# LAND USE CHANGES AND LAND DEGRADATION IN POST-SOCIALIST ROMANIA

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*Key-words*: land use change, land degradation, post-socialist period, Romania.

**Changements dans l'utilisation des terrains et la dégradation des terrains dans la Roumanie post-socialiste.** La communication se concentre sur l'analyse des principaux changements produits dans l'utilisation des terrains durant la période post-socialiste, quand on a passé d'une concentration excessive de la propriété sur la terre à un émiettement exagéré de celle-là, des exploitations à grande dimension aux petits ménages de type paysan, de subsistance. Ainsi, la superficie agricole du pays a été partagée à environ 15 millions de parcelles (la majorité sous 1 ha), groupées en 4,25 millions d'exploitations individuelles (99,5% sont des exploitations de petite dimension, à une surface agricole moyenne de 2,1 ha). En même temps, on constate une dégradation accentuée des terrains, comme résultat d'une utilisation irrationnelle du fonds foncier, de l'abandon on destruction des systèmes d'amélioration et de la faible fertilisation des terrains agricoles. Les plus importants processus de dégradation des sols qui portent préjudicies à des surfaces étendues de terrains agricoles sont: l'érosion hydrique et celle éolienne, les glissements de terrain, la sécheresse, le compactage, l'excès d'eau, l'appauvrissement du sol en matières organiques et en éléments nutritifs, la salinisation, l'acidification etc. On utilise les données statistiques pour la période 1989–2006 et on met en évidence, au niveau national et régional, les changements survenus dans l'utilisation des terrains, en étroite liaison aves les phénomènes climatiques extrêmes.

## 1. INTRODUCTION

As of 1989, the fall of the communist regime led to a series of radical changes in all the areas of activity. The national economy experienced a transition from an old, centralised socialist system, to a new, free market-based system. One of the first economic branches to be severely affected by the restructuring process was agriculture, due to changes in the type of property, the type of farming and the spatial distribution of the main land cover/land use categories (conversion from one class to on other). Some of these changes also had a negative effect on the quality of land (excessive fragmentation of the agricultural terrain, the emergence of a huge number of individual, subsistence farms, inadequate agricultural practices, severe degradation of farming land, etc.).

The intensification and expansion of land degradation processes were favoured both by anthropic and by some natural, climatic change-related factors.

## 2. DATA SOURCE

In order to identify and analyze the main land use changes during the post-socialist period were used various data sources: Corine Land Cover – CLC, *EEA*, 1990, 2000; the 1989–2006 statistical figures supplied by the National Institute of Statistics (Romanian Statistics Yearbook, Agricultural Farm Survey 2005, General Agricultural Census 2002) and very many additional data obtained from field surveys.

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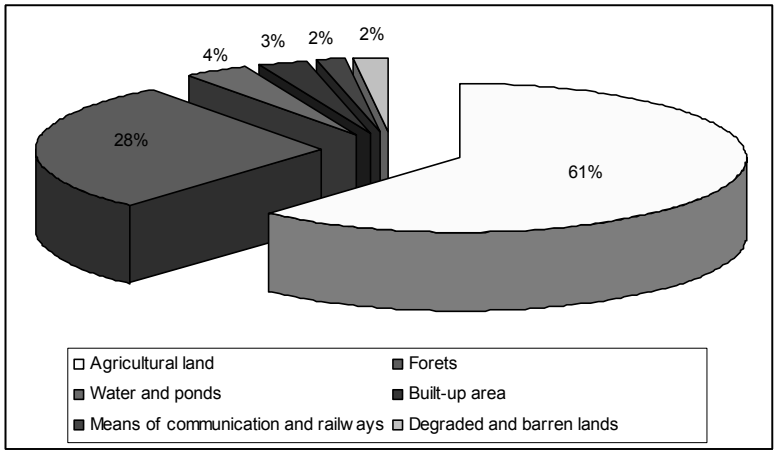
Rev. Roum. Géogr./Rom. Journ. Geogr., **54**, (2), p. 95–105, 2010, Bucureşti.

### 3. LAND COVER AND LAND USE

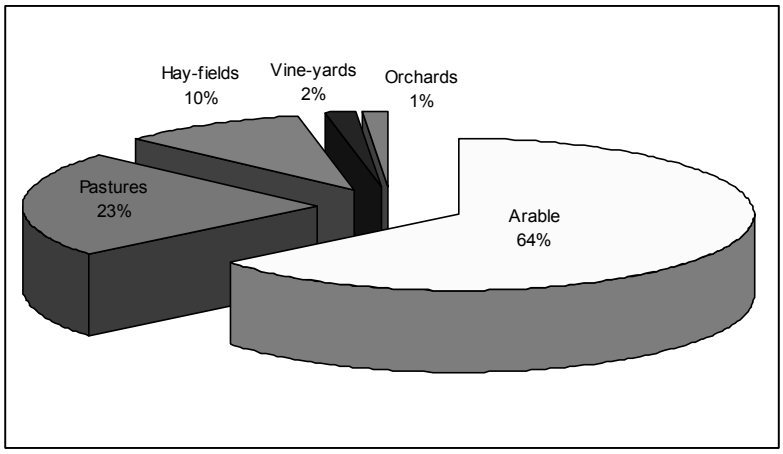
The main land cover/land use categories are the agricultural terrains (arable, pastures, hay-fields, orchards and vine-yards), the forest lands, water and ponds, roads and railways, built-up areas, degraded and barren lands.

In 2006, Romania had 14,730.9 thou ha of agricultural land (61.8% of the country's surface-area), 6,754.7 thou of forest ha (28.3%), 841.8 thou ha of terrains covered with waters and ponds (3.5%), 674.6 thou ha of built-up areas (2.8 %), 389.4 thou ha of roads and railways (1.6%) and 447.5 thou ha of degraded and barren lands (1.9 %) (Fig. 1).




*Source : National Institute of Statistics*

Fig.1 – Structure of land cover/use in Romania, 2006.




*Source : National Institute of Statistics*

Fig. 2 – Structure of agricultural land in Romania, 2006.

The agricultural surface included arable land (64.0%), pastures and hay-fields (33%), vine-yards (2%) and orchards (1%). Romania is one Europe's countries with the richest land resources, yet with only 0.6 ha agricultural and 0.41 arable terrain / inhabitant (Fig. 2).

***The geographical distribution of the main land use categories.*** The diversity and specificity of soil and climate systems in Romania (spread out approximately equally among mountains, hills and

plains), as well as the general and regional particularities shaped by social history and economic conjuncture account for the dominantly agricultural land structure (over 62% agricultural terrain).

Most of this terrain (>80%) lies in the plains (Romanian Plain, West Plain, the Central and South Dobrogea Plateau), its share decreasing to 40–65% in the hills and to under 20% in the mountains.

The main factors that differentiate the principal land use categories in the territory (arable, pastures, vine-yards and orchards) are altitude and relief. While the proportion of arable land drops from more than 80% in the lowlands (plain, certain plateaus) to 40–60% in the rough hilly region and to under 20% in the mountain regions, the proportion of pastures and natural hay-fields is less than 10% in the plain and over 60% in the mountain. Vine-yards and orchards usually occur in certain hills (300–700 m high) and tablelands (1/3 of Romanian's vine-yards are found in the lowlands, at 150–300 m alt., whereas fruit-trees grow sometimes up to 800–1,000 m alt.). An azonal element are the large vine-yards and fruit tree covered sandy terrains of the Romanian Plain, or the higher terraces of the Danube or of other inland waters.

## 4. LAND USE CHANGES IN THE POST-SOCIALIST PERIOD

The fall of the communist regime in Romania at the end of the 1989 and the beginning of a period of transition to the market economy brought about a lot of changes in the use of land, a situation enhanced by the country's accession to the European Union and the implementation of the Common Agricultural Policy (CAP).

The key factors involved in these changes are of a political nature, associated with economic, technological, demographic and occasionally natural factors. However, none of these factors acted independently on the contrary, they were permanently interacting.

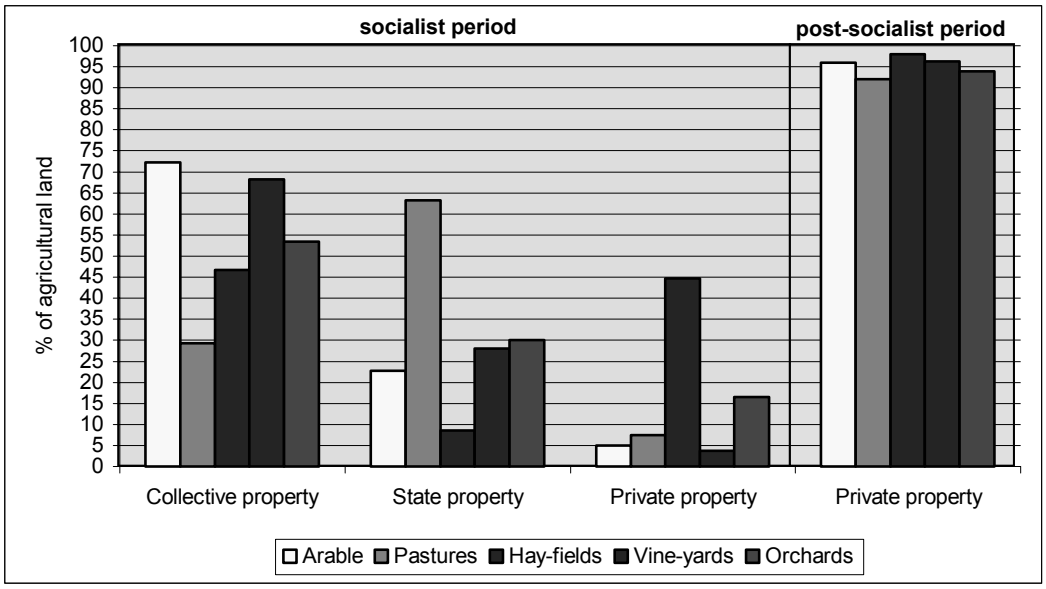
The major land use changes of the post-socialist period were linked to a new type of property over the agricultural and forest terrains and the establishment of the farmers' social-economic organizational structure. However, some changes had a negative impact, leading to excessive fragmentation of the agricultural terrain, the emergence of very many individual, subsistence farms as a rule, the poor development of services for agriculture (irrigation, fertilization, mechanization, etc.), all of which have resulted in the marked degradation of the productive quality of agricultural terrains.

### CHANGES IN THE TYPE OF PROPERTY

One of the most important changes in the period of transition was the *expansion of private property* over agricultural and forest lands.

*The socialist period* (1945–1989) was dominated by *collective property* over all categories of land use, with the exception of pasture. *The state owned* most of the best categories – vine-yards and orchards, as well as pastures, while private owners possessed mainly pastures and natural hay-fields (Fig. 3).

*The post-socialist period* witnessed the steady expansion of private property in the wake of decollectivization and privatization, a process that begun in 1990, by the enactment of Land Law 18/1991, completed and modified by Law 169/1997, Law 1/2000 and Law 247/2005 had come into effect. The direct result of this new legislation was the continuous enlargement of private property, which came to possess over 95.3% of all agricultural land and more than 34.1% of all forest land (2006).




*Source : National Institute of Statistics*

Fig. 3 – Land fund by categories of use and forms of property.

CHANGES IN THE TYPE OF FARMING

The reform in agriculture engendered a new economic-social-based private property, with individual farms being outstanding, while the number of juristic person units kept decreasing.

*Before 1989*, the main forms of land exploitation were the collective farms (3,776 units in 1989), which owned over 68.8% of the overall agricultural area, at an average of 2,374 ha, and the state farms (411 units in 1989), which held 29.7% of the country's agricultural land (5,000 ha on average) (Table 1). Private farms amounted to a mere 9.5% agricultural land, and it consisted largely of pastures and natural hay-field situated in the hill and mountain regions.

*Table 1*

Comparative number and size of farms

| | **Socialist period (1989)** | | **Post – socialist period (2005)** | |
|---|---|---|---|---|
| | Collective farms | State farms | Individual farms | Juristic person units |
| Number | 3,776 | 411 | 4,237,889 | 22,672 |
| Average area (ha) | 2,374 | 5,001 | 2.22 | 269.28 |

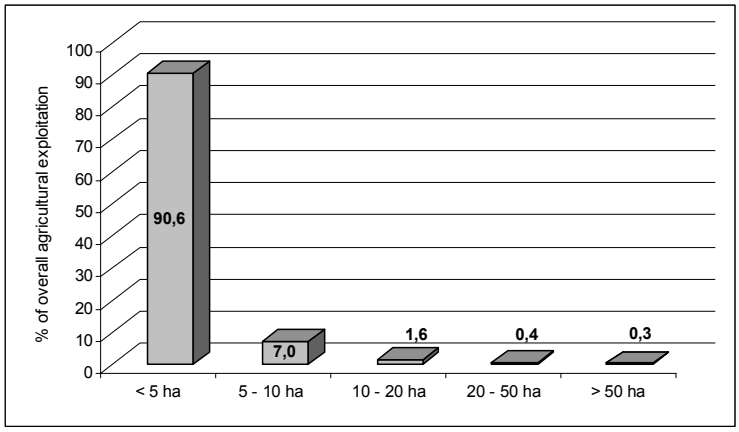
*After 1989*, under Land Law 18/1991, overconcentration of the landed property turned into excess fragmentation, and big farms gave way to small, peasant-type family farms.

In 2005, Romania numbers over 4,25 million farms, of which 99.5% are individually owned, and use 65% of the overall agricultural area. The average agricultural area/individual farm is 2.1 ha, at an average of 3.7 parcels/farm (Tab1). Juristic person units hold no more than 0.5% of all the farms, averaging 268.28 hectares, with 9.66 parcels/juristic person unit. A parcel has 27.95 hectares.

The size of farms (total agricultural area and agricultural area used) plays an important part in the effective utilization of the agricultural terrain. But Romanian agriculture is characterized by small and very small farms, whose owners have little money, are poorly trained and elderly. Therefore, implementing production technologies, promoting efficient management and marketing liable to

making agriculture more productive and competitive is almost impossible. The majority of individual farms practice a subsistence agriculture, the products being intended to meet their owner's needs.

In terms of the class-size of agricultural area used, small and very small farms (under 5 ha) are seen to prevail. They represent 90.6% of existing farms (Fig. 4). On the other hand, large and very large farms (50–100 ha and over 100 ha) with a trading profile represent only 0.3%.




*Source : National Institute of Statistics*

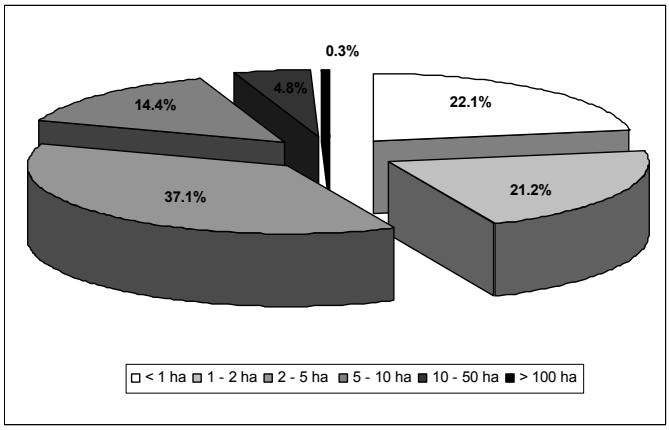
Fig. 4 – Farms by class-size of agricultural area used, 2005.

The very large number of small farms, whose production is meant only for self-consumption, makes Romanian agriculture uncompetitive, also hampering the sustainable use of agricultural terrain.

However, the 2002–2005 period witnessed a decrease in the total number of farms, while the average area used kept increasing. Thus, the number of individual farms dropped by some 5% and that of juristic person units by over 19.4%; the average area/farm grew from 1.73 ha in 2002 to 2.15 ha in 2005.

## FRAGMENTATION OF AGRICULTURAL LANDS

The crumbling of farming land is one of the negative effects of Land Law 18/1991, affecting land use by steadily degrading the terrains' productive capacity and discouraging the practice of a sustainable and competitive agriculture.




*Source : National Institute of Statistics*

Fig. 5 – Agricultural area: size of parcels (ha), 2005.

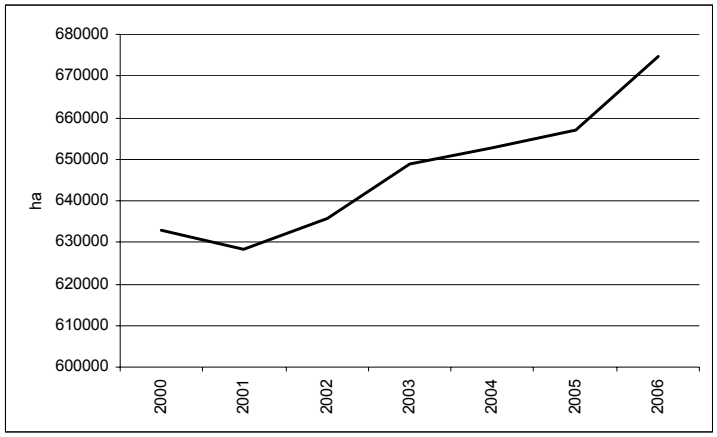
The Land Law provided for the retrocession of agricultural terrain to over 4 million owners, the area received by each owner consisting of several parcels in terms of the terrain configuration, its fertility, location of crops in the field, etc. So, estimates put the number of parcels existing in Romanian agriculture to over 15 million, most of them (over 42%) less than 2 ha (Fig. 5).

## LAND USE DYNAMICS

The changes experienced over the 1990–2006 period regarded the spatial dynamics of land use and of land cover categories (conversion from one category to another).

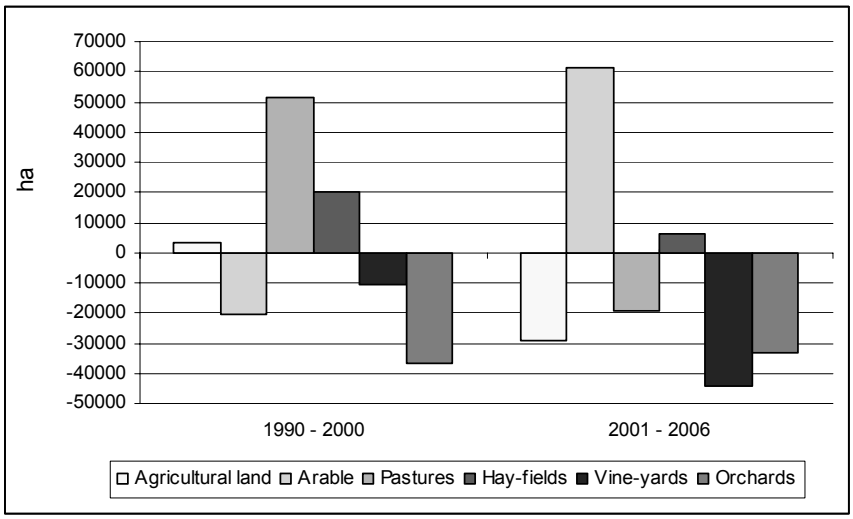
The post-socialist land use classes with the most significant changes were the following:

– the overall agricultural area, which dropped by 38.0 thou ha in favour of built-up terrains that registered a remarkable development. This conversion from agricultural to built-up terrain is particularly obvious in the vicinity of the large urban centres, which are preferred by the population for house-building. Built-up areas over 2000–2006 increased by 41.7 thou hectares (Fig. 6).




*Source : National Institute of Statistics*

Fig. 6 – The evolution of built-up areas.

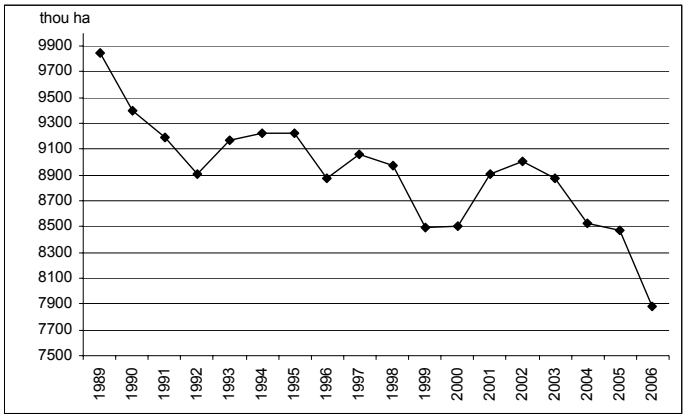



*Source : National Institute of Statistics*

Fig. 7 – Land use dynamics.

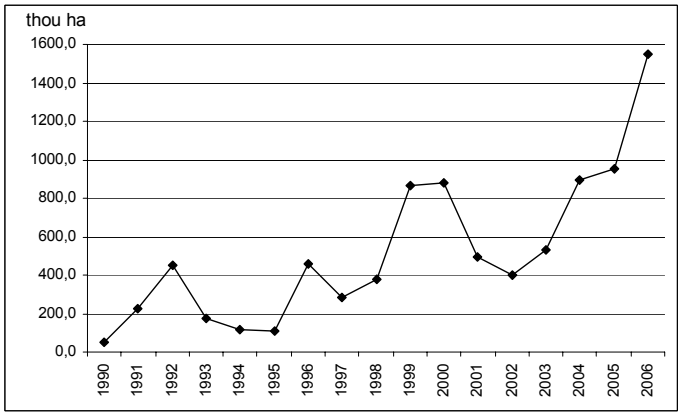
– the structure of agricultural land underwent only some small changes to the effect of the arable area, orchards and vine-yards shrinking, while pastures and natural hay-fields expanded. Over 1990–2000, the arable terrain was reduced considerably, having been abandoned by the new owners who were unable to work the land they had received under Land Law 18/1991. Orchards and vine-yards had the same fate, many of them being abandoned or cleared. As the area covered with the more profitable land use categories (vine-yards, orchards and arable lands) kept shrinking, pastures and hay-fields (lower use categories) would expand very much. After 2000, the period that preceded Romania's accession to the European Union, things seemed to change somehow, arable areas would increase, but vine-yards and orchards continued to decrease (Fig. 7).

***Abandoned arable lands***. Over the past 17 years the cultivated area decreased significantly, from 9,6 million hectares in 1989 to 7,8 million hectares in 2006 (Fig. 8). Each year, important arable lands remained uncultivated (8,8 mill. ha between 1990 and 2006) (Fig. 9). The main causes behind this situation were people's uncertainty with regard to landed property, the precarious financial condition of the new owners, the inadequate farm structure, the high proportion of elderly people (aged over 65) among the group of individual farm owners, the lack of materials and money to work the land, insecurity in selling the surplus of products at prices allowing resumption of the process of production, and last but not least, the lack of prospects in the conditions of an adverse economic milieu. What did contribute to leaving the land barren was also the poor assistance farmers received from the state.




*Source : National Institute of Statistics*

Fig. 8 – Cultivated area.




*Source : National Institute of Statistics*

Fig. 9 – Uncultivated area.

As livestock kept decreasing, pastures and natural hay-fields would also be abandoned, although in terms of biodiversity, they represent the most valuable ecosystems of agricultural terrains. However, as mowing and grazing became a past practice in some areas, habitats were degrading and the landscape itself suffered important changes. Moreover, the tendency to turn grazes into arable land had a negative effect on biodiversity.

## LAND DEGRADATION

The impact of anthropic and natural factors over the 1990–2007 period would enhance land degradation and the expansion of areas affected by them.

Political and administrative factors had a significant impact on agricultural land quality leading to an excessive fragmentation of arable land and a very high proportion of small and very small-sized individual households (under 2 ha) with little financial resources. Technological and economic factors also contributed to land degradation through inadequate agricultural practices, deforestation, inadequate productive services: little mechanization, difficulties in implementing the new technologies, poor and arbitrary fertilization of crops, irrigation systems and other land improvement systems abandoned or destroyed, etc.

*The natural factors* involved in degrading the quality of land were some extreme natural phenomena, e.g. droughts, floods and landslides. Each year, larger or smaller agricultural areas were affected by long period of drought with dramatic effects on crops and land quality. It is the south-east of Romania which suffered most from droughts (Dobrogea, The Bărăgan Plain and south of the Moldavian Plateau), regions also hit by desertification. The severe floods of 1990 impaired vast areas, damaged the settlement network, the roads and various terrains. There were cases when whole villages had to be relocated, roads were impracticable, and important terrains could no longer be used for agriculture. Lands were also degraded by landsliding, which had a distinct impact on hilly areas of Subcarpathians, Moldavian Plateau and Transylvanian Depression.

***The quality of agricultural lands***. Romania has an overall agricultural area of 4.8 million hectares, of which approximately 12 million hectares (7.5 mill. ha arable land) feature one or more quality limiting factors.

*The distribution of agricultural lands by capability classes*.

Classifying soils into one of the five capability classes depends on their productive potential estimated in terms of capability marks set by complex soil studies. According to this criterion, land capability for various uses in Romania, without melioration measures being taken, looks as follows: only 2.8% of the agricultural lands fall into class I, while 27.3% rank in class V – very poor (Table 2).

*Table 2*

The distribution of agricultural lands by capability classes, 2005

| | **Land use** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Capability class | Agricultural land | | Arable land | | Pastures and hay-fields | | Vine-yards and orchards | |
| Total area | Thou ha | % | Thou ha | % | Thou ha | % | Thou ha | % |
| – capability class | 14,800 | 100.0 | 9,351 | 100.0 | 4,906 | 100.0 | 543 | 100.0 |
| I very good | 411 | 2.8 | 355 | 3.8 | 54 | 1.1 | 2 | 0.4 |
| II good | 3,656 | 24.7 | 3,353 | 35.9 | 220 | 4.5 | 83 | 15.3 |
| III moderate | 3,086 | 20.8 | 2,369 | 25.3 | 597 | 12.1 | 121 | 22.3 |
| IV poor | 3,613 | 24.4 | 1,726 | 18.4 | 1,750 | 35.7 | 137 | 25.2 |
| V very poor | 4,034 | 27.3 | 1,549 | 16.6 | 2,285 | 46.6 | 200 | 36.8 |

*Source: National Institute of Statistics*

Classifying land agricultural use by capability classes differs very much with the category. Most arable lands fall into the first three classes, pastures and hay-fields, vine-yards and orchards into the last two classes. It is obvious that pastures and natural hay-fields are affected by soil erosion and landslide, as over 46.6% of these areas are listed in class V – very poor.

The factors exerting the greatest impact on soil quality are drought, excess humidity and various forms of erosion, and they affected twice the as many areas in 2002, comparing with 1992 (Table 3).

*Table 3*

Soil quality limiting factors and size of affected area, 1992–2002

| Soil quality limiting factors | Affected area | | |
|---|---|---|---|
| | 1992 | 2002 | |
| | Thou ha | Thou ha | As per cent of total agricultural land |
| **Frequent droughts** | **3,900** | **7,100** | **48** |
| **Frequent moisture excess** | **900** | **3,781** | **26** |
| **Water erosion** | **4,065** | **6,300** | **43** |
| Landslides | 700 | 702 | 5 |
| Wind erosion | 387 | 378 | 3 |
| Salty soils | 600 | 614 | 4 |
| Soil compaction due to inadequate cultivation | 6,500 | 6,500 | 44 |
| Soil natural compaction | 2,060 | 2,060 | 14 |
| Crust formation | 2,300 | 2,300 | 16 |
| **Small and very small humus deposit** | **7,114** | **7,485** | **58** |
| **Strong and moderate acidity** | **2,350** | **3,437** | **23** |
| **High alkalinity** | **165** | **223** | **1** |
| **Very poor and poor content of mobile phosphorus** | **4,475** | **6,330** | **42** |
| **Poor content of nitrogen** | **3,438** | **5,110** | **34** |
| Microelement deficiency (zinc) | 1,500 | 1,500 | 10 |
| Chemical pollution | 900 | 900 | 6 |
| Oil and salt water pollution | 50 | 50 | 0 |
| Pollution by wind-borne substances | 147 | 147 | 1 |

*Source:* National Institute of Statistics

***Poor fertilization of crops.*** The agrochemical degradation of agricultural soil, because soils failed to be adequately fertilized, is yet another major problem. Soils with small and very small humus reserve, low phosphorus and nitrogen content, high acidity and alkalinity would largely expand over the 1990–2002 period. Compared to 1990, the quantity of natural fertilizers was halved, there were three times fewer and seven times fewer pesticide. This meant that each year vast cultivated terrains remained unfertilized. In agriculture based only on the soil's natural fertility, and failing to compensate for the loss of soil fertilizing elements by applying chemical and organic fertilization, does not stimulate the regeneration rate of soil nutrients through natural processes, so that soil reserves and fertility are exhausted. Looking at the nitrogen balance on soil surface, which indicates the difference between the nitrogen impact and output/year, allows the appropriate use of fertilizer quantities over three periods: 1) 1985–1990, a nitrogen surplus of up to 50 kg/ha agricultural land; 2) 1991–1996, a fall in the nitrogen surplus down to 12 kg/ha; 3) 1997–1998, nitrogen deficiency in the soil. A similar situation had the phosphorus and potash fertilizers (Popescu *et al*., 2004). In 2005, the 461 thou tons of chemical fertilizers lay far behind the optimum mineral content of 1,957 thou tons (estimates of the Institute of Soil and Agrochemistry Research).

In most cases, chemical fertilizers are arbitrarily used, not based on agrochemical studies to establish optimum doses and spraying time in terms of the needs of crop plants and the level of soil supply with nutrients.

***Land improvement systems destroyed or abandoned.*** In 1989, the irrigated area was of 3,067 thou ha, drained area 3,082 thou ha, dammed area 216 thou ha, soil erosion control area 2,208 thou ha (Fig. 10). In the 1990s all these works kept degrading, negatively affecting soil quality and land productivity. The south and south-eastern regions of Romania, hit by extreme droughts and desertification even, have large areas provided with irrigation systems (2,486 thou ha), but unfortunately most of these systems were either destroyed, or are in an advanced stage of degradation. In 2006, only 3.14% of the overall managed agricultural area was irrigated (out of 3 mill ha provided with irrigation systems). The lack of irrigation in the conditions of a very dry period and lasting drought (in 2000) decreased to cereal output by 40% compared to the previous year.

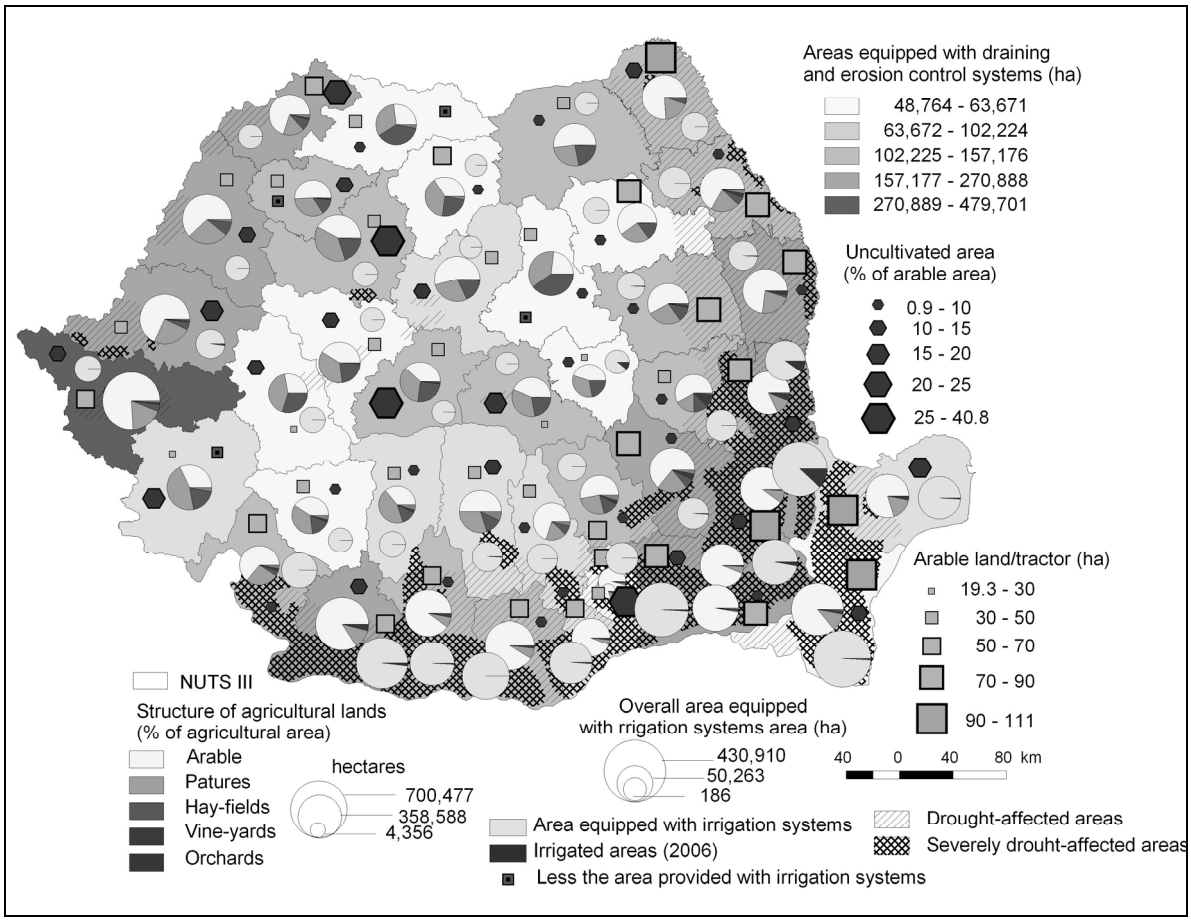



Fig. 10 – Types of land management in Romania.

***Poorly mechanized agricultural works.*** This drawback and the difficulty of implementing new technologies are largely the result of low financial resources and the inadequate farm structure. In 2006, there was one tractor/54 ha arable land (the EU average being of one tractor/20 ha arable land) and one cereal harvester combine 204.7 ha of cereal crops. In the case of the other agricultural equipments (ploughs, motor cultivators, sowing machines, sprayers and dusting machines, straw and hay packing presses, etc.) the situation is by far worse, their numbers being much below the minimum necessary for mechanical works to be carried out in the optimum periods established by cultivation technologies, fact that entails huge crops losses. The insufficient number of tractors and agricultural machines, wear and obsoleteness, and tariffs too high for smaller farmers makes many go back to animal traction and manual labour.

## 6. CONCLUSIONS

Characteristic features of *the post-socialist period* are the changes seen in land use, brought about primarily by a specific economic transition period. Passing from the former centralized system to a free-market economy associated with the expansion of private property over agricultural and forest lands was a major turn over the result of decollectivization and privatization under a new legislation enacted beginning with 1990. Also the type of farming would change, in that big farms of the socialist period gave way to small peasant – type family exploitations (over 99.5% of all agricultural farms).

Other land use changes, but of lower scope and breadth were connected mainly with the significant reduction of areas occupied by the better, more profitable categories (orchards and vineyards) in favour of the lower, less profitable ones (pastures and hay-fields). After 2000, in particular, the agricultural area kept shrinking, while built-up terrains, especially those close to the big urban centres, would expand.

The transition period featured also some negative changes, of which the marked *fragmentation of farming land* into small-sized parcels (most of them under 2 ha) and the steady *decline of the land's productive potential*, had the greatest impact.

Before and after Romania's EU accession, the extent of land fragmentation decreased as the total number of farms dropped and the average individual farm area increased. Accession to and implementation of the EU agricultural policies represent a step forward in the development of the country's farming sector, the practice of this type of activity on the line of environmental protection, as well as the adoption of other measure and action plans conductive to the sustainable use of natural resource.

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Received July 29, 2010

# LA ROUMANIE AU BOUT DE LA TRANSITION DÉMOGRAPHIQUE: DISPARITÉS ET CONVERGENCES RÉGIONALES

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Mots-clé: *transition démographique, Roumanie, disparités/convergences, diffusion, typologie.*

**Romania at the end of demographic transition: regional disparities and convergences**. The analyses of some long series of demographic data, got by processing various and often contradictory recordings, clearly point out the distinct stages of the Romanian society's adjustment to the classical pattern of the demographic transition. The presence of a diffusion of this pattern was confirmed both at the national and regional level, starting from several nuclei earlier connected to the modernization process (the capital city of the country, the South of Transylvania and Banat), well known from the literature dealing with this topic. Moreover, there have been permanent changes in the spatial distribution of the main demographic indicators, having as principal consequence a continuous diminishing of the regional disparities, generally interpreted by means of the level of economic and social modernization. The present situation, at the end of a demographic transition which has been rather fast and which has faced numerous convulsions, requires a new analysis in keeping with the most recent interpretations and points of view on the existence of a new demographic regime – the post transitional one (cf. van der Kaa, 1997). At the regional level one can no longer speak of the classical opposition between the traditional behaviour characteristic to the North-East of the country and the modern behaviour typical of the West. The antithesis between the regions facing a typical post transitional regime (experiencing a rebalancing of the fertility indicators), partly adapted to the pattern of the developed countries (mainly the capital) and the regions that are passing through the last stage of the classical transition (certain counties in the North-East of the country) is of present interest. These analyses prove the fact that Romania has got out of the paradigm of the imbalances that opposed the areas with labour force deficit to the areas with man power excess (triggering ample internal migratory flows), entering the paradigm of exhausting its own labour resources, just like most Western countries.

## I. INTRODUCTION

Cette étude propose une analyse de la façon dont la société roumaine avait adopté le modèle classique de la transition démographique. Dans ce but nous avons deroulé les activités suivantes:

*1.La création de la base de données*, au niveau du maillage administratif actuel (les 42 *judets*), concernant des séries statistiques sur les principaux indicateurs démographiques: nombre de naissances, nombre de décès, nombre de la population féminine âgée de 15-49 ans, la population totale estimée au 1er juillet. L'intervalle de temps choisi s'étend de 1900 à 2008 pour des raisons de fiabilité des informations, même si des enregistrements de ces indicateurs existent aussi pour les périodes antérieures. On a retenu le maillage administratif actuel afin de disposer d'une échelle spatiale unitaire (ce maillage étant en vigueur seulement depuis 1968) que pour des raisons cartographiques. On a essayé d'éviter les difficultés induites par les deux guerres mondiales (absence d'informations ou enregistrement partiel) en utilisant la technique statistique du lissage des données;

*2.L'homogénéisation et la standardisation des séries statistiques* obtenues à partir des diverses sources de l'époque: les bulletins du mouvement naturel de la population; les annuaires statistiques; certains travaux élaborés pendant cette longue période autour des recensements officiaux où exprimant les résultats des enquêtes (surtout pour les périodes dont les informations sont lacunaires). La discontinuité de ces séries a été évitée par la technique du lissage, favorisée par l'existence de

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Rev. Roum. Géogr./Rom. Journ. Geogr., **54**, (2), p. 107–125, 2010, Bucureşti.

certaines informations d'appui, au niveau national ou régional (les provinces historiques par ex.). C'est ainsi qu'on a obtenu des estimations qui suivent, généralement, les tendances observées dans les périodes mieux couvertes par des informations fiables. L'aggrégation de ces informations au maillage territorial mentionné (pour la période antérieure à 1966, depuis quand l'INS dispose d'informations aggregées à ce niveau) a été effectuée à l'aide des informations disponible à d'autres échelles administratives (raïons et régions de 1952 à 1966, anciens *judets* de l'entre deux-guerres, le milieu de résidence – urbain ou rural; etc.). On avait estimé ainsi le poids de chaque portion des anciennes unités administratives qui se retrouvent de nos jours sur le territoire d'un *judets*. Malgré ses limites cette technique permet une analyse efficace;

*3. Le traitement statistique des informations* et la création d'une base de données dérivées, en utilisant des méthodes classiques. La plus difficile à obtenir furent les séries concernant la population féminine âgée de 15–49 ans pour la période antérieure à l'année 1966 depuis quand il y a des séries continues. On a utilisé, pour les estimations, la structure par âge et par sexes enregistrée par les recensements roumains d'après 1899;

*4. La création des typologies* surprenant les *tendances* (convergence ou divergence), les *distorsions* (conjoncturales ou structurales), les *seuils* (spécifiques ou correspondant aux modéles), les *phases* (distinctes ou transitoires) et les *structures territoriales* (cohérentes ou disjointes). Le programme STATLAB et la méthode de la classification ascendante hiérarchique ont été retenus dans ce sens-là;

*5. Le traitement graphique et cartographique* des résultats obtenus à été orienté vers les méthodes classiques de représentation (cartogrammes, histogrammes, courbes d'évolution etc.) en utilisant le logiciel Adobe Illustrator;

*6. L'interprétation* des évolutions observées a été toujours rapportée au modèle classique de la transition démographique (*Landry 1909, Thomson 1929, Notenstein 1953*, cités par *Noin 2005*) et au soi-disant modèle de la "deuxième transition démographique" (*Kaa 1997*).

## II. EST-CE-QUE LA ROUMANIE AVAIT-ELLE SUIVI LE MODÈLE CLASSIQUE DE LA TRANSITION DÉMOGRAPHIQUE?

Une première analyse répondant à cette question avait essayé de rapporter l'évolution des composantes du bilan naturel au niveau du territoire actuel de la Roumanie entre 1860 et 2008. L'extension de l'analyse en dehors de la période d'étude à été considérée nécessaire pour établir le moment du début de la transition démographique, en utilisant les bases de données collectées par Manuilă (1940), Colescu (1944),etc.

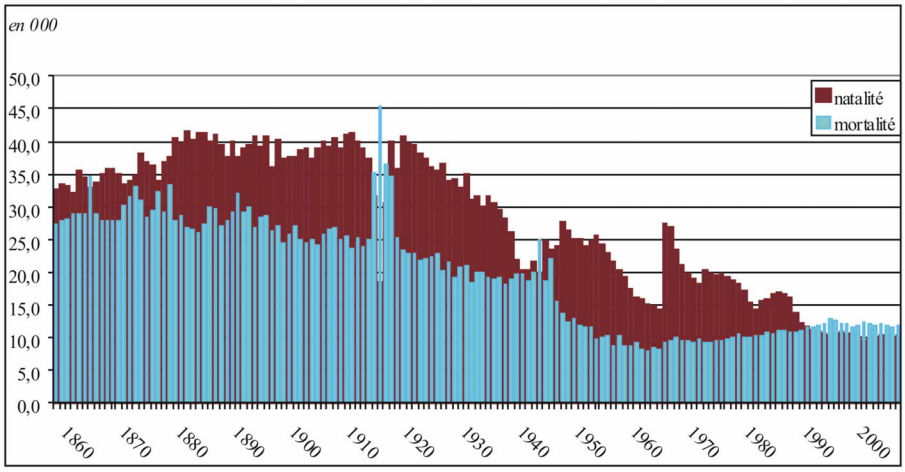



Fig. 1 – L'évolution démographique de la population roumaine (1860–2008).

L'analyse du graphique ci-dessus (fig. 1) démontre la conformation de la société roumaine moderne au modèle de la transition dont les phases distinctes (déclenchement, expansion et décélération) en sont suivies fidèlement;

On peut apprécier qu'au niveau national**, la transition démographique avait débuté autour de l'année 1890**, contrairement à l'opinion de certaines sources qui placent ce moment vers 1920 (Bardet, Dupâquier, 1999). Cette conclusion part de l'évidence d'un modèle démographique de type soi-disant „primitif" ou prétransitoire avant 1890, avec les valeurs des composantes du bilan naturel relativement proches, à un niveau plutôt modeste (autour de 30‰) situation comparable avec celle de certains états d'Afrique Centrale ou de l'Océanie de nos jours. En conséquence, le solde naturel était plutôt insignifiant, assurant une croissance naturelle assez faible. La modernisation de la société, à partir de la deuxième partie du XIXe siècle n'avait pas produit des effets qu'à la fin de celui-ci par l'augmentation de la natalité et la chute sensible de la mortalité. Pratiquement, dans l'intervalle 1885–1895 on enregistre pour la première fois, en temps de paix, un niveau de la mortalité en dessous de 30‰, son déclin étant une certitude. En même temps la stabilité de la natalité autour de 37–42‰, engendrait un important excédent, caractéristique pour la première phase de la transition démographique.

On peut apprécier que **la phase de déclenchement** s'est déroulée jusqu'au 1920 pressée et, en même temps, bouleversée par la Première Guerre Mondiale qui avait constitué un véritable „choc", responsable du déclin démographique européen (Dupâquier 1999, pp.7–22). Pendant ce temps, la natalité avait gardé un haut niveau (autour de 40 ‰) et la mortalité avait continué la tendance de diminution, signe de la modernisation sociale et économique, pourtant assez incomplète et hésitante sans dépasser le seuil de 25‰. Cette phase s'est déroulée en conformité absolue avec le modèle malgré l'absence d'une véritable „explosion démographique" à la fin. C'est une particularité roumaine, déterminée par la lenteur qui avait caractérisé la transition de la mortalité, situation invoquée par ceux qui considèrent l'an 1920 comme le moment de début de la transition démographique roumaine. C'est seulement en ignorant les informations antérieures à 1900 ou en les considérant insuffissantes qu'on peut accepter cette assertion. Au delà des lacunes nous pensons que les informations de l'époque peuvent être acceptées et reflètent assez correctement la réalité roumaine de l'époque.

**La phase d'expansion**, exprimée par l'explosion démographique a été moins évidente en Roumanie et peut être placée dans l'intervalle 1920–1960, avec l'intermezzo de la Deuxième Guerre Mondiale. Sa faible mise en évidence n'a pas été influencée par la transition de la fertilité, dont l'évolution avait suivi le modèle classique, avec une chute spectaculaire pendant les années 1930–1940 (le niveau s'était réduit à moins de 30‰ en 1939), mais par la transition de la mortalité. Celle-ci avait poursuivi les tendances antérieures, faiblement conformées au modèle pendant cette deuxième phase, la chute des valeurs étant à peine saisissable. En conséquence, le solde naturel n'a pas enregistré un niveau correspondant à l'épithète „explosion démographique", situation particulière au niveau européen. Malgré la diminution des valeurs de la mortalité, oscillant autour de 20‰ vers 1940, l'état social et économique du pays restait précaire, surtout dans les campagnes où la mortalité infantile enregistrait les plus grandes valeurs au niveau continental (sauf, peut-être, l'exception albanaise), avec un niveau plus que double par rapport à la moyenne européenne (entre 150 et 200 décès à 1000 naissances vivantes). C'est seulement dans les années 1950–1959 que l'on peut parler d'une transition plus rapide de la mortalité dans un contexte où les indicateurs de la fertilité se trouvaient déjà à la fin de cette phase, étroitement liés aux particularités du régime communiste roumain et aux plans de modernisation du pays;

Pendant les trois décennies suivantes (de 1960 à 1990) on peut placer la **phase finale** de la transition démographique roumaine, interrompue par les effets connues de la politique nataliste des autorités communistes (entre 1967–1972 et 1983–1989 surtout), une autre particularité roumaine souvent mentionnée dans les travaux de spécialité, sans pouvoir parler d'une rupture complète par rapport aux tendances antérieures, en dehors de certaines distorsions conjoncturelles. Cette phase, dont l'achèvement fut précipité par les événements de 1989, a été marquée par la modification de la courbe d'évolution de la mortalité, dans un sens ascendant, signe d'un vieillissement progressif;

Après 1990 on peut parler déjà d'un **régime post-transitoire**, forcé par les circonstances totalement défavorables en termes sociaux et économiques. Les signes du nouveau régime (la "deuxième" révolution démographique, selon van der Kaa 1997, 2001), marqués par la variation des composantes du bilan naturel autour d'un niveau qui assure un solde naturel proche de 0, sont certes depuis quelques années, pour l'instant le dérapage vers l'érosion progressive du stock démographique étant stoppé. Le dépassement de cette phase de déclin naturel serait difficile, vue l'émigration d'un important contingent de population jeune, essentiel pour le maintien d'un niveau suffissamment élévé de la fertilité, indispensable pour l'atténuation de la chute dramatique de la population (Gheţău 2004).

## II. EST-CE-QUE NOUS POUVONS PARLER DE L'EXISTENCE DE PLUSIEURS MODÈLES RÉGIONAUX DE LA TRANSITION DE LA FERTILITÉ EN ROUMANIE?

À une première analyse sommaire, les disparités territoriales, tantôt dans la perspective de la composante active (la fertilité), tantôt dans celle de la composante passive (la mortalitè), fûrent et sont encore significatives. L'interprétation de ces disparités est plutôt multiple: soit on accepte **l'adaptation progressive** du modèle classique de la transition soit on part de l'existence d'une **diffusion**, par contamination ou par imitation de certains modèles sociaux et économiques, avec la consolidation des structures territoriales au long de la domination du régime d'inspiration soviétique, marqué par une spectaculaire mobilité géographique de la population. Les deux hypothèses sont convergentes, tel que le suggère la série d'analyses utilisant les classifications hiérarchiques ascendantes.

L'évolution de l'indicateur de la **natalité brute** depuis 1900 permet la mise en évidence des grandes disparités avec deux pôles territoriaux: l'un plus conservateur (dans la perspective de la théorie de la transition démographique) au Nord-Est du pays et l'autre, moderniste, dans l'Ouest du pays auquel on peut ajouter la capitale. Entre ces deux, il y avait un vaste espace de transition où se confrontent les ondes de diffusion du modernisme et les barrières imposées par les structures socio-culturelles et économiques conservatrices (Fig. 2, tabl. 1). On peut estimer que la transition de la fertilité avait débuté, tel qu'il est souligné dans les travaux spécialisés, bien avant 1900 dans les régions centre-ouest du pays. Sa diffusion s'est produite d'abord dans les régions appartenant avant 1918 à l'Empire Austro-Hongrois et avait continué après 1920 au sud-est des Carpates, progressivement, depuis l'Olténie vers la Moldavie. Jusqu'en 1940 elle avait déjà gagnée la plupart de la Munténie. Dans l'est du pays sa diffusion fut précipitée par la Deuxième Guerre Mondiale, sa progression étant une certitude entre 1948–1956. Il s'est ainsi manifésté un décalage d'un demi-siècle entre les types extrêmes (à peu près deux générations). Il est intéressant à noter qu'un délai identique fut nécessaire pour l'achèvement complet de la transition de la fertilité au niveau du pays entier, de nos jours les disparités régionales étant plutôt mineures.

*Tableau 1*

Le profil de la typologie de l'évolution de la natalité en Roumanie (1900–2008)

| Type | Natalité (en ‰) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *1900–1914* | *1915–1920* | *1921–1930* | *1931–1940* | *1941–1947* | *1948–1956* | *1957–1965* | *1966–1975* | *1976–1989* | *1990–2000* | *2001–2008* |
| 1 | 40,4 | 34,7 | 42,3 | 39,3 | 26,2 | 33,7 | 24,6 | 27 | 22,9 | 14,2 | 12,3 |
| 2 | 39,5 | 31,7 | 42,7 | 37 | 25,3 | 31,7 | 23,2 | 24,3 | 19,7 | 12,5 | 10,3 |
| 3 | 36,1 | 30,1 | 35,6 | 30,6 | 24 | 29,2 | 22,7 | 23,7 | 20,6 | 13,7 | 11,3 |
| 4 | 46,5 | 34,3 | 45,5 | 38,7 | 25,8 | 29,5 | 19,6 | 22,5 | 18,6 | 11,2 | 10,5 |
| 5 | 42,2 | 32,2 | 41,9 | 34,2 | 23 | 23,9 | 17,6 | 21,4 | 16,6 | 10,5 | 9,2 |
| 6 | 34,2 | 29 | 32,9 | 27,9 | 21,6 | 24,1 | 18,4 | 21 | 17,6 | 11,6 | 10,7 |
| 7 | 36,3 | 26 | 32,6 | 28,6 | 20,6 | 22,5 | 17 | 19,7 | 15,7 | 10,5 | 9,2 |
| 8 | 29,8 | 22,2 | 23,8 | 19,3 | 16,7 | 18,1 | 12,4 | 15,9 | 13,6 | 9,7 | 9,1 |
| **Moyenne** | **37,3** | **29,4** | **36** | **30,7** | **22,2** | **25** | **17,9** | **21,6** | **17** | **11,1** | **10** |

Sources des données: *Buletinul anual al mişcării naturale a populaţiei* (seria 1900–1939) ; *Anuarul Statistic* (1900–2008), publications éditées par les offices centraux de statistique de la Roumanie. Ces sources sont valables aussi pour les cartes et les tableaux suivants

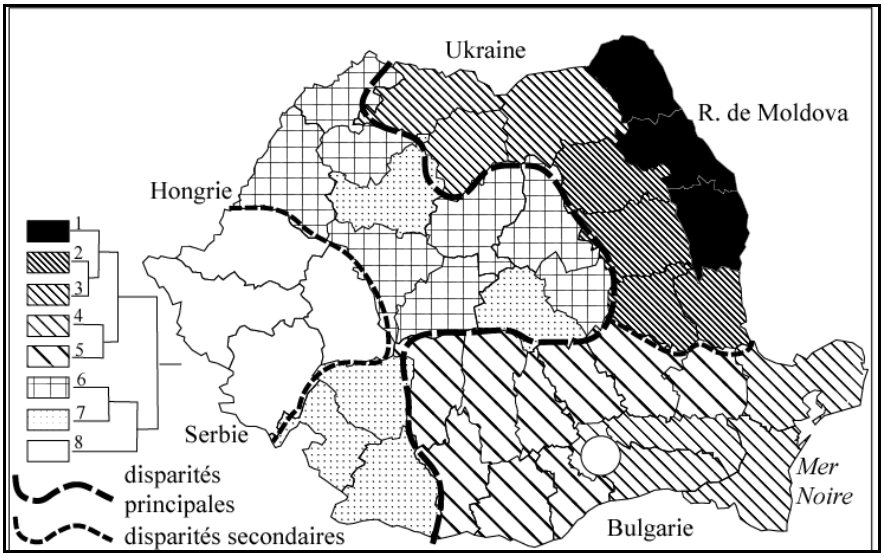


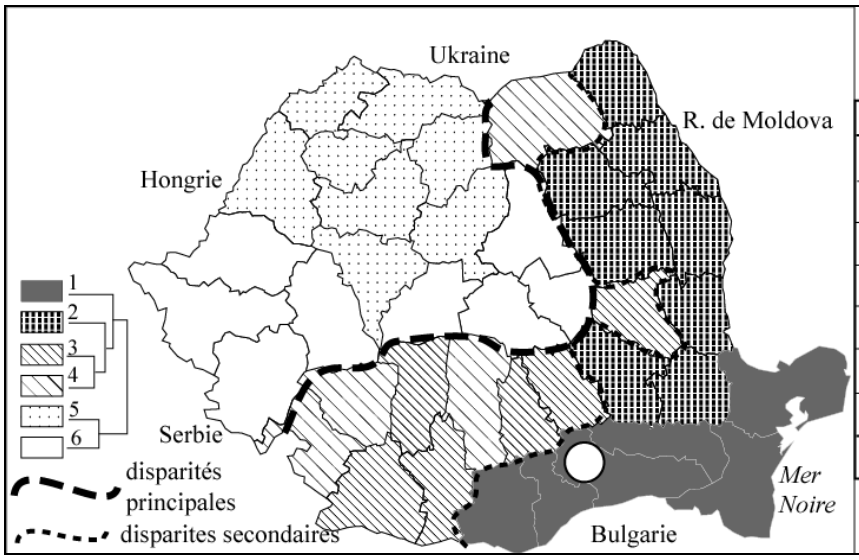

Fig. 2 – La typologie de l'évolution de la natalité en Roumanie (1900–2008).

Au long de cette diffusion s'est produite une série de transformations des structures spatiales de sorte qu'on identifie une ligne principale de disparité entre les régions dont la transition avait débuté précocement où s'était manifesté rapidement, d'un côté et, d'un autre, les régions où cette diffusion avait rencontré une résistance temporaire. On a identifié aussi des lignes secondaires de disparité, séparant les régions appartenant aux types extrêmes et le reste du territoire. En même temps se sont produites des convergences et des divergences successives. Par exemple, pendant la première partie de la période étudiée on pourrait parler d'une remarquable homogénéité dans les régions situées au sud-est des Carpates mais, ultérieurement s'est manifestée une rupture dans le rythme d'adaptation aux transformations exigées par la transition de la natalité. Cette divergence fut suivie par une convergence, au nord-est du pays, où le nord de la Transylvanie (y compris le Maramureş) et la Bucovine se sont rattachés aux évolutions spécifiques de la Moldavie, l'avancée de la transition étant ainsi bloquée pour un certain temps. De nos jours, on assiste à une nouvelle tendance de convergence, au niveau national cette fois-ci, signe d'une stabilité conjoncturelle. C'est de ce point, marqué par une homogénéité relative au niveau national, que vont se dessiner les prochaines lignes de disparités, sur d'autres critères et au long d'autres clivages.

Une analyse détaillée, par phases distinctes peut s'avérer utile pour détecter l'alternance entre l'adaptation ou la diffusion du modèle de la transition démographique.

Entre 1900–1932 nous avons observé ainsi **l'existence d'une diffusion au long de la ligne de disparité suivant fidèlement les crêtes des Carpates**. Le gradient NO–SE s'explique par deux amples processus spécifiques dans les deux aires ainsi séparées: l'émigration précoce au Banat et au sud-est de la Transylvanie (y compris vers le Vieux Royaume), dont la principale conséquence était la dévitalisation supplémentaire à l'adaptation aux phases successives de la transition démographique; l'extension du réseau de peuplement par colonisation agraire au sud-est du pays qui avait engendré, au contraire, l'augmentation de la vitalité démographique par l'attraction dans ce mouvement des jeunes familles (Ungureanu 1990). Il suscite un intêret particulier, dans la perspective de la démographie historique, le problème de la séparation ultérieure des tendances modernistes dans les deux aires les plus avancées, le Banat et le sud-est de la Transylvanie (marqué à l'époque par la forte présence des populations saxones et sicules). La première gardera ces tendances modernistes mais la deuxième, déjà pendant les années 1930 affichait une certaine résistance, possible effet d'un apport consistant de population originaire des régions extracarpatiques (les judets de Braşov et de Sibiu ayant connu une

assez forte croissance de la population entre 1920–1940) mais on peut invoquer aussi un certain conservatorisme de certaines population minoritaires (les sicules catholiques surtout) (Fig. 3).

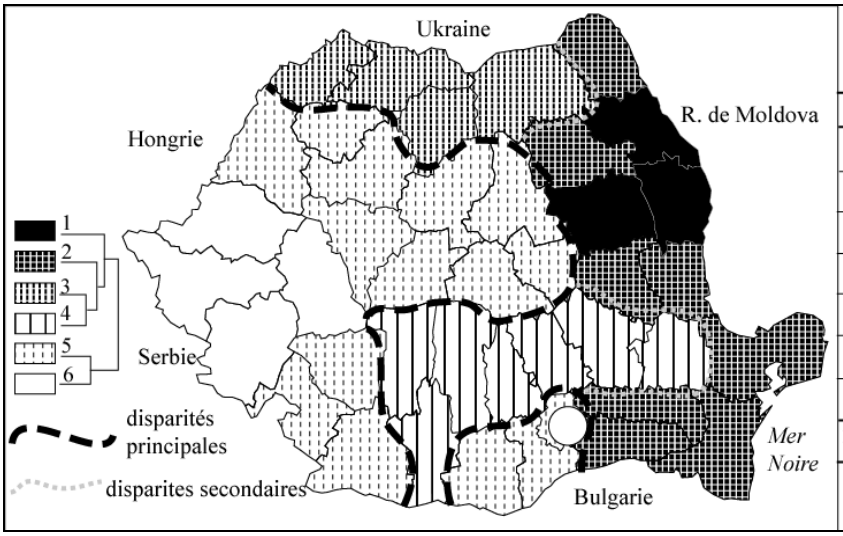



**Le profil des types (en ⁰/oo)**

| *Type* | *1900-1909* | *1910-1915* | *1916-1918* | *1919-1925* | *1926-1932* |
|---|---|---|---|---|---|
| 1 | 45,1 | 47,3 | 23,9 | 44,7 | 41,8 |
| 2 | 39,7 | 41.4 | 27,1 | 43,0 | 42,1 |
| 3 | 40,2 | 41,5 | 21,4 | 40,6 | 38,7 |
| 4 | 37,1 | 37,6 | 19,9 | 35,2 | 34,3 |
| 5 | 35,3 | 35,4 | 26,6 | 35,2 | 32,4 |
| 6 | 30,6 | 30,5 | 20,4 | 27,4 | 25,0 |
| Moyenne | **36,8** | **37,8** | **23,3** | **36,5** | **34,4** |

Fig. 3 – La typologie de l'évolution de la natalité en Roumanie (1900–1932).

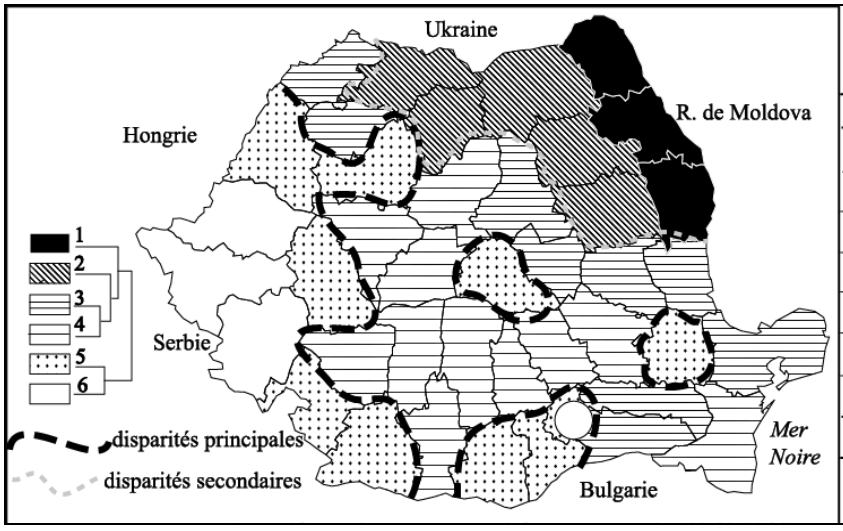
La période 1933–1960 à été marquée par **la distorsion des disparités antérieures**, donc par l'adaptation au modèle. Les ondes de diffusion en cours se sont dirigées surtout vers le sud du pays, au nord-est se manifestant un blocage dans le contexte d'une profonde modification de la structure ethnique pendant les années 1940–1947. L'aire la plus conservatrice reste la partie centre-orientale de la Moldavie, province fortement affectée par la Deuxième Guerre Mondiale, soit directement, par son rôle de théâtre de guerre soit, indirectement, par ses effets (déportation ou émigration de la nombreuse population juive notamment). Un rôle majeur peut être attribué aussi aux effets dévastatrices de la terrible sécheresse de 1946–1947 (réfuge, famine etc.). C'est ainsi que, de toutes les provinces roumaines, la Moldavie avait connu le plus haut niveau du „baby-boom" d'après-guerre, récupérant ainsi le niveau antérieur de la natalité, au contraire des tendances manifestées dans les autres régions du pays. Cette situation est à l'origine d'un „avantage" démographique pour la Moldavie, exprimée par un décalage d'une décennie en ce qui concerne l'avancement de la transition, par rapport aux régions situées antérieurement dans la même phase (la Munténie) ou qui étaient moins avancées (Dobroudja). C'est intéressant aussi que la ville de Bucarest, entrée assez tôt dans la première phase de la transition n'avait pas réussi diffuser cette innovation dans la région limitrophe. L'explication possible consiste dans le caractère à dominante rurale des régions méridionales du pays (avec des exceptions notables pourtant). On peut apprécier le rôle important de l'exode rural dans la contamination du milieu rural par la transition démographique. Ce n'est pas à l'hasard l'évidence d'un avance visible de la moitié ouest de l'Olténie, la première région du sud du pays où s'est installé l'exode rural, avant 1920. Après 1950, ce processus avait gagné tout le sud-ouest du pays, avec une forte intensité dans la proximité de la capitale (Ilfov-Vlaşca-Teleorman), région devenue le principal fournisseur de main d'œuvre pour une métropole en phase d'expansion maximale (Muntele 2009). C'est aussi intéressant de constater la résistence visibile de la partie nord de la Transylvanie face à la diffusion du soi-disant modèle „de Banat", au contraire, celui-ci avait trouvé une niche plus favorable au sud-ouest du pays, régions situées sur l'incidence d'une onde de diffusion émise par la capitale (Fig. 4).




| Le profil des types (en $^{0}/_{oo}$) | | | | | |
|---|---|---|---|---|---|
| *Type* | *1933-1940* | *1941-1945* | *1946-1948* | *1949-1956* | *1957-1960* |
| 1 | 38,8 | 25,7 | 29,4 | 34,8 | 29,8 |
| 2 | 36,8 | 26,6 | 27,7 | 30,6 | 25,2 |
| 3 | 29,7 | 22,4 | 27,1 | 28,6 | 25,0 |
| 4 | 33,3 | 22,9 | 24,9 | 25,1 | 21,4 |
| 5 | 27,8 | 20,4 | 22,2 | 22,8 | 19,4 |
| 6 | 18,6 | 15,8 | 18,2 | 17,9 | 13,7 |
| Moyenne | **29,8** | **21,4** | **23,9** | **25,1** | **21,2** |

Fig. 4 – La typologie de l'évolution de la natalité en Roumanie (1933–1960).

Pendant la période 1961–1989, marquée profondément par le ***contrôle politique du potentiel réproductif de la société***, se manifeste un nouveau regroupement des disparités qui préfigurent l'achèvement de la transition. Les aires conservatrices se rétrécissent au nord-est extrême du pays et la mobilité accentuée de la population constitue la prémisse de l'homogénéisation démographique du pays (Fig. 5).



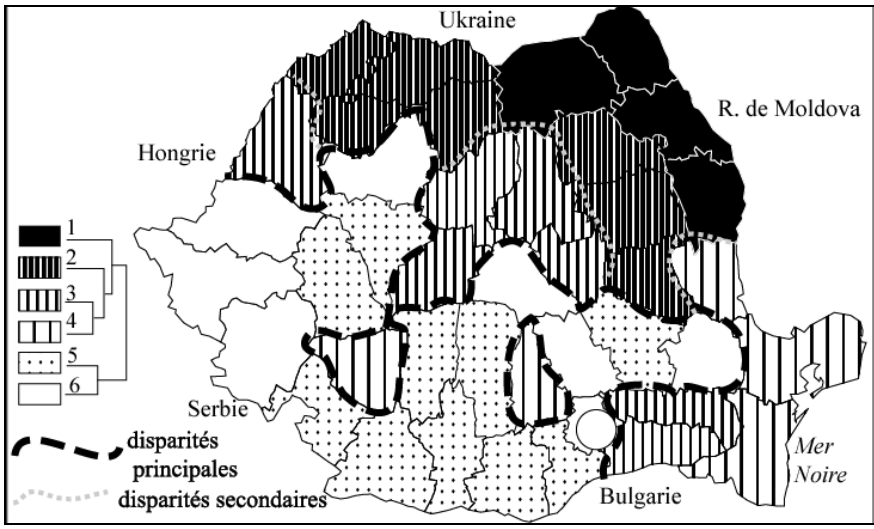

| Le profil des types (en $^{0}/_{oo}$) | | | | | |
|---|---|---|---|---|---|
| *Type* | *1961-1966* | *1967 1970* | *1971-1981* | *1982-1985* | *1986-1989* |
| 1 | 20,8 | 30,4 | 25,5 | 20,3 | 22,0 |
| 2 | 20,6 | 27,7 | 22,5 | 18,7 | 19,7 |
| 3 | 16,7 | 25,7 | 20,9 | 16,8 | 18,4 |
| 4 | 16,2 | 25,7 | 19,2 | 15,0 | 16,4 |
| 5 | 13,9 | 23,2 | 17,6 | 13,8 | 15,0 |
| 6 | 9,9 | 18,0 | 13,8 | 11,8 | 13,0 |
| Moyenne | **15,7** | **24,6** | **18,9** | **15,2** | **16,5** |

Fig. 5 – La typologie de l'évolution de la natalité en Roumanie (1961–1989).

Un intêret scientifique particulier regarde la manière dont se sont conformés les types distincts d'évolution observés avec la politique nataliste du régime. Entre 1967–1968, le plus puissant redressement caractérisait les types 3–6. On peut affirmer ainsi que le „coup d'État nataliste" avait eu plus de succès dans les régions où la natalité avait beaucoup baissé, ce qui est, jusqu'à un certain point, une situation prévisible (dans le cas du type 6 la croissance fut de 81%, par rapport à une moyenne nationale de 56%). Au contraire, le type 2 avait enregistré une croissance de seulement 34% (ouest de la Moldavie et nord de la Transylvanie). C'est à remarquer que la moitié orientale de la

Moldavie avait connu une croissance plus importante (47%), prolongée aussi dans l'intervalle 1971–1981, malgré l'entrée dans la phase d'expansion de l'exode rural, l'expression d'un conservatorisme démographique exceptionnel. Pendant la deuxième période de contrôle démographique sévère, 1986–1989, le redressement a été plus homogène. Il reste à réflechir sur le rôle du poids de la population urbaine et sur la prédisposition différenciée à cette politique des milieux de résidence. Selon le cas, la situation a été plutôt complexe (Muntele 1996).

La dernière période, 1990–2008, marquée par **l'installation du régime post-transitoire**, dans le contexte d'une homogénéisation toujours plus évidente, se distingue par l'apparition d'une nouvelle ligne de disparité entre le Nord et le Sud de pays cette fois-ci (Fig. 6).




**Le profil des types (en ‰)**

| *Type* | *1990-1993* | *1994-2000* | *2001-2004* | *2005-2008* |
|---|---|---|---|---|
| 1 | 15,2 | 13,7 | 12,5 | 11,9 |
| 2 | 14,1 | 12,0 | 10,9 | 10,5 |
| 3 | 12,1 | 11,1 | 10,6 | 11,2 |
| 4 | 12,3 | 10,8 | 9,9 | 9,7 |
| 5 | 11,8 | 10,2 | 9 | 8,9 |
| 6 | 10,3 | 9,2 | 9 | 9,8 |
| Moyenne | **12,0** | **10,6** | **9,8** | **10,3** |

Fig. 6 – La typologie de l'évolution de la natalité en Roumanie (1990–2008).

Un intérêt particulier suscite l'adaptation des différents types d'évolution aux tendances caractéristiques du régime post-transitoire, processus en voie d'affirmation. Les deux premiers types, localisés au nord-est du pays, sont à peine arrivés à la fin de la transition démographique, le déclin de la natalité n'étant pas encore consommé, mais les autres (types 3–6), plus avancés, connaissent une évolution divergente: stagnation de la natalité à un niveau très bas (types 4–5); retour sensible, surtout après le déclin accentué des années 2001–2004 (types 3 et 6). Il se produit ainsi un changement de l'hiérarchie au niveau national qui favorise le dernier type (6), concernant la capitale et les judets Ilfov, Cluj, Braşov, Prahova, Timiş, Arad etc.). Un avantage sûr caractérise aussi le type 3, concernant la partie centre-orientale de la Transylvanie, le sud-est de la Munténie et le judets de Bihor. Ce sont les régions qui'ont enregistré le plus spectaculaire redressement de la natalité depuis 2005. Il y a des indices que ce phénomène n'est pas conjoncturel mais il est relié à l'attractivité économique de ces régions et aux certains changements dans le comportement démographique de la population; surtout l'ajournement des naissances. Dans ce nouveau contexte, les disparités territoriales induites par la distribution des valeurs de la natalité brute se sont estompées au niveau le moins réduit jamais atteint. La Roumanie est entrée, certainement, dans une autre paradigme démographique.

Un approfondissement de l'évolution de la transition de la fertilité peut être effectuée en utilisant aussi l'indicateur de la **fertilité générale** (*Nv/Pf15–49*), lié mieux à la structure par âges et par sexes qui peut modifier sensiblement le niveau de la natalité. Ceci démontre l'évidence de quelques noyaux de diffusion de la transition démographique (Banat, *judets* de Braşov et Bucarest) et de quelques aires de résistance à ce processus (l'est de la Moldavie, le sud du Bărăgan et le nord-est de la Transylvanie), semblables aux structures territoriales observées lors de l'analyse de la natalité. Cependant, cette

analyse est plus appropriée à identifier les principaux moments de l'évolution de la natalité, y compris à la périodisation des tendances. C'est à partir de cette analyse qu'on a établi les bornes temporelles utilisées auparavant. Le tableau suivant (*tab. no 2*) surprend, à un niveau plus détaillé, cette périodisation, avec les valeurs moyennes de la fertilité générale.

*Tableau 2*

L'évolution de la transition de la fertilité en Roumanie – phases et périodisation

| *Période* | *Phase de la transition (au niveau national)* | *L'indice de la fertilité générale (naissances vivantes/Pf 15–49 ans), en ‰* | | | |
|---|---|---|---|---|---|
| | | ROUMANIE | Moldavie-Dobroudja | Munténie-Olténie | Transylvanie-Banat |
| 1900–1915 | Régime partiellement traditionnel avec tendances certes d'installation de la première phase de la transition | **152,7** | 173,8 | 170,9 | 134,1 |
| 1916–1918 | Crise conjoncturelle à effet déstabilisateur | **91,5** | 103,7 | 87,4 | 93,0 |
| 1919–1932 | Installation sûre de la première phase de la transition | **133,7** | 161,5 | 146,7 | 116,4 |
| 1933–1940 | Stabilisation de la première phase avec tendances d'installation de la deuxième | **113,4** | 141,9 | 122,8 | 97,1 |
| 1941–1948 | Crise conjoncturelle à effet déstabilisateur | **78,7** | 90,6 | 82,0 | 75,9 |
| 1949–1960 | Redressement timide au fond de l'installation primaire de la deuxième phase de la transition (*baby boom*) | **86,3** | 109,0 | 82,6 | 82,4 |
| 1961–1966 | Stabilisation de la deuxième phase de la transition; forçage de l'entrée dans la troisième phase de la transition | **61,1** | 76,7 | 57,0 | 62,2 |
| 1967–1969 | Crise conjoncturelle à fort redressement sous l'effet du contrôle politique excessif (ajournement de la troisième phase) | **99,3** | 118,3 | 102,2 | 91,1 |
| 1970–1981 | Stabilisation au niveau de la deuxième phase de la transition, dans le contexte de l'atténuation du contrôle politique | **76,1** | 92,7 | 76,4 | 75,4 |
| 1982–1989 | Forçage de l'entrée dans la phase finale de la transition, en dépit de l'accentuation du contrôle politique | **65,7** | 79,6 | 65,6 | 65,7 |
| 1990–1994 | Crise conjoncturelle à effet déstabilisateur, installation rapide de la dernière phase de la transition | **47,9** | 56,7 | 47,9 | 47,8 |
| 1995–2000 | Accentuation de la crise, dans le contexte de l'achèvement de la dernière phase de la transition (*baby crash*) | **40,5** | 48,5 | 40,8 | 40,7 |
| 2001–2004 | Stabilisation de la crise, dépassement de la transition classique | **37,7** | 45,1 | 37,6 | 38,7 |
| 2005–2008 | La mise en évidence de certains éléments indiquant l'installation du nouveau régime démographique (post-transitoire) | **38,4** | 43,5 | 37,9 | 40,3 |

L'analyse des données du tableau ci-dessus démontre l'évidence que la Roumanie était déjà entrée dans la première partie du XXe siècle, notamment dans les provinces appartenant à l'Empire Austro-Hongrois où la structure ethnique plus complexe et le niveau social et économique plus élevé ont permis la diffusion précoce de la transition. Les régions méridionales et orientales entreront dans cette phase pendant la période de l'entre deux-guerres, progressivement selon un gradient SO–NE, avec un décalage de quelques 10–20 ans entre les extrêmes. Ce décalage s'est preservé aussi au long de la deuxième phase, achevée au niveau national dans les années 1960, avec un ajournement imposé par la politique nataliste de 1967–1969, en même temps assistant à une homogénéisation. Ainsi, en 1990, l'achèvement de la transition était une certitude dans le centre, l'ouest et le sud du pays, dans l'est étant forcée par la chute des indicateurs démographiques, généralisée dans l' Europe de l'Est post-communiste. La troisième phase s'est déroulée très rapidement au long des années '90 suivie par une période de stabilisation et de tatonnement des évolutions spécifiques aux nouveaux modèles post-transitoires. De ce point de vue on peut affirmer que les régions centre-occidentales du pays sont toujours plus avancées, enregistrant déjà ce rédressement typique pour la nouvelle transition démographique (van der Kaa 1997), évolution normale si l'on se rapporte aux tendances séculaires. Autrement dit, il faut attendre, dans l'avenir proche, que le „barycentre" de la vitalité démographique se transfère dans la partie centrale du pays, spécialement dans les zones à forte concentration de population minoritaire (tsiganne et hongroise à la fois).

Un intérêt particulier apporte l'***évolution comparative*** de la fertilité générale après 1990. Une comparaison avec deux états est-européens profondément marqués par la crise démographique est fournie dans la Figure 7. Ce matériel montre une chute lente de cet indicateur en Roumanie, au contraire de la chute brutale enregistrée par l'Ukraine et la Fédération de la Russie. Pendant les dernières années, le niveau de cet indicateur s'est plafonné en Roumanie, à un niveau assez bas et inversement, dans les deux autres pays on constate un fort redressement. Une explication de cette évolution atypique au niveau européen dans le cas roumain peut être fournie par la transformation de la Roumanie en principal fournisseur d'émigrants au contraire de la Russie, devenue attractive surtout pour les émigrants de l'espace ex-soviétique. La tendance de stagnation de cet indicateur à un niveau très bas en Roumanie est un phénomène très grave, en 2008 seulement la Bosnie-Hertsegovine connaissant des valeurs plus basses (voire *World Population Data Sheet*, O.N.U., 2009).

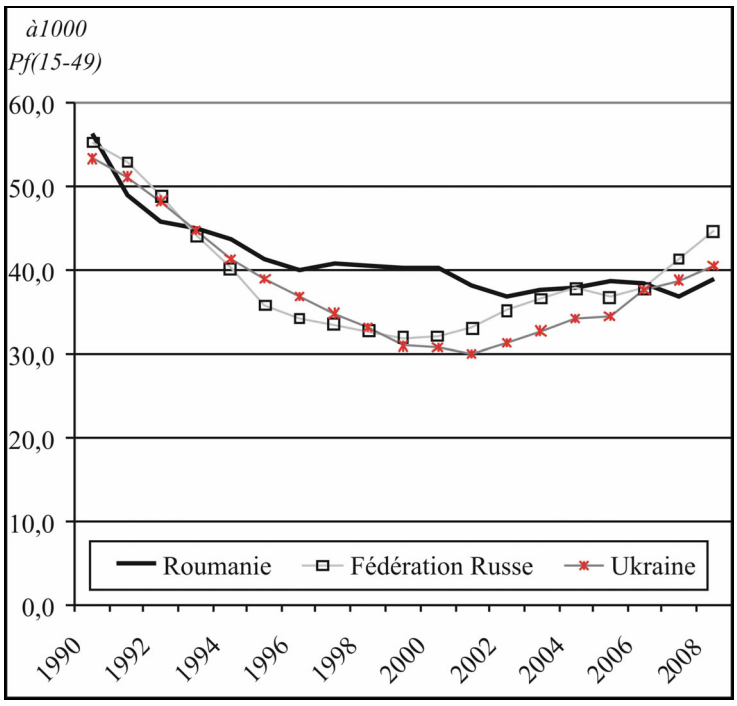



Fig. 7 – L'évolution comparative de l'indice de la fertilité générale de la population en Roumanie, Ukraine et la Fédération Russe (1990–2008).

## III. LA TRANSITION DE LA MORTALITÉ

L'analyse de cette composante du bilan naturel pour la même période permet l'affirmation que la Roumanie se distingue par ***l'installation tardive,*** ou dans le meilleur cas, ***simultanée***, de la transition, par rapport aux indicateurs de la fertilité. La confirmation de la transition de la mortalité est sûre vers 1920–1930, voire plus tard encore dans certaines aires. Les causes de cette situation sont encore insuffisamment connues et constituent la raison pour laquelle certains spécialistes placent dans cette période de temps le début de la transition en son ensemble. Cependant, tel qu'on a déjà établi, la réduction du niveau de la mortalité avait débuté plus tôt, à la fin du XIXe siècle, mais elle fut très lente et hésitante jusqu'en 1920, de sorte qu'on peut placer le déclenchement de ce processus toujours à la fin du siècle mentionné. On peut expliquer aussi cette situation particulière par l'insuffisante modernisation sociale et économique de la population (rurale surtout) dont les effets sont encore sensibles. C'est ce qui explique pourquoi la Roumanie est un peu moins affectée par le vieillissement de la population par

rapport aux pays voisins dont l'évolution de la fertilité fut comparable mais avec un avance important dans la transition de la mortalité, résultant ainsi une véritable explosion démographique entre les deux guerres mondiales (Bulgarie, Serbie, Ukraine surtout). Ceci se manifeste par un niveau de la mortalité sensiblement moins réduit pendant les deux dernières décennies (11–12‰ par rapport à 13–17‰), phénomène explicable aussi par l'évolution plus lente de l'espérance de vie à la naissance (par rapport aux états balkaniques notamment) que par le déroulement plus rapide des deux dernières phases de la transition (par rapport aux états est-européens).

L'évolution en détail de la mortalité ne présente pas les distorsions et les changements rapides de la fertilité, à l'exception des deux guerres mondiales. Les années 1949–1950 représentent le moment d'une rupture majeure de rythme, par l'installation d'une tendance d'accélération du déclin de la mortalité, à la fin de la deuxième phase de transition de la fertilité. Ce décalage entre les deux composantes avait restreint la manifestation d'une véritable explosion démographique, y compris pendant la période de redressement d'après guerre. On peut distinguer généralement les suivantes phases: 1910–1915 – installation de la première phase de la transition de la mortalité; 1916–1920 – crise conjoncturelle, à effet déstabilisateur; 1921–1929 – affirmation de la première phase; 1930–1940 – tendance de forçage de l'installation de la deuxième phase (chute visible de la mortalité infantile, visible croissance de l'espérance de vie à la naissance); 1941–1947 – crise conjoncturelle avec un effet de stagnation des tendances antérieures; 1948–1959 – affirmation de la deuxième phase de la transition; 1960–1966 – l'achèvement de la deuxième phase, avec l'enregistrement des valeurs minimales absolues; 1967–1982 – tendances d'installation de la dernière phase de la transition; 1983–1991 – l'installation certe de la dernière phase de la transition (confirmation du processus de vieillissement dans un contexte contradictoire: maintien d'une mortalité infantile élevée au niveau européen et quasi-stagnation de l'espérance de vie à la naissance); 1992–2003 – achèvement de la dernière phase de la transition (croissance sensible de la mortalité générale); 2004–2008 – tendances d'évolution post-transitoire (stabilisation, voire faible réduction de la mortalité générale dans le contexte de l'amélioration des indicateurs spécifiques).

Les structures territoriales engendrées par l'installation et le déroulement de la transition de la mortalité sont beaucoup plus complexes que dans le cas de la fertilité. L'analyse effectuée par la même méthodologie à partir des classifications hiérarchiques ascendantes distingue, au niveau de la période entière (1900–2008). 12 types suffisamment distincts, qu'on peut aggréger en cinq grandes catégories (Fig. 8):

– un premier groupe est formé par trois types distincts localisés dans la partie centrale et septentrionale du pays auxquels on peut ajouter le cas particulier de la capitale. Le premier type, concernant la capitale et le *judets* de Braşov, se distingue par la précocité de la transition et par les valeurs très réduites de la mortalité, effet d'un rajeunissement permanent des structures démographiques dû à l'attractivité. Le deuxième concerne les *judets* de l'extrémité septentrionale du pays avec une évolution plus lente, dans un contexte exodynamique, anéanti par le niveau élevé de la natalité. Le troisième concerne la majeure partie de la Transylvanie, avec une évolution proche de la moyenne mais avec un démarrage précoce de la transition;

– le deuxième groupe concerne aussi trois types, localisés dans la partie centre-orientale de la Moldavie et dans la proximité de la capitale (Prahova-Ilfov). Le premier concerne les *judets* mentionnés, favorisés par l'exploitation des ressources pétro-gazéifères et par le début de la métropolisation. Malgré l'ascension difficile de la transition de la mortalité, c'est l'aire où l'on a enregistré la plus rapidé accélération au long de la deuxième phase, pendant la dernière étant proche aux évolutions moyennes. Les autres deux types caractérisent la Moldavie et la partie méridionale de la Dobroudja. Ils ont connu une évolution proche, avec un retard visible de l'installation de la transition (notamment dans le cas particulier du *judets* de Vaslui), avec une relative atténuation de la dernière phase, expliquée par la structure favorable par âges et sexes;

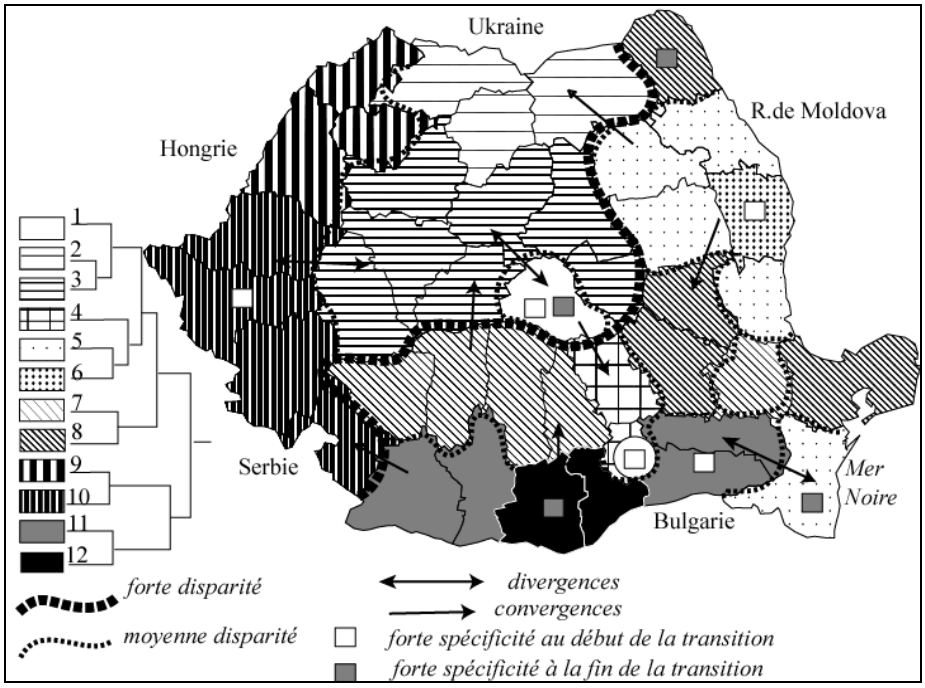



Fig. 8 – La typologie de l'évolution de la mortalité en Roumanie (1900–2008).

*Tableau 3*

Le profil de la typologie de la mortalité générale de la population en Roumanie (1900–2008)

| *Type* | *Mortalité générale (en ‰)* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *1900–1915* | *1916–1920* | *1921–1929* | *1930–1940* | *1941–1947* | *1948–1959* | *1960–1966* | *1967–1982* | *1983–1991* | *1992–2003* | *2004–2008* |
| 1 | 22,2 | 31,2 | 18,8 | 16,4 | 16 | 8,5 | 6,5 | 8,5 | 9,3 | 10,5 | 10,5 |
| 2 | 23,4 | 29,4 | 21,7 | 19,2 | 20,8 | 11,5 | 8,6 | 9,1 | 9,8 | 10,7 | 10,6 |
| 3 | 22,2 | 27,2 | 20,8 | 17,9 | 17,4 | 11,8 | 9,1 | 9,9 | 10,5 | 11,8 | 11,6 |
| 4 | 25,9 | 36,2 | 22,4 | 18,6 | 17,8 | 9,9 | 7,5 | 8,9 | 10,6 | 12,2 | 11,9 |
| 5 | 26 | 32,2 | 23,7 | 22,2 | 22,6 | 11,6 | 7,4 | 7,9 | 8,8 | 10,4 | 10,6 |
| 6 | 28,7 | 34 | 28,8 | 26,5 | 24,8 | 12 | 8,3 | 9,4 | 10,4 | 11,6 | 11,2 |
| 7 | 24,8 | 34,9 | 21,6 | 18,5 | 18,6 | 12,1 | 9,2 | 9,8 | 10,8 | 11,8 | 11,8 |
| 8 | 25,7 | 34,6 | 22,1 | 20,8 | 22,1 | 11 | 8 | 9,5 | 11,3 | 12,5 | 12,2 |
| 9 | 22,5 | 30,2 | 22,1 | 18,7 | 18,2 | 13,3 | 11,1 | 12,4 | 13 | 13,6 | 13,2 |
| 10 | 23,4 | 29,1 | 23,7 | 19,2 | 18,5 | 12,1 | 9,8 | 11,2 | 12,3 | 14,1 | 13,1 |
| 11 | 26,1 | 40,3 | 25,7 | 20,4 | 20,1 | 11,3 | 8,3 | 9,9 | 11,9 | 13,5 | 13,5 |
| 12 | 27,8 | 38,3 | 23,5 | 19,6 | 19,8 | 11,8 | 8,8 | 11,1 | 13,9 | 16,3 | 16,4 |
| **Moyenne** | **24,2** | **32,1** | **22,4** | **19,4** | **19,3** | **11,5** | **8,6** | **9,7** | **10,8** | **12,1** | **11,9** |

– un troisième groupe concerne les *judets* subcarpatiques du sud et du sud-est du pays avec un prolongement vers le Bas Danube (Tulcea et Brăila) auquel on ajoute, au nord-est extrême le *judets* de Botoşani. Leur évolution est proche à la moyenne nationale, les deux types distingués se remarquent par la croissance rapide de la mortalité pendant les dernières décennies dans les *judets* exodynamiques (tels Vrancea, Buzău, Tulcea et Botoşani);

– un quatrième groupe concerne les marges occidentales du pays, de Mehedinți à Satu Mare et Sălaj. Ceci se distingue par la précocité de la transition dont les phases se sont déroulées rapidement, sans arriver à un minimum évident, la phase correspondante étant estompée par le vieillissement précoce. Entre les deux types afférents il y a une seule différence: au nord (Bihor, Sălaj et Satu Mare)

les valeurs minimales ont été plus évidentes qu'au sud (de Arad à Mehedinți), ceci malgré l'attractivité de certaines aires qui pourrait permettre un rajeunissement (réel seulement au niveau local), effet explicable aussi par le maintien d'une espérance de vie à la naissance assez réduite;

– le dernier groupe est localisé au midi extrême du pays et a traversé la plus contrastante évolution. Au centre, le couple Giurgiu-Teleorman s'est fait remarqué par l'achévement de la transition à un niveau extrêmement élevé de la mortalité, effet d'une érosion massive des contingents jeunes par l'exode rural due à la proximité de la capitale. Conjugué avec la diminution simultanée de la fertilité on est arrivé à une situation particulière marquée par un vieillisement accentué. À l'est et à l'ouest de ce couple, l'évolution a été semblable mais à un niveau attenué.

L'analyse de l'évolution de la mortalité, par séquences temporelles, est moins spectaculaire. On peut séparer pourtant deux grandes séquences: 1900–1948 et 1949–2008. Pendant la première, les disparités territoriales étaient beaucoup plus évidentes, suivant les crêtes des Carpates, certifiant ainsi le fait que les régions appartenant à l'Empire Austro-Hongrois étaient entrées assez tôt dans la transition de la mortalité (avec des différences locales, apparemment liées au poids de la population allemande). De 1950 à 2008 interviennent des profondes mutations dans cette polarisation territoriale. On voit se développer un axe central Bucarest-Braşov, où l'attractivité diminue l'érosion de la structure par âge (situation semblable à celle de Constanța) et les marges occidentales, méridionales et, partiellement, orientales qui seront marquées par le haut niveau de la mortalité suivant la causalité invoquée plus haut. C'est à peu prés l'illustration du modèle centre-périphérie. Le nord-est du pays avait échappé à ce modèle grâce à la temporisation de la transition de la fertilité. Les tendances manifestées pendant les deux dernières décenies vont dans la direction d'une très visibile homogénéisation, les aires à valeurs réduites de la mortalité connaissant une croissance de celles-ci et, inversement celles marquées par des valeurs élevées ont enregistré une diminution. Fait exception le sud extrême du pays qui connaît plutôt une relative stagnation. Au niveau du pays entier on est en fait à la fin de la transition même s'il restait à traverser certaines composantes: c'est le cas de la transition des maladies cardio-vasculaires car la transition épidémiologique s'est finalisée non par l'effet d'une croissance du niveau de vie mais de l'importation de pratiques de prévention et profilaxie (Simion 2010).

## IV. A-T-ELLE CONNUE LA ROUMANIE L'„EXPLOSION DÉMOGRAPHIQUE?"

La résultante du bilan démographique, le solde naturel a enregistré une évolution correspondante aux distorsions des deux paramètres essentiels: la fertilité et la mortalité. L'extrême variabilité, imposée par le facteur politique mais aussi par le contexte social et économique, avec un écart entre +18 ‰ şi --28 ‰, peut donner une réponse à cette question. L'analyse comparative de plusieurs pays voisins (Bulgarie, Serbie, Ukraine etc.) met en évidence une différence essentielle: ces pays ont traversé des périodes assez longues avec des valeurs spectaculaires du solde naturel (20–30 ‰, au moins 10 ans). En Roumanie on n'a jamais atteint un tel niveau, situation imputable à la transition plus tardive de la mortalité, expression du retard économique et social, spécialement de la très forte population rurale. Ceci, malgre l'enregistrement de valeurs comparables, voire plus élevées, de la natalité par rapport à ces pays voisins. En conséquence, ***parler d'explosion démographique en Roumanie, au moins après 1900, est un non-sens***. Notre pays se distingue aussi de ce point de vue au niveau européen. À l'intérieur du pays, au niveau régional, ils existent des fortes disparités.

Une première analyse du solde naturel, au niveau de la période entière, impose des disparités coïncidentes avec celles induites par les indicateurs de la fertilité, avec des corrections mineures dues à la composante passive. Le même gradient sud-ouest/nord-est s'impose et confirme l'hypothèse d'une diffusion/adaptation progressive du modèle de la transition démographique (Fig. 9, Tableau 4).

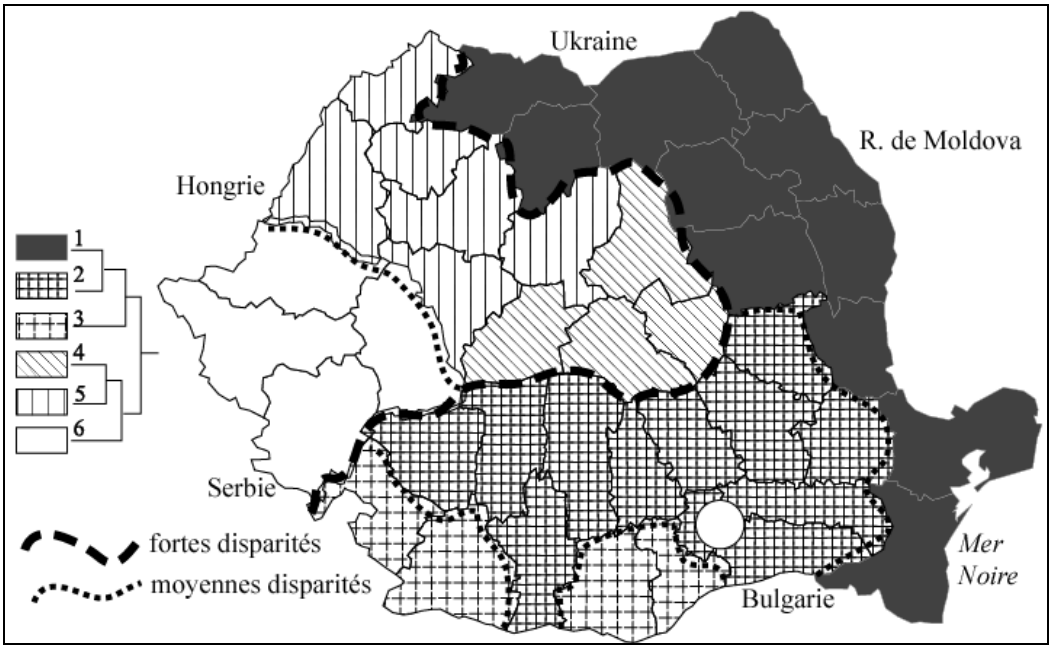



Fig. 9 – La typologie de l'évolution du solde naturel de la population en Roumanie (1900–2008).

*Tableau 4*

La typologie de l'évolution du solde naturel de la population en Roumanie de 1900 à 2008.

| *Type* | *Solde naturel (moyenne de la période en ‰)* | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *1900–1915* | *1916–1920* | *1921–1933* | *1934–1940* | *1941–1948* | *1949–1958* | *1959–1966* | *1967–1969* | *1970–1979* | *1980–1990* | *1991–1995* | *1996–2004* | *2005–2008* |
| 1 | 14,7 | -0,4 | 18 | 13,2 | 6,2 | 20,1 | 13,3 | 18 | 14,6 | 9,7 | 2,5 | 0,7 | 0,1 |
| 2 | 16,1 | -6,6 | 19,4 | 15 | 6,1 | 14,2 | 8,4 | 15,5 | 11,1 | 5,2 | -0,8 | -2,7 | -2,7 |
| 3 | 16,2 | -10,5 | 14,3 | 11,2 | 2,5 | 9,3 | 5,6 | 10,9 | 6,9 | 1,7 | -3,7 | -5,9 | 6,5 |
| 4 | 10,7 | -5,1 | 10,7 | 8,9 | 4,7 | 11,8 | 7,7 | 12,9 | 10,4 | 6,3 | 0,5 | -0,5 | -0,2 |
| 5 | 12,1 | 1,4 | 11,8 | 9,3 | 5 | 12,3 | 8 | 11,7 | 9,1 | 4,5 | -1,5 | -2,8 | -2 |
| 6 | 7,5 | -7,2 | 3,2 | 1,0 | 0,8 | 5,6 | 1,2 | 6,7 | 3,5 | 1,1 | -2,9 | -3,7 | -2,9 |
| **Moyenne** | **13** | **-4,1** | **13,7** | **10,5** | **4,7** | **13,4** | **8,2** | **13,6** | **9,9** | **5,4** | **-0,4** | **-1,9** | **-1,7** |

L'affirmation antérieure visant l'absence de l'explosion démographique en Roumanie est confirmée par l'analyse du tableau parce que jamais au long de ces 108 ans on n'a pas eu une période, même courte, ou le solde naturel dépasse en moyenne les 15‰ au niveau national. Les seuls types de la classification ayant enregistré une telle situation ont été le 1 (entre 1948–1959 et 1967–1969), le 2 (entre 1900–1915, 1921–1933 et 1967–1969) et le 3 (entre 1900–1915). Autrement dit l'explosion démographique s'est manifesté au niveau régional d'une manière épisodique: au début de la période dans la partie méridionale du pays, reprise entre les deux guerres mondiales sauf dans l'extrémité sud-ouest; après la Deuxième Guerre Mondiale, possible effet de type *baby boom*, au nord-est et dans le sud-est du pays; dans le court intervalle de 1967 à 1969 comme effet de la politique nataliste dans les régions mentionnées plus haut. Une analyse par séquences temporelles, au niveau des provinces historiques, met en évidence des fortes disparités régionales, notamment au long de la chaîne carpatique. Ainsi, jusqu'en 1950, cette disparité avait créé un différentiel démographique important (souvent dépassant 10‰) ceci expliquant la manifestation précoce de flux importantes de population du Vieux Royaume vers les territoires incorporés en 1918. C'est une sorte de retour des flux antérieurs qui avaient contribué au peuplement des plaines steppiques du sud-est du pays. La situation intermédiaire qui caractérisait la Bucovine et la partie ouest de l'Olténie répond aussi aux effets de la mobilité géographique de la population, ces régions étant d'importants fournisseurs de

migrants pour les zones qui ont supporté une forte colonisation agraire après les réformes initiées en 1864. Une véritable explosion démographique, avec des valeurs dépassant 20‰, a caractérisé seulement la Dobroudja, entre 1900–1950, grâce à une structure très favorable par âges, sous l'impacte des puissants flux de peuplement. Dans le Bărăgan et dans la Moldavie ces valeurs ont été plutôt rares, épisodiques.

Au long de la deuxième période (1950–2008), se produit une évidente ***homogénéisation***, au moins dans la partie centrale du pays, possible effet de l'intensification de la mobilité géographique. Les valeurs extrêmes vont se cantonner dans les aires "conservatrices" (nord-est) ou "modernistes" (l'ouest et la capitale). Les seuls manifestations de l'explosion démographique furent épisodiques et marquée par le contrôle politique. Une réconsidération totale des disparités régionales devenues classiques, entre le sud-ouest et le nord-est du pays se produit après 1990. Une série d'analyses comparatives démontre l'existence des tendances plutôt convergentes, autour de la moyenne nationale, avec l'apparition de nouveaux clivages, induites par la manifestation des effets posttransitoires. En comparant l'évolution moyenne de chaque province historique avec l'évolution moyenne nationale, on avait surpris certains décalages et particularités sur un fond général de conformisme aux tendances nationales, illustrant une véritable "centralisation" démographique de l'état roumain. On peut estimer que cette centralisation fut le résultat direct des flux de la mobilité interne dans le cadre de l'exode rural. L'introduction des variables de facture ethnique s'est avérée utile, aussi dans le cas des hongrois que des tsigans dont on peut "reprocher" certaines tendances récentes en Transylvanie au moins. Par exemple, les *judets* de Covasna et de Harghita ont manifesté un certain conservatorisme pendant la deuxième partie du XX$^{e}$ siècle, arrivant à des valeurs sensiblement supérieures de la natalité par rapport à la moyenne de la Transylvanie, phénomène lié peut-être aussi à la religion catholique dominante mais aussi au traditionalisme ethnique (Fig. 10).

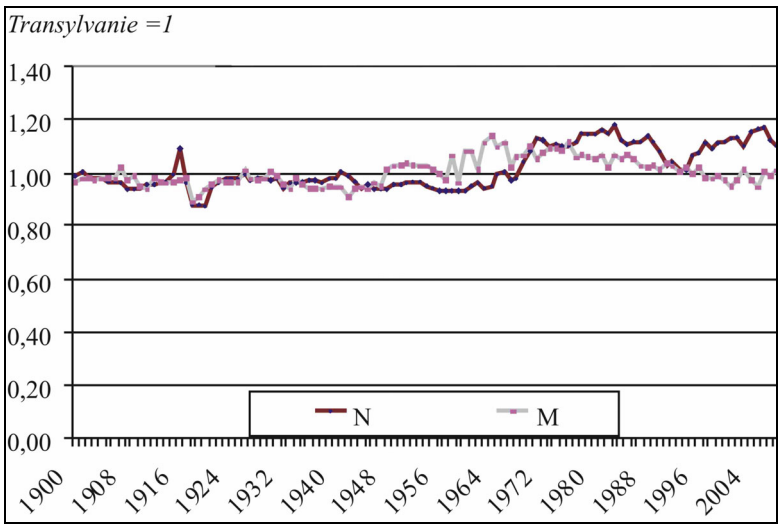



Fig. 10 – L'évolution comparative des indicateurs démographiques principaux en Transylvanie et dans les departements (roum. *județe*) Harghita et Covasna (1900–2008).

La comparaison entre l'évolution moyenne de la population rurale et l'évolution d'un échantillon de commune avec un poids importants des tsigans, de toutes les régions du pays, démontre l'existence d'une faille démographique nette, séparant cette minorité. Le décalage paraît s'accentuer pendant les dernières décennies. Pourtant, malgré certaines craintes, le solde naturel moyen de cette minorité n'est pas très forte de nos jours (3 à 6‰, peut-être double si l'on tient compte qu'il s'agit de communautés mixtes). Dans ces conditions, le „danger" de la croissance spectaculaire du poids de cette minorité, vehiculé souvent dans les médias, doit-être nuancé, les tendances d'évolution s'inscrivant dans les tendances générales de la société roumaine (Fig. 11). On peut attendre, dans un délai prévisible que cette minorité

arrive elle aussi à la fin de la transition démographique. Dans ce moment-là elle se trouve, selon toutes les probabilités, au début de sa dernière phase, constituant ainsi une importante réserve de main d'œuvre, faiblement utilisée, dans des circonstances connues (Cristescu, Muntele 2007). C'est intéressante l'observation qu'il existe un décalage entre les communautés tsiganes de Moldavie (moins avancés), de Valachie (suivant la moyenne) et de Transylvanie (plus avancés), exactement de la même manière dont s'est diffusée la transition démographique au niveau national.

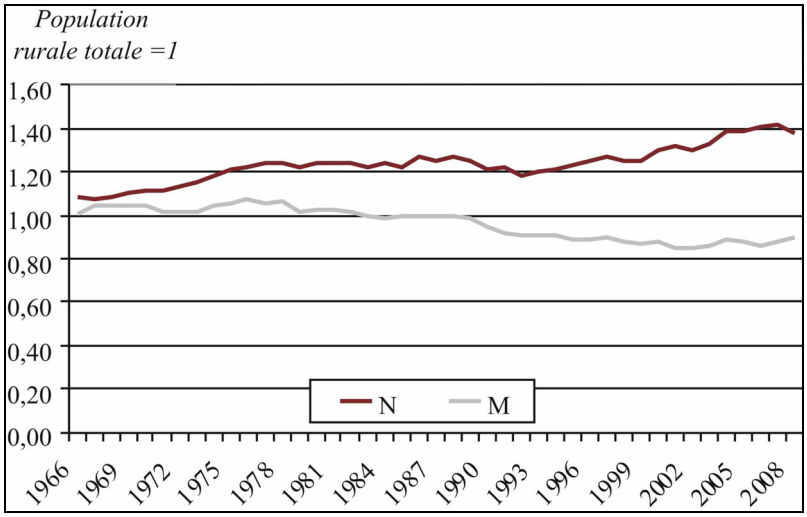



Fig. 11 – L'évolution comparative des indicateurs démographiques principaux des communaut és tsigannes rurales et de la population rurale totale (1966–2008).

## V. PEUT-ON PARLER D'UNE NOUVELLE PARADIGME DÉMOGRAPHIQUE EN ROUMANIE?

La situation actuelle, au bout d'une transition relativement rapide et marquée par des nombreuses convulsions, impose une nouvelle analyse dans la perspective du nouveau régime démographique, post-transitionnel récemment accepté. Au niveau régional, la classique opposition nord-est/sud-ouest, caractérisant la transition est déjà désuète. L'opposition entre les régions entrées dans le nouveau régime post-transitionnel (avec le redressement des indicateurs de fertilité) et les régions où la transition classique est en train de s'achever est maintenant d'actualité. Les analyses statistiques effectuées démontrent que la Roumanie est sortie du ***paradigme des déséquilibres opposant les régions déficitaires en main d'œuvre et celles excédentaires***, disparité engendrant des flux migratoires puissants. On est entré de nos jours dans le ***paradigme de l'épuisement du capital humain propre***, situation pareille aux pays occidentaux, le problème de l'utilisation efficace de ce capital étant l'un des principaux défis de l'avenir.

Nous avons déjà souligné antérieurement l'existence d'une tendance d'homogénéisation du comportement démographique au niveau du pays. Les extrêmes tendent s'aligner autour de la moyenne nationale et donnent l'impression d'un passage entre la transition classique et la nouvelle transition, arrivée à l'horizon. Le plus spéctaculaire indice est la croissance rapide de la fertilité et de l'espérance de vie à la naissance dans les plus dynamiques régions du pays (la capitale et les *judets* Ilfov, Cluj, Timiş, Constanţa etc.). En même temps les réminiscences des comportements réfractaires à la modernité sont en dissolution dans les plus repoussantes zones du nord-est du pays. Ces tendances nouvelles supportent aussi une autre interprétation, lié au degré d'urbanisation, le récent redressement des indicateurs de la fertilité étant résenti d'abord dans les grandes villes. C'est ce qui suggèrent les figures 12,13 et 14.

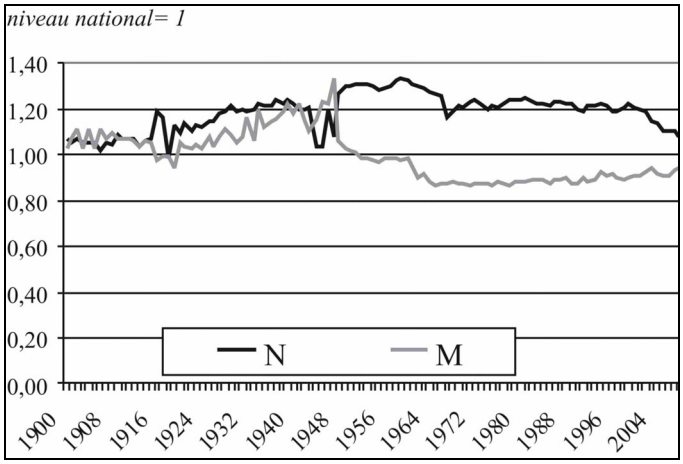



Fig. 12 – L'évolution comparative des indicateurs démographiques principaux en Moldavie et au niveau national (1900–2008).

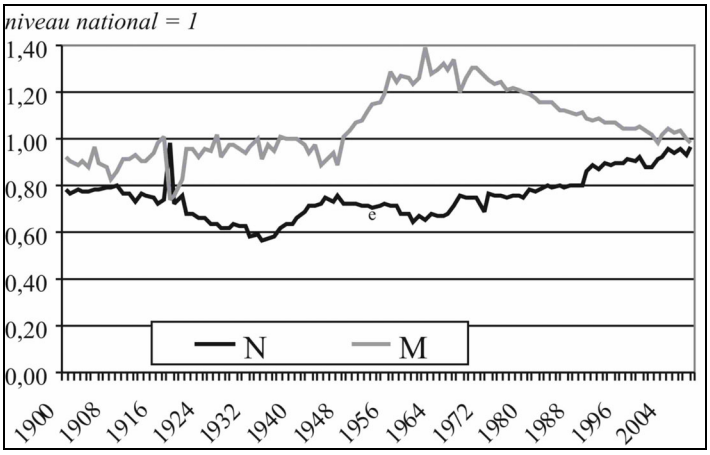



Fig. 13 – L'évolution comparative des indicateurs démographiques principaux en Banat et au niveau national (1900–2008).

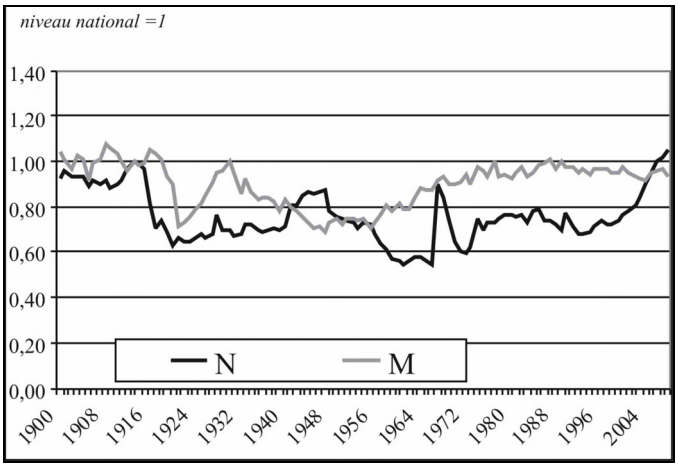



Fig. 12 – L'évolution comparative des indicateurs démographiques principaux en Bucarest-Ilfov et au niveau national (1900–2008).

On peut remarquer ainsi que le décalage enregistré en Moldavie dans la transition de la fertilité a été d'abord l'effet du redressement d'après guerre dans un contexte spécifique, celui de l'émigration massive des juifs entraînant la chute de la population urbaine. L'écart face à la moyenne nationale s'est considérablement réduit, les deux éléments du bilan naturel convergeant à la fois vers la moyenne nationale. Au Banat la situation est totalement inverse, après la dégradation continue des indicateurs de la fertilité jusqu'à 1940 il avait manifestée une tendance continue de rapprochement à la moyenne nationale. Avec un certain retard et après avoir atteint le paroxysme pendant les années 1960–1980, la mortalité poursuivit la même tendance. L'attractivité du Banat pendant la deuxième partie du XX$^{e}$ siècle s'explique exactement par la manifestation d'un déficit démographique extrême dans un contexte socio-politique où la nombreuse minorité souabe avait émigré massivement. De nos jours on ne peut pas considérer le Banat en tant que région problématique du point de vue démographique, sa situation étant plutôt proche de celle nationale. Dans le cas de la capitale et de ses alentours on observe la même tendance d'augmentation de l'écart à la moyenne nationale en ce qui concerne les indicateurs de la fertilité, jusqu'en 1965, phénomène normal pour une grande ville. L'effet de la politique nataliste a été ressenti au maximum dans cette région et l'entrée dans une nouvelle phase d'expansion démographique entre les années 1965–1990 ont imposé une amélioration du niveau des indicateurs de la fertilité. Après 1990, la réduction de l'écart à la moyenne nationale fut extrêmement rapide, la situation actuelle étant plutôt meilleure.

Ces évolutions récentes nous conduit d'accepter l'évidence que la Roumanie est entrée dans le nouveau paradigme démographique, où le rôle de „moteur" de la croissance (dans notre pays on peut mieux dire, de garder l'équilibre) revient aux agglomérations urbaines, les régions à dominante rurale se comportant comme des espaces à population résiduelle, vieillie, supportant la dépopulation, situation semblable à celle dont ils on du se confronter les pays occidentaux il y a quelques décennies.

En guise de conclusion à ces analyses on peut estimer que la Roumanie n'est qu'un cas particulier de la transition démographique de la population européenne. Sa personnalité, invoquée plusieurs fois, consiste dans l'absence de la simultanéité dans la transition des deux composantes principales du bilan naturel: la fertilité et la mortalité. Au niveau régional, on peut conclure que ce processus s'est imposé aussi par diffusion, à partir de quelques noyaux de modernité que par adaptation aux conditions engendrées par le développement social et économique spécifique aux pays à régime d'inspiration soviétique, entre 1947–1989. Loin d'être optimistes les tendances en cours vont modifier complètement le tableau des disparités démographiques classiques, entre le nord-est et le sud-ouest du pays.

Note:

Cet article est le résultat des recherches financées par le CNCSIS, dans le cadre du PNCDI, le programme IDEI, le projet „Calitatea infrastructurii de transport ca premisă a diferențierii spațiilor rurale din Moldova", code ID-1987.

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Reçu le 30 octobre 2009

# SETTLEMENTS AND TOPONOMY IN THE PĂTÂRLAGELE DEPRESSION: THE PĂNĂTĂU AND SIBICIU LOCALITIES

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*Key words*: agriculture, historical geography, Pănătău, Pătârlagele, rural settlement, Sibiciu, Subcarpathians, toponomy.

**Villages et toponymie dans la dépression de Pătârlagele: les localités Pănătău et Sibiciu.** Les Subcarpates sont connues comme une région bien peuplée depuis des temps anciens, mais il est évident que beaucoup de localités sont relativement modernes et reflètent l'expansion de l'agriculture de subsistance des plaines alluviales vers les versants durant une période d'aigue pression démographique et de restructuration économique lors du XIX$^{e}$, et du XX$^{e}$–siècle. Cette phase de croissance est examinée dans ce contexte dans la dépression de Pătârlagele, spécialement les localités du côté est de la vallée de Buzău: les localités de Pănătău et de Sibiciu. Un intérêt particulier est accordé à la toponymie présente dans les cartes à grande échelle et les textes clés (notamment le dictionnaire de Iorgulescu de 1892) à laquelle on ajoute le témoignage oral très riche. Les auteurs prêtent attention aussi bien aux terrasses qu'aux surfaces affectées par des glissements adjacents, puisque ces dernières ont été bien attrayantes aux pionniers de l'agriculture, à cause de leur fertilité et humidité, dans un temps que les terrasses étaient utilisées presque exclusivement pour une économie de marché. Quelques surfaces utilisées aujourd'hui pour le foin, pour les pâturages et les vergers de prunes étaient bien cultivées, alors que les terrains à fonction céréalière acquis dans la plaine du Bărăgan, par la réforme agraire de 1923 se sont diversifiés du point de vue économique d'une manière accélérée après 1945. La toponymie est considérée par conséquent comme une source majeure dans la compréhension d'une importante phase du peuplement rural. Alors que les noms des lieux éveillent beaucoup d'intérêt pour l'écologie et les études concernant le potentiel de l'environnement tenant compte de la survivance des familles étendues et d'autres petites communautés, il y a peu d'information sur l'origine des localités plus anciennes.

## INTRODUCTION

One of the projects started in the 1990s under a research agreement between the Romanian Academy's Institute of Geography and the Department of Geography at the University of Leicester (UK) concerned the human geography of the Pătârlagele area, having in mind the rural restructuring process (N. Muică & D. Turnock 1997) and the problematic nature of much of the terrain prone to landslides and mudflows (N. Muică & D. Turnock 1994; Cristina Muică & D. Bălteanu 1995). Historical investigation into this topic was encouraged by the wider studies in Buzău county (Nancu & Alexandrescu 1993), giving rise to case studies of nineteenth century rural strategies of pluriactivity (N. Muică et *al*. 2000a, 2000b; Muică & Turnock 2000). We have continued our historical research with particular reference to village origins and toponomy and this paper discusses our findings against a background of knowledge emphasising the historical continuity of relatively dense settlement in the Buzău Subcarpathians as a whole (Petrescu-Burloiu 1977, pp. 139–40), although the Pătârlagele Depression was part of Saac county before 1845 which implied associations with areas to the southwest (i.e. towards Urlați and Vălenii de Munte) rather than the lower Buzău valley including Buzău itself. We find that the great majority of settlements date back only to the nineteenth century while proof of settlement continuity is extremely sparse for earlier periods (N. Muică & D. Turnock 2008). The full study area comprises the communes of Pănătău and Pătârlagele, with the latter now an urban area (since 2004) although it has been the functional centre of the district throughout the modern period.

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Rev. Roum. Géogr./Rom. Journ. Geogr., **54**, (2), p. 127–152, 2010, Bucureşti.

The area comprises not only the Buzău valley but also adjacent Subcarpathian hill country drained by a number of tributary valley including the Pănătău and Sibiciu streams on the eastern side complemented by Valea Lupului, Valea Muşcelului and Valea Viei on the western side; lying just to the north of the major Bâsca Chiojdului tributary marking the southern boundary of the Pătârlagele Depression (Fig. 1). The larger settlements occupy the main Buzău corridor system but are complemented by smaller villages and hamlets in the hills endowed by their extensive landslide surfaces attractive for small-scale agriculture (though problematic for settlement) and complement the 'ţarină' lands on the low ground which offer a much better basis for capital investment. This paper is one of four studies dealing with the toponomy of the area which is very rich in view of oral evidence which has been collected to supplement the cartographic and other published sources. It therefore serves to supplement the limited documentation for adjustments to settlement involving occupation of the landslide surfaces during the nineteenth century. This paper deals with the northeastern section of the Pătârlagele Depression. This area comprises a belt of terraces and hills extending for some six kilometers north-south from Valea Sibiciului to the upper and lower Sibiciu villages (Sibiciu de Sus/Jos), Pănătău and Plăişor. Altogether there are eight villages officially recognised for administrative purposes, along with a total of 39 dependent units. They are mapped in Figure 1–2 in the context of the Pătârlagele Depression as a whole, while Table 1 provides a comprehensive categorisation with notes. The paper is complemented three others – for the Muşcel/Viei valleys, the Râpile-Zahareşti area and terraces of the Buzău river western bank – currently being published in the geographical annals of the universities of Timişoara, Iaşi and Oradea respectively.

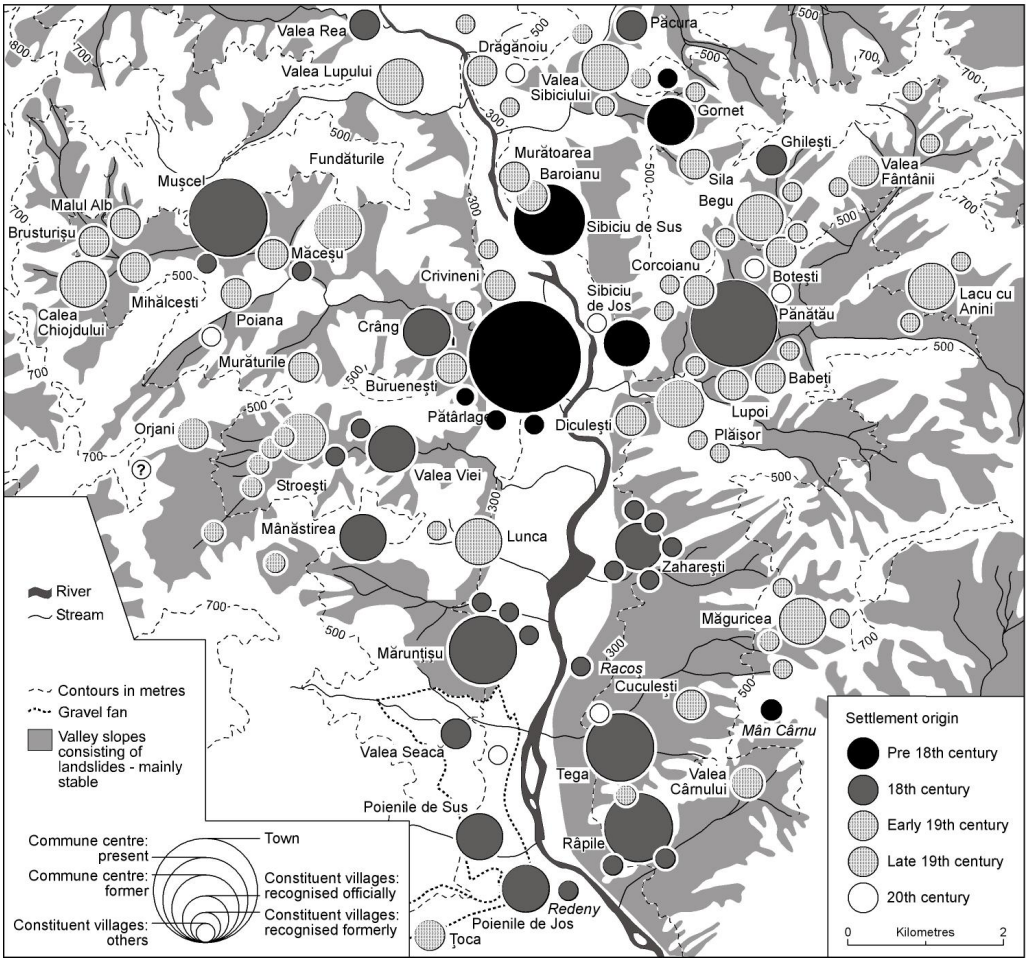


Fig. 1 – The origin of settlements in the Pătârlagele Depression according to the earliest documentary evidence.

*Table 1*

The principal settlements and their dependents

| |
|---|
| BEGU Class 3: 4–Băia 1a, 5–Băicuș 1b, 15–Boteşti 2a (37–La Cătină [Mărăcini] 1b), 33–**Ghileşti** [Chileşti, Jileşti] 2a.<br>**GORNET** Class 3: 78–**Peste Izvor** 1a, 96–Robu 1b, 101–Sila 2a.<br>LACU CU ANINI Class 3: 102–Slabi 1a, 118–Vlăiceşti 1b.<br>**PĂNĂTĂU** Class 5: 2–Babeți 2a (3–Băcioi 1b), 7–*Balea* 1a, 24–Corcoianu 2a (1–Arvuneşti 1b, 6–Băjănii [Băjenii] 1b, 52–Mărăcineni 1a*), 15–Lupoi 2a, 110–Valea Fântânii 2a (04–La Odae 1a, 85–Poiana 1a, 90–Predeal 1a, 106 *Țarină* 1b.<br>PLĂIŞOR Class 3: 73–Pe Crivină 1b, 97–Rotărie 1b.<br>**SIBICIU DE JOS** [Făşăiți] Class 3: 28–Diculeşti [Deculeşti] 2a, 107–*Țarina de-din Jos* 1b.<br>**SIBICIU DE SUS** [Trestioara] Class 4: 10–Băşcuret 1a, 29–Baroianu [Baroianu-Mlăcile] 2a, 29–Drăgănoi 2a (58–Mlăcile 1a, 59–Moara Sibicianului 1a), 82–*Podul Viei* 1a, 60–Murătoarea 2a.<br>VALEA SIBICIULUI Class 3: 17–Burduşoaia 1a, 56–Mățara [Pe Mățara] 1a, 66–**Păcura** [Treseny] 2a*. |
| **Notes:** The officially-recognised settlements are basically Class Three, but Class Four where there is a history of commune status (Sibiciu de Sus) and Class Five where this status still applies today (Pănătău). The dependents are generally Class One (1a for a detached settlement, 1b for a quarter of a larger settlement), but Class Two where there is a history of official recognition prior to 1948 (2a) or 1876–81 (2b). An asterisk denotes a former settlement site now deserted. The prefix numbers relate to locations shown on Figure 2. Square brackets contain alternative names for some of the settlements which round brackets are dependents of the preceding Class 2 settlement. Primary settlements (in existence by 1800) are shown in bold. Those underlined are dated to the early nineteenth century and those shown in italic date to the twentieth century – the others date to the late nineteenth century. |

Our study initially used the cartographic sources to help provide a chronology. The 'Harta Topografică' by Serviciul Geografic al Armatei (1906) –based on 1895–1898 data – provides a picture for the end of the nineteenth century while the end of the eighteenth century is covered by Specht's 'Militärische Carte' (1790–1791) and von Bauer's 'Mémoires Historiques' (1778). Out of a total of 119 settlements throughout the Pătârlagele Depression (including many that are merely neighbourhoods within larger villages) only 39 can be convincingly dated to the eighteenth century or earlier (N. Muică & Turnock 2009) (Fig. 2). Of these only seven fall to the smaller area which is the focus of this paper. Of course there may be other primary settlements that lack documentary evidence. However taking the selection available, a key point is the apparent focus on the lower ground (and especially the Buzău terraces) with only temporary/seasonal use of the higher ground, which could of course include an element of monastic settlement in the form of hermitages that provide a possible origin for Cârnu monastery in the southeastern part of the depression. The latter is known from the sixteenth century along with a cluster the three leading settlements beside the Buzău river: Pătârlagele, Sibiciu de Jos and Sibiciu de Sus (with which this paper is not directly concerned). At the same time a comparison can be made between the two halves of the nineteenth century thanks to the Russian map or 'Harta Rusă/Rusească' of 1853 (Anon. 1853). It is evident that our small study area maintained a share of about 36–38% of the households/population of the Pătârlagele Depression during the nineteenth and early twentieth centuries working in the basis of both households (1831–1912) and total population (1912–1966) (Table 2). But since 1966 a combination of depopulation and a growth in what is now the town of Pătârlagele has reduced the share to just below 30%. The study proceeds with short reviews of the physical landscape and the settlement history before offering a detailed study of the toponomy.

*Table 2*

Population 1832–2002

| Main Villages# | 1831/2a | 1912a | 1912b | 1941b | 1966b | 1966c | 1992b | 2002b | Gndr. |
|---|---|---|---|---|---|---|---|---|---|
| Begu | 67 | 85 | 406 | 408 | 602 | 91.7 | 323 | 272 | 50.6 |
| Gornet | 36 | 92 | 404 | 442 | 305 | 69.4 | 40 | 24 | 51.1 |
| Lacu cu Anini | | 66 | 294 | 352 | 401 | 90.3 | 186 | 167 | 51.4 |
| Pănătău+ | 84 | 241 | 1014 | 1148 | 862 | 71.7 | 772 | 736 | 50.6 |
| Plăişor | 16 | 92 | 425 | 472 | 419 | 73.7 | 253 | 214 | 51.5 |
| Sibiciu de Jos | 45 | 111 | 493 | 443 | 528 | 48.7 | 680 | 648 | 52.2 |
| Sibiciu de Sus | 72 | 134 | 586 | 614 | 770 | 50.7 | 984 | 915 | 51.6 |

*Table 2 (*continued)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Valea Sibiciului | 81 | 137 | 655 | 635 | 511 | 76.9 | 312 | 286 | 52.2 |
| Total (i) | 401 | 958 | 4277 | 4514 | 4398 | 69.3 | 3550 | 3262 | 51.4 |
| Total (ii) | 1095 | 2536 | 10986 | 12252 | 12911 | 65.4 | 11778 | 11179 | 51.2 |
| Percent (i)/(ii) | 36.6 | 37.8 | 38.9 | 36.8 | 34.1 | n.a. | 30.1 | 29.2 | n.a. |

a households; b total population; c employment in agriculture (percent). For gender the figures are the female percentages (taking the average for 1912, 1930, 1941, 1956, 1966, 1977, 1992 and 2002). The totals relate to (i) the study area and (ii) the entire Pătârlagele Depression.

+Pănătău includes Valea Fântânii which is now almost totally depopulated but there were 30 families in 1831–1832 and 47 in 1912 while the total population was 220 in 1912 and 290 in 1941 (the last year for which separate data is available).

# denotes the villages which have official recognition today as components of communes or towns (i.e. Classes 3–5 in Table 1).

*Sources*: Census returns and administrative handbooks. Also Anon 1892 for 1831–1832 data.

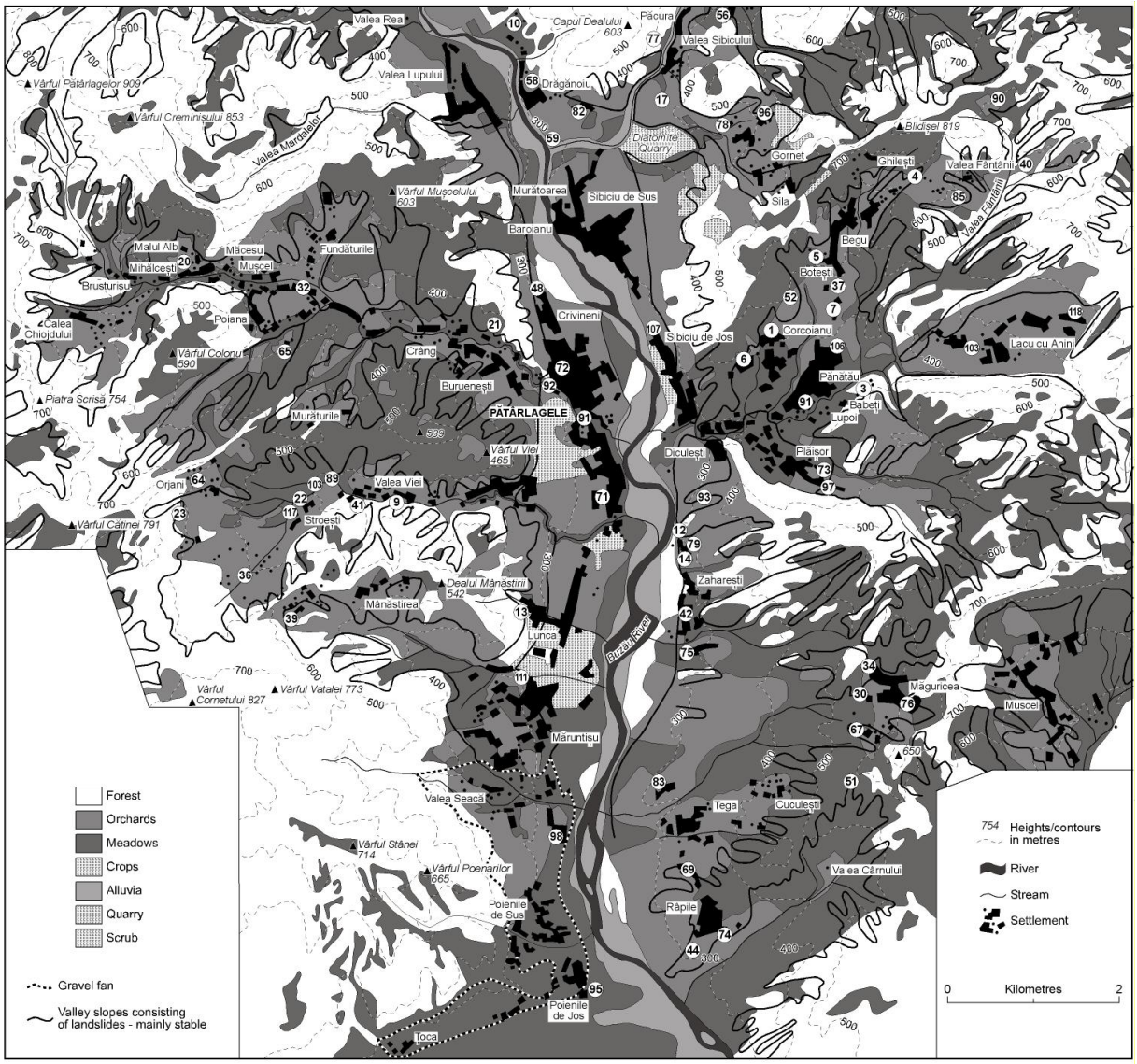


Fig. 2 – The landscape of the Pătârlagele Depression.

Named settlements are those with a history of official existence in administrative handbooks since the late nineteenth century. Those coded by numbers are dependencies: those in the study area are listed in Table 1. The key for the others is as follows

(upper case is used for Class Two settlements): 8 Baroianu; 9 Bărbuleşti; 12 Bejani; 13 Benga; 14 Bogdăneşti; 16 BRUSTURIŞU; 18 BURUENEŞTI; 20 Cătunul Bisericii; 21 Cetate; 22 Chelăreşti; 23 Copăcel; 26 CRIVINENI; 27 CUCULEŞTI; 30 Dubroveşti; 32 Gârlă; 34 Gorlani; 36 Ivăneşti; 39 La Mânăstire în Ţigănie; 41 Lemnăreşti; 42 Linie; 44 Luntrari; 46 MĂCEŞU; 48 Malul Alb; 49 MALUL ALB; 51 Mânăstirea Cârnu; 54 Mărunţişu Jitianu; 55 Mărunţişu Sibiesc; 57 MIHĂLCEŞTI; 61 MURĂTURILE; 62 Murea; 64 ORJANI; 65 Pâcle; 67 Panaieţi; 69 Pâslari; 71 PĂTÂRLAGELE DE JOS; 72 PĂTÂRLAGELE DE SUS; 74 Pe Faţă; 75 Pe Muchie; 76 Pe Pisc; 79 Peste Izvor; 81 Podosu; 83 Poduri; 84 POIANA; 89 Potorăşti; 92 Prundeni; 93 Racos; 95 Redeni; 98 Satu Nou; 103 Şoghiorani; 108 ŢOCA; 109 VALEA CÂRNULUI; 111 Valea Gornetului; 113 VALEA REA; 114 VALEA SEACĂ; 117 Vasiloi.

## THE LOCAL TERRAIN

As the basis of a countryside of depressions and rolling hills at 300–900 m, the complex geology embraces Miocene and Pliocene rocks that vary greatly in their resistance to erosion: ranging from clays and marls to limestones and sandstones. The landscape is remarkably youthful because of the vertical uplift of about 1,000 m during the Quaternary which continues today at the modest rate of 0.5–1.5 mm per annum. Rivers have become ever more deeply incised in an area of steeply-inclined (sometimes near-vertical) strata, while valley deepening also results in a massive and continuing transfer of material from the slopes to the channels. Indeed, mass movement occurs throughout the extensive 'flysch zone' of the Carpathians, given the great instability arising from lithological variety as well as tectonic and structural fragmentation conducive to a dense river network. Sedimentary rocks include clays, marls, sands and gravels intercalated with more resistant cemented rocks: sandstone (calcareous, silicious or otherwise depending on the binding material), limestone, gypsum and even conglomerate. Level ground is to be found on the Buzău alluvial lands comprising well-developed terrace systems appearing as steps beginning just 3.0–4.0 m above the floodplain; complemented by fragments of mature relief on the higher ground as well as unstable landslide surfaces comprising many of the hillslopes. The fossil soils of the former (e.g. brown soils found on sands, sandstone and young rendzinas) and the more immature but moist soils of the latter support pastures and hayfields today. Meanwhile, forest may be present on the floodplain as 'zăvoi' with species of poplar and willow.

The natural vegetation is beech (*Fagus silvatica*) woodland on north-facing slopes and durmast (*Quercus petraea*) on south-facing slopes: since these trees are close to their respective limits at Pătârlagele the contrast arising from aspect is greatly accentuated. The area was once covered with a multi-layered deciduous mesophile forest: an ecosystem of great stability and productivity, capable of efficiently protecting the soil against sheet wash and ensure a certain discharge-to-infiltration balance. Meanwhile on lower altitude sunny slopes it was the durmast that prevailed while on shaded slopes above 700 m there was beech forest (occasionally mixed with durmast). In addition some xerophitic elements – pubescent oak and manna ash – were once present on sunny slopes. Today the forest is often young, implying the clearance of natural woodland: beech climax on north-facing slopes, and oak/durmast on south-facing slopes; along with some *Fraxinus ornus*, *Quercus pubescens* and *Ulmus*. There have been some attempts to introduce pine on degraded land beneath the beech as part of a species change strategy, but results have not been too good because of salt in the marl – and also drought on sandy land. Because of the salt content, the stone and sand loses part of its value as construction material. However, the beech is now more highly valued commercially for use at the Nehoiu sawmill and a slow transition of pine plantations to beech and oak may be expected if there is no further interference.

However the fossil soils of the mature relief (brown soils found on sands, sandstone and young rendzinas) and the more immature but moist soils of the landslides support pastures and hayfields today. Meanwhile although the sands yield a thin soil, there is some amelioration through material in suspension: hence the alluvial deposits on top of vertical sandstone/sand deposits on the riverbanks around Pănătău. The result is acceptable cereal land, especially in the case of two extensive terraces at Pătârlagele. Since the valley land is used as intensively as possible for crops, haymaking is restricted and 'fân de lunca' has to be supplemented by 'fân de deal' although the latter is tougher and of generally poorer quality.

Meanwhile some woodland may be present on the floodplain as 'zăvoi' with species of poplar and willow. Traditionally, torrential rain and heavy run-off has provoked major flooding causing damage to the infrastructure and to cropland that may be covered by a thick layer of sand and gravel. Fortunately these risks have been reduced by the Siriu barrage and similar works in the Bâsca catchment, linked with the generation of hydroelectricity, but the higher land remains unstable and well over half the sloping land may be prone to landslides and mudflows (especially where hills are developed on clays and marls). Mean discharge in the Buzău Subcarpathians is 13t/ha/yr; but rates of over 50 have been recorded. Pine trees, along with acacia, ash, buckthorn (also alder on landslides where there is sandy material) help to maintain stability (Muică Cristina *et al*. 1993, p. 142).

## HILLSIDE REMNANTS OF OLD RELIEF

This paragraph deals with the highest ground – on both sides of the Buzău – with fragments of an old mature relief linked representing peneplanation associated with the high terreces of the Buzău and other rivers cutting across geological layers of varied resistence and inclination, even including some in a vertical position. There are some 'poduri' (terraces) or almost level surfaces isolated as at Blidişel and Capul Dealului (north of Sibiciu de Sus) and at Seciu above Râpile on the eastern side. Hill slopes ('povârnişurile dealurilor') extending from the hill summits to the valleys are very varied and some are quite precipitous ('povârnişuri repezi'). The hills east of the Buzău (north of Zahareşti and east of Valea Fântânii) are typical cuestas with a steep north and northwest ('dos') slope – e.g. Dealul Pănătăului/ Plăişorului – with a 12–15 deg. structural surface ('faţă') to the south and southeast. Some slopes are steep in the upper part (due to erosion) and yet grade into a fan of deposited material lower down. Young soils (even bare rocks) on the slopes therefore contrast with mature/fossil soils on the surfaces associated with old relief. But aspect is also important because it is quite common to see north-facing cuestas displaying contrasting land uses: forest to the north and agriculture, pasture and fruit trees to the south. The wind is channelled down the valley so that trees are slightly inclined in this direction (though the circulation may be diverted due to currents). Where the ridge is forested on both sides it is likely that there will be durmast to the south and beech to the north; also beech above durmast following the system of altitudinal layers (although beech is found below the durmast at the foot of the southern slope in a narrow valley which is heavily shaded and therefore cold). A good example of old relief is Presvale near Râpile with steps occurring consistently through the 500–650m band. Here the layers are vertical whereas and on Seciu hill (above Râpile) the surface coincides with the disposition of the geological strata inclining gently to the west. Meanwhile at the very highest level on Blidişel there is a little horizontal surface cutting into layers (of varied resistence) inclined to south with a 25–30 deg. slope. Economic significance is demonstrated by the names indicating agricultural use (discussed below).

Agriculture used structural surfaces in the past and there are many surviving agro-terraces (while landslides tend to occur on the more humid soils lower down) with the best examples occurring at Poduri above Corcoianu and Luncă near Begu with maize still grown in the vicinity. The dry thin soils are generally marginalised today with *Chrysopogon gyllus* or 'sadină', which is an indicator of land that has not been used for agriculture for a long time. Meanwhile good grassland is to be found especially on the dark pseudo-rendzina soils derived from marl and on the more stable surfaces where a transition to brown soils can be found; while by contrast a hard vegetation occupies the salty land. Thus the net result of human interventions is a 'crâng' landscape of small coppices interspersed with grazings compared with denser, more continuous 'codru' forest. Thus Cristina Muică *et al*. (1993, p. 137) underline the reality of 'the mosaic-like Subcarpathian landscape [which] facilitated a multitude of soil uses' as forest was greatly reduced. This new mosaic pattern reflects the main scarp and dip slope features linked with a succession of cuestas – with woodland and agriculture – further differentiated by scarps and terraces on the dip slope giving rise to small areas of woodland, with orchards, grazings and hayfields. There may be an alternation of sandstone and marl outcrops across a sloping surface: introducing a corrugated pattern with minor cuestas and contrasting landuses of woodland/scrub and pasture.

## THE LANDSLIDES

Unstable terrain is a feature of the Subcarpathians wherever four to five degree slopes occur and much emphasis must be given to landslides (‘pornituri’) which are very characteristic of the Curvature Carpathians with much instability especially where Pliocene clay and marl can slip on underlying Miocene sandstone. Despite the agricultural potential the landslides have always posed risks for settlement. And these hazards have become more significant today in the context of increasing investment in housing and infrastructure (Bogdan & Bălteanu 1986). By contrast where marl outcrops between vertical sandstone strata mudflows often occur: they tend to break out after heavy rainfall in spring when the stability arising from winter freeze has been lost. They move downhill like glaciers at rates of up to 20–40 m daily. Both landslides and mudflows occur are almost impossible to control, given the complex geology and the instability arising from the continuing tectonic activity (Muică & Zăvoianu 1996, p. 210). They are basically natural: a response to downcutting by the Buzău river, possibly coupled with tectonic uplift. A tree cover may make for greater stability but it cannot prevent readjustment permanently. Indeed, mass movement has been occurring for 2000–5000 years at least, though many landslides have been stable for a long time – even since prehistory, as indicated by the extent of soil development. However landslide material varies considerably in character. The main ingredients are clay, marl and sandstone, but the proportions vary as does the amount of lubrication (for heavy rain may well provoke sudden changes in the speed of advance), while fragments of hard rock may occasionally predominate. The depth of the landslides varies considerably: most are quite shallow (0.4–0.8 m) – typically on the steeper slopes – but some reach as much as 10.0 m and occasionally 20 m. The shallower landslides tend to be the more extensive: emanating from amphitheatres (formed by partial slumping of the hillside) to occupy as much as two-thirds of a hillslope. As material is torn away to form a landslide source area a quite large steep-sided ‘detachment cup’ may be created to resemble a glacial cirque.

Clearly stable landslides have great significance for agriculture because although sliding interrupts soil formation, fertility and moisture content is enhanced by mixing linked with a natural ‘churning’ process. After major landslide activity, the soil develops relatively quickly (faster on sands and sandstones than on marls) because the water washes out the salt and creates a good agricultural soil. The peasant’s eye will select the most suitable of the gentler slopes that may be cleared for grazings and orchards (the latter often established at the lower end of landslides) and there may also be fans of alluvial material where minor tributaries change course through landsliding and the old course can be used for fruit trees. The lack of extensive smooth surfaces with easy access – so important for commercial agriculture – is no great handicap for subsistence farming when people are able to live in close proximity. And since they offer moisture retention (particularly valuable during dry periods) and remove salt from the soil, even the shallowest landslide tongues (‘limbi de pornituri’) have been widely used for crops in contrast to the pasture and forest prevailing elsewhere. Haymaking and fruit growing are prominent while (crucially in an age of subsistence) maize grew well on reasonably mature landslides, though less well on the hill with thin soil on the impermeable marl. Given the agricultural potential along with access to woodland and grazing it is conceivable that these surfaces were exploited during the period of Cuman-Petcheneg pressure. But there is no evidence of this and all the indications suggest nineteenth century exploitation when whole settlements were driven on to these surfaces: Gornet, Lacu cu Anini and Măguricea to the east of the Buzău and Calea Chiojdului, Fundăturile, Mânăstirea, Orjani and Stroeşti to the west. The dangers were considerable since houses on landslides may eventually be undermined (say once each century). Still today, the risk of renewed instability can never be overlooked and in many areas it may well be prudent now to restrict agriculture to grazing and haymaking. Meanwhile, mudflows may stabilise and support a grass cover, although it is not good for hay because the surface is so rough the grass is difficult to cut. The ground is also very humid and may have a high salt/sulphate content. So the land is best used for grazing.

At the southern edge of the study area i.e. from Izvorul Chiliei northwestwards to Izvorul Şughiţei (the lower part of Valea Fântânii and the Pănătău stream) SSE-trending hillslopes are almost in complete concordance with the surface of the geological layers inclined at 13–15 degrees. There are landslides on these slopes but they are not very thick and not so clearly visible in the relief. But towards the north and northwest, on the contrary, there are steep slopes of 35–45 degrees – even 90 degrees – frequently with the name 'mal/maluri' (a very old word in the Romanian language) with young soil or without any soil or vegetation at all. Slopes extend uninterrupted from the hill summits to the watercourses as in the case of Dealul Pănătăului on the left side of the Pănătău stream and the northwest part of Dealul Plăişorului on the left side of the Plăişor brook; or with landslides on the lower southeastern part of Dealul Plăişorului. Only to the west of Slabi, on the left side of the Sila, is there a great landslides tongue fed by material from the north and with the name Poiana Silei with Podişor higher up to the north. Another interesting case is Dealul Plăişorului where an old landslide tongue has been destroyed by erosion in its frontal part between deep valley left of Izvorul Plăişorului and right of Izvorul Croitorului (reminiscent of the old torrential gravel fan of Mărunţişu already referred to). Moving on towards the Sibiciu stream, landslide fans and tongues occur frequently on the lower hillslopes e.g. Valea Fântânii, with landslides on the strata inclined as much as 35 deg. with steps (reflecting resistent strata) that provide sites for the villages of Begu, Corcoianu and Ghileşti. Even the landslide surfaces are more inclined because of the high content of sand or even sandstone blocks.

Moving to the area between Sibiciu de Jos and Sibiciu de Sus, there are many landslide fans on the six–eight meter terrace of the Buzău. They are very clearly recognisable, some united in the lower part while others are suspended. To the north, towards the Sibiciu stream, there are three basins: (a) Gornet, with a great landslide tongue 2.5 kms long and a great fan/delta in the lower, frontal part on the right side of the Sibiciu stream showing some hydrographic modification (N. Muică 1977, p. 109). This landscape sustains the settlements of Sila and Gornet above and (formerly) Burduşoaia below since the land is good for agriculture despite the instability. The second basin (b) is Fulgoaia, with a long 2.5km landslide tongue with many branches flowing very slowly to the Sărăţel valley and its confluence with the Sibiciu brook. The landslide originates at a col WSW of Blidişel on the other side of the summit from Ghileşti, with much source material derived especially from four little valleys or 'groape'. Lower down the landslide tongue becomes almost a kilometer wide and is difficult to delimit given the many recent 'rupturi'. Further down the tongue narrows to accommodate the very narrow gorge SSW of Fulgoiu (only 200 m wide but more than 500 m long) while the valley then widens out below the gorge and a landslide fan develops to support the hamlet of Păcura on the right side and Măţara on the left; for only this lower part is good for hay and pasture with fruit trees as well around the hamlets. Thirdly (c) we have the Sărăţel (or Goşa) landslide which is very extensive with origins near the Predeal col (north of the Valea Fântânii source) and the confluence of the two tongues at the salt spring of Balta Sărată which is the source of the Sărăţel or salt brook. Just below on the right side, another landslide tongue arrives from the Valea Dulce: i.e. the sweet little brook, because it is without salt. But with many branches and recent 'rupturi', the landslide area is again difficult to delimit exactly, as at Fulgoaia. Below the confluence area, the Sărăţel narrows considerably and the landslide material is transported by water. Indeed both the Fulgoaia and Sărăţel basins are quite similar to the upper part of the Valea Viei basin (on the western side of Buzău) with mobile landslides and salty land suitable only for pasture and hay. The three basins are separated by prominent hills: Muchia Borduşoaiei left of the Gornet basin, Muchia Roşiilor between the Gornet and Fulgoaia basins, Fulgoiu between the Fulgoaia and Sărăţel/Goşa basins and Goşa hill to the right of the Sărăţel basin. Finally, immediately above the landslide zone the terrain known by the natives as 'chichilaie' (plural 'chichilăi') with 30–40 deg. slopes (or steeper) and a thin soil carrying woodland or a pioneer vegetation.

From the mosaic-like distribution of soil types, reflecting the complex geology with varied structural characteristics and lithological sequences, it is possible to recognise five levels of natural potential for agriculture (Table 3). This picture arose out of a major terrain mapping exercise carried out by the Romanian Academy's Geography Institute during 1977–1979 (C. Muică *et al*. 1979; N. Muică

*et al*. 1981). The very good land clearly comprises the Buzău terraces while the poorest land is predominantly the wet ground beside the various watercourses, along with the rocky summits and the very salty ground. The intermediate categories cover the landslides and the smoother structural surfaces with the varying potentials contributing to the 'mosaic' character of the landuse according to the steepness of the slopes, the degree of stability and the quality of the soil. It is clearly important that farmers should carry out their activities with these varied potentials in mind and agricultural advisers are needed to help farmers consider the possibilities.

*Table 3*

Natural potential of the land

| |
|---|
| **VERY GOOD (7.3%):** Areas with insignificant degradation: stable ground with slopes of less than five percent; suitable for multiple uses (agriculture, settlements and communications). |
| **GOOD (20.4%):** Areas with insignificant degradation: gently sloping land including structural surfaces; also stable landslides with mature soil: suitable for crops, pasture and meadow. |
| **AVERAGE (50.3%):** Areas of moderate degradation: higher ground and medium/steep slopes with podsolised brown soils and acid brown soils mainly used for agriculture (crops, hay and orchards); also stable landslides with a woodland cover. |
| **POOR (7.8%):** Areas of significant degradation: steeply-sloping land with eroded soils and bare rock; typically invaded by brambles ('mărăcinişuri'); also alluvial lands regularly flooded and used only for grazing and scrub. |
| **VERY POOR (14.2%):** Areas very heavily degraded: very steep slopes with immature soils and rocks; also with erosion and mass-movement affecting valleys and cuestas; eroded lands with plantations; former quarries; and mobile alluvium on the plain. |

*Source*: N. Muică et al. 1981.

## THE SETTLEMENT PROCESS

The area is generally believed to be long-settled in view of the historic importance of the Subcarpathians as a refuge during the migration period but it is evident that many of the smaller settlements are comparatively recent dating to the nineteenth century: a period of population increase when capitalist farming on the Buzău terraces drove subsistence farmers further into the hills where the landslides and structural surfaces were more intensively used. We decided make a distinction between settlements that were clearly in existence by 1800 – a primary group – and those established later – a secondary group. The former were recognised from documents, including the records of church building; but especially cartographic sources with Bauer (1778) and Specht (1790–1791) as particularly important sources. Meanwhile the secondary phase could be split between the nineteenth and twentieth century with the appearance of the first Romanian topographical series in 1906, based on data collected duringh 1895–8. Additionally the Russian Map (Harta Rusă/Rusească 1853) could divide the nineteenth century into two halves. Most of our primary settlements are invisible before the eighteenth century and much of the published historical record is highly speculative with some dates apparently picked at random: thus Petrescu-Burloiu (1977) proposes a seventeenth century tag for Gornet and Valea Sibiciului; while equally mysteriously, Burlacu (1979) sees 'schituri rupestre' emerging at Begu and Valea Sibiciului during 1100–1500 while Iorgulescu (1892, p. 334) supplies a speculative date of 1640 for the latter. More reasonably for Begu, Gâlmeanu & Ionescu (2002 p. 283) claim an origin before 1700 and while 1714 is quoted for the first Sf.Nicolae church, an earlier date is by no means improbable given the name of the village as a sheltered refuge and the quality of the land in the vicinity. Nevertheless the claim is unsupported.

However there is some firm evidence for Sibiciu de Jos/Sus. The assumption of an 'Ungureni' connection with the Transylvanian town of Sibiu has been challenged by the idea of 'Sibiu' as a personal name Drăganu (1933, p. 553) claimed that both Sibiciu and Sibiu are derived from the Slav name for the cornel tree ('sibinieja' in Bulgarian). However there are traces of old cemeteries (Constantinescu 1941a, pp. 369–370) and there is no doubt that the two villages are the oldest in the study area. At Sibiciu de Jos

the name Sibitscheni de Schos is recorded by Bauer (1778) and Schibiczou de Sjos by Specht (1790–1791) – also Sibiesel by Ruhedorf in 1788 – after the first church dated c. 1750. But the record can be taken further back by documents for 1669, 1679 and 1684 – discussed by Cocora (1979 pp. 68/84) – referring to land transactions by local people is respect of their estate at Gura Teghii (lying well to the north beyond Nehoiu) and suggest that the Pătârlagele Depression was a base for the settlement of adjacent mountains forming part of the Carpathians proper. Additionally, for Sibiciu de Jos there is a 1669 document alluding to 'Făsăiți' and still earlier in 1583 a document mentions 'Sibiceu' for Sibiciu de Jos (N.A. Constantinescu 1941b, pp. III–IV). More specifically we have a reference in 1515 for Sibiciu de Sus including the words: 'până la hotarul Sibiceului' (Roller *et al*. 1951: vol 1, p. 108); while a 1534 document sees the 'voevod' declaring Sibiciu as part of an estate: 'dat-am această poruncă … ca să fie lor Sibiciu părțile lor de moşie' (Ibid: vol. 2, p. 165). For 1568 there is a reference to the Fugeşti family denouncing two nephews of people with the names of Sibiu and Lera: 'şi aşa au pârât Fugeştii pe nepoții lui Sibiu şi ai lui Lera' and again 'poruncă domniei mele lui Sibiu cu frații lui' (Ibid: Vol. 3, p. 267). Further, in 1584 the voevod Pătru's declaration involves Ivan and Sibiu with their respective brothers: 'dat-am domnia mea această poruncă pentru a domniei mele lui Ivan cu frații săi şi Sibiu cu frații săi' (Ibid: Vol. 5, pp. 169–170). In all these cases the Sibiu name is being used in the sense of a family group or clan ('cete de moşneni') owning lands collectively i.e. 'în devălmăşie'. Hence we can regard the two Sibiciu villages as reliably documented from the sixteenth century.

But there is another interesting scenario concerning the hill village of Gornet where a hermitage church is dated 1645–1646 (Stoicescu 1970, p. 578) and we think that the relevant document also refers to people owning land nearby. This record has some incidental support from a legend relating to a former resident who claimed to have seen a manuscript on the history of Gornet describing the activities of a monk who enjoyed local support for a cell established in c.1640, subsequently replaced by a 'schit' in 1707 using local oak timbers. Gâlmeanu & Ionescu (2002, p. 70) also claim documentary evidence for 1515 although this is not substantiated. Thus we have the paradox of early chapels in the hills when the main settlements were on the lower ground: a theme reinforced by the early origins of Cârnu monastery although lies just to the south of our area. Incidentally, at Gornet (including the quarter of Peste Izvor) a church in 1772 (extended with the tower in 1835) followed the earlier church and we may quote the words of Stoicescu (1970, p. 578): 'biserica de lemn Sf.Gheorghe 1770–1772, fost schit'. We also have Specht's (1790–1791) reference to Kornet while Gojinet was used by von Bauer in 1778.

There is also evidence for early settlement in the Valea Sibiciului locality, although Burlacu's (1973) idea of a Medieval hermitage is pure speculation and an intriguing date of 1640 by Iorgulescu (1892, p. 334) is not tied to any specific document. The church was not built until 1892, but there was definitely a wooden church there before this (although the date of construction is unknown) and the village name was first recorded in 1818. However, the Specht map of 1790–1791 shows a settlement called Treseny: a name derived from 'trestie' meaning a common reed of the type commonly found on landslides which would fit very well with the right side of the Sărățel brook (close to the confluence with the Sibiciu) opposite the village of Păcura (after a local oil spring) which is only documented from the 1870s and is now deserted. Evidently Treseny is the primary settlement in this locality and it may be that a natural disaster (such as a flood) provoked a partial shift to the present Valea Sibiciului site (though we cannot be absolutely sure that this was not also being used for a time as an alternative to Treseny). But there could also have been with a subsequent adjustment at Treseny in favour of the young landslides on the opposite side of the Sărățel brook stream: recorded from the 1870s as Păcura. Alternatively, a period of total desertion at Treseny could have been followed by reoccupation on the opposite side of the stream in the 1870s when a significant population took advantage of the oil spring (after which the village was renamed) and also the moist landslide material that is still used for hay and fruit.

Pănătău is another interesting case because we have Iorgulescu's (1892, pp. 378–379) speculation linking seventeenth century Ungureni 'coloni' with the founding of the village, apparently after they had already gone to Begu and Sibiciu: an unlikely scenario of 'sequent occupance' but one that seems to have inspired Petrescu-Burloiu's (1977) colonisation theories. At the same time, documentary evidence is

claimed for 1515 (Stoicescu 1970, p. 472) although this relates to a territory or estate ('moşie') with the judgement: 'şi iarăşi să fie Pănătăul până unde se impreună cu hotarul Târcovului': again I say to be Pănătău's territory until the boundary with Târcov. And there is a further reference of the same kind in 1583 about the extent of the estate 'din apa Malu Dârstei până în Vf. Pănătăul': from the Malu Dârstei stream to Pănătău peak (N.A. Constantinescu 1941b, pp. III–IV). However an estate is not necessarily a village and no settlement appears on eighteenth century maps: indeed Pănătău's church is known only from 1851. However there is a cross dated 1790 which could be linked with an older church in this village (probably a cemetery as well) and oral evidence (retained by the present priest, Alexei Lucian) insists on an earlier church – albeit unrecorded – that was similar to the first church in Valea Viei in general appearance and mode of construction (i.e. wattle and daub). Finally we may mention the nearby Begu locality for which Gâlmeanu & Ionescu (2002 p. 283) claim an origin before 1700. However there are no documents and the first Sf. Nicolae church, finished at Ghileşti in 1714 (Stoicescu 1970, p. 62) cannot be taken back to the previous century with any certainty although it is by no means an improbable scenario given the name of Begu village as a sheltered refuge and the quality of the land in the vicinity. It was evidently during the nineteenth century that a relocation took place with a new church in Begu which (along with the oldest quarter of Băicuş) remains invisible until this time: the change could have occurred as part of a so-called refurbishment in 1807–1809 or 1887–1889 on account of the instability of 'pământ mişcător' at the old site.

## SECONDARY SETTLEMENT 1800–1945

There was evidently an explosion of settlement in the nineteenth century on the basis of a comparison between the Bauer/Specht sources and the Romanian topographical map of 1906. There was clearly a rapid growth of population because the survey of households in the 1830s may be compared with the Colescu survey of 1899 which was published in 1905 and subsequently mapped by Baranovsky & Ştefănescu (1965) while the first official census of 1912 covered both households and total population. Despite the growth of Pătârlagele itself our district was able to increase its share of households from 36.6% in 1831–1832 to 37.8% in 1912 while the share of total population was slightly higher at 38.9%. This growth reflected some expansion of commercial activity in the main centres like the Sibiciu villages but also the emergence of new communities. The latter appear to have been less nucleated because clearly the priority was not the growth of central places but the needs of subsistence farmers seeking a niche in the age of capitalism – typically in relatively remote areas on landslides as well as fragments of 'mature landscape' on the higher ground. Indeed we would underline the quite remarkable situation in which the hillslopes – extensively covered with relatively fertile landslide material – offered much support to scattered subsistence communities comprising the core of an alternative socio-economic system to the emerging capitalism of the central zone supported by the rich agriculture of the Buzău terraces as well as a modern infrastructure based on road and rail communications along the main valley contrasting with the crude 'drumurile accidentate' (Petrescu-Burloiu 1977, p. 146) on the higher ground, with erosion increased by deforestation that restricted woodland to the steepest slopes, as noted by N. A. Constantinescu (1938). This centre-periphery dualism would have been accentuated following the abolition of feudalism, leaving estate owners free to concentrate on commercial farming on the river terraces while much of the subsistence farming was transferred to the landslides. Although relatively remote and inherently unstable, intensive use of the hills was certainly maintained until alternative cereal lands were allocated in the Bărăgăn as part of the 1923 land reform; continuing on a considerable scale until the collectivisation in the 1960s brought a measure of resettlement. Of course we are not suggesting a clear watershed in 1800 between the primary and secondary phases of settlement. Petrescu-Burloiu (1977, p. 145) refers to a seventeenth-nineteenth century expansion of agricultural land at the expense of woodland; guided by the potentials for settlement in an age of population growth boosted by Habsburg mercantilism in the imperial

borderlands as 'Ungureni' immigrants were able to negotiate a stake in 'moşneni' landholding and either join existing communities or establish new settlements in the hills as part of the ongoing process of 'roirile pastorale'. The nineteenth century trend is therefore an acceleration of what has been noted for the eighteenth century but with permanent settlement in landslide areas much more accentuated through fragmented settlement outside the main villages. All over the hills it seems that new land was being broken up as 'mosaics' of mixed agricultural activity extended across the landslide tongues covering which had previously seen only grazing and haymaking on the 'conac' model without the subsistence crops, plum trees and permanent settlements as subsistence farmers sought a niche in the age of capitalism.

Unfortunately, very little documentation is available to expand and illustrate this scenario of settlement advance and retreat over a relatively short period of time, although in our sub-region the expansion appears to have been much more evident in the late nineteenth century, with two notable exceptions. The first was Plăişor (lying just above Pănătău) where the first church was built in 1838: there is a cross dated to 1793 but no documentary evidence to suggest the settlement existed at the time. Meanwhile, a second new village took off at Valea Sibiciului: presumably as a consequence of problems at the older settlement of Treseny already discussed. As a result of this growth the estbalished villages became surrounded by new hamlets. Thus Valea Sibiciului was not only surrounded by a mosaic of small fields and gardens but complemented by a wider colonisation of the valley slopes that were good for fruit (especially plums), pasture and hay: hence the hamlets of Burduşoaia, Mățara and Peste Gârlă; with similar develoment around Begu, Pănătău (including Corcoianu) and Sibiciu de Sus. The results east of Pănătău were particularly impressive with relatively large communities emerging at Lacu cu Anini and Valea Fântânii. Much of the dispersal has survived although some places have almost completely disappeared through landslide damage and resettlement projects in the communist period when subsistence farming went into decline. Services were evidently concentrated on the low-ground settlements with church and school provided at each of the two Sibiciu villages as well as Pănătău and Valea Sibiciului while Plăişor had a church, as already noted (albeit dramatically replaced – following a devastating fire in 1939 – by transfer of a redundant church from Pătârlagele de Jos five years late) (Damé 1894). Up in the hills both Begu and Gornet had their churches and also schools while Corcoianu and Lacu cu Anini also had schools; arising in part in the inter-war period through gifts made by benefactors. The priest Tr. Georgescu provided land at Lacu cu Anini (Slabi), where the villagers provided the labour; while another priest Nicolae Negulescu gave land and money at both Corcoianu and Valea Fântânii (though in the latter case there was no successful outcome and a local school never achieved any continuity). Today only Begu school remains in the hills although both churches are still used. Finally it will be noted from Table 2 that a few new settlements appeared in the twentieth century: these all relate to the communist cooperative farm when a considerable number of families were resettled on lower ground on some of the arable areas previously used for commercial farming: hence the 'Țarina' names which provide direct link with arable land.

## VILLAGE NAMES

Finally in thus section we mention the village names which all have some meaning apart from Mățara. Some are contested like Sibiciu (occurring three times through Sibiciu de Jos/Sus and Valea Sibiciului) where the 'Sibiu' element was highlighted by Iorgulescu (1892 pp. 453–454) in terms of presumed immigration by Sibiu people arriving as 'moşneni' colonists with joint property ('în devălmăşie') not only in Sibiciu de Jos/Sus but also in Begu, Lacu cu Anini, Pănătău, Plăişor and Valea Fântânii. However a Transylvanian influence should not be denied entirely because Băjănii relates to fugitives who could have been people who arrived as escapees from Hungarian jurisdiction, although this can only be a speculation. Many other names relate to families: Balea (the name is thought to be very old – even predating Roman colonisation), Baroianu (Baroi – a name of Roma origin), Boteşti (Botea), Diculeşti (Dicu), Drăgănoi (Drăgan), Ghileşti (Ghilea), Lupoi (Lupoiu), Slabi (Slobu) and Vlăiceşti (Vlaicu/

Vlăicescu). Some others may derive from nicknames: Arvuneşti, Babeţi, Corcoianu and Făşăiţi, maybe Baroianu and Lupoi as well, while Lupoi is very likely based on 'lup' or 'lupoi' – a male wolf (since the female form 'lupoaia' is used separately in a document of 1903). Băcioi and Baicuş could relate to pastoral activity with 'baciu' a shepherd, while La Odae refers to a sheep farm and Ţarină indicates arable land as already noted. Murătoarea alludes to salt springs significant for pickling while Moara Sibicianului is Sibeanu's mill and Rotărie means a wheelwright. Robu provides a reference to servile status under feudalism, while Predeal is a boundary, Pripor is a road or track on a steep slope and Păcura means oil (from the Latin 'picula'). Begu may derive from the Slav word 'begate' meaning a refuge or hiding place (which could be linked with the issue of security in the migration period), while Pănătău is highly problematic: a Gothic influence has been seen in the elements 'pene' and tae' to mean a hiding place on the edge of a great forest, which has some documentary support from the eighteenth and nineteenth centuries (Stoicescu 1970, p. 472). But other interpretations argue for a Slavonic base with Greek and Hungarian influences to produce 'Pănető' although this name has no meaning (N.A. Constantinescu 1938, pp. 268–275).

Physical features are often involved: Plăişor is derived from 'plai' meaning a flat mountain surface (likewise names with a 'pod' element such as Podul Viei). Lacul cu Anini is the 'lake with alders' (although the lake has long since dried up), while La Cătină indicates buckthorn scrub; Trestioara derives from the reed plant 'trestie' (*Phragmites australis*); and Mărăcineni (linked with the Mărăcineanu family) is a name derived from 'mărăcini' meaning brambles. Mlăcile comes from 'mlaca' (a marshy place), Gârla refers to wet ground and Pe Crivina refers to moist soil, from the Serbian 'krivina' (Candrea 1931, p. 355). The notion of distinct communities situated on the side of a stream is relevant to Peste Gârlă and Peste Izvor while Valea Fântânii is the 'valley of the fountain' and Burduşoaia refers to loose spongy ground. Sila indicates a small woodland while Gornet refers to durmast trees and Poiana is a clearing. Corcoianu has an uncertain derivation, although 'corcă' is known in Banat as a raven (despite the normal use of 'corb' in Romanian for such a bird) and in Moldavia as an old wine container. Băia is problematic: it could refer to a spa or mine though neither make any sense in the local context. It could be related to Slavonic (Iordan 1963, pp. 144–5), the phonetics suggest that it could be much older (even pre-Roman), with possible associations with words such as 'Balea' and 'Boli' from Romanians in the West Balkans (Capidan 1931, pp. 174–5). Of course the accuracy of these names is always questionable although some do fit the local situation very well. Treseny's link with the common reed found on landslides fits very well with the site on the right side of the Sărăţel valley close to its confluence with the Sibiciu; while loose spongy ground at Burduşoaia fits in well with the landslide on which this tiny hamlet was once situated. On the other hand Gornet does not have physical conditions suitable for a durmast wood (beech trees are more appropriate for the moist soils developed on landslides) and hence the more likely connection with the Slavonic word 'gor' meaning a mountain. As we must reiterate that while names may be suggestive they cannot be accepted alone as a firm basis for settlement history although they may provide incidental support for certain interpretations. For example the notion of refuge at Begu is *per se* no real justification for supposing that the village sheltered a native population in the migration period; while hints about fugitives cannot seriously advance the thesis of Ungureni settlement in the sense of fugitives arriving from Transylvania.

## TOPONOMY

The paper moves on to consider other names, the vast majority of which can be accepted as genuine toponyms grounded in local usage. A general review of the evidence for the area as a whole is provided in Turnock & Muică 2010. However it should be stressed that some names have clearly been invented: most surprisingly perhaps by Iorgulescu in his book of 1881 where certain streams are named after the adjacent villages in preference to local usage (perhaps to simplify the text for elementary educational use). Thus Valea Sibiciului de Jos (possibly) for Pănătău stream although the latter name is also quoted. The only

other cases we know concern Dealul Geroasa and Valea Geroasă used in 1980 and 1961 (also Dl/Valea Gerósa in 1900 and Dl.Gerósa in 1892) suggesting that Iorgulescu initiated this practice for what was shown just an unnamed peak of 686 m in 1941 and 1906. The name actually relates to an estate, rather than a physical feature, and it the cartographers who have adopted it for a small hill and a valley. The area includes 225 named features and of these almost exactly half 112 have no documentary references and are known only from oral evidence. 68 features have just one reference while another 24 have between two or three and nine have between four and five. The best-referenced are Gârla/Izvorul Croitorului, Malul/ Muchia Roşiilor, Malul Roşu and Sărăţel with six, Valea Fântânii and Gârla/Izvorul Plăişorului with seven, Piatra Dascălului with eight; Blidişel, Dl. Pănătăului and Muchia/Vf. Pănătăului with nine, Sibiciu with 10 and Vf. Goşii with 11. The documentary references come from 21 different sources. Most prominent by far are Iorgulescu's two works: 1892 with 84 references and 1881 with 19. Another six score double figures: the topographical maps of 1900: Institutul Geografic al Armatei (a provisional edition) with 46 references; 1961: Ministerul Forţelor Armate Direcţia Topografică Militară, with 21 references; 1980: a new edition by Minsterul Forţelor Armate Direcţia Topografică Militară with 14 references; 1916: Serviciul Geografic al Armatei, with 11 references; and 1941: Institutul Geografic Militar, with 10 references; also the Bălteanu work of 1983 with 11 references. Five to nine sources each come – in descending order – from 1864: the Szathmary 'Charta Romaniei Meridionale' using 1856 data and the 1912 'Dicţionar' by Ministerul Agriculturii şi Domeniilor 'Dicţionarul Statistic al României' published in 1914. Another five sources supply between four and two references each: four each by Frund'escu's books (1871 and 1870, both entitled 'Geografia fizică şi politică a României'), three each by the 1:100,000 topographical map of 1906 (based on the data from 1895–1898) and Petrescu-Burloiu (1977). Finally, single references relate to 1583 (Berechet 1918), 1778 (Bauer 1778); 1825 (Stoicescu 1970); 1861 ('Harta Ţerri Românesci') and 1874 (the Austrian 'General Karte von Central Europe')[1].

Some names appear more than once in the area: Izvorul Glodului (a mud spring) occurs at both Predeal and Valea Fântânii; Mălaia, which refers to former cereal cultivation, is known in the vicinity of both Lacu cu Anini and Plăişor; while Pripor (referring to a road or track on a steep slope) is known at Lacu cu Anini, Pănătău and Plăişor. At the same time, several features have more than one name. Izvoru/Valea Ghimpelui (the valley of the thorn) is quoted in 1900 and 1961, following Limpede I. (clear water not coloured by sediment) in 1892. Piatra Dascălului – the stone of the psalm reader – appears as Pt.-dascalului in 1871, and Pt. Dascălului in 1900, 1961 and 1980, as well as Pt. Dascului in 1861 in error while Pt. Moşeşti (the stone of Moşeşti) is used in 1874. Vârful Blidişel is used in 1961, 1977 and 1980 but Blidişelu-Ps. in 1892, Blidişelu in 1900 and 1977, as well as Dl.Blidişelul in 1912; while Pănătăul appears in 1881 as a generalised reference to both Blidişel and Vf.Pănătău taken together as one mountain. Izvorul Glodului (already noted) is also known as I. La Mihai in the case of its occurrence in Valea Fântânii, while Valea cu Plopi (the valley with poplar trees) is also known as Izvorul Văcăriei (the valley of the cows) and Muchia Pridvale (the summit of Pridvale, possibly derived from an Old Slav word for landscape) is also known as Presvale (the summit before the valley). Muchia Risec (Risec's summit) at Lacu cu Anini is also known as Mu. Râşca (Râşca's summit). At Valea Sibiciului Muchea Roşiilor (Roşiile Hill, alluding to the reddish strata) is also Vf. La Rugi ('at the blackberries' which is also a very appropriate name). I. Begu (Begu brook) is now known as Izvorul La Şapte Meri (the brook of the seven apple trees, which no longer exist at this location) while Valea Cămăruţei (the valley of the little room) is also known as V. Epei (mare's valley). Crucea Predealului (Predeal cross) is also Crucea Goşii (Goşa's cross). The case of Muchia/Vf. Michia for Muchia/Vf. Pănătăului will be referred to in more detail below. There is an error in the case of Vf. Juncului used as an alternative for Vf. Camaruţei in 1881 since Vf. Juncului is really a separate feature and the two should not have been combined. Meanwhile Vf. Cămăruţei (so used in 1900) appears in several other forms: Cămăruţii-Vf. in 1892 and Vf.Cămării in

[1] The paragraphs below include some of the toponyms which were copied from the maps with the same abbreviations that often do not follow the current rules for abbreviation.

2002. Most complex is the combination of Vf. Gornetului with Vf. Begului, La Maiag and Vf. Silei. Three names are used simultaneously in 1892 (Begu-M., Gornetuluĭ-Vf. and Sileĭ-Vf.) partly due to confusion as to whether there is a single feature or a long mountain with several separately-named eminencies (Iorgulescu 1892, p. 260); but there are also references to Gornet and Begu in 1881 with the former name used by people from Gornet and Sibiciu de Sus, while the latter was adopted at Begu and Sibiciu de Jos. Another variant – La Maiag – relates to a surveyor's marking but is not documented.

References may often be presented in an identical form, especially when there are just two e.g. Valea Gornetului 1900 and 1977 – or three in the cases of Valea Begulești (1900, 1961 and 1980), Valea Pastramei (1900, 1906 and 1961), Muchia Risec (1900, 1916 and 1941) and Valea Malul Roşu (1900, 1961, 1980). Indeed there are cases where four reference are identical: Dl.Dârstei (1900, 1906, 1916 and 1941) and La Meri (1900, 1906, 1916 and 1941) and one case with six: Malul Roşu 1895, 1900, 1916, 1941, 1961 and 1980. However it is common to find variations e.g. Cataneĭ-V. in 1892 but V.Catanei 1900 and 1961; Ochiuluĭ-V. in 1892 but V.Ochiului 1900. Other cases are more complex: Burduşoe-M in 1892 but Mu. Burduşoru 1900 and Burduşoara in 1977 and 1983 (also with Culmea in the latter); again Valea Croitoru in 1983 after Croitoru-I. in 1892 – but also Izvorul Croitorului in 1900, 1906, 1916 and 1941; and in another case: V. Fontănei in 1900, V. Fântănei in 1906, 1916 and 1941 but V. Fîntînei in 1961 and V. Fîntînii in 1980 and 1983. Another complex case is Vf.Goşi (so-styled in 1900, 1916, 1941, 1961 and 1980) which becomes Dl. Goşii 1977 after Goşa-M/Vf. Goşeĭ in 1892 and Goşi (in error for Goşa) in 1881. Errors also occur in the case of Vf. Fulgoe (1892) which is presented as Vf. Fulgoiu in 1900 and 1906 but quite incorrectly as Fufulgoiu in 1881 and Culmea/Muchea Fulga in 1983. Spot heights may be added in some cases: e.g. Cp. Delului in 1906 and 1912 but Cp. Dealului in 1900 and spot heights only in 1961 (689 m) and 1980 (677 m). Woodland may also enter the picture so that the wood Chichilaia in 1881 becomes Chichilaea-Goşa-Pă. in 1892. A particularly complex case is Mu/ Vf. Pănătăului where is difficult to separate the ridge or crest (Muchia) from the highest peak (Vârful) which unusually in this case are named after the village of Pănătău: usually there are quite separate names for a ridge and its individual eminencies. However in addition Dl. Pănătăului is used for the two features in 1912 and 1977 (although Dl. Pănătăului also exists as a quite separate feature) while the spelling Pănăteu is used in 1861 and 1864, with the latter reference combining not only the ridge and peak but the adjacent mountain of Blidişel as well (a situation that also arises under the name Pănătăul in 1881). Mu. Michia is an alternative name used in 1980 but in error as Muchia in 1912. The modified name of Michia (Vălenca) appears in 1892, along with Pănătăului-Vf., and as variety of spot heights – ranging from 746 m to 752 m – are also used on five occasions. This is a quite exceptional case for a feature with a total of 12 references as already noted.

## PHYSICAL GEOGRAPHY: HILLS

The high ground including hills, summits and ridges has 33 names (Table 4) of which eight are from Lacu cu Anini with six from Valea Fântânii, five each from Gornet and Plăişor and three each from Pănătău, Sibiciu de Jos and Valea Sibiciului. Culmea/Muchia Blidişelului alt. Muchia Goşii: (a) Blidişel summit/ridge northeast of Begu: a long crest between Muchia Mustoii and Predeal col marking the boundary between Pănătău and Sibiciu communes (now between Pănătău commune and Pătârlagele town). The name incorporates the diminutive form of 'blid' referring to small bowls and is thought to relate to the undulating surface of the summit plateau. Unusually the highest peak uses the same name: Vf. Blidişel although local people may corrupt this slightly to Bridişel or Pridisel. Its height was originally quoted at 825 m (1900–1917), 821 m in 1961 and 819 m in 1980. Slightly lower is Vf. Goşii (755 m in 1961 and 754 m in 1980): Goşa's peak lying northeast of Valea Sibiciului, while there are several in the 600–700 m bracket: Vf. Gornetului (Gornet peak at 687 m) is known alternatively in different villages as

Vf. Begului (particularly by Sibiciu de Sus people) and Vf. Silei while the presence of a topographical landmark produces the further variant of La Maiag: with relatively gentle slopes on the northern side, the scrubby woodland around the col negotiated by the Begu-Sila path has significant value for pasture. Meanwhile Muchia Burduşoaiei is the name of a 491 m hill northeast of Sibiciu de Sus which has certainly been lowered by the quarrying of diatomite during the communist period to provide material for the production of building blocks in Pătârlagele. Vf. Dosului – standing east of Pănătău with a height of 662 m in 1906 and 663 m in 1941 drastically revised to 612 m in 1980 – is the peak of the north-facing precipice, although it is actually a 'şeţ' on account of its hill-top plateau. It is the highest summit of Muchia Icoanei (the summit/ridge of the icon) following the usual practice of separate names for mountain ridges and specific peaks. The only other significant hill with a spot height is Dl. Dârstei at 442 m: Dârste's hill lying southeast of the Sibiciu de Jos hamlet of Diculeşti. As for the other eminencies Băia is hill of Băia (east of Begu): a ridge descending from Blidişel with col negotiated by the Begu-Valea Fântânii route. The name is taken from the hamlet but has no known meaning. Muchia Bisericii is the low summit at Pănătău on which the church stands. Chichilaia is a steep hillslope behind Sibiciu de Jos; though usually such a feature is linked with a specific name e.g. Chichilaia Corcoianului (incorporating a village name) i.e. Corcoianu's 'chichilaia': a south-facing steeply-sloping landslide surface to the north of the village; also Chichilaia Goşa, relating to a wooded area near Predeal named after a family and their former estate. Cocoşa – deriving from 'cocoaşă' meaning a hump – is a peak southeast of Babeţi (Pănătău), while Muchia Pietrelor is the summit of the stones above Corcoianu and Muchia Predealului is a rocky hilltop above the Predeal close to the source of Valea Fântânii (note also Pietrele Predealului nearby: the stones of Predeal relating to a sandstone surface). Vf. Şopârlei is the lizard's peak, lying to the southwest of Blidişel above Sila. Muchia Şughiţei is Şughiţa's summit (another personal reference) south of Valea Fântânii; while Pe Haturi (meaning literally 'on the boundary') refers to structural steps above Diculeşti which resemble man-made agroterraces. Finally precipices are widely named: În Fund Pe Maluri means 'on the precipice near the edge' relating to a section of bare precipice in the eastern part of Dosul Pănătăului; while Malul cu Cătină is the precipice with buckthorn northeast of Sibiciu de Sus.

*Table 4*

Toponomy: Physical Features.

**HILLS: Băia**: hill of Băia; **Vf. Begu/Begului**: Begu peak; **Muchia Bisericii**: summit with church; **Culmea/Muchia/Vf. Blidişelului:** Blidişel summit/ridge/peak; **Muchia Burduşoaiei**: summit/ridge of Burduşoaia; **Vf. Cămării/Cămăruţei**: peak of the little room; **Chichilaia**: a steeply-sloping hill; **Cocoşa**: peak *der.'cocoaşă': a hump*; **Curmătura**: col; **Cornețel**: little hill *dim.'cornet' with 'corn'(i.e.cornel) trees (Cornus mas)*; **Dl. Dârstei**: Dârste's hill; **Piatra Dascălului**: a rocky peak called 'the stone of the psalm reader' *after a former owner who was a known psalm reader*; **Capul Dealului**: top of the hill; **Vf. Dosului**: peak of the north-facing precipice *actually a 'şeţ' or hill-top plateau*; **Vf. Fulgoiu**: Fulgoiu mountain/peak; **Vf. Gornetului**: Gornet peak; **Chichilaia Goşii**: Goşa's 'chichilaia'; **Muchia Goşii:** summit of Goşa; **Vf. Goşii**: Goşa's peak; **Muchia Icoanei**: icon summit/ridge; **Vf. Juncului**: peak of the young bullock; **Vf. Linţei**: Linţa's peak; **Dl. Lupoiu**: wolf's hill; **La Maiag**: at the Maiag *topographical landmark*; **Chichilaia Mare/Mică**: great/small 'chichilaia'; **Muchia/Vf. Michia**: Michia summit/ridge *referring to the old estate of Michia in Cozieni commune*; **Moşoroaie**: mole hill; **Muchia Mustoii**: summit of Mustoaia: a. damp place; **Dl. de la Păcură**: hill near the black oil; **Dl. Pănătăului**: Pănătău's hill; **Muchia Pănătăului**: Pănătău summit; **Vf. Pănătăului**: peak of Pănătău; **Muchia Pietrelor**: summit of the stones; **Dl. Plăişorului**: Plăişor hill; **Pleşuva**: summit with pasture; **Predeal**: col at Predeal *with sense of boundary;* **Muchia Predealului**: Predeal hilltop; **Piatra Predealului**: sandstone surface of Predeal; **Presvale/Muchia Pridvalei**: Presvale/ Pridvale summit; **Muchia Priporului**: summit with pripor *i.e.negotiated by a track on a steep slope*; **Muchia Repausului**: summit of rest *relating to the former Sibiciu de Jos/Pănătău boundary*; **Muchia Râşca/Risec**: summit of Râşca/Risec; **Malul/Muchia Roşiilor**: Roşiile hill; **Vf. La Rugi**: peak at the blackberries; **Chichilaia Sibiciului**: Chichilaia of Sibiciu de Jos; **Dl. Spoelii/Spoelei:** hill of Spoelii; **Piscul lui Stan**: Stan's peak; **Şerbeticu:** Şerbeticu's hill; **Şerpăria**: place with snakes *a rocky slope*; **Vf. Şopârlei**: lizard's peak; **Muchia/Vf. Şughiţei**: Şughiţa's summit/peak; **La Tise/Pe Tise**: at the hill with a yew tree *(Taxus baccata)*; **Muchia Turburei**: summit of Turburea (a turbid brook); **Vf. Ţâcnei**: Ţâcna's summit; **Ţurţudău**: knoll *ironically implied*; **Muchia Văcăriei**: summit of the cows, with pasture.

*Table 4* (continued)

| |
|---|
| **LANDSLIDES/PRECIPICES: Malul Alb/Râpa Albă** and **Malul Albu**: white cliff; **Coasta Babeților**: Babeți precipice; **Burduşoaia**: swollen land; **Malul cu Cărțile**: precipice with the books; **Malul cu Cătină**: precipice with buckthorn; **Cuculeţu**: small cuckoo *(for a hill with a precipice)*; **Chichilaia Corcoianului**: Corcoianu's 'chichilaia'; **Malul Diaconesei**: Diaconeasa's precipice; **Vf. Dosului+; Malul Fătului:** psalm reader's precipice.*after a psalm reader known locally*; **Fulgoaia**: large valley/clearing with young, unstable landslides *der.'fulgoi': a large snowflake*; **Chichilaia Fulgoii**: Fulgoaia's forested steep slope; **Pe Gârlici**: entering a cellar *cart track on landslides between two steep hills*; **Pe Groapă**: in the hollow *depression in landslides*; **Gropi**: the hollows; **Gropşôra:** little hollow *dim.'groapă'*; **Pe Haturi**: on the boundary *referring to structural steps of agricultural significance: also with the appearance of agroterraces*; **La Humă**: at the blue clay or marl *('humă' means violet blue clay)*; **Între Chichile**: between the steep slopes ('chichilăi') of Chichilaia Mare and Chichilaia Mică; **Malul Lung**: the long precipice; **Pe/Sub Maluri:** on/under the precipice; **În Fund pe Maluri**: on the precipice/near the precipice edge; **La Mărăcineni**: at Mărăcineni, landslide on an old surface; **Mustoaia**: small valley damp in spring; **Muchea Mustoii**+; **Podişor**: small surface *dim.'pod'(tableland*; **Coasta/Groapa Pomilor**: slope/hollow of the fruit trees; **Malul Roşu**: red precipice; **Piatra din Rotărie**: the stone from the wheelwrights; **În/La Ruptură**: in the area of recent landslides; **Malul Sârbului**: precipice of Sârbu; **Ruptura Simei**: Sima's rift; **Malul Spoelii/Spoelei**: precipice of Spoelii; **Ruptura Tălpii**: landslide at the base (i.e. below the slope). |
| **DRAINAGE: Lacul Babeților**: lake of Babeți; **Izvorul Băjenarilor**: Băjeni valley; **Izvorul Baroianului**: spring/brook of Baroianu; **Băşcuretu**: intermittent brook of Băşcuretu; **Izvorul Begu**: Begu brook; **Izvorul La Begulești**: brook/spring on the land of the Begulești; **Izvorul Brânzei**: cheese valley; **Căldura/ValeaCăldurei**: valley of warmth; **Izvorul La Caloeni**: brook/spring of the Caloieni; **V. Cămăruței**: valley of the little room; **Izvorul Catanei**: Catana's brook; **Izvorul Cojocarului**: furrier's/skinner's brook; **Lacul lui Coman**: Coman's lake; **Gârla/Izvorul Croitorlui**: tailor's brook; **V. Dobreştilor**: Dobreşti's valley *from Dobrescu or Dobre*; **V. Dogăriței**: valley of the female cooper; **V. Epei**: mare's valley; **Izvorul/V.Fântânii**: brook/valley of the well; **Izvorul/V.Fulgoaia**: Fulgoaia's spring/brook; **Izvorul Fulgoii**: Fulgoii brook; **V. Ghileştilor**: Ghileşti valley; **Izvorul/V. Ghimpelui**: valley of thorn; **Izvorul/V. Gornetului**: Gornet valley; **V. Grecului**: valley of the Greek; **La Lacuri**: at the lakes; **Izvorul Limpede**: clear brook; **V. Mutului**: valley of the dumb; **V. Neacşei**: Neacşa's brook; **V. Ochiului**: valley of the eye (probably a small lake); **Gârla/Izvorul Pănătăului**: Pănătău stream; **V. Pastramei**: valley of Pastramă; **Gârla/Izvorul Plăişorului**: Plăişor brook; **Valea cu Plopi**: valley with poplar trees; **Izvorul/V. Podişorului**: valley of the small tableland; **Izvorul Podului**: bridge brook; **V. Poroşnic**: ~Poroşnic valley; **Izvorul La Roşii**: brook at the red slope; **Sărățel**: little salt brook; **Izvorul Scursurii**: brook of the flowing; **Valea Seacă**: dry valley; **Sibiciu/V. Sibiciului**: Sibiciu stream/valley; **V. Sibiciului de Jos**: Sibiciului de Jos valley; **Izvorul La Şapte Meri**: brook/spring of seven apple trees; **Izvorul Şughiței**: Şughița brook; **V. Tălpei**: valley of the 'talpa' i.e. below the slope; **Izvorul Turnăriei**: brook/spring of Turnăria; **Izvorul Văcăriei**: brook/spring of the cows; **Izvorul Vărzăriei**: cabbage garden brook; **V. Veghiului**: valley of Veghiu; **Izvorul Vulpaşului**: brook/spring of Vulpaş' (or reference to a male fox). |
| **VEGETATION: Malul cu Cătină**+; **Cornețel+**; **Dutina**: forested place of Dutina; **Pădurea Fulgoaia**: forest of Fulgoaia; **Izvorul/V. Ghimpelui**+; **Fața cu Gorânii**: sunny slope with durmast; **Fagu'ăl Mare**: the great beech*;* **La Mesteceni**: at the birch trees; **Nicioaia**: wooded area based on a nickname; **Valea cu Plopi+**; **Plopu-ăl Mare**: the great poplar tree; **Gorunii Popii**: priest's durmast forest; **Sălciuş**: forest of willow trees; **Pădurea Ştubeu**: hollow tree forest: **La Tise/Pe Tise**+;at the yews; **PădureaVărzăria**: cabbage garden forest. |
| **WILD LIFE: Şerpăria**: place with snakes' **Vf. Şopârlei**: lizard's peak *quite plausible (in the area generally) under dry conditions;* **Izvorul Vulpaşului**: (a) fox's brook. |

PHYSICAL GEOGRAPHY: LANDSLIDES

Names linked with landslides total 36 of which 11 each fall to Gornet and Pănătău, with six from Plăişor and four from Sibiciu de Sus. These are widely covered in various ways; not least the names for estates or farms: thus Fulgoaia north of Gornet is a large valley and clearing on large young and unstable that remains in agricultural use; like Goşa or Poiana Goşii, lying close to Valea Sibiciului. Gently-sloping 'tablelands' are also liable to include a landslide cover e.g. Izvorul Podişorului (the valley of the small tableland) in the Sila valley while Podişor, which also uses the diminutive form, applies to a similar feature near Lacu cu Anini (in V. Fântânii above Poiana Silei). Landslides may also be described in relation to other physical features e.g. Între Chichilăi: between the steep slopes or 'chichilăi' – referring to a landslide above the Goşa clearing northwest of Predeal lying between two steep slopes. Also Ruptura Tălpii indicates a landslide below a slope (actually located near Lacu cu

Anini in the upper part of Gâ. Pănătăulu while Ruptura Simei is Sima's rift: relating to young landslides in Gârla Croitorului above Rotari (Plăişor). Another significant theme for landslide surfaces is the notion of 'waves' or 'swellings' best expressed through Burduşoaia (from 'burduşit' meaning swollen, loose or spongy, which applies to a landslide tongue of some 2.0kms that is a constant threat to the road from Pătârlagele to Valea Sibiciului and Colți) but also good for fruit trees as well as hay and pasture: indeed it supported a small hamlet with the same name in the nineteenth century (while Gornet remains in the upper part where there is greater stability). Hollows and depressions may be highlighted e.g. Groapa Baciului – Baciu depression from 'baci' meaning a shepherd in charge of a sheepfold – relating to small depression north of Sila caused by a landslide in 1960; while Pe Groapă means 'in the hollow' northeast of Corcoianu and Gropi ('the hollows') concerns four small valleys northwest of Blidişel and east of Gornet, with pasture on landslides. Hollows may be relatively warm through their sheltered nature: hence Căldura or V. Căldurei: a warm place situated in a small depression on landslides east of Pănătău that is like a 'groapă' and particularly good for hay. Hollows may well be damp: hence Mustoaia: a small damp valley east of Sila; using the verb 'a musti' (to spread) suggesting both soil spread with landslide movement and also water trickling from a spring in wet periods. Hollows with springs are indicated by Saramura Goşii: Goşa's small hollow with a saltwater spring; Izvorul Băjenarilor: a valley with an intermittent brook on the south side of Dl. Pridvale near Băjeni; and V. Fulgoaia: Fulgoaia's spring or brook originating in the upper part of Poiana Fulgoii north of Gornet.

## PHYSICAL GEOGRAPHY: DRAINAGE

There are 28 references in this category: six from Valea Fântânii, five from Pănătău and four each from Begu and Plăişor. The names relating to drainage are typically diverse. As regards the physical characteristics we have Căldura/V. Căldurei: valley of warmth; V. Cămăruței: valley of the little room; Izvorul/V. Ghimpelui: valley of the thorn; La Lacuri: at the lakes; Izvorul Limpede: clear brook; V. Ochiului: valley of the eye (probably a small lake); Izvorul/V. Podişorului: valley of the small tableland; Valea cu Plopi: valley with poplar trees; Izvorul La Roşii: brook at the red slope; Sărățel: little salt brook; Izvorul Scursurii: brook of the flowing; Valea Seacă: dry valley; Valea Tălpei: valley of the 'talpa' i.e. below the slope. Several names relate to settlements Lacul Babeților: lake of Babeți; Izvorul Băjenarilor: Băjenari valley; Izvorul Baroianului: spring/brook of Baroianu; Băşcuretu: the intermittent brook of Băşcuretu; Izvorul Begu: Begu brook; Izvorul/V. Fântânii: brook/valley of the well; V. Ghileştilor: Ghileşti valley; Izvorul/V. Gornetului: Gornet valley; Gârla/Izvorul Pănătăului: Pănătău stream; Gârla/Izvorul Plăişorului: Plăişor brook; Sibiciu/V. Sibiciului: Sibiciu stream/valley; V. Sibiciului de Jos: Sibiciului de Jos valley. Others refer to people: Izvorul Catanei: Catana's brook; Lacul lui Coman: Coman's lake; V. Dobreştilor: Dobreşti's valley (from Dobrescu or Dobre); Izvorul Fulgoii: Fulgoii brook; V. Neacşei: Neacşa's brook; V. Pastramei: valley of Pastramă; V. Poroşnic: Poroşnic valley; Izvorul Şughiței: Şughița brook; Izvorul Turnăriei: brook/spring of Turnăria; V. Veghiului: Veghiu's valley; and Izvorul Vulpaşului: the brook/spring of Vulpaş' (or reference to a male fox). Some relate to groups of people: Izvorul La Begueşti: the brook/spring on the land of the Begueşti; and Izvorul La Caloeni: the brook/spring of the Caloieni. And several concern particular trades, nationalities or conditions although in no cases can these be validated as accurate: Izvorul Cojocarului: furrier's/skinner's brook; Gârla/Izvorul Croitorlui: tailor's brook; V. Dogăriței: valley of the female cooper; V. Grecului: valley of the Greek; and V. Mutului: valley of the dumb. Finally a small group concerns local agriculture: Izvorul Brânzei: cheese valley; V. Epei: mare's valley; Izvorul Podului: bridge brook; Izvorul La Şapte Meri: brook/spring of seven apple trees; Izvorul Văcăriei: brook/spring of the cows; Izvorul Vărzăriei: cabbage garden brook.

## PHYSICAL GEOGRAPHY: VEGETATION

Names connected with vegetation total 17, with four from Gornet and three each from Lacu cu Anini, Plăişor and Valea Fântânii. Apart from Malul cu Cătină – the precipice with buckthorn at Sibiciu de Sus – the references deal with to woodland which may frequently be linked with estates or owners like Dutina and Nicioaia: the latter being a woodland lying to the southeast of Pănătău and linked with Coasta Babeţului; referred to by Iorgulescu (1892, p. 356) as part of a great forest which also included Căldura and Maluri. There is also Pădurea Fulgoaia (the forest of Fulgoaia) at Gornet and Chichilaia Fulgoii (Fulgoaia's forested steep slope) although much has actually been cleared. Meanwhile Pădurea Chichilăii Goşii is the forest of Chichilaia Goşii lying east of Valea Sibiciului: a north-facing forest extending from the Goşa clearing towards the Predeal col. Again, Gorunii Popii is a forest of durmast (*Quercus petraea*) once owned by a priest on Dl. Plăişorului (southeast of Plăişor) with dry soil good for this type of woodland. Indeed, specific types of tree are often cited: thus Sălciuş refers to a forest of willow trees in a moist area of the Plăişor basin southeast of the village; while La Mesteceni means 'at the birch trees' on Vf. Silei southwest of Begu. Valea cu Plopi (also known as Izvorul Văcăriei) is the valley with poplar trees which still exist on landslides in this valley southeast of Lacu cu Anini, while Plopu-ăl Mare is a great poplar tree which actually exists east of Gornet in a forest on landslides in Chichilaia Fulgoii. However Pădurea Ştubeu – meaning hollow tree forest at Sibiciu de Sus – is enigmatic while some references cannot always be taken literally: Fagu'ăl Mare indicates a single large beech tree in woodland above Poiana Goşii (northwest of Predeal) that was however largely destroyed in a storm in 2007; while La Tise or Pe Tise refers to the hill with some yew trees (*Taxus baccata*) that no longer exists. Meanwhile there are just a few references to animals, birds and plants: Şerpăria is a place with snakes: a rocky slope southeast of Lacu cu Anini; Vf. Şopârlei is lizard's peak above Sila; and Izvorul Vulpaşului is fox's brook east of Babeţi. It is not known if these are or have been particularly appropriate but the relationships are certainly possible. Meanwhile Cuculeţu is a hill near Gornet named after a diminutive of 'cuc' (cuckoo) while Moşoroaie is an area with mole hills at Plăişor.

## HUMAN GEOGRAPHY: PEOPLE

There are some 45 names connected with people with bulk of them from Plăişor (12) and Pănătău (eight), followed by Valea Fântânii (seven), Gornet (six) and Begu and Lacu cu Anini (four each). Several family names are linked with specific villages or collective names for people who are native to particular villages: e.g. Izvorul La Begueşti (referring to brook or spring on the land of Begueşti) relates to people from Begu; while La Bozioreanu concerns a landowner from Bozioru; and Izvorul La Caloeni at Begu is brook/spring of the Caloieni (singular Caloianu). Other family names crop up in the cases of Lacul lui Coman (Coman's lake) at Valea Fântânii; Odaia lui Dabija (Dabija's sheep farm near Predeal), involving a rich family from Valea Sibiciului; V.Dobreştilor (Dobreşti valley) at Lacu cu Anini, from the name Dobrescu or Dobre. Goşa – deriving from the Bulgarian 'goşa' (N.A. Constantinescu 1963, p. 286) – appears in many contexts in connection with a former estate in the Valea Sibiciului area (Chichilaia Goşii, Crucea Goşii, Muchia Goşii, Pomul Goşii, Poiana Goşii, Pădurea Chichilăii Goşii, Bâlca Saramurii Goşii and Vf. Goşii) and is probably the female equivalent of the family name Goşu which is no longer present in the area but is known from documents relating to the Telega area of Prahova. Other examples are: Izvorul lui Matei (Matei's spring) at Sila; Piatra Moşeşti (the stone of Moşeşti: probably a former landowner) recorded at Plăişor in 1874; Malul Sârbului (Sârbu's precipice, a name of Serbian origin) at Begu; and Moara Sibicianului (Sibicianu's mill) west of Sibiciu de Sus, derived from the placename Sibiciu (after a person named Sibiu or Sibii, but not from 'sibicean': a man from Sibiciu); while Crucea Doamnei at Plăişor – dated 1825 by Stoicescu (1970, p. 490) and declared a historic monument in 1970 –

is understood as Lady Chiajna's cross. Meanwhile, personal names appear as Malul Diaconesei (Diaconesei precipice, northeast of Pănătău) which is a woman's name relating to a deaconess (in the ecclesiastical hierarchy). Meanwhile other such names include Vf.Linţei is Linţa peak (another woman's name) at Begu; Poiana Manii (Manea's clearing) at Plăişor; V. Neacşei (Neacşa's valley) at Valea Fântânii. Male examples are: Izvorul La Mihai (Mihai's spring) at Valea Fântânii, Izvorul lui Stan (Stan's spring) at Corcoianu and Piscul lui Stan (Stan's peak) at Plăişor, Valea Poroşnic (a Slavonic name) at Sibiciu de Jos and Ruptura Simei (Sima's rift) at Rotari (Plăişor). Meanwhile there are several names that could be either family or personal names: Dutina: a location at Lacu cu Anini; În/La Popa Gheorghe ('at the priest Gheorghe's land') at Corcoianu; Izvorul Turnăriei (Turnăria's brook or spring) at Valea Fântânii; and La Veghi: from 'veghe' meaning a guard (Academia 1996/8 p. 1154) at Plăişor (as well as ValeaVeghiului in the same area).

*Table 5*

Toponomy: Human Geography

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| **SETTLEMENTS: Coasta /Dosul/Lacul Babeţilor**; **Izvorul Băjenarilor**; **Băia/Crucea Băii**; **Izvorul Baroianului**; **Izvorul/Vf. Begu**; **Faţa Begului**; **Izvorul/Malul/Muchea Burduşoaiei**; **Izvorul/V. Fântânii**; **V. Ghileştilor**; **Izvorul/Valea/Vf. Gornetului**; **Crucea Măţării**; **Dosul/Faţa Muscelului**; **Dl/Dosul/Gârla/Izvorul/Muchea/Talpa/Ţarina Pănătăului**; **Vf. Pănătau**; **Între Pănătae**; **Dl/Dosul/Gârla/Izvorul Plăişorului**; **Predeal**; **Muchea/Piatra/Vâna Predealului**; **Moara Sibicianului**; **Chichilaia/Gârla/V. Sibiciului**; **V. Sibicilului de Jos**; **Izvorul/Vf. Silei**. |
| **PERSONS: Fântâna lui Baltă**: Baltă's well; **Izvorul La Begueşti**#; **La Bozioreanu**: at Bozioreanu; **Izvorul La Caloeni**#; **Lacul lui Coman#**; **Odaia lui Dabija**: Dabija's sheepfarm; **Dl. Dârstei**#; **Piatra Dascălului**#; **Malul Diaconesei**#; **Crucea Doamnei**: Lady Chiajna's cross; **V. Dobreştilor**#; **Dutina**#; **Malul Fătului**#; **Fulgoaia**# (also Pădurea Fulgoaia, Izvorul/V. Fulgoaia, Chichilaia Fulgoii, Drumul Fulgoii, Izvorul Fulgoii and Vf. Fulgoiu); **Goşa**: Goşu family (also Chichilaia Goşii, Crucea Goşii, Muchea Goşii, Pomul Goşii, Poiana Goşii, Pădurea Chichilăii Goşii, Bâlca Saramurii Goşii and Vf. Goşii); **V. Grecului**#; **Vf. Linţei**#; **Poiana Manii**: Manea's clearing; **Izvorul lui Matei**: Matei's spring; **Izvorul La Mihai**: Mihai's spring; **Piatra Moşeşti**: stone of Moşeşti; **V. Neacşei**#;: **Nicioaia**#; **La Pastramă**: at Pastramă; **În/La Popa Gheorghe**: at the priest Gheorghe's land; **V. Poroşnic**#; **Muchea Râşca/Risec**#; **Malul Sârbului**#; **Moara Sibicianului**: Sibicianu's mill; **Ruptura Simei**#;. **Izvorul lui Stan**: Stan's spring; **Piscul lui Stan**#; **Şerbeticu**#; **Şughiţa**: Şughiţa's pasture/estate; **Şughiţa Cailor**: Şughiţa of the horses; **Muchia/Vf. Şughiţei**#; **Crucea lui Talete**: Talete's cross; **Vf. Ţâcnei**#; **Izvorul Turnăriei**; **La Veghi**: in Veghi's 'are'; **V. Veghiului#**; **Pe Vulpaş**: on Vulpaş' land; **Izvorul Vulpaşului**#. |
| **ASPECT/DEFORESTATION: Dosul Babeţilor**: north-facing hill of Babeţi; **Faţa Begului**: south-facing slope of Begu; **Curătura** *and* **În/La Curături+**: at the recently-deforested land; **Fântâna din Dos**: well on the north-facing slope; **Vf. Dosului**#; **Pe Faţă**: on the south-facing slope; **Fulgoaia**#; **Faţa cu Gorânii**#; **Poiana Goşii**+; **Lazuri**: indicating deforestation; **Poiana Manii**#; **Poiana Mare**: great clearing; **Faţa Muşcelului**: the face of Muşcel; **Dosul Pănătăului**: Pănătău's north-facing slope; **Dosul Plăişorului**: north-facing slope of Plăişor; **Dosul Silei**: north-facing slope above Sila. |
| **FARMING: Sub Arie**: below the threshing floor; **Groapa Baciului**: shepherd's depression; **Izvorul Brânzei**:#; **Odaia lui Dabija+**; **V. Epei**#; **Goşa/Poiana Goşii**: Goşa estate/clearing; **Pomul Goşii**: fruit tree of Goşa; **Pe Haturi**#; **Ţarina>de-din Jos**: lower agricultural surface; **La Inuri**: at the flax; **Inurile**: the flax; **Vf. Juncului**#; **Mălaia**: 'mălaia' strictly with no meaning but deemed locally to indicate former cereal land; **La Meri**: at the apple trees; **La Orzari**: at the barley or barleymen; **Ţarina Pănătăului**: Pănătău's agricultural land; **La Pastramă**+; **În Plai**: tableland on the hill: a gently sloping agricultural surface; **Pleşuva**#; **Pe Poduri**: on the tableland or old surface; **Coasta/Groapa Pomilor#**; Râşca/Risec; **La Rotocol**: a 'round' area: *a gently-sloping surface with pasture;***Izvorul La Şapte Meri**#; **Şeţu'al Mare/Mic**: great/little 'step' *der.'şes'(a plain)*; **La Şira/Şiră**#; **Şughiţa**#; **Ţarina de Sus/Ţarina de-din-Sus**: higher agricultural surface; **Văcăria**: hill grazing for many cows; **Izvorul Văcăriei**#; **Muchia Văcăriei**#; **Vărzăria**: cabbage garden *with no local significance*; **Izvorul Vărzăriei**#; **Pădurea Vărzăria**#; **La Veghi+**; **La Vii**: at the vineyard; **Podul Viei**#. |
| **HANDICRAFTS: Izvorul Cojocarului**#; **Gârla/Izvorul Croitorului**#; **După Cuptoare**: after the oven; **V.Dogăriţei**#; **Piatra din Rotărie**#; **Moara Sibicianului**#; **Varniţă**: limekiln. |
| **WATER SUPPLY: Fântâna lui Baltă**#; **Izvorul Burduşoaiei, Fântâna din Dos**; **Izvorul Dulce**: sweet spring; **Vîna Mare**: large spring; **Murătoarea**: very salty water for pickling; **Vâna Predealului**: Predeal spring; **Vâna Rece**: cold spring; **La Ştubeu**: at the fountain. |
| **OTHERS: Crucea Băii**: Băia's cross; **Muchia Bisericii**#; **Vf.Cămării/Cămăruţei#**; **Izvorul Catanei**#; **La Ciumaţi**: at the burial place of plague victims; **La Comori**: at the treasure; **La Cruci**: at the crosses; **Crucea Doamnei**+; **Drumul Fulgoii**: cart track to Fulgoaia; **Crucea Goşii***:* Goşa's cross; **Linia**: cart track; **Crucea Plaiului**: cross of the 'plai'; **Crucea Predealului**: Predeal cross; **Pripor**: road on a steep slope; **Muchia Priporului**#; **Muchia Repausului**#; **La Maiag**#. |

Nicknames are also much in evidence: the feature Piatra Dascălului – the stone of the psalm reader is appropriately named after a former landowner who was a known to be psalm reader; while Malul Fătului (the psalm reader's precipice) relates to an alternative name for a psalm reader. Fulgoaia (also appearing as Pădurea Fulgoaia, V. Fulgoaia; Chichilaia Fulgoii, Drumul Fulgoii, Izvorul Fulgoii and Vf. Fulgoiu) is an estate near Gornet which is named after a women referred to as a large snowflake (with 'fulg' a snowflake). La Pastramă ('at Pastramă', encountered in the upper part of Gârla Pănătăului) is probably the nickname of a former female owner associated with smoke-dried salted meat. Şerbeticu (with no meaning) is encountered as Şerbeticu's hill at Sila; Crucea lui Talete is Talete's cross from Valea Sibiciului on the road between Fulgoaia and Goşa clearings. Finally, Vf. Ţâcnei (at Gornet) is probably a woman's nickname based on the word 'ţâfnă' used by Iorgulescu to indicate anger or irritability; while at Babeţi, Pe Vulpaş (on Vulpaş' land) and Izvorul Vulpaşului (Vulpas' brook) probably relate to a fox. Several other names could be nicknames or personal names: Fântâna lui Baltă (Baltă's well) near Corcoianu; V. Grecului (valley of the Greek) near Pănătău; Muchia Râşca/Risec at Lacu cu Anini (which could also be a family name); and Şughiţa (Şughiţa's pasture/estate) which crops up east of Plăişor at the V. Fântânii/Izvorul Turnăriei confluence.

## HUMAN GEOGRAPHY: AGRICULTURE

There are 60 references to farming (including deforestation and aspect): 18 from Pănătău, 11 from Lacu cu Anini, eight from Plăişor, seven each from Begu and Valea Fântânii, four from Gornet. Agricultural land is conventionally referred to in terms of Ţarină: e.g. Ţarina de Jos/Ţarina de-din-Sus: lower/higher agricultural surfaces recognised at Sibiciu de Jos, but largely developed for new houses and gardens after the 1960s collectivisation. Pe Luncă is used at Begu for the gently-sloping land (suitable for crops and fruit trees) between this village and Corcoianu, because although this expression is linked with alluvial land (or river terraces) it may also imply a plateau in the old sense. Other expressions are În Plai for a gently-sloping surface above Lacu cu Anini; Şeţu'al Mare/Mic: the great and little 'steps' (from 'şes' meaning an almost level plain) near Pănătău on the eastern part of Dosul Pănătăului; while Pe Haturi also refers to structural steps above Diculeşti with the appearance of agroterraces and which are actually of agricultural significance. Such names could be used for relatively long-established cropping areas but also for nineteenth century extensions; including new land relating to settlements dated entirely to post-1800. Cropland could also carry settlement names e.g. La Mărăcineni ('at Mărăcineni') for agricultural land based on gently-sloping landslides above the source of the Catana brook along the Begu-Corcoianu; also Poiana Silei (referred to below) while Predeal occurs in the context Pietrele Predealului ('stones of Predeal') relating to a sandstone surface above Valea Fântânii practically devoid of soil and vegetation: such references remind us that despite the reclamation undertaken during the nineteenth century there were some areas that could not be improved.

But much of the higher ground did have agricultural potential without major reclamation other than felling trees which the peasants could undertake themselves. Hence the clearance names such as Poiana Goşii for a large clearing on young unstable landslides above Valea Sibiciului on the Goşa estate; also Poiana Mare (the great clearing) east of Plăişor in the upper part of the Gârla Croitorului basin; and Poiana Silei (Sila's clearing) on some old landslides in Valea Fântânii. Even forest names took on a new meaning with Pădurea Fulgoaia (the forest of Fulgoaia, recalling a family/estate name) relating to some 340 ha of forest (Iorgulescu (1892, p. 231) on Capul Dealului including a large clearing used by the villagers of Sibiciu de Sus. The name Lazuri points to deforestation northeast of Begu, while Pleşuva – from the Bulgarian 'plesiv' (Academia 1996/8, p. 807) – is a summit with pasture above the Fulgoaia clearing and the Linia cart track: although windy conditions constrain tree growth poplar trees were present at one time. Attention was also given to landslide depressions highlighted by such names as Căldura or V. Căldurei for a warm place or a 'valley of warmth" for a gently-sloping depression on

landslides east of Pănătău; also Mustoaia (from 'a musti') for a small valley at Sila damp in spring. Names for farms or estates were applied to specific landslide areas e.g. Bozioreanu west of Begu; Fulgoaia for a large valley and clearing on young, unstable landslides in the Fulgoaia basin; while La Veghi referred to Veghi's land east of Plăişor; and Pe Vulpaş/Izvorul Vulpaşului related to Vulpaş' land east of Babeți. There was also Şughița east of Plăişor for land on on the right side of Izvorul Croitorului; while Şira/La Şiră (at Şiră's place) at Plăişor derived from the Serbian 'sirm' and Bugarian'siru' (Candrea 1931, p. 1250) alludes to a great haystack with a rectangular base (as the word is also understood locally). The lower, smoother hilltops were also available e.g. Dl. Dârstei (442 m) with gently slopes above Diculeşti attracting mixed agricultural uses including some cropping and pasture. Thus Şerbeticu refers to a small hill of some four hectares with mixed uses; likewise Muchea Pridvalei alt.Presvale: for a summit above Sibiciu de Jos at the western limit of Chichilaia Corcoianului; Vf. Şughiței (Sughița's peak) for the hilltop close to the V. Fântânii/ Izvorul Turnăriei confluence. Of course aspect influenced landuse with Fața Begului (the south-facing slope of Begu, lying above the village to the north) and Fața Muscelului (the face of Muşcel: relating to Muscelu-Țigan on the edge of the area); also Fața cu Gorânii (the south-facing slope with durmast forest) at Lacu cu Anini and Pe Față (on the south-facing slope) at Plăişor. On the other hand the north facing slope is highlighted with specific reference to particular villages through Dosul Babeților, as well as the equivalents for Pănătău (also Vf. Dosului) and Plăişor as well as Sila where Fântâna din Dos is the well on the north-facing slope. Some names emphasized private land which could not be entered. Thus we have Braniştea Mare – derived from the Bulgarian 'braniste' (Academia 1996/8, p. 410) – for the great/high 'branişte': a gently-sloping hilltop above Babeți, with the smaller Braniştea Mică lower down.

As for crops there are specific references to cereals: La Orzari ('at the barley' or 'at the barleymen' deriving from 'orz' which is barley (*Hordeum sativum*) laying west of Begu near Mărăcineni. But there is also the use of 'mălaia': it has no meaning in Romanian but there is a mountain with this name in Buzău county and local tradition associates it with cereal cultivation at Lacu cu Anini an also southeast of Plăişor; even though 'La Mălae' or 'Mălaele' (known in the Pănătău area) appears more meaningful and carries the authority of Iorgulescu (1892), mălaia can be accepted as a valid derivation from 'mălai'. Threshing places for rye, barley and oats provide further evidence e.g. east of Plăişor on the Punga road near the Cozieni boundary; while there is also reference in the toponomy to textile plants: e.g. La Inuri ('at the flax') north of Corcoianu on an old hill surface; also Inurile (with the same meaning) north of Lacu cu Anini. Vegetables are rarely remembered, but near Predeal – in Goşa clearing beside the Sărățel brook – there is a place called 'Vărzăria' (a cabbage garden) also with Izvorul Vărzăriei: cabbage garden brook and Pădurea Vărzăria in the vicinity. Fruit growing is evident through La Meri ('at the apple tree') northeast of Lacu cu Anini on south-facing farmland along the upper Pănătău stream; also Coasta Pomilor ('the slope of the fruit trees') northeast of Sibiciu de Sus on old landslides that especially good for plum trees; and Groapa Pomilor: ('the hollow of the fruit trees') in the same area at 'La Cuptoare', which along with După Cuptoare ('after the oven') points to the former oven-drying of the fruit. Pomii Goşii ('the fruit tree of Goşa') is remembered at Valea Sibiciului with respect to plum trees on the south side of Goşa hill; while Podul Viei ('the tableland with a vineyard') relates to a former vineyard on gently-sloping ground 20–30 m above the Buzău river north of Sibiciu de Sus. We may also note La Vii ('at the vineyard') north of Corcoianu: a south-facing slope above Izvorul Catanei and the Sibiciu-Begu track. Valuable pasture areas are indicated by such names as Fulgoaia: a large valley and clearing on young, unstable landslides close to Gornet and Sila; and Şughița Cailor ('Şughița of the horses'); while MuchiaVăcăriei is the summit of the cows with pasture: a north-facing cuesta east of Lacu cu Anini where the names Văcăria and Văcăriei are also known lower down associated with Valea cu Plopi and the Pănătău brook. There are few references to sheep but Odaia lui Dabija: Dabija's sheepfarm is remembered northwest of

Predeal as the property of a rich family from Valea Sibiciului. V. Epei (mare's valley) lies on the edge of the area close to Predeal.

Today farming is much less intensive since the land is somewhat degraded and the human impact has moderated. Dabija's sheep farm is used only for hay while former pasture has often been invaded by scrub e.g. on the slopes Vf. Gornetului around the col used by the Begu-Sila path; and again Chichilaia Corcoianului (Corcoianu's 'chichilaia' above the village) now with scrub and poor eroded pasture. Abandonment can also be seen at Malul Diaconesei with the former agriculture below; while pasture at Muchia Pridvalei is damaged by the many pathways that accelerate erosion. Another case is Dl. Plăişorului (Plăişor hill: curiously named after the village when the village is already named after the hill as a small 'plai') which includes the land between Gârla Croitorului and Gârla Plăişorului, now menaced by erosion and landslides. Meanwhile the former cropping areas are used for hay/pasture and fruit trees, as can be seen on the old barley at Mărăcineni where the communist cooperative plant fruit trees round the former settlement Fulgoaia; likewise the old threshing places for rye, barley and oats (e.g. the area east of Plăişor on the Punga road near the Cozieni boundary) and clearings on unstable landslides like Poiana Goşii and Poiana Silei. The pasture may be significant in villages like Gornet and Sila even in winter but buckthorn is usually present. The vegetation succession has often gone beyond buckthorn to the return of the forest e.g. Valea Dobreştilor northeast of Lacu cu Anini where there is now a mixture of forest and pasture; while Şerbeticu is now a 4.0 ha wood/pasture zone extending to Dl. Cornețel. Particularly evident on the north-facing slopes like Dosul Babeților (with scrub and forest) and Dosul Pănătăului, with pine plantations. Dosul Silei now has some c. 4.0 ha woodland, while Lazuri (referred to above in connection with deforestation on the southeastern flanks of Blidişel) saw its degraded land converted to pine forest during the communist period.

## HUMAN GEOGRAPHY: HANDICRAFTS, WATER SUPPLY

There are nine references, divided among Plăişor, Sibiciu de Sus, Valea Fântânii and Valea Sibiciului, relating to other activities which extend to milling in the case of Moara Sibicianului (Sibicianu's mill) near Sibiciu de Sus; while Piatra din Rotărie (the stone from Rotari) takes the name of a hamlet of Plăişor village which refers to wheelwrights although no such craftsmen are remembered in the locality and the stones were plainly transported by landslides. We have a reference to 'varniță' (a limekiln, from 'var' meaning lime) northeast of Sibiciu de Sus but this a curious case because there is no lime in the area and although it is possible that there was a small furnace drawing raw material from Poienile (the nearest source) there is no documentary or oral evidence to support this. După Cuptoare ('after the oven') is a clear reference to the oven-drying of fruit at Sibiciu de Sus; while lakes such as Lacul Babeților (the lakes of Babeți: a cluster of some ten former lakes on landslides south of Babeți) were important in the past for retting flax and hemp (and likewise Lacul lui Coman – Coman's lake – on old landslides in Valea Fântânii).

Water supplies may also be mentioned: Fântâna lui Baltă (Baltă's well) northwest of Corcoianu; Izvorul Baroianului is the spring of Baroianu near Sibiciu de Sus; while Izvorul Burduşoaiei is a mineral spring named after large Burduşoaia landslide and recorded by Frunďescu (1870/1871): in reality two springs at one time but only one existing now. Another reference uses the name Vâna Puturoasă for the 'stinking spring' relating to 'apă de feru carbonatu'. Other cases are Fulgoii spring: a sulphurous spring near Mățara (Valea Sibiciului); while La Ştubeu means 'at the fountain' northeast of Sibiciu de Jos: a source much used by the communist state farming organization Gostat; and Vâna Rece is an accurate reference to a particularly cold spring east of Begu. Saltwater sources were also important for local people if not for animals. Saramura Goşii: Goşa's small hollow with a saltwater spring appreciated for kitchen use while Murătoarea was a name referring to some very salty water

available near Sibiciu de Sus and used for pickling. Again, Sărățel refers to a little salt brook: although employing the diminutive it is natural that a minor source should be highlighted given that there were relatively few sources in an area where most of the intermittent streams do not contain salt. Altogether there are 16 references to springs and wells including four at Valea Fântânii, three at Gornet and two each at Begu and Pănătău.

### HUMAN GEOGRAPHY: ROADS AND TRACKWAYS

There are several references to roads and tracks e.g. Drumul Fulgoii: the cart track to Fulgoaia which follows a difficult route northeast of Gornet passing above the Goşa/Fulgoaia clearings on the northern side of Muchia Blidişelului, while Linia is the name of a cart track from Begu to the eastern part of Muchia Blidişelului and Pe Gârlici is an interesting feature referring literally to a cellar: the idea derives from a landslide surface with cart track passing between two steeply-sloping hills close to the Fulgoaia 'stâna' northeast of Gornet. Another indicator is 'pripor' which derives from the Bulgarian 'pripor' and the Ukrainian 'prypor' (Academia 1996/8, p.851) and means a road on a steep slope e.g. northeast of Lacu cu Anini at the source of Valea cu Plopi, but also at Pănătău southwest of Muchia Bisericii and east of Plăişor in the valley of Izvorul Croitorului. Muchia Priporului is the summit negotiated by a track on a steep slope: actually east of Plăişor on a trackway to the hayfields around Dosul Muşcelului (referring to Muscelu Țigan) marked by a stone of 1825 that is a now recognised historic monument (Stoicescu 1970, p.490): it is known as Crucea Doamnei which is connected with Lady Chiajna, as the founder of Cârnu monastery. Other wayside crosses include: Crucea Băii (Băia's cross) at the col on Băia hilltop (east of Begu) negotiated by the trackways from Begu to Predeal and Valea Fântânii; Crucea Goşii (or Crucea Predealului to people of Begu and Valea Fântânii) which is Goşa's cross on the track from Valea Fântânii to the Goşa clearing; and another example in the same area is Crucea Plaiului (the cross of the 'plai') at a col crossed by the path from Valea Fântânii to Bălăneşti (lying outside the area in Cozieni commune). Finally, Crucea lui Talete is Talete's cross situated close to Valea Sibiciului on the trackway between the Fulgoaia and Goşa clearings. And although there is no cross, Muchia Repausului – the summit of rest – is recognised as a low hill of resistant strata (extending from Chichilaia Corcoianului to the Pănătău stream) which used to mark the boundary between Sibiciu de Jos and Pănătău and now separates the village of Sibiciu de Jos into the main western section with the church and school from a smaller eastern section. We conclude with some names of historical interest which cannot however be confidently linked with any known events. Vf.Cămării or Cămăruței (at 801m) is the so-called 'peak of the little room' relating to a small cave on a rocky ridge northeast of Predeal used as a legendary refuge from the Tartars; while La Comori 'at the treasure' is an agricultural area on Presvale (north of Sibiciu de Sus) where valuables are thought to have been hidden from invaders. La Ciumați is associated with pest although no such event can be specified and there is disagreement over the precise location below Gornet (above or below the road); while Izvorul Catanei (Catana's brook, east of Corcoianu) has been linked with the Hungarian 'katano' meaning a soldier (Candrea 1931, p. 234) although it cannot be connected with any known event.

## CONCLUSION

The paper has outlined the settlement history and toponomy of a section of the Pătârlagele Depression comprising a large part of the eastern side of the Buzău valley. In addition to river terraces at Sibiciu there are extensive landslides and structural surfaces which provided a base for subsistence farming in the nineteenth and twentieth centuries when the demographic strength of the area increased in both absolute and relative terms despite the growth of Pătârlagele and Mărunțişu on the opposite side of the river. However documentary evidence of a substantial demographic advance on the

hillsides is relatively limited and hence the rich placename evidence – based on oral sources as well as maps and handbooks – is of particular importance. We hear much about agriculture and farming people, although sadly most of the names are no longer recognised and we cannot be sure as to the precise period involved.

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Received August 30, 2010

# ETHNIC AFFILIATION, A PROBLEM IN ASSESSING THE GYPSY (ROMA) POPULATION IN THE 2002 CENSUS. CASE-STUDY – OLTENIA, ROMANIA

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Key–words: Gypsy population, population census, ethnic group, Romanians, Oltenia.

L'affiliation ethnique – un problème dans l'évaluation de la population tzigane (roma) dans le recensement de 2002. Étude de cas – Olténie, Roumanie. Déclarer son affiliation ethnique représente un des plus importants problèmes de l'évaluation numérique de la population tzigane, tel que cela ressort dans la statistique officielle de la Roumanie, dès le recensement de 1956, situation perpétuée jusqu'à nos jours. L'appartenance ethnique représente une des évaluations les plus difficiles dans le cas des tziganes, tenant compte du contexte historique, politique ou social, spécifique aux différentes périodes. Les recensements de la population n'ont pas réussi de surprendre le nombre de la population tzigane, puisque les membres de cette ethnie choisissent souvent de ne pas décliner leur ethnie et leur langue. Cette attitude pouvait être considérée, à première rue, le résultat de l'ignorance de l'existence d'une statistique ou de la présence de certaines formes de discrimination perçue par la population concernée. En réalité, la situation a pour raison une complexité de facteurs qui dépendent directement ou indirectement de l'ethnique en cause. Ces facteurs n'ont pas pu être éliminés en totalité pour ne plus produire des inadvertances en se qui concerne la correction des données des recensements.

The factors that make the Gypsy eschew declaring their ethnicity are numerous, the most important ones being of a historical, but also of a social and cultural nature.

**Historical factors**. A "Gypsy problem" exists since 1940, when considered to be an unresolved issue for Romanian society, part of the Gypsy population was deported in Transnistria. The moment of deportation, and the experiences told by survivors have stuck in the collective memory, making Gypsy shun from declaring their ethnic origin for fear of such situations possibly recurring.

**Social factors**. A negative exogenous perception has made the Gypsy feel themselves stigmatized and associated exclusively with antisocial behaviour, hence they have developed kind of self-defense attitude, which explains why they refrain from avowing their ethnic origin.

**Cultural factors** involve typical characteristics of this ethnic group, mainly customs, traditions, language or costume which, in the case of certain Gypsy population segments, has suffered drastic changes, also losing their cultural identity, and their national language. It is the case of the rudari (handcrafters of wooden household articles), *tismănari* (formerly dwellers of the Tismana Depression, the name currently designating assimilated Gypsy, who have lost their identity values), part of the fiddlers and the blacksmiths who no longer see themselves as Gypsy, declaring instead to be Romanians.

"I haven't written <declared> myself a Gypsy because I'm afraid of the government, what if they give another law and send us all to the Bug-camp" (male, 70 years old, Iancu Jianu, Olt County).

Some of the answers obtained in an interview conducted during field surveys are illustrative of the factors previously mentioned. Here they are:

"At the census I haven't declared to be a Gypsy, but the people from the "Gypsy Party" came and I`ve declared to them that I am one" (female, 33 years old, Gârla Mare, Mehedinți County).

"I can't declare to be a Gypsy, I don't know their language, we don't have the same customs, we are "tismănari", we are not Gypsy" (female, 41 years old, Strejeşti, Olt County).

"At the last census I didn't say that I am a Gypsy because I was afraid that they were going to put it on my Identity Card or my passport and I won't be able to get a job or travel abroad anymore" (male, 47 years old, Scoarța, Gorj County).

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Rev. Roum. Géogr./Rom. Journ. Geogr., **54**, (2), p. 153–157, 2010, Bucureşti.

"I'm Romanian, I don't say that I'm Gypsy, if they were to put it in our Identity Card, my children would suffer, and have to endure all sorts of dirty words at school and all their lives" (female, 28 years old, Bârca, Vâlcea County)

"I didn't declare to be a Rroma, I am part of the "rudari" guild; I don't speak Romani and I don't mix up with Gypsies" (male, 25 years old, Laloşu, Vâlcea County).

In view of the above, it is impossible to have an exact statistics of the Gypsy population; the more so as one's ethnic affiliation rests entirely with the individual's own option, it is entirely one's own responsibility.

The inaccuracy of available data has made the authorities undertake a series of actions to correct the situation; the severest measures were taken by the Gypsy Party itself, because obtaining funds for the integration of the Gypsy population meant proving that a Gypsy community did exist. Thus, numerous Gypsy had not declared their ethnic origin at the 1992 census, but they did in 2002.

The efforts to register the Gypsy as forming a numerous community and thus become eligible to receiving funds and participate in some projects, made some Romanians declare themselves of Gypsy origin in exchange for financial benefits, a situation found in two communities of our study-areas, namely Strejeşti, Olt County and Bâlteni, Gorj County.

At Strejeşti, six people declared that they had been put on the lists of the Gypsy Party; it was easy to do it as this community consisted of *tismănari*, that is Gypsy who have not maintained any identity features, do not speak the Romani language, moreover, inter-ethnic marriages are a widely used practice.

As respondents themselves admitted, their actions had economic justifications, namely dissatisfaction with the social benefits they received.

"I'm Romanian, but I'm very poor, that's why I declared to be a Gypsy, so that I could receive benefits" (female, 70 years old, Strejeşti, Olt County).

"I'm not Gypsy, but I don't have a wife or children, I'm alone and I'm very poor, and the money I have are not enough, so that's why I am on the Gypsy lists and I receive food and even money for firewood" (male, 53 years old, Strejeşti, Olt County).

"I don't have any means to sustain myself and my three children, I don't have a husband, and if I'm on the Gypsy lists I have only to gain from it, they even gave me building materials to fix up my house" (female, 36 years old, Strejeşti, Olt County).

A similar situation in the Gypsy community of Bâlteni formed of bricklayers and fiddlers; in this case, part of the extremely poor Gypsy (ten people), most of them single or without any family, occupied part of an apartment belonging to the mayoralty. In the same building there live also of four Romanians who declared themselves Gypsy, motivated by their extremely precarious material condition.

"I declared to be a Gypsy to receive some social benefits, I'm poor and I live here in a room with no door and windows" (male, 56 years old, Bâlteni, Gorj County).

"I declared to be a Gypsy because the Romanians are not helping me with anything; the Gypsy gave me furniture and food" (female, 44 years old, Bâlteni, Gorj County).

"I'm Romanian, but I declared to be a Gypsy; when the people from the Gypsy Party came, I heard that they would give us social benefits and that's true, they are really helping me" (male, 60 years old, Bâlteni, Gorj County).

Such situations include an extremely poor category of people led to this option in order to obtain social benefits. However, we found only ten cases in this study, the situation being far from generalized. Therefore, it appears that evaluating a population members based on ethnic criteria is one of the most difficult tasks, because the accuracy of available data is questionable.

This explains why there are significant discrepancies between the number of Gypsy officially registered in the 2002 census and those produced by the representatives for Gypsy affairs at County Prefectures, unofficial statistics reporting far more numerous Gypsy ethnics.

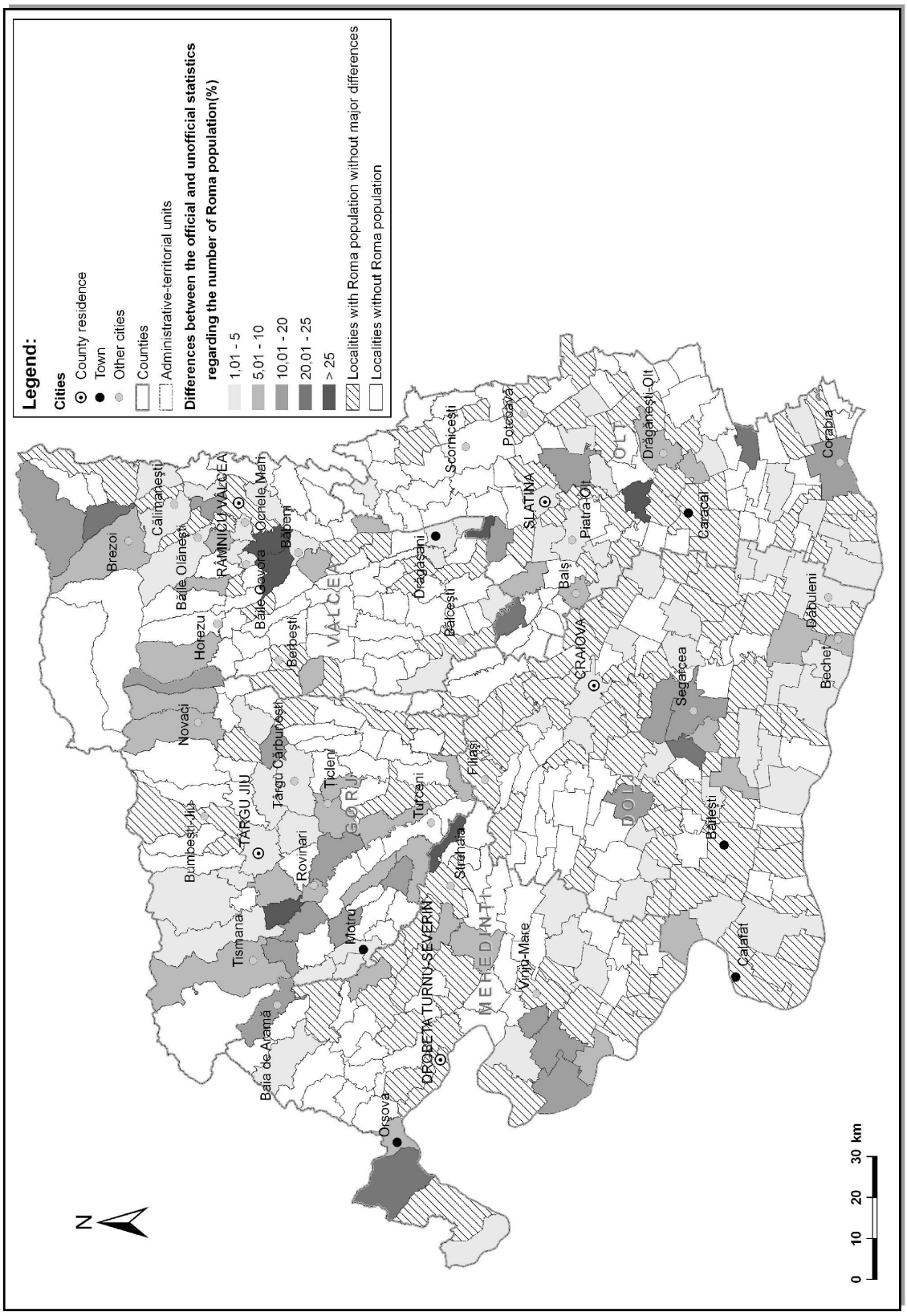


Fig. 1. – Differences between official and unofficial statistics regarding the number of Roma population in Oltenia

*Very high differences*, of over 25.01%., between the 2002 census data and the statistics issued by the representatives of the Gypsy population in County Prefectures, show the following settlements in Gypsy communities: Teleşti (Gorj), Frânceşti (Vâlcea), Fălcoiu, Grădinari (Olt) and Grozeşti (Mehedinți) (Fig. 1).

In the first three cases, a significant proportion of people are bricklayers, basically Gypsy who have lost identity values, so that the factors behind the refusal to avow ethnical affiliation are primarily of a social and cultural nature. In the case of the Grozeşti Gypsy a population formed of *rudari*, it is cultural factors that prevail.

*High differences* (15.01 and 25%), exist in the communities of Lipovu, Sălcuța (Dolj), Iancu Jianu, Scărişoara, Strejeşti (Olt), Bolboşi, Câlnic, Godineşti, Polovragi (Gorj), Baia de Aramă, Eşelnița (Mehedinți), and Mihăeşti (Vâlcea). This is due, on the one hand, to the presence of a large proportion of *rudari* and *tismănari* groups that are only partly assimilated, their members' specific behaviour being that of the Romanians; on the other hand, it is the authorities' failure to motivate them to declare ethnical affiliation and eliminate the "Bug-camp fear" which lives on in the collective memory.

*Significant differences* (10.01–15%) register the Gypsy communities of Segarcea, Calopăr (Dolj), Corabia, Brebeni (Olt), Albeni, Bâlteni, Mătăsari, Polovragi, (Golj), Gogoşu, Jiana, Vânjuleț (Mehedinți), and Câineni (Vâlcea).

*Moderate differences* between official and unofficial statistics (5.01–10%) register the Gypsy communities in Dolj County (Cerăt, Cetate, Sălcuța, and Urzicuța); Olt County (Balş, Drăgăneşti Olt, Morunglav, and Stoeneşti), Gorj County (Rovinari, Novaci, Tismana, Țicleni, Baia de Fier, Băleşti, Bărbăteşti, Borăscu, Plopşoru, and Țânțăreni), Mehedinți County (Orşova, Floreşti, Gruia, Tâmna, and Voloiac) and Vâlcea County (Brezoi, Păuşeşti Măglaşi, Şirineasa, Sineşti, and Vaideeni).

Gypsy communities in which differences between official (2002 census) and unofficial statistics are low (1.01–5%) live in Dolj County (Craiova, Dăbuleni, Almăj, Amărăştii de Jos, Amărăştii de Sus, Bistreț, Bârca, Bratovoieşti, Breasta, Caraula, Castranova, Coşoveni, Gighera, Gângiova, Goicea, Maglavit, Ostroveni, Plenița, Poiana Mare, Radovan, Siliştea Crucii, Teslui and Vârtop); Olt County (Slatina, Piatra Olt, Brastavățu, Găneasa, Gostavățu, Grojdibodu, Ianca, Pârscoveni, Schitu, Sâmbureşti, Tia Mare, Şerbăneşti, Vădăstrița, Voineasa and Coteana); Gorj County (Târgu Jiu, Târgu Cărbuneşti, Motru, Cătunele, Dăneşti, Glogova, Leleşti, Peştişani, Prigoria, Runcu and Scoarța); Mehedinți County (Bălăcița, Devesel, Isverna, Punghina and Vlădaia); and Vâlcea County (Drăgăşani, Băile Govora, Băbeni, Băile Olăneşti, Călimăneşti, Ocnele Mari, Buneşti, Dăeşti, Budeşti, Ghioroiu, Laloşu, Berislăveşti and Suteşti).

The other communities register *insignificant differences* (0–1%). Some communities do not appear in the official 2002 census data, but register significant high numbers in unofficial statistics.

Settlements that do not appear on the Gypsy population map of the 2002 census are Gostavățu, Grojdibodu, Morunglav, Scărişoara, Schitu, Şerbăneşti, and Vadastrița (Olt), Albeni, Bărbăteşti, Bolboşi, Borăscu, Cătunele, Glogova, Leleşti, Negomir, Plopşoru, Polovragi, and Prigoria (Gorj), Floreşti, Voloiac, and Grozeşti (Mehedinți), Ghioroiu, Sineşti, Berislăveşti, Perişani, and Suteşti (Vâlcea).

In the communities studied in terms of the proportion held by each particular group the *rudari* are seen to be in the majority, with the exception of those from Ghioroiu who are blacksmiths; from Gostavățu, Grojdibodu and Schitu who are *ursari* (whose occupation is to tame and train bears to perform in public places), and from Morunglav, most of whom are fiddlers.

As previously shown, the assimilated populations, of *rudari, tismănari*, and blacksmiths having lost their cultural identity, would explain why they do not identify themselves with the ethnic group they belong to.

In the case of the *ursari*, refraining from mentioning their true ethnicity began after members of this particular Gypsy clan given up their traditional occupation and turned to other trades, like farriery

and ironmongery. Living among blacksmiths, from whom they learned the trade, made them lose their national language and characteristic Gypsy behaviours; besides, mixed marriages with members of the rudari and tismănari communities also played an important role and contributed to this stance.

The low level of education, specific to this ethnic group, makes them little informed, so that the Gypsy society does hardly realize the importance of accurate statistical data. Therefore, statistical inaccuracies are not entirely the result of loss of cultural values, but also the perception that Gypsy inhabitants are discriminated.

The ethnical affiliation is difficult to assess, because declaring one's ethnicity is the exclusive option of the target population and historical, social and cultural factors tend to be decisive in this respect.

Solutions to correctly assess the Gypsy population means efforts to increase its responsibility by involving people of the same ethnicity, preferably from the same communities in the census process, following the model used in education (school mediators), or sanitary education (sanitary mediators) in order to increase the level of confidence in the authorities and thus obtain reliable answers to the question of ethnic affiliation.

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Received April 12, 2010

# LOESS WAS FORMED, BUT NOT SEDIMENTED

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*Key-words*: loess genesis, concomitant sedimentation, soil-forming, accretion, diagenesis, profound soil layer, loess formation areas.

**Le lœss s'est formé, mais il ne s'est pas déposé.** L'article expose un nouveau scénario pour la genèse du lœss comme roche sédimentaire. Le lœss s'est formé par une action concomitante des suivants processus: une sédimentation faible et régulière des matériaux aleuritiques, notamment transportés par vent, un processus du formation du sol avec l'intégration de la poussière déposée (pédogénèse sédintégrante) et une accrétion graduelle déterminée par la sédimentation continuelle de la poussière et son intégration dans le sol, de sorte que l'horizon supérieur du sol, antérieurement formé, devient couche profonde qui n'est plus influencée par les facteurs et processus pédogénétiques. En continuation cette couche est transformée par diagenèse en lœss avec ses propriétés spécifiques. La genèse du lœss est donc le résultat du processus complexe de sédimentation, solification, accrétion et puis diagenèse, et non un simple processus de sédimentation. En espace et en temps on peut distinguer trois aires de formation du lœss: *une aire toujours aride*, sans oscillations climatiques significatives, avec formation continuelle du lœss sans intercalation de sols; *une aire intermédiaire*, aux oscillations climatiques entre arides et humides, avec formation d'une alternance des lœss et des sols (sol tchernozemiques, sol luvisoliques); *une aire toujours humide*, sans oscillations climatiques significatives, avec évanouissement de la formation du lœss, qui conduit à la formation de sols très profonds sans couche de lœss (étant intégré dans les sols). On ne peut pas dire "sédimentation du lœss" ou "le lœss à été déposé"; c'est la poussière qui a été déposée, mais le lœss a été formé.

The Quaternary period began with climate cooling and glaciation, well expressed in the northern part of the boreal hemisphere. This period developed with many climatic cyclic variations, very cool periods (glacial) alternating with relatively warm periods (interglacial). A glacial cycle (glacial and interglacial) covered some 120,000 years, out of which the interglacial lasted about 10,000–20,000 years. These contrasting climatic events reverberated at low latitudes (subtropical zone) by pluvial and inter-pluvial periods.

One of the main phenomena produced in zones located around the ice-cap – shifting in time – and in the desert and around desert areas was loess formation, often with intercalated brown bands considered generally to be fossil soils.

The term loess, introduced (1834) by Charles Lyell (1797–1875), originates from the German word "lose" (*loose*).

Loess is defined as a sedimentary unconsolidated aleurite rock, unstratified, formed in the Quaternary, loose, with high porosity and detachment along the vertical faces, generally having 12–25% calcium carbonates, yellowish in colour.

There are many loess studies synthesized in some works by several different authors: Charlesworth (1957), Ložek (1964), Conea (1970), Ruhe (1971), Yaalon (1971), Tsatskin (1997), Smalley *et al.* (1997) and others.

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Rev. Roum. Géogr./Rom. Journ. Geogr., **54**, (2), p. 159–169, 2010, Bucureşti.

**OPINIONS ON LOESS FORMATION**

Loess genesis is one of the most discussed and controversial problems in the geological, geographical and pedological literature. In their study of loess and loess-like deposits, Marossi (1970) and then Gherghina, Grecu and Coteț (2006) brought together many theories and hypotheses on the origin of these formations, grouping them by 5 categories:

– *aquatic origin theories*: marine, lacustrine and lacustrine-glacial (currently considered obsolete), or fluvial and fluvio-glacial (regarded at present as ways of transport and accumulation of loess component materials);

– *sub-aerial origin theories*, very important being the *aeolian theory* Richthofen 1878, 1882; Tutkovskii 1899, Obruchev, 1911, 1945, 1950, 1957, and numerous other researchers), which is also the most widely embraced one; according to it, the dust transported and deposited by the wind has originated from neighbouring deserts, from periglacial zones or from local sources;

– *theories of loess accumulation through slope processes* (deluvial, colluvial or proluvial), generally associated to other processes;

– *the polygenetic theory,* which considers loess to be the result of many continental sedimentation agents, one of them playing a dominant role in certain conditions;

– *loessification theories* (Berg 1916, 1940; Gerasimov 1964) assume that loess with its specific features is the product of weathering and the soil formation process in the loessification zone specific to the siallite – carbonate weathering earth crust zone. According to *the pedological theory of loess formation* (L.S. Berg) "loess should be considered as a soil eluvial formation arising in a normal manner from its parent material, in an environment of desert climate which was prevailing in a postglacial time". This theory gave rise to a fierce discussion in the former Soviet Union, exposed by Smalley and Rogers (1997). Berg's pedological theory received partial support in Russia from Gerasimov[1] (1964) and no support outside Russia. "If loess represents a normal soil formation, the presence of its deep homogeneous thickness at a depth of 5 to 10 m, and even 20 m … refutes Berg's hypothesis, since with the process of soil-formation forming soil, in the usual sense of the word, the transformation of any layer of a mechanical consistency corresponding to that of loess can be explained only at a depth of 2 to 3 m" (quoted from Smalley and Rogers, 1997, p. 388).

In Romania, loess layers and loess-like strata are widespread in the Danube Plain, the Dobrodgea Tableland, the Moldavian Tableland, the Transylvania Plain and in intra-mountainous and intrahilly depressions, especially on different terraces. From the published works of Macarovici (1968) and Conea (1970) it seems that the aeolian theory of loess formations was in general the most backed-up one (by L. Mrazec, Sava Athanasiu, Gh. Murgoci, P. Enculescu, N. Florov, C. Brătescu, M. Popovăț, M. Spirescu, Ana Conea, C.V. Oprea, N. Florea, N. Băcăințan and others). Dust was considered by Mrazec originate from the southern regions of the Ukrainian steppe, while Murgoci and then Ana Conea showed it the Lower Danube Plain dust to come from the alluvial deposits of the large river valleys running across the plain, fact that entitled N. Macarovici to attribute an alluvio-aeolian origin to the loess of this plain. In Dobrogea and in some lower mountainous areas, the alteration products of rocks from proeminent massifs can also be added (alteration products transported by wind or by surface running waters).

Loess genesis from alluvial sediments was described by I. Simionescu, I. Atanasiu and N. Bucur and N. Barbu, the last ones attributing it (1956) a fluvial origin combined with the loessification process for the loesses of Moldavian terraces. Loessification is defined as a diagenetic process whereby the sediments with a certain granulometrical composition (alluvial deposits, marls) acquire loess features under the influence of geochemical alteration processes. The granulometrical composition, a certain $CaCO_3$ content, aridity and alteration play an important role in this process. The authors proposed the term loess-like rocks for the rocks formed by diagenesis and the term loess only

[1] In 1971, Gerasimov considered loess as pedolith. This term was also used by H. Erhart (1965 and Pecsi).

for the aeolian formations. Also, Oprea and Contrea (1956) consider that the loess of the Mureş Plain was formed by the loessification of certain fluviatile deposits. Also Florea *et al.* (1966, 1989) underlined the role of aeolian accretion and of "sedintegration by soil forming process of the deposited dust, as well as of diagenesis in the process of loess formation".

The hypothesis of the deluvial-prolluvial origin of loess-like materials was sustained by E. Liteanu and his disciples.

N. Bucur and N. Barbu in their turn (1959) support loess formation by the alteration of old clayey deposits (Sarmatian) through a process of loessification.

A new modality (model) of loess genesis as geological formation (non deposit) by concomitant sedimentation – soil forming and subsequent accretion and diagenesis (Florea 2002, 2009) has recently been presented, and developed in this paper with some modifications.

## CONDITIONS NECESSARY FOR LOESS FORMATION

Loess formation depends on certain conditions occurring simultaneously:

– a certain stability of geomorphic conditions;

– some bioclimatic conditions of aridity and a desert or steppe vegetation;

– the existence of rich deposits of aleurite materials – as source of dust – or certain circumstances favourable to generating continuously large quantities of such material, as for example: aleurite material resulted from the alteration in situ of some rocks, especially in areas with rocky massifs, as is the case of certain mountaineous and hilly regions, which are a common supplier of this material; material of physical alteration by gelifraction of surface deposits, obviously under propitious climatic conditions (periglacial area with moraines and other glacial deposits, desert or semi-desert areas with scarce vegetation); material resulted from the transport and sedimentation of running waters in fluvio-glacial plains, floodplains, etc.;

– the existence of transport agents, such as wind blowing from a dominant direction (that of the source of aleurite material), and being high enough to transport by air particles of dust and very fine sand over long distances (coarser particles are left in the "source" area, generally sand remains modelled as a rule into dunes), or running waters on slopes;

– conditions of relatively slow and regular sedimentation of the aleurite material carried by the wind and fixed on land surface as the force of wind diminishes, the vegetation cover is able to retain the dust, shelter and stabilize it, etc.

All these conditions occur especially around deserts and former glacial areas and along river valleys, fact that explains why loess is wide spread in these areas.

If in time climatic conditions are changing and pass from arid or sub-arid to sub-humid or humid, loess formation ends up in soil formation (Luvic Chernozem-like or Luvisol-like), which interrupts the vertical continuity of the loess layer by the soil layer formed, which in the course of time can become fossil soil.

Loess formation can also begin on aleurite deposits of different origins by the soil-formation process associated closely with continuous aeolian sedimentation.

## A NEW SCENARIO OF LOESS GENESIS BY CONCOMITANT SEDIMENTATION – SOIL FORMING – ACCRETION AND THEN DIAGENESIS OF THE LOWER PART OF THE SOIL WHICH TURNED INTO DEEP SOIL

Synthesizing opinions on the origin of loess in a relatively simple, but comprehensive manner, shows that loess formation is a complex natural process characteristic of the arid – sub-humid zone, whereby different dominant aleurite sediments from the surface of the earth are transformed into loess or loess-like deposits. The largest loess areas are widespread in the vicinity of deserts and in periglacial zones.

The complex process of loess genesis consists in the simultaneity of phenomena described in the following (a-d):

*a) The relatively slow and continuous sedimentation of the aleurite material* transported especially by wind (but locally also by running surface waters particularly during the first phase), from the neighbouring area, sometimes from long distances, and deposited in arid zones on land surface; according to studies carried out in the USA (Ruhe *et al.* 1971) and in Romania (Conea 1970), loess layer thickness decreases with the distance from the source, but its texture becomes finer and finer. Very frequently the material close to the source is coarse and modelled in the form of dunes.

b) *The continuous soil-forming of the deposited material* (of the type of seraziom or loess like soil according to Murgoci, 1910, or even Chernozem) by processes of weathering and pedogenesis specific to the relatively arid zone, processes which take place simultaneously with continuous sedimentation in the layer situated at the surface, elevating the earth's crust and thickening the soil horizons (sedintegrating soil-forming);

c) *The soil accretion*, *i.e.* the gradual rising of the land surface and also of the soil by continuous deposition and concomitant soil formation (sedintegrating) of the deposited aleurite material so that, in time, the surface soil (previously formed) becomes a layer situated at ever greater depth that will no longer be influenced by alteration and soil forming processes specific to the respective zone (arid). In the soils of the Romanian Danube Plain developed in loess, the age at different depth (Munteanu *et al.* 1977) determined by $^{14}C$ method in The Netherlands laboratories, is of 1,000–2,000 years for A horizon, 6,600–9,100 years for Bv and Bt horizons and 13,000–26,000 years for loess at 200 cm depth, average rate of soil growth (accretion) is of 0.2–1.0 cm per century for soil and 0.5–2.5 cm per century for loess. Similar data were presented by Scharpenseel (1971) for Chernozems, namely 5,000 years at 100 cm depth and about 15,000 years at 245 cm depth (for a Chernozem from Orel, Russia).

These data prove without doubt that soil is rising (growing) in time (aeolian accretion); one can also deduce that the sedimented material on the soil surface was subjected to a soil-forming process (in A horizon) for about 2,000 years, a process whereby the deposited material accumulated humus, acquired a dark colour, became structured, homogeneous and porous without stratification traces; also a $CaCO_3$ migration with carbonate-illuvial horizon formation took place, etc.

d) *Diagenesis of the deep layer* – previously subjected to soil forming processes – after the loss of a direct connection with land surface processes; by this diagenesis some soil features are lost, for example the humus content (due to the mineralization of the organic matter and to the lack of annual addition of organic remnants) and macrostructure, etc, but others are preserved, for example the microstructure (Postolache 1966; Florea *et al.* 1987), high loosening and porosity, vertical direction of the tubular pores, lack of stratification, etc. Thus, the layer situated below the soil cover (from the surface) is transformed into loess, a process sometimes named proper loessification, (broadly speaking according to this concept loess formation, loessification or loessifying includes, all the above-mentioned processes).

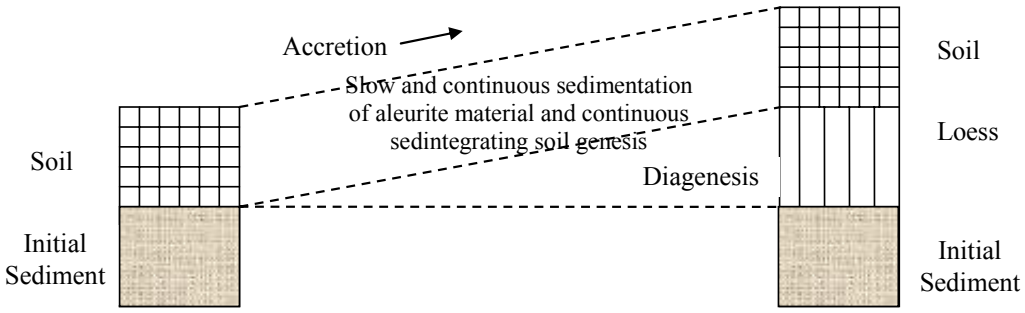
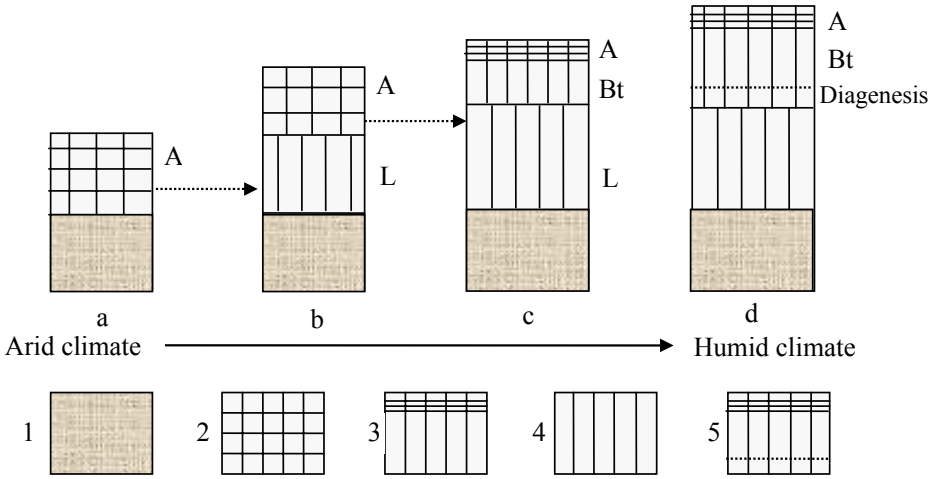



Fig. 1 – Scheme of the interaction of sedimentation, accretion, sedintegrating soil genesis and diagenesis in the process of loess formation.




1 – Initial sediment. 2 – Soil with humus accumulation (Calcisol, Cernisol) in arid or steppe climate. 3 – Soil with clay and/or oxides illuviation. 4 – Loess. 5 – Soil with clay and/or oxides illuviation, deep soil; the lower part of the soil is transformed by diagenesis into old soil.

Fig. 2 – Loess forming as a dynamic complex process closely correlated with sedintegrating soil-forming process in the arid-subarid climate. Stages of loess forming by concomitant processes of: *a* – slow and continuous sedimentation and sedintegrating soil-forming in arid conditions; *b* – sedimentation and sedintegrating chernozemic soil forming, soil accretion and diagenesis of the lower soil part (which turned into deep soil) with its transformation into loess in an arid-semiarid climate; *c* – sedimentation, sedintegrating eluvio-illuvial soil forming, soil accretion and diagenesis of the lower soil part with its transformation into loess in a semiarid-semihumid climate; *d* – sedimentation, sedintegrating eluvio-illuvial soil forming, soil accretion and diagenesis of the lower soil part with its transformation into old soil in a humid climate (without loess forming), unseparated ("welded") from the actual soil.

This complex loess-forming process involves concomitant and successive occurrence of the various phenomena mentioned above, whose interaction is schematically rendered in Figure 1 in the conditions of arid-to-sub-arid regions.

If the climatic conditions change becoming humid, the complex process of loess genesis ends with (is interrupted by) a soil (Bt horizon) that cannot be transformed into loess, but into brown clay layer (argilith).

Figure 2 presents schematically the evolution phases of the complex loess genesis process with the climate changing from arid to humid; the whole process of loess forming is presented in the legend and needs few explanations. One finds that loess is formed only in the conditions of a relatively arid climate, because the transformation into loess of the soil illuvial B horizon (formed under humid climatic conditions) is not feasible; this horizon (layer) can become buried Paleosol in time.

This loess formation model can be designated in short as the hypothesis (theory) of loess genesis by concomitant sedimentation, soil-forming, accretion and subsequent diagenesis or, more explicitly, the hypothesis of loess genesis by the sedimentation process of aleurite material and its concomitant soil-formation in an arid zone, followed by subsequent accretion and then by diagenesis of the *lower part* of the previously formed soil (the consequence of its surface rising due to continuous deposits of aleurite material piling up, accretion).

This model integrates especially data on arid regions and represents a combination between Berg's soil genesis theory of loess formation and the other theories, particularly the aeolian theory. It also explains the possibility of thick loess strata formation in the conditions of steady accretion in continuously arid conditions.

Nevertheless, the origin of the aleurite material (the dust) which generated the loess is predominantly aeolian; in the hilly regions and in the piedmont plains other similar granulometrical

materials (deluvial, prolluvial) can also interfere with the aeolian ones or can interrupt vertical loess continuity.

According to this loess genesis concept, loess is considered to be a complex sedimentary rock and not simply a deposit. Although during the formation process loess passes through a soil phase, so that it can be considered fossil Paleosol (G. Murgoci 1910), yet by its attributes loess constitutes a sedimentary rock formed though the diagenesis of an aleurite sediment previously subjected to a soil forming process in a relatively arid climate, so that it can be considered a pedolith as well (in the sense of Gerasimov 1971).

Therefore, expressions such as "loess was deposited" or "loess sedimentation produced…" seem to be inadequate because "dust" was deposited, then transformed into a true geological rock.

The new view on loess genesis brings clarifications on the material origin, climatic conditions of formation and relationships with fossil and actual soils. It also has implications concerning the stratigraphic significances of loess layers, buried fossil soils and the interpretation of climatic variations in the Quaternary; the local-regional value of all interpretations of loess sequences and fossil soils (sequences of pedoliths) is also noteworthy.

## FORMS AND AREAS OF LOESSIFICATION IN THE PERIGLACIAL REGION

The loess-forming (loessification) process correlated with the soil-forming process develops non-uniformly in space and time in the region that has conditions propitious to loessification. Based on this new scenario of loess genesis and on the model of the loess – fossil soil sequences formation (Florea 1966), some forms of this loessification process can be distinguished, having various and variable extent in the territory.

The diagenesis (loessification) of the layer situated under the soil develops normally – according to the process described above – if the soil which is forming on the land surface is a Calcisol (Aridisol) and desert or steppe bioclimatic conditions also exist. But these bioclimatic conditions could change (cyclically) in the course of time, becoming more and more humid and, after a certain period, the climatic cycle will start again.

Of course, in parallel with the change of bioclimatic conditions over time, corresponding changes also occur in the other environmental conditions, gradually altering the processes of sedimentation, soil-forming and diagenesis as well. The following situations can be distinguished:

– If the Quaternary climate remained continuously relatively arid in a certain place of the periglacial area (Figs 3 on the left and 4a), then the soil stratum (with humus) reached at depth (by accretion) would be transformed by diagenesis at a rate similar to that of soil-forming on land surface, so that the vertical column of the formed loess is relatively uniform (without coloured bands). Continuous loess forming takes place steadily (in areas with relatively arid conditions without notable oscillations).

– The global climate change modifies the environmental conditions of the respective place and the steppe-to-sylvosteppe transition conditions with Chernozem formation on land surface. In this case, the evanescence of the dark horizon (with humus), previously formed and reached at depth (by accretion) after a period of sedimentation reactivating, needs more time so that this layer remains for some time in the loess-soil column as a blackish layer between two loess layers; as a rule, such situations occur in recent loess layers, but not in the older ones, as a consequence of evanescence by diagenesis. The climatic oscillations from arid to sub-arid (sub-humid) are, therefore, characterized by loess formation with intercalations (bands) of fossil chernozemic soils.

If the climate of the respective place changes from arid to humid (in parallel with Quaternary climatic fluctuations) dust sedimentation becomes more reduced (and with finer dust) and the concomitant development of sedimentation and soil-forming processes takes another course. Soil

accretion (or growth) is very slight, so that the alteration and soil-forming processes lead to the formation of a soil with Bt horizon enriched in clay, of reddisher colour, of variable thickness depending on the duration of the humid period.

The transition to a new arid climatic period leads to the intensification of dust transport and sedimentation and in this way to processes described for loess genesis will resume.

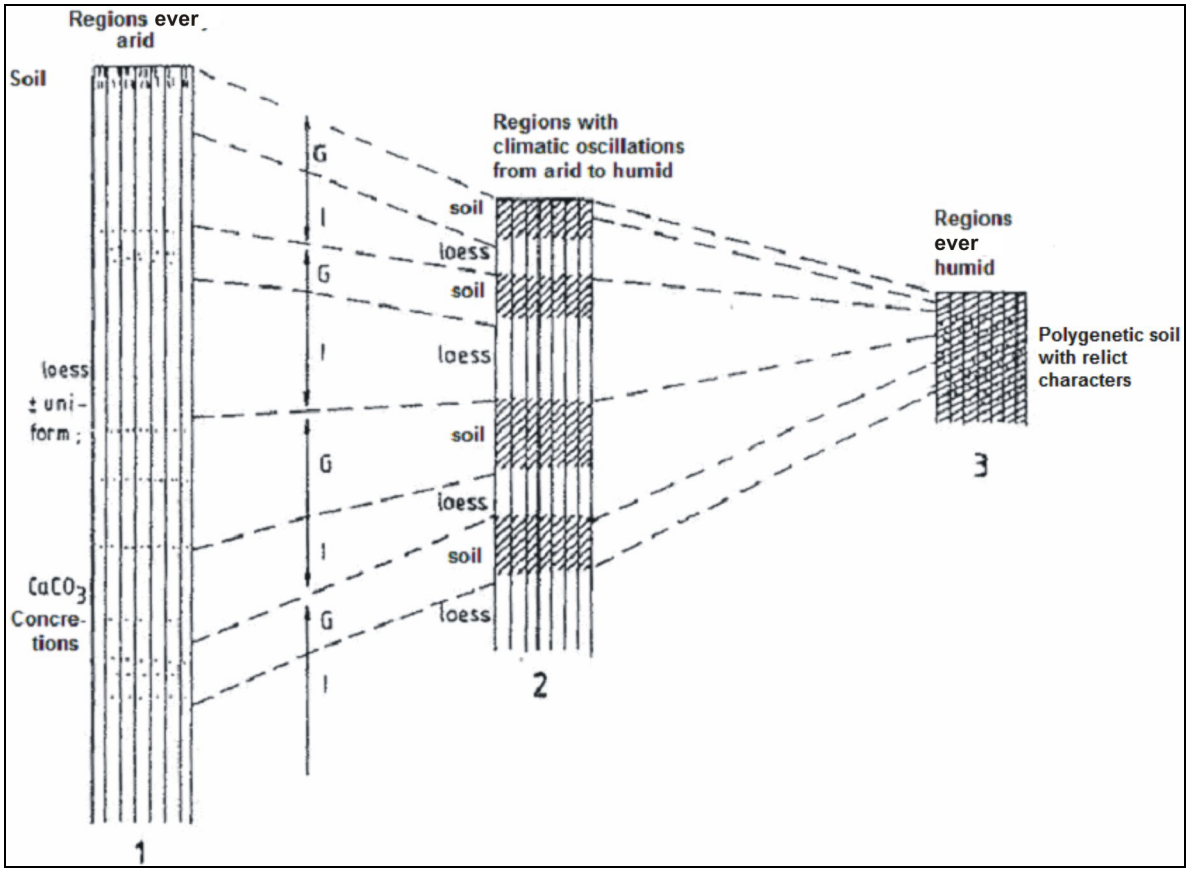



Fig. 3 – Scheme of correlation between loess forming and soil forming during the Quaternary in tabular periglacial areas with different climatic oscillations.
*1* – all-time arid climate; *2* – climatic oscillations from arid to humid; *3* – all-time humid climate.

This new loess will cover the soil of the previous humid period, of which Bt horizon largely keeps its features because it cannot be "loessified" by diagenesis, so that it remains as a brown coloured band, clayey, perceived as fossil soil between two loess layers. The band (layer) of fossil soil finishes, then, one cycle of climatic evolution of sedimentation – soil-forming from arid climate (loess) to humid climate (fossil soil). The new loess marks the beginning of a new climatic arid-humid cycle. The climatic oscillations from arid to humid are thus characterized by loess formation with intercalations of fossil (luvisol-like) soils, clayey (Fig. 3 in the center and 4).

– If the climate in the respective place was and remained humid throughout the period of climatic oscillations and if sedimentation remained insignificant, the soil-forming process exceeded the dust sedimentation intensity, so that in the course of time well-developed soils with Bt horizon, clayey and deep, get formed; the deposited dust is integrated into the soil, so that a loess layer will not be differentiated. The soil that is forming on the land surface is in fact a profound present-day paleosol which self-"condenses" over a long period of time; the upper part is of course active as actual soil, but the lower part (below 2 m) is more or less changed by diagenesis, acquiring rock features (pedolith).

In this case, the relative humid climate was characterized by insignificant oscillations, favouring soil-forming to the detriment of sedimentation and loessification, and resulting the continuous formation of a paleosol, the lower part of which is a pedolith, lacking loess layers (Fig. 3 on the right and 4u).

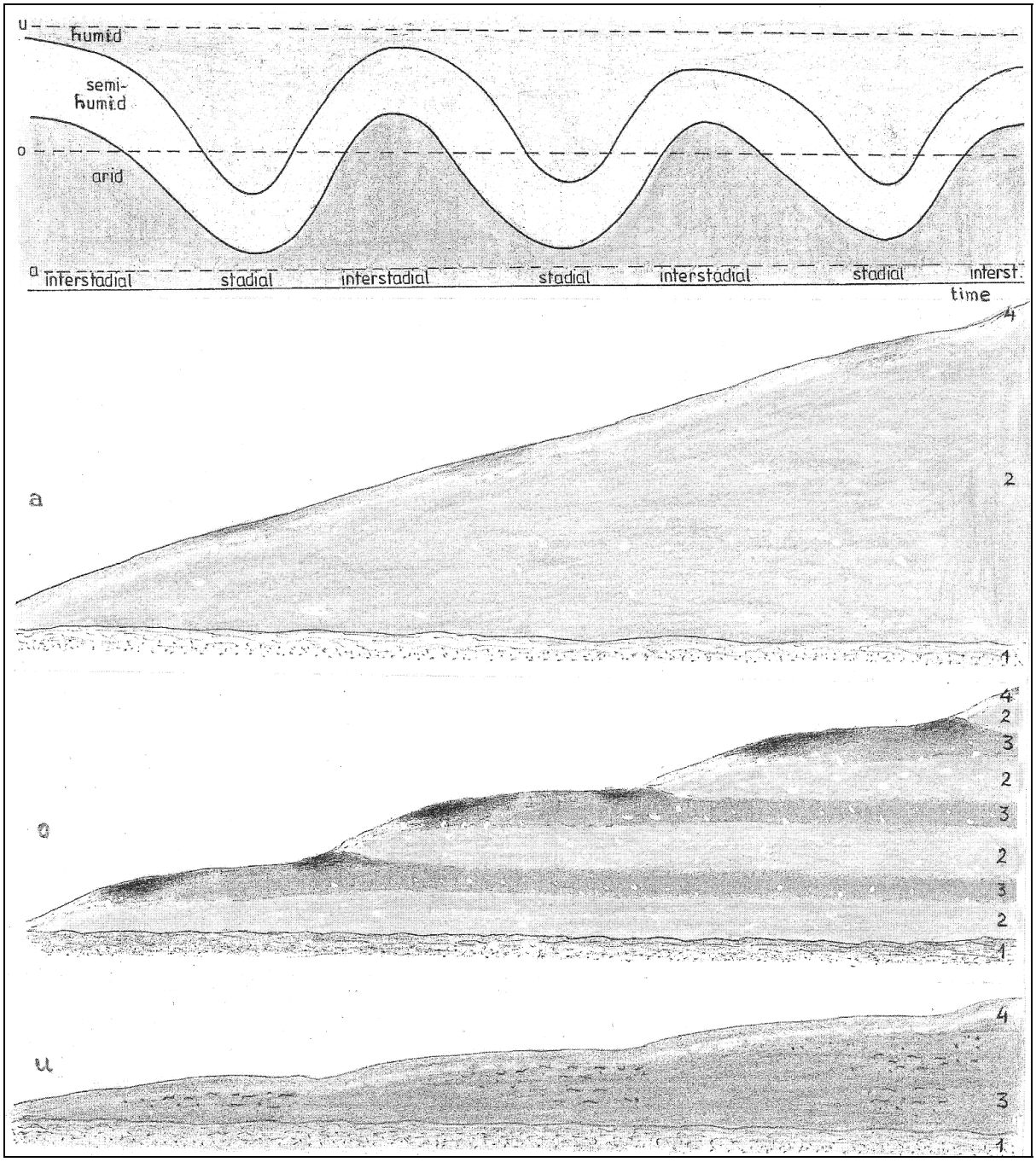



Fig. 4 – Scheme of some loess – fossil soil sequence fluctuations in time (in correlation with advances and withdrawals of the ice-cap) and in space (in areas or locations with different climatic oscillations): a – area with insignificant climatic oscillations in arid climate; o – area with climatic oscillation from arid to humid; u – area with insignificant climatic oscillations in humid climate. (*1* – fluvial deposit; *2* – loess; *3* – fossil soil; *4* – present-day soil; *o* – concretions of $CaCO_3$ *iron* oxides neoformations; ~ – cryogenic features).

A similar opinion is advanced by Dan and Yaalon (1971) for the paleopedological formations in the coastal desert fringe areas near the Mediterranean Sea. Also, Yaalon (1990) finds that uninterrupted "aeolian deposition and pedogenesis could produce the continuous bands of soil horizons (complex or welded profiles)". In this case, "more than one soil forming period and/or sedimentation of new material, when it is less than the depth of pedogenesis, are the cause of the superposition. Such sections are frequently difficult to recognize and interpret".

Taking into account the ratio between sedimentation intensity and soil-forming intensity and its modification in the course of the Quaternary, some main areas of loess genesis and pedogenesis can be distinguished in the periglacial zone, namely (Fig 4, upper part):

– ever-arid area of continuous loessification with formation of the loess layer without apparent intercalations of fossil soils, in which sedimentation and loessification are active and pedogenesis is slight (loessifying pedogenesis); it corresponds to the territories relatively far from the glacial region or near the desert region, in which the climatic conditions were permanently more or less arid and dust-sedimentation intense;

– arid-to-humid oscillation area of intermittent loessification, with formation of sequences of loess layers and fossil soils (Fig. 4.o), in which arid and humid conditions are succeeding each other in the course of time, as are the corresponding sedimentation-soil-forming conditions; two sub-areas may be distinguished, a first one in which buried Chernozem-like soils appear, corresponding to climatic variations from arid to sub-humid, and the second one in which buried soils with Bt clayey brown or reddish appear, corresponding to climatic oscillations from arid to humid; often the two sub-areas are succeeding each other in time, so that the two categories of fossil soil in the loess layer appear superposed;

– ever-humid area of evanescent loessification, with formation of deep soils (Fig. 4u), pedogenesis being very intense, sedintegrating and superimpressing, with slight sedimentation and integration of the deposited dust in the soil, without forming loess layers, take place.

Considering the loess layers and fossil soils as pedoliths (Gerasimov 1971; Florea 2009), the mentioned areas can be designated as: *area of continuous loessification, area of successive loessification and pedargithification and area of continuous pedargithification (sedintegration)*.

There are, of course, very different situations of transition among these types of areas. It must be pointed out that the periods of different climatic conditions do not always correlate with the evolution periods of glacial phenomena.

## WERE LOESS AND FOSSIL SOILS FORMED IN THE GLACIAL (STADIAL) OR INTERGLACIAL (INTERSTADIAL) PERIOD?

A question raised in discussion and very much debated was the chronological relationship between loess layers and soils, on the one hand, and the glacial and interglacial (stadial and interstadial) phases, on the other. Some researchers think that the loess layers formed in the glacial (stadial) phase and that the soil was created in the interglacial (interstadial) period, an opinion defended in Romania by Popovăţ, Conea and others; yet, other researchers consider that the soil formed in the more humid glacial (stadial) periods, and the loess layers in the more arid interglacial (interstadial) periods, opinion argued in Romania by Protopopescu-Pache and Spirescu (1961).

In order to find an answer to this question it is necessary to scrutinize the location of the loess–fossil soil sequence in time and space as opposed to the ice-cap region. Acting in this way, one comes to the conclusion that in the area occupied by the ice-cap and in its adjoining zones from the soils that turned fossil were really formed in the interglacial (interstadial), while in the area beyond the ice-cap, subjected to arid-to-humid climatic variations, the soils developed continuously, the phase of maximum development being the humid glacial (stadial) period, with the loess layer having been

developed in the previous period (Florea, 1966, 2002, 2009). In the area that remains arid in the glacial period as well, little differentiated soils have developed in time, soils continuously growing and being transformed into loess by diagenesis in the lower part of their horizons (area of continuous loessification). On the contrary, the area which keeps humid all the time, with minute variations, sequences of loess fossil soils do not appear, their place being taken by deep clay polygenetic soils (area of continuous pedargithification). A full recording ("memory") of all climatic variations in the soil cover is found only in those areas of periglacial region in which the climatic conditions changed from arid to humid (sub-humid) in parallel with the transition from interglacial (interstadial) to glacial (stadial) periods in the Quaternary (area of successive loessification and pedargithification) (Fig. 3).

The problem of the glacial or interglacial phase of fossil soil or loess forming ceases – according to the model of loess and fossil soil formation presented above – the respective phases of pedoliths formation becoming a *problem of variation of the ratio between sedimentation and soil-forming processes over time*, depending on climatic conditions, the loess layer corresponding to the phase of sedimentation–soil forming in the arid-subhumid climate, but fossil soil well expressed, corresponding to one of the humid climate phases which finish the geological cycle of climatic evolution. The extent of congruence of climatic variations with oscillations of glacial phenomena depends on the location in time and space of each investigated loess–fossil soil sequence.

## CONCLUSIONS

The new scenario of loess genesis as sedimentary rock consists of a complex process built by the conjugated action of several processes. The following processes take place concomitantly: slow and regular *sedimentation* of the aleurite material, especially that transported by wind; *soil-forming* with the integration within the soil of the deposited dust (sedintegrating pedogenesis) and gradual soil *accretion* due to continuous sedimentation and soil forming, so that the upper soil horizon, previously formed, becomes deep layer no longer subjected to soil-forming processes and factors. This layer is transformed then by *diagenesis* into loess with its specific properties.

Loess genesis, closely correlated with soil genesis, takes place in space and time around glacial areas and in deserts and steppe areas, depending on the climatic conditions and oscillations. Three areas can be distinguished: arid area all along, without significant climatic oscillations with continuous formation of loess without intercalations of soil; intermediary area (with climatic oscillations from arid to humid), with formation of loess having soil intercalation either of the Chernozem or the Luvisol type; humid area all along, without significant climatic oscillations, with evanescent loess formation, leading to the formation of deep soils without loess layers (being integrated into the soil).

Therefore, one cannot speak of "loess sedimentation" or say that "loess was deposited", etc; only the aleurite materials were deposited (sedimented), but loess was formed.

This concept of loess genesis obviously entails modifications in the geological interpretation of the loess – fossil soil sequences.

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Received June 3, 2010

# LE RÔLE DE L'INFRASTRUCTURE DE TRANSPORT DANS LA FRAGMENTATION DES PAYSAGES NATURELS DES RÉSERVES NATURELLES L'EPICÉA DE RÉSONANCE DE LĂPUŞNA (LES CARPATES ORIENTALES) ET LES HAUTS DE CHARTREUSE (LES ALPES FRANÇAISES)

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*Mots clef:* réserves naturelles, fragmentation des paysages, infrastructure de transport, vulnérabilité, Carpates, Alpes.

**The transport infrastructure and its role in landscape crumbling in *Lăpuşna Resonance Spruce* (Eastern Carpathians) and *Les hauts de Chartreuse* (French Alps) nature reserves.** The major premise of this article is: accessibility in natural reserves could become a risk factor for protected natural elements, if the ways of access inside of natural reserve are not correlated with the preserve purposes. Moreover, the transport network density and quality are elements, which lead to landscape fragmentation. These parameters catalyze the visitors flux inside the natural reserve, and thus, they could be identified like reserve vulnerability vectors. In order to prove this hypothesis we analyzed two study cases: the natural reserve "The Lăpuşna epicea wood natural reserve" (The Eastern Carpathians) and "The natural reserve Les Hauts de Chartreuse" (French Alps). Regarding the transport network, the two natural reserves are totally opposed: the Romanian reserve is located in a isolated area, and the French reserve is very accessible. In both cases, the transport infrastructure, road density and their connection with landscape fragmentation were studied.

## INTRODUCTION

L'amélioration de l'accessibilité peut contribuer au développement du tourisme dans une réserve naturelle. Le cas où l'accessibilité n'est pas réglementée, elle peut déterminer l'augmentation de la pollution par la fréquentation intense et par le stationnement chaotique des voitures, l'augmentation de la quantité des déchets produits pendant la visite, la cueillette incontrôlée des plantes, la vandalisation de l'écosystème. Les espaces naturels protégés situés en zone montagnarde sont soumis à plusieurs formes de circulation routière étant identifiées trois logiques de fréquentation: une fréquentation touristique pour les espaces récréatifs, une fréquentation de la population riveraine ou des professionnels de montagne et finalement une fréquentation transitoire, quand il s'agit d'une traversée de l'espace respectif (Bernier 2003).

L'infrastructure qui permet la pratique de ces types de fréquentation représente dans l'écologie une forme de fragmentation du paysage (Burel 1999). Dans son acception, la fragmentation détermine la réduction des populations, car il peut y avoir assez d'espace pour un ou plusieurs individus, mais pas assez pour une population.

Les deux études de cas de notre recherche sont deux réserves naturelles situées en zone montagnarde, ***les réserves naturelles L'épicéa de résonance de Lăpuşna*** et ***Les Hauts de Chartreuse.***

La réserve naturelle ***L'épicéa de résonance de Lăpuşna*** se trouve dans la partie centrale des Carpates Orientales, plus précisément dans le massif Gurghiu. Administrativement cette réserve fait partie du département de Mureş, et de la commune Ibăneşti. Du point du vue *biogéographique* cette

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Rev. Roum. Géogr./Rom. Journ. Geogr., **54**, (2), p. 171–179, 2010, Bucureşti.

réserve naturelle se trouve à l'interférence entre l'étage supérieur de la forêt de feuillus et l'étage boréal et du point du vue de sa situation dans les régions biogéographiques européennes, elle s'inscrit dans la région Alpine (Carpatique). Le type de paysage présent dans cette réserve naturelle est celui de paysage **forestier.**

La réserve naturelle ***Les Hauts de Chartreuse*** se trouve dans les Préalpes calcaires françaises, la partie Est du massif de Chartreuse, dans la région Rhône-Alpes. Elle a une superficie de **4 450** ha, et s'étend sur le territoire de **11** communes dans 2 départements, Isère et Savoie.

La réserve naturelle ***Les Hauts de Chartreuse*** se trouve, du point du vue *biogéographique*, dans la région alpine, ses paysages se partagent entre **paysages forestiers, des alpages et des parois rocheuses.**

Le point commun de ces deux réserves naturelles est le rôle primordial des écosystèmes forestiers: ***la réserve naturelle L'épicéa de résonance de Lăpuşna*** représente un écosystème forestier d'intérêt européen qui protège des exemplaires rares de bois de résonance dans le cadre de l'habitat de **Forêts acidophiles à *Picea* des étages montagnard à alpin (*Vaccinio-Piceetea*)** - code 9410, et dans ***la réserve naturelle des Hauts de Chartreuse***, 45% de la surface totale est boisée avec des peuplements d'intérêt européen.

## METHODOLOGIE

Ayant comme point de départ l'approche structurelle globale de la fragmentation du paysage, développée dans le travail mentionné auparavant, nous avons analysé le rôle de la l'infrastructure routière dans la fragmentation du paysage dans les réserves naturelles *Les Hauts de Chartreuse* et *L'épicéa de résonance de Lăpuşna*, et à proximité de celles-ci. Les méthodes utilisées sont les recherches sur le terrain et la réalisation et l'analyse des cartes thématiques dans le logiciel ArcGis**.**

## RESULTATS

Dans les communes d'appartenance de la réserve naturelle *Les Hauts de Chartreuse*, nous avons pris en compte les routes et les sentiers (Fig. 1).

Dans cette figure on peut observer que la fragmentation des surfaces forestières est influencée à l'intérieur de la réserve naturelle par les éléments physico-géographiques, là où le paysage dominant est celui de plateau et par l'infrastructure de transport, là où le réseau routier est plus dense et la fragmentation augmente.

La fragmentation des paysages dans la réserve naturelle *Les Hauts de Chartreuse* et dans ses communes d'appartenance est moyenne, puisqu'on peut observer un groupement des surfaces forestières et le pourcentage de surface boisée est de **65%**.

En ce qui concerne la fragmentation du paysage dans la réserve naturelle *L'épicéa de résonance de Lăpuşna*, vu qu'elle représente **un écosystème forestier**, le périmètre d'étude a été élargi, prenant en compte la commune Ibăneşti et ses communes voisines (Fig. 2). On observe que la fragmentation du paysage dans cette zone est moins forte qu'en Chartreuse, fait visible par le caractère compact des surfaces forestières (spécialement dans la partie nord de cette aire).

Ce qui attire l'attention dans cette figure sont les extrémités de l'est et de l'ouest de la zone d'étude, où les surfaces forestières manquent presque complètement. Ce fait souligne la pression existante sur le fond forestier où est encadrée la réserve naturelle *L'épicéa de résonance de Lăpuşna*. Le pourcentage des surfaces boisées est approximativement le même que pour la réserve naturelle *Les Hauts de Chartreuse* et ses communes d'appartenance (**60%**), mais leur disposition diffère radicalement, partant d'une disposition relativement uniforme en Chartreuse à une concentration des surfaces boisées dans le centre du massif Gurghiu.

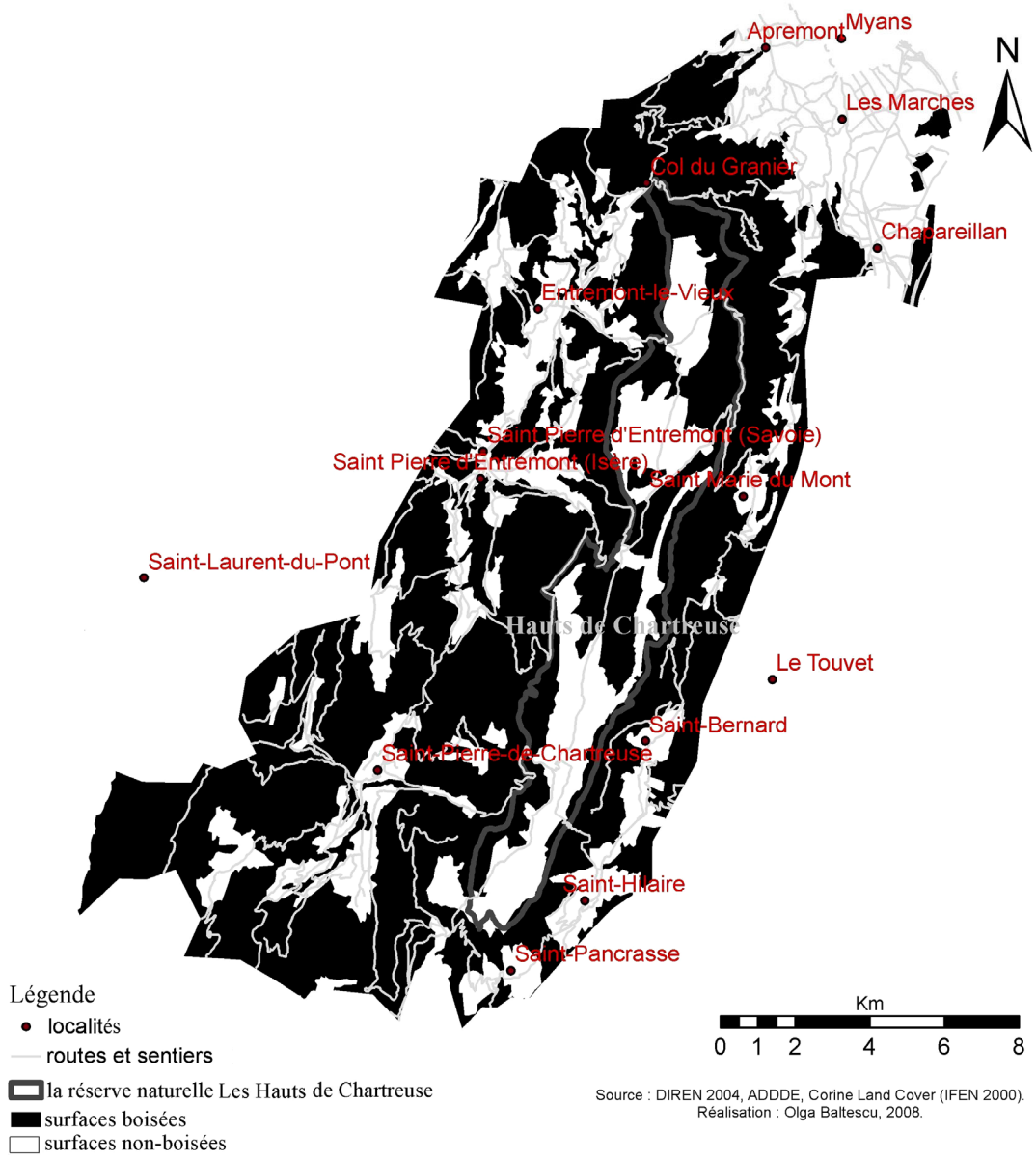


Fig. 1 – Les chemins d'accès dans les communes d'appartenance de la réserve naturelle *Les Hauts de Chartreuse* comme facteur impliqué dans la fragmentation du paysage.

En ce qui concerne l'infrastructure de transport dans le massif Gurghiu, on peut dire qu'il y a une liaison indirecte (transitive) entre la localisation et la densité des routes, et la fragmentation des paysages, puisque le réseau de circulation est canalisé sur certaines vallées (des éléments naturels de la fragmentation). La fragmentation par les voies d'accès en dehors de ces vallées est réduite.

Un aspect très important que nous devons souligner dans le cas de la réserve naturelle *L'épicéa de résonance de Lăpuşna* est sa vulnérabilité induite par les abatages illégaux des arbres le long des routes (qu'elles soient communales ou forestières). Cela se passe surtout à la limite de l'est de la réserve naturelle qui est aussi la limite entre les départements Mureş et Harghita (Fig. 3).

En ce qui concerne la densité des routes dans les proximités des réserves naturelles *Les Hauts de Chartreuse* et *L'épicéa de résonance de Lăpuşna*, celles-ci ont été étudiées séparément. Les surfaces étudiées différent comme grandeur: la proximité considérée des réserves naturelles *Les Hauts de Chartreuse* et *L'épicéa de résonance de Lăpuşna* ont une surface de 343 km$^2$ et respectivement 2654 km$^2$. Le motif de ce choix est lié au fait que la réserve naturelle *L'épicéa de résonance de Lăpuşna* a une surface réduite (78,8 ha) et se situe dans une zone relativement isolée et dans nos recherches nous avons voulu associer à cette réserve une zone avec une population importante.

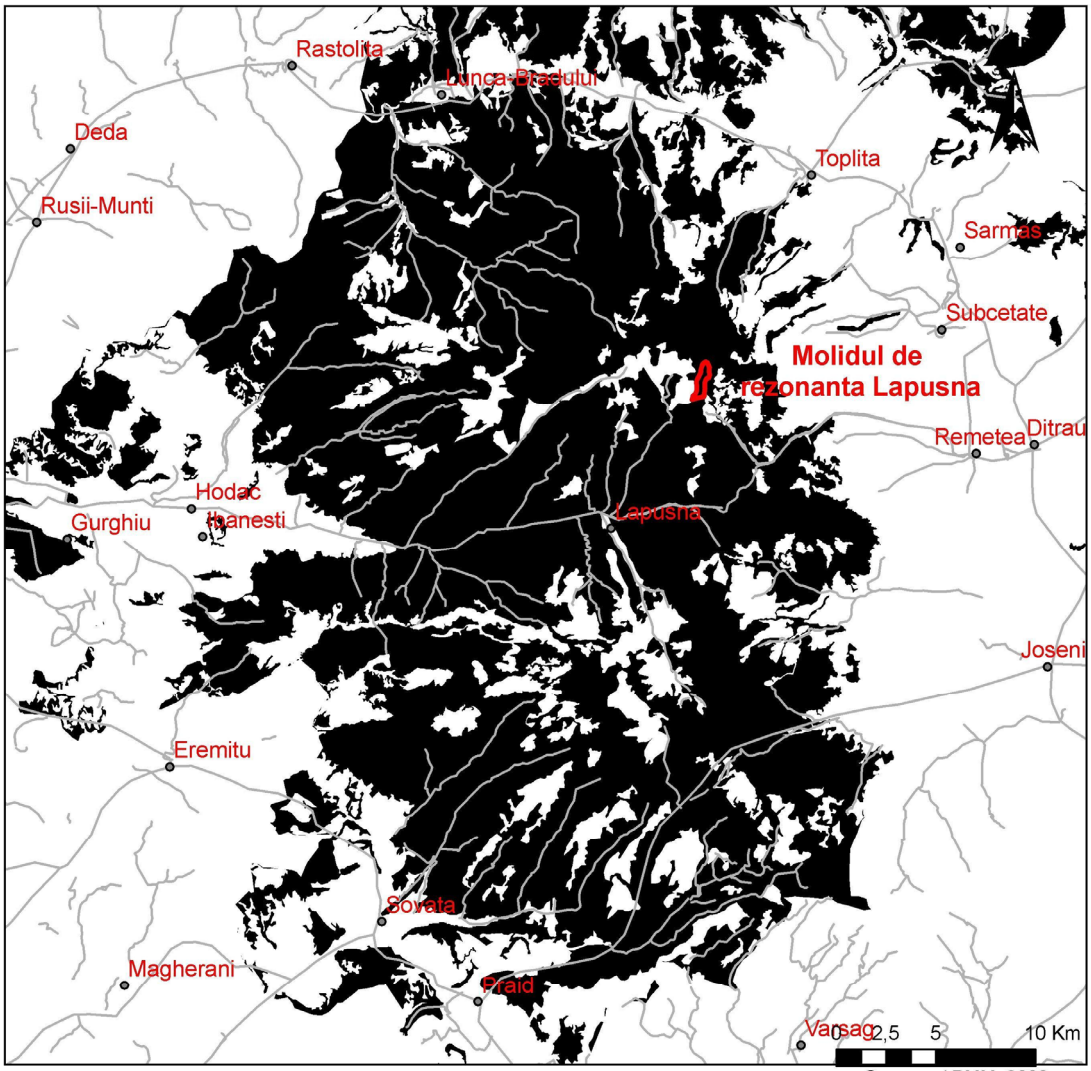


Fig. 2 – La distribution de voies d'accès comme facteur impliqué
dans la fragmentation du paysage dans la commune Ibăneşti et les communes voisines.

Fig. 3 – Les traces des abattages illégaux dans le voisinage de la réserve naturelle *L'épicéa de résonance de Lăpuşna* (Băltescu 2007).

Les surfaces étudiées incluant les réserves naturelles ont été divisées en 5 classes, en fonction de nombre de kilomètres de route et sentiers sur 1 km$^2$. La première classe comprend les surfaces qui contiennent moins ou 1 km de route sur 1 km$^2$, les classes suivantes ont été établies de la même manière.

La distribution de la densité des routes dans les proximités des réserves naturelles *Les Hauts de Chartreuse* et *L'épicéa de résonance de Lăpuşna* a été également étudiée, classifiée et commentée.

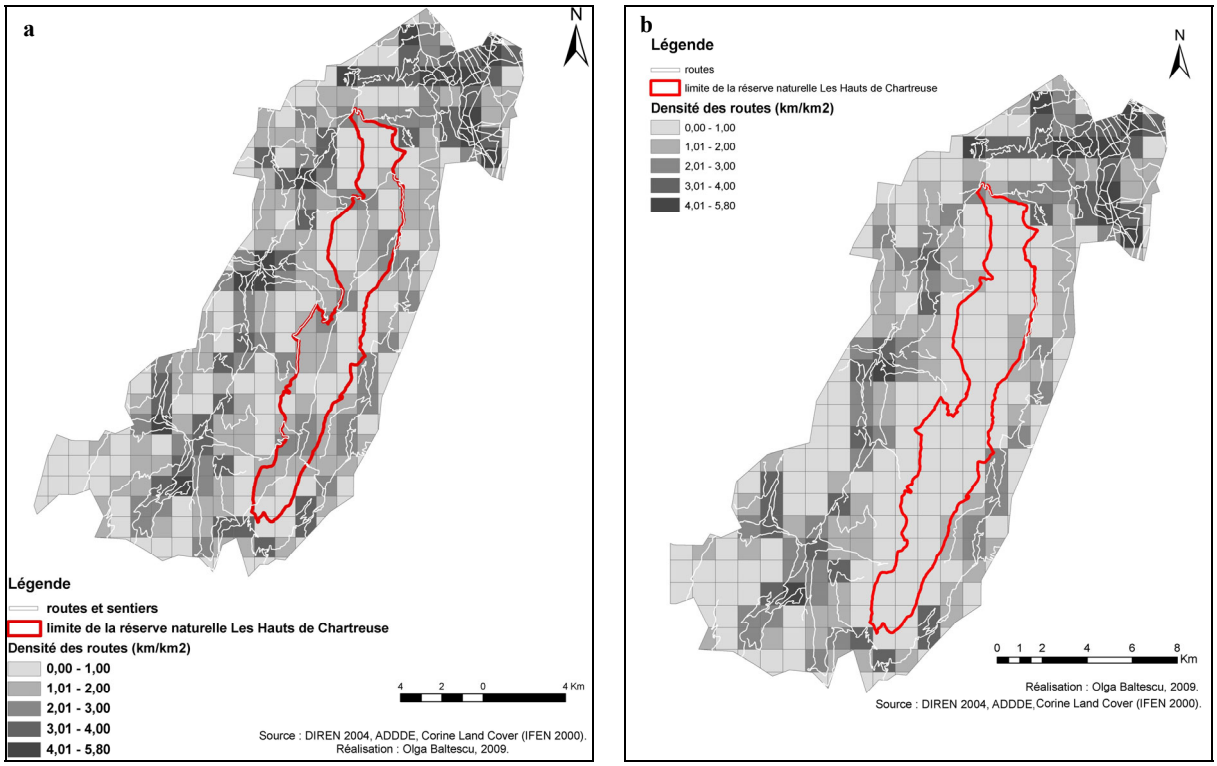


Fig. 4 – a) La densité des routes et sentiers dans les communes d'appartenance de la réserve naturelle *Les Hauts de Chartreuse*;
b) La densité des routes dans les communes d'appartenance de la réserve naturelle *Les Hauts de Chartreuse*.

Dans le cas de la réserve naturelle *Les Hauts de Chartreuse* ont été réalisés deux cartes: une qui représente que les routes (autoroutes, routes nationales, départementales et communales), et une autre où nous avons rajoutés les routes forestières et les sentiers.

La densité moyenne des routes et des sentiers est de 1,38 km/km$^2$, en temps que la densité moyenne que pour les routes est de 1,12 km/km$^2$.

Cette différence de 19% dans la densité moyenne des routes montre que non seulement l'infrastructure routière a des influences écologiques sur les écosystèmes, mais aussi les routes forestières et les sentiers et la fréquentation pédestre peuvent introduire un ensemble des modifications physiques et chimiques dans le cadre d'un écosystème avec une influence directe sur la fragmentation (Franchini *et al.* 2003). Par rapport à la réserve naturelle *L'épicéa de résonance de Lăpuşna*, la réserve naturelle *Les Hauts de Chartreuse* bénéficie d'une bonne desserte du point du vue de la densité du réseau du transport et aussi de sa qualité. A ce fait s'ajoute l'existence de plusieurs sentiers. Le sentier le plus important est celui qui traverse la réserve naturelle du nord au sud, le GR 9, un sentier de grande randonnée, qui part de Saint-Amour dans le Jura pour rejoindre Saint-Pons-les-Mûres dans le Var au bord de la Méditerranée.

La présence de ce GR sur le territoire de la réserve naturelle *Les Hauts de Chartreuse* augmente l'attractivité de la réserve naturelle et implicitement le nombre de visiteurs. Les autres sentiers existants dans la réserve naturelle font la liaison entre le GR 9 et ses extrémités, respectivement la liaison avec les routes communales latérales. Aux sentiers s'ajoute le réseau des routes forestières, qui contribue aussi à la fragmentation du paysage de la réserve naturelle *Les Hauts de Chartreuse*.

La distribution en pourcentage des surfaces conformément aux 5 classes principales de la densité des routes et sentiers dans la proximité de la réserve naturelle *Les Hauts de Chartreuse* est représentée dans la figure 5.

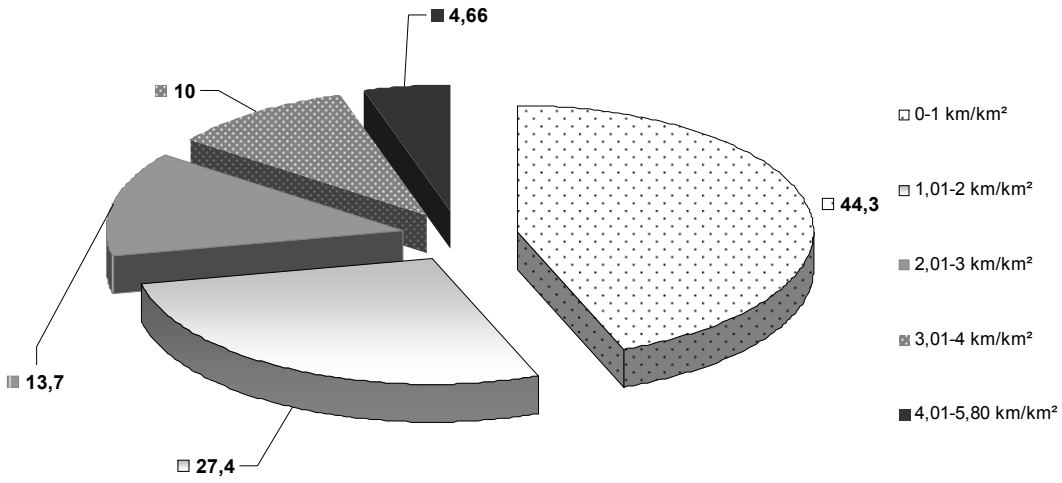


Fig. 5 – La distribution en pourcentage de la densité des routes et sentiers dans la proximité de la réserve naturelle *Les Hauts de Chartreuse*.

On observe le fait que des faibles densités des routes et des sentiers, c'est-à-dire des densités avec des valeurs entre 0 et 1 km de route sur 1 km$^2$, on trouve sur seulement 44,3% de la surface totale (fig. 7), la différence étant représentée par les classes supérieures. En ce qui concerne la dernière classe (avec la densité la plus grande) elle est représentée par un pourcentage important de la surface totale (4,66%), et la densité avec des valeurs entre 3 et 4 km/km$^2$ représente 10% de la surface totale.

Dans le cas de la proximité de la réserve naturelle *L'épicéa de résonance de Lăpuşna* on peut affirmer (comme nous l'avons observé dans la Fig. 2), que la fragmentation du paysage est moins influencée par la localisation et la densité des routes (puisque le réseau de circulation est canalisé sur certaines vallées). L'étude de la densité des routes dans le périmètre de la commune Ibăneşti et de ses communes voisines soutient l'hypothèse par laquelle nous attribuons à la densité des routes un rôle dans la fragmentation du paysage.

En ce qui concerne la différence entre la densité moyenne des routes et des sentiers et la densité que pour les routes, nous l'estimons étant plus basse que dans le cas de la réserve naturelle française, principalement cause au nombre réduit des sentiers. Ainsi, faisant la comparaison entre une surface approximativement égale à la surface étudiée dans le cas de la réserve naturelle *Les Hauts de Chartreuse* et ses communes d'appartenance, c'est-à-dire 343 km$^2$, (voir l'encadré de la Fig. 6) nous obtenons une densité moyenne des routes dans la proximité de la réserve naturelle *L'épicéa de résonance de Lăpuşna* de 0,39 km/km$^2$, par rapport à la valeur de 1,12 km/km$^2$ pour la réserve naturelle française. Ainsi, on déduit que la fragmentation des paysages dans la réserve naturelle *Les Hauts de Chartreuse* est plus évidente que dans le cas de la réserve naturelle *L'épicéa de résonance de Lăpuşna*.

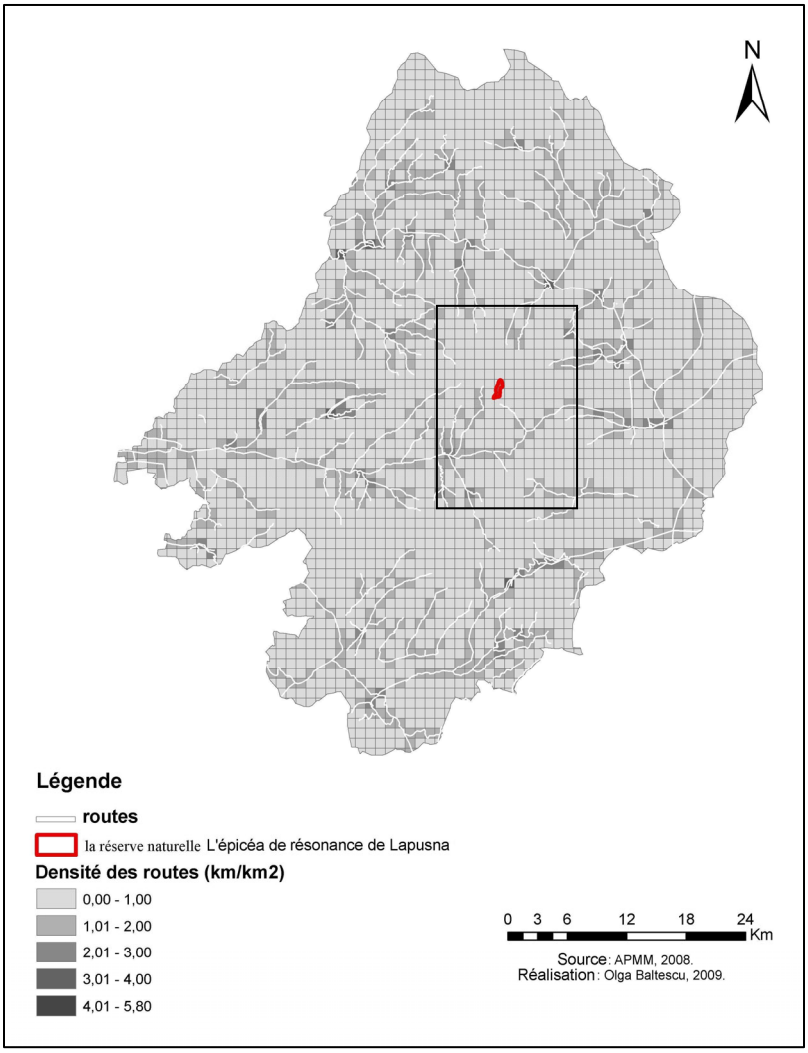


Fig. 6 – La densité des routes dans la proximité de la réserve naturelle *L'épicéa de résonance de Lăpuşna.*

La réserve naturelle *L'épicéa de résonance de Lăpuşna* est accessible seulement par le segment de route communale qui part du village de Lăpuşna et qui se prolonge avec un chemin forestier. Le seul sentier qui traverse la réserve naturelle se superpose à ce chemin forestier. La figure 7 présente la distribution en pourcentage de la densité des routes dans la proximité de la réserve naturelle *L'épicéa de résonance de Lăpuşna*.

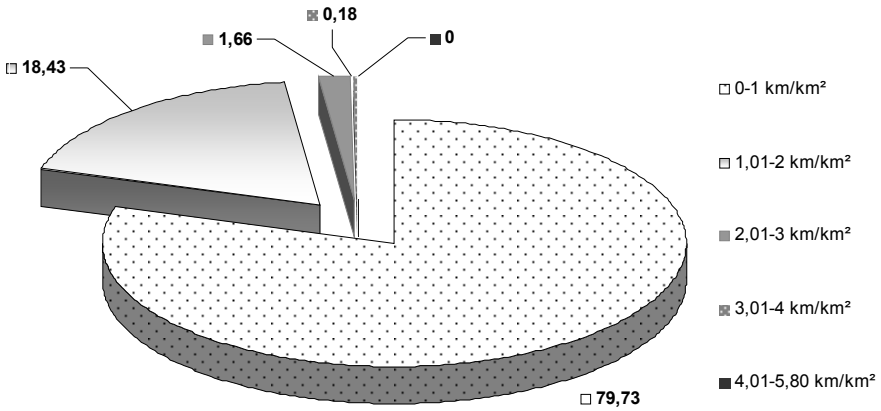


Fig. 7 – La distribution en pourcentage de la densité des routes
dans la proximité de la réserve naturelle *L'épicéa de résonance de Lăpuşna*.

On observe que sur 79,73% de la surface totale étudiée (un pourcentage presque double que la réserve française) il y a une densité de moins de 1 km de route par 1 km$^2$. En plus, 73% de cette surface n'est pas traversée par aucun chemin. Dans cette réserve naturelle la dernière classe (avec la valeur la plus forte de la densité) n'est même pas représentée, et pour la densité entre 3 et 4 km/km$^2$ elle est rarement présente.

## CONCLUSIONS

Les recherches effectuées ont démontré que l'infrastructure de transport de la proximité des réserves naturelles joue un rôle important dans la fragmentation des paysages, et l'accessibilité dans les réserves naturelles peut devenir un facteur de risque pour les éléments naturels protégés, étant l'élément catalyseur du flux des touristes vers les réserves naturelles et ainsi un vecteur de leur vulnérabilité. De ce point de vue les deux réserves naturelles se trouvent à des pôles opposés : la réserve naturelle *L'épicéa de résonance de Lăpuşna* se trouve dans une zone relativement isolée, et la réserve naturelle *Les Hauts de Chartreuse* est très accessible et se caractérise par une bonne desserte du point du vue de l'infrastructure de transport.

L'accessibilité se reflète directement dans la densité moyenne des routes dans les deux régions. Ainsi, comparant les deux densités moyennes des routes dans la proximité de ces deux réserves naturelles (1,12 km/km$^2$ pour la réserve naturelle française et 0,39 km/km$^2$ pour celle roumaine) on déduit que la fragmentation des paysages dans la réserve naturelle *Les Hauts de Chartreuse* est plus évidente que dans le cas de la réserve naturelle *L'épicéa de résonance de Lăpuşna*. Dans la vue de la réalisation d'une gestion durable, ces aspects doivent être intégrés dans les deux cas dans les plans de gestion, dans le but de la prévention des effets négatifs de la fragmentation et de la conservation de la biodiversité des écosystèmes naturels.

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Reçu le 12 octobre 2009

# THE GEOGRAPHY IN IAŞI AT THE 150th ANNIVERSARY OF THE "ALEXANDRU I. CUZA" UNIVERSITY

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*Key-words:* Historical premises, Romanian geography, "Alexandru I. Cuza" University, Iaşi.

**La géographie à Iaşi au 150[e] anniversaire de l'Université «Alexandru I. Cuza».** Première université moderne de Roumanie; fondée en 1860, l'Université de Iaşi est, pourtant, une institution d'enseignement supérieur qui succède à toute une série de tentatives d'organisation, culminant avec celle de l'Académie de Mihai Sturza. Les débuts des préoccupations géographiques scientifiques précèdent eux aussi l'Université, se fondant sur l'œuvre de Nicolae Milescu et du prince Dimitrie Cantemir. Même après la fondation de l'Université, des cours de géographie riches en éléments originels, ont été donnés à l'Ecole des Fils de Militaires, par Grigore Cobâlcescu. Les premiers cours réguliers de géographie, à l'Université, ont été tenus, en 1904, par Ştefan D. Popescu, malheureusement disparu dans sa jeunesse. L'entre-deux-guerres fut marqué par la personnalité de deux grands géographes – Mihai David, qui fut aussi recteur, pour la géographie physique, et Gheorghe Năstase, pour la géographie humaine, ceux-ci étant suivis par toute une série de successeurs de valeur – Victor Tufescu, Constantin Martiniuc, Ion Gugiuman, Nicolae N. Lupu etc. Après la Deuxième Guerre mondiale la géographie physique a continué son développement, surtout dans les domaines de la géomorphologie, de la climatologie, de l'hydrologie, de la pédologie et de la géographie physique régionale, mais la géographie humaine, limitée; en principe, à la géographie économique, a fait de moindres progrès. En fin, ces deux dernières décennies, un visible équilibre se réinstalle et la géographie de Iaşi commence a être de nouveau prise en considération, au niveau des valeurs scientifiques et culturelles européennes.

## PREMISES

The first geographical works written by a Moldavian-born scientist are due to Nicolae Milescu (1636–1708), a man with a sound multilateral education. In his books, a *Journey through Siberia…* and *Description of the Journey to China*, both written in Russia after his diplomatic mission of 1675–1678, the author dwells on the specific nature of the Asiatic countries, and the habits of the Chinese people. Later on, the Prince of Moldavia, Dimitrie Cantemir, wrote *Descriptio Moldaviae,* the first work rich in original geographical and historical information to which a detailed map of the Moldavian Principality is appended.

The development of education in Romania in the late 18th and early 19th centuries, called for the printing of a great number of geography handbooks, some of them authored by bishop Amfilohie Hotiniul, or by Vasile Fabian Bob, Gheorghe Asachi (published in 1838 together with a small school atlas), V. Popescu-Scriban, D. Gusti, and others.

## THE SECOND HALF OF THE 19TH CENTURY

The foundation, immediately after the country's unification in 1859, of the first modern universities in Romania gave a strong impulse to the development of the Romanian education, creating the conditions for a general emulation not only in the field of geography, but in other areas, too. In 1884, the Chair of Ancient History, Epigraphy and Geography set up at the Faculty of Philosophy and Letters of the University of Iaşi (Fig. 1), and headed by Petre Râşcanu, is a first mention of Geography

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Rev. Roum. Géogr./Rom. Journ. Geogr., **54**, (2), p. 181–195, 2010, Bucureşti.

being taught in Romanian higher education. Noteworthy is the course in geography given by Grigore Cobâlcescu (Fig. 2) at the Iaşi School for the Sons of militaries and published in 1888 in two volumes: *The Physical Geography of Modern Dacia* and *The Physical Geography of the Romanian Countries and of the Neighbouring Countries*. Under the Law of 1898, the Section of History of the Faculty of Philosophy and Letters became Section of History and Geography, also offering a BA degree in Geography.


Fig. 1 – The main building of Iaşi University in 1929.

**THE YEARS 1900–1947**

In 1902 the course in Didactic Geography for graduates from the Dpt. of Natural Sciences and of the Faculty of Letters was inaugurated and entrusted to Ştefan D. Popescu, a young lecturer of Geography at the Faculty of Sciences, holding also a degree in mathematics from Germany. He was also appointed teacher at two Iaşi high-schools: "Vasile Lupu" Pedagogical High-school and the Commercial High-school for Young Girls. His first open course in Geography, delivered on the 13th of April, 1904 was titled *The Place of Geography among Sciences, Its Educational Significance*. Although the academic and teaching career of Ştefan Popescu was relatively short-lived, yet his scientific interests were wide-ranging, his works focusing on the geomorphological evolution of the upper sector of the Olt Valley, on problems of Economic Geography in Great Britain and the geographical distribution of industries in Romania.

Unfortunately, Ştefan Popescu died at an early age and after his death in 1911, there began a period of substitution, sustained by Ion Simionescu and Ion Borcea. George Vâlsan was appointed titular professor in 1916, but in the wake of the First World War and of a train accident, he could no lecture here, despite having authored two fundamental geomorphological works as professor at the Iaşi University: *The Valleys* and *The Danube's Passage Through the Iron Gate. Physical Geographic Study*.

The first Romanian Congress of Geography teachers organized in Iaşi was presided over by Simion Mehedinți, the founder the Romanian scientific geography.

The inter-war period was dominated by two outstanding personalities, Mihai David and Gheorghe Năstase, founders of the Iaşi-based Geography School.

Having a geological background Mihai David (Fig. 3) was appointed tutor – drawer at the Chair of Geography in 1913. After sustaining his PhD thesis in Geology (1919), he was promoted to substitute professor of geography, in 1920, and titular professor, 1922. His activity had in view especially Physical Geography, with particular stress on the geomorphology of the Moldavian Plateau, where he studied *Characteristic landforms* (with special reference to the structural relief – structural platforms, cuestas, contact depressions, etc., the fluvial relief, mainly the valleys and their terraces, indicating old river courses and erosion platforms, correlated with some stratigraphic gaps). Later on, Mihai David extended his geomorphological researches to the Moldavian Subcarpathians, the Eastern Carpathians and the Transylvanian Depression. These researches proved useful for his works of physical regionalization of the Romanian territory.

In his early works Gheorghe I. Năstase seems to have been attracted also by the Geomorphology and Human Geography alike, analyzing the geomorphological particularities of the Danube Delta, the submarine valleys of the Black Sea shelf, the Prut Valley and the Bugeac Steppe, the landslides of Centum Monticuli, etc.

From among the younger inter-war geographers interested in geomorphological studies, generally on the line of Mihai David, we would recall Victor Tufescu (with well-documented studies about the Dealul Mare-Hârlău region), Ion Gugiuman, (with numerous papers on the Huşi Depression and the neighbouring Prut valley, the landslidings of the Bârlad and Crasna Valleys, etc.), Constantin Martiniuc (who worked especially on his PhD thesis about the Baia Depression), Nicolae N. Lupu (studying the Dărmăneşti Depression), Ioan Şandru (focusing on the Subcarpathian Depression of Oneşti) and Natalia Şenchea.

Other Physical Geography domains appeared to be less attractive for inter-war Iaşi geographers. However, Climatology and Hydrology proved to be of interest for Iulian Rick, Gheorghe Gr. Gheorghiu, Ion Gugiuman, Natalia Şenchea, Ioan Şandru, Nicolae N. Lupu, while Limnology draw the attention of Gheorghe Năstase and Natalia Şenchea (who actually initiated its teaching), etc.

The first to initiate Human Geography studies was Gheorghe I. Năstase (Fig. 4). Born in Bessarabia and member of the Country's Council, he voted in 1918 for the unification of this eastern part of Moldavia with the rest of Romania. Gheorghe I. Năstase, lecturer of Anthropogeography in 1932 and professor of General and Human Geography in 1938, made part of his studies in Paris. The most important part of his works was devoted to the Historical Geography. He would publish excellent and well-documented works on the realities of the Danube Delta, of Bessarabia (especially about the ancient earthen walls), the Prut Valley, etc.

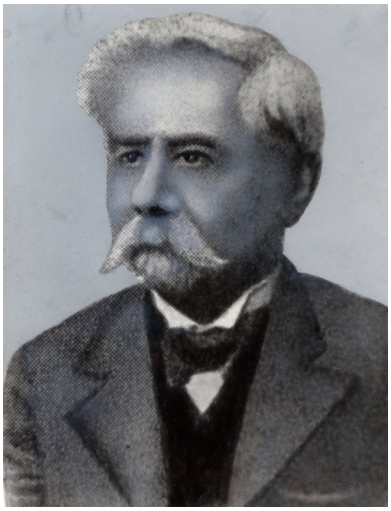

Fig. 2 – Grigore Cobâlcescu (1831–1892).

Fig. 3 – Mihai David (1886–1954).

Fig. 4 – Gheorghe I. Năstase (1896–1985).

Gheorghe Năstase was also interested in studying problems of Population Geography (regional particularities of the population's ethnic, confessional and professional structure, population dynamics, density and distribution, etc.), the Geography of Human Settlements (urban structure and networks in Moldavia, especially along the Prut Valley), and Economic Geography (salt exploitations in the Bugeac Plain, etc.). Some of Professor Năstase's courses, primarily his course in Anthropogeography (1926), were published by some of his students.

Other, more or less young geographers of the Iaşi University, preoccupied with Human Geography problems were Victor Tufescu (population and urban settlements, with highlight on the commercial boroughs and the towns of Botoşani and Iaşi, the rural settlements of Moldavia, the energy resources of this province, tobacco cultivation, etc.), Emil Diaconescu (the mediaeval road network in Moldavia and political geography problems), Iulian Rick (the dynamics of the administrative territorial organization and the economic geography of the Jijia Hilly Plain, fishing in Japan, etc.), Ion Gugiuman (human geography in the Huşi Depression and geographical particularities of some towns, e.g. Huşi and Bălți), General Scarlat Panaitescu (the problems of Bessarabia, the History of Cartography, Military Geography and Toponymy), Alexandru Obreja (the network of commercial boroughs typical from Moldavia and the influence zone of Iaşi), Ioan Şandru (the towns of Rădăuți, Bacău and Târgul Ocna), Nicolae N. Lupu and Ion Gugiuman (the villages of the Mureş Valley and of the Hilly Plain of Fălciu), etc.

The works of Victor Tufescu, Alexandru Obreja, Constantin Martiniuc and Ion Chelcea also deal with the ethnic minorities' problems (Roma, Jews, Bulgarians, Hutzuls, etc.). Adepts of the integrated geography concept, and intending to demonstrate the mutual relationships between human society and its environment, the Iaşi University geographers of the inter-war period would tackle problems of human geography also in their papers of physical geography, e.g. Gheorghe Năstase in *Centum Monticuli*, or the Bălătău Lake; Nicolae N. Lupu in the *Depressions of Dărmăneşti* and *Rădăuți*, or in The French region of Auvergne; Victor Tufescu in the *Dealul Mare – Hârlău and Ruginoasa – Strunga regions*; Alexandru Obreja in the Eastern Part of the Upper Bârlad Basin; Iulian Rick in the Jijia Hilly Plain, and Ioan Şandru in the *Oneşti-Caşin Subcarpathian Depression*.

In the first half of the 20th century, Ion Chelcea has been the Ethnographic studies, as a direction in Human Geography. In 1943, the Ethnography Museum was founded, it developing into an autonomous institution after the Second World War.

New courses introduced in the inter-war period were History of Geography, held by Emil Diaconescu in 1926, Geodesy and Land Measurement, later evolving into Topography and Cartography, held by General Scarlat Panaitescu, Agro-Geology, first delivered by Mihai David and then by Nicolae Florov, etc. Some of the courses were lithographed by Professor David's students, among whom there was also I. Gugiuman.

Close and fruitful scientific relations were established with foreign geographers, primarily with the great French scholar Emmanuel de Martonne, who held three conferences at Iaşi University in 1918, 1926 and 1928, and organized (in 1921) a geographical excursion in Moldavia and Bessarabia. The results were published in the chapter devoted to Romania in volume IV of his remarkable work *Géographie Universelle* (1931). Emmanuel de Martonne, also a *Doctor Honoris Causa* of the University of Iaşi (1938), would facilitate scholarships in France for some Iaşi geographers (Gheorghe I. Năstase, Victor Tufescu and Nicolae N. Lupu).

The same period was marked by the foundation of the "Dimitrie Cantemir" Geographical Society and by the publication of the first geographical review in Iaşi (four volumes) titled *Lucrările Societății Geografice "Dimitrie Cantemir"*, edited there between 1938 and 1942.

**THE YEARS 1948–1989**

After the Second World War, dramatic economic, political and social changes deeply affected the destiny of the geographical research and education in Iaşi, too. In 1948, a new faculty – History and Geography, was opened; new courses in Economic and Political Geography, having an evident ideological content, as well as Russian language courses were being held. The professors and lecturers of the inter-war period were obliged to retire or teach in high-schools, and only the former assistants Ioan Şandru, Ion Gugiuman and Constantin Martiniuc remained at the University. Many younger geographers (Ion Sârcu, Maria Schram, Vasile Băcăuanu, Nicolae Barbu, Constantin Blaj, Maria Pantazică, Mihai Apăvăloaiei, etc.) would replace former professors who had been dismissed.

Since for a long period of time, the only Romanian geographer allowed to supervise doctoral dissertations was Tiberiu Morariu, many young Iaşi geographers had to sustain their PhD thesis at the "Babeş-Bolyai" University of Cluj, or at universities in the Soviet Union. It was as late as 1966 that professors Ioan Şandru (Fig. 5), Ion Gugiuman (Fig. 6) and Constantin Martiniuc (Fig. 7) were permitted to supervise doctoral papers; next this right was granted to Vasile Băcăuanu and Ioan Donisă. The majority of their PhD students were Romanians (Pompiliu Poghirc, Iulia Văcăraşu, Irina Ungureanu, Cazimir Swizewski, Elena Erhan, Ion Bojoi, Veronica Giosu, Victor Sficlea, Dumitru Ploscaru, I. Stănescu, Al. Ungureanu, Dumitru Chiriac, G. Davidescu, V. Nimigeanu, Nicolae Lupu-Bratiloveanu, etc.), but there were also some foreigners, from Columbia, Egypt, and the Soviet Union. Over the 1966–2010 period a number of 108 PhD theses were being held.

Fig. 5 – Ioan Şandru (1913–2010).

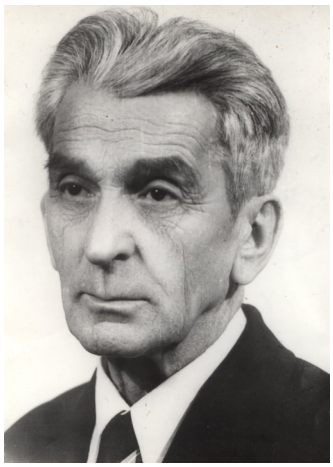

Fig. 6 – Ion Gugiuman (1909–1990).

Fig. 7 – Constantin Martiniuc (1915–1990).

In the 1950–1956 interval, a new faculty, of Geology and Geography, was established. It had a very composite curriculum, comprising a course in the geography of the U.S.S.R., many geological and biological disciplines, soil sciences (first held by Nicolae Bucur and next by N. Barbu), materialist philosophy, chemistry, mathematics, physics, etc., but deficient in terms of human geography education. In 1956, it was renamed Faculty of Natural Sciences and Geography, with sections of Physical Geography, Geography–Natural Sciences and Natural Sciences–Geography (the last two being renamed Geography – Biology and Biology – Geography in 1957). As from 1968, they organized geography students specialization groups for such areas as Geomorphology – Pedology, Climatology–Hydrology, Geography of Population and Human Settlements. In 1977, a new change brought about a dual teaching profile, namely Geography and a Foreign Language (either French, English, Russian or German).

Beginning with 1951, as a consequence of the acute shortage of young teachers, a Pedagogical Institute was set up in parallel with the "Alexandru I. Cuza" University; in 1966 the Institute's Faculty of History-Geography was moved to Bacău. For several years, Iaşi had also a Faculty for Workers, with very many students, but with a very modest educational level.

The Iaşi geographers tried to resist attempts at separating the Human Geography from the Physical Geography, even if the resistance was generally tacit, endeavouring to maintain the classical line promoted by the inter-war Romanian geography. This stance was upheld especially by Ioan Şandru in a paper published in 1964 (*Economic geography – object, methods and history*) and by I. Hârjoabă, in a 1984 paper on the "neogeography".

Scientific conferences were being organized annually, some benefiting from national and even international participation, for example, the National Colloquium of Applied Geomorphology (1973) and the National Colloquium of Geography of Population and Settlements. The majority of studies produced by the geographers of the "Al. I. Cuza" University and of the "Stejarul" Research Station were published in the journals of these institutions: *"Scientific Annals of the "Al. I. Cuza" University*, *Papers of the Geographical Seminar "Dimitrie Cantemir"* (resumed since 1981) and *Papers of the "Stejarul" Research Station.*

Although maintaing relations with the foreign geographers, especially with the Western ones, was a very difficult matter, yet impressive efforts were being made in order to participate in the I. G. U. congresses (Rio de Janeiro, 1956, Moscow, 1976) and in Franco-Romanian colloquia, organize exchanges of professors and students with the universities of Debrecen, Jena, Cairo, Alexandria, Lubumbashi, etc. attend the jubilee session of The Netherlands Geographical Society, and the summer courses organized by the Iaşi University on relevant topics, e.g.: *Nature and Man in the Eastern Carpathians,* etc. Some Iaşi geographers (Ioan Şandru, Ion Gugiuman, Ion Sârcu, Constantin Martiniuc, I. Donisă, I. Hârjoabă, N. Barbu, Ion Bojoi, Al. Ungureanu, and Dumitru Chiriac) specialized or travelled abroad under research and study grants, held conferences, etc. In exchange, outstanding foreign geographers from the Soviet Union, France, Poland, Italy, Eastern and Western Germany, Belgium, etc. visited Iaşi, making documentation trips or holding conferences. The geographers from the University of Iaşi maintained good relationships with their colleagues from others universities and especially with them from the Institute of Geography of the Romanian Academy, who paid several visits in Moldavia.

The unity of Geography was maintained by studies of regional complex, motivated by "systematization and development plans". Some of the outstanding works of regional complex and integrated geography, to which Iaşi geographers (Ioan Şandru, Constantin Martiniuc, Victor Sficlea, and Ion Sârcu) had substantially contributed in those years, are the two-volume *Geographical Monograph of Romania*, published in 1960, presenting the physical and human geography of the country, with two volumes of maps annexed. A third volume, of regional geography, provided with a large set of maps, also boasts a major contribution from the Iaşi geographers. But, although printed, political reasons prevented its distribution. For the same reasons, Gheorghe Năstase, the author of several substantial chapters, especially that on the Central Moldavian Plateau, on field trips and discussions with Soviet geographers, was not allowed to sign his own work.

A second work of national interest was the *National Atlas of Romania*, published in 1974–1979, the Iaşi geographers having contributed to the general concept (Victor Sficlea) and to different thematic maps (Constantin Martiniuc, Ioan Donisă, Ioan Şandru, Cazimir Swizewski, Dumitru Chiriac, Al. Ungureanu and V. Băican).

A third work, begun in 1983, was the five-volume *Geography of Romania*, the first three volumes, devoted to Physical and the Human Geography, as well as the first part of a regional analysis (the Romanian Carpathians and the Transylvanian Depression) were published before 1989. Noteworthy, contributors were I. Donisă and Ioan Şandru (members of the co-ordination team of the 1st and 3rd volumes), Victor Sficlea (The Romanian School of Geography chapter), Ioniţă Ichim (The Relief, the Bârgău – Dorna – Moldova Corridor, The Bistriţa and the Trotuş Mountains), Elena Erhan and Ion

Gugiuman (The Climate), N. Barbu (Soils and Bucovina's Mountains), Irina Ungureanu (Geographical Environment and Nature Protection), Al. Ungureanu (Toponymy and Geography of Towns), Cazimir Swizewski (Tourism, Human Geography in the Romanian Carpathians and the Giurgeu Depression), Pompiliu Poghirc (Bistriţa Mountains) and Iulia Văcăraşu (Trotuş Mountains).

Different geographical regions made also the object of some complex geographical studies: the Moldavian Plateau (Vasile Băcăuanu, N. Barbu, Maria Pantazică, Al. Ungureanu and Dumitru Chiriac), the Bistriţa valley (I. Donisă and Pompiliu Poghirc), the Bucovina's Mountains (N. Barbu), the Hăşmaş Mountains, the Bârlad Plateau and the Tutova Hills (Pompiliu Poghirc), Iaşi County (Ioan Şandru, Vasile Băcăuanu and Al. Ungureanu), Vaslui County (Ion Gugiuman, V. Cârcotă and V. Băican), Neamţ County (Ioan Bojoi and Ioniţă Ichim), Bacău County (Nicolae Lupu, Iulia Văcăraşu and C. Brânduş), Galaţi County (Dimitrie Oancea and Cazimir Swizewski), the Giurgeu Depression (Cazimir Swizewski), the Huşi Depression, and the former Iaşi and Galaţi regions (Ion Gugiuman), the former districts of Paşcani, Bârlad and Huşi, the north-eastern economic region of Romania and the former Suceava region (Mihai Apăvăloiei), Cotnari Vineyard, the Trotuş Basin, the Giurgeu Depression (Cazimir Swizewski), the Dărmăneşti Depression (Iulia Văcăraşu), or the towns of Iaşi (a team-study co-ordinated by N. Barbu and Al. Ungureanu) and of Bacău (Ioan Şandru).

On the initiative of the Romanian Geographical Society, a series of geographical dictionaries of the Moldavian counties have been elaborated, some of them also published, e.g. on the Iaşi County (Alexandru Obreja) and the Vaslui County (Ion Gugiuman, V. Cârcotă and V. Băican).

The introduction of a system of research conventions and the co-operation with design institutions required geographical information in order to document some economic projects (construction of new ways of communication, buildings, hydroelectric plants, irrigation systems, etc.), or to re-organize the territory and the settlement network.

With this aim in view and to support teaching tasks, the Biological, Geographical and Geological Research Station "Stejarul" was set up in 1956 on the precincts of the former Pângăraţi Monastery, in the Bistriţa Valley. The geographers of this Station, first directed by professors Ion Gugiuman and Constantin Martiniuc, worked here until 1983, when they had to move to Piatra Neamţ town, under the scientific coordination of the Iaşi Center for Biological Research. Geographical research at Pângăraţi focused on Geomorphology, Hydrology, Climatology and Geography of Soils. After 1980, most of these researches would be funded by grants obtained from different state institutions.

In the same way, beginning with 1986 on Professor I. Hârjoabă's initiative, a C-type research team of young geographers was established, intended also to be kind of reserve stock for the teaching profession.

Having no, or little ideological-political subtext, the Physical Geography made significant progress in those years, diversifying all its branches and primarily Geomorphology, directed and developed by Professor Constantin Martiniuc and his successors, the latter (Vasile Băcăuanu, I. Donisă and I. Hârjoabă) also elaborating and publishing an original *Geomorphological Dictionary* (1974).

Relief researches focused mainly on the evolution of the valleys and of the river terraces (along the Siret, Bistriţa, Bârlad, Bahlui, etc.), the geomorphological processes the including glacis evolution, landsliding, torrent evolution and the geomorphological regionalization. Other major geomorphological aspects which preoccupied the Iaşi specialists were the formation of relief steps in connection with the geomorphic evolution on river basins, their lithological particularities in relation with man-made dams. Works and papers on these topics are due to Constantin Martiniuc and Ioan Sârcu, I. Donisă, I. Hârjoabă, Vasile Băcăuanu, Ioniţă Ichim, Maria Rădoane etc. A notable study, discussing the geomorphological role of the periglacial processes especially in the Carpathians, was based on research-work made by Ioan Sârcu, I. Donisă, Ion Bojoi, Ioniţă Ichim and others, river-bed dynamics (Ioniţă Ichim and co-workers), the origin and effluence of alluvia in different river basins (Maria Rădoane *et al*.), gully evolution in the Moldavian Plateau and terrain erodibility, the geomorphological mapping (Irina Ungureanu) and the practical application of the relief studies.

Noteworthy are the regional geomorphological studies made, and partially published, by Ion Sârcu (communing the Rodna Mountains and other high Carpathian massifs), Victor Sficlea (the Covurlui Plateau), Vasile Băcăuanu (the Moldavian Plain), Ioan Donisă (the Bistriţa and Siret valleys), Ioan Hârjoabă (the Tutova Hills), Ion Stănescu (the Ceahlău Massif), Ioniţă Ichim (the Stânişoara Mountains), Ioan Bojoi, Gheorghe Lupaşcu, Ion Ioniţă, etc.

Developments in Climatology-Meteorology are largely the outcome of Professor Ion Gugiuman's endeavours, who also organized the first two Romanian conferences on Urban Climatology and Struggle Against Air Pollution. He initiated climatological studies with practical applicability, dealing with and supporting the development of Micro-climatology in works about the climate and micro-climates of the Cotnari Vineyard and the Oneşti-Caşin Depression. Ion Gugiuman held the first course in Urban Climatology in Romania and published studies on the wind regime and, together with Marţian Cotrău, a volume of elements of urban climatology, with examples from Romania. A very well-known study due to Professor Gugiuman's team (Gheorghe Pleşca, Elena Erhan and I. Stănescu) deals with *Climatic Units and Subunits in the Eastern Part of Romania* (1960).

I. Donisă also approached climatologie issues, publishing, together with Elena Erhan, a *Climatology of Romania* (1974), underlining, together with G. Davidescu, the influence of the Carpathians on Climatic differentiation in the Romanian Territory. Elena Erhan authored studies about the temperature inversions in some Carpathian depressions and in the Moldavian Plateau, hoar frost and frost in the Jijia Hilly Plain (jointly with Valentina Ştefan), etc.

Many researches were devoted to the problem of the atmospheric precipitation, especially in the eastern part of the country. They are due especially to Ioan Gugiuman (in collaboration with Rodica Stoian he analyzed the snow-cover in the Carpathians), Elena Erhan (the precipitation regime, and the snow cover in Moldavia, the drought and the hail in the Moldavian Plateau, etc.), I. Hârjoabă (the origin of the precipitations jointly with Luminiţa Creţu, making a characterization of the aridity index, etc.).

From among the complex regional climatological studies we would mention first that of Ion Gugiuman and Elena Erhan (on the climate and micro-climates of Iaşi and its surroundings), a study taken up again and published in detail by Elena Erhan on the basis of her own network of micro-meteorological stations; a climate study on the precipitations and the air temperature in the Eastern Carpathians and the Moldavian Subcarpathians (G. Davidescu, L. Apostol, M. Apăvăloaiei etc.); the climate and micro-climates of the storage-lakes area in the Bistriţa Valley (Ion F. Mihăilescu). Micro-climatic studies based on instrumental field observations have targeted the Romanian Black Sea Coast (G. Davidescu and E. Gheorghiu) and the Moldavian Subcarpathians (G. Davidescu and Ion F. Mihăilescu), etc. Detailed studies of the air pollution and the influence of the wind regime on the air pollution in the Iaşi city area, and along the Bistriţa and the Trotuş valleys, are signed by Elena Erhan, Ion F. Mihăilescu, L. Apostol, M. Apăvăloaiei and I. Pârvulescu.

In Hydrology, Constantin Martiniuc organized and directed the study about the underground water level variations on the territory of Iaşi city. Maria Pantazică focused on the hydrological study of the Moldavian rivers, with a PhD thesis on the *Hydrography of the Moldavian Plain* published in 1974; Maria Schram studied the reservoirs of the Moldavian Plain, with a doctoral dissertation on the same subject; both authors analyzed also the water quality of the Moldavian rivers. Ioan Gugiuman, I. Stănescu and Virgil Apopei looked also into Moldavia's hydrology. The geographers of the "Stejarul" Station (V. Ciaglic, Virgil Apopei and Elena Pantazi) followed mainly the thermal regime and the level variations of the reservoirs along the Bistriţa and the Siret valleys. Studies of underground waters in the Lăpuş alluvial plain, were published in 1985 by Ioan Bojoi and C. Brânduş, while Virgil Apopei discussed the situation in the Bistriţa valley.

During the same period, the Soil Science was being intensely developed at the University of Iaşi, a serious school of Pedo-geography being organized by Professor N. Barbu, who set up a laboratory for the chemical and physical analysis of the soils. After 1975, Pedo-geographical research got momentum, with special reference to the soils of the Eastern Carpathians (in the Rarău, Hăghimaş, Ciuc, Tarcău, Bistriţa, Mestecăniş, Ceahlău, Stânişoara, Giumalău, Suhard, Nemira and Berzunţ

mountains), in the Moldavian Subcarpathians (the Cracău-Bistrița Depression), and in some administrative units (the counties of Suceava and Neamț). In his work N. Barbu was joined especially by Gheorghe Lupaşcu and C. Rusu. Besides his courses in pedo-geography (1974) and the Geography of Romania's Soils (1987), Barbu published a series of papers on the pedo-geographical position and Pedo-geographical regionalization of the Romanian territory, the soil as study object of geography, the Romanian system of soil classification etc.

N. Barbu and Gh. Lupaşcu had also Bio-geographical preoccupations, authoring studies on some soils in the Carpathians and in the Moldavian Plateau. Applied studies referred to the prospects for the space organization of the Cotnari Vineyard (Irina Ungureanu and V. Nimigeanu), to the assessment of the natural therapeutic resources in the Moldavian Plateau (Ioan Bojoi *et al*.), to the counties of Iaşi and Vaslui etc.

Over this fairly long interval (1948–1989) attempts were being made to impose in the **Human Geography** a certain Marxism-related dogmatism, limiting it to economic aspects, considering that this discipline is part of another group of sciences – the Social Sciences, somehow remote from the Physical Geography. Following the Soviet model, "Economic" Geography was largely assigned a propagandistic and educational role, glorifying the system of centralized planning and contributing to the creation of the "new man". A breach with Human Geography occurred exactly at the time when the latter had registered great progress, with many new theories and currents emerging (Behaviorist Geography, Systemic Geography, Quantitative Geography, etc.).

Had the Marxist theoretical concepts been observed, the "Economic" Geography would have done away with the critical spirit inherent of a scientific discipline, analysis and dialogue, and accept the directives received without contesting them. The result would have been the death of the Human Geography, it remaining a relativistic and conjunctural science, limited to the subjectivism of the decision-makers.

On the other hand, remarkable for post-war Human Geography in Iaşi were some complex cross-country studies, such as *Romania – A Geographical Overview* (published in Romanian and French by Ioan Şandru) and *Romania's Economic Geography* (by V. Nimigeanu).

Beginning with 1948, first on the initiative of the city's authorities, and later on Professor Ioan Şandru's, Urban Geography studies would be elaborated for several towns: Tulcea, Focşani, Iaşi, Galaţi, Brăila, Suceava, Paşcani, Huşi, Vaslui, Oneşti, Buhuşi, Adjud, Piatra Neamţ, Fălticeni, Comăneşti, Câmpulung Moldovenesc, Techirghiol, etc. I. Hârjoabă produced an interesting study of the African city of Lubumbashi (Zaire/Congo). These studies, some of them worked out jointly with urban engineering specialists (Iaşi, Galaţi, Paşcani, Huşi, Bacău, etc.), ended up with chapters on urban management problems.

Far greater attention than in the pre-war years was being paid to Rural Geography issues in the conditions of their typological diversity. Human Geography specialists focused on the problems of village development and the urban future of some of the settlements, the relations between villages and the characteristic geographical conditions, the specific issues of small villages, the changes occurred in the network of rural settlements by the construction of some big hydro-power stations, etc. Substantial contributions to the solution of rural problems made Ioan Şandru, Dumitru Chiriac, Pompiliu Poghirc, V. Nimigeanu, Nicolae Lupu-Bratiloveanu, Mihai Apăvăloaiei, Cazimir Swizevski and Iulia Văcăraşu. The first to elaborate a complex regional study of all Moldavia's villages was Dumitru Chiriac.

Population Geography problems enjoyed a comprehensive approach to dynamics, territorial distribution and its modification, the evolution of different types of structures, territorial mobility, the relations between population and economic development, labour force resources, etc. Noteworthy contributions are due to Ioan Şandru, Veronica Giosu, Victor Sficlea, Dumitru Chiriac, Al. Ungureanu, V. Nimigeanu, Nicolae Lupu-Bratiloveanu, etc.

Previous preoccupations for the History of Cartography (Gheorghe Năstase and Emil Diaconescu), would be continued by Ioan Şandru, Vasile Băican, Victor Sficlea, Al. Ungureanu and Marcel Vârlan, based on archaeological data and old cartographic documents in order to reconstitute the distribution and dynamics of the human settlements and of population, of roads and woods in different historical periods, with special reference to the 18th and 19th centuries. The importance of some unpublished sources existing in the Paris libraries and archives was outlined.

**THE YEARS AFTER 1989**

The fall of the communist regime opened up new opportunities for important changes in the organization and content of the geographical research and education. So, in 1990, the Faculty of Biology separating, there remained the Faculty of Geography and Geology, with a Chair of Geography (1989–2000), next becoming a Department of Geography (2000), with three chairs a dismantled beginning with 2008.

As from 1993, the study-term in the Geography Section and the Section of Geography and a Foreign Language and Literature (English, French and German) was reduced to four years. Between 1996 and 2008, it was for the first time that a Section of Geography with courses and seminars in the French Language and Literature was functioning beside those of Geography-English and Geography-German. New sections were set up: Geography – Environmental Science in 1994, and Tourism Geography in 2003.

Under the Bologna Protocol (2005), the length of studies for a BA degree was reduced to three years, but supplemented with two years of Master studies. New specializations were created also for BA students – Territorial Planning and Hydrology – Meteorology; MA students could follow Tourism and Regional Development, Natural Risks and Territorial Planning, Present-day Environment and Sustainable Development; the number of students has increased considerably.

Scientific documentation opportunities substantially improved due also to the contribution of a former student, Eugen Cosinschi, and of his wife Micheline Cosinschi, both living in Switzerland, who offered the Department two extremely valuable collections of scientific books.

Many younger professors have been accredited to supervising PhD theses – Elena Erhan, N. Barbu, Ioan Bojoi, Ioniță Ichim, I. Hârjoabă, Irina Ungureanu, Gheorghe Lupaşcu, I. Ioniță, C. Rusu, Gh. Romanescu, E. Rusu, and L. Apostol, for Physical Geography, and Al. Ungureanu, V. Nimigeanu, O. Groza, I. Muntele and C. Iațu, for Human Geography.

Scientific and teaching relations with foreign universities have registered impressive developments materialized, in far more contacts with institutions and specialists from other countries, and participation in various international projects (among the projects worked out under the E. S. P. O. N. Program was also *S. Y. G. E. T*., in collaboration with geographers from Montreal-Canada: *Development of algorithms and computer programs for filtering profilometry data*, jointly with the University of Helsinki, digitization of the territorial administrative organization of Romania, in collaboration with the University of Lausanne; the elaboration of the *Atlas de la Roumanie*, together with geographers from Paris and Bucharest (printed also in Romanian), etc. Other types of co-operation: conferences held at foreign universities (in France, Italy, Germany, etc.), joint supervision of PhD theses (those of O. Groza, Simona Niculescu, and G. Camară), dissertations supervised by foreign professors, participation in summer schools, etc.

As an international recognition of the quality of the geographical research in Iaşi, A. Grozavu and Şt. Kocsis have participated in the European Leonardo Project *Environment and Earth Sciences Multilingual Multimedia Dictionary,* publishing also a Romanian version; C. Iațu was the director of the Romanian team for the international research project *East-European Places of the Spirit*; Carmen Donisă has taken part in the project *Study of the Behavior of Trace elements in Norwegian Podzols and Their Relationship with the Pedogenetic Processes and Pollution,* etc. In 2009, the E. S. P. O. N. Contact Point for Romania was inaugurated in Iași.

A noticeable number of foreign geographers have been invited to hold lessons and conferences in Iaşi – Robert Ficheux, the dean of the french Geographie, Jean-Bernard Racine (Lausanne), Violette Rey and Béatrice von Hirschhausen (E. N. S. Lyon), Paul Claval and Micheline Hotyat (Paris IV), David Turnock (Leicester), Charles Hussy and Bertrand Lévy (Geneva), André Dauphiné (Nice), Michel Bussi (Rouen), Myriam Baron (Paris XII), François Seys (Lille), Per Lindskåg (Linköping), Ann van Leeuw (Brussels), etc. The title of *Doctor Honoris Causa* was conferred to the geographers Jean-Bernard Racine (Switzerland), Jean-Robert Pitte (France), David Turnock (United Kingdom) and Denis Baise (France).

The Iaşi geographers had now more opportunities to hold courses and conferences abroad – Al. Ungureanu (in Paris, Dijon, Lausanne, Leipzig, Gotha, Munich, Padova, Linköping, Chişinău, etc.), C. Iaţu (in Nice, Paris, Lausanne, Rouen, Liège, etc.), Irina Ungureanu (in Liège, Nice, Paris, etc.), O. Groza (in Paris, Nantes, Brussels, Fontenay-aux-Roses, Lyon, Dijon, Marseille, etc.), E. Rusu (in Montreal and Paris), Gh. Romanescu (in Paris, Durham, Konstanz, Nice, Ottawa, Concepciòn and Liège), I. Donisă (in Chişinău), I. Muntele (in Nantes), etc. With University support, geographers could take part in various scientific expeditions – in the Arctic regions of Canada and in Greenland (C. Rusu, E. Rusu), in the Atlantic Ocean and in the Tierra del Fuego (Gh. Romanescu), in south and south-east Asia, in the Andine countries, in South Africa, etc. A large student exchange with different universities in France, Belgium, Italy, Spain, Sweden, Denmark, etc. has been organized.

A particular attention has been paid to scientific relations with the Republic of Moldova, guiding young geographers, many of them elaborating and sustaining their PhD thesis with professors from Iaşi – S. Manic, V. Ţapeş, I. Danilescu, V. Sochircă, Gh. Cuciureanu and D. Lozovanu; tuition of young students, organization of common scientific conferences, alternative deliverance of courses, exchange of doctoral dissertation experts, etc.

In the Department of Geography have been organized two Scientific Research centers: the Center for Human Geography and Territorial Organization, and the Center for Physical-Geography and Soil Research for the sustainable exploitation of natural resources, currently headed by O. Groza and C. Rusu, respectively.

Until 1993, scientific research had been going on mainly along the lines of the previous period, namely, undertaking complex analyses of the north-eastern part of Romania (the Moldavian Subcarpathians and the Moldavian Plateau), finishing the material for the IVth volume of the *Geography of Romania* (the Moldavian Subcarpathians and the Moldavian Plateau), co-ordinated by Vasile Băcăuanu and I. Donisă; co-authors of this volume have been other 14 Iaşi geographers.

At the same time with the introduction of courses in geo-informatics held by a specialist, preoccupations for updating geographical research methodology got momentum, Geographical Information Systems (G.I.S.) and Remote Sensing becoming increasingly used in different Physical and Human Geography areas; even a PhD thesis on *Digital Processing of Images to obtain G.I.S.-Required Information on the Development of this Methodology* was presented by V. Donisă. N. A. Roman introduced the method of spatial hierarchical relations applied to the satellite images of the Jijia Hilly Plain in dealing with the use of multi-media for landscape analysis and worked out a unified national land-use information system. M. C. Mărgărint used the national digitized data fund for land improvement studies.

The results of this new orientation were more visible in the elaboration of the *Digital Geographic Atlas of Moldavia* (1993–1997), co-ordinator I. Donisă, and in the regular annual organization of international G.I.S.– related conferences. In order to support the implementation of the latest methodologies, V. Donisă and I. Donisă published a *Dictionary of Remote Sensing and Geographical Information Systems* (1998).

Theoretical and methodological works on the systemic and ecological perspective of the Geography were published by Ioan Bojoi and Irina Ungureanu, in which, setting marks for assessing the quality of the environment are suggested.

The Department of Geography sustained also the teaching of geography in high-schools; school-books elaborated and published by I. Donisă, Angela Donisă, Al. Ungureanu, I. Muntele, Irina Ungureanu and others were positively appreciated.

Just like in the past, the **Physical Geography Research** has been focusing on Geomorphology, Climatology, Hydrology and especially on the Geography of Soils (sustained by N. Barbu) to contribute to the conservation of the soil quality, stability of slopes, control of soil, air and water pollution and the study of some representative geo-systems. Complex regional researches of Physical Geography made the object of doctoral dissertations, e.g. the *Rarău Massif* (C. Rusu), *the Subcarpathians between the Trotuş and the Suşiţa rivers* (A. Grozavu), *the Basin of the Başeu River* (C. Secu), *the Hilly region between the Lohan and the Horincea rivers* (D. Condorachi), *the Central Moldavian Plateau between the Vasluieţ and the Stavnic rivers* (C. Patriche) etc.

Geomorphological studies targeted different territories, e.g. the Tutova Basin (I. Ioniţă, Violeta Ioniţă) or the south-eastern part of the Maramureş Depression (N. Barbu). Paleogeographical approaches discussed the Suceava Basin flysch zone (D. Juravle and Delia Andone), the contact area between the Carpathians and the Moldavian Plateau (Paula Cristina Condurache) and the sedimentation rate (I. Ioniţă). Fluvial geomorphological problems represented a major point of interest, e.g. Evolution of the river valleys (I. Ioniţă, A. Grozavu, C. Rusu etc.), Characteristics and evolution of the river channels (Marcel Vârlan, Ioan Bojoi, Alina Popa, etc.), River terraces (A. Grozavu, D. Lesenciuc, etc.), Morpho-dynamics of the Jijia alluvial plain (Ion Bojoi), etc. Erosion platforms in the Giumalău Massif were studied by D. Lesenciuc. A special attention has been paid to contemporary geomorphological processes – Mass movements in the middle Bârlad Basin, Gullies in the Bârlad Basin and the rate of sedimentation in lakes, based on measurements of materials deposited after the Tchernobyl accident (Ion Ioniţă), The seasonal character of the geomorphic processes in the Bistriţa valley (N. Rădoane), Geomorphic processes in the Danube Delta of the Romanian Black Sea shore (Gh. Romanescu) and of the Giumalău Massif (D. Lesenciuc), the Karst relief formed on gypsum layers in the Tazlău Subcarpathians and the present-day geomorphological processes of the whole Moldavian Subcarpathians (A. Grozavu).

An impressive number of geomorphology PhD theses were elaborated in these years: Moldova's alluvial plain within the Moldavian Plateau (M. Amăriucăi), The Giumalău Massif (D. Lesenciuc), The aluvial plan of the Siret River (Alina Popa) and the Vrancea Subcarpathian Depression (V. Căpăţână).

Problems of Morphometry proved to be of particular interest for the geographers Irina Ungureanu, A. Grozavu, Gh. Romanescu, D. Lesenciuc and others. As an important mean of quantifying the geographical research, a digital model of the relief has been extensively developed beginning with the Territorial study of Iaşi City (V. Donisă and Şt. Kocsis) and continuing with the study of all of Moldavia's relief for the Digital Atlas of this province. Afterwards, the digital model of the relief has been generalized for morphographic and morphometric analyses, as well as for climatic and hydrological studies. Using large-scale topographic maps and satellite images, G.I.S. – based geomorphological maps with superposed layers were produced (D. Condorachi, 2003).

Recent progress in Geomorphology worldwide has made it necessary to publish a new Geomorphological Dictionary (I. Donisă, N. Boboc and I. Ioniţă) (2009).

Meteorological and climate studies aroused great interest, some of them covering broader topics, e.g. the precipitation regime of the Equatorial zone, the characteristic features of the atmospheric circulation on Earth, with special reference to the Monsoon circulation in Asia (I. Hârjoabă), the climatic resources of Moldavia (Elena Erhan), the climate and topo-climates of the Moldavian Subcarpathians (L. Apostol A. Grozavu, I. Pârvulescu), the climate of the Siret Corridor (L. Sfâcă) and of Vaslui town (Daniela Larion). Others subjects have been: the air temperature and the thermal inversions in the Ciuc Depression (M. Apăvăloaiei), Latitudinal and longitudinal thermal variation in Europe (I. Hârjoabă, Elena Erhan and C. Patriche) and a regression-based calculation method relying on nett radiation (C. Patriche).

Analyses of various aspects of atmospheric precipitation in different regions have concentrated on the Moldavian Subcarpathians (L. Apostol), the Rarău Massif (L. Apostol and C. Rusu), the Bârgău Mountains (E. Rusu), the Başeu Basin (C. Secu and D. Stoica) and the Jijia valley (C. Iaţu), the view regime of the precipitations in Europe (Elena Erhan, I. Hârjoabă and C. Patriche), the daily precipitation (M. Apăvăloaiei *et al*., 1995, L. Sfâcă, I. Minea, 2005), the characteristic features of the rainfall regime in the Central Moldavian Plateau (Daniela Larion) and the torrential rains in the Siret Basin (L. Apostol and L. Sfâcă).

Other climatological works deal with the nebulosity and sunshine duration (Elena Erhan, L. Apostol and C. Rusu), atmospheric humidity (M. Apăvăloaiei *et al*.), the air temperature and winds in the Moldavian Plain (Elena Erhan), the wind energy potential in Iaşi city (Daniela Larion), the climate-induced aridization in the Moldavian Plateau (N. Soroceanu and M. Amăriucăi), the foehnization of the air in the eastern part of Romania (Elena Erhan). Also of interest proved to be the negative natural phenomena (hoarfrost or untimely frosts in the Moldavian Plain), or man-induced ones (air pollution in Iaşi city – Elena Erhan, or sound pollution in Iaşi – D. Condorachi).

Hydrology is illustrated by numerous and important studies especially of the waters from the eastern part of Romania. So, the PhD thesis of Gh. Romanescu published in 1996 (in foreign language versions) is a morpho-hydrographic study of the Danube Delta. Other of his works are: the *Razim-Sinoie lagoon complex, a comprehensive analysis of hydrologic risks* (2009); *Floods on the Siret in 2005*; *Wetlands in different regions of Romania; The hydrological potential of the Siret and Prut rivers*; *Characteristics features of lacustrine waters and of wetlands*. Alone or jointly with the Chişinău geographer Gh. Jigău and with other specialists, he published in Bucharest a *Dictionary of Hydrology* (2003); he has contributed to the Canadian volume *Politique de l'eau – grands principes et réalités* (2006), to a *Dictionary of general hydrology, hydrogeology and hydro-physics of the soils* (Chişinău, 2001), etc. I. Minea's preoccupations focused on the Bahlui Basin; I. Hârjoabă and M. Amăriucăi on underground water-feeding; I. Stănescu on the water-flow balance of the Siret and the water resources of the town of Câmpulung Moldovenesc; V. Apopei *et al*. – on the pollution of underground waters in the Extracarpathian alluvial plain of the Bistriţa; Ion Bojoi *et al*. on the applied geography in the alluvial plains, requiring draining measures; C. Rusu on the influence of water reservoirs on their environment; Daniela Talambă – experimental studies of hydrological processes by using tracing means etc.

A series of pedological and pedo-geographical syntheses published by N. Barbu concern chernozemoid soils, soil as a geographical cover of the Earth, the evolution of the pedo-geographical thinking in Romania, the development stages in soil studies in Romania, etc. With a terminological precision Gheorghe Lupaşcu and his team published in 1998 a *Dictionary of soil science and ecology;* C. Secu and C. Patriche – *the Soils of the world – classification, distribution and characteristics* (2nd ed.); C. Secu, L. Neacşu and I. Vasiliniuc produced an *Atlas of the colours and symbols for the legend of soil maps*, a proposition for G.I.S. – related usages.

The Carpathian researches continued with soil studies in the Maramureş Mountains (C. Secu), the Bârgău Mountains (E. Rusu) and the Giurgeu Mountains (C. Rusu *et al*.). But of far greater interest proved to be the soil problems in the Moldavian Subcarpathians – in the Cracău – Bistriţa Depression (Gheorghe Lupaşcu) and in the Moldavian Plateau (C. Secu published a *Multi-media atlas of anthropic soils in the Moldavian Plain;* about the Tansa – Belceşti area have made studies C. Rusu *et al*., in the Iaşi City area (with an Atlas on the geochemistry of heavy metals, to which C. Secu contributed as well), in the Pereschiv Basin (also with an *Atlas of landforms and soils* due to L. Neacşu), in the Horoiata Basin (I. Vasiliniuc), etc.

Special studies had in view the variation of the chemical elements in the soil profile and its relation with the pedo-genetic processes (Carmen Donisă), the organic material of andosoils in the Oaş – Igniş Mountains (Angela Lupaşcu), the elaboration of a simulation methodology for humus accumulation in the soils of the Central Moldavian Plateau (C. Patriche), the influence of the relief on the distribution of azonal soils (D. Nica) etc.

During all these years, Biogeography has benefited from profile studies and PhD theses on the Phyto-geography of the Râmnicu Sărat Basin (C. Stoleriu), the Submountainous zone of Suceava and Neamț counties (Angela Lupaşcu), and the Vegetation of the Bahlui Basin (Liliana Aniței).

**The human geographies research** in the conditions of a democratic regime, theoretical research and geographical epistemology could be approached especially by the new generation of researchers. This new trend is visible in the works of O. Groza (e.g. *Relations between the paradigms of space and territory*; *Networks, territories and spatial interaction*; *The spatial scales of Romanian territoriality*), I. Muntele, (*Theoretical models of urban influence zones*; *Fearing the memory of space*), C. Iațu (*Time in Human Geography*), G. Țurcănaşu, Al. Ungureanu, etc.

An objective approach to Human Geography is currently possible, so that works on subjects banned under the previous totalitarian regime have been elaborated and published. Noteworthy among them are V. Băican's *Historical geography on the whole of 18$^{th}$ century Moldavia*; *Ethnic structure changes in Romania's population and in the present Republic of Moldova* (I. Muntele, Al. Ungureanu); *Romanians living to-day beyond the country's borders* (Al. Ungureanu).

The number of Human Geography works dealing with international issues has increased considerably. Some of these are O. Groza's doctoral dissertation on *The Geography of World Industry*; *Regionalization of economic phenomena, Transports in Eastern Europe* and *Submarine oil extraction*. In great detail and well-documented are I. Muntele's studies on the *European Spatial Units* (the dynamics and structure of the states' population, international migration, etc.), C. Iațu's volumes on the *European Development Model and the European Union*; Al. Ungureanu's approach to *Urban Development in the East-European Countries*, etc. An increasingly growing number of contributions have been made by O. Groza, I. Muntele, Al. Ungureanu, C. Iațu, G. Țurcănaşu, etc. to different foreign encyclopedias, atlases, reviews and collections, e.g. *The International Encyclopedia of Human Geography, Images économiques du monde, Atlas du XXI-e siècle, Encyclopédie Clartés, Le petit Robert des noms propres, Österreichische Enzyklopädie Osteuropas. A Human Geography Atlas of Romania* and a *Study of Territorial Networks in Romania* have been elaborated jointly with Paris University and Lausanne University geographers, respectively.

A general characteristic of the last few years is the focal interest in Quantitative Human Geography, based on statistical methods, computer-related programs, spatial analysis, spatial models with practical application to real life, and the elaboration of digital maps (see O. Groza on the use of shift and share analysis in problems of deindustrialisation, the use of G.I.S. methods to emphasize the general spatial structures and local specificity), I. Muntele (evolutions in the territorial hyerarchization of the population, the typology of the migratory population balance etc.), C. Iațu (conjugated analysis of contiguous spaces, spatial structures representated by variograms etc.), V. Nimigeanu, A. Rusu (especially the latter's PhD thesis on *Large Cities in the Eastern Half of Romania*), G. Țurcănaşu (in his dissertation on *The Current State of the settlement system in Moldavia*), Al. Ungureanu, Oana Stoleriu, Marinela Istrati, and others.

On the line of previous orientations, but at a superior level and with greater minuteness, are the detailed regional studies of Human Geography by I. Muntele (the population of Moldavia in the last two hundred years, spatial differentiations in population dynamics, etc.), O. Groza (migration problems, etc.), Al. Ungureanu (analysis of the regional dynamics of Romania's population), V. Nimigeanu (the evolution of the natural population balance), C. Iațu and I. Muntele (elaboration of the *Statistical-Geographical and Territorial Management Atlas of the Iaşi County*), C. Iațu (the Rădăuți Depression), R. Dimitriu (the Neamț Depression) etc.

Traditional studies in the geography of settlements have been continued by G. Țurcănaşu, with an original investigation, among others, into the Moldavian settlement system, Oana Stoleriu, with the most detailed human geography study of the city of Iaşi, Marinela Istrate's, multiple method approach to

the influence zones of Moldavian towns and Al. Rusu, author of a study of the urban network in the eastern part of Romania.

I. Boamfă, a specialist in Toponomastics, systematically connected this discipline with the Historical and Social Geography; he has also emphasized the particularities of the chrono-spatial distribution of anthroponymic, ethnographic and folklore elements in the toponymy. Preoccupations for the Political-Administrative Geography have increased considerably, a notable work being *The Electoral Geography of Romania after 1989* (C. Iaţu). Although present-day "Al. I. Cuza" University geographers have not specialized in Economic Geography, yet they have produced works of Tourism Geography (I. Muntele, C. Iaţu), Geography of Agriculture (I. Muntele, C. Iaţu, V. Palamariu) etc.

The traditional scientific journals, *Analele Ştiinţifice ale Universităţii „Al. I. Cuza" – seria geografie* and *Lucrările Seminarului geografic „Dimitrie Cantemir",* continued to be published more or less regularly and include ever more foreign languages papers. New periodical publications have been issued over these last few years – *Factori şi procese pedogenetice în zona temperată* (since 1990), *Lucrările Simpozionului de Sisteme Informaţionale Geografice* (since 1995) and *Present environment and sustainable development* (since 1996).

Many Iaşi geographers have been awarded scientific distinctions – the *Opera Omnia Award* has been offered by the National Council of Scientific Research in Higher Education (C.N.C.S.I.S.) to Ioan Şandru and Alexandru Ungureanu; the Romanian Academy's annual prizes received V. Băican and Gheorghe Lupaşcu, I. Muntele; I. Ioniţă; N. Barbu; C. Rusu; O. Groza *et al*., C. Iaţu, D. Juravle and D. Dumitriu. V. Cotea and N. Barbu have been distinguished with awards by the Academy of Agricultural and Forestry Sciences by the International Organization of Vineyard and Wine, and the 'Romanian Writers Association Award'; the „Umwelt und Wohnen" Award of the German Karlsruhe und Konstanz Universities went to Gh. Romanescu; A. Grozavu and Şt. Kocsis were conferred the "Zlaty kosak"Award by the Slovak Ministry of Agriculture; I. Donisă became *Doctor honoris causa* of the State University of Tiraspol (currently refuged in Chişinău) and Al. Ungureanu of the universities of Suceava and Timişoara. Ioan Şandru has been and Al. Ungureanu is Honorary Fellow of the French Geographical Society. The best doctoral disertation awards were conferred by the University of Iaşi to D. Juravle (2004), G. Ţurcănaşu (2006), and Marinela Istrate (2007).

As a conclusion, we would say that the Geography Department of the "Alexandru I. Cuza" University of Iaşi continues to be, as it has always been, a worthy member of the Romanian scientific and educational community, open to the latest trends in the research and the education of the young generation.

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Received September 1, 2010

# THE ANNUAL MEETING OF THE ROMANIAN NATIONAL GEOGRAPHICAL COMMITTEE

Institute of Geography of the Romanian Academy, Bucharest, January 16, 2010

The Meeting, organised jointly by the National Geographical Committee and the Institute of Geography, was attended by fifty representatives from university centres and profile research institutions as follows: Universitatea of Bucharest; *Alexandru Ioan Cuza* University of Iaşi; *Babeş-Bolyai* University of Cluj-Napoca; West University, Timişoara; Oradea University; Academy of Economic Studies, Bucharest; *Valahia* University, Târgovişte; University of Craiova; *Spiru Haret* University, Bucharest; *Hyperion* University, Bucharest; *Ştefan cel Mare* University, Suceva; Romanian-American University, Bucharest; *Dimitrie Cantemir* Christian University, Sibiu; *Ovidius* University, Constanța; *Traian* University, Deva; the Ministry of Education, Research and Innovation; Bucharest School Inspectorate; Institute of Education Sciences, Bucharest; Institute of Geography of the Romanian Academy, Bucharest; and CD PRESS Publishing-house.

Chairmen: by Prof. Dan Bălteanu, member of the Romanian Academy and President of the National Geographical Committee, and Prof. dr. Alexandru Ungureanu, Corresponding Member of the Romanian Academy and Vice-President of the Committee.

Discussions focused on matters of the Romanian geographers' participation in national and international scientific events, geographical education issues and the activity of profile institutions (Romanian Geographical Society, Association of Geomorphologists in Romania, Association of Human Geography Specialists in Romania, Association of Limnology in Romania and Professional Association of Geographers in Romania).

Some of the main ideas contained in the International Charter of Geography-based Education and in the International Declaration of Geography-based Education were also presented. The prestige enjoyed by Romanian Geography abroad is also the merit of students who have obtained exceptional results in international Olympic competitions. Romania has little representation in the IGU Commissions and in order to remedy this situation, increasing international contacts would be an efficient move. Someone proposed the resumption of gatheings between specialists from various areas, that used to be convened systematically in the past; at the same time, mass-media channels ought to be approached in promoting this discipline, simultaneously with having the content of school-books improved. The teachers' continuous education would be a useful undertaking.

*Bianca (Dumitrescu)*

# INTERNATIONAL SUMMER SCHOOL "NATURAL HAZARDS AND SUSTAINABLE DEVELOPMENT IN MOUNTAIN REGIONS", THE TENTH EDITION

Pătârlagele, Buzău County, July 19-25, 2010

The Institute of Geography of the Romanian Academy, in collaboration with the National Romanian Committee for Global Environmental Change, has been annually organising an International Summer School on *Environmental Hazards and Sustainable Development in Mountain Regions* at Pătârlagele (Buzău County).

The aim of this event has been to debate environmental change issues entailed by human activity in environmentally vulnerable regions, more precisely in some landslide-affected Curvature Subcarpathian areas.

International Summer School courses (July 19–25, 2010) were attended by young people from Poland, Italy, Venezuela, Sweden, Romania etc. and delivered by Prof. Dan Bălteanu, Prof. Lucian Badea, PhD. Viorel Chendeş, PhD. Ionuț Şandric, PhD. Josef Pichler, PhD. Mihai Micu and. PhD. Mihaela Sima.

The problems discussed were being sustained by several field trips in Buzău County at Malu Alb – Muchea cu Fluturi, in the Muscel Valley, the Buzău Mountains and the Subcarpathian area.

The idea was to correlate modern GIS and GPS techniques with surveys on the ground, to become acquainted with water and sediment sampling techniques and with the geomorphological mapping principles.

Rev. Roum. Géogr./Rom. Journ. Geogr., **54**, (2), p. 197–198, 2010, Bucureşti.

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Chairmen: by Prof. Dan Bălteanu, member of the Romanian Academy and President of the National Geographical Committee, and Prof. dr. Alexandru Ungureanu, Corresponding Member of the Romanian Academy and Vice-President of the Committee.

Discussions focused on matters of the Romanian geographers' participation in national and international scientific events, geographical education issues and the activity of profile institutions (Romanian Geographical Society, Association of Geomorphologists in Romania, Association of Human Geography Specialists in Romania, Association of Limnology in Romania and Professional Association of Geographers in Romania).

Some of the main ideas contained in the International Charter of Geography-based Education and in the International Declaration of Geography-based Education were also presented. The prestige enjoyed by Romanian Geography abroad is also the merit of students who have obtained exceptional results in international Olympic competitions. Romania has little representation in the IGU Commissions and in order to remedy this situation, increasing international contacts would be an efficient move. Someone proposed the resumption of gatheings between specialists from various areas, that used to be convened systematically in the past; at the same time, mass-media channels ought to be approached in promoting this discipline, simultaneously with having the content of school-books improved. The teachers' continuous education would be a useful undertaking.

*Bianca (Dumitrescu)*

# INTERNATIONAL SUMMER SCHOOL "NATURAL HAZARDS AND SUSTAINABLE DEVELOPMENT IN MOUNTAIN REGIONS", THE TENTH EDITION

Pătârlagele, Buzău County, July 19-25, 2010

The Institute of Geography of the Romanian Academy, in collaboration with the National Romanian Committee for Global Environmental Change, has been annually organising an International Summer School on *Environmental Hazards and Sustainable Development in Mountain Regions* at Pătârlagele (Buzău County).

The aim of this event has been to debate environmental change issues entailed by human activity in environmentally vulnerable regions, more precisely in some landslide-affected Curvature Subcarpathian areas.

International Summer School courses (July 19–25, 2010) were attended by young people from Poland, Italy, Venezuela, Sweden, Romania etc. and delivered by Prof. Dan Bălteanu, Prof. Lucian Badea, PhD. Viorel Chendeş, PhD. Ionuț Şandric, PhD. Josef Pichler, PhD. Mihai Micu and. PhD. Mihaela Sima.

The problems discussed were being sustained by several field trips in Buzău County at Malu Alb – Muchea cu Fluturi, in the Muscel Valley, the Buzău Mountains and the Subcarpathian area.

The idea was to correlate modern GIS and GPS techniques with surveys on the ground, to become acquainted with water and sediment sampling techniques and with the geomorphological mapping principles.

Rev. Roum. Géogr./Rom. Journ. Geogr., **54**, (2), p. 197–198, 2010, Bucureşti.

At the end of the Workshop, a number of papers were awarded five prizes named after renowned personalities of Romanian Geography: Simion Mehedinți Prizes, Vintilă Mihăilescu Prizes, Victor Tufescu Prizes, Gheorghe Niculescu Prizes and Liviu Constantinescu Prizes.

All in all, the ten editions held so far have altracted nearly 200 MA and PhD students, young researchers form different fields there by enabling to a useful exchange of experience.

*Loredana-Elena Mic*

## THE SEVENTH TURKISH-ROMANIAN SEMINAR

1–9 June, Kemer – Antalya, Turkey

The Seminar was held within the framework of the 2nd International Geography Symposium (GEOMED 2010) organized by the Dokuz Eylul and Balikesir Universities at Kemer-Antalya (Turkey) between June 1-9, 2010.

The three-day proceedings developed within four sections on distinct themes each, and a poster session.

The sixteen papers presented in each section focused on landform, water resources, climate change, man-environment relations, dynamics, land use and soil degradation, natural hazards, regional development and disparities, tourism development, environmental pollution, evolution of natural ecosystems, biodiversity, population evolution, dynamics, and health status, quality of life, human security and sustainable development, geopolitics, the use of GIS techniques, etc.

The field trips on June, 5 included simultaneous two topics: one devoted to the historical and cultural sites of excursions: Perge, The Aspendos Amfitheatr, Side and Antalya's coastal zone; and the Taurus Mountains, and a second with highlight on landscape and its evolution, soils, vegetation, karst forms, and land degradation in the Taurus Mountains. The second trip (Mediterranean Ecosystems Field Tour) took place along the Kemer-Finike-Kaş-Fethye-Korkutelyi-Antalya route between June 6 and 8. Vegetation, soils, karst topography and agriculture were investigated along with associated human-nature interactions.

The Seminar was organized jointly by Dokuz Eylul University – Faculty of Sciences and Letters, and Balikesir University (Turkey) and the University of Bucharest – Faculty of Geography and Institute of Geography, Bucharest.

The papers presented at the Seminar discussed topics of physical and human geography, tourism and sustainable development. Romanian researchers expounded upon the following problems: *Land use changes, desertification and agriculture in Romania* – Dan Bălteanu, Monica Dumitraşcu, and Ana Popovici; *Technological hazards and sustainable development of urban ecosystems in the South-West Development Region (Romania)* – Monica Dumitraşcu, Costin Dumitraşcu; *The image of Bucharest a challenging construction process for Romania* – Daniela Dumbrăveanu, Liliana Dumitrache; *Perspectives of rehabilitation through tourism of one-industry towns in Romania* – George Erdeli, Ana Irina Dincă, Bianca Dumitrescu; *Elaboration of climatic maps using GIS. Case study: Olăneşti drainage basin (Getic Subcarpathians, Romania)* – Laura Târlă; *Development of the Romanian private health care system – premises constraints and consequences* – Liliana Dumitrache, Daniela Dumbrăveanu; *Changing cities: urban restructuring projects in Bucharest for the market economy* – Mariana Nae; *Geomorfological processes and land use in the Putna Catchment (Vrancea Region, Romania)* – Florina Folea Tatu; *Geomorphosites valorization for geoturism and environmental education in the Curvature Carpathians* – Mihaela Dinu, Adrian Cioacă – *Sustainable development prospects for the Danube Delta rural communities* – Nicoleta Damian;

The Seminar was also an opportunity for participants to exchange ideas, establish contacts with professors and researchers from Turkish universities and profile institutions, as well as with those from other countries.

The proceedings of the seventh Turkish-Romanian Seminar will be published in a volume devoted to that event.

*Nicoleta Damian*

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*Nicoleta Damian*

Thede Kahl, Cay Lienau (eds.), *Christen und Muslime. Interethnische Koexistenz in südosteuropäischen Peripheriegebieten* (Christians and Muslims. Interethnic coexistence in the peripherical territories of South-Eastern Europe), in the series: „Religions- und Kulturgeschichte in Ostmitte- und Südosteuropa", vol. 11, LIT, Münster, Germany, 2009, 361 p., ISBN 978-3-643-50058-8

The volume "*Christians and Muslims. Interethnic coexistence in the peripheral territories of South-Eastern Europe"* debates a problem of present interest regarding relations between Christians and Muslims, by investigating the neighborhood of two important religions in South-Eastern Europe. The volume presents the results of a research project led by the editors Thede Kahl (University of Vienna) and Cay Lienau (University of Münster), project entitled "Interethnical relationships between Orthodox Christians and Muslims of South-Eastern Europe. Examples from mixt settlements in Greece and Romania, in terms of confession".

In South-East Europe the two major religious communities, represented by the Orthodox Christians and Muslims, are characterised by a historical coexistence of over half a millennium. This coexistence presents peaceful or conflictual characters, as in the case of former Yugoslavia or Cyprus. The mechanisms and principles which control a peaceful coexistence, on the one hand, and the causes which lead to conflicts, on the other hand, are investigated. Finding the answers to these questions would offer some solutions to other mixt communities in terms of religion and culture.

The work includes a number of 22 contributions elaborated in German or English, both those presented in the framework of the two workshops of the project, held in Münster in 2006 and 2007, and those of some other authors interested in this field. The evolution of interreligious and interethnical relationships in the Balkans in historical times are discussed, as well as the present problems related to the identity and life of the minorities present in the multinational and multireligious states of the same space. The authors of the papers cover a large and diverse range of socio-human professions, acting in institutions from Germany, Austria, Greece, Italy, Romania and Switzerland and interested in studying the South-Eastern European space. Therefore, the approach to this theme is made from a very diverse perspective (ethnological, political, geographical, historical, cultural, linguistic, administrative, journalistic, etc.)

The project, which forms the hardcore of the book and which drew also other contributions on this theme, chose to investigate the relationships between the two major religions in regions of peaceful cohabitation from South-Eastern Europe, where these religions are embraced by different ethnical groups. Study-cases were two regions: West Trakia in Greece and Dobrogea in Romania, both characterised by a long tradition of peaceful coexistence of the two confessions. Various hypotheses of cohabitation are tested in terms of their relevance in explaining some features of the Christian-Muslims relationships in the studied situations. These hypotheses refer to daily life aspects, potential conflict introduced by the political, church or media elite, as well as the influence that sharing a culture based on common memory could have.

Since the relationships among the representatives of the various cults bear on the future development of the regions and of the states they belong to, possible measures for strengthening peaceful cohabitation and for preventing conflicts are evaluated. Moreover, the importance of these local studies for larger scale approaches and for the future of Europe is emphasized, especially for situations at its border with the non-European space and for possible enlargement.

Due to the multitude, diversity and in-depth study of these aspects, this exhaustive work on the Christian-Muslims relationships in South-Eastern Europe, proves to be extremely useful, offering people interested in promoting and strengthening peaceful cohabitation in mixt communities of everywhere, a treasure-lore of principles for their understanding and management.

*Marta-Cristina Jurchescu*

David Turnock, Nicolae Muică, *Settlement of the Pătârlagele Depression (Romanian Subcarpathians). The historical geography of a settlement system in its ecological and socio-economic contexts 1500–2000*, Lambert Academic Publishing, Saarbrücken, 2010, 347 p., 20 figs., 16 tabs.

The book is structured in six chapters and is completed with a useful preface about the rural studies in Romania and with a very significant appendix representing the evidence for placename study. The work represents the result of a very detailed research activity realised by the two authors during three decades.

The first chapter (***Historical review of landscape and settlement history***) offers a concise survey of the terrain, in fact a hilly area in Romania's Curvature Subcarpathians. The authors underline the detailed aspects concerning the relief (the Buzău terraces and tributary fans, the lower hill slopes and landslide surfaces, etc.), the soil, vegetation and land use,

focusing their study on landslides (their nature and significance) and on the settlement history (village names, village sites, the origin of settlements).

The chapter ***Modern times: a century of continuity and change*** outlines the contrast between the core area of the district with its emerging capitalist economy (evident in the centres of Pătârlagele and Mărunțișu with their services and handicrafts) and the outlying areas where poorer people depended on subsistence agriculture based on the landslides and the remnants of the mature landscape higher up. The analysis is structured in four periods (before the First World War, the inter-war period, the communist era, revolution and transition), each of them being detailed in terms of the specific features of economic activities, historic aspects and life quality: rural life in the hills with the significance of plums for preserves and brandy distillation for the first period, the creation of the collective farms, the territorial and functional reorganisation of the Pătârlagele area – "sistematizare" for the communist period and the restoration of private farming, pluriactivity based on the land for the last period.

The next two chapters (***Settlement profiles: (a) the official list of large groupings*** and ***Settlement profiles (b) the smaller villages and hamlets)*** offer individual studies of all the settlements in the area. The total number of settlements is 119 and they are grouping into six classes of which classes Three to Six cover today's 25 official settlements; class Four includes four settlements which were commune centres before the administrative reforms of 1968, while the other 20 are the remaining villages which have official recognition as dependencies of Pătârlagele or Pănătău. Each individual study is detailed in the followings aspects: placename references, situation and historical outline, church history, village facilities, toponymy and statistics.

The fifth chapter, ***Toponymy: Placename study with documentary and oral evidence*** provides a rich field of research in view of landscape diversity and the long history of settlements accompanied by cropping, haymaking, pastoralism and forest work. This chapter includes a comprehensive review of the content: references to topography (the landslides, water supply, forest clearance), to human geography (to farming, to crops, to stockrearing and fruit-growing, to associated activities, to the local circulation and religious manifestations, to the other historical events).

In the sixth chapter, ***Communes and other larger administrative areas,*** the authors profile the old administrative divisions from Pătârlagele "Plasa" (used in the 1930s for a county district), on a chronological basis with reference to the key sources.

The book has 347 pages, 20 figures, 18 tables, representing the result of the research activity, making particular use of the map collection in the Romanian Academy Library, supplemented by fieldwork in Pătârlagele Depression.

*Irena Mocanu*

Nicolae Florea, *Pedodiversitate şi pedociclicitate: solul în spaţiu şi timp* (Soil diversity and Soil cyclicity: the soil in space and time), Ed. ICPA, Bucureşti, 2009.

The amazing complexity and diversity of the soil cover has always been a challenging subject not only for soil scientists, but also for geographers and geologists, agronomists and environmentalists and for all people interested in the knowledge, preservation and protection of natural resources on Earth.

Prof. N. Florea's book "*Pedodiversitate şi pedociclicitate: solul în spaţiu şi timp*", ca. 280 pages, richly illustrated with tables, graphs and maps, represents an exhaustive approach to the above-mentioned problems.

By its topics – soil diversity and soil cyclicity, or more exactly the soil viewed in space and time – this book ranks among the breakthroughs world-wide in the soil science of the 21$^{st}$ century.

According to the author, the soil entities, spatial soil diversity and their geographical aggregate represent concrete forms of the pedological space, and the cyclicity of soil genesis processes that lead to soil formation and evolution, respectively pedorhythms and pedofluctuations, being the expression of the pedological time. Space and time make up the background of soil existence.

The first seven chapters of the book offer the reader the opportunity of a very instructive journey in the field of soil diversity and soil cyclicity, starting from a general characterization of the pedosphere and its relationships with the other geospheres and ending up with the cyclic evolution of soils, pedorhythmicity and pedoperiodicity, (pedorhythms and pedofluctuations). Both aspects represent in fact one and the same facet of soil cover or the pedospere.

Of particular interest for both pedogeographers and environmentalists is the characterization and systematization of pedogeographical aggregate, a topic less developed in the international Soil Science.

Quite new and original is the concept and the scheme of soil and soil cover formation, a problem taking various balances of cyclic soil genesis and geological-geomorphic processes depending on different environmental conditions. This

idea is also illustrated by the concept of the co-evolution of soils and loess deposit formation according to an original scenario.

Chapter eight is devoted to soil diversity in the world. Chapter nine presents the main life-support factors and the essential role of the soil.

The impact of this book on the future developme nt of the Soil Science is difficult to assess. The in-depth study of soil diversity and soil cyclicity opens up the way to new fields of research and knowledge: a branch of soilscape study and chronopedology, with focus on the organization, functionality and dynamics of soil cover and its geographical subunits at different space and time scales. This would prove of great utility for the managing element of soils and of other natural resources and for predicting environmental risks under the effect of both global climate change and the ever higher pressure of modern society.

"*Pedodiversitate şi pedociclicitate: solul în spaţiu şi timp*" is by far a common work. It goes beyond the ordinary vision of soil and the soil cover. Beside the great diversity of soils world-wide, it reveals the profound and dynamic links between soil and other components from the surface of the Earth's crust. The final soil cover image is not only one of a complex and diverse entity, but also of a dynamic and ever-changing entity that has been accompanying the evolution of the surface crust at least since the emergence of terrestrial plants.

Despite its elevated theoretical level, the text is easily readable, the ideas and concepts being clearly expressed. As Boileau said – "Le Style c'est l'homme même" – Prof. Nicolae Florea is and has always been an exceptional teacher.

I warmly recommend this exceptional and unique book to all those (students, teachers, practitioners, a.o.) interested in knowing some of the profound and marvelous secrets of the pedosphere, or simply of the ground we every-day walk on (even if it is sometimes hidden under the asphaltic blanket).

*Ioan Munteanu*