

Guallart Architects

DENIA MOUNTAIN

Denia, Alicante, Spain. 2002

Geometry of the façade with max Sanjulian

1st prize national competition

The mayors are the great urban ecologists, embodying as they do all of a town's economic, social, human and cultural information. As managers of the artificial ecosystem that is a city, they have a key role in its development. The discourse in the urban development of the Mediterranean is centred on environmental issues relating to the vertical or horizontal growth of the cities in order to preserve the ever smaller territories of special environmental and landscape quality. However, all too often this discourse neglects the social or economic factors that are essential to ensuring the viability of the continued influence of a population in its territorial environment or beyond. In effect, then, decisions of a strategic order in relation to the implanting of new activities in the territory, the product of present-day needs in terms of a town's economic and social fabrics, are key factors in orienting social and economic flows within the territory.

The project for the quarry in Denia is fruit of a very intelligent strategic decision by a town committed to concentrating the key activities in the centre, in order to guarantee ensure that the centre continues being the most interesting and dynamic part of the territory, and in this way to attract the energy of urban, social and economic development there.

The largest tourist town in Europe is on the Mediterranean coast: Benidorm is a potent machine of the tourist industry whose success is the result of creating spaces for leisure in a dense, high-rise form, so that all of the buildings, however far they may be from the beach, have views of the sea. However, this model of concentration on the coast, which implied the protection of the empty territory of the interior, is being modified by theme parks, low-rise housing and other extensive non-urban mechanisms, of low social and environmental value.

Denia, situated between Alicante and Valencia, represents another model of tourist development based on a medium density; this has traditionally functioned on the basis of attractions such as the port (with ferries to Ibiza), or the quality of its beaches and rocky coves and its magnificent gastronomy. However, the real-estate processes linked to the development of holiday-home tourism had already begun in the 1960s to transform the slopes of the Montgó, an imposing massif that has now been declared a natural park. With those slopes fully occupied, real-estate development turned to the coast north of the town, creating a built continuum of very poor urban quality several kilometres long.

Accordingly, given this process in which real-estate pressure has already affected the environs of the natural park and the beaches to the north, the coves to the south and the agricultural land in the interior, the wisest decision would be to go back to concentrating the activities that energize the economy and contemporary culture in the centre of the town, thus continuing a process of urban refoundation.

Many Mediterranean towns and cities (such as Sagunto) were founded by the Romans on relatively low hills on or near the coast, with a command of the sea that enabled them to protect themselves more easily. Roman Dianium was established to the north of a small massif overlooking a natural harbour in a strategic part of the Mediterranean. The Moors built a castle on the upper flank, and after the Christian reconquest in the 14th century the population settled there. The War of the Spanish Succession resulted in the levelling of the interior of the fortress, and it was used as a military fort until the middle of the 19th century. When all over Europe the old city walls were being demolished, the old fortress was sold for agricultural use, and the stones of the Christian town served to construct terraces to cultivate grapes to produce raisins. At the beginning of the last century the north face, outside of the walled enclosure, was exploited to obtain stone to reinforce the harbour wall. During the Spanish Civil War a network of tunnels was dug in the interior of the massif to provide air-raid shelters, and this has since served to communicate the north and south sides of the crag. In the 1950s the castle was expropriated, a park was laid out and a secondary school was built in the quarry.

After this intense history, in the year 2002 we started work on the Plan for the protection of the castle and its environs including the creation of a major new amenity comprising cultural and urban services, which was considered crucial by the town council.

The town council proposed to locate in the quarry of the castle a great car park connected with the new ring road that would provide access to the town centre by way of the Civil War tunnels, together with a cultural facility and a theatre-auditorium or a conference centre. In order to finance and operate this, it was decided to incorporate profit-making activities of a social character for public use such as a cinema complex, additional cultural spaces, a shopping zone and a hotel, with a resort based on the German model of publicly owned tourist resorts.

It was subsequently decided that it would be necessary to seek the agreement of the participative civic forums of Agenda 21 on the various uses that were to be incorporated into the multifunctional complex in the quarry. To date this consultation process has been very slow, due in part to the development of the new urban plan for the municipality as a whole, and the project is currently awaiting the conclusion of this process to resolve the future of the site.

During the development of the project we became aware that the greatest threat to territorial cohesion was that some of the activities that were envisaged for this site and embraced a logic of concentration of new urban functions in order to attract the population into the centre and thus facilitate urban compactness would end up being implanted in other parts of the territory that were quicker at taking the initiative.

Ondara, a town in the interior, just off the motorway that runs the length of the Mediterranean coast, decided to develop a leisure and shopping centre on a site that is highly accessible not only for the local area but for the whole region, and to capture part of the commercial and leisure market that has traditionally been drawn to the centre of Denia — both from the town itself and from the surrounding area. The systems of territorial delocalization have in this case attained their maximum expression in obtaining, by means of municipal initiatives, the transformation of the traditional compact model of the Mediterranean town into a system of growth based on functional islands that float around the territory, connected by the high-speed transport networks.

The plot intended for an exercise in urban renaturalization that concentrates key activities for the identity of the town in its centre while at the same time undertaking an exemplary operation of landscape restoration still exists in the quarry of Denia.

In what category does an artificial mountain belong?

The project for Denia emerges as the possibility of concentrating in a place of exceptional historical, social and cultural value previously expressed intuitions in relation to the possibility of converting the act of construction into a landscaping operation, in which the resulting structure follows the structural and formal logic of a mountain. In this way, this project posited the challenge of proposing a structure that responded to the scale of the great void that is the legacy of the material interventions in the place in the course of its history. And this being so, the first question to be answered is that of the category to which the actuation to be carried out belongs: if this is to be an epidermis actuation in which a series of activities organized as superposed planes are 'covered' by a sculptural skin; if the building is to be implanted outside of the originally excavated volume, proposing new formal codes to respond to the place; or if, on the contrary, we assume the challenge of reconstructing the mountain in terms of the logic of its geological structure. The three-dimensional void has a length of one hundred and twenty metres, with a relatively constant triangular section with a height of forty metres up to the foot of the castle wall, and a base of fifty metres, with an approximate gradient of three in ten. The first decision was assumed the essential logic of the project, in which their its surface as well as their its functional organization would be based on an only structural logic emerged on the basis of an act of regeneration of the own mountain. We would act here as nature does in the case of certain animals, which are capable of regenerating a member in the event of amputation.

Initially, at the intermediate scale, the limestone rock of the front of the quarry presented various fissures and folds that did not determine any specific rules of actuation.

We carried out numerous analyses of the surface of Mediterranean mountains, characterized by their having very little soil and a great quantity of loose rocks and an abundance of low scrub and brushwood. This involved measuring the various elements of which this terrain is composed, and in one of these surveys we studied a pyramidal stone, which surprised us with its formal clarity, defined by faces whose geometry consisted of crumpled triangles with different degrees of resolution. According to the theory of fractal geometry, many natural elements, which can be reconstructed on the basis of such a geometry, have self-similarity at various scales of magnitude. A branch is self-similar to the tree to which it belongs. A fragment of coastline is self-similar to

the whole coast. And in this case, in theory a stone ought to be self-similar to the whole mountain. However, our attempts at translating the triangular systems of the skin of the rock to the skin of the mountain failed to provide the necessary consistency, and in our search for the logic of the triangulate form of the stone we decided to incorporate a new expert into the team, who would be able to make a microscope study of the interior of a similar rock. And in those microscopic photographs, which revealed an arrissed geometry of the various parts of the limestone rock, as well as rhomboidal crystals in the rocks where water circulated in the interior of the massif, we perceived the reason for the arrissed break of the rock and understood that the regeneration of the mountain would have to emerge through its re-crystallization, reproducing the characteristic rhombohedral structure of the limestone crystals.

Thus, the first step was to define a large-scale structure that rested on the floor of the quarry and on its front, in such a way that the foundation of the structure is supported on both the vertical and the horizontal plane. If the horizontal projection of the rhombohedron is hexagons, we decided that the surface of the mountain should be constructed on the basis of three different-sized hexagons in such a way that the one closest to ground would be the largest, so that the topography that emerged from it would permit the movement of people in larger spaces.

The programme proposed in the project was organized around the creation of three large voids that act as poles of attraction for the contents associated with the programme. The geometry of these programmatic crystals is defined through the overlapping, aggregation or linkage of various types of calcite crystals. These voids make it possible to preserve the quarry intact at several relevant key points in the project. The intention is to construct an urban agora by the exit of the existing tunnel, located between the new rhomboidal structure and the wall of the quarry, with various recreational or commercial activities deployed around it. The auditorium, located in the centre of the new mountain, will have access from the car park and from the exterior of the mountain, by way of a lobby beneath the orchestra pit. The auditorium itself is like the interior of an instrument, with a precise geometric definition that ensures excellent acoustics. At the east end of the auditorium an interior void will accommodate saltwater swimming pools at the base of the quarry, with natural overhead lighting thanks to a geometry that connects with the complexity and wealth of the spaces bequeathed by the Moorish culture that helped create the personality of this territory.

The surface of the mountain can also be used for music events, and is laid out with a botanical garden of Mediterranean plants.

During the development of the project we discovered Viollet-le-Duc's assertion, in his writings on the Alps, that 'God could not have invented nature without geometry.' Viollet-le-Duc used the same geometry that we have used to reconstruct the quarry of Denia, as the basic structure of the pyramidal massif of the Alps.

The skin is the path.

The last act of the quarry will be to reconstruct itself. For this reason the surface of the new construction must be of stone and facilitate the regeneration of the natural systems, both organic and inorganic, that are found in the Mediterranean mountains. The project for the surface of the reconstructed mountain posited the question of whether to create

an amorphous surface where the materiality would be precise, and on which mobility would be on roads dug out of the defined surface, in keeping with the model of the hermitages found on the tops of hills in various parts of the region. However, this approach did not seem valid, given that the opportunity of defining the geometry of this surface would serve to merge those places where human circulation is possible thanks to the gentle slope and others where access is more difficult. In order to rationalize the construction process, it was decided to work with the hexagon, supported on the underlying rhombohedral structure, as the basic unit on which to create a microtopography that would allow pedestrian circulation. This element would have a gradient of 30 degrees (similar to that of the original mountain) and would permit circulation on gradients varying from 8%, accessible to handicapped visitors, to the 30% of a stepped ramp. Like a natural system, the system to be developed had to permit a form of proliferation that was not modular, but more akin to the complex surfaces found in nature. The proposed solution is a piece in which all of the sides connect with one another, thereby creating interior micro routes whose gradients vary according to the position of the pieces. The pieces that permit a change of the scale have a special geometry. In this way the surface of the mountain emerges from the rhomboidal structure of its interior and invites a form of circulation similar to that of the Mediterranean mountains, in which each individual traces his or her own path.

Credits:

Project Date: 2002

Client: Ayuntamiento de Denia

Site: Denia (Alicante)

Architect: Vicente Guallart

Façade geometry: Max Sanjulián

Auditorium: Jordi Mansilla

Collaborators: Ivan Llach, Moon Puig, Nacho Alonso, Natxo Solsona, Miquel

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Acoustic advisor: Higini Arau

Structure: Robert Brufau

Models: Christine Bleicher, Susanne Schulte

Polyurethane Model: Luis Fraguada, Monika Wittig

Photography: Luis Fraguada, Monika Wittig



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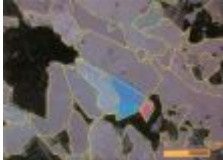
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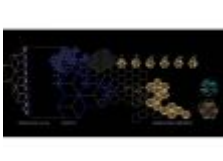
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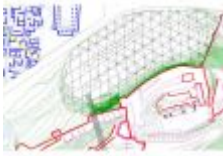
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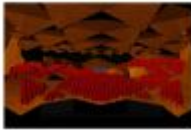
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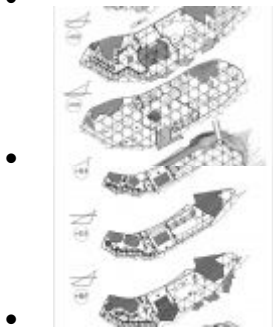
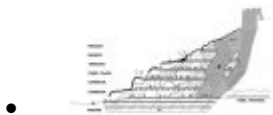
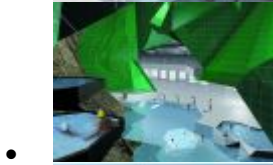
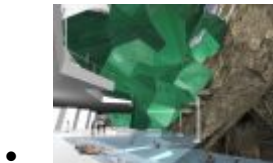
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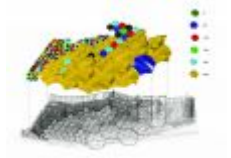


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