

POPULARIZING GEOLOGY: CONTRIBUTIONS OF THE SERVEI GEOLÒGIC DE CATALUNYA

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KEY WORDS: *Divulging booklets and leaflets, Archaeology, Exhibitions, Training courses, Catalonia.*

INTRODUCTION

Transmitting the importance of the geological knowledge to the public, and even more its popularization, is nowadays a matter of concern for the pertinent organizations on geological subjects.

Until a few decades ago the Geological Surveys, with the specific studies involved, were mainly aimed at mining and energy prospecting, with the intervention of important economic interests. Of course, under these circumstances, the language used was only addressed to professionals, that is to say: geologist and mining engineers. Nevertheless this specialised language is surely still required for professional communications.

The pressure exerted on the territory and its surface and underground resources, added to the limited extraction and absorption capability of the geological environment, have dramatically increased over the last few years. Under the current social conditions, it is an absolute requirement to transmit to the citizens the importance of the geological knowledge, both of the surface and the subsoil.

The social value of the geological knowledge is a result of its predictive capability; A good knowledge of the surface and underground features allows foreseeing the effects on the territory of specific actions. These effects can, short and long terms, have an influence on people's safety and comfort, and have important financial repercussions.

The lack of knowledge on geology and its social usefulness is due, in most cases, to the limited teaching of geology in secondary schools. Unlike other matters included in "Natural Sciences", which are of a more descriptive character (i.e. Botany, Zoology, etc.), the teaching of geology insists more in "interpretation" than in "description". We have to agree that this scarcity of knowledge will worsen even more with the reduction of geological contents in the new secondary school programmes.

The shortage of basic geological knowledge, especially which of a descriptive nature, makes difficult the possibility of self-improvement in geology. Another important factor is the lack of documentation and bibliography for amateurs, either in Catalan or in Spanish languages. Furthermore, the resources available through the Internet are, in general, disperse, confusing, or, in spite of the well-intentioned way of some authors, even misleading.

The bodies and entities which are pertinent on geological subjects should sponsor rigorous works to spread the geological knowledge in their respective countries.

This spreading and popularization effort will be useful in the long term, to increase the influence of geological studies on the decisions related to actions affecting or being based on the territory's soil and subsoil.

A LITTLE BIT OF HISTORY

The Servei Geològic de Catalunya (SGC) was created in 1979, and in 1997 this service was merged into the Institut Cartogràfic de Catalunya (ICC) as the Unit of Geology of this Institute. In December 2005 the Parliament of Catalonia approved the creation of the Institut Geològic de Catalunya (IGC). This new Institute starts with all the background, staff and infrastructures of the former Geological Service.

During these 26 years of history several actions related with geology divulging and popularization have been undertaken. These can be grouped in three categories:

1. Actions addressed to the general public, to geological map users and to Secondary School Natural Sciences teachers.

- Publication of "La formació dels Pirineus" (*The building of Pyrenees*). Collection of a series of pictures to illustrate the building of the Pyrenees. Intended for Secondary School teachers. (1993)
- Publication of "Què és un mapa geològic?" (*What is a geological map?*) Poster or leaflet (1997). Aimed to potential users of geological maps, councils and Secondary School teachers. Translated to Italian *Cos'è una carta geologica?* and housed in Regione Emilia – Romagna. Servizio Geologico Sismico e dei Suoli website.

- Publication of "Alluvial plains". Divulging booklet (1997). Co-published by Servei Geològic de Catalunya – ICC, Emilia Romagna Region Geological Office, Hungarian Geological Survey and Netherlands Institute of Applied Geosciences TNO – National Geological Survey in 1997.
- Website. Aimed to general public. *Geological History of Catalonia, What is a geological map? What is a cross section? How is done a geological map?* <http://www.icc.es/cartogeol/home.html>
- "Pregunta a un geòleg" (*Ask a geologist*) Housed in the website. Aimed to general public. Widely used by all-level students, from primary school to university.

2. Cooperation with other Catalan organisations:

Basically, it consists in giving technical and scientific support to the works of these organisations, to provide better clarity and quality in cases where the geological context and knowledge of the environment is essential. Some examples are:

Works with the Archaeology Service of the Catalan Ministry of Culture:

- Survey of a Palaeolithic variscite mine (Gavà 1986 to 1988 and 1998 to 2000).
- Geophysical exploration to locate the remains of a First Century shipwreck (Delta del Llobregat, 1991).
- Geophysical exploration in a First Century B.C. Iberian settlement, (Vilars d'Arbeca, 1989)
- Geological and sedimentological survey in an Early Pleistocene palaeontological site. It includes the greatest variety and quantity of fauna and flora remains of the Early Pleistocene in Catalonia. (Can Guardiola, Terrassa, 2000).

Works with Councils:

- "Terrassa, one million years B.C." Exhibition on the Can Guardiola Pleistocene fossil site and its geological context. (Museu de Tarrassa, Terrassa Council. 2003).
- Exhibition on fish fossils and other specimens from a lithographic stone quarry (Alcover Museum, Alcover Council. 2005)
- Geophysical exploration of an ice cave. (Sort, Sort Council, 2002).

Works with the Catalan Ministry for the Environment:

- Geological chart of a volcanic zone Natural Park. "Carta geològica de al Zona Volcànica de la Garrotxa", in preparation for printing.

Works with other organisations:

- Geological map of a protected site on the Pyrenees. The geological surveying will start this summer (2006) The geological map will be published in a special edition to be included in a complete set of the natural setting of the whole area. "Les Planes de Son". Fundació Territori i Paisatge.

3. Training courses for technical staff of public institutions:

Archaeology Service of the Catalan Ministry of Culture:

- The geology of Catalonia and rock description. 2002.
- Fossil contents as a geological unit; microfossils. 2005.

Post-graduate training courses:

- Architects: The space – time concepts in Geology, 2002. Geology of the Tremp Basin. 2006.
- Geologists and Engineering Geologists: Geological surveys. 2002

Secondary School Teachers:

- Presentation of the "Mapa Geològic de Catalunya 1:250.000". 1989
- Metamorphism and metamorphic rocks. 1997
- Natural Hazards and Human Impact on the Natural Environment. 1998

Conferences:

- 6º Congreso Geológico de España, Zaragoza 2004: "Transfer to society of geological knowledge: geological maps example".

Others:

- Lectures on how to read and to interpret geological maps, addressed to Natural Parks guides.

FUTURE POPULARIZING ACTIVITIES OF THE NEW IGC

The recently created Institut Geològic de Catalunya (IGC) wants to be present in more public organisations and private entities giving technical advice and providing collaboration in specific projects and in the outreaching process of the geological knowledge.

It has been mentioned the ongoing publication of the "Geological chart of the Volcanic Zone of la Garrotxa Natural Park". This is intended to be the first of a series of geological maps of Natural Parks in Catalonia. These maps are adressed to non-geologist, but also to geologists, Natural Parks' visitors.

Another aim is to progressively increase the divulging content of the website, with descriptions and pictures of rocks and structures, the most common vocabulary, technical specifications of geological cartography, interesting links, etc.

It is a goal of the IGC to actively work in Geological and Palaeontological Heritage in close collaboration with the administrative bodies responsible for the conservation of those resources as the Catalan Ministries for the Environment and of Culture.

All these actions will contribute to the necessary approach of Geology and Society.

AKNOWLEDGEMENTS

We are grateful to all Institutions and professionals that work actively on the outreaching the geological knowledge through all kind of means, particularly to those that compile and build useful geological websites.

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