case study: couvent sainte-marie de la tourette

LE CORBUSIER and IANNIS XENAKIS

DAVID JENISTA

1953-1960
The above were the words of Dominican Father Marie-Alain Couturier; his commission's essence offered to friend and architect Le Corbusier for a monastery to house one hundred Dominican monks. Couvent Sainte-Marie de la Tourette (henceforth La Tourette) was considered to be of a genius nature and in order to understand the form, or rather forms, we must examine Le Corbusier's ideas on architecture as well as the culture and social customs of the Dominican lifestyle. We will also see that the genius of the form meets the theoretical standards of other architects.

As Le Corbusier states in terms of mass: Architecture is the masterly, correct and magnificent play of masses brought together in light. Our eyes are made to see forms in light; light and shade reveal these forms; cubes, cones, spheres, cylinders or pyramids are the great primary forms which light reveals to advantage; the image of these is distinct and tangible within us and without ambiguity. It is for that reason that these are beautiful forms, the most beautiful forms. (Le Corbusier, 29)
It is suggested that impure forms would detract from the beauty of a building while also deterring us from maximally experiencing the spaces within it. Le Corbusier's "geometric rule of the building encompasses the underlying forms of prismatic solids, [and] the application of Modulor measurements [is attributed] to many aspects of the interior" (Gans, 101). The Modulor was a system of proportion, of Le Corbusier's design, based on human measurements, the double unit, the Fibonacci numbers, and the golden ratio. It was the Modulor merged with the musical compositions of Corbusier's project manager, Iannis Xenakis, that dictated the language of the pans de verre ondulatoires, the pinwheel fenestrations, and other proportions of the monastery. It is the success of the pure forms in conjunction with Le Corbusier's expert experimentation with light and proportion that allow the monks to experience La Tourette for its function in a lucid manner rather than through the distraction of what could be termed 'impure forms.'

On a much smaller scale of form, because La Tourette was partially cast in place, it becomes necessary to depict how some accidental forms came to be. While Le Corbusier was certainly not a fanatic of the Gothic style he did recognize that "entrusting the physical expression of his design to those building it was at once a logical acceptance of circumstance and a romantic act based on a neo-Gothic trust in the relation of the workman to the work" (Gans, 102). This notion is more evident when
we consider Ruskin’s idea that forms were not limited by a master plan and that the form as derived at the hands of man; "utterly regardless of any established conventionalities of external appearance, knowing [...] that such daring interruptions of the formal plan would rather give additional interest to its symmetry than injure it" (Ruskin, 168-169). Le Corbusier, through his dialectic of dualities, sought to celebrate the variances and mistakes of human error that inevitably contributed to the genius of the final product.

In terms of the monastic lifestyle we can see that the traditional spaces of the cloister exist as the monks expressed their needs but, "the form and space distribution was left up to Le Corbusier" (Henze, 8). Le Corbusier had visited several abbeys, both in his past and in preparation for the project at hand, that left him an incredible understanding and appreciation for the monastic lifestyle. He felt the monks exhibited an "indissoluble binomial of the individual-collective" (Gans, 103). Le Corbusier sought to embody and materially minimalist lifestyle of the monks through a series of dualities, his own personal dialectic: Individual-collective; light-dark; secular-religious; lucid-obscure; temporal-permanent; incremental-continuous; rational-irrational; architecture-nature; high-low. These dualities combined with Le Corbusier's incredible understanding of the monks' daily life generated a series of forms in an almost harsh contrast to one another that expressed his notion of pure and beautiful geometries.
formative binomial dialectic

- individual :: collective
- incremental :: continuous
- secular :: religious
- dark :: light
- high :: low
- lucid :: obscure
- nature :: architecture
- irrational :: rational
- individual :: collective
I wish to venture to compare the genius of La Tourette to the theoretical standards of Paul Rudolph and his six determinants of architectural form. The following examination seeks to pull minimal examples from La Tourette and should offer a glimpse into the specific forms of the structure.

First Determinant: Building's Environment

In relation to the site, Le Corbusier sought to separate the building from the hillside in an effort to dominate the surrounding nature to reinforce his dialectic of dualities which reiterates Rudolph's thought that "religious buildings [...] should serve as focal points in our cities" (Rudolph, 213).

Second Determinant: Function

By reducing La Tourette to a mere function with no excesses and the maximization of circulation, the form that took shape reflected both traditional monastic values and Le Corbusier's personal ideas and theories. Interestingly enough, La Tourette exceedingly satisfies Rudolph's idea that the building should be regarded as whole in how it works.

Third Determinant: Particular Site Conditions

Simply enough the building responds to sun patterns, access to the site, and location and positioning in relation to the surrounding forest and valleys. The summer solstice generated the forms of the sacristy light cannons.

Fourth Determinant: Materials

In order to render the abbey affordable while reflecting the simple and non-materialistic nature of the monks, Le Corbusier resolved to use both precast and cast in place concrete. The monolithic nature of the form is reinforced by the materiality in that it expresses the building's eloquence and true nature, as Rudolph suggests it should.

Fifth Determinant: Psychology

Rudolph believes that this determinant is achieved "through the manipulation of space and the use of symbols" (Rudolph, 214). The oratory column and the main ambulatory are cruciform in nature and thus symbolize the religious nature of La Tourette.

Sixth Determinant: Spirit of the Time

Here is where I believe La Tourette does not measure up with Rudolph's values. Not in the sense that Le Corbusier was wrong in his design, but because he was correct. It could be argued that Le Corbusier was not concerned with the spirit of the times. He merely wished to convey a building through a binomial language that reflected the values and needs of the Dominicans. The form of La Tourette is not troubled with the ideas of an outside society and so I dare to suggest that it renders Rudolph's sixth determinant irrelevant.

Now that we have discussed La Tourette in terms of form we must consider the body; the building as a place to house one hundred healthy bodies and a structure that is ‘made’ up of one hundred (or more) bodies. In “The Medical Body in Modern Architecture,” by Beatriz Colomina, we find that Le Corbusier believes the “house is first and foremost a machine for
health, a form of therapy” (Colomina, 232). Clearly we are not under the impression that La Tourette is a house, but Corbusier’s five points of architecture, and his apparent obsession with health, as described by Colomina, offer insight into La Tourette as a healthy ‘home’ for one hundred monks. “Le Corbusier has long been obsessed with health,” (Colomina, 232) and so La Tourette was raised from the ground in an effort to remove the inhabitants from the ground where he believed disease was bred. Furthermore, he reiterated a healthy body by incorporating the roof garden where the monks could get exercise. Le Corbusier so strongly believed in a healthy body in architecture that even the monks’ cells in La Tourette mimic this notion. The cells are completely private (unless one were to invite another in), including the balconies. They offer cross ventilation from the balconies into the halls through operable louvers. Every room looks out into nature and so each room receives sun light, air, and a view. I touched on this in terms of form, but Corbusier designed the monastery around a series of dualities. The duality of individual versus collective offers an extensive set of options in La Tourette where bodies become more densified or released throughout. If we extend Corbusier’s obsession to a healthy mind, we have only to offer one of many examples. People who have visited La Tourette have said that the building is anything but dreary and so we may suggest that the building bolsters the healthy body and mind. But now let us look at the Modulor.
At one point Colomina offers that Le Corbusier and his colleagues removed the body as a symbol and something that occupies architecture and replaced it as a body that informs architecture. This is Le Corbusier’s Modulor and it can only be described as a genius proportioning system, and as previously discussed it was based on human measurements, the double unit, the Fibonacci numbers, and the golden ratio.

Primitive men at all times and in all places, as also the bearers of high civilization, Egyptian, Chaldean, Greek, all these have built and, by that token, measured. What were the tools they used? They were eternal and enduring, precious because they were linked to the human person. The names of these tools were: elbow (cubit), finger (digit), thumb (inch), foot, pace, and so forth. . . . Let us say it at once: they formed an integral part of the human body, and for that reason they were fit to serve as measures for the huts, the houses and the temples that had to be built. More than that: they were indefinitely rich and subtle because they formed part of the mathematics of the human body, gracious, elegant and firm, the source of that harmony which moves us: beauty. (Le Corbusier, 18-19).

Just as Corbusier highly regarded the primitive form, so he highly regards the body. And why should he not when he believes in the simplicity of forms? These tools, these ways of measuring, they are infinitely more impressive when we consider that they are the original tools. The beauty that Corbusier sees in these tools is that they are a part of a greater whole that is, by nature, of divine proportion. I will not go into detail about how the Modulor was derived (I would never do it justice considering there are two books devoted to
Just that the system combines these ratios and mathematics and produces an infinite number of combinations. In his book, The Modulor, Corbusier describes an exercise in which “you take a square, say, and divert yourself by dividing it up in accordance with the measures of the ‘Modulor’. The game can be played indefinitely. Another version of the exercise is to try to decide which of the combinations are the most satisfactory or the most beautiful” (Le Corbusier, 92). The keywords by Corbusier here are “which of the combinations are the most satisfactory or the most beautiful.” We already know that Corbusier believes primary forms to beautiful, as well as the rudimentary tools that are our bodies; logically we can only conclude that any form, iteration, pattern, or otherwise derived from the Modulor is beautiful; it is not a question of an ugly iteration of the body, that does not exist out of the Modulor, it is a question of which iteration we find most beautiful.

Architectural technique is a vast and varied process that can be attributed to any piece of work worth noting. Architects employ a series of tools -- of techniques -- that work for them and that are drivers of form, concept, circulation, etc. Le Corbusier typically used The Modulor as a technique, but I wanted to explore a few other ideas since I’ve already touched on The Modulor in previous portions of this study. I would like to explore a diagram that deals with materiality of La Tourette in relation to the monastic lifestyle. I’ll be looking at concrete and how it performs functionally for aesthetics and design. Following that I want to touch on the idea of typology and precedent where I can use other monasteries for inspiration and how they are alike and different to La Tourette. Lastly I would like to endeavor on the idea of “program.” I want to look at how a client’s initial idea of what they want can be integrated into the process of technique.
This diagram is a brief exploration in concrete in relation to the monastery and the monks choosing to live with few to no material possessions; the almost bare nature of the concrete achieves this notion. I wanted to look at how puncturing concrete affects a space in terms of light and view; wall and roof thickness; and folding. From this exploration I find that I’m noticing more subtle details through La Tourette. I am questioning why each light puncture is positioned as is and how the thickness of roofs and walls can affect those punctures as well as their position.
Here I have looked at the monastery as a ‘type.’ I took a handful of monasteries from around the world and created simple parti diagrams from each. Similarly with La Tourette. Then I looked at morphing all of the chapels into one mess. The results have shown me that regardless of where and when each monastery was built, the cloister remains a prominent shape in the partis. While Corbusier chose to explore a more direct circulation he still left hints of the quadrangle and the idea that the monastery is literally “inside the box” away from the world.
“To house one hundred hearts and one hundred minds in silence.” This quote embodies the entirety of La Tourette. The diagram reflects a triptych; The Father, The Son, and The Holy Ghost. The Father is representing the heart. The Son, God’s worldly form, is the body. Lastly, in silence means to be of oneself, of their own soul, The Holy Ghost. The red dot signifies the lack of sound in the monastery and is tied into the fact that other well known monasteries, and many others, find themselves secluded, allowing both the monks and the building to reside in silence.
In architecture we often think of space as this all encompassing entity; places that both are enclosed and open. Henri Lefebvre, in his writing, The Production of Space, suggests that the spaces we create in architecture carry messages, that “space indeed ‘speaks’ — but it does not tell all” (Lefebvre, 183). Furthermore Lefebvre elicits that space decides what may or may not happen within it. This idea is made apparent in La Tourette when we consider formal and social logics, material implications, and sensations and ritual. What I would like to suggest is that La Tourette embodies a space that speaks to ideas of minimalism and ritual. Some of this language may be blatantly readable and other portions perhaps slightly more ambiguous.

As a whole, the monastery is governed through the formal and cultural logics of program. In the diagram below we see two sets of plans. The plans on the left illustrate a formal governance. Each programmatic typology is delineated through color; purple as prayer, red as dining, blue as education, green as living, and yellow as visitor holding. The message of these spaces suggest singular
When we look at the church of La Tourette more closely we can see a new spatial ordinance beyond program; patterns in sensation and emotion. People often feel a wide range of sensations in a church (guilt, humility, exaltation, joy, redemption, relief, love, grief, helplessness, reverence, etc). The intensity of these sensations and emotions vary from person to person but repetition of these emotions and sensations are achieved through ritual. The rituals of prayer, mass, funerals, weddings, and so on. The language of this space becomes more mysterious. I am not looking to delve into Christian mythology and whether or not prayer and miracles are legitimate, what I am seeking to convey is that functionality, this is plausible being that the monks of La Tourette lead a very structured and strict lifestyle. On the right, the plans are divided out by public space (green) and private space (red). This is the cultural logic of La Tourette. Because the monks live mostly in solitude, public and private exist as a cultural boundary between the insiders and the outsiders.
the people who do believe in these aspects of religion find spaces such as La Tourette as representing a language as wide as the sensations felt within it.

Finally I would like to discuss the material implications made through space. As we have already discussed, the Monks at La Tourette live a minimalist lifestyle, no ornament or added frills. Furthermore, Le Corbusier had to consider the fact that the budget for the monastery was relatively low. On closer inspection of the spaces of the monastery I started to realize there was a trend in the colors that Corbusier used. The material diagram below shows the colors, materials, and “ornaments” found throughout the monastery. Some mistake the stark nature of the spaces as being depressing when, in fact, Le Corbusier intentionally designed them in this manner. The spaces speak to a reality that what we truly need in life is far less than what we actually practice.


Le Corbusier, The Modulor, Faber and Faber, 1948.


