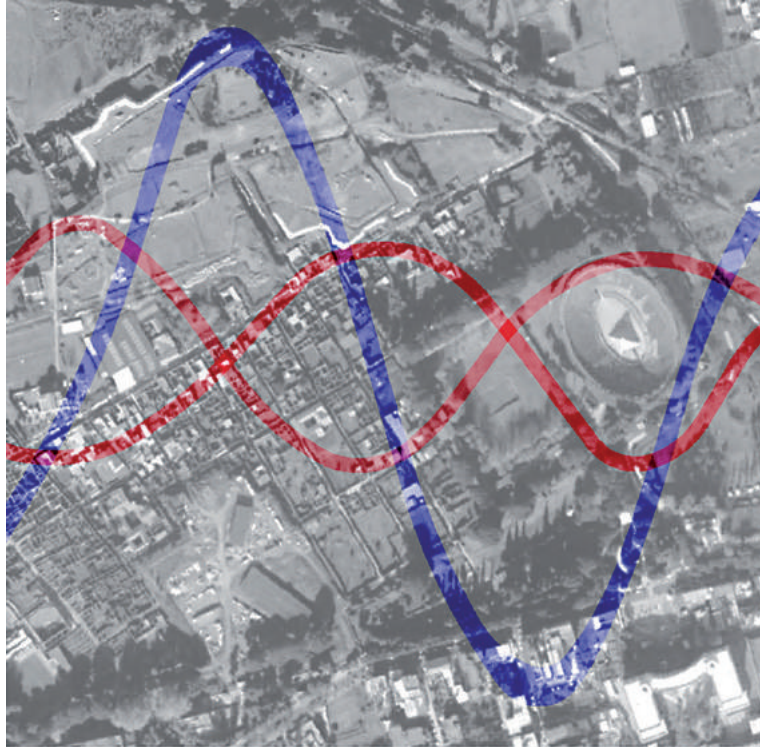


ARCHITECTURE HERITAGE and DESIGN

Carmine Gambardella

XVII INTERNATIONAL FORUM

Le Vie dei
Mercanti



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Culture, Creativity, Contamination**

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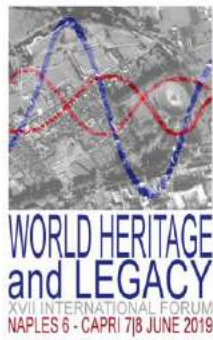
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Memory and presence of tholos in architecture

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Abstract

Marsilio Ficino wrote that men attribute value to stones. The stones, with their testimony, document the role played by some men in the large scenario of events. The thòlos, stone architecture of ancient origins (probably Greek-archaic, later Etruscan and Roman) is widespread throughout the Mediterranean basin even in distant territories (Greece, Armenia, Cappadocia, Iran, Tunisia, Italy); Sicily preserves more than any other region (the *Gurfa* in Alia, is the largest tholos in the Mediterranean) that, taken together, represent the memory of mythical eras and fabulous characters like Daedalus.

The thòloi build a network of *invisible cities* that combine design-construction strategies that have reached us from antiquity: often carved into mountains (places that are sacred in themselves), initially intended for ritual or sepulchral functions, express the spirit of sacrifice (as Ruskin would say) and values that have had continuity in the history of architecture. The thòloi represent universal concepts and spatial principles: the idea of refuge, the theme of subtraction, the power of light, the aspiration to essentiality. Other questions refer to the duration of the form and of the material, to the belonging of man to the earth and, at the same time, to his desire to ascend to heaven and the consequent tension between human and divine.

The spatial principles of this presence, through the definition of a true and proper poetic, actualize the memory of the thòlos in contemporary architecture.

Keywords: Tholos, Sicily, architecture, memory, contemporary.

1. Origins

The tholos is an idea and a reference to the origins. It is not a single architecture, even if it's a real and truly existent construction, but a concept of primordial space - even before being archetypal - which allows some reflections on the meaning of architecture and on the project. The thòloi, which are often burial chambers that proliferate from the end of the fourth millennium, have a characteristic shape that resists, with few variations, until the beginning of the historical period. It's a hollow space, with a circular plan (or that aspires to be circular) accessed through a corridor. Having become a monument, the tholos reveals its cultural and human roots, expresses the idea of sacred space and of architecture itself. The architecture of the tholos is a presence linked to a particular period in human history and to the beginnings of civilization; it is also a memory, transmitted and survived, of a spatial condition widespread in many territories, going through the history of constructions to emerge up to our contemporaneity.

It all begins when «the primitive man stopped the cart, decides that his land will be here» as Le Corbusier says to establish his virtual and primordial idea of architecture which for him is the tent-hut surrounded by an enclosure. [1] Also F.L. Wright, in another geographical and cultural environment, going back to the beginnings, imagines that human nature is the synthesis of two tendencies already present in primitive men and distinguishes them in resident-farmers living in caves and nomadic-adventurers: «The inhabitant of cave - he writes for the first time in 1945 - became the inhabitant of the rocks. He began to build cities [...] His God was an evil murderer [...] He turned it into a mysterious law». [2] In any case we are in the age in which the passage from the hunter-gatherer man to the

farmer-grower man to whom correspond profound changes in the economy, in religion, in culture and in the same way of thinking.

The tholos belongs to the constructions of the origins, and expresses a very strong connection to the *tékton*, that is to the foundation of being and of the consistence of architecture, to the correspondence between method and articulation of space. The underground world is in fact the first refuge of the man who below the ground found values and symbols such as belonging to the earth itself, the idea of protection: the cave, or grotto, represents the mother's womb where life germinates in secrecy and in the shadow: «The earth under which men are buried is the mother of the dead. Those who built the tomb intended to make it similar as much as possible to the body of a Mother». [3] At the same time it is also a space that protects from the winter cold and the summer heat as well as from enemies: «it is the bastion of security, but also an invitation to the danger of the unknown, it calms insecurity but excites the imagination, penetrating the earth means fecundating; closing in the certainty of the mother's womb but also the invitation to provocative discoveries». [4] With the labyrinth, the tholos represents the connection between the material world, the earth and other worlds. Mircea Eliade writes that in cultures that know the conception of the three cosmic regions (sky, earth, hell) the center constitutes the point of intersection of them, in which it is possible to find a breaking point and, therefore, a communication. This point then becomes the most suitable place for a burial and even better if it is inside a mountain or in an image of it (the Cosmic Mountain) from which the creation started. The center and *omphalos* (navel) of the world, allows the dead who sleep in its womb and those who walk on the surface to be able to communicate, be supported and enlightened. [5]

These are funerary or religious architectures, which over time have become permanent structures, which mark the passage from living the natural space (the cave, the cavity, the tunnels) to the living space built by working the stone. They are defined using primitive *mathematics* because man begins to become sensitive to the measures - «to build well, to well distribute efforts, for the solidity and usefulness of the work» as Le Corbusier says - to geometry - because «geometry is the language of man» - and the use and suggestion of light. And, nevertheless, they are constructions created in the image of nature and adherent to its laws, until becoming archetype, far from natural forms but not from its principles.

In fact, even when man begins to live above ground, the subsoil maintains a character of great importance in the cultural heritage and in the representation of symbolic values that generates stories and legends in many traditions, especially with regard to anthropological and religious aspects: the void, understood as a womb, expresses the passive principle of the earth (related to the idea of fertility) linked to the active one of the sun. Together with the passing of time (conceived cyclically in the succession of the seasons) these are the elements that integrate the megalithic proto-religion (as in the famous Newgrange burial chamber in Ireland). The idea of fecundation of the earth by the winter sun that gives rise to the *vegetal birth* of spring, [6] is also connected to the underground space, preserving the double meaning of mystery and darkness, of fertility and protection for which the dead are buried to return in the bowels of the Great Mother and, awaiting the resurrection, to be reborn with new light.

In these excavated (but sometimes covered with earth) spaces, which reproduce the cave, the architecture becomes exclusively internal space. Conceptually (and constructively) the tholoi are at the antipodes of other famous architectures of the origins, the pyramids, in which the void is a hidden interior (a very small part, almost trivial, that does not follow the magnification of the exterior built volume) inside a fabulous, monumental and memorable external mass. If the pyramid is the abstract evocation of the mountain, the tholos can be considered as its all-internal negative space. At the same time pyramid (external volume that nothing tells about its interior) and tholos (mysterious space, invisible from the outside) define in an archetypal way two constructive strategies, that of the addition of a myriad of elements and that of subtraction from a monolithic mass. Both ways use the fundamental material of the Earth, the stone, the primary matrix of the architecture.

In this duality is inserted the light, another fundamental element, which allows contact with the gods, with the generating forces of the cosmos. If the earth is the call from the bottom, to the chthonic deities and to the materiality, the light expresses the tension towards the top, to the celestial divinities and to the immateriality. The earth-sky connection defines a directionality that conditions the life and thought of man, and that materializes the *axis mundi* in every specific place. «The goddess Mnemosine (the Memory) is the daughter of heaven and earth - wrote Christian Norberg-Schulz - and, as the wife of Jupiter, becomes the mother of the Muses in nine nights. Therefore Jupiter needed the memory of heaven and earth to arouse art. Every image, from the beginning of Western culture, is a relationship of earth and sky. The architectural image, that is the significant built form, reveals the spatiality of the world, not as an abstract mathematical space, but as a place lived between earth and sky». [7] To define the origins of these architectures it remains to be said that these are constructions made with primitive tools but not by primitive men, as Le Corbusier recalled. To build these archetypal structures were mythical «characters - wrote Joseph Rykwert - [who] immediately expressed their inner nature, which, uncontaminated, was in unison with the fundamental laws of all creation. They were therefore

able to conceive all essential works. The constant imitation of these fundamental actions created the set of the main human abilities: thus Prometheus discovers how fire is made, Daedalus invents the saw and sculpture [...] In myth, the hero-inventors are not crude, clumsy pioneers, but famous and brilliant craftsmen. Although Daedalus was the first to melt bronze, he also created the famous golden honeycomb, which was considered one of the major technical achievements of the ancient world. Like the primitive builder of Le Corbusier, Daedalus immediately mastered his method; the subsequent technical improvements are simply elaborations of a fundamental capacity». [8] The tholoi take us back to times and places of Daedalus and define, perhaps for the first time, themes and expressions of the ways of dwelling on Earth. «Great architecture - as Le Corbusier teaches us - is at the very origins of humanity». [9]

2. Archaeological memory

The megalithic burial chamber develops in the Mediterranean area until it assumes a characteristic type which is the tholos. Especially widespread in pre-Hellenic civilizations, it is a construction that questions time and speaks an ancient, simple and enigmatic language. The tholos bears witness to the millennial history of the Mediterranean and in particular of Sicily, telling of the movement of peoples (which has always existed), of the contaminations and stratifications of successive cultures, of the continuity over time of spatial and poetic principles of architecture. «The experience of the tholos - a residential unit derived from the Palestinian-Anatolian area - has been present in the Mediterranean since the sixth millennium up to the Mycenaean civilization of 1600-1400 BC, in Mesopotamia, on the upper Tigris, in the agricultural centers of Tepe Gowra and Tell Arpasiyya, at Chirokitia in Cyprus between the sixth and fifth millennium and in Malta around the second millennium». [10] The most famous ones remain the sepulchres of Mycenae (including the Treasury of Atreus, also known as Tomb of Agamemnon), perfectly circular and covered by a pseudo-dome. «The Treasury of Atreus is a space of great purity and its integrity is not disturbed by any added element. It is a perfect void, which does not need symbolic imaginations [...] but rather, with the sole abandonment to sensory perception, produces the impression of transporting into another sphere, that of the mystery of death». [11] There are also the monumental tombs in Orchòmenos and in Pylos (all dating back to the second millennium BC), the Hal Saflieni hypogeum in Malta, the Domus de Janas widespread in Sardinia, the Etruscan tombs.

However, Sicily is the region that presents an extraordinary number of tholos constructions, concentrated above all in some areas that, starting from the southern coasts, penetrate the most internal areas, such as the Platani river basin. [12] Called in ancient times Halykos, because of large deposits of rock salt that make it salty in some parts, it marks a particularly rich territory (also due to the sulfur deposits and the presence of large forests) that attracted people since ancient times. Together with the river Torto, which was heading towards the Tyrrhenian Sea, the Platani river defined a natural crossing that, like an internal corridor, cut Sicily from coast to coast, from north to south, having the cities of Himera and Heraclea as mainstays. The Platani river therefore represented a path that led from the sea to the heart of Sicily. Its mouth is an invitation to moor and move into internal territories. In these places the Sicilians set up their capital in Camico (identified today near Sant'Angelo Muxaro). Here came the Aegean population who, at a certain point, began to sail the sea towards the west. Daedalus also arrived, the first architect and builder par excellence, to whom wonderful constructions are attributed, including the palace-fortress to preserve the treasure of the mythical king Kokalos, and the tools and technique to cut the stone and excavate, that are needed to build the tholos. [13]

Mycenaean-inspired tholoi are in Sant'Angelo Muxaro (with the so-called *Tomba del Principe*), a place linked to the Minoan presence as evidenced by some gold artefacts with representations of bulls or bull-like vases; then in Polizzello - where a bronze trident was recently found - circular sacellum remembers ancient and distant influences. Then again in Milena, in Monte Conca (Campofranco), in Marcatonuovo (Mussomeli), in Cammarata - with the tholos, partly collapsed, enigmatically still called *Grotta del Tauro*, together with that of Montoni feud (still a term and a Minoan symbol). The same name of this city comes from the Greek *camàra*, which means circular room covered with vault or sepulcher, which is perhaps still hidden in the belly of the mountain from which it took its name. [14] And then Alia, in the eastern part of the province of Palermo, at the confluence of the Platani and Torto rivers, where the largest tholos of the Mediterranean is located, the impressive artifact of the *Gurfa* which should be «framed, chronologically, at the end of the products of the megalithic civilization, flourishing in the Mediterranean basin, and the subsequent age of copper». [15] However, the dating of this architecture is controversial, given that for some it is an early medieval rupestrian settlement (a grain pit of Byzantine origin) [16] or even Arab (it is also remembered as *Grotta dei Saraceni*) because the name derives from the Arabic *ghurfah* which means hall, room and even warehouse. This term identifies the cave in which the idea of dwelling prevails afterwards as evidenced by the Arabic vocabulary and the innumerable *gurfe* or *gorfe* of Tunisia (Médenine, Metameur, Matmata) dug out like beehives with multiple rows of rooms overlapping and covered by

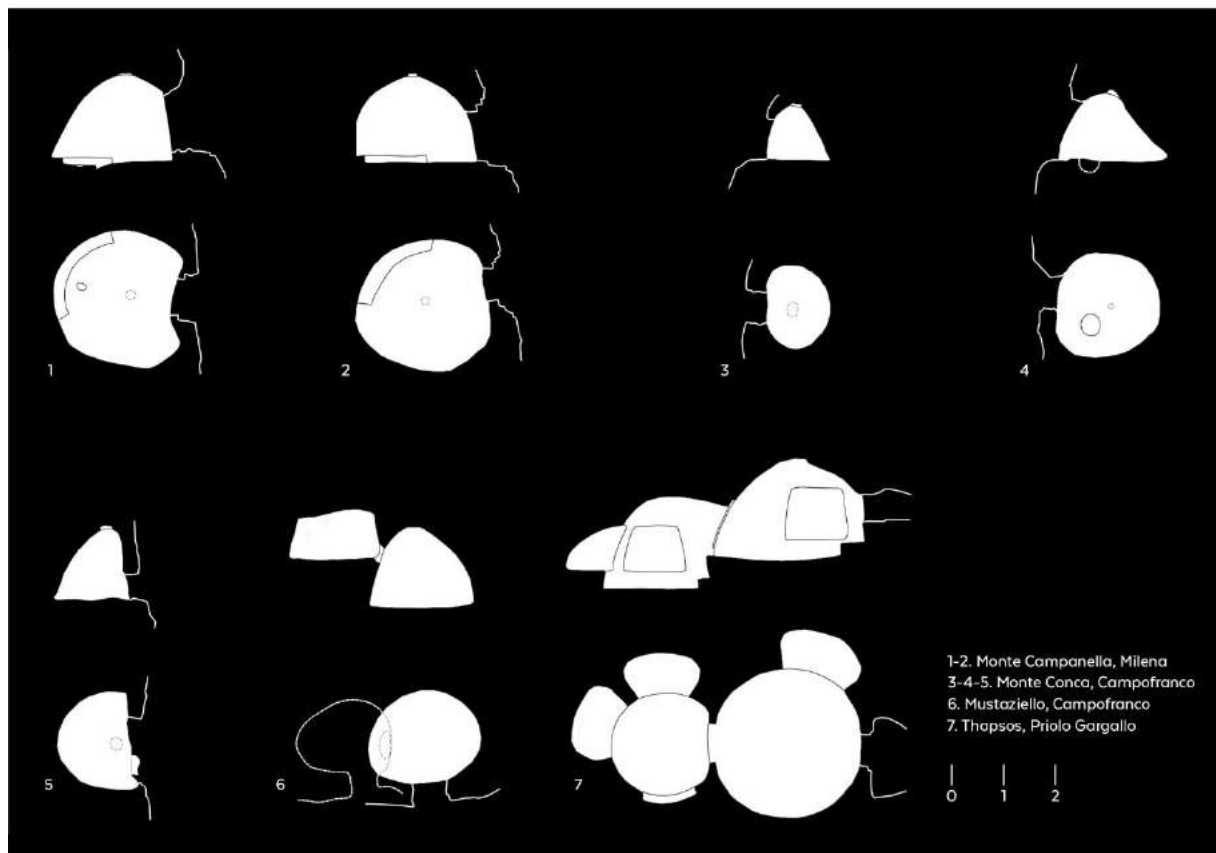
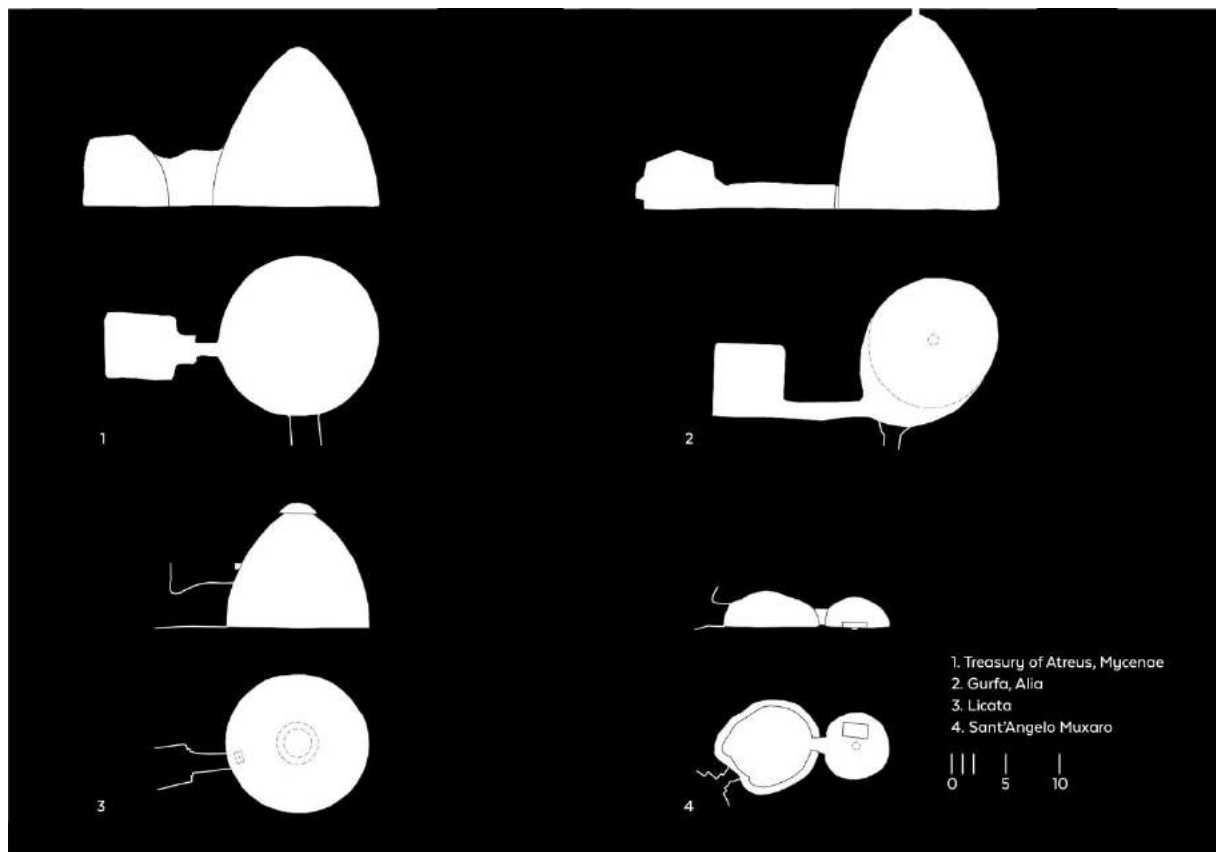


Fig. 1: The ancient tholoi. Scheme by De Marco-Margagliotta.

vaults, used for warehouses or homes. Used for centuries for the most varied functions, the Gurfa was inhabited until 1950. Paolo Orsi, who visited it in the late nineteenth century, attributed it to the mythical Pelasgian people.

The complex with the Gurfa tholos, a space of great monumentality and suggestion, was dug into an easy-to-work sandstone strata, obtained with the chipping technique using the tools of the quarrymen whose signs are still visible in the walls and floors of trampling: in fact, it is articulated on two levels in which on the lower floor the most significant spaces are a trapezoidal-shaped environment with a gabled ceiling (the so-called *tent room*) and the large oval-shaped room with an ovoid plan with diameters of 11,59/14,10 meters and a maximum height of 16,35 meters. The vault culminates in an oculus 80 centimeters in diameter from which the light rains zenitally. The Gurfa tholos represents an architecture almost unknown to historiography and criticism; for its dimension, conservation, typological and morphological characteristics, Pasquale Culotta did not hesitate to define it as a «monument of the most significant of the cultures that have marked the human presence in the territory of Sicily». The Gurfa, according to Culotta, «arouses wonder and emotion by entering into it, and it is the Architecture of the Gurfa, architecture as are the interior spaces of the Pantheon or of San'Ivo alla Sapienza, harmonic structures that make travel [...] with the imagination, the creative force of a design that works by subtraction of material rather than by addition, in the manner of the work of the sculptor». [17]

Also in other areas of internal Sicily there are bell-shaped rooms, often dug into the soft sandstone rock, with oculus at the top (in Sperlinga, Villarosa, Lipari) which, not open to the sky, turn into a final sign - shaped like cap, conical, cylindrical - that refer to feminine corporeality and the theme of the Great Mother that nourishes and protects (if in the plant we find the belly that receives, in elevation we see the breast that nourishes). [18]

Lastly, we recall the numerous cùbbule of Raccuja and Montalbano Elicona (in the Nebrodi area, Messina) which are archaic circular tombs built above ground, covered by pseudo-domes. [19]

3. Continuity and presence in architecture

Today, more than ever, it is important to reread history by learning from the great past: rediscover the territory of memory to experience the meaning of the present and shape a new identity. The art of obtaining space in the earth and underground is therefore very ancient, it has deep meanings, including the primordial one linked to the instinct to protect and take refuge.

The characters that define (which still modernize the memory and the poetics of the tholos in contemporary architecture and which refer to spatial principles, construction techniques, design methodologies) are: the centric plant, the bell-shaped compartment with the spherical shape of the walls and the presence of the dome; the verticality; the hollow or interstitial space, obtained by subtraction; the compression-expansion of the space that is found in section and in plan; separation with the outside, to create *another world*; the solemn and hidden spatiality; the darkness (especially of the sacred space) that helps concentration and predisposes to recollection; the directionality of space through the use of the zenithal light that materializes the symbolism of the *axis mundi*; the atmosphere that can be determined and the secret space of the dream.

The architectures with these qualities have always expressed a reference to the origins and the eternal relationship between nature and culture, between memory and present. They still remember the principles of space and construction. The history of architecture itself returns images that manifest more general structures, almost timeless and without place, in which hides the mystery and a profound sense of religiosity. Both because they are spaces that are derived in the womb of the mother earth, which is sacred in itself, and also because, assuming the principles, they build the earth-sky relationship through the use of light, a necessary and precious resource, which almost it always rains from above, which materializes the earth-sky axis and the construction of these architectures as solar clocks in the time of day and of the seasons. As is the extraordinary architecture of the Gurfa.

The tholos can still be considered as an exceptional settlement testimony whose traces allow us to interpret the present, record and update a conception of space and a design method that has very ancient origins. The call to this architecture is the solicitation to stop and listen to the heart of the planet, to record the internal tension of the earth itself; to try to hear the sound of the quarryman's ax under Daedalus's orders; to imagine inside the cave the tremors of love of Tethys and Peleus, of Medea and Jason, of Dido and Aeneas; to feel the suspension of time (as Alberto Campo Baeza calls it) when we enter the Pantheon of Rome; to hear the echo of the dialogues of Dante and Virgil traveling in the bowels of the earth, as Sandro Botticelli imagines them; to reflect in the clear and exact representation of the principle in Bramante's San Pietro in Montorio; to get excited within the Borromini's spiral of Sant'Ivo alla Sapienza or in the upside down of the Guggenheim in New York by Frank Lloyd Wright; to understand how a precious treasure is preserved in a magnificent way, as in the Museum of San Lorenzo in Genoa by Franco Albini; to vibrate with the elements of nature (earth, fire, air, water and light) in the Bruder Klaus Field Chapel by Peter Zumthor.

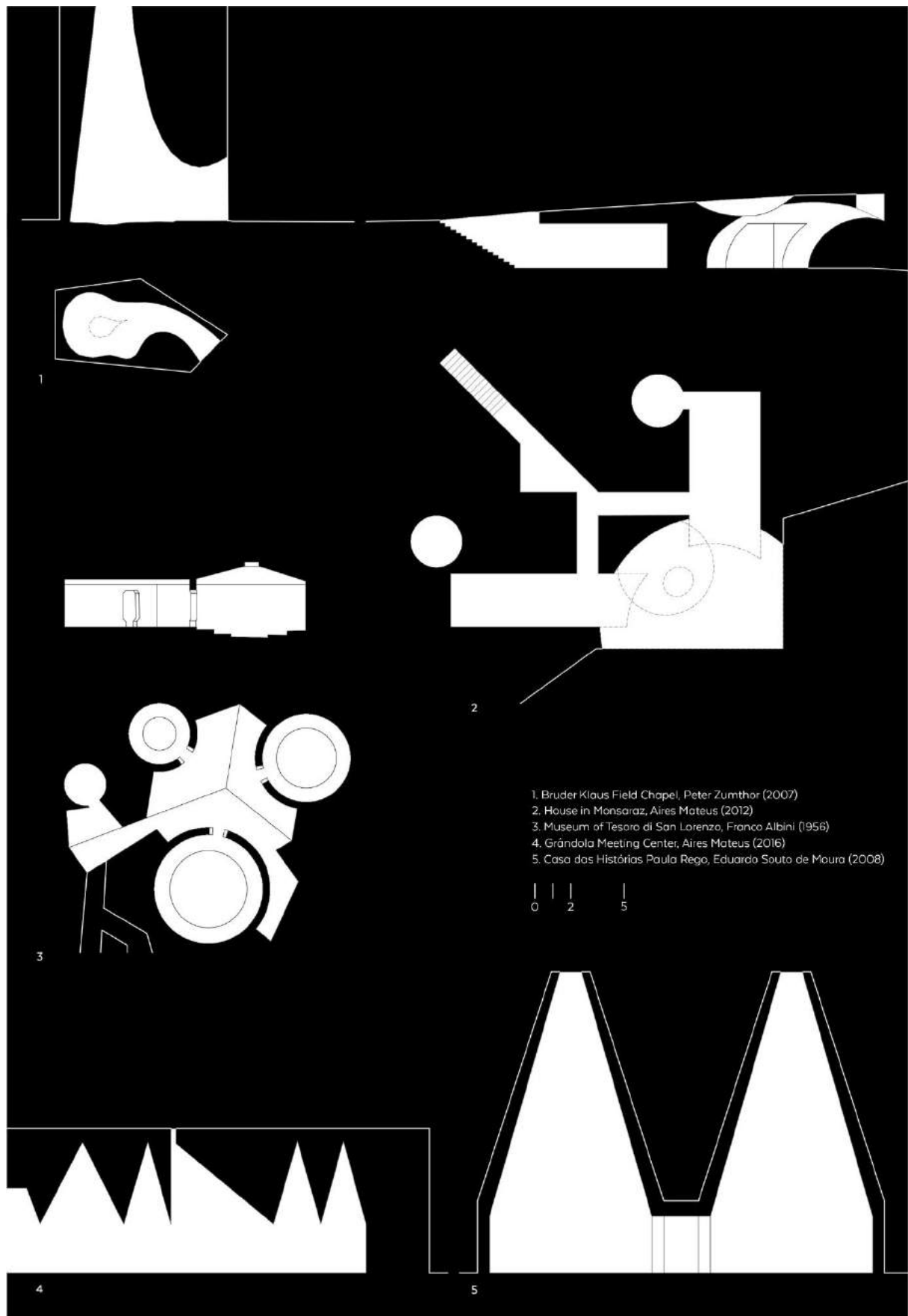


Fig. 2: The persistence of tholoi in contemporary architecture. Scheme De Marco-Margagliotta.

Bernard Rudolfsky pointed out that faith and religiosity have flourished in the silence of underground architecture; prophets and seers, or simply men and women dedicated to prayer or concentration, have always revealed a predilection for these shelters in their elementary state. The natural cave and its artificial elaborations favor and inspire mystical communication with rocks, trees, the sky, with God. [20]

This search for the beginnings, or origins, is then a way to respond to the need for silence in the noisy current culture (including the architectural one), to rediscover the essentiality and authenticity that can oppose artificiality; to find the solidity in response to the fleeting lability of the images, to recognize and highlight the tectonic order of construction and the order of the earth.

The tholos is an architecture of only interior space (especially those excavated); the bell-shaped vault that represents the entire creation, all illuminated by the creative light, does not manifest itself outside in any striking architectural act. It therefore refers to the theme of the interior of architecture in today's time where everything seems aimed at appearance and exteriority, reminding that «the interior space - as Bruno Zevi writes - is the protagonist of the architectural fact»; and «beautiful architecture - he continues - will be that which has an internal space that attracts us, elevates us, subjugates us spiritually». [21] And also for Robert Venturi the main purpose of an interior is to enclose and separate the inside from the outside. [22]

It is therefore a question of enhancing (or regaining) an idea of architecture that descends from a confrontation with the ground, its nature, with its geology, which «precedes us, and always resounds as memory and discovery in the project and in the built». [23]

In the search for the spirit of necessity, the tholos realization technique emerges, which translates, however, into technique for the project and poetic of architecture. In recent times Francesco Venezia has awakened interest in the underground world as an expression of authentic modernity: real or invented cavities, closed spaces like caverns take on the zenithal light as a material to make the space palpitate. The poetry of the excavation is also strongly present in the work of Aires Mateus. The house in Monsaraz is an excavated and underground volume that takes light only from above. At the edge that emerges from the ground, a sphere is subtracted which determines a covered space open to the landscape, but collected as a cave; from the intersection with another sphere in coverage it results the oculus, true animator of the space that cuts the sky and filters a beam of light.

In modernity the persistence of form remains mindful of ancient meanings not only in religious buildings and monuments but also for other functions and of great symbolic and representative value (think of the democratic exercise and therefore the parliament as a sacred place of the lay community, as in the well-known examples in Chandigarh and Dhaka); or even the sacredness of domestic living: in the house in the Algarve by Souto de Moura, the living room is surmounted by a dome (a half sphere also visible on the outside) that enhances and sacralizes the central space of the living room, expanding the section vertically.

Even in their modernity, these architectures, as Ruskin would say, express the *spirit of sacrifice* which is particularly linked to devotional and celebratory architecture. It is the spirit that leads to giving up something that is offered to God. It is the spirit that leads to build temples in honor of the gods. In the *Lamp of Memory* recalling how Poetry and Architecture are the antidote to the oblivion of men, Ruskin maintains that «the greatest glory of a building [...] lies in its age, and in that sense of great resonance, of strict vigilance, of mysterious participation [...] we felt present in the walls that for a long time have been touched by the ephemeral waves of the history of men. It is in their placid contrast with the transitory character of all things, in that strength that through the passing of the seasons, the ages, and the decline and rise of dynasties [...] maintains its sculptural beauty for an insurmountable time». [25] So what more than these ancient architectures can remind us of the value of time and the value of duration? What better than tholos can best represent the architecture of the time that lasts?

4. Conclusions. From tholos to a new architecture below zero

The architecture of the tholos is a clue, in more general terms, of hypogean architecture or that even literature has lived in stories of fantastic journeys and unknown realities between imagination and science, as in the lost worlds of the *Journey to the Center of the Earth* by Jules Verne; but which has become, in Dostoevsky's notes, a place of reflection on the human being and the individual, of interiorisation and criticism of the welfare society. In the current culture of living and building it can be interesting to bring the concept of living in contemporary landscapes with the tholos architecture parameter that we can actualize, with a new terminology, according to the principle of being under the earth.

With modern architecture, an authentic reappropriation of an idea of space and light control was consolidated. At the same time the term hypogeum has become generic, losing the ancestral link with dwelling, even if it's possible to find examples in which the building becomes an opportunity to experiment with forms and spaces that emphasize the theme of underground life. At the end of the Seventies the experience of underground architecture was resumed with some studies related to housing as a response to the environmental and climate emergency (such as the *Arcosanti* prototype

by Paolo Soleri) and the search for a renewed relationship between architecture and ecology. Today, the attention paid to the project of setting up alternative living spaces becomes highly topical, being supported by technological innovation that could allow the construction not only of residences but also of public spaces at the service of man and the city (such as the *Lowline*, project for a new underground park in Manhattan). Indeed, it seems that the era of *building from scratch* is coming to an end and the city wants to be completed in its residual spaces, including those below zero. The subsoil can assume a crucial role for redevelopment and the definition of new landscapes in the contemporary city, through the application or experimentation of some themes of the architectural project:

Introspection - Living below the zero level means hiding, finding refuge, trying to cancel the perceptible image of architecture and therefore of man, enhancing the principles of defense and intimacy, the primary instinct of conservation and protection of the man. The hypogean architecture, by its nature is predominantly introverted, so an underground construction determines habitable volume that looks mainly towards its interior. Underground, architecture radicalizes the principles of living, the reasons why man makes architecture, enhances the theme of containing spaces, the creation of a private and introverted world.

Inside-Out - The underground architecture is essentially an interior space. Underground the outside is reduced to a minimum or is annulled, while the internal spatiality takes shape only from itself and, conceptually, it maximizes and extends to the whole.

Excavation and Subtraction - Building underground requires a work of carving, through the removal of material, instead of the process of addition. Working by subtraction means constructing by empty spaces: it imposes, in fact, the assumption of space as a void, excluding what is around. This makes sense in working in an almost artisanal way on the single artifact as much as in the strategy to operate in the suburbs or in the extended city lacking in quality in which it is necessary to work by subtraction and elimination.

Relation with the place - Taking account the proper exceptions, starting from the Modern Movement, the development of the above-ground architecture was privileged, made present through the volume, the elevation of the façade, its envelope. The hypogean architecture does not reject the place, but modifies the terms of the relationship with it and the relationships with the context and the environment. The theme of *concealment* is combined with the original idea of place.

Light - The void becomes space when, revealed by light, it is defined by shape, color, temperature, smell. Natural light, the primitive material of architecture, becomes again an essential theme for architecture below zero, generally illuminated from above, with direct or indirect light.

Technique - In the continuous dialectic between technological innovation and recovery of building traditions, it becomes possible to inhabit underground landscapes. The still untapped potential of geothermal energy, the innovative *remote skylight* system, capable of channeling natural light and distributing it underground, are just some of the development possibilities for *living below zero*.

Sustainability - Built environments and cities are called to respond to changing weather conditions. Building underground deals with the modern theme of reducing impact on the landscape, climate change and energy saving.

From the ancient tholoi and the extraordinary architectures of modernity that remind them, up until the future ones, it will not take much imagination to rethink the man of the time of that architecture and every other time, to think of the many «generations - like writes Gesulato Bufalino - who waited for the first bloom of a pink tree to reassure himself of the finished bad weather, and return to love, together with the animals and the clouds, the fraternal renaissance of the earth and the sky». [24]



Fig. 3: Atocha station memorial. Photo Margagliotta.

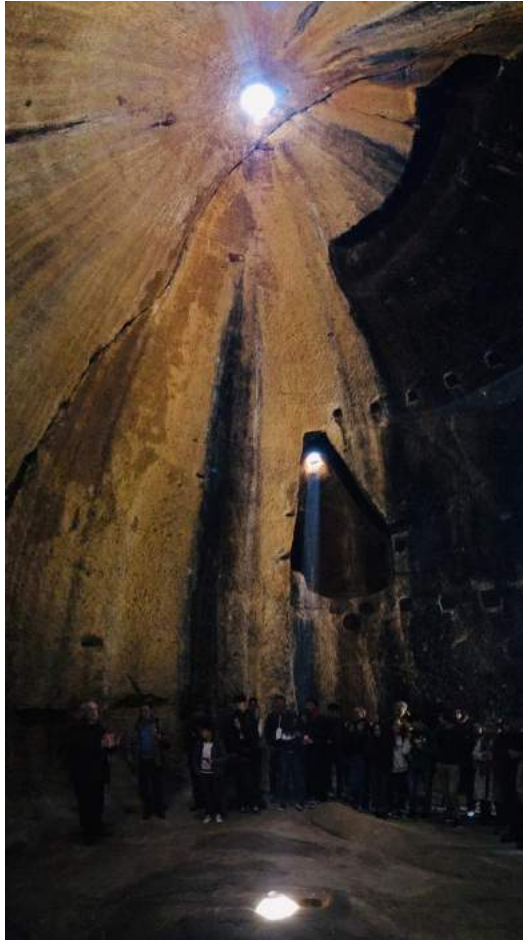


Fig. 4: The *Gurfa* tholos in Alia. Photo Lo Bello.



Fig. 5: Bruder Klaus Chapel, Peter Zumthor. Photo Stec.



Fig. 6: House in Monsaraz, Aires Mateus Associados. Photo Aires Mateus Associados.

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