie urbană în arealul municipiului Suceava* (A Study of Urban Hydrology in Suceava City Area), Edit. Universității „Ștefan cel Mare” din Suceava, Suceava, 2017, 230 p., 137 figs., 20 tables.

This achievement is based on the author's studies and work for his Ph.D. Thesis conducted by Prof. Gheorghe Romanescu. The subject focusses on the urban circuit of water in Suceava City in connection with the water passage through the City for specific activities.

The complexity of urban sites is viewed in the light of their influence and impact on the ground and surface waters found in the city area.

The question of urban hydrology has seldom been tackled, which makes approaching and dealing with this subject pretty difficult, implying a very careful analysis of data (not easy to obtain and quantify) inconsistency and discontinuity in time and space. This study is particularly important since pollution and impact aspects in the development of some urban areas were of little interest in the near past. Moreover, Suceava City was conceived

to be mainly an industrial area and, besides, referring to that period of maximum industrial development poses very many difficulties.

The author resorts to connex areas, such as biology, climatology, geomorphology, economy, etc., which contributes to the accuracy of this approach, a model of integrated analysis in the field of hydrology.

The 16 chapters of this work are structured as follows: the first five deal with elements of the general framework (natural and anthropic) and all the elements defining it; the next six chapters represent the groundwork of great originality. The first five chapters look at the water circuit in Suceava City and to all water balance elements (rain water, consumption water, waste water) and at the circulatory system of the water supply and water sewerage networks (with highlight on their historical evolution and building stages), surface and ground discharge. The influence of Suceava City area on the Suceava River flow rates (liquid and solid) and flooding episodes are discussed in relation to their occurrence downtown and upstream and at the river flow into the city.

A detailed analysis is made of thermal pollution of watercourses inside the city. Another element (discussed in a distinct chapter) is the influence of the urban area on the snow layer and ice formation in Suceava City.

The most consistent part of this work is devoted to the relationship between man's activity in the urban and peri-urban area, on the one hand, and the physical and chemical characteristics between surface waters and ground waters. A data analysis leads the author to identifying pollution problems, assessing City impact, looking at the degree of pollution in terms of the climatic factors' variability, identifying pollution sources not only within the city area itself, but also in adjacent areas featuring agricultural activities which generally contribute to polluting the city waters, to finally forecast the evolution of water quality in the future.

A special chapter is connected with the Dragomirna Lake, the author analysing the sediments therein by modern methods of heavy metals and organic matter determination.

The present study and the results reported in it are of theoretical importance owing to a very rigorous methodology taken from hydrology-related areas. It is no less of a practical importance, because it offers a general picture of human activity-induced manifestations and modifications in a medium-sized urban area like Suceava City is, most influences and impact factors on surface and ground waters; this study also provides evolution estimations and prognoses. The author succeeds in outlining Suceava urban area from a hydrological viewpoint, identifying the factors influencing it and the complex connections among them in a original and applied approach.

*Daniel Ciupitu*

Alin Mihu-Pintilie, *Natural Dam Lake Cuejdel in the Stănișoarei Mountains, Eastern Carpathians. A Limnogeographical Study* (Lacul de baraj natural Cuejdel în Munții Stănișoarei, Carpații Orientali. Studiu limnogeografic), Springer International Publishing AG, 2018, 245 pages, 82 colour figures, 53 tables.

This is the author's Ph.D. Thesis delivered in 2014 at the "Alexandru Ioan Cuza" University of Iassy, under the supervision of Prof. Gheorghe Romanescu. It is actually a limnological monograph, but also an outline of the present place and stage of limnology. It contains 245 pages, 82 colour figures, 53 tables and over 300 bibliographical references. The nine chapters of this volume discuss such topics as natural dam lakes and their status within limnological and geographical studies; geographical location and boundaries of the study-area; physical-geographical conditions of the Cuejdiu Valley and their importance in the formation of Cuejdel Lake; the genesis of the Cuejdel Lake and evolution of the morphometric and morpho-bathymetric parameters; the nature of lacustrine sediments and clogging rate; seasonal variation of physical-chemical parameters and water quality assessment(WQI); vegetation and fauna-environmental bioindicators from the lacustrine water body; sustainable management of the Cuejdel Naural Dam Lake–biodiversity conservation principles.

In Romania, one finds several natural dam lakes through rockfall and landslide. They were short-lived (a few years only), unlike Lacul Roșu (Red Lake) on the Bicz River (a tributary of the Bistrița River) in the Eastern Carpathian Mts. This lake appeared in 1837, but continues to exist in good limnological conditions: surface-area 12.1 ha, maximum depth 10.5 m. Lacul Roșu-Bicz made the object of many researches and articles on all the aspects of this lacustrine ecosystem, the recentmost and highly professional work being "Limnology of

the Red Lake, Romania. An Interdisciplinary Study”, authored by Gheorghe Romanescu, Cristian C. Stoleriu, Andrei Enea, of the Iassy-based Univ. “Alexandru Ioan Cuza”, published also by Springer International Publishing AG, in 2013. The Cujdel Lake (Cross Lake) has been formed rather recently (1991), its 2011 surface-area was 13.95 ha, maximum depth of 16.45 m.

Although the two lakes lie in the Eastern Carpathians, yet geologically and morphostructurally they occur in two distinct lithological units: the Roşu-Bicaz hydrographic basin (40.6 km<sup>2</sup>) extends in the Hăghimaş Massif, formed of dolomites, limestones, conglomerates, Triassic and Jurassic sandstones, which are more resistant to sub-aerial modelling: the Cujdel hydrographic basin, hosting the homonymous Cujdel Lake (8.94 km<sup>2</sup>), lies at the outer limit of the internal flysch, in the South-East of the Stânişoara Mts.; it consists of limestones, merely sandstones and merely-clay which are less erosion-resistant rocks. Hence, differences in the rate of surface and depth decrease through silting.

As revealed by the succession of analysed problems, Alin Mişu-Pintilie makes an incursion into the subject, advancing his own views on the interdisciplinary character of limnological studies, underscoring the geographical conditions (morphoclimatic and lithological) that have geoseismic implications, the case of the formation of the Roşu-Bicaz Lake, to speak only of Romania. In our opinion, the short description of the evolution of limnology within the field of hydro-sciences represents an important and useful synthesis for Geography, in general and for Limnology/Limno-geography, in particular, the author providing the terms and definitions of limnology as border-science, as well as geographical and biological viewpoints, their evolution in time, the existence of lakes as open systems (limnosystems), with lacustrine abiotic (called physical limnology, or geography of lakes) and lacustrine biotic (named biological limnology, or biology of lakes). This chapter concludes with a history of limnology, inclusive of natural dam lakes, a classification and typology of natural dam lakes, a table of their occurrence on the Globe and a significant literature list.

The next chapters (geographic location and boundaries of the study-area; physical-geographical conditions of the Cujdiu Valley and their importance in the formation of Cujdel Lake) study the complexity of susceptible aspects in triggering landslides on the Cujdel Valley slopes and formation of the lake by referring mostly to geological and geomorphological published works and maps, but also to climatic, hydrological, biopedo-geographical and land-use ones. The detailed investigation of the particularities of lakes and especially of man-made dam lakes, and their evolution in the 23 years elapsed since the Cujdel Lake has emerged, enabled the author to reveal such aspects as: the morphometry and morphobatymetry of the lacustrine cuvette; the thermal regime in summer and in winter (under the ice bridge) and the chemical metamorphosis from rheophil to limnic, based on which the Water Quality Index (WQI), the degree of trophicity, the vegetation and fauna were determined as ecological bioindicators of the lacustrine ecosystem.

The nature of lacustrine sediments and the sedimentation rate (nature of lacustrine sediments and clogging rate) were studied in relation with denudation in the drainage basin estimated at a rate of 4.33 t/ha/year, up to 75.640 m<sup>3</sup>. The clogging thickness rate is between 1 and 16 cm/year which means an average value of 4521.26 m<sup>3</sup>/year.

An important aspect in this type of lake is life-time, given the physic-geographical position and the protection of sediment suppliers drainage basins versus the silting rate. While the Roşu-Bicaz Lake is already 180 years old, the Cujdel Lake has less propitious conditions.

Noteworthy, field investigations, the analysis and interpretation of results benefitted from modern and appropriate logistic equipment. For example, bathymetric mapping used non-invasive techniques (GPR), seasonal measurements of the physico-geographical variables (temperature, chemical composition, nutrients, quality index and trophic level) were made by a Hach Lange multiparameter with real-time display, etc.; research results are sustained by a special coloured graphical illustration achieved by several space-analyses adequated programmes TNTmips 6.9&7.3, ArcGIS 9.3&10.1, and CorelDRAW 4 graphical processing.

Due to its landscapes, geographical position outside tourist circulation, the Cujdel Lake is of scientific interest, having been listed among protected areas in Romania (Gouvernement Decision No. 2151/2004 (IUCN IV.40 Cujdel Lake).

We consider the author’s “Natural Dam Lake Cujdel in the Stânişoarei Mountains, Eastern Carpathians. A Limnogeographical Study”, a model of investigating natural dam lakes and others, too, as a new methodological approach of the Romanian limnogeographical school at the University of Iaşi, Cluj-Napoca and Bucharest, initiated and promoted by the Romanian Academy’s Institute of Geography.

*Petre Gâştescu*

