

THE DIGITIZATION OF THE GEOLOGICAL CULTURAL HERITAGE AS A KEY TOOL FOR THE PRESERVATION AND DISSEMINATION: THE GEOITALIANI PROJECT

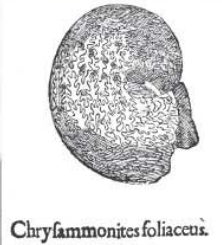
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THE GEOITALIANI PROJECT

Italy can be considered in all respects one of the founding country of geology, with excellent leading scientists who faced, as real pioneers, the most disparate topics of geosciences *sensu lato*. Personalities such as Leonardo da Vinci, Agostino Scilla, Antonio Vallisneri, Giovanni Arduino, Lazzaro Moro, and Gian Battista Brocchi (just to mention a few) arrived at reasoning and inferences about geological processes and products with hundreds of years ahead of naturalists of the rest of Europe, laying the solid foundation for the modern geological sciences.

Leonardo, as early as the fifteenth century, correctly interpreted the fossils as organisms once lived in the sea, and not as mere freaks of nature (such misinterpretation continued to be preached in other parts of Europe still in the late eighteenth century), and laid the foundation on the basic principles of geology (e.g. original horizontality) well in advance even on Steno, to which are traditionally



Ammonites figured by Ulisse Aldrovandi on his Musaeum Metallicum (from Romano, 2014)

Ulisse Aldrovandi, in addition to coin the term 'geology', established the first truly public museum, with thousands of specimens that could be consulted by anyone, and introduced the basic paleontological concept of 'type' specimen or 'holotype' to which refer for a specific taxon.

Vlysis Aldrovandi Chryf ammonites duplex.



Frontispiece of the "Vana Speculazione disingannata dal senso" by Agostino Scilla (on the left) and a table hand drawn by the Italian painter and naturalist to illustrate the concept of external cast of a fossil (in this case of a shark tooth; from Romano, 2013).



The organic interpretation of fossil continues with the painter Agostino Scilla (along with many other scientists and naturalists such as Colonna, Imperato, Moscardo, Vallisneri, Beccardi, Spada, Piccoli, Moro, Gallerani, Baldassarri, Bianchi, Passeri, Monti, Soldani etc.) which introduced, in a pioneering work, actualistic reasoning in the interpretation of fossil deposits, and explored articulated concepts such as internal or external cast of fossils.



Gian Battista Brocchi, in addition to his monumental work on the deposits and fossil molluscs from the 'tertiary', conducted investigating the tripartite division introduced by Arduino (once again an Italian scientist) in Primary, Secondary and Tertiary deposits, is among the first to explicitly mention the possibility of extinction of species and their irreversible replacement over time, with new taxa. This observation provided a powerful tool, such as biostratigraphy, for the temporal organization of the sedimentary succession.



Plates depicting gastropods and bivalve fossils of Italian 'Tertiary hills', from the "Conchologia Fossile Subalpennina" by Gian Battista Brocchi.

In such a context and with those purposes, a rational work of digitization has been programmed and is still in progress, in order to digitally acquire, preserve and make available to amateurs and scholars in the field, geological maps (often representing unique specimens) and works of the Italian geoscientists (books, manuscripts, field notebooks) stored at the ISPRa library.

Once recognized the importance at international level of Italian geoscientists in the history of geology, a new section of the Italian Geological Society has been recently established. The History of Geosciences Section has exactly the primary goal to enhance, explore and communicate the invaluable cultural heritage represented by the works and ideas of our predecessors in the field of geology.

DIGITIZING OF MAPS AND TEXT

The original material in process of organizing, cataloging and digital acquisition, is preserved at ISPRa library, with an extensive collection of geological maps and books which deal with the most disparate geological topics, acquired in 1867 by the 'Regio Ufficio Geologico'. The total patrimony consists of over 50.000 topographic, geological and geomorphic maps, with about 15.000 maps directly related to the Italian territory. Of these, about a thousand are represented by hand-drawn cartographic original, which often show unique supplementary information, of inestimable historical and scientific value.



To preserve, analyze and disseminate this unique material a digitization project of cartographic material has been started, in order to eliminate potential dangers resulting from direct consultation of the original and using, at the same time, the internet network as a powerful instrument for capillary communication.

The project to recover and digitization of such cultural heritage includes a serious initial historical-bibliographic exploration phase, in order to contextualize the object under study and define the editorial specifications such as the author, the geographic location, the scale factor and the year of realization. Such information, although it may seem trivial and obvious, result, in fact, not explicit in many documents, with a long historiographical work that precedes the real process of digitizing.



THE DISSEMINATION THROUGH TRADITIONAL WAY...

Once analyzed and contextualized, the original document is digitally captured creating raster images with high resolution (in any case not lower than 300 dpi), with a format that can find the right balance between the electronic storage and preservation of original graphic characteristics.



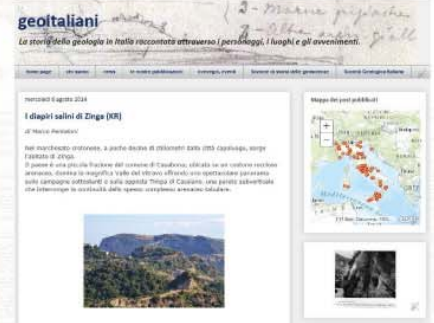
The OPAC catalog in the Library (opac.isprambiente.it) represents the interface through which research can be carried out by users. Alongside the traditional screen query with the author, title, and free search fields, the POLO GEA (coordinated by the ISPRa Library) has created a scientific research mask for cartographic data. (CM).

The access to the query can be done in various research areas: in addition to the basic search, queries can also be performed on the base of projection type (Gauss, Mercatore, etc.), of scale range, or even of kind of map (if in cartographic collection, attached to a publication or a map in multiple sheets); all the above has been realized following the standard ISBD

In the future, the scanned maps will be fully georeferenced in order to allow their display on the Portal of the Geological Survey of Italy.

... AND BY MEANS OF SOCIAL NETWORK

The results obtained from the study of the material in digital format, are disseminated and communicated through two main ways: blog and Facebook page on the internet, and through publication in international journals. The Geoitalliani blog (<http://www.geoitalliani.it>), active since March 2013, was established with the goal of creating a shared space in which to tell the story of Geosciences in Italy, through the places, events and direct protagonists.



The pages of GEOITALIANI can be considered as the embryo of a future website in history of Geosciences in Italy, which is the main objective of our Section: a 'place of collective memory' in which bring together, in an organized and systematic way, the rich bibliographic and iconographic existing material on Italian geoscientists and the research they have carried out. Precisely thanks to these histories, it will be possible to reconstruct how our discipline was born and has developed over time and draw inspiration to build the future of Geosciences in Italy.

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