

GEOSITES AND GEODIVERSITY FOR A CULTURAL APPROACH TO GEOLOGY

Sandra Piacente

Department of Earth Sciences, University of Modena and Reggio Emilia
Largo S. Eufemia, 19 – 41100 Modena Italy
e-mail: piacesan@unimore.it

ABSTRACT: S. Piacente, *Geosites and Geodiversity for a cultural approach to Geology*. (IT ISSN 0394-3356, 2005).

In western culture there always seems to have been an inherent difficulty in acknowledging that diversity (whether it be geodiversity or biodiversity) is a distinctive manifestation of Nature. This is why a mentality has developed which tends towards standardisation, obstinately substituting heterogeneity for homogeneity. In the twentieth century, particularly during the last few decades, there has been a reversal of this tendency which has given rise to the idea of a whole new multicultural world, because “the world is diverse and is interpreted diversely in every corner of the Earth”. Today there is an awareness of new needs which, paradoxically, are among the most natural and primordial: air, sun, landscape, silence, the pleasure of feeling: the locus and consequently geodiversity become symbolic in their topological identity, embodying also what cannot be seen but can be felt intuitively: thus the visible lives also through the invisible.

RIASSUNTO: S. Piacente, *Geositi e Geodiversità per un approccio culturale alla Geologia*. (IT ISSN 0394-3356, 2005).

C'è stata tradizionalmente nella cultura occidentale una palese difficoltà intrinseca a riconoscere nella diversità (sia essa geo che bio) un carattere distintivo e peculiare della natura. Si è andata così man mano formando una mentalità standardizzante, che si è concretizzata nell'ostinata tendenza a sostituire all'eterogeneità l'omogenizzazione. Il ventesimo secolo e ancor più gli ultimi decenni hanno segnato un'inversione di tendenza che ha dato l'avvio all'affermarsi di un mondo multiculturale interamente nuovo, perché “il mondo è diverso ed è inteso in modo diverso in ogni angolo della Terra”. Oggi si assiste a nuovi bisogni, che paradossalmente sono i più naturali e primordiali: aria, sole, paesaggio, silenzio, piacere emozionale: il locus e di conseguenza la geodiversità assumono, nella loro identità topologica, una funzione simbolica, rimandando anche a ciò che non si vede, ma che la mente intuisce: il visibile vive così anche di invisibile.

Key words: Geodiversity, Locus, Cultural Heritage.

Parole chiave: Geodiversità, Locus, Patrimonio Culturale.

1. GEODIVERSITY: CONCEPTUAL APPROACH

One of the most innovative concepts emerging from research into the identification, selection and assessment of our geological heritage is “Geodiversity”.

This term was introduced only recently, together with the terms Geoconservation and Biodiversity, as they appear to be more stimulating and meaningful for developing wider recognition of both the intrinsic and cultural value of geological heritage.

Unlike what happened and continues to happen regarding Biodiversity, the word Geodiversity, and even the concept itself, have received scant attention from international literature and in legislation governing environmental conservation. This situation is probably due to the marked lack of awareness at an international level of the importance of safeguarding geological assets. One reason for this is that “official” Geology has shown little interest in these areas as they are not part of the applied science. Another reason can be found in the widespread idea that geological heritage needs no protection as it appears to have been stable from time immemorial.

The concept of Geology as a substratum of uni-

que landscapes and as the basis of the variety of life on earth has only appeared in the last few decades (Piacente *et al.*, 2003). Even in geological literature and territorial management publications, this concept was aired only sporadically and in a disorganised way. But this aspect of geology must be recognised and interpreted; its value must be assessed as a basic element of the diverse, specific aspects of a territory. A kind of geology that is seen not only as *physis* but also as *humanitas* since it embodies and transmits traces and signs of the past, and therefore of memory: such landscape peculiarities are possessed by all countries in varying degrees and they therefore become a cultural heritage with no frontiers (Panizza & Piacente, 2003).

Recently, Sharples (1993) introduced the term Geodiversity to describe the many characteristics of the geological environment in Tasmania, whilst Dixon (1996) defines the term as the variety or diversity of forms, systems and processes in an environment which can be geological (rocks), morphological (landscape) or pedological (soils). According to Barthlott *et al.* (1996), there is a close biunique relationship, defined by ecodiversity, between the concepts of biodiversity and geodiversity, which involves and links biotopes and geoto-

pes. In fact, biological organisms interact constantly with the geological substratum: plants and animals are conditioned by and adapt to the geological environment around them, and this in turn undergoes changes caused by the organisms. Eberhard (1997) includes in the term Geodiversity elements of Earth history such as: evidence of past life, of ecosystems and environments and a myriad of processes (biological, hydrological and atmospheric) which affect rocks, landscapes and soils. Erikstad (1999) shows how geology is an important but not fundamental element for ecosystems, hence geodiversity should be included in biodiversity protection strategies. This author emphasises the need for a holistic approach in natural heritage conservation initiatives, and suggests a combined and integrated study of Nature. Johansson & Zarlenga (1999) see Geodiversity as an essential concept which can provide a framework for ecosystems and biodiversity. According to Patzak (2000), the term geodiversity is conceptually similar to the term biodiversity: whilst the latter shows the importance of biological conservation for safeguarding the heterogeneity of species and biological communities, geodiversity emphasises the importance of preserving features and processes representing the great variety of our Geological Heritage. Lick (2001) gives a much wider and more complete definition of geodiversity as: the variety of geological environments, phenomena and active processes which contribute to the formation of landscapes, rocks, minerals, fossils, soils, surface deposits which make up the foundation of life on Earth. Furthermore, geodiversity is a concept which involves people, their settlements and culture in interaction with biodiversity, agricultural land and evolutionary phenomena within the surrounding environment considered as a whole. Nieto (2001) defines geodiversity as the number and variety of geological structures (sedimentary, tectonic, geomorphological, hydrogeological and petrographic) and materials making up the natural physical substratum of a region, the basis of life on Earth. Unlike the previous definitions, Nieto's concept of geodiversity does not include geological processes, which are deduced from observations of geological materials and structures.

Therefore, geodiversity is a concept assimilated by and linked to biological communities and to the heterogeneity of species (biodiversity). It is connected to them even by undeniable political and administrative strategies, but it is becoming more and more obvious that it needs to be governed by its own statute in order to substantiate its great intrinsic value.

And, indeed, other authors are moving just in this direction, believing that the introduction and divulgation of a principle that includes all kinds of geological environments is of fundamental importance for geoconservation. Some, however, find the term geodiversity inappropriate, considering it to be ambiguous and in some cases even unacceptable. According to Joyce (1997), there is no scientific foundation for the parallelism between biodiversity and geodiversity: geological and biological processes differ considerably in both time and space and also in evolutionary mechanisms. Joyce also shows how the importance or significance of a geological site or of a landscape feature are often unconnected to diversity but rather to geological uniformity or continuity in time and space. Also Stock (1997)

admits perplexity regarding the use of the term geodiversity, which has not yet been defined with sufficient clarity and precision for the scientific community. He remarks that diversity, if the term is to be thus interpreted, does not necessarily represent an intrinsic value in the field of geology.

Further uncertainty arises when the conceptual, qualitative aspect gives way to the evaluation phase where quantitative assessments are to be made or significant geodiversity indices are to be codified. Even very recent works, for example those by Erikstad & Bakkestuen (2002); Moles (2002) and Stanley (2002), are limited at the most to superimposing geo-lithological maps on relief maps, or in some cases on maps of protected areas, but the data obtained are purely indicative (Piacente *et al.*, 2003).

Although we assume geodiversity to be a fundamental principle for the recognition and assessment of geological heritage, we admit that the debate on it is still only at the beginning and many more contributions and considerations must be made. The looseness and indefiniteness characterising this term and the concepts behind it, should however not be considered as a limit but rather as a stimulus to be open-minded in the face of a number of perspectives and interpretations. It must be remembered that one of the tasks of Science is to indicate problems and contradictions and propose solutions, but excessive recourse to codification and models can sometimes lead not only to conceptual risks but also to substantial errors. This is true especially in the field of Natural Sciences in general and of Geology, a science which studies phenomena through time, in particular (Piacente, 1994).

2. GEODIVERSITY AND LOCUS

In the traditions of Western culture it has always been difficult to accept that diversity (whether it be geodiversity or biodiversity) is a distinctive and special characteristic of Nature. That is why a mentality has developed which likes to standardise and obstinately tends to substitute homogeneity for heterogeneity. This trend has become ever stronger over the last five centuries, a period when Europe not only held political and economic power but also exported its limits and symbols as universal models to be applied all over the world: European culture was the reference point and yardstick for all other cultures.

Fortunately, the twentieth century saw the end of colonialism and the beginning of the great liberation process. An opposite trend began with the emancipation of a completely new multicultural world. Consequently, over the last few decades culture has been visibly moving outside the Western world, away from "dethroned" Europe, because "the world is diverse and is interpreted diversely in every corner of the Earth" (Kapusinski, 2003).

Today there are new, sublime needs, which paradoxically are the most natural and primordial: air, sun, landscape, silence, the pleasure of the emotions: thus geodiversity appears as a strong element of an integral cognitive system, neglected for far too long.

The geological landscape is special and unique and so becomes a way to identify every different place.

The fact that it cannot be reproduced is the basis from which other typical elements spring, like traditions and customs, typical foods and wines, handicrafts etc. and this must be considered in improvement projects and development for tourism purposes. Perhaps this is the crux of the matter, which could increase appreciation of the Italian geological landscape and make it more exportable. Nowadays extreme globalisation practices in all fields have practically eliminated or at least reduced specific territorial features. Places are ever more similar and uniform, both in their appearance and in what they contain. What do all these holiday villages and mass-tourism destinations offer but the same model, exported and accepted in too many countries on our Planet? We intend to resist this false spatial “democratisation”, this artificial territory trend which levels diversities and renders null and void the emotional-cultural enrichment that every place can give through its typical characteristics, good or bad, able to develop in us the critical spirit we need if we are to relate actively to the environment. Just when Nature, which is never inconsistent (if there is something inconsistent in a landscape, it is in something that has been built), seems to be disappearing from sight, it rises again as a means of reflection and a model for mankind.

In the complex, changing society of today’s world, with its rapid transfers and shrinking of distances, the link with our *locus*, with the land we belong to, seems to disappear. On the contrary, the more an individual place, maybe the nearest and apparently most ordinary place, is overshadowed by other, maybe more exotic, far-away places, the stronger the link becomes. It is almost a kind of reaction in the search for one’s own topological identity.

Therefore place acquires a symbolic function, it reminds us of things we cannot see but which our mind perceives, it takes us back to the past, to memory: the visible lives on the invisible.

This is the identity, defined by geodiversity, that must be helped to emerge. Throughout history, human life, social and economic structures, religion, culture in general have always found their roots and their fundamental expression in the physical landscape, in even the least apparent geological forms and features, in stonework with its aesthetic and functional aspects, appreciating and endowing them with deep meanings and values.

The emotion of experiencing a place, is not only being there and seeing it, but also perceiving that it contains a series of factors which contribute to arouse the emotions and enhance the capacity of our vision beyond the local to the global and thence to the universal, as new horizons open.

Today we run the risk of losing contact with the “materiality” of things, substituted by icons, imitations, virtual shams. We must therefore recover the right idea of distance, of place, seen as an identity and therefore as a diversity, aesthetic as well as historic.

There are places for knowledge, for use and for tourism. These are for all, but there are also places for contemplation and meditation which should be governed by rules and limits so that they are not spoiled.

There are well-known places where crowds of people go just so that they can say “I have been there”, and such places often lose their symbolic identity in the overcrowding.

3. COMMUNICATING GEODIVERSITY

Communication cannot only be the simplification of complex problems: on the contrary, it is full of difficulties and pitfalls. Simplification does not mean banalisation and impoverishment, but is rather the enrichment of knowledge by enhancing comprehensibility in the context of a wider cultural and ideological debate: specific abilities and clear social and cultural responsibilities are needed.

Primarily, enhancement means communicating: successful communication is the first step if the enhancement is to involve people and last in time. Enhancement also means experimenting new strategies, linked to continuing, interwoven, cognitive approaches involving also the sphere of the emotions and affections.

The danger of banalising Nature can lead to a kind of divulgation called “porno-ecology” by Franco La Cecla (1992). Too much divulgation is no use if it is only for show or shock effect, because it robs Nature of its poetry and its soul. Communicating means involving people, arousing their interest – an interest that cannot be separated from the emotional sphere.

Today we have access to many sources of information but we have less time and space for reflection, which is essential for information to become knowledge.

If we consider the results obtained so far of education and the means used for communication, we are left with a disheartening picture. This should, however, lead us to pause for thought. We should welcome new approaches where the means of communication aim to transform their messages into a discovery of everyday things, creating a sense of belonging in whoever wants to receive them.

In the last few years, the demand for information regarding the conservation and enhancement of the environment have clearly become a social need. People are now aware that it is the essential foundation not only for a better quality of life but also for the survival of the human race. In particular, scientific knowledge is seen as an indispensable part of the cultural heritage that everyone should possess; it is that extra value that can make the individual’s participation in public life more meaningful (Piacente, 1999).

In the last few decades the environment issue has been interested by a positivist kind of epistemology, but today we should try to highlight its links with the ethical sphere, with responsible choices and with cultural orientations. In other words, Knowledge must be transmitted as the product of human and social reality, on which it exerts an influence and by which it is influenced. It must also be collocated in a historical and social context so that it can assume an *authentically cultural value*.

The scientific and therefore also the political world should, as Pasolini said thirty years ago, “popularise” the past and the signs that bear witness to it, especially for those who have never had the opportunity to participate directly in historical events. Sensitivity to Nature should be encouraged and this can only be achieved through great cultural changes. In the case of Geodiversity operational proposals should be enacted which could promote ideas and opinions, assuming in

time a deep social value.

Thus knowledge becomes the rational material most suitable for developing the right kind of utilisation logic and policy, that is, protection-enhancement. There must be intelligent integration of initiatives and also of abilities, both for protection and for cultural, social, economic and tourism promotion.

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