

STONES: FUNCTIONALITIES AND SUSTAINABLE LANDSCAPES

Ana FIRMINO

*Universidade Nova de Lisboa, FCSH, CICS.NOVA, Av. de Berna, 26 – C, 1069-061 Lisboa, Portugal,
am.firmino@fcsH.unl.pt*

Abstract: Stones play an important role in the construction of landscapes. Stones are a relict and a testimony of ancient or modern territorial processes that dictated their genesis and hold records of past climate changes that give us evidences about the development of the Earth. Stones are also one of the most common materials used by humans in different contexts. This paper illustrates the potential of stone landscapes as catalysts for territorial change and sustainable development even in remote areas experiencing community problems. The results presented here stem from a project carried out at e-Geo (Centre of Research in Geography and Regional Planning, now CICS.NOVA) – HOPE (Hope on People's Efforts), within the Municipality of Almeida (North Portugal). The ultimate aim of the HOPE project is to promote the area in sustainable touristic terms, providing evidence of the granite landscapes not only as a scenic resource but also as a basis for future innovative initiatives, such as a geopark for children, since many of the monoliths look like animals. An interpretation centre could be built, supplying information about the stones and the minerals extracted, such as wolfram which was intensively exploited in the area during the Second World War. These projects could target additional categories of people as tourists which could benefit from the infrastructure locally available. The creation of a specialized hub for tourists with specific needs in the municipality of Almeida could demonstrate new opportunities for local and regional development, including the local community in the process of achieving sustainable development.

Keywords: Stone Landscapes, geoparks, rewilding Europe, sustainable development

1. INTRODUCTION

Stones have fascinated me since I was a child. How are they born, and how they grow were some of the innocent questions generated in my brain as if stones could have a similar development to that of humans. Geography would later answer many of my questions!

Stone landscapes have many different stories to tell. The process of enclosures (bocage) that parcelled the land through the use of stone walls is one of them. They protect the cultivated plots not only from livestock, but also from wind, creating at the same time an attractive and efficient ecological habitat for several species that inhabit particular ecosystems.

Some of these walls result from the patient work of people who removed the stones from the fields when these were ploughed and more stones were brought to the surface.

Other anthropic actions gave rise to terraces, supported by stone walls that are now protected as UNESCO World Heritage for their scenic value and

cultural importance, such as those in the Douro Valley in Portugal.

Stones are often an efficient technique to prevent landslides. On the other hand, stone structures such as Stonehenge (United Kingdom), Carnac (France) and Pascoa Island, to mention only some of the best known, can attract hundreds of thousands of tourists in search of something different, majestic, mysterious, historic and spiritual.

Stones were a valued material in earlier times. Some 335 000 year old stone artifacts have been identified. Prehistoric stone tool technology evolved independently within local populations. Farkas-Pető et al. (2014) mentions the selection made by the tool making man of the most suitable stones to produce the tools according to the desired function, such as the polished stone tools of the Vátya culture (Pest County, Central Hungary). According to Farkas-Pető et al., (2014), these populations, known for their developed stone industry, probably collected raw-material from nearby their own dwelling places, but it is possible that other more distant sites of collection were visited, and

this practice already existed in 2000 - 1350 BC, as suggested by the presence of stone axes of Ophiolites, since these were not available at Pest County (Central Hungary). In the opinion of Farkas-Pető et al., (2014), these populations collected raw-material from around 2 to 50 km in the case of stones from their own dwelling places and could travel between 100 and 400 km to look for different stones.

In certain rural areas seesaw quern stones have been used from Recent Pre-History to the Modern Era. They serve as domestic mills consisting of a fixed quern which is a stone with a concavity, in which the grain was ground using a single roller stone.

Technical improvements allowed the creation of the rotary quernstone, formed by two round quernstones with manual propulsion, which was used in the Iron Age and during the period of Romanization when larger mills appeared (Lemos & Cruz, 2011).

Cyclopean constructions are also common, mainly in ramparts, and illustrate a building method which used massive monoliths trimmed to form the basis of the walls, as described by González-Ruibal (2004).

Stones were widely used to build houses and walls. The marking of the boundaries of properties with low stone walls had often an interesting visual impact on the landscape, looking like lines contouring the hills, as described by Varanda (2005).

In spite of their scenic and ecological value, it is dramatic the degradation suffered by many of these walls, especially those made of earth. Some argue that this is due to the loss of know-how boosted by the facility offered nowadays by the use of blocks of ceramic or concrete that are often left exposed or only sprinkled with cement (Varanda, 2005).

Other arguments in the literature such as lack of funding, falling farm incomes and skill shortages, are presented as having led to a decline in the condition of dry stone walls, mainly throughout the UK, affecting both their practical and their aesthetic values.

It is no wonder that today, in some areas such as Almeida, a municipality in North Portugal (Fig. 1) people often use other materials to repair old stone buildings and there are reports of people selling the stones abroad for decoration.

Varanda (2005) emphasizes the disharmony caused in the landscape by these interventions (Fig. 2). In spite of the success in the restoration and reconstruction of small monuments using local techniques, undertaken by higher education professionals, this is not a common choice among the population that prefers the most modern materials and techniques developed during the second half of the 20th century that have dethroned the use of stone.

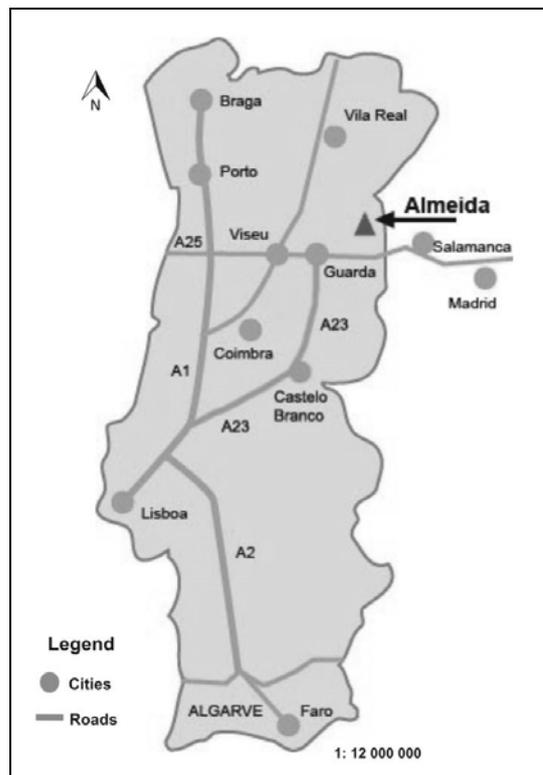


Figure 1. Location of Almeida in Portugal
Source: Municipality of Almeida



Figure 2. Disharmony caused by the use of blocks of concrete in old stone houses in Cabreira, Almeida, Portugal

The Hope project seeks to raise awareness among the local inhabitants of the value of their stone houses and the beautiful paths enclosed by stone walls as a touristic resource and, simultaneously, to make a contribution to a sustainable environment, since these stone structures constitute habitats for species and protection for the fields, that are much prized in the policies of the European Union towards an Horizon 2020.

The Hope Project, that benefited from the logistic support of the Socio-Therapeutic Association of Almeida (ASTA) and the financial support of the Municipality of Almeida, organized an exhibition at the Military Museum in Almeida, during the European

Landscape Week, that took place in April 2014, using photos taken by the professional photographer Luisa Ferreira, that portray the stone landscapes in the municipality and sketch ideas for future thematic touristic itineraries (such as a watermills and old Moorish irrigation system routes and stone routes with “alminhas” – religious icons found along the paths in the rural areas).

This project, under the designation of “Art and Solidarity in Almeida” is one of the several carried out by NGOs at national level, for a publication coordinated by Nunes (2014), supported by EEA grants and managed by the Gulbenkian Foundation. The participants worked in different contexts and territories but shared principles, values and strategic visions about territorial development.

A set of postcards, showing photographs of stone walls, by Luisa Ferreira and myself, was also produced. The sale of these postcards will benefit ASTA, the Socio-Therapeutic Association of Almeida, which hosted the European Landscape Week in April 2014.

In October 2015, during the celebration of the 15th anniversary of ASTA, a book will be launched with testimonies of the participants in European Landscape Week, which will portray the region using a phenomenological approach.

2. FUNCTIONALITIES OF STONE WALLS

Human History provides several examples of the use of hedgerows for different purposes. These may be made of natural bushes and trees or any material from stone to mud, wood, iron, etc. They may result from a need to protect the fields from livestock (Cañadas) or specific land ownership and control issues (enclosure, bocage), or to provide access to more land, particularly in mountain areas, where the technique of terracing along the contour lines not only prevents landslides but also allows for the ploughing more land in a particularly adverse environment.

The walls are often used to protect the soil from wind erosion or salinity transported in the air, in areas close to the ocean. The hedges of natural plants with a specific odor or color are used in agro-ecology since they can prevent some species from attacking the crops by keeping them away (through the odor) or attract useful insects (yellow for instance), such as bees, to increase pollination. The destruction of many hedges and the use of concrete with no gaps in its surface in buildings has been one of the reasons for the imbalance in ecosystems as noted in many studies, namely in the 80's by Soltner (1988), who presents a didactic comparison in three stages of the depletion of fauna

biodiversity occurring along with the simplification of landscape. In the first stage, when a landscape is still a complex mosaic of rivers, bushes and hedges, biodiversity is at its highest level; the destruction of these elements will affect the biodiversity, which will decrease more and more in a landscape where rivers are channelled, trees cut down, natural vegetation removed and soil levelled until no natural landscape element is left (Soltner, 1988).

More recently other authors have been expressing the same concerns, referring to the strong impacts on “green infrastructure, biodiversity and landscape aesthetics” caused by the removal of hedgerows and other landscape elements present in historic farming systems (Burel & Baudry, 1995; Baudry et al., 2000; Dramstad et al., 2001; Herzog et al., 2006; Verburg et al., 2013).

Verburg et al. (2013) remark that global markets and development of technologies contributed to different human choices that led to changes in human interactions with the environment, which consequently acted adversely on land cover, management and spatial structure.

In the 20th century several European countries, including Italy, Spain and Portugal, launched campaigns in order to increase their self-sufficiency in cereals (Pan-Montojo, 2012). In Portugal it was called the “Wheat Campaign” (1929) and the environmental impacts mainly felt in the province of Alentejo (known as the country's barn) by clearing land (felling of cork trees and other *Quercus*) are still evident each year in the large amount of sediment washed away (measured at Vale Formoso Station, Mértola).

Adverse impacts are still common today since, to facilitate mechanization, namely the use of tractors and other equipments, such as pivot irrigation systems, spontaneous vegetation has been removed and in some areas the potential habitats provided by the traditional stone walls have been replaced by concrete blocks, contributing to the disappearance of some species.

Verburg et al., (2013) emphasizes that although some changes such as deforestation can impact drastically on the landscape function, more subtle changes in management and spatial structure, such as removal of landscape elements, can disrupt the normal functioning of landscape and associated services provided to human well-being.

According to Gobster et al., (2007) “landscape structure is important for many regulating services such as water retention and purification, pollination and soil protection that support the provision of food, feed and fuel. Also for many cultural services including landscape aesthetics, tourism and the protection of cultural heritage (‘sense of place’) the spatial arrangement of landscape elements and the

mosaic of land cover types play an important role” (Verburg et al., 2013).

Day (1993) writes that “making and building things is the stage at which idea meets material. They can either compromise each other or, through their fusion, reach a higher level. Sculpture in the mind is pointless. Without art, stone fresh from the quarry is little more than a pile of broken rock. It is, however, a *little* more than just a pile because each material already has something in it waiting to find an appropriate place and form. Not every stone has Michelangelo’s David in it, but every stone has a quality of “stoneness”. The violence of the quarry leaves it with sharp split surfaces, but the quality of enduring rock *can* be refound”.

These stone walls are a piece of art, starting with the knowledge needed to build them, mixed with the inspiration of the artist in placing each element one after another (Fig. 3). They represent the art and traditional skills of rural people that can be used as touristic attraction.



Figure 3. Stone wall landscape in Cabreira, Almeida

Stone walls are elements of a landscape named as *stonescapes* (Campbell & Dubé, 1999), and constitute one of the 19 different types of landscape elements, such as grass margins, hedgerows and ditches, that are represented in the transect data published by Verburg et al., (2013). Verburg et al., (2013) provide a typology of the landscape at European level using the density of linear landscape elements in agricultural areas and the landscape unit map by Múcher et al., (2010) as a baseline.

3. RESCUING MEMORIES OF THE PAST, PRODUCING SUSTAINABILITY FOR THE FUTURE

Dry Stone Walls have stood the test of time! They have been used for structures and enclosures in Europe since 2000 BC, forming a permanent enclosure that is presented by the Leonardo project (see below)

as being more robust and cost effective than any other form of field boundary.

Many of the walls built in the 18th and 19th centuries still stand today. In England and Wales alone the estimated length of field walls is 105 800 km. According to Bailey et al. (2009) landscape heritage is threatened if dry stone walls are not maintained while there is also a regional deterioration of dry stone walls.

The Leonardo project, financed by the European Union for the period between 2012 and 2014, was constituted by associations from four different countries: Great Britain, France, Italy and Spain. The project attempts to rescue these important memories of the past, by promoting traditional wall construction and maintenance skills that are being lost at an alarming rate, in an area which is an important wildlife habitat and of historic significance. It aims to: 1) contribute to the development of a new professional network of dry stone walling craftsmen and training techniques throughout the participating countries; 2) restore patterns of dry stone walls and strengthen the network of hedgerows; 3) enhance the landscape and ecological networks; 4) manage and restore the urban fringe farmland structure including stone walls, hedges and hedgerow trees.

The project intends to provide high quality training programs to develop skills in dry stone walling; promote dry stone walling qualifications and career opportunities; subsidise the delivery of training to young farmers working or studying in the rural sector. Moreover it will “create a sustainable training and education hub offering knowledge, expertise and training opportunities to national conservation bodies, employment organisations, heritage groups, and individuals; formulate high quality work based training programmes to develop skills in dry stone walling; promote the transfer of knowledge by experts to the next generation; broaden the knowledge and appeal of dry stone walling as a heritage craft; involve a wide range of people of all ages and backgrounds in dry stone walling training and community projects”, as stated in the site.

The Prince’s Countryside Fund supports a training course on dry stone walling for young farmers.

In Portugal some communities based on permaculture have promoted the restoration of stone walls, and some offer workshops on how to rebuild and maintain them, such as Quinta do Lúzio, in Sintra.

There is much information “hidden” in the way the stone walls are built which risks being lost. In Almeida, during the European Landscape Week, Joaquim Pedroso, a history teacher at the local secondary school told me, that in some walls, the coping (the upper layer of stones on the top) slopes in the direction of the closest village. In a detailed

research project led by Guillot (2014) dedicated to rural heritage it is explained how the ownership of the wall can be revealed: if the coping has two slopes it belongs to two owners. If it has only one slope, it belongs to the person who owns the side to which the rainwater runs.

Stone walls play an important role in the preservation of habitats. Indeed habitat loss and degradation are two of the main factors that have contributed to the progressive decline of European plant diversity. Among the causes of the destruction and degradation of natural plant habitats are urban development, overdraw of groundwater, road building, recreation, forest fires, agriculture and tree logging.

“It is estimated that habitat destruction from human activity is the primary cause of risk to 83% of endangered plant species. Habitat loss is harmful not only to a single species, but to whole communities and ecosystems. According to the United Nations Environment Programme (UNEP), it has been estimated that by the year 2032, more than 70% of the land’s surface will have been destroyed or disturbed. Habitat loss is also a problem because it leads to the fragmentation of the remaining habitat resulting in further isolation of plant populations” (European Commission, 2008).

In the framework of the LIFE + Project several measures have been undertaken to promote the creation and maintenance of habitats. The building of traditional stone walls is one of the measures planned as illustrated by the following examples.

The Life Saving Buskett Project is the acronym of the LIFE+ Project entitled “Soil stabilization measures to protect Annex I habitats in Buskett Girgenti Natura 2000 site” in Malta. The project aims at protecting habitats of EU importance composed of mature trees at Buskett along the watercourse and the banks of Wiedil-Luq (Poplar Valley).

These measures aim at the stabilization of soil in areas supporting the Annex I habitats and include the repair, restoration and rebuilding of retaining dry stone walls and arches defining part of the watercourse and the planting of characteristic tree species.

The project will also publish a good practice guide, concerning wall and terrace restoration for landowners and users of these areas.

A final example is the Landscape Protected Area of Sintra/Cascais, in the Lisbon area, which is planning the building of stone walls to retain the soil in sloping areas that, in the long term, can build up terraces, and create conditions to slow down the flow of rainwater.

The importance of stone walls in Almeida is highlighted by the fact that it is located in the Sites of

Rede Natura of Douro International and Malcata, where flora and fauna of communitarian interest are to be found, as stated by Andresen (2009).

4. STONES AND PSYCHOGEOGRAPHY IN CABREIRA

Psychogeography is “the study of the specific effects of the geographical environment (...) on the emotions and behaviour of individuals” (Debord, 2008). It emphasizes a personal response to a place and is thus a departure for artistic creation.

It is through this perspective that the Hope project tries to value the stone structures scattered around the wild and enchanted territory of Almeida, namely in a small settlement called Cabreira (Goatherd), raising the awareness of the locals of a resource that can stimulate interesting touristic activities, which have the potential to create jobs and eventually bring population back.

This territory was highly populated in the past, but today it has a low population density of elderly people and the rural abandonment is evident. The area was described as a: “frontier territory marked by an immense plainness, with a color changing with seasons and oscillating between golden earth tones and grey greens, over which the celestial vastness resides” (Andresen, 2009).

Cabreira, a small village of 88 inhabitants (2015), strongly affected by emigration mainly in the sixties, has benefitted from the establishment of the Socio-Therapeutic Association (ASTA). This establishment requires 26 employees to take care of 39 “companions”, persons with special needs, and this represents an important increase in the local population in an area that, 15 years ago had only 25 inhabitants (more recently, due to the economic crisis, some other local people, working in Lisbon or abroad, also came back to Cabreira).

The former parish of Cabreira had an intensive agricultural activity in the past, as evidenced by the remaining watermills, norias and aqueducts along the Cabras River, all of them made of stone. Religious icons named “Alminhas” placed along the paths are also a cultural reminder of their religious devotion.

This mountain area, dominated by some impressive granite blocks, was an important area for raising livestock particularly goats that give their name to the local river. Today not a single goat remains but the paths protected by stone walls, used by goat herders to conduct their flocks, are a beautiful reminder of that time and constitute a potential for future pedestrian routes.

The Hope project has designed two possible routes: “roman bridge” and “noria and aqueduct” (Fig.

4) which conduct the visitor through scenic landscapes along the Cabras river where, in the past, hundreds of land parcels were used to produce horticultural products. An interesting set of norias and old aquaducts, made of stone, are still present, although most of them in ruins and one of the norias was even robbed.



Figure 4. Robbed Noria and Aquaduct in Cabreira

The initial project suggested to the Mayor of Almeida, during the 2014 Landscape Week event, is intended to create routes accessible for tourists but the huge investment needed, due to the almost inexistent infrastructure is a constraint to such an initiative.

The area has the potential to constitute a hub catering for visitors with special needs, taking advantage of the existing infrastructure at ASTA, which could inspire other investors to create more facilities, mainly associated with organic farms and rural tourism.

There is a market for this target group of tourists as proven by the success achieved by a local hotel organised as a unit prepared to receive handicapped people near Guimarães, North Portugal, that works with tourists from abroad, mainly from Holland, and organizes holiday activities for them. Furthermore social inclusion is one of the targets of Horizon 2020.

5. A DISCUSSION OF NEW PERCEPTIONS OF TOURISM

The potential for tourism is one of the main assets of this region which benefits from its proximity to the Douro Valley (World Heritage listed), Douro International Natural Park and the Special Protected Area of Coa Valley, that contains world famous rock carvings.

Almeida is a historic village promoted to visitors for its interesting fortress. Nearby it is located Faia Brava, the first private protected area to be created in Portugal. In 2010, it became a pilot area of the European Initiative Rewilding Europe. Faia Brava

covers 214 ha and is classified by Birdlife International as an Important Bird Area which aims at the maintenance of habitats and the preservation of threatened species. Together with the Association of Transhumance and Nature it organizes ecotourism activities. They also practice organic farming and produce olive oil, almonds and preserves (Carvalho, 2014).

This kind of infrastructure supports activities such as green tourism, bird watching, pedestrian paths, cycle tourism, photography and organic farming.

Almeida and Castelo Mendo are two historic Stone Villages in Portugal. Both have belonged to the Historical Villages Network since 1994 (Carvalho, 2014). This network proposes an integrated strategy of development based on the rehabilitation of historic villages, aiming at added value to their architectural, cultural, natural, economic and social assets.

Geoparks have a great potential particularly for regions such as Almeida, where stone features dominate the landscape. The Global Network of National Geoparks (100 members in 30 countries) is one response to those who wonder about the potential of these often rudimentary structures, that can on occasion offer the highest standards of “green tourism” among other services.

Portugal has only 4 geoparks. The creation of a geopark in Almeida with a theme suitable for children would be an innovation found nowhere else. For a child (and some adults too!) the vision of some of the monoliths in the mountains may well look like animals (Fig. 5).

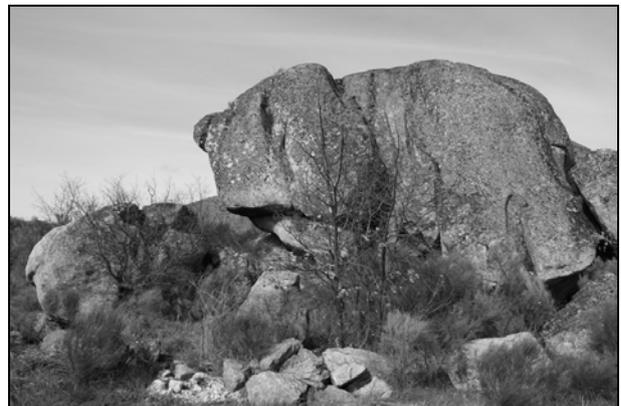


Figure 5. A monolith with the look of an elephant in Cabreira

The Almeida region offers the perfect context in which to invoke the Flinstone’s village “Bedrock”, which could recreate the stories created in the 60’s (1960-1966 on ABC and frequently repeated worldwide).

In South Spain (Ronda Mountain, near Malaga) the Júzcar village was painted blue after Sony selected it for the World Premiere of its new “The Smurfs 3”

movie. This initiative was a huge success, attracting each year hundreds of thousands of national and foreign visitors to a village that has only 400 inhabitants and not many job opportunities. Now its population dress up as “smurfs” and sell souvenirs themed with these cartoon characters. Whilst this brings economic benefits, the peacefulness of the place is disturbed by these crowds, and some will certainly feel annoyed that people do not come only to enjoy the beauty offered by nature.

An interpretation centre could provide advice about the risks associated with radon in old houses in granite areas. Elevated radon levels can be found more often in houses with older buildings made up of blocks, stones, muddy walls and having concrete roofs as stated by Rafique et al., (2011). Nagy et al., (2011) describe a passive process used in Hungary – Mecsek Mountains – that may mitigate radon effects by 71%.

The area offers considerable potential for interesting initiatives, notably a dry stone wall museum. In Spain, the dry stone wall museum of Vilafranca, Valencia, inaugurated in 2006, is a good example of how to keep alive an ecological architecture that transformed the landscape while respecting the environment and the crafts that are associated with it. Nowadays these skills are becoming fashionable due to a recent growth in interest in vernacular architecture as a means of achieving ZEB, the Nearly Zero-Energy Building concept, which aims to reduce the “grey energy” required to transport materials from their point of origin and use them in construction.

According to Moura & Motta (2013), the building industry causes considerable damage to the environment, largely as a result of its high energy consumption (Moura & Motta, 2013). It is one of the activities with a large footprint. It generates 25% of all the solid residues, it uses 25% of the available water and occupies 12% of the land of the planet, it is the sector that extracts most material from the natural environment, 30%, and consumes between 40 and 50% of the total energy used (Formoso et al., 2002).

The rising awareness, that the human behaviour has to change if we want to bequeath the coming generations a good quality of life, demands energy efficiency in building. The gated community “Alma Verde” (Green Soul) in Burgau, Algarve, Portugal provides an example of luxury urbanization, with A+ Energy Efficiency, in which some of the walls dividing the gardens were built with stone.

Other mineral themed museums with tourist potential in Almeida region include the Museum of Life in Cabreira during the Second World War, which could supply information about the exploitation of wolfram and organize “adventure” visits to the caves

from which this material was extracted, thereby rehabilitating these abandoned installations.

6. CONCLUSION

Stones were the theme of this applied research project which sought to promote a region (Almeida) in touristic terms, while simultaneously helping an Association working with people with special needs (ASTA).

The fact that the postcards of stone features produced as part of the project have been selling well, is an indication that much can be achieved with limited resources and investment. The authors, who offered the rights of the photographs to the Municipality, feel rewarded for having contributed to the promotion of the region, in the hope that other initiatives will enable the area to achieve a dynamic that may contribute to its sustainable development.

Cabreira has the natural conditions to become a healing biotope, a sacred place “where you can regularly tune in to the healing energies of Earth” (Simpson, 2000).

Entangled in the “stonescapes” there is a spiritual landscape whose aesthetics can inspire visitors and guide landscape managers along the path of sustainable development.

As Andersen (2009) remarks in Almeida, a frontier landscape on a land that seems to belong to no one, the fortress is the symbol of the art of knowing to wait for the unknown in a permanently alert state of mind. “Here, landscape, as time, has no age”.

Acknowledgements

I wish to express my thanks to e-Geo (Centre of Studies of Geography and Regional Planning) and FCT (Foundation for Science and Technology) for the financial support granted, that allowed me to participate in the IGU/CSRS Colloquium in Romania, in August 2014; Luis Fonseca for keeping me updated with the news from Cabreira; and Graham Reed for his valuable and generous help editing this text.

REFERENCES

- Andresen, T.**, 2009. *The Landscape of Almeida*. In: Campos, J. (coord.), Almeida – Candidacy of the Bulwarked Fortifications of the Portuguese-Spanish “Raia” (Border-Line) as World Heritage – UNESCO, CM Almeida, Almeida, pp. 171-173.
- Bailey, A.S., Bertaglia, M., Fraser, I.M., Sharma, A. & Douarin, E.**, 2009. *Integrated pest management portfolios in UK arable farming: results of a farmer survey*. *Pest Management Science*, 65, 9, 1030-1039.
- Baudry, J., Burel, F., Thenail, C. & Le Cœur, D.**, 2000. *A holistic landscape ecological study of the*

- interactions between farming activities and ecological patterns in Brittany, France. *Landscape and Urban Planning*, 50, 1-3, 119-128.
- Burel, F. & Baudry, J.**, 1995. *Social, aesthetic and ecological aspects of hedgerows in rural landscapes as a framework for greenways*. *Landscape and Urban Planning*, 33, 1-3, 327-340.
- Campbell, F.C. & Dubé, R.L.**, 1999. *Natural Stonescapes: The Art and Craft of Stone Placement*. Storey Publishing, North Adams, 176 p.
- Carvalho, A.**, 2014. *Historic Villages of Portugal* (In Portuguese). Foge comigo, Lisbon, 504 p.
- Day, C.**, 1993. *Places of the Soul: Architecture and Environmental Design as a Healing Art*. The Aquarian Press, London, 192 p.
- Debord, G.**, 2008. *Introduction to a critique of urban geography*. In: Bauder, H. & Engel-Di Mauro, S., *Critical Geographies: A Collection of Readings*, Praxis (e)Press, Kelowna, pp. 23-27.
- Dramstad, W.E., Fry, G., Fjellstad, W.J., Skar, B., Helliksen, W., Sollund, M.-L.B., Tveit, M.S., Geelmuyden, A.K. & Framstad, E.**, 2001. *Integrating landscape-based values – Norwegian monitoring of agricultural landscapes*. *Landscape and Urban Planning*, 57, 3-4, 257-268.
- European Commission**, 2008. *LIFE and endangered plants – conserving Europe's threatened flora*. Office for Official Publications of the European Communities, Luxembourg, 49 p.
- Farkas-Pető, A., Horváth, T., Papp, I. & Kovács-Pálffy, P.**, 2014. *Archaeometric Investigation of the Stone Tools of the Vátya Culture (Pest County, Hungary)*. *Carpathian Journal of Earth and Environmental Sciences*, 9, 1, 81-94.
- Formoso, C., Soibelman, L., De Cesare, C. & Isatto, E.**, 2002. *Material waste in building industry: main causes and prevention*. *Journal of Construction Engineering and Management*, 128, 4, 316-325.
- Gobster, P.H., Nassauer, J.I., Daniel, T.C. & Fry, G.**, 2007. *The shared landscape: what does aesthetics have to do with ecology?* *Landscape Ecology*, 22, 7, 959-972.
- González-Ruibal, A.**, 2004. *Artistic Expression and Material Culture in Celtic Gallaecia*. *e-Keltoi – Journal of Interdisciplinary Celtic Studies*, 6, 113-166.
- Guillot, C.**, 2014. *Les murs de clôture*. *Maisons Paysannes de France*, Paris, 80 p.
- Herzog, F., Steiner, B., Bailey, D., Baudry, J., Billeter, R., Bukacek, R., De Blust, G., De Cock, R., Dirksen, J., Dormann, C.F., De Filippi, R., Frossard, E., Liira, J., Schmidt, T., Stöckli, R., Thenail, C., van Wingerden, W. & Bugter, R.**, 2006. *Assessing the intensity of temperate European agriculture at the landscape scale*. *European Journal of Agronomy*, 24, 2, 165-181.
- Lemos, F.S. & Cruz, G.**, 2011. *Citânia de Briteiros. The Proto-historic settlement*. Sociedade Martins Sarmento, Guimarães, 115 p.
- Moura, M. & Motta, A.L.T.S.**, 2013. *The energy factor in civil construction* (In Portuguese). IX Congresso Nacional de Excelência em Gestão, 1-14.
- Mücher, C.A., Klijn, J.A., Wascher, D.M. & Schaminée, J.H.J.**, 2010. *A new European Landscape Classification (LANMAP): A transparent, flexible and user-oriented methodology to distinguish landscapes*. *Ecological Indicators*, 10, 1, 87-103.
- Nagy, É.H., Breitner, D., Horváth, Á. & Szabó, C.**, 2011. *Study of a Passive Radon Mitigation Process and Indoor Radon Concentration's time dependence after mitigation*. *Carpathian Journal of Earth and Environmental Sciences*, 6, 2, 143-149.
- Nunes, J.**, 2014. *Participating communities* (In Portuguese). Gulbenkian Foundation, Lisbon, 274 p.
- Pan-Montojo, J.**, 2012. *Spanish agriculture, 1931-1955: crisis, wars, and new policies in the reshaping of rural society*. In: Brassley, P., Segers, Y. & Van Molle, L. (eds.), *War, Agriculture, and Food: Rural Europe from the 1930's to the 1950's*, Routledge, New York, pp. 75-95.
- Rafique, M., Matiullah, Rahman, S., Rahman, S., Shahzad, M.I., Azam, B., Ahmed, I., Majid, A. & Siddique, M.I.**, 2011. *Assessment of Indoor Radon Doses received by the Dwellers of Balakot – NWFP, Pakistan: a pilot study*. *Carpathian Journal of Earth and Environmental Sciences*, 6, 1, 133-140.
- Simpson, L.**, 2000. *The Healing Energies of Earth*. Journey Editions, London, 160 p.
- Soltner, D.**, 1988. *L'Arbre et la Haie: pour la production agricole, pour l'équilibre écologique et le cadre de vie rurale*. *Sciences et Techniques Agricoles*, Sainte-Gemmes-sur-Loire, 206 p.
- Varanda, F.**, 2005. *Rural Walls in the Landscape of Mértola*. In: Fernandes, M. & Correia, M (coord.), *Arquitectura de terra em Portugal / Earth Architecture in Portugal*, Argumentum, Lisbon, pp. 100-103.
- Verburg, P.H., van Asselen, S., van der Zanden, E.H. & Stehfest, E.**, 2013. *The representation of landscapes in global scale assessments of environmental change*. *Landscape Ecology*, 28, 6, 1067-1080.

Received at: 10.03.2015

Revised at: 15.05.2015

Accepted for publication at: 14. 07. 2015

Published online at: 20.07. 2015