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“Classification of the typologies of artificial cavities in the world”

Torino/Italy – May 18-20, 2012



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**INTRODUCTION TO THE PROCEEDINGS OF THE INTERNATIONAL WORKSHOP
ON SPELEOLOGY IN ARTIFICIAL CAVITIES
“CLASSIFICATION OF THE TYPOLOGIES OF ARTIFICIAL CAVITIES IN THE WORLD”**

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The present special issue of Opera Ipogea is entirely dedicated to the International Workshop “Classification of the typologies of artificial cavities in the world”, that was held on May 17-20, 2012, in Torino (Italy), organized by the Commission on Artificial Cavities of the UIS. The venue was the prestigious Parco della Tesoriera, at the base of the Associazione Gruppi Speleologici Piemontesi.

The Workshop, dedicated to the memory of Luigi Barcellari (Birci), was organized in agreement with the Commission on Artificial Cavities of the Italian Speleological Society, and with the logistic help of the local grotto Mus Muris.

Some tens of participants, coming from five different countries attended the workshop, during which a dozen of invited lectures were presented, and ten posters displayed (see the lists at the end of this introduction), to illustrate the most recent advancements about classification of artificial cavities, and about the study and documentation of the different categories of man-made caves.

The UIS past president Arrigo Cigna welcomed the participants on behalf of UIS, and attended the whole workshop, significantly contributing to the discussions. A round table discussion, aimed at summarizing the outcomes of the workshop, closed the theoretical part of the meeting. The last day of the Workshop was dedicated to the field visit to the sites of the Museum Pietro Micca and the 1706 Torino siege, including the 14-km long military underground gallery.

The Workshop was the first occasion of meeting for the new UIS Commission on Artificial Cavities, that had been renovated following the 15th International Congress of Speleology at Kerrville (Texas, USA), and is now trying to give more attention within the caving world to issues dealing with speleology in artificial cavities. A further effort in this direction is the organization of a dedicated Special Session (“Speleological research and activities in artificial underground”) at the coming 16th International Congress of Speleology at Brno (Czech Republic), scheduled for July 2013.

Going back to the issue you are reading, it comprises the papers presented as invited lectures at the workshop. The first contribution, intended as the introductory theme of the Workshop itself, was presented by CARLA GALEAZZI: she illustrates in the paper the typological tree of artificial cavities produced during long years of work by the Italian Commission, as a starting point to discuss the classification of artificial cavities, and eventually to modify it with further contributions from other countries.

Entering then into more details about specific categories of artificial cavities, the contribution by MARIO PARISE, CARLA GALEAZZI, CARLO GERMANI and MARIANGELA SAMMARCO describes the main project of the Italian Commission, dedicated to create a register of the underground aqueducts in Italy, as well as of the other more significant underground hydraulic works.



Picture capturing a moment of the audience attending the workshop.
Vista generale del pubblico, in un momento dei lavori del workshop.



Mario Parise opens the workshop.
Mario Parise apre i lavori del workshop.

The project, active since 2003, has already been object of publication in a special issue of this same journal in 2007.

MARIO MAINETTI presents a database about troglodytism in the Mediterranean Basin, as an attempt in putting together, on a bibliographic basis, the many settlements distributed in the Mediterranean area. Its paper is followed by the work by LUC STEVENS, dealing with the troglodytic castles at the boundaries between France (the northern Vosges) and Germany (Palatinat), that illustrates in details the artificial cavities realized in different epochs in several interesting case studies.

Taking into account the category of military and war works, JEROME and LAURENT TRIOLET present a work dedicated to underground refuges and war tunnels, covering many different countries in the world, and showing the importance of military works in the framework of the analysis of artificial caves. As a further contribution to integrate the classification of artificial cavities, ROBERTO BIXIO and ANDREA DE PASCALE propose a new typology, consisting of apiaries; they describe many different types of apiaries, and illustrate them with experiences from different Mediterranean countries.

MARTIN DIXON contributes to the special issue by bringing the UK viewpoint on artificial cavities, illustrating different typologies of caves examined by Subterranea Britannica. CLAUDIA CHIAPPINO and FABRIZIO MILLA describe the recently started project about a census of ancient mines and underground quarries, in the attempt to provide data and information aimed at possibly exploiting some of these abandoned structures, of great interest for industrial archaeology. MARCO MENEGHINI, trustee of the Italian register of artificial cavities, illustrates the work so far done in collecting information about this cultural heritage in the whole Italian territory, and the modality to extract some information via



Martin Dixon during his invited lectures, illustrating the activity by Subterranea Britannica.
Martin Dixon nel corso del suo intervento, dedicato alle attività di Subterranea Britannica.

the recently designed website. Eventually, MARIO PARISE takes into consideration the danger posed by artificial cavities, and their interaction with built-up areas, including the likely occurrence of subsidence and the formation of sinkholes, with deriving damage to the society.

These proceedings represent a detailed and updated state of the art about the actual classifications of artificial cavities, and we hope the contributions might be of interest for anybody dealing with or interested in the matter of man-made cavities. We hope to move farther along this way, with other meetings and workshops in the next

future, to favour the exchange of experience among scholars and cavers from different countries, aimed at increasing the knowledge on artificial cavities.



Giovanni Badino leads the audience through the journey in natural and artificial caves.

Giovanni Badino mentre conduce il pubblico nel viaggio tra cavità naturali e antropiche.

ACKNOWLEDGMENTS

I am very grateful to all the lecturers, as well as to the people and cavers that enthusiastically attended the Workshop.

A particular thank goes to Arrigo Cigna for his presence and for fully contributing to the discussion, and to Giovanni Badino for the fascinating journey between natural and artificial caves that represented the final lecture of the Workshop.

My warmest thanks to all the members of the UIS Commission on Artificial Cavities, for helping in thinking, organizing and managing the meeting and the preparation of these proceedings.

Last but not least, I have the pleasure to thank the Associazione Gruppi Speleologici Piemontesi (in particular, the president Attilio Eusebio) for hosting us at their facilities, and the friends that were fundamental for the logistic of the Workshop, and dedicated long hours of their spare time to organize it: Fabrizio Milla, Enrico Croce and Alessandra Pueroni.



Attilio Eusebio, president of the Associazione Gruppi Speleologici Piemontesi, during the commemoration of Luigi Barcellari (Birci) to whom the workshop was dedicated.

Attilio Eusebio, presidente dell'Associazione Gruppi Speleologici Piemontesi, ricorda Luigi Barcellari (Birci), al quale il workshop è stato dedicato.



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of artificial cavities in the world”**
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INVITED LECTURES

- C. GALEAZZI: *The typological tree of artificial cavities: a contribution by the SSI Commission*
 M. PARISE: *Hydraulic works: the Map of the Ancient Underground Aqueducts*
 M. MAINETTI: *A Mediterranean Troglodytism database. An overview on the rupestrian settlements of the Mediterranean region*
 L. STEVENS: *The troglodytic castles of the Northern Vosges (France)*
 L. TRIOLET: *Underground refuges and war tunnels*
 R. BIXIO: *A new type of rock-cut work: the Apiaries*
 M. DIXON: *Underground with Subterranea Britannica - site types and interests*
 C. CHIAPPINO: *The Ancient Mines & Quarries Census Project: a systematical approach to a missed heritage*
 M. MENEGHINI: *The Italian Cadastre of Artificial Cavities*
 M. PARISE: *Artificial Caves as a possible danger: sinkholes and other effects at the surface*
 G. BADINO: *Artificial and natural cavities, the two underground worlds. Which is the largest?...*

Round Table Discussion: *A system of classification for artificial cavities: updating of the Italian classification and outcomes from the workshop.*

POSTERS

- RENZO GARLASCO (Gruppo Speleologico Valli Pinerolesi, San Secondo di Pinerolo): *Radio flash trigger for photo underground*
- GRUPPO SPELEOLOGICO BERGAMASCO LE NOTTOLE: *Water and the Bergamo Venetian fortress*
- GRUPPO SPELEOLOGICO BERGAMASCO LE NOTTOLE: *Air-raid shelters*
- MARIO MAINETTI: *Living underground /An ongoing inventory of the Mediterranean cave dwellings and other artificial caves*
- MARIANGELA MARTELOTTA & GIANCLAUDIO SANNICOLA (Speleo Club Cryptae Aliae, Grottaglie): *The secret oil mill in Lizzano*
- MARIANGELA MARTELOTTA, MICHELE DE MARCO, GIANCLAUDIO SANNICOLA & AURELIO MARANGELLA (Speleo Club Cryptae Aliae, Grottaglie): *The finest underground oil mills in Grottaglie*
- FABRIZIO MILLA (Associazione Mus Muris, Torino; Museo Geologico Sperimentale CAI, Giaveno): *Trogloditism in the Alps. Settlements in cave in the Piedmont Alps*
- FABRIZIO ONETO, DARIO OTTONELLO, MAURO VALERIO PASTORINO & SEBASTIANO SALVIDIO (Gruppo Speleologico Ligure “Arturo Issel”, Busalla): *The Biospeleological Station of San Bartolomeo (Savignone, GE): a small refuge for the study of geotritons*
- VITTORIO PANE (Museo Geologico Sperimentale CAI, Giaveno): *Fossil remains and artificial cavities. The example of Ca’ Rossa - Bra (CN) - Piedmont*
- ENRICO ZANOLETTI (GEOEXPLORA - Geologia & Outdoor, Baveno): *The “Linea Cadorna” in the Verbano-Cusio-Ossola district. Census of military structures*



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