CONGRESS SCHEDULE

From March, 11 (Wednesday) to March, 13 (Friday)
INTERNATIONAL CONGRESS SESSIONS
CNR- Consiglio Nazionale delle Ricerche - Sala Marconi
Piazzale Aldo Moro, 7 - Rome (Italy)

March, 14 (Saturday)
DISCUSSION MEETING (Italian language)
COMUNE DI ROMA - Musei Capitolini - Sala Pietro da Cortona
Piazza del Campidoglio, 1 - Rome (Italy)

March, 15 (Sunday): GUIDED TOUR “HYPOGEA OF THE ALBAN HILLS”
March, 16 (Monday): GUIDED TOUR “SABINA UNDERGROUND”
March, 17 (Tuesday): GUIDED TOUR “UNDERGROUND NARNI”
ORGANIZED WITH

INTERNATIONAL UNION OF SPELEOLOGY

SOCIETA SPELEOLOGICA ITALIANA

PARCO REGIONALE DEI CASTELLI ROMANI

SOCIETÀ ITALIANA DI GEOLOGIA AMBIENTALE

CNR - DIPARTIMENTO SCIENZE DEL SISTEMA TERRA E TECNOLOGIE PER L’AMBIENTE

CNR - ISTITUTO RICERCA E PROTEZIONE IDROGEOLOGICA

CNCA - COMMISSIONE NAZIONALE CAVITÀ ARTIFICIALI

MEDIA PARTNERS

OPERAPIPOGEA

JOURNAL OF SPELEOLOGY IN ARTIFICIAL CAVITIES

ARCHEO

ARCHEOLOGIA VIVA

ASSOCIAZIONE SCINTILENA - SPELEOLOGICAL NEWS

BLOG ROME INSIDER

TECHNICAL PARTNERS

TELECOM ITALIA DIGITAL SOLUTION

ASSOCIAZIONE CULTURALE SUBTERRANEA

GRUPPO SPELEO ARCHEOLOGICO VESPERTILIO

GRUPPO STORICO ROMANO
The main objective of the congress is to exchange the experience acquired, both at international and national level, in the field of speleological and speleo-underwater research of artificial hypogea (man-made underground structures of archaeological-historical interest), and to promote the preservation of subterranean historical and cultural heritage.

The congress will focus on international thematic sessions dealing with the speleological research undertaken during shared archaeological field missions; international standards in place including the adoption of cartographic symbols and a dictionary; the newly established Web site (UIS) linking to the Registry of Artificial Cavities and the comparison between different typologies of artificial hypogea, which have been extensively studied. Other thematic sessions include an overview of the legislation in different countries, potential scaling up of internationally important Italian projects on hypogea, such as the Map of Ancient Aqueducts and the magazine Opera Ipogea - Journal of Speleology in Artificial Cavities.

**Scientific Committee**

- **Mario PARISE** - Italy (CNR-IRPI, Bari; President of Artificial Cavities Commission UIS)
- **Kyung Sik WOO** - The Republic of Korea (President UIS; Department of Geology, College of Natural Sciences, Kangwon National University)
- **George VENI** - USA (Vice President UIS; NCKRI Executive Director National Cave and Karst Research Institute, Carlsbad, New Mexico)
- **Fadi NADER** - Lebanon/France (General Secretary UIS; Geologist; IFP Energie nouvelles, Geosciences Division, Geology)
- **Mladen GARAŠIĆ** - Croatia (University of Zagreb, Faculty of Civil Engineering; Society for research, surveying and filming on Karst Phenomena /DISKF/, Zagreb; Croatian Speleological Federation)
- **Philipp HÄUSELMANN** - Switzerland (Swiss Institute for Speleology and Karst studies, UIS working group survey and mapping)
- **Boaz ZISSU** - Israel (Bar-Ilan University, Martin (Szusz) Department of Land of Israel Studies and Archaeology; Artificial Cavities Commission UIS)
- **Michele BETTI** - Italy (President of Commissione Nazionale Cavità Artificiali of Società Speleologica Italiana; PhD to the Università degli Studi di Urbino ‘Carlo Bo’)
- **Roberto BIXIO** - Italy (Hon. Inspector for Artificial Cavities - MiBACT; Artificial Cavities Commission UIS; President of Centro Studi Sotterranei, Genoa)
- **Vittoria CALOI** - Italy (CNR, Grottaferrata; Egeria Centro Ricerche Sotterranee, Rome; Commissione Nazionale Cavità Artificiali SSI)
- **Sossio DEL PRETE** - Italy (Geologist; Editor-in-chief of Opera Ipogea - Journal of Speleology in Artificial Cavities, Caserta; Commissione Nazionale Cavità Artificiali SSI)
- **Andrea DE PASCALE** - Italy (Archaeologist; Curator of Museo Archeologico del Finale IISL, Finale Ligure; Commissione Nazionale Cavità Artificiali SSI; Centro Studi Sotterranei, Genoa)
- **Carla GALEAZZI** - Italy (Secretary of Artificial Cavities Commission UIS; Commissione Nazionale Cavità Artificiali SSI; President of Hypogea; Egeria Centro Ricerche Sotterranee, Rome)
- **Mario MAZZOLI** - Italy (General Manager A.S.S.O., Rome)
- **Adriano MORABITO** - Italy (President of Roma Sotterranea, Rome)
- **Roberto NINI** - Italy (Archaeologist; Utec/Subterranea, Narni)
- **Cristiano RANIERI** - Italy (Archaeologist; Gruppo Speleo Archeologico Vespertilio, Salisano)
- **Stefano SÀJ** - Italy (Architect; Centro Studi Sotterranei, Genoa; Director of Opera Ipogea - Journal of Speleology in Artificial Cavities; Commissione Nazionale Cavità Artificiali SSI)
- **Simone SANTUCCI** - Italy (Roma Sotterranea, Rome)
GENERAL PROGRAM

WEDNESDAY, MARCH 11, 2015
Rome (Italy) CONSIGLIO NAZIONALE DELLE RICERCHE - Sala Marconi
Piazzale Aldo Moro, 7

9.00-10.00 Arrival and registration of participants
10.00 Opening Ceremony
Welcome coffee

All Sessions are held in English (max 12 min. + 3 min. discussion)

11.00-12.15 SESSION HYDRAULIC WORKS I
✓ Issues concerning ancient roman aqueducts. Lombardi Leonardo, Santucci Elettra
✓ The map of the ancient underground aqueducts in Italy. Parisi Mario, Galeazzzi Carla, Germani Carlo, Bixio Roberto, Del Prete Sossio, Sammarco Mariangela
✓ Trajan Aqueduct: the Santa Fiora branch. Germani Carlo, Colombo Vittorio
✓ The Campanian Aqueduct stairway rediscovered. Ferrari Graziano, Lamagna Raffaella
✓ A new stretch of the Turris Libisonis aqueduct in Punta di lu Cappotto (Porto Torres, Sassari, Sardinia): preliminary considerations and recent acknowledgements. Dore Pier Paolo, Piras Giuseppe

12.15 - 13.00 SESSION NEW TECHNOLOGIES FOR ARTIFICIAL CAVITIES
✓ Exploration and documentation of underwater artificial structures. Mazzoli Mario
✓ Potential and limitations of new technologies for the survey of morphology and colour of rupestrian habitat. Carpicci Marco, Inglese Carlo, Colonnese Fabio
✓ Laser scanner survey and tru view applications of the “Grotta della Lucerna” (Ravenna, Italy), a Roman mine for Lapis Specularis. Santagata Tommaso, Lugli Stefano, Camorani Marco Ennio, Ercolani Massimo
Lunch

15.00-16.15 SESSION HYDRAULIC WORKS II
✓ Lost Constantinople: subterranean water structures - application of speleology techniques in the archaeological research. Aygün Çiğdem Özkan, Eğilmez Ali Hakan
✓ Urban hydrographic network of Genoa’s historic centre: the underground course of the Fossatello stream. Bixio Roberto, Saj Stefano, Traverso Mauro
✓ Water supply tunnels of Istanbul Küçükçekmece lake basin (Bathonea). Kuruçaylı Emre, Eğilmez Ali Hakan, Küşükali Gâlûnê, Albürek Metin, Üzülf Elf Aytekîn, Aydîngün Şengül G.
✓ Water tunnels of Güvercinlik Valley (Cappadocia, Turkey). Gilli Eric, Yamaç Ali

16.15-16.30 SESSION RELIGIOUS AND CULT STRUCTURES
✓ Armenian central dome churches, the issue of their rock carved samples and the miphological bases of Armenian architecture. Shahinyan Samvel M.

16.30-17.00 SESSION MISCELLANEOUS (GEOLOGY)
✓ Palaeoclimates and palaeoenvironmental reconstructions from speleothems in artificial caves (Lazio, Italy). Tuccimei Paola, Soligo Michele
✓ Subaqueous anti-stalactites: a new type of speleothem from the old aqueduct of Sassari (Sardinia, Italy). Sanna Laura, Forti Paolo

THURSDAY, MARCH 12, 2015
9.30-11.00 SESSION MINING WORKS

✓ An ancient highway to the tufa quarries. New considerations on a forgotten monument North of Rome. Schatzmann Andreas
✓ Perticara mine (Emilia-Romagna, Italy): first re-exploration, documentation and problems. Belvederi Giovanni, Garberi Maria Luisa
✓ An underground historical quarry in the Hanbury Botanical gardens of Ventimiglia (Italy). Faccini Francesco, Corvi Marco, Perasso Luigi, Raso Emanuele, Mariotti Mauro G.
✓ The Cozzo Disi mine (Casteltermini, Sicily, Italy) a multi-disciplinary approach to record, study, preserve and develop the mining heritage in Sicily. Badino Giovanni, Chiappino Claudia, D'Aquilo Antonio, Fiorenza Fiorenzo, Spitaleri Giuseppe, Vattano Marco
✓ Formignano mine: a study for the research project of Emilia-Romagna Regional Speleological Federation 'Eastern Romagna Gypsum and Sulphur'. Ponti Elisa
✓ Ancient underground channels near Orvieto. Bellocci Edoardo, Morucci Marco

Coffee break

11.30-12.00 SESSION SYMBOLS, TYPOLOGIES AND CADASTRE OF ARTIFICIAL CAVITIES

✓ Artificial caves of Divnogorye (Russia). Gunko Alexey, Kondratyeva Sofya
✓ First remarks on some very interesting artificial cavities in Croatia. Garasic Mladen, Garasic Davor
✓ The UIS symbol set for cave maps and its possible extension for artificial cavities. Häuselmann Philipp

Lunch

13.30-17.00 GUIDED TOURS

GUIDED TOURS to hypogea and archaeological sites of special interest in Rome (Trastevere area). The program is being updated according to access permits.

- MITREO DEL CIRCO MASSIMO (Velabro): Just a stone's throw away from the world famous “Mouth of Truth (“Bocca della verità”), in the undergrounds of an old building, one of the few - and one of the best preserved! - temples of Mithra still visible in town. Built in the 3rd century A.D. inside a pre-existing structure related to the adjoining Circus Maximus, it consists of five rooms and contains an amazing marble bass-relief with Mithra killing the bull.

- INSULAE DI SAN PAOLO ALLA REGOLA Inside a residential building in Trastevere, we will have the opportunity of going eight meters underground, travelling back in time through four different levels. You will see a very complex stratification of buildings from different periods. Some of the rooms belonged to a big warehouse built by Emperor Domitian (Horrea Vespasiani) to stock food to be distributed freely to the citizens of Rome. On a higher level, windows and a courtyard belong to an insula (building) that hosted poor people. The clay pipes and decorations evoke the presence of an ancient laundry (fulonica).

- SOTTERRANEI DI S. CRISOGONO Entering the S. Crisogono church along the busy Viale Trastevere and opening a tiny door in the sacristy, we will have to descend a winding staircase in order to reach the archaeological remains six meters below. Here the structures have been modified and reused for centuries. This is one of the first places where the early Christians gathered, reusing for their rituals the spaces of two or three houses, dating back to the 2nd and 3rd century A.D.
FRIDAY, MARCH 13, 2015
Rome (Italy) CONSIGLIO NAZIONALE DELLE RICERCHE - Sala Marconi
Piazzale Aldo Moro, 7

9:00 THE HISTORICAL ROMAN GROUP GREETINGS

All Sessions are held in English (max 12 min. + 3 min. discussion)

9.15-10.15 SESSION MISCELLANEOUS

- The galleries of Palmanova (Friuli-Venezia Giulia, NE Italy). Feresin Fabio, Diqual Augusto, Giacomin Antonio
- Underground visions (movie). D’Alessandro Massimo
- Lapis Specularis (movie). Demaria Danilo FSRER

Coffee break

10.30-13.00 POSTER SESSION

Poster presentations and open discussion (3 m. each)

HYDRAULIC WORKS
- Ancient and medieval underground hydro-technical structures of Armenia. Davtyan Smbat R.
- The old aqueducts of the Valley of Logulenutu (Sassari, Sardinia). Dore Piet Paolo, Dallocchio Eleonora
- The Albano outlet (Castel Gandolfo, Rome, Latium): the Project Albanus and new acquisitions. Galeazzi Carla, Germani Carlo, Casiotti Luigi
- Survey, analysis and relevant interpretation of further interventions in the underground site of Claudium (Rome). Gradozzi Marco
- Infiltration galleries, ancient constructions and geology integrated in the landscape of Nemi Maar (Alban Hills, Central Italy). Loret Emanuele, Medici Franco, Medici Giacomo, Testana Carlo
- The Aqueduct Paul: new archaeological discoveries. Ranieri Cristiano, Fellucca Elena

HYPOGEAN CIVILIAN DWELLINGS
- Underground anthropogenic landscape in the Armenian Highland: from the Late Stone Age to the Middle Ages. Shahinyan Samvel, Davtyan Smbat, Pogrosyan Gacik
- Dovecotes and cave dwellings of Gesi - Kayseri (Turkey). Tok Ezgi, Yamaç Ali
- Cave dwellings of Halfeti - Urfa (Southeastern Turkey). Yamaç Ali
- Underground cities of Kayseri (Turkey). Yamaç Ali, Tok Ezgi, Filikci Betul

RELIGIOUS AND CULT STRUCTURES
- Artificial Christian religious cave ‘Skanovo’ in the Penza Region, Russia. Agapov Ilya, Leonov Mikhail
- Religious buildings in Ortahisar (Turkey). The survey of the complex of Sakli and Ali Torun Kilise. Crescenzi Carmela, Giustiniani Claudio, Ricchera Giacomo
- Man made cavities on the South-East side of the Albano lake, within the Albano Volcanic Area (SE of Rome, Italy). Felici Alberta, Cappa Giulio, Cappa Emanuele
- Caves in Divnogorye and Belogorye: monastic and folk tradition in the river Don caves construction. Stepkin Vitaliy Viktorovich
- The artificial cavities of Bulgaria. Zhalov Aleksey

ARCHAEOLOGICAL STUDIES
- Archaeological study of Kvemo Kartli region rock-cut monuments in Georgia. Bakhtadze Nodar
- The underground cemetery of San Senatore. Libera Roberto
- Artificial cavities within the hill of Prima Porta (Rome, Italy). Pellandra Davide Ivan
MINING WORKS
- Sarmanovsky copper mine. Gunko Alexey
- Abandoned and deactivated mines in the Eastern Italian Alps (Trentino-Alto Adige, Veneto, Friuli-Venezia Giulia). Laureti Lamberto
- Underground history of Domodedovo District. Yanovskaya Ekaterina, Garshin Dmitry

NEW TECHNOLOGIES FOR ARTIFICIAL CAVITIES
- Rock hewn architecture survey: the problem of construction of the geometrical model. Carpiceci Marco, Cresciani Giovanna, Angelini Andrea
- Recent developments of 3D scanning in real time. Catoni Gabriele

SYMBOLS, TYPOLOGIES AND CADASTRE OF ARTIFICIAL CAVITIES
- Contribution to the definition of cartographic symbols for artificial cavities. Bixio Roberto, Saj Stefano, De Pascale Andrea
- The underground cavities in the urban territory of Rome: typologies, distribution and sinkhole susceptibility. Ciotoli Giancarlo, Ferri Gianluca, Nisio Stefania, Succhiarelli Claudio
- Classification of artificial underground structures. Dolotov Yuri
- Terms about artificial cavities in UIS caver’s multi-lingual dictionary. Garasic Mladen
- The Cadastre of artificial cavities of Rome and Lazio. Germani Carlo, Galeazzi Carla, Galeazzi Sandro

MISCELLANEOUS
- The (underground) architecture as subtractive act. Di Donato Stefania
- Speleology in artificial cavities and archaeoastronomy: the cave of Casnea in Briaglia (Cuneo, Italy). Milla Fabrizio

Lunch

15.00-16.45 SESSION HYPOGEAN CIVILIAN DWELLINGS
✓ A huge cultural and historical heritage at risk: the underground settlements of Southern Italy. Parise Mario
✓ Surveying some of the touristic underground cities of Cappadocia (Turkey). Yamaç Ali, Tok Ezgi
✓ The rupestrian heritage of Djabal Nafusa: a study on settlements and architectural forms. Polimeni Beniamino
✓ The San Pellegrino rock-hewn complex at Matera: a magnificent example of the rupestrian culture in Southern Italy. Lionetti G., Borneo V., Santarcangelo S., Pelosi M., Parise M.
✓ New surveys on underground structures in Cappadocia: a dialogue between art historians, conservators, archaeologists and speleologists. Andaloro Maria, Benucci Michele, Bixio Roberto, De Pascale Andrea, Romagnoli Giuseppe
✓ The necropolis of Hellenistic Maresha Judean Foothills, Israel. Zissu Boaz, Kloner Amos
✓ Artificial caves cut into cliff tops in the Galilee and their historical significance. Shivtiel Yinon

16.45-17.00 SESSION MISCELLANEOUS (ARCHITECTURE)
✓ Urban undergrounds: the worldwide perspective. Varriale Roberta

17.00 Closing of the international conference sessions

20.30 SOCIAL DINNER
Roman cooking in old and modern times: dinner in a typical Roman “Tavern” located in the Jewish Quarter of Rome.

PROCEEDINGS

10:00 - 13:00 *Mundus Subterraneus*

Discussion-meeting (in Italian language) between Speleologists, experts and organisations responsible for the environment, history and cultural heritage in Italy to discuss the standards, valorisation and risks of artificial cavities. In conclusione del Congresso Internazionale gli speleologi incontrano geologi, archeologi, architetti, amministratori e divulgatori. Opinioni e progetti a confronto sul potenziale scientifico e di sviluppo socio economico delle cavità artificiali. Conoscenza, documentazione, valorizzazione e costante sfida tra modernizzazione e tutela.

**Moderator:**

่า Stefano Saj, Director of Opera Ipogea - Journal of Speleology in Artificial Cavities

**Speakers:**

่า Fabrizio Ardito, Journalist and writer

่า Michele Betti President of Commissione Nazionale Cavità Artificiali SSI

่า Andrea De Pascale Archaeologist, curator of Museo del Finale Ligure (Savona)

่า Carla Galeazzi President of Hypogea Ricerca e Valorizzazione Cavità Artificiali

่า Mario Mazzoli General Manager of A.S.S.O.

่า Adriano Morabito President of Roma Sotterranea

่า Mario Parise Geologist, C.N.R. - I.R.P.I.

่า Natalino Russo Writer and photographer

่า Maurizio Todini Umbria Underground

**SONO STATI INOLTRE RIVOLTI INVITI AD ALTE PERSONALITÀ DEL SETTORE ARCHEOLOGICO E TURISTICO, PROTEZIONE DELL’AMBIENTE E REALIZZAZIONI MUSEALI. IN ATTESA DI CONFERMA PARTECIPAZIONE.**

PARTICIPATION OF EMINENT EXPERTS FROM THE DOMAINS OF ARCHAEOLOGY, TOURISM, ENVIRONMENTAL PROTECTION AND MUSEUMS IS PENDING CONFIRMATION.

14:45 - 17:00 **GUIDED TOURS**

GUIDED TOURS to hypogea and archaeological sites of special interest in Rome. The program is being updated according to the access permits.

- **SOTTERRANEI DI S. SABINA** (Aventino): The magnificent Church of St. Sabina lies on top of the Aventine hill, overlooking the Tiber river and the Tiberine Island. The underground hosts the remains of rich aristocratic houses and temples, as well as one of the first places where the early Christians gathered together in the house of a roman matron: Sabina. We will also be able to see a portion of the ancient republican city walls.

- **CAVE DEL CLAUDIUM** (Celio): A real medieval tuff quarry in the heart of Rome, a few meters from the Colosseum. Crossing the gate and proceeding inside a monastery closed to the public, we will have the chance to admire the massive structures of the Temple of Claudium. Passing under the temple arches and descending a metal staircase, we will enter another dimension, with water dripping from the vaults and galleries dug in the heart of the Caelian hill. The little crystal-clear ponds are the final bonus to this visit. N.B. For this visit, torch and caving helmet are required.

**FOLLOWING THE CONGRESS, EXCURSIONS WILL TAKE PLACE**
PROGRAM OF THE GUIDED TOUR "HYPOGEA OF THE ALBAN HILLS"
MARCH 15, 2015

Duration: from 8.00 to 20.00
Difficulty: as specified for each hypogeum
Participation fee for registered attendees: included in the Congress registration fee
Participation fee for not-registered attendees: € 40,00
The fee includes: transfer by coach and daily insurance
The fee does not include: meals

THE ALBAN HILLS (COLLI ALBANI)

Not far from the sea but above the marshy areas in the Pontine plane, the Alban Hills have harboired human settlements since time immemorial. Here are to be found agricultural and pastoral villages, imperial villas, convents, castles and towns whose inhabitants have deeply shaped the environment. From prehistory to the present, they have canalized the springs, terraced the steepest slopes and controlled the lakes level. This natural and cultural heritage, consisting of works largely still in use, allows to study the territory with a depth and a latitude not possible in other regions of Italy. Not surprisingly, the speleological investigations of underground structures of anthropical origin carried out by the Center for Underground Research Egeria have produced a large amount of documents, aiming at protecting the works that the ingenuity of our ancestors has left us.

The Alban Hills, located a few km south-east of Rome, have been the center of the 'Latium vetus', inhabited by Latin populations and by the ancestors of the Romans. Thanks to the mild climate, and from the II century b.C.E. until past century, the Roman aristocrats have chosen these hills as the favourite site where to spend their leisure time, the latin 'otium' (leisure). For this reason villas, baths and gardens have been built; all these structures needed water supply, in turn requiring complex systems of collection and transportation, mainly underground, a fact that has helped to preserve a large part of them until today.

In 312 b.C.E. the Appian way was built, reinforcing the close relations among Rome and the Alban Hills, especially with the areas of the lakes Nemi and Albano, a connection still strong nowadays.

Pompey, Cicero, Tiberius, Domitian and Antoninus Pius had their villas not far away, so that the Alban area became the seat of a refined culture, inclining towards the Greek world and differing from the official Roman culture. We know of the existence of at least 50 among villas and other structures, of which only a few have been studied in detail.

After the fall of the Western Roman empire (476 c.E.), the area became depopulated and the only sign of some continuity in housing is given by the burials of the V-VI century at the Orti of S.Nicolas. The invasions that took place one after the other gave origin also on the Alban Hills to the process known as 'incastellamento': the inhabitants looked for shelter in fortifications on high grounds. Various noble families built here their strongholds, around which over the centuries developed the villages known at present as 'Roman Castles'.

There is no other reliable information on this area until the XII cen., when a few small monastic communities near lake Nemi are mentioned in some papal Bulls. In the following centuries the Nemi area, and in general the Alban Hills, follow the fate of the papal State and become the theater of the fights among the Pope and the noble Roman families. At the same time, the Hills harboured the rich country dwellings of the papal nobility, all equipped with parks and fountains. In the XIX cen. the Nemi area still preserves its charm and it is often the destination of tourists and travelers, among which Byron, so to become one of the important destinations of the Grand Tour. As well known, this was the tour of Europe that the offspring of rich North-European families used to do when reaching majority.

In between the 19th and the 20th centuries the Nemi crater, still all wooded, gave the initial inspiration to J.G.Frazer (1854-1941) for his most famous work 'The Golden Bough', a fundamental, even if discussed, text in the studies of archaic religions.

The Second world war has not too severely touched the area, anyway causing deaths, destruction and the disastrous burning of the two ships attributed to Caligula, which had been taken out of the lake since only a few years, and were exhibited in the Museum of the Nemi ships. Today asphalt and cement are spreading in the surroundings of Rome and have reached the Alban Hills. Only the establishment of the regional Park of the Roman Castles has enabled to stem the definitive destruction of the sceneries dear to Ovid and Byron.
PROGRAM

THE ALBANO DRAIN OUTLETS
The drains were built to control the level of the lakes Albano and Nemi, which have no natural outlet. Beside this control measure, the works undertaken resulted in a formation of a large water reservoir, which could be used for irrigation or as a source of hydropower to operate the mills and factories. This was a great accomplishment at the time considering the technical and planning challenges encountered including the limited means available.

THE ALBANO DRAIN (CASTEL GANDOLFO)
Difficulty: None, sportswear advisable
The Albano drain outlet is the most famous among the various ones found in the Alban Hills, and it is also the only one of which something is known through historic sources. According to Livy, it dates back to the beginning of the 4th century B.C., and the Oracle of Delphi, which declared that the city of Veii would not be conquered (by the Romans) unless the Lake Albano was prevented from overflowing its banks. Also Dionysius of Alicarnassus (I,66) mentions Livy’s text, but at the same time suggests that the drain may be older. The study by Piranesi, full of technical details and beautiful engravings, greatly contributed to its fame. The tunnel is 1,450 m long. At present the Albano drain is the object of a three-year program of speleological studies, carried out by Hypogea in cooperation with the Superintendence for the Archeological Heritage of Lazio and the Castelli Romani Park. The aim of the visit to the incile (inlet) is to share with the participants the first results of the research undertaken, in view of future technical and scientific studies, and of the establishment of a scientific committee.

THE NEMI DRAIN (NEMI)
Difficulty: the crossing of the drain does not require special speleological techniques; equipment: helmet with LED light and boots.
The construction of the drain dates back to still unknown times; it is generally placed between the end of the sixth century and the beginning of the fifth century B.C.. Contrary to the Albano drain, the system Nemi-Ariccia is not mentioned in ancient historical sources. Starting in the 1990ies, intensive speleological investigations were carried out (Castellani, Caloi, Dragoni); the campaign was completed in the years 2002-2003 by the Center for Underground Research Egeria. The tunnel of 1,653 m in length was made accessible with the technique of blind excavation, starting from two opposite points of the mountain. The starting points were fixed with the method of the coltellatio (chopping) and the meeting point was found out by hearing contact. As mentioned previously, on Lake Nemi, emperor Caligula (12-41 C.E.) built leisure galleys for his court; their replicas can be seen at the Museum of the Roman Galleys, together with the remains of the temple of Diana Nemorensis.
THE NIMPHAEUM DORICO (CASTEL GANDOLFO)

Difficulty: none, sportswear advisable

The water arrives at the Nimphaeum from a canal carved into the rock, which was supplied by one of the aqueducts in the Alban crater and by a set of water tanks and hydraulic ducts located on the back of the overlying central back wall. Water plays and small waterfalls made the structure pleasant also in the hottest months. Mentioned in the 1st century B.C. and rediscovered in 1723, it is credited to emperor Domitian. It is a unique work due to the presence of several coverings (opus reticulatum, opus coementicium and opus mixtum) and styles (Doric and Ionic).

THE NIMPHAEUM BERGANTINO OR OF DIANA (CASTEL GANDOLFO)

Difficulty: none, sportswear advisable

The Nimphaeum is located in a natural cave, which may be dated to Domitian time (end of the first century), and therefore related to the imposing ensemble of Domitian’s Alban villa. In 1841 unauthorized excavations, later under the control of the Camerlingo, unearthed many statues and mosaics, some of which are now at the pontifical villas in Castel Gandolfo. The Nimphaeum Bergantino is named after an old owner, according to Lugli; or else, the name derives from the corruption of the word ‘brigantino’, a type of sailing ship. In fact, the nimphaeum cave could have been used as a shed for boats. Recently, the Castelli Romani Regional Park has started the restoration of the Nimphaeum.

THE CATACOMB OF SAN SENATORE (ALBANO)

Difficulty: none, sportswear advisable

The catacomb is located at the XV mile of the Appian Way, under the convent of Saint Mary of the Star, and is one of the most important catacombs in southern Lazio. The Catacomb of San Senatore, beside being dedicated to the cult of the local martyrs and as a burial place, it was also an important cult center for the religious life of residents and pilgrims. From the 4th and 5th centuries, the burial area, was the main graveyard of the Christian community in Alban, and, according to some scholars, also of Ariccia. Initially used as a pozzolana quarry, the site was then turned into a burial ground, and was used from the third century to the twelfth century. Its lengthy lifespan is probably due to the use of one of the underground rooms as an ecclesia. That is, a place of worship, first for early Christians worshipping the local martyrs and then for a nearby monastic community. The earliest written records regarding the catacombs of San Senatore in Albano come from the early fourth century: the Depositio Martyrum mentions August 8th as the anniversary of the passion of the martyrs Secondo, Carpoforo, Vittorino and Severiano, all of whom are buried in Alban. The seventh century De Locis describes this place as the burial site of Senatore and Perpetua’s bodies. The ancient galleries lead straight onto the Appian way, and, despite the radical changes later applied to the facade of the cave overlooking the Regina Viarum, it is possible to reconstruct the presence of at least five different entrances. There are, in two areas of the Christian Hypogeum, a series of well-preserved frescoes. One of these frescoes, the oldest, is the Christ standing between St. Peter, St. Lawrence, St. Paul and another unknown figure. The historic crypt, believed to be the catacomb area in which the martyrs’ relics were kept, contains a series of paintings ranging from the 5th century to the high Middle Ages. When visiting the front of the apse, on the wall to the left, there appears a painting portraying a young Christ seated between six other figures over a sky-blue background, with only Peter and Paul being identifiable. The apse of the historic crypt contains a fresco depicting Christ between the busts of the Virgin and St. Smaragdo. Next to the apse, there is also the image of a young saint, whose portrait is possibly attributed to St. Senatore.
HYPOGEA2015
International Congress of Speleology in Artificial Cavities
Italy, Rome, March 11/17, 2015

PROGRAM OF THE GUIDED TOUR "SABINA UNDERGROUND"
MARCH 16, 2015

The visits are subject to change depending on weather conditions. In case of strong rains, some underground structures will not be accessible.

Duration: from 8.00 to 20.00
Difficulty: as specified for each hypogeum
Individual participation fee: euro 40; reservation at registration is required
The participation fee includes: transfer by coach and daily insurance
The guided tours are exclusively designed for the Congress participants under the care of the Speleo-Archeological Group Vespertilio, Salisano (Rieti)
The fee does not include: meals

Sabina is a historic-geographic region in central Italy, located across Umbria, Lazio and Abruzzo. Historically Sabina is the land inhabited by the Sabines, an indo-european, pre-Roman population of osco-umbrian origin. The Sabine territory is crossed by the old Salaria Way.

MONTELEONE SABINO (RIETI): HYDRAULIC TUNNELS UNDER THE CHURCH OF SANTA VITTORIA
Difficulty: knowledge of speleological techniques
The church of Santa Vittoria shows many Roman decorations in the front and in the interior; in the nave, there is a small well, perhaps related to the cult of the martyr Vittoria. According to tradition, the Saint was a young woman martyrisied under Emperor Decius, at Trebula Mutuesca, a Roman municipium located about one kilometer away from present-day Monteleone. Various cuniculi branch off radially underground. The investigations from 2000 suggested that the system was connected originally to a cunicular cistern. The prominent presence of Roman clay fragments seems to indicate an intensive use of the well during the Roman period rather than in the Middle Ages, as supposed until recently.

MONTELEONE SABINO (RIETI): CATACOMBS OF SANTA VITTORIA
Difficulty: none
The catacombs of Santa Vittoria derive almost entirely from an old quarry of sand and pebbles, dug on multiple levels. They are located along an old roadway in the holy region dedicated to the goddess Feronia, whose cult is related to agriculture and fertility. The geologic characteristics of the soil prevented the excavation of loculi (niches), which were limited to four infant
graves. Instead, another burial system was chosen: the dead were buried in brick coffins, which were often plastered, and placed against the rocky walls in vertical stacks that would extend to the ceiling at times. The graveyard section that is still visible could accommodate about 160 burial sites. It is very likely that other rooms existed beyond the walls, and were built in later times at the northern side of the catacombs. This hypothesis is supported by a document from the 10th century, according to which the bodies of Vittoria and her 60 companions had been moved to a section of the catacombs that was rendered inaccessible.

The church of Santa Vittoria (from the Web)

MONTELEONE SABINO (RIETI): THE HYDRAULIC SYSTEM OF THE AMPHITHEATER OF TREBULA MUTUESCA

Difficulty: speleological equipment required

In Monteleone Sabino there are the ruins of the imposing Roman amphitheater of Trebula Mutuesca. It was possible to enter the underground spaces through a tunnel located along the minor axis of the building. Inside this tunnel two wells, more than 6 meters deep, make part of the underground hydraulic system of the amphitheater. After having taken the debris out of the wells, two tunnels have been found that were part of the drain system of the amphitheater and are still working. The Vespertilio Group, coordinated by Dr. Giovanna Alvino of the Superintendence for the Archeological Heritage of Lazio, explored more than 130 meters of these underground tunnels. The Group managed to explore 35 meters of the annular drain trunk line, which can be accessed through a narrow opening. A landslide near an obstructed well did not allow them to go further. At about 4 meters from the entrance, there is a connection to another tunnel. This is a water drainage tunnel of 30 meters, transporting large water quantities into the main drain trunk line through a system of water pipes and small vertical ducts.

The undergrounds of the Amphitheater at Trebula Mutuesca. Photo by Cristiano Ranieri
Casperia (Rieti): The Aqueduct of Paranzano

Difficulty: speleological equipment required

At about 3 km from the center of Casperia (Rieti), there are the ruins of a Roman villa, with walls in *opus reticulatum*, remains of cryptoportici and a fountain close to a Roman cistern. The fountain, known as the Source of Paranzano, is supplied by an aqueduct whose existence had been known for some time. The aqueduct has been explored for almost one kilometer by the speleo-archeological Group Vespertilio; going downstream one finds the 'cappuccina' roof typical of Roman times, while upstream the ogival section used by the Sabines prevails. The exploration ended at two small underground lakes in a zone full of concretions. The original entrance has partially collapsed and is blocked by debris; therefore, in order to enter the aqueduct, it is now necessary to go down a well of about 6 m. The walls and the roof of the tunnels, 1.60 m high and 0.5 m wide, are made in limestone blocks. The water level in this zone of the aqueduct is at about 70 cm.

The Aqueduct of Paranzano. Photo by Cristiano Ranieri
Program of the Guided Tour "Underground Narni"
March 17, 2015

Duration: from 8.00 to 20.00
Difficulty: as specified for each hypogeum
Individual participation fee: Euro 40.00
The participation fee includes: bus transfer and daily insurance. The guided tour is provided by the Cult. Ass. ‘Subterranea’
The fee does not include: meals

Program
The Umbrian town Nequinum was conquered in the 3rd century B.C. by the Romans, who founded the Latin settlement Narnia (a name used in the past century by C.S. Lewis for his famous Chronicles). The town is crossed by the Flaminia way and significant monuments of the Roman period have been preserved here, such as an imposing bridge built by the Emperor Augustus and the long aqueduct named Formina. Destroyed during barbarian invasions, the town reached its maximum splendor in the Middle Ages, as shown by the urban characteristics and by the several historical buildings, including the fortress and many churches, such as the Cathedral, S. Francesco, S. Maria Impensole and S. Maria Maggiore (now S. Domenico).
The Formina Aqueduct

Excursion with a limited number of participants: maximum 35

Difficulty: No special speleological techniques are required, but please make sure to bring a safety helmet with head lamp, boots and change of clothes. The water is at knee height.

The Roman aqueduct ‘Formina’ was probably built by the ‘curator aquarum’ Marcus Cocceius Nerva in 27 C.E. during the reign of Tiberius. The aqueduct is about 13 km long and maintains a constant slope. It winds along the hillsides, crosses three mountains with many tunnels and traverses across bridges over a few streams in opus quadratum. The Subterranea offers the opportunity of discovering a fascinating underground route inside the only Roman aqueduct open to the public in Italy. It is possible to walk for 700 m, long enough to realize the difficulties overcome by the workers during the digging, and to admire the wonderful concretions. The exit is through a steep spiral staircase dug into the rock from an 18-meter deep well. A change of clothes and shoes is necessary. The visit is not recommended for those who suffer from claustrophobia and for people weighing more than 100 kg.

The Underground of the Church of S. Domenico: The Inquisition Cells

Difficulty: none

The visit begins under the convent of S. Domenico by entering a twelfth-century church, discovered as late as 1979 by the speleologists of UTEC. The church contains some of the oldest frescoes in town. Through a passage in the wall, one enters a room with a Roman cistern, likely the remnant of a domus; further on, through a long tunnel, one reaches a large room where the interrogations by the Inquisition took place. Various documents found in the Vatican Archives and in the Trinity College in Dublin attest to the existence of inquisition cells. A small cell, unique in its kind in Italy, documents the sufferings of the prisoners, one of whom had left an intriguing message with esoteric and masonic symbols, not yet completely deciphered.

The Roman and Medieval Cisterns

Difficulty: none

The underground visit of S. Maria Impensole takes you to two Roman cisterns with an eight century church built on top, which was later converted into a Romanic church. The tour of ‘Underground Narni’ ends inside the Lacus, the large Early Medieval cistern, located under the fountain at the Garibaldi square, formerly known as the square of the Lacus.
REGISTRATION

CONTRIBUTIONS AND POSTERS WILL BE ACCEPTED
ONLY FROM THE REGISTERED CONGRESS PARTICIPANTS

It is necessary that the participants are duly registered before the printing of the proceedings (February, 10th)

Registration fee until March 1st, 2015 (registration closing date) € 190,00
Social conference dinner on March 14th (reservation required) € 30,00
Excursion of March, 15th free only for registered attendees (meals not included) € 40,00
Excursion of March, 15th for not-registered attendees (meals not included) € 40,00
Excursion of March, 16th (meals not included) € 40,00
Excursion of March, 17th limited availability (meals not included) € 40,00
Paper Proceedings one free copy for each registered attendee
Paper Proceedings additional copies or not-registered attendees € 180,00

The registration form and payment information are available at: http://hypogea2015.hypogea.it/registration

REGISTRATION CONGRESS FEE INCLUDES:
- one copy of the paper proceedings
- welcome folder
- visits to hypogea particularly those significant for Rome (just for registered attendees)
- welcome coffee and welcome lunch on March, 11th
- coffee break and lunch on March 12th and 13th
- excursion of Sunday, March 15th (Discovering the Alban Hills and their artificial hypogea)
- insurance for civil liability (only the Italian tax code holders are covered by the standard accident-related insurance)

REGISTRATION CONGRESS FEE DOES NOT INCLUDE:
- overnight stays and dinners
- the social conference dinner on Friday, March 13th (reservations required)
- public transportation in Rome (bus, taxi, etc.)
- post-conference tours of March 16th and 17th (reservations required)

The social dinner and the excursions tours must be booked in advance (at the time of registration).

ORGANIZING COMMITTEE

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