

Jedno z ostatnich zdjęć architekta zrobionych pod koniec życia to podsumowanie, czy może raczej wizja świata kultury Luigiego Morettiego (il. 53). Architekt fotografuje się z makietą Palazzo dei Conservatori, symbolem bliskiego związku jego prac z historią, trzyma uformowany w kulę zwój metalowych pasków od Claire Falkenstein, wyrażający emocjonalny związek z nowoczesną sztuką *l'art informel*, przed nim stoi makietka filara z Fiuggi, obrazująca

nowy, strukturalny paradygmat tworzenia architektury, który realną nieciągłość form przeciwstawia ich poza realnej ciągłości, tak jak ciężar materialnej rzeczywistości – lekkości jej obrazu, aby stworzyć rodzaj architektury marzeń, która będzie w stanie dostarczyć przeżyć najintensywniejszych, jakich doznać jesteśmy w stanie, nazwanych przez Morettiego - *incantamento* – zaklęciem, bo to ono stanowi główny cel sztuki.

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THE ARCHITECT LUIGI MORETTI. FROM RATIONALISM TO INFORMALISM¹

ANNALISA VIATI NAVONE

Many pictures portray Luigi Moretti in his elegant, enormous and famous office extended on two floors of Palazzo Colonna, rented from the Colonna Princes, near Piazza Venezia, in the historical heart of Rome. This was the place where Moretti spent most of his life, his office, but at the same time his home, where he kept his great art collection and his very rich library, in the 1960s used by architects coming from all over the world. He was described as a Renaissance man, with his own following, on board of the most beautiful American cars, as a very prodigal and big hearted man. He always appears surrounded by numerous works of art, signs of his intellectual interest in both ancient art and contemporary developments (ill. 1). He was especially interested in the new art form, which was called «Informal Art», or «Art Autre» [“Other Art”], by the French art critic Michel Tapiè at the end of the forties. Informal Art was created by many young artists such as Alberto Burri, the inventor of tactile collages made of various unorthodox “non artistic”

materials, which led him to a kind of Informal Art called «materic». Many artists of this circle were fascinated with gestural art (action painting), among them Lucio Fontana, the famous author of cuts, Jackson Pollock with his drippings, and Georges Mathieu, author of abstract compositions made by repeating a few signs many times on the canvas. Moretti also liked the works of Giuseppe Capogrossi, canvases depicting sequences of signs, a little different in form, differently orientated on the surface of the canvas, creating innovative spatial relationships between the figures (the prominent signs) and the background. This interest in contemporary art was very important for Moretti's conception of architecture.

The education as an architect

Moretti was born in Rome in 1907 and he died there in 1973. His father was a Belgian mathematician and engineer, who had two sons from a previous

¹ This essay is based on a lecture that I gave at the Faculty of Architecture Warsaw University of Technology on the 29th of

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marriage. That is why Luigi did not take his father's name Rolland but he inherited his mother's name Moretti.

Little Luigi learnt the interest in science, mathematics and architecture from his father. His first office was in his parents' house, which remained his own house for his entire life: in fact he got married only at the end of his life, when he was already very ill, to a secretary, who was 25 years his junior.

He was first an intellectual man and then an architect (ill. 2). He collected an enormous library with old and precious books, most of which he inherited from his father, who died when he was only 14 years old. His mother, who also died after a long disease when he was about 28, represented his person of reference during his whole life (*mater dulcissima*, the sweetest mother, he engraved on the family vault designed by himself).

He was a very religious man. In fact his plans of churches, unfortunately none of them realized, show that he thought about a religious building as a place of light, where the matter is splitting and the space is continuously in contraction and expansion to stimulate the beholders' emotions, the contraction giving the feeling of discomfort, embarrassment, malaise, the expansion on the contrary giving the sensation of comfort and well-being. He also lights up some places of the religious space to produce joy, or creates darker spaces as though to invite visitors to meditate².

The last important element in the picture is a project for an important competition concerning the Palazzo del Littorio (Rome, 1934), Mussolini's political district. As everybody knows, Moretti was involved in the Fascist Regime, and was head of Opera Nazionale Balilla technical office since 1933 (ONB was an institution looking after the health and the moral and political education of the youth). In this role he made an important contribution to developing new Italian architecture, combining European Rationalism with the Italian tradition. The buildings he created in the thirties are emblematic of the way of making new without giving up history, which was always a source of inspiration for him.

While Moretti was studying architecture in Regia Scuola di Architettura in Rome from 1925 to 1930, he showed his professors a very deep knowledge in many fields of culture. Two of them, Gustavo Giovannoni and Vincenzo Fasolo, called him to be their assistant for several years while he was still a student. He earned his degree with the highest honors and in the following year he received a scholarship that allowed him to collaborate in the investigation and restoration of monuments in Rome, especially in restructuring the Mercati Traianei with the famous archaeologist Corrado Ricci. This occasion to work physically with historical architecture made him consider history an important source of inspiration, a vital starting point for his projects, also for the most innovative buildings that he realized.

This particular relationship with history is the first of the three magnets around which Moretti's interests are concentrated, the others being his attention to the inner space, resulting in the new way to consider it and to describe its qualities as nobody in Italy had before, and his curiosity for science, which led him to explore its possible connection with architecture and art.

The interest in Michelangelo's works and the relationship with history

Michelangelo as an architect, sculptor and painter was in focus of Moretti's attention for all his life, from the early studies, where he analyzed the relations between the structure and the form, and therefore considered the tectonic of Michelangelo's many works, for instance the "Palazzo dei Conservatori" at Campidoglio Square, and the Vestibule of the Laurenziana Library in Florence (ill. 3-5). Here Moretti analyzed the real structure, made by the elements carrying the static weights, as columns and giant pillars, which we can see because they are not hidden under the visible surface; on the contrary, Michelangelo shows us what element is more or less charged (so we can reconstruct in our mind the diagram of the static strengths), and also he shows us the matter being formed. This

² I refer to the project for the Chiesa del Concilio Sancta Maria Mater Ecclesiae (Rome, 1965-1970) and another very interesting project for the new sanctuary of Primato di San Pietro on Tiberiade Lake, at Taghba (Palestine, 1965-1968). On this topic, see G. Belli, *Luigi Moretti. Il progetto dello spazio sacro*, Alinea, Firenze 2003; and also G. Gresleri, *La questione del sacro*, in *Luigi Moretti. Razionalismo e trasgressività tra barocco e infor-*

male, edited by B. Reichlin, L. Tedeschi, Electa, Milano 2010, pp. 295-311. See also Moretti's *Spazi-luce nell'architettura religiosa*, in "Spazio", extracts, 30 April 1962 (the English translation is in *Luigi Moretti. Works and writings*, edited by F. Bucci and M. Mulazzani, Princeton Architectural Press, New York 2002, pp. 185-190 under the title *Light-Spaces in Religious Architecture*, without images).

point was very important for Moretti, who was charmed by the figure of the «colonna inalveolata», the column while being formed and becoming independent of the wall around. He interpreted this figure as a sign of the temporality of the architectural construction, as a temporal structure, as a sign of time we can hardly feel running as we stand in front of a Baroque sculpture, for example the Fontana dei Fiumi by Bernini in Navona square³ in Rome, where the rough and unaccomplished matter of the group shows the process of transition from “informal” to “formal”, from a condition without form to a condition with form. This is one of the reasons for which Moretti considered the Baroque close to the Informal art. So, for Moretti Michelangelo was the father of Baroque⁴, since he had put in his architecture the sense of time in such a way that we can imagine and see the temporal stratification of the structures composing his works, a temporal stratification characterizing ancient Roman monuments, transformed over the years by building walls among columns, enclosing the old structure in new elements, putting matter around old elements. This proceeding in Moretti’s vision is what Michelangelo had learnt from history, and its clear trace is the «colonna inalveolata».

Moretti was also interested in the conditions of vision, in how the observer perceives a work of art in its general form and in details; therefore, he looked for the correct angles giving a global and a particular vision of a work of architecture. This preoccupation makes him close to some German aesthetic theoreticians of the 19th century, such as Hermann von Maertens, involved in the definition of the “Optische Maßstab”⁵ [Optical scale], where the aesthetic vision is based on eye physiology studies. For him, for example, only at a distance corresponding to a vision angle of 27 degree can we see a façade in its wholeness, whereas a picturesque vision, where the object of vision merges with the surrounding, is achieved with a vision angle of 18 degrees (ill. 5-6).

The studies on the conditions of vision of the *Last Judgment* in the Sistine Chapel, elaborated in 1931-1934, returned in the project of Piazzale dell’Impero at the Foro Mussolini (Rome, 1937), where Moretti tested how to get the best vision of the obelisk placed at one end of the promenade, before the bridge on the Tiber, when the beholder was walking towards it (ill. 7-8). He said: «high minimal and finely carved elements give by contrast scale and dimension to the Obelisk [that] reaches the best value in dimension and character if placed in a space architecturally defined and by gradually reducing measures». In this case, the space is architecturally defined by the sequence of repetitive blocks and gradually reducing by the convergence of the alignments of the blocks creating a perspective acceleration. In a sketch of this work we can see one of Moretti’s ways of verifying what the observer perceives depending on his position in the space, when he is on the side of the central promenade, or in the middle of it, when he stands halfway the distance between the marble blocks, et cetera.

What really was the Baroque in Moretti’s theory, what does it mean in the elaboration of his architectural style? According to Moretti, we have to interpret the history of art as a dialectic relationship between two categories: «non Baroque groups» and «Baroque groups»⁶. By proposing this distinction, he wanted to abandon the old, canonical opposition of Classic and Baroque or Classic and Romantic, moving the difference between them from forms to the perception of forms (ill. 9-10).

Moretti called «non Baroque groups» those artifacts which are available in terms of immediate and total comprehension, whose structure, forms, façade composition, etc., are understandable immediately and without doubt, as it happens in the case of some early Renaissance buildings – and the porch of the “Spedale degli Innocenti” by Brunelleschi might be an example – where a module is repeated again and again. In contrast, he understood Baroque groups, by which he was charmed, as artifacts only learnt by

³ Moretti’s study of the Fontana dei Fiumi by Bernini and other Baroque sculptures was published in “Spazio”, 1950, n. 3, pp. 9-20, under the title *Forme astratte nella scultura barocca* (English translation is in Luigi Moretti. *Works and writings*, op. cit., pp. 163-165 under the title *Abstract Forms in Baroque Sculpture*, without images).

⁴ To Michelangelo’s artistic life Moretti dedicated a short film, which he directed together with the Belgian artist Charles Conrad, and which was presented at the Biennale of Venice in 1964,

at the celebrations of the 400th anniversary of Michaelangelo’s death. The movie was awarded in the category of “artistic films”.

⁵ H. Maertens, *Der Optische Maßstab oder die Theorie und Praxis des ästhetischen Sehens in der bildenden Künsten*, Wasmuth, Berlin 1884.

⁶ See L. Moretti, *Strutture di insieme*, in “Spazio”, 1963 (the English translation in Luigi Moretti. *Works and writings*, op. cit., pp. 190-191 under the title *Structures of Groups*, without images).

“subsequent temporality” through a process leading to a “mediated and intellectual” vision of the works. It happens that a Baroque work of art presents a complex conformation, not understandable from one point of view or from a privileged perspective, but only by turning it around and collecting visual information in memory. Such artifacts also establish a kind of empathetic communication where there is place for personal and emotional reading.

The Rationalism in the Thirties: experimenting with new materials to renew Italian architecture

The Casa del Balilla in Trastevere (Rome 1932-1937) was Moretti’s early work, one of the most important buildings designed for the fascist youth movement Opera Nazionale Balilla. Its characteristic feature is placing different functions (the library, surgeries, gymnasiums, swimming pools, the theatre, offices, the fascist tower from which Mussolini spoke to young people, et cetera) in many volumes of the building. The picture taken from the Largo Ascianghi (ill. 11) shows the articulation of the Balilla Center, where the asymmetry and a fine optical balance of the volumes have to be considered the compositional topic of the main façade.

The façade is composed of three elements. The first one is the tower with the main entrance, which is the heaviest volume of the composition; its sides are optically correct as a Greek column and it is covered with marble, so it appears heavier than the other two volumes. The second one is the airborne volume of the gymnasium, showing the expressive possibilities of the frame becoming an aesthetic form, worthy to be seen, to be brought to surface. This block is more extended and optically lighter than the tower, while the third volume is the slimmest of the three and the only one covered by a glassed surface showing the structure behind it. The relationships among dimensions, materials, transparent and matt surfaces, full and empty volumes, gives the composition a balance, to which the asymmetric entrance contributes, being shifted on the gymnasium side. This building, from its construction in the thirties, was considered a masterpiece; indeed the main façade

was portrayed on the commemorative coin made to celebrate the tenth anniversary of ONB’s foundation (ill. 12-14).

The side facades give evidence to the way in which Moretti disconcerts our visual habits, putting the weight above the empty, or realizing a glassed corner just where the beholder expects a solid and full corner, in order to contrast the static forces concentrated there in a traditional constructive system.

The custom of putting the weight higher, the “weight carried above and loaded onto suffering supports”⁷ as Moretti said and as it happens in the human body, follows an anthropomorphic interpretation of structures, once again rooted in the study of Michelangelo’s works, and it also appears in his other works, for instance in the Fencing Academy. Many references have been made to the crucial connection between two parts of the building, the airborne gymnasium and the blind offices block. But it surely shows a compositional logic founded on addition of volumes (called paratactic composition by critics) and not on their fusion.

The paratactic composition, which marks the inner space and the urban image of the Balilla Center, emerges in many of Moretti’s works, including the side façade of the Fencing Academy. The Fencing Academy or the Armory, another work for the Regime made in the years 1933-1936 at the Foro Mussolini (ill. 15), is composed of two orthogonal buildings and presents some motifs which were discussed above in connection with the Balilla Center, such as the weight over the void in the volume housing the Fencing Hall, the frame in full view on the façade of the block with the library and offices, the revetment of veined Carrara marble for which the architect designed specific panels anticipating many special pieces in order to obtain ideal, compact and joint-free materials, trying to show what he liked saying, quoting Borromini’s words: “If the building could be made of some monolithic material, it would be a beautiful thing”⁸. And the Armory seems to be a monolithic block of marble, put on an articulated basement with stairs, with a little mirror of water that also seems engraved in marble.

The main entrance to the library-offices is shifted to the left, which underlines the asymmetric composition

⁷ L. Moretti, *Genesi di forme della figura umana*, in “Spazio”, 1950, n. 2, p. 5 (English translation in *Luigi Moretti. Works and writings*, op. cit., pp. 162-163 under the title *Genesis of Forms Derived from the Human Figure*, without images).

⁸ L. Moretti, *Le Serie di Strutture Generalizzate di Borromini*, in “Spazio”, *Extracts*, 1967, p. 14 (English translation in *Luigi Moretti. Works and writings*, op. cit., pp. 195-201 under the title *The Series of Generalized Structures in Borromini’s Work*, without images).

different from the symmetric composition of the Fencing Hall façade, with two entrances, on the left and on the right side, and a streamlined bridge joining the two orthogonal buildings.

The complex, made of pure white volumes, was very celebrated at the time: it had such a “presence” that it forced the Architect Enrico Del Debbio to renovate the existing guest quarter to the south of the Foro Mussolini in order to create a harmonious group of buildings. After World War II even the theoretician and critic of architecture Bruno Zevi, who had got into an argument with Moretti, called the Armory a “masterpiece”⁹.

In this building the major qualities are those linked to the inner space. Looking at the ground floor plan, we can see the elaborate articulation of the large interior void (ill. 16-17): we go up the steps of the basement, we go into the building by the main entrance at a lower level than that of the gallery and of the vast promenade, which ends in the ovoid meeting room. But the entrance is put on a higher level than the library under the promenade, in a way that allows one to appreciate, already from the entrance, many spaces that are not limited by walls, but only suggested by different levels, by structure and by light degrees (for example, the open volume of bi-level gallery is limited by a redoubling sequence of frame). On the right side one might go up to the lighted gallery for reading or to the exit of the Fencing Hall, or by the ovoid staircase one may reach the mezzanine floor and walk around, looking at what happens below and outside, looking at how the inner space is made and the building is articulated, also reaching the gallery over the external bridge going to the Fencing Hall. So, a device used to control the activities of the young sports people, such as an over standing promenade, in Moretti’s architecture becomes an occasion to explore the space and the outside, to discover how the building is made through different perspectives and positions in the space.

Except for the changing rooms, the Fencing Hall is a very vast space where one is not allowed to see the structure hidden in the walls and over the roof, as if the surfaces and the two staggered vaults had been reduced to an immaterial state, as if it was improper to exhibit the tectonic, the bearing elements, in this

place housing the fast, nimble, elastic movements of fencing activities. So the hall was conceived as the kingdom of relaxed and effortlessly lines, without edges or contrasts, and above all enlightened from the break between the vaults, hidden behind a wall screening it from the outside view. The imposing structural machine is thrown out of the roof and put in the walls to pretend that we are moving in a metaphysical, unreal space, where the force of gravity has been overcome. The vaults also seem to stop their jump, their dash, suspended in midair. In this space, full of light, enlarged, with altered dimensions, the springboard of yellow linoleum brings out the sacred character of the agonistic enclosure: perhaps Moretti, so sensible to the atmosphere of the spaces, thought that the tectonic theatre, that is the tragic side of the construction according to Mondrian, would not have been suitable in this case¹⁰ (ill. 18-20).

The Baroque and the Informal Art in the Fifties: «compositional fires» and «sequences of spaces»

After World War II, Moretti participated to the reconstruction of Milan and Rome, realizing some veritable masterpieces, such as the private complex of offices and housing on the Corso Italia in Milan (1949-1956), designed as a multifunctional center according to the criteria of flexibility and functions that responded to new requirements imposed on the design of urban complexes of high commercial value, or the apartment building “Il Girasole” in Rome (1947-1950). Both works were influenced by the Informal Art and by Moretti’s studies of the Baroque, of the relationship between structure and form and of the inner space, published in an important art and architecture review founded by himself, and entitled “Spazio” (Space).

“Spazio” was a very elegant magazine of which he was director, graphic designer, writer of many interesting articles on Baroque art and architecture, on the Informal Art, towards which he had always felt a passion, and on the analysis of space, which at the time were very innovative even if taking part in a tradition coming from the German history of art. The covers are also very famous because they were designed by the artists of his following: the first

⁹ B. Zevi, *Ambizione contro ingegno. Luigi Moretti double-face*, in “L’Espresso”, 17 February 1957.

¹⁰ See B. Reichlin, *Figure della spazialità. “Strutture e sequenze di spazi” versus “lettura integrale dell’opera”*, in Luigi Moretti.

Razionalismo e trasgressività tra barocco e informale, edited by B. Reichlin and L. Tedeschi, Electa, Milano 2010, pp. 19-59.

three by Angelo Canevari, a painter who worked with Moretti in the thirties, the fourth by Alberto Magnelli, a more famous artist, very introduced in the artistic French world, the fifth by Moretti himself, the sixth by Gino Severini, as Magnelli an artist who lived and worked between Italy and French, the last by Charles Conrad, the Belgian artist and printmaker with whom Moretti realized the film “Michelangelo” in 1964 (ill. 21-22). But the review had a short life: it was published in only seven editions (from 1950 until 1953) due to high production costs, it seems¹¹.

In his last article published in “Spazio”, whose title is *Structures and Sequences of spaces*¹², Moretti, for the first time in Italy, gave a clear definition of the qualities of space, analyzing many works of architecture, beginning with those of Hadrian’s time until contemporary architectural spaces. According to Moretti, it is impossible to describe space only by its absolute qualities, because every interior volume takes part in a spatial concatenation where every space shows its differences by value of comparison with the other spaces. This can be seen in Moretti’s studies of the sequences of spaces of Guarini’s church of San Filippo Neri in Casale, never realized, or the sequences of spaces of Frank Lloyd Wright’s project of Mc Cord house (also never realized). So, the space is not conceived as a void, but as a volume full of matter, and in this way it is exhibited.

Here is what Moretti wrote about spaces in *Structures and Sequences of Spaces*: “They [the spaces] have (...) inherent qualities (...) four of which can be defined: geometric form, simple or complex, as is the case; dimension, understood as quantity of absolute volume; density, dependent of quantity and distribution of permeating light; and pressure or energetic charge, according to the more or the less incumbent proximity at every point of the space of the bounding constructive masses and of the ideal energies they liberate. This last quality is comparable to the pressure in a moving fluid that varies depending upon the obstacles, oppositions and restrictions it encounters, or even to the

potential of a space as a function of electric charges that influence it”¹³. Among them the “pressure” is the most innovative quality because of its physical and emotional character. It describes the beholder’s emotional condition depending on how the spaces are made and enlightened: if one walks in a large space very well illuminated, the pressure is very reduced, and the beholder feels very well, experiencing no fear or discomfort. On the other hand, if the beholder walks through a low, narrow and dark place, the pressure is high, and he feels bad and distressed. The example of Saint Peter’s Basilica shows how the pressure of the sequence of spaces changes, giving a feeling of liberation or oppression alternately, while the visitor is walking towards the dome through the space articulated in expansions and contractions (ill. 23). So, according to Moretti, a project of space involved a project of feelings, of emotions.

Looking at the cultural context, his inspiration to consider architecture from the spatial side is evident: he clearly got in contact with the German and Viennese tradition of “Kunstwissenschaft”, showing a nearness to the method of architectural analysis developed by August Schmarsow, Albert Eric Brinkmann, Paul Frankl, Hans Sedlmayr, but also by Vincenzo Fasolo, his Professor at the school of architecture in Rome. All these theoreticians had developed a graphic metalanguage, more useful for describing architectural spaces than the verbal language and canonical plans. Moretti’s attention focuses on the “representation of interior volumes” through plaster models, a medium of describing the spatial sequences, the joints among spaces, their addition or penetration. His interest in this issue was shared by Eero Goldfinger, Bruno Zevi and Moholy-Nagy after World War II.

After the experience of the magazine, Moretti opened an art gallery, also called “Spazio” [Space], near via Veneto, where he organized three exhibitions of Informal European and American artists unknown in Italy at that time. As many pictures give evidence, they showed works of art arranged in an unusual

¹¹ The seven numbers were: “Spazio”, 1950, n. 1; “Spazio”, 1950, n. 2; “Spazio”, 1950, n. 3; “Spazio”, 1951, n. 4; “Spazio”, 1951, n. 5; “Spazio”, 1951/1952, n. 6; “Spazio”, 1952/1953, n. 7. Some “Extracts” were published by Moretti irregularly till 1971; on this topic, see L. Tedeschi, *Algoritmie spaziali. Gli artisti, la rivista “Spazio” e Luigi Moretti 1950-1953*, in *Luigi Moretti. Razionalismo e trasgressività tra barocco e informale*, op. cit., pp. 137-177.

¹² L. Moretti, *Strutture e sequenze di spazi*, in “Spazio” n. 7, December 1952-April 1953, pp. 9-20, 107-108 (the English translation in “Opposition”, n. 4 October 1974, pp. 123-139 under the title *Structures and Sequences of Spaces* and in *Luigi Moretti. Works and writings*, op. cit., pp. 177-182, without images). Particularly interesting for the description of the four internal qualities of space is the analysis of Saint Peter’s Basilica, both the model that Moretti made to exemplify the first two qualities and the drafts and diagrams illustrating the last quality.

way: inclined, oblique, moved away from the walls, introducing an innovative aesthetic of vision, of the observer's gaze that followed the new way of making art by artists, putting the canvas on the floor or in other spatial positions different from the canonical vertical plane. To reproduce the artist's unconventional perspective, Moretti himself kept the avant-garde works which he collected all his life stacked up on the floor and inclined along the walls (ill. 24).

Moretti's interest in history, in Baroque and in Informal Art surfaces in the Villa Saracena, built in Santa Marinella, on the Tyrrhenian coast not far from Rome, in the years 1955-1958. This residence was a marriage gift for an aristocratic couple, from the bride's father, Francesco Malgeri, Moretti's friend, director of the "Messaggero" newspaper, whose daughter Luciana got married to a prince of the family of Pignatelli Cortes D'Aragona. The image of the north façade was the most published, and at the time the best-known by the public, also because Moretti avoided publicizing the pictures of the interior space, which he considered, holy and inviolable, protecting it from the outside world (ill. 25).

This façade is a real set design made by three sculptured volumes, each with its own metric scale, plastic dimension and optical weight. The tree placed at the end of the oval garden coming before the entrance underlines the end of the scene, interrupting the view of the balustrade terrace overhanging the entrance. The three elements composing the façade are:

- a tower with bedrooms on two floors and terraces on the roof, whose sides are curved in order to reduce its section increasing in height, respect the laws of statics, and give the feeling of an incomplete reading to the observer pushed to turn around;

- a high and very thin wall, divided from the tower and from the balustrade by a cut, without a very clear function and meaning; its sides are deformed, out of shape, as if it was going to change into another shape;

- the balustrade of the terrace at the first floor, the most prominent figure coming out from the plane of the façade violently, with a rush that seems kept by the wall under it; the balustrade bears many horizontal and material bands, recalling both the Informal Art, e.g. Hans Hartung's canvases, and the

anthropomorphic reading of architecture, in which the bands could mean the crushing of the matter by an overload and, simultaneously, the suffering of the matter delivered to the beholder in an emphatic way. Underlining the round shape of the balustrade, these wiry bands give an acceleration to the time of vision: following them, the eye reaches the end (which is really not the end but a temporary break), anxious to go beyond, to turn the edge in order to understand what is happening behind the temporal limits of our vision.

So, we are faced with an interesting case of unfinished comprehension: from the garden we are not able to see where the tower meets the ground and how high it is; neither are we able to imagine the whole form of the balustrade and the design of its bands. Besides, Moretti puts in this façade a very different time of reading and of visual perception for every volume. The second figure, that is the deformed wall, keeps the observer busy longer in search of its compositional rule, which is difficult to find.

So, we are faced with an uncompleted and temporal comprehension and also with a composition structured around some (in this case three) «fuochi compositivi» [compositional fires] as Moretti called them¹⁴, each with its own compositional rule. All that was said above about the north façade characterizes a Baroque group, according to Moretti's theory. The Saracena façade should be viewed not as a surface but, as in Baroque churches, as a spatial formation (*Raumgestaltung*), namely a volume able to show movement¹⁵.

The narrow parcel, so difficult to design a residence in, was bought by Malgeri on Moretti's suggestion (ill. 26). The villa is surrounded by gardens of peculiar and distinctive character, planned by Moretti himself. The first one is a kind of "decompression room", so that the inhabitants could forget the pains and problems of the daily life and leave them at the bottom of the little staircase in front of the entrance, the second is a closed garden «of aromatic herbs» near the kitchen but also a place for meditation connected with the promenade through a door that can be opened completely. The third garden is oriented toward the sea; it is a kind of open court through which the sea can be reached and which can

¹³ L. Moretti, *Structures and Sequences of Spaces*, in "Opposition", op. cit., p. 124.

¹⁴ L. Moretti, *Forme astratte nella scultura barocca*, in "Spazio" n. 3, October 1950, pp. 9-20 (the English translation in Luigi

Moretti. Works and writings, op. cit., pp. 163-165 under the title *Abstract Forms in Baroque Sculpture*, without images).

¹⁵ As it was put by H. Wölfflin in his renowned *Renaissance and Baroque*.

be viewed from the bedrooms, the promenade, the living room or the hall. The gardens are not linked with each other, which means that one always has to go into the house to go out into another garden. Thus, the house becomes a connection between the outside spaces and between them and the sea. In fact we can't go from the front garden to the sea without entering the house, so it becomes necessary to experience the interior space.

The hall after the entrance is a space from which several paths begin, leading to the tower, to the living room or to the service quarters, just as in the Latin aristocratic house called *domus*. The day-spaces are on the promenade; rather one could say they are the elements composing a forty-metre-long promenade. Those are: the oval-shaped dining room, linked with the kitchen (which in turn is linked with the service quarters and, by a little ovoid staircase, with the underground, where the domestic servants' rooms are placed), the living room and the terrace, which serves as an open-air dining room, finally the herbs garden, when the door is open. From the hall one can also go out directly into the garden and then over the stairs with parallel flights reach the seaside, crossing a dark space called «great cave».

As I proved in another study¹⁶, the promenade of the Saracena is the exact translation of Moretti's theory of space (as published in *Structures and Sequences of Spaces*) into an architectural form (ill. 27). In fact in this building, the continuous space of promenade is structured by unities marked by dilations or contractions achieved by increasing in height, length and the quantity of lighting, and by reducing in dimensions and in light. As in Baroque works, it is beaten by spatial thresholds, such as disconnections of surfaces and roofs, or changes of level by putting steps, marking a change of spatial qualities (such as dimension, geometric shape, light, pressure). Mainly along the gallery façade overlooking the internal garden side Moretti introduced "surfaces breaks" in the points where the spatial thresholds are, that will become occasions to put in long visuals crossing the house (ill. 28-29).

This way to consider the interior space of a work of architecture as a spatial chain of unities that seem

to move and breathe comes from Moretti's studies about the Baroque architecture that he could see in Rome, his beloved native city he never left, and from examples well-known to him as topics of Professor Fasolo's lectures (ill. 30).

The dining room appears as a special spatial unit; it is a lower space of very characteristic oval shape It does not have its own roof, which we would expect, as it is placed under a roof disconnection, where the roof of the gallery ends and the roof of the living room begins on a higher level (ill. 31-32). This is a modern way to interpret the shifting between two spatial systems that occurs in some works of Baroque, where the space defined by the plan does not correspond to that defined by the vault .

The last unit of the spatial chain is the «great cave»; it is a dark room covered with sandstones, used to store a boat, conceived by Moretti as a very attractive place, closed by the «magic gate» made by Claire Falkenstein, an American artist of San Francisco come to Paris in the Fifties whom Moretti knew through the French art critic Michel Tapié. The magic gate is an Informal work, a tangle of iron strips with Murano colored glasses shining in light and creating an embroidery of immobile points on a hank where the eye is not able to find a clear composition rule (ill. 33). What Moretti admired in this informal way to make art, and especially in Falkenstein's network, was the tension of the «deaf and heavy» matter while it is changing into a «translucent and nonexistent» matter, into an «Autre» [other] matter that loses weight, as does the second figure of the north façade, which also loses matter getting thinner while going up to the top to pretend temporal consumption.

Between Form and Science: Parametric Architecture

Moretti's interest in mathematics and modern scientific thought brought him to focus his attention on the relationships between modern mathematics and architecture¹⁷. With the help of the scientists invited to collaborate at the National Institute for Mathematical and Operative Research for

¹⁶ A. Viati Navone, *La Saracena di Luigi Moretti fra suggestioni mediterranee, barocche e informali*, Mendrisio Academy Press-Silvana editoriale, Mendrisio-Milano 2012.

¹⁷ See L. Moretti, *Mostra di Architettura Parametrica e Ricerca Matematica e Operativa per l'Urbanistica*, introduction and catalogue for the exhibition at the Triennale in Milan, Tip. Arti

Grafiche Crespi, Milano 1960, and also *Ricerca matematica in architettura e urbanistica*, in "Moebius", n. 1, 1971, pp. 30-53 (this last work was published in English in *Luigi Moretti. Works and writings*, op. cit., pp. 205-209 under the title *Mathematical Research in Architecture and Urbanism*).

Urbanism (IRMOU), founded by Moretti himself in 1958, he worked on the theory of parametric architecture. The objective was to put an end to the subjectivity in planning by reducing functions to several parameters changing in quantities, joined with mathematical formulas. The experiments were restricted to several investigations on the best form of soccer, swimming, and tennis stadiums and on the morphology of a movie theatre. The research group's issues were exhibited in 1960 at the XIIth Milan Triennale, as famous models of architectural urbanism projects defined by means of mathematical research according to the theory of parametric architecture (ill. 34). And to underline his interest for this theory, Moretti showed an analogical simulator that he used for his parametrical research at the exhibition "La Casa Abitata" [The Inhabited House]¹⁸ (ill. 35).

In the late thirties, Moretti was already experimenting with innovative forms of stadiums, as is evident from his sketches and his model of the Olympic Stadium at Foro Mussolini (Rome, 1937-1940) (ill. 36). The question was: from where are the observers able to watch sports competitions without turning their heads to the left and to the right continuously, as "Mickey Mouse, a spectator at a tennis match"¹⁹? It is supposable that Moretti got in contact with the Operative research group during the war years because he often spoke about 1942 as the moment when the first idea emerged. But the elaboration was done at the end of the fifties.

In all the four cases, the definition of forms is deduced by the identification of the surfaces of equal visual information regarding the playing field in the spaces external to the playing fields themselves. So the identification of the value of the visual desirability for each point of the terraces should make it possible to design their best form and achieve the optimal spatial distribution in order to avoid the construction of spaces with a low visual yield, and in order to assure all the spectators a good place to watch a match or a film. For example, in the case of a swimming pool, the best places are those in proximity to the board side, where the swimmers

start and finish; due to this knowledge the swimming pool acquires a new morphology (ill. 37).

Moretti's attention to the condition of vision (which was mentioned in connection with Michelangelo's Sistine Chapel) led him to design a new type of cinema, with an inclined and curved screen, without stalls, only with tribunes around (ill. 38). This is only one of the various solutions for which he achieved a patent at the end of the fifties. But the research did not bring the results he had hoped for, since it proved difficult to reduce very complex functions to correct parameters. He said at the end of his career: "It is evident that for the private villa, for example, and for buildings of particular characteristics (churches, representative building, et cetera) (...) the forms depend on numerous non-quantifiable, imprecise parameters that remain entrusted to the intuition and fantasy of architects"²⁰. This sentence sounds as a negation of all the theoretical grounds of parametric architecture.

The Tectonic in the Sixties: Relationships between Form and Structure

The only project set up after a previous parametric analysis was the underground car park at Villa Borghese (Rome, 1965-1972): in its only sketch kept in his archive²¹, full of diagrams, Moretti studied the sequence of steps in which one can break up the functions of the car park, which is still used nowadays without any problem. This work has become famous for other reasons than those linked to parametric studies.

It was the first vast parking lot designed by Moretti on commission of the city of Rome (one of the 35 to be built). It is 36 000 square meters in area, providing parking space for 2000 cars in an underground volume between the Aurelian's walls and the Villa Borghese Gardens. The only element visible outside is a huge circular void, set up as flower bed, serving for the illumination of the internal space and its natural ventilation, and also as the security exit. The parking space is very well connected with a lot of points of the city center, by

¹⁸ The Exhibition "La Casa Abitata" was held in Florence, in Palazzo Strozzi, 6 March-25 April 1965; on this topic see L. Moretti, *Lo studio dell'architetto*, in "Domus", n. 426, May 1965, pp. 42-45.

¹⁹ L. Moretti, *Mostra di Architettura Parametrica e Ricerca Matematica e Operativa per l'Urbanistica*, etc. (the English trans-

lation *Mathematical Research in Architecture and Urbanism in Luigi Moretti. Works and writings*, op. cit, p. 208).

²⁰ Ibidem.

²¹ The major part of Luigi Moretti's archive is kept at the Archivio Centrale dello Stato in Rome. Here I refer to sketch no. 65/251/1or.

tunnels, mobile staircases and escalators, conceived as organic and flexible tentacles.

The parking space extends on two underground floors; the structure is articulated around a square structural grid, each side measuring 13,30 meter, composed by powerful (in both material and visual sense) flared pillars carrying the first floor (four meter deep in the ground), which is a plate composed of reinforced concrete crossbeams extended in the two orthogonal directions of the grid, and of thin segmental domes leant along the sides of the crossbeams (ill. 39, 40). The peculiar marriage between segmental domes and flared pillars reminds us of the underground hall of Parc Güell in Barcelona (1900-1914), designed by Antonio Gaudí, whom Moretti appreciated very much, but also of more classical spaces. At the lower level, the domes are replaced with square lacunar plates, linking the new architecture with the historical architecture well-known to Moretti, for example with Massenzio's Basilica, which has a lacunar ceiling with a structural function (ill. 41, 42).

In this work, the concrete was not casted *in situ*, but the horizontal bearing elements were prefabricated and then assembled one on top of the other using their weight to wedge the domes or the lacunar slabs in the crossbeams. So, the building site had also been planned by the architect - it was necessary to devise a clever prefabrication station in the building site itself, with a double mobile bridge to assemble the coffered slabs and the segmental domes, whose function was to break the horizontality of the ceilings, making the interior space less oppressive than it would be because of the conflict between the large horizontal dimension and the little height.

Interestingly, Moretti designed the air scoops according to their function, flaring them asymmetrically in a bell shape and hanging them from the ceiling. They show a perfect counterpoint between the weight descending and the air ascending. But the combination of pillars and air scoops, as one can see in the pictures taken on Moretti's instructions, produces ambiguous figures, because an air scoop is not recognized as such immediately, but instead seems to be a turned-over pillar without a basement, suspended at midair (ill. 43). What is this? An optical aberration? Surely, it a device used to make the cognitive proceeding more complex and to engage the observer's mind, memory and senses in an attentive reading of the object, in order to reach its correct understanding. All this has much in common with the Baroque style, according to Moretti.

In this work Moretti achieves a special identity between structure and form, as the structural elements themselves are those on which the major aesthetic values are focused. In another late work he returns to the topic of the relationship between structure and form in a different way. The restructuring, or more correctly, rebuilding of the "Fonti Bonifacio VIII" thermal complex in Fiuggi (1963-1969) shows how the particular relations and connections among spaces, volumes in the space, promenades, structural elements and light contribute to creating surprising sequences of spaces (ill. 44). Here indeed, the principal motif, very dear to Moretti, was the "walk", that is the sequence of spaces along which the patients can move to take their water cure in a proper way. Having to walk and drink the whole day, it is certainly better for them to do this while exploring pleasant and fairy spaces. The result was a beautiful metamorphosis of the site, with terraces at different levels placed in greenery. The complex is made up of many elements. A long promenade, lined with two asymmetric porches on the left and on the right, offers a covered walk in case of rain and mediates the passage from the-open air promenade to the bathroom facilities, the shops and the medical surgeries placed in two very thin volumes following the porch extensions. Moretti called those porches «sails», and they are still called so today (ill. 45-46).

Every sail is perforated asymmetrically by a pillar jammed into the ground and carrying it from above, with cross brackets following the diagonals of the sail. The light enters into the porch like a blade due to the difference of height with the volumes behind it; it also enters through the eyelet, making a bright areole around the pillar. So, the convexes of the sails are not dark, but they react to every different contribution of light. They are called «sails» improperly, because in the eye of statics the curve drawn by a very thin board is not a catenary as it would seem pretending to be a sail, but a curved slab, supported by brackets.

The promenade leads to the first terrace, the «Arabian Tent», through a staircase under which Moretti placed the winter room to take water from the fountainhead. From the «Arabian Tent» different paths lead to the «Rotunda», a covered terrace at the top of the complex (ill. 47).

The «Arabian Tent» has a very ambiguous tectonics. To see it naively, this saddle-shaped cover, with the convexity in the middle and the side boards getting down beyond the pillars, suggests the image

of a tent in a very persuasive way, but in fact it has nothing to do with an ephemeral equipment such as a tent would be. Its intrados have ribs in order to increase the thickness in the middle, where they are orthogonally crossed by two other ribs. To defend the image of an elegantly curved tent, the capital of the pillar is connected to the tent in a tangent way, and Moretti differentiates what is charged from what is carried, the first showing a white smooth surface, the second a bush hammered surface (ill. 48). Both the capital and the pillar are bush hammered even though they are not a unified element.

As for the «Rotunda», here only vertical strengths get across the pillars, the structural principle being that of a rigid plate rested on four jammed supports. The «Rotunda» also looks as a light tent with a circular *impluvium* in the centre: it seems lighter because of the outside inclination of the four pillars that suggest the feeling of a stretched voile, while the soft curvature of the pillars and their changing section give them a kind of elastic quality. In reality, this roofing works as a ferroconcrete membrane, carried and hardened by the compressed ring along the border, and any horizontal tension is present in the pillar, in fact it was possible to put an expansion joint between the capital and the pillar (ill. 49-52).

Why does Moretti show what is not the case in the constructive reality? He tries to build around the guests a recreational, ephemeral world, where one can feel lost and confused but happy to be so. The sails and the tents make one feel as if he was leading an open-air life, although they are built of a heavy material such as concrete, and their tectonic ambiguity helps to maintain and extend this illusion. Once again we are faced with a work that is not immediately understandable, a reticent work, to recall Bruno Reichlin's use of the rhetoric figure of "reticence" as defined by Fontanier²². The thermal complex of Fiuggi also belongs to Moretti's Baroque category.

One of the last pictures taken at the end of his life sums up Moretti's cultural world (ill. 53). He appears among the structures of Palazzo dei Conservatori, which symbolize history, Claire Falkenstein's sphere, which belongs to the modern Informal Art, and the pillar of Fiuggi, which expresses a new structural paradigm juxtaposing the real discontinuity of forms with their unreal continuity, the weight of the material reality with the lightness of its image, in order to create a kind of dream architecture capable of leading us to the highest emotion one is allowed to feel, called by Moretti «incantamento» (incantation), which has to be considered the main aim of art.

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²² See B. Reichlin, op. cit., pp. 48-52.