On Architecture

SHARPENING THE SCALPEL

Alberto Campo Baeza

To my father

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1st Edition in English

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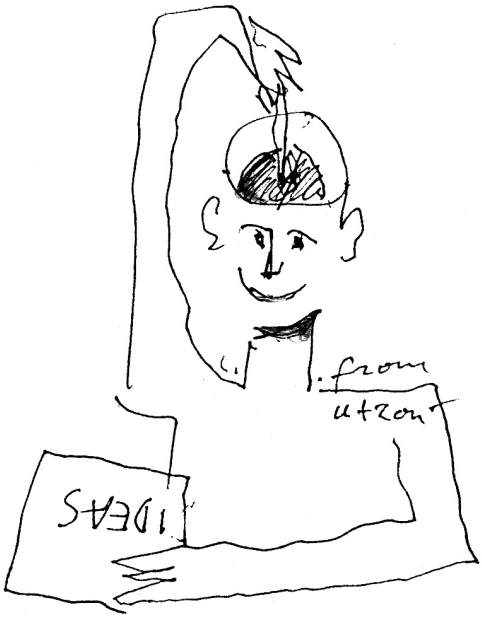
PREFACE



SHARPENING THE SCALPEL

Preface

In this book I have tried to include the most interesting writings from the numerous texts I have penned over the years and published in English I have always said that teaching and writing for an architect is like a good surgeon sharpening his scalpel to operate with maximum precision, just like my late father used to do. I dedicate this book to him

I have always maintained that, in one way or another, the writings of an architect reflect the reasons why he makes his architecture, and I have always defended reason as the architect's primary and principal tool. And now, these texts in English are exponentially increasing their readership.

I have already written several books in English and these collections of texts have always been very well received. From The Built Idea, reissued so many times that I've lost count, to Thinking with Your Hands, which complemented that first publication and follows the same trajectory. These were followed by further titles in English: Principia Architectonica and Teaching to Teach. And now this volume.

I cannot but thank Alison Hughes and Penelope Eades for providing an English version of these texts over the years. They are my voice in English. More than once I have been praised for my good English. It is they who deserve the credit, not me.

And I think it may be appropriate to repeat the same words that I previously wrote to accompany the English translation of some of my writings:

> Be thou assur'd, if words be made of breath
> and breath of life, I have no life to breathe
> what thou hast said to me.

At the end of Hamlet Act III, Queen Gertrude thus defines the paradox that language holds, not only here, but in all of Shakespeare. I wish that my words, now translated into English, could breathe something of the same poetry which Shakespeare infuses in the mouths of his characters. How well the great scribe understood the value of a word.

Words, in architecture, are always an expression of those very ideas built by the architecture itself. Without ideas, architecture is vain, empty: Architectura sine idea, vana architectura est.

Although these ideas seem universal, ever since Babel the words we use to communicate them are in different tongues. So if we wish to convey these ideas, it is absolutely necessary to put our words into other languages.

When George Chapman translated Homer's poems into English in 1614, it had such an effect that two centuries later, in October of 1816 to be exact, John Keats dedicated a beautiful sonnet to him. Around the same time, Cervantes commissioned Shelton to translate El Quijote to English, which made an invaluable contribution to the worldwide dissemination of his work.

Today, we translate words learned from Cervantes into the language of Shakespeare all the time. The impact of translation on the structure of contemporary media is almost unimaginable to the creative mind.

In contrast, the very form of built architecture has a universal quality that needs no translation. This dependence on form differs from the relative freedom that the word enjoys, yet is compensated by the universality of built language, which requires no more explanation than its existence.

While architecture is conveyed by this universality of built work, the logic from which it originates and later develops is all too often hidden or not revealed. The aim of the English version of these texts is to explain these reasons, to offer clues, to discover the basis from which these ideas were conceived, and to illustrate the materialisation of these ideas in the architecture we build.

It moves me to place the words of Don Quixote into the trembling hands of Hamlet, although it is perhaps today the most efficient way to spread any message. Even though I know that on the Internet my texts can travel through space in an instant, I cannot help but imagine my words in the hands of the desolate Danish prince, voicing his doubts in the beauty of the English language. That very same language that was used, after Shakespeare, by Wren, and Paxton, and Soane, and later still by Sullivan and Wright, and even Mies Van der Rohe himself.

I can only hope that my words, my ideas, and, along with them, my work, reach as far as theirs still do.

Alberto Campo Baeza

New York, 2019

NB

Once I finish the introduction to this printed book in English, I and my colleagues will be preparing the digital edition of a series of lessons, entitled Digital Lessons, with the clear objective of reaching out further and to many more people. I do not know what the future holds for us in these fields. I still cannot get my head around the over 5 million visits to my www.campobaeza.com or the over 500 references in my UPM Digital Archive. It is clear that the world, and communication, have changed.


1
2
3
to dream
to live
to die

RELENTLESSLY SEEKING BEAUTY

Quid est ergo pulchrum? Et quid est pulchritudo?

Do we perchance love anything but the beautiful? What then is the beautiful? And what is beauty? What is it that allures and unites us to the things we love; for unless there were a grace and beauty in them, they could not possibly attract us to them?

Saint Augustine*, Confessions.* IV.13. 44

After many years working as an architect, teaching as a university professor and putting my ideas on paper, the reasons why I do my work, I must confess that what I truly seek with all my heart, with all my soul, relentlessly, is beauty.

Can an architect confess this so overtly? Can any creator state outright that what he is seeking is beauty? That is what poets and musicians and painters and sculptors do, what all artists do. Many of the academicians here today know that full well.

To state that beauty is the goal of Architecture could seem rather risky. But I am convinced that by achieving beauty in architecture we can achieve, with this “art with necessary reason” as the classics used to say, a happier place for mankind.

To achieve Venustas, having previously fulfilled the requirements of Utilitas and Firmitas, is the best way of makin people happier, which is not only the aim of Architecture but that of all creative work. Sáenz de Oíza explained it better than me in *The Dream of Paradise* when he said: “I declare that the works of Architecture are instruments for transforming reality into a splendid and regained Paradise from which through our own fault we were

expelled and which we have again been readmitted to thanks to the powers of transformation of Architecture".

Venustas, beauty, to regain Paradise lost, happiness.

Or when Carvajal spoke of "orderly beauty" and his "desire to create efficiency and beauty at the same time such as only true architects seek to do". "The beauty that we contemplate, being ours, we can use to engender beauty, operatively, in our works. Thus beauty becomes *motor* and not just *consequence*."

Over the past number of years I have written about many of the masters of Spanish Contemporary Architecture and, in attempting to summarize all that seemed to me most substantial in them, I developed those texts under the heading of beauty. Bald beauty for Sota, volcanic beauty for Oíza, chiseled beauty for Carvajal, rebellious beauty for Fisac and beauty itself for Barragán. It was my understanding then that beauty was the cause and the aim of the creative work of the masters. And now, with the passage of time, I see it with ever greater clarity. Beauty!

REASON. CERVANTES, GOYA, GOETHE

And beauty in architecture is guided by Reason. I have defended and still defend reason as the architect's primary and principal tool in order to achieve beauty.

Because although this may be true for all the arts, it is most imperatively so for Architecture, because of its inherent ineluctable seriousness.

Cervantes. Those who have read *Don Quixote* do not usually pause at those exceptional pages with which Cervantes prefaces his universal work. And Cervantes confesses himself that he wrote the prologue later. And he also confesses that it is the piece of writing to which he devoted most time. Cervantes wrote: "Idle reader: thou mayest believe me without any oath that I would this book, *as it is the child of my brain*, were the fairest, gayest,

and cleverest that could be imagined". So, having made it clear that reason was his principal work tool, he declares his determined desire to capture beauty with it.

When I wrote that architecture is a built idea, I was merely making the claim that architecture, and any creative work, must be the product of thought, of reason, and of understanding, as we read in Cervantes.

And when that reason is missing, then curious architectures appear which, being so often *against nature*, produce the amazement and the adoration of a society such as ours that bows before these works as if they were the temples of a new religion.

Goya. *The sleep of reason produces monsters* Goya tells us in the marvelous aquatint that presides over the office of the president of this Academy. It is number 43 of the 80 etchings that make up the series of Los Caprichos published by Goya in 1799. The original plate is still conserved and on display in this Academy. Goya also wrote a text, in the form of a list of comments, the original of which is conserved, curiously enough, not in the Academy but in the Archive of the Prado Museum. In this text, when he reaches etching 43 Goya writes: "Fantasy abandoned by reason produces impossible monsters" but goes on to say that "united with her, she is the mother of the arts and the origin of their marvels". In other words, reason needs imagination to open the doors to beauty. How could we not agree with Goya!

God forbid that I should wish to compare myself with Cervantes or with Goya, but it is with this spirit with which I have wished and still wish to build all my works: trying to conquer beauty with all my soul, with the arms of reason and of imagination. With the dour desire to endure as the primary impulse of creation, as Paul Eluard tells us. With the intention of remaining in the memory of humankind. Or as Federico García Lorca said with such simple and lovely words: "I write to be loved".

Goethe. And it would seem that Goethe had an agreement with Cervantes and Goya concerning the defense of reason as the best pathway to beauty when he affirmed, referring to the painters of the time, that "the artist's brush should be dipped in reason", adding thereafter: "and architects in Winckelmann". It would appear that the Academy has been listening to Goethe with its publication recently of the *History of Ancient Art* by Johann Joachim Winckelmann in a beautiful edition through the manuscript by Diego Antonio Rejón de Silva, who was Honorary Member of this Royal Academy of San Fernando. Goethe, tired of the unreasonable digressions being produced around him, strongly advocated the recovery of reason with his resounding words.

PLATO, SAINT AUGUSTINE, SAINT THOMAS

Reason as man's primary tool in achieving beauty. But what is beauty? In *The Banquet*, Plato proposed beauty as the splendor of truth.

Over the centuries further nuances were added to this proposal by other thinkers who, starting out from Plato, fine-tuned his words with the most interesting of accents. Jacques Maritain sums it up very well: "*splendor veri* said Plato, *splendor ordinis* said Saint Augustine, and *splendor formae* said Saint Thomas". Although coursing through the veins of all these formulas is an irrepressible ambition to discover deeper explanations, if truth must be at the basis of all architectural creation that aspires to beauty, how could we consider order and form to be less important? Truth, and order and form. "Form, as we well know, is not something superimposed; it is generated by the very material that reveals itself in it" as José Angel Valente wrote so rightly when honoring Chillida. How could we as architects not subscribe to form as the "material that reveals itself in it" in achieving beauty?

And I cannot resist laying before us here the considerations surrounding beauty that Saint Augustine made in identifying beauty with the Supreme maker:

Late have I loved you, beauty so ancient and so new: late have I loved you
Lo, you were within me and I was in the external world
and sought you there, and in my unlovely state I plunged into the beauty of your creatures.
You were with me, but I was not with you.
They held me back far from you, which if they did not have their existence in you, had no existence at all.
You called and cried out loud and shattered my deafness.
You were radiant and resplendent, you banished my blindness.
You were fragrant, and I drew in my breath and now pant after you.
I tasted you, and I feel but hunger and thirst for you.
You touched me, and I am on fire to attain the peace which is yours.

INVESTIGATION, PRECISION AND TRANSCENDENCE. ZUBIRI, ZAMBRANO, ZWEIG

Let us not however go off on intricate philosophical or theological tangents but return to the route that leads to beauty via Architecture.

And indeed, the motto on the shield of the AA Architectural Association London says: “Design with Beauty, Build in Truth”, which is an accurate summary of what we are discussing right now.

On the occasion of his Doctorate Honoris Causa conferral by the University of Oporto, I was asked for a text on Alvaro Siza in which I developed what I consider to be his three principal qualities as an architect, to a large degree as a factor of beauty, these being the three characteristics that I consider inherent in all Architecture participating in that much-desired beauty: an investigative nature, poetic precision and the capacity to transcend.

Investigative nature. One reaches beauty in architecture in the wake of rigorous, profound work that can and must be considered as a true work of research. Beauty is something profound, precise and concrete that rocks the very foundations of human civilization, that makes time stand still and

ensures that the created work remains durable in time and in the memory of man. Beauty is not something superficial, vague or diffuse.

Not one of my projects has ever been just *another one*. In each and every one of them I have given my all. Each new project has been and is for me an opportunity to seek and find beauty. Each and every one of them has been conceived and designed and built with maximum intensity. With the intense conviction that architecture is the loveliest work in the world.

I have said *no* many times to many projects in which I wasn't given enough freedom or which I considered were not interesting enough to devote my time to them. Some may call this pedantic. But I believe that this is the only way that one can create, that one can live creating, living with the intensity that makes this life worthwhile. All creators understand this very well: worthwhile poets and writers, musicians and painters and sculptors. I am absolutely certain that many of the academicians here today understand it very well.

When Xavier Zubiri was awarded the National Research Prize in 1982, he thanked Spanish society in his acceptance speech for being capable of understanding that philosophy is a true labor of research. Many times have I recommended to my students that they replace the word philosophy with architecture in that defining speech and the result is surprisingly apt. Because architecture is a true labor of research. And as Zubiri himself advised in is address, with guidance from Saint Augustine: "Seek as those seek who still have not found, and find as those find who are still seeking."

Poetic precision And the beauty we are discussing comes to architecture by the hand of precision. That same precision with which poetry is chiseled. When I defend the poetic nature that all architecture in search of beauty must have, I am not defending something vague and diffuse. I am looking for the precision required in poetry to achieve beauty, which is the same precision that I look for in architecture.

María Zambrano defined poetry as “the word in harmony with the number”. What better way to define the precision inherent in poetry. A word, which in one position says nothing special, placed in a precise position is capable of moving us and making time stand still right there. The same is true, with the same precision, in architecture. Because if Poetry is words conjugated with precision, capable of moving the hearts of men, so too is Architecture with its materials.

Capacity faith transcend. Beauty appears in architecture that is capable of transcending us. Architecture that achieves beauty is an architecture that transcends us. The true creator, the true architect, is the one whose work transcends him. Stefan Zweig explains this so well in *The Secret of Artistic Creation*: “There is no greater delight or satisfaction than recognizing that man too can create imperishable values and that eternally we remain united to the Eternal through our supreme effort on earth: through art”. Zweig links that beauty with the Supreme Being, which Von Balthasar was to do more explicitly years later.

Moreover, that beauty that transcends us is not something unachievable or simply reserved for a few geniuses. I always try to convince my students that to achieve beauty is a possibility. It is possible to achieve works that are caressed by the “sound of a gentle whisper” with which the Divine Presence was confirmed in the sacred scriptures and which in architectural creation is the sign that beauty is present.

In Chapter 19. 11-12 of the *Book of Kings* we read:

> The angel said to the prophet Elias: “Go out and stand on the mountain in the presence of the Lord, for the Lord is about to pass by”. And Elias went out. And behold, a great and powerful wind tore the mountains apart and shattered the rocks before the Lord, but the Lord was not in the wind. After the wind there was an earthquake, but the Lord was not in the earthquake. After the earthquake came a fire, but the Lord was not in the fire. And after the fire came *a gentle whisper*.

And there in that *gentle whisper* was the Lord.

So it is that same *gentle whisper*, the *silibus aurae tenuis* as Saint Jerome writes in the *Vulgate*, that we architects yearn for our works of architecture, and what all creators long for. It is a clear sign that there is beauty in our works when they are worthwhile.

UTILITAS, FIRMITAS, VENUSTAS

How could architects not understand that the truth of the idea generated by the fulfillment of function and the truth of construction are essential if we are to achieve beauty in architecture? As Vitruvius so clearly stated: reaching *Venustas* demanded the prior and exact fulfillment of *Utilitas* and *Firmitas*.

Utilitas. "When it is said that Architecture must be functional, it stops being functional because it only attends to one of the many functions it has", Oíza so wisely stated.

Ósip Mandelstam at the beginning of his superb *Dialogue on Dante* said in reference to poetry: "Where a work can be measured by the yardstick of narration, the sheets have not been used, that is to say, (if I may be allowed the expression) Poetry has not spent the night there". So, in this very pedagogical way, Mandelstam explains the *quid* of the question in artistic creation. The narrative elements must never be central, nor should they be in architecture. The Utilitas demanded by Vitruvius as a primary condition, the function, must be fulfilled and fulfilled well. But architecture is something more, much more, than merely the perfect fulfillment of function. Function in architecture is the narration.

When Bernini revealed the white marble of the ever so beautiful Proserpina raped by Neptune, above and beyond the description of the scene and beyond the loveliness of the sculpture, what he is basically doing is demonstrating his capacity to make the hard Carrara marble appear soft, morbid. He manages to dominate the material, bending it, taming it. Something so

much more universal than simply representing a scene. The strong hand of Neptune grips Proserpina's delicate thigh and this is the over-riding interest of the sculpture, managing to make that which is hard appear soft. Once again the creator is conveying a universal theme that goes far beyond the mere narration of a story. Something more than just a sculpture. Bernini himself in each and every one of his architectures seeks and finds something more than the mere perfect fulfillment of a function or the mere perfect construction. He seeks and finds beauty.

This is what Alberto Corazón translates so graphically when speaking of painting: "The vanguard movements of the 20th Century start out from a plate of apples by Cézanne, precisely because there are no apples there, only paint". And he continues: "Reality is not what I look at, but what I see through memory. It is memory that illuminates it". And may I add, it is memory that makes us capable of discovering beauty. That is very clear.

Firmitas. And if in order to achieve beauty in architecture, the timely fulfillment of function, Utilitas, is important, none the less important is its good construction, Firmitas.

Viollet le Duc in his *Entretiens sur l´Architecture* defended the construction, Firmitas, as the fundamental basis of architecture. He called for the judicious and adequate expression of materials in order to attain beauty in Architecture. Beauty emanated from a well conceived and well constructed structure. "Any form that does not adapt to the structure, must be repudiated". It is the structure which, as I have repeated so many times, in addition to bearing the load and transmitting it to the ground, establishes the order of space; that establishment of the order of space, which is a central theme in Architecture.

From construction, which, of course, is a source of beauty, Rafael Manzano tells us:

> To the lintel and the column of Greece, Rome added new structural prototypes, the arch and the vault, and devoted all its energy to

> reconciling the Greek legacy, which transmitted beauty, with the new structural order, that was apable of building spaces very superior to what Greece had invented in dimensions and in building capacity, developing a most powerful architecture from which we still derive.

And he adds: “beauty in whose past is the future”. It would seem that, aside from clarifying how much beauty in architecture owes to the guiding hand of firmitas, it is as almost as if he were thinking in the opening lines of T.S. Eliot’s first quartet, Burnt Norton: “Time present and time past / are both perhaps present in time future/ and time future contained in time past / if all time is eternally present / all time is unredeemable”. Time and beauty, a theme that leads us on to another interesting dissertation.

Venustas. And finally, how could it be otherwise!, with the precise fulfillment of Utilitas and Firmitas, as prescribed by Vitruvius, comes Venustas, beauty.

PANTHEON, ALHAMBRA, BARCELONA PAVILION

Let us now take a look at some buildings that in the history of architecture have clearly materialized the ineffable beauty that we are discussing here.

Few buildings in history have the quality of making us lose the notion of time like the Pantheon in Rome. Not only does it fulfill its universal function to perfection, not only is it extremely well constructed, but it is also of undeniable beauty. All the great creators have understood that when they have seen it. Suffice it to quote Henry James when he describes the memorable scene of Count Valerio kneeling inside the Pantheon illuminated from above, by the light of the moon. The scene is quite beautiful. In this marvelous story, *The last of the Valerii,* the count states: “This is the best place in Rome. It’s worth fifty St Peter’s”.

The Pantheon in Rome is an extraordinary container of beauty, of total beauty. If we stand with our backs against the wall inside the Pantheon, we feel that the space still fits inside our visual angle and therefore, inside

our heads. Its 43 metres in diameter make possible the miracle that is the result of the application of precise measurements by Trajanus's architect, Apollodorus of Damascus, to whom it is attributed. The same dimensions wisely used by Pedro Machuca in the courtyard of the Palace of Charles V in the Alhambra many years later. And the same dimensions which, having discovered the secret, that I myself used in the white patio of Granada.

From the point of view of utilitas the Roman temple is universal, so universal that it still remains a space for the future. There is no other architecture in Rome so much of the future.

And in terms of firmitas, it is so firm, so well constructed that it always emerged unscathed from the onslaughts it suffered. After its construction by Agrippa it suffered such a great fire that Hadrian had to reconstruct it. And even Domitian and Trajan were involved in it. And nothing happened, as Douglas Adams said of buildings destroyed and built again: "it is always the same building". And indeed the Pantheon, its beauty, is an idea, a built idea, precise in its dimensions and in its proportions and in its light. An enduring and eternal beauty. It is always the same building.

And if we are to speak of the light in the Pantheon we would never come to the end. Suffice a reference to Chillida embracing the column of light that entered through the oculus, who described the sensation: "the illuminated air was lighter than the rest of the room". Perhaps what he felt, what he touched, was the breath of that "gentle whisper".

Another paragon of Beauty is yet another architecture that was constructed, destroyed and reconstructed so many times while still remaining "always the same building": the Alhambra in Granada. Built by Yusuf I, reconstructed by Mohamed V, with the restoration of Mr. Leopoldo Torres Balbás in the last century. What could I at this stage say about the Alhambra? We have to go back to the lyrical passages that those vizier poets of the emirs of Granada recorded on the walls of the Alhambra. Ibn Zamrak puts the words in the mouth of the Alhambra itself, in the decoration of the fountain of Daraxa's garden, such lovely words as these: "And he has granted

me the highest degree of beauty, so that my shape causes the admiration of the sages" and without the least restraint continues: "for never have any eyes seen a greater thing than myself, neither in the East nor in the West and in no time has any king, neither abroad nor in Arabia". And we would never finish if we were to continue with the beautiful inscriptions of the Alhambra. Beauty speaking about beauty itself.

Then there are the words dedicated by Barragán:

> Having made my way through a narrow and dark tunnel of the Alhambra, I was delivered to the serene, still, solitary and delightful courtyard of the myrtles of this ancient palace. It contained what a well crafted garden ought to contain: nothing less than the entire universe. I have never forgotten that memorable apparition and it is not accidental that from the first garden I did in 1941, all those that have followed humbly attempt to echo the immense lesson of the wisdom of the Alhambra of Granada.

Of course if we are to discuss contemporary architectures full of beauty, capable of resisting time, their physical destruction and their reconstruction, then we must speak of the Barcelona Pavilion of Mies van der Rohe, which appears to have been built only yesterday. Or tomorrow.

It is perhaps not only a synthesis of the principal conceptual achievements of modern architecture, but, in addition, a prodigy of beauty. A simple podium in Roman travertine, at the exact height for transporting us to another world. A light slab as a roof, perfectly tensioned, and supported, like a dance on pointe, by cruciform pillars which, on account of their form and brilliance seem to vanish. Exquisite walls of onyx that serve as an epigraph to time with abstract signs and move with the freedom that the continuous space affords. And all with precise measurements and proportions: nothing over here, nothing over there, and the miracle takes place. An architecture that has conquered beauty forever.

These three examples of architecture are capable of resisting time and reconstruction while always remaining *the same building*. But, in addition, in all of them time stands still. In all of them past, present and future are there, suspended: time suspended for beauty to emerge. In all of them one can verify what Michael Bockemül expressed so well when referring to Rembrandt: "he converts the conceptual understanding of the canvas into its visual perception". These three works of architecture convert so well their conceptual understanding into visual perception.

The three architectures cited here corroborate to what extent architecture is a built idea whose beauty remains forever, indestructible.

MIES VAN DER ROHE, LE CORBUSIER, FRANK LLOYD WRIGHT

I could not conclude this address without bringing before the Academy, however briefly, the words of some of the great maestros of contemporary architecture, Mies van der Rohe, Le Corbusier and Frank Lloyd Wright who, unsurprisingly, constantly alluded to beauty as the ultimate goal of architecture.

Mies van der Rohe spoke prolifically about beauty. In a well-known text of his titled "Build in a beautiful and practical way. Enough of cold functionalism!", he tells us:

> It seems completely clear to me that, on account of our modified needs and the appearance of new mediums that technology has placed at our disposal, we shall attain a new class of beauty. I do not think that we will ever again accept *beauty for itself*. Beauty is the splendor of truth.

And he asked:

> And what in reality is beauty? Most certainly, nothing that can be calculated, nothing that can be measured, but rather something ineffable. In architecture, beauty –which is equally necessary in our time

> and continues to constitute an objective, as it has been in previous ages- can only be achieved when something more than the mere finality is taken into account.

How could we not be in agreement with him?

On my table is a complete collection of Mies van der Rohe's most important texts in a fine translation with a prologue by James Marston Fitch in which he says that Mies achieved "intrinsic beauty", and that "he gave free rein to his platonic ideals of architectural perfection, of beauty". I could not resist the temptation of underlining the word beauty in those texts, of knowing how much the maestro was preoccupied, obsessed even, with finding beauty in his work, with the result that beauty is the most repeated word.

Le Corbusier was not to be outdone in his defense of beauty:

> The architect, by his arrangement of forms, realizes an order which is a pure creation of his spirit. Through forms and shapes, he affects our sense to an intense degree and provokes plastic emotions. Through the relationships which he creates he wakes in us profound echoes, he gives us the measure of an order which we feel to be in accordance with that of our world, he determines the various movements of our heart and our understanding. And it is then that we experience the sense of beauty.

And of Frank Lloyd Wright so many things could be said concerning beauty. But let us here just echo the last sentences of the manuscript found on his desk on the day of his death. In it he tells us: "Architecture, the greatest of the arts, begins there where mere construction ends and the dominance of man is imposed". And he goes on to say "The human being appears dependent on inspiration from a higher source. Because neither through legacy nor instinct does man attain beauty". And he continues: "only when the spirit of man becomes conscious of the need for the benediction of beauty, beauty attends and architecture appears, the greatest of mankind's arts. And in the same way, sculpture and painting and music". And he finishes

with the very explicit words: “When man proposed that beauty would enter in his buildings architecture was born”.

MELNIKOV, BARRAGÁN, SHAKESPEARE

Melnikov. However following this incursion into the idea of beauty in Mies, Le Corbusier and Wright, for very personal reasons, I cannot leave out Konstantin Melnikov, the Russian architect contemporary of all of them who best defines that beauty that some of us architects strive for: a bare, radical, essential beauty: “Having become my own boss, I begged architecture in turn to take off her marble dress, remove her make-up and reveal herself as she is, naked, like a young and graceful goddess; and, as corresponds to true beauty, renounce being agreeable and obliging”.

Barragán. And for similar reasons, once again the words of Barragán. The universal Mexican maestro expresses himself clearly in relation to beauty in his Pritzker acceptance speech, 1982:

> Mr. Jay A. Pritzker stated in an announcement to the press that I had been chosen as the recipient of this prize for having devoted myself to architecture *as a sublime act of poetic imagination*. Consequently, I am only a symbol for all those who have been touched by beauty. It is alarming that publications devoted to architecture have banished from their pages the words beauty, inspiration, magic, spellbound, enchantment, as well as the concepts of serenity, silence, intimacy and amazement. All these have nestled in my soul, and though I am fully aware that I have not done them complete justice in my work, they have never ceased to be my guiding lights.

“All those who have been touched by beauty”, is not this Academy a propitious place within whose walls beauty is prepared to continue whispering to each and every one of the members of this house?

And Shakespeare. I have searched explicit references to beauty in the poets. And I have returned once again to Shakespeare, using a well-known

bilingual edition. And when I found that the word beauty did not appear, as in that prestigious edition in Spanish only *beautiful* or *lovely* figured, I returned to the original in Shakespeare's English and yet there is hardly a sonnet in which the word *Beauty* does not appear, that the traitorous translator did not dare to translate as beauty. Are they so afraid of the term beauty? How could Shakespeare not speak of beauty? And he starts his first sonnet with "That thereby Beauty´s rose might never die". And he ends his last sonnet, the 54th, with "O how much more doth Beauty beauteous seem". The term Beauty literally invades Shakespeare's texts with its arms. How could it not be so! Just as all of us would like beauty to invade our works.

HUNGER FOR BEAUTY

After all these considerations one ought to consider if beauty is or is not necessary, if it is or is not useful. Nuccio Ordine, in his brilliant essay on "The usefulness of the useless", defends the need for useless beauty. Of course we could defend the contrary: that beauty is useful to satisfy the hunger pangs of the soul, the hunger for beauty that is in everyone. Of course beauty is useful, indispensable. Man hungers for beauty. Venustas, compatible and complementary to the usefulness of function, or good construction, is what really interests us.

Einstein summed it up rather well: "I am in truth a solitary traveller, and the ideals which have lighted my way and time after time have given me new courage to face life cheerfully, have been Beauty, Kindness, and Truth."

BEAUTY, FREEDOM, MEMORY

Francisco Calvo Serraller tells us "the term beauty has had and always will have ample capacity to incorporate the *desired free exploration of new perspectives* giving freedom as a reply to the question regarding the present-day meaning of beauty." And while it is not easy to completely comprehend ineffable beauty, we can readily understand that freedom found in memory.

Is not memory the deep and inexhaustible well for recognizing where beauty appears? How could someone devoid of memory recognize the fact that something, especially architecture, is part of beauty?

How could an architect be blown away by a Mies van der Rohe if he had not previously known of Palladio, or the Greek temples, or the Pantheon in Rome?

How could a painter admire Rothko without having adored Velázquez and Goya?

Today, fully immersed as we are in the third millennium, we are in no doubt about the depth of beauty in the paintings of Rothko or in the architecture of Mies van der Rohe. It is clear that the concept of beauty has not only opened its doors but with the guiding hand of understanding, it will always remain open.

And evidently this is largely true of Architecture. Nonetheless, it may be as difficult for society to understand Rothko well as to really understand Mies van der Rohe. One of the merits of the masters of modern architecture has been managing to convince society that beauty was to be found in their works, that they were the bearers of beauty. Le Corbusier, Mies van der Rohe and Frank Lloyd Wright knew this very well and endeavored to do so and almost achieved it.

In short, capturing beauty and being capable of demonstrating it as such to society- beauty!

CODA

And to end, let me tell you a brief anecdote, something that occurred very recently. Imagine the scene: on a visit to the wonderful exhibition on El Greco's Library in the Prado Museum, there I was, looking through the edition of Vitruvius, and perusing El Greco's detailed entries, when on page 28, where Vitruvius speaks about Venustas, suddenly I discover the handwritten sentence: *"*That Venusta embraces it all*"* That beauty embraces it

all! “That Venusta embraces it all, because born out of proportion, fortitude cannot be missing”. What nicer way of summing up all that I want to say in this address. Because in truth beauty embraces our lives, beauty is all-encompassing. Clearly, Vitruvius had previously written: “La Venusta procede dalla intelligenza dell´Architetto, la utilitá dalla bontá et la fermezza dal potere.” Absolutely clear.

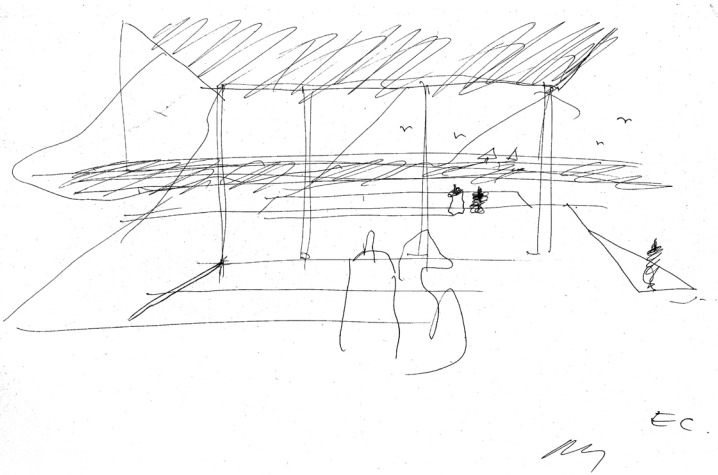
QUASI FINALE

I have pursued beauty vigorously. I have sought beauty with tireless dedication. I have chased after beauty desperately. I have searched and still search and will continue to search for beauty unto death or until I kill her. When I kill her with love on finding her because I have put my heart and soul to it. That much coveted beauty that many of you academicians listening to me today also strive to achieve with your art, every day of your lives.

FINALE

Being the last to enter this house, I hope to contribute towards maintaining the doors and windows of this prestigious institution wide open to allow in the light, air, and freedom that the Academy looks for. And at the hand of freedom, beauty. The same beauty that permeates this beautiful building, the San Fernando Royal Academy of Fine Arts. From its interior with its superb Churriguera staircase which is a joy to tread, to the noble facade on Alcalá Street by Diego de Villanueva that stands out for its discreet sobriety. Here is beauty as the splendor of truth, of order and appropriate form.

Because the search for beauty always speaks of the search for freedom. Seeking in architecture the freedom arising from the radicalism of undeniable reason agreed with the desirable dream, always leads to truth resulting in beauty. The English poet Keats encapsulated it to perfection in the well-known lines of his Ode on a Grecian Urn: “Beauty is truth, truth beauty, -that is all / Ye know on earth, and all ye need to know”.



THE ARCHITECT WHO WANTED TO CAPTURE THE CUBE

Dimensions in architecture in relation to the dimensions of man

The architect saw it clearly. He wanted to master space and with it architecture. And he thought that this would be possible if he could only control the form and dimensions of the architectural space. And then he wanted to understand what this space was and what it was like.

So he placed himself outside of the cubic form, in front of a cube that was somewhat larger than he was. The great squared vertical plane seemed to overpower him. He walked to the corner and the two, vertical orthogonal planes impressed him with their force. But he wanted to be the one controlling them. He imagined that he moved away into the distance. He knew that the cube was formed by six planes and he only saw two. And while he knew that there was a plane up there above him, on the roof, that formed a trihedral with the two planes that arose before him, he had no way of seeing it. He climbed up onto a tree in front and from there he could finally make out the three planes.

Surely it's just a matter of dimensions, he said to himself and he looked for a cubic figure that was somewhat smaller than himself in an attempt, or so he hoped, to be able to control the entire space. Proudly, he discovered that in a single glance, he could take in the three faces that formed the trihedral. One side more than at first. But as he walked around the cube trying to capture a fourth side, one of the others disappeared. After multiple turns around the cube that ended up making him dizzy, he figured that he would never succeed in seeing more than three sides of the cube at a single glance. And it was not easy for him to calm down.

Surely it's just a simple matter of dimensions, he said to himself once again, just like the first time. And he looked for an even smaller cubic figure. He held it in his hands and said to himself that now he had dominated it, since all of it fit into the palm of one hand. And he continued his game. He raised

it, lowered it, turned it around, but no matter how many times he turned that form, he couldn't capture it. He never managed to see more than three sides at one time. And he knew that it had six.

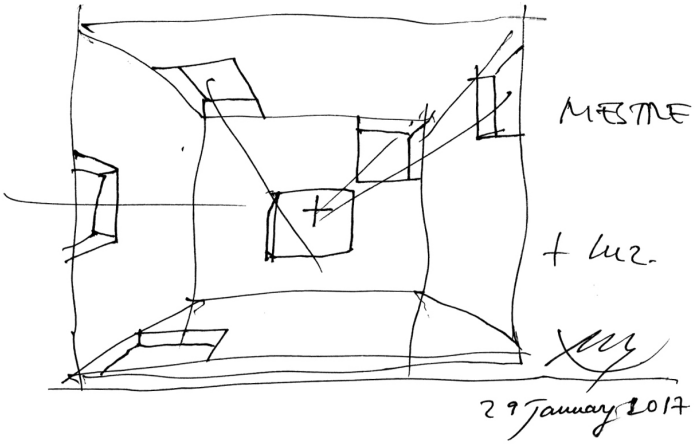
Thus, in front of the three cubic figures, the large, the medium and the small, he sat down, desperate, and reflected on his impotence. He would never be able to control space!

And he thought and he thought and he thought when, exhausted, he fell asleep. And suddenly, he saw Alice by his side. She took his hand and led him up to the large cubic figure and, through a small hole, she knew it well, and they entered inside. There, the architect saw that at last he could take in up to four planes at the same time and even five, if he stood with his back against one of the vertical planes. And even up to the six planes if he put himself in an angle, diagonally.

Suddenly, the light that was bathing the inner space, which he hadn't paid any attention to and hadn't noticed where it came from, disappeared and everything remained in the dark. That powerful sense of dominating the space disappeared. And he was disconcerted. Alice smiled at his side. Once the eclipse passed, the light returned. And with it, his senses awakened once again and the architect recovered his domination of the space.

He looked up to see where that light had come from and he woke up under the rays of a powerful sun, without Alice, who had stayed behind in his dream. And now, back in reality, he found himself again in front of those cubes that had given him so much trouble.

The architect concluded, once fully awake, that Architecture, the domination of space, is a simple matter of measurements, of controllable dimensions, to be put into relation to the dimensions of man. He also concluded that it was a matter of light, without which architecture was nothing.


MESTRE
+ luz.
29 January 2017

LIGHT IS MUCH MORE

An architect starts to be a real architect when he or she discovers that light is the central theme of all architecture. Every day that passes, I am more certain of the truth of this statement, which I wrote and published more than fifteen years ago.

LUXURIOUS MATERIAL

Light is the most beautiful, the richest and the most luxurious of materials used by architects. The only problem is that it is free, within everybody's reach, and as a result, we do not value it sufficiently.

Architects of old used marbles and bronzes and modern architects use steel, special plastics and different kinds of glass. All trying to make buildings capable of persisting in man's memory, persisting in time. And only those architects worth their stuff, the masters, have understood that light, precisely light, is the principle material by which architecture becomes capable of overcoming time. That is how Hadrian when he constructed the Pantheon, and Anthemius of Tralles and Isidorus of Miletus when they erected Saint Sophia, and Mies van der Rohe when he built the Farnsworth House understood it.

EMOTION

And in order to make light present, to make it solid, shade is necessary. The appropriate combination of light and shade tends to awaken in architecture its ability to move us profoundly; it can even bring tears to our eyes as it summons beauty and summons silence.

Throughout the past years, many of my students have visited the Pantheon in Rome and have written me a postcard saying, "I cried". Those who did

not cry do not write me. That was the deal we made in class, and my students continue to uphold it.

When the employees of Caja de Granada –the Granada Savings Bank– in Granada entered my building for the first time to work, some were deeply moved and cried. I always go to see them every time I return there.

And when the queen of Spain entered the building to preside an awards ceremony, she was generous enough to praise the loveliness of the light that filtered through the space. And the press reprinted her words. She understood perfectly that light is the central theme of all Architecture.

LIKE SALT

In my classes, I have often compared light with salt. When light is meted in doses with care and precision, like salt, the stew of architecture reaches its best state. Too much light undoes and dissolves the tension of the constructed space. And too little, leaves it bland, mute. Just as the lack of salt in cooking leaves the food tasting insipid, the excess of salt ruins it. In general, nearly all architects overdo it with the salt, in their use of light.

QUALITY OF LIGHT

And if the quantity of the light used is important, its quality is no less so. That is what History has always shown us. When architecture, thanks to steel that allows opening large holes and glass that allows closing them, replaces the concept of the mastery of solid light with that of transparence, a profound revolution occurs.

In the Pantheon of Rome, the architect's wisdom leads him to frame the greatest quantity of light with the greatest quantity of shade. And thus, the luminous circle is surrounded and enclosed by the deepest shade, which makes that divine light from above even more luminous, if that's possible.

In Saint Sophia in Istanbul, the brilliant architects open a crown of high windows through which not only direct light pours in, but also indirect light, reflected off of its profound white jambs so that the rays of light crossing in the air look almost like a miracle.

In Farnsworth House, the architect, with the same wisdom as his predecessors, but now with knowledge of steel and glass, decides to propose absolute transparence. And there, the light as it is suspended in air evokes that “breath of a soft breeze” by which the prophet describes the presence of divinity.

WHAT FOR

Thousands of books could be written about light. I recommend those by Henry Plummer and the works of Le Corbusier. In these brief words of introduction, I don’t intend more than, once again, to reclaim light’s tremendous value as a first and a principal material with which we architects work. And one that is conceded to us freely every day. To remain in the memory and hearts of the people. To make them happy with architecture.

MY WORKS IN LIGHT OF LIGHT

I will try to shed some light on the understanding of light in my works.

The Gaspar House in Cadiz, a *Hortus Conclusus*, is a house full of shade in which the four large hollows of the corners allow the passage of a silent light in a clear operation of transparence in order to achieve continuity with the space contained by the patios.

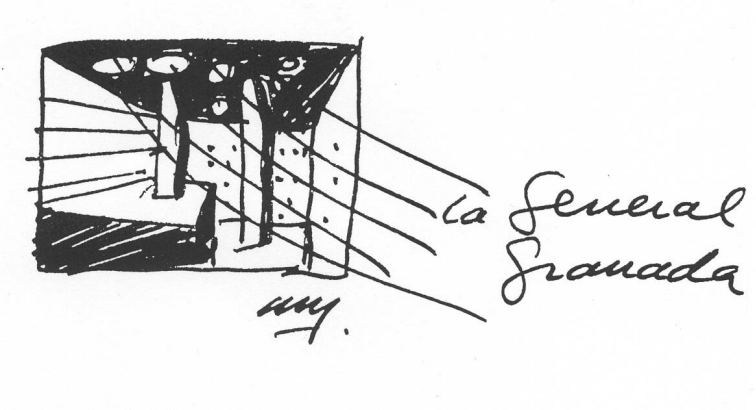
The Turegano House in Madrid, a *white and cubic cabin*, is a box through which sun pours in from the South in streams. The special light of the West, which we capture at dusk by means of a large picture window open at the highest point, is a lesson learned from the houses of Pompey, which use the same mechanism.

The Asencio House in Cadiz uses the effective mechanisms of Turegano House in greater dimensions but as the orientation is different, the large picture window opens here in the ceiling like a large skylight through which abundant light pours in.

The De Blas House in Madrid, *Belvedere*, develops an operation of transparence to take advantage of the spectacular landscape offered to us in the front. Thus, the landscape is underlined, giving it special value. Below, inside of the podium full of shade, a square picture window opens, framing this landscape and at the same time distancing it.

The Centro BIT in Mallorca, *the secret garden*, is a nearly biblical garden of 24 powerful orange trees enclosed within a box of travertine marble and open to the sky. To provide it with shade in order to work, it is covered with a light ceiling in an operation of the utmost transparence.

The Granada Savings Bank (Caja de Granada), in Granada, *impluvium of light*, is in addition to many other things, one interior cubic box of glass and alabaster set in the middle of a larger box made of reinforced concrete, with 9 potent skylights shaped, sized and placed so that the sun crosses the space everyday in such a way that the light is accompanied by beauty and silence.


la General Granada

MIES WITHOUT COLUMNS?

In that suffocating summer of Berlin 1922, Mies Van der Rohe was sitting at his desk on which there were three pieces: a lovely glass, half full of white wine, an open bottle of Riesling and a transparent Savoy vase.

The lovely glass half full of wine was a design by Adolf Loos. Mies, after reading an incisive text by Quetglas in *Circo*, decided to buy a dozen and was delighted with them. And each time he took the glass between his hands, he felt the tingle of the stria in the crystal that the Catalan architect described so well in his text.

The open bottle was a Weingut Barzen Riesling Auselese Halbtrocken from 1920. The best blond Riesling produced by Barzen. Mies's favorite wine. Sublime.

The Savoy vase was considered by some to be Alvar Aalto's best piece. The Finnish master confessed that he had been inspired by "the turn of the leather breeches Eskimo women wear." I have an example before me as I write this and I must confess it still fascinates me.

Mies had just lost the contest for the Friedrichstrasse tower. There he had made a marvelous design in crystal (I still prefer the term crystal over glass), entitled Beehive, that he would never repeat.

Resolving the triangular lot between Friedrichstrasse, the train station of the same name, and the Spree River, he invented a foliform floor plan with triangular geometry, so that the light would enter the interstices and could translate with its play of reflections on the vertices of the desired verticality. And the sharp angles of the corners, less than 90 degrees, revealed from the street in perspective through foreshortening the much sought-after

transparence on the highest floors. In the center, the resistant nucleus with stairs and elevators and services.

And Mies, instead of getting angry about having lost, decided to continue his investigation into what a tall building with crystal transparence is and means. The crystal tower, the glass skyscraper. And, as he sat in front of the Loos full of Riesling and looked at the empty crystalline Aalto, his reflection bore fruit when, after downing the third glass of wine, he saw it all clearly. "*In vino veritas*" or in the words of Karen Blixen, "wine is the best path to truth."

He took a blank piece of paper and put the Aalto vase upside down on it and with his thick pencil outlined its form. And he saw clearly that the crystalline continuity so evident in the vase could be translated almost literally to the much sought-after floor plan. Try it for yourselves and you'll be surprised. It's not that the outline of Aalto's vase and that of Mies's skyscrapers are similar: they are identical. I tried it and scared myself when I saw it.

And Mies himself was so moved that he made this first drawing without drawing the pillars which would hold up the horizontal planes. Though he had them clearly in his head.

In a brief text that he wrote in 1994 for the *Circo* of M. Mansilla, Rojo and Tuñón, Antón Capitel commented on this absence of columns. And later, in 2004, in his lovely text "The Columns of Mies" that I always recommend, he wrote:

> The abstract floors of these buildings seem thus to be as voluntary as they are clearly defined, obstructed only by the system of vertical circulations, and giving free reign in the drawing to an impossible desire, such as leaving out the columns as elements of composition.

On the occasion of the exhibition "Mies in Berlin", which Terence Riley and Barry Bergdoll organized at MoMA in New York in 2001, I was able to see a drawing by Mies that I didn't already know and that accompanied

the mentioned and always reproduced *pillar-less* floor plan of the Glass Skyscraper. The drawing on a large sheet measuring about 1 meter by 70 cm. was made with pencil and charcoal and appeared *with pillars*, had the pillars firmly in their place. There with Miesian precision, the master traced the impeccable geometry of the structure with such clarity that the floor plan of columns appears twice. *In situ* with lines of connection and above, to the left, so cleanly that at first glance one could confuse them with a group of trees. Mies! How could Mies not think of structure? The exhibition then went to Berlin and later to Barcelona. In the catalogue it appears, very small, on page 188 and I encourage you to study it.

The result of all that was an incomparable design that was translated into a wonderful model, with columns, that Mies had photographed several times. The stubborn Mies, as he didn't want to lose the theme of the sharp, transparent angle over which he'd thought so long and so hard in the earlier design, still left a corner in angle. To show that transparence in foreshortening. And thus, as a *piéce de resistence*, the master chooses the photo in which the tower appears more svelte and transparent than it is; why not! That which to the left has the sharp angle and therefore the maximum transparence. And with the pillars, Mies's columns, very well placed.

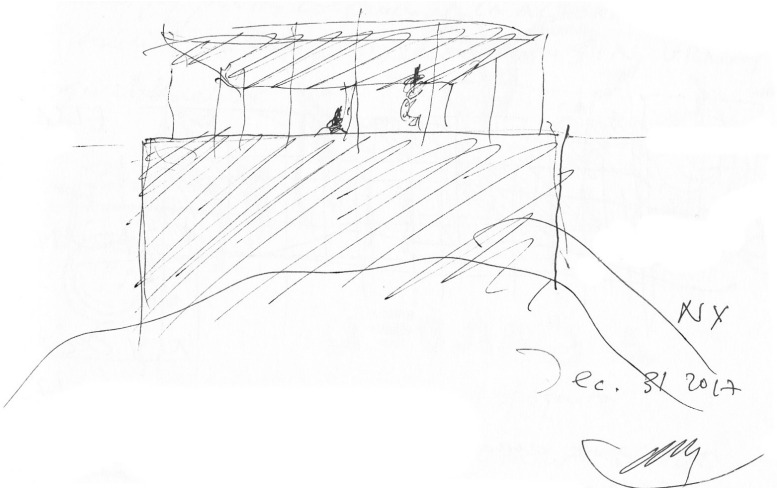
Once again, as couldn't be otherwise in Mies, the structure, establishing the arrangement of the space and the light so as to summon the obvious transparence there, constructs time. And it happens that, as I insistently repeat to my students, in Architecture, *gravity constructs space and light constructs time.*

And a final question, why did Mies never have that wonderful crystal tower built that still remains (no one has ever built it) far ahead of its time?

N.B.

This story is partly invented. The Friedrichstrasse competition is from 1921 and the Glass Skyscraper design from 1922. The Adolf Loos glass is from 1931 and the Alvar Aalto vase from 1937, and I don't know whether Barzen

then produced the fabulous Riesling that we enjoy today. Regarding the matter of Mies's columns in the Glass Skyscraper, that is in the clarifying drawing that I speak of and is reproduced here. But the story is believable and the coincidences true. And the central issue, Mies's incredible glass skyscraper continues to be an unresolved matter. Mies's columns, included.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LIGHT AND AIR. ARCHITECTURE AND MUSIC

About precision in the use of light in architecture

In this essay we try to establish a connection between the musical instrument and architectural space. The musical instrument, trespassed by air, produces the gift of music. Architectural space, trespassed by light, produces that unspeakable thing called architecture. In both cases, air and light should be measured with absolute precision.

"The air is calm and dresses in beauty and unusable light, Salinas, when your extreme music sounds, guided by your wise hands" (*El aire se serena y viste de hermosura y luz no usada, Salinas, cuando suena la música estremada, por vuestra sabia mano gobernada*). So begins the Ode III to Francisco Salinas, where Fray Luis de León speaks about light and music in such beautiful words.

And the truth is that architectural space is similar to a musical instrument. Both in wind and string instruments the secret is in the air. Air passes through the wind instrument and vibrates inside the string instrument. Air brought into a flute, as well as air vibrating over the tensioned strings of a cello, generate something as sublime as music. Without air there would be no music.

And in a similar manner, light, natural light, sunlight, by crossing a well-tensioned space as conceived by the architect, through a precise fenestration, generates that emotion hard to describe that only architecture can awake. Without light, architecture would not be possible.

In the same way that a musical instrument must be well built, well tuned and well executed for music to sound correctly, also architectural space should be well conceived, well developed and well-built for architecture to appear.

IDEA, CONCEPTION.

The musical instrument and architectural space should be correctly conceived. It is necessary to have a clear idea of what one wants to achieve. And immediately, to know how to do it, to control with precision the shapes, dimensions and proportions that allow the desired results.

If one wants to listen to violin music, one should build the instrument with the shape, size and proportion of a violin. A violin is not the same as a guitar.

Today I was listening to a radio broadcast about a Museum exhibiting musical instruments. And it felt unnatural that musical instruments, whose reason to exist is music, were exposed like corpses, dead bodies. Musical instruments should sound, create music.

If an architect wants to create a space tensioned by light (can there be a space with no light?), he should conceive it with the exact shape and proportions so that the building wakes up every morning, and, according to the rhythm of time and light, comes to life throughout the day. The concept of a project should contain since its inception that inescapable relationship to light. I cannot stop insisting that a clear idea about a project is the essential foundation for architecture to appear. And light should be in the centre of that idea.

This is the first phase, when the traces of the architectural project are decided. It is the time to know what and how will architectural space be built.

DEVELOPMENT. FINE-TUNING.

If even the most perfectly built musical instrument needs tuning, the same thing happens with architectural space. And this architectural fine-tuning is not only the very thorough attention some architects dedicate to detailing. Fine-tuning in this case refers to the precision in the relationship between space and light.

Maria Zambrano said that poetry was “the word agreeing with the number”. And the same sense, Osip Mandelstam suggested that “in poetry all is measurement”. On this account, this precision, which is a precondition for poetry, plays the same role in music and architecture.

Precision is essential in all artistic creation. Art, artistic creation, is often vulgarly confused with the rude gesture, the whimsical, arbitrary form. On the contrary, artistic creation demands an enormous precision and refinement, which in turn require wisdom and time from the creative artist.

So that the musical instrument can sound to that extreme music described by Fray Luis de León, it must be finely tuned. In string instruments, the strings must be tensioned with absolute precision so that they can vibrate in the desired range. And in wind instruments, the diameters of the tubes and the holes must be exactly defined.

For architecture to sound as divine music when touched by light, it must be well tuned. It is necessary that the placement, shape and dimension of the openings relating to the exterior, to the light, are perfectly defined by the architect. Doors, windows and skylights should be understood as openings in architectural space, which relate it to the light, the views and the air. Therefore, everything must be precisely defined in this second stage, the construction drawings. This stage is not a simple mechanical development of the preliminary design. It corresponds to a real fine-tuning of the instrument.

CONSTRUCTION.

Once the musical instrument is built and tuned, it must be very well played, so that music can sound. A good musician holding a good, finely tuned instrument will be able to create the precise notes that will deeply stir our emotions.

In architecture, after the concept, which is a mental construction and its detailed development into what architects call the construction drawings,

the interpretation of the piece corresponds exactly to its material construction. The construction is a true interpretation of the initial ideas. It is hardly a mechanical application of the construction drawings. The mindful supervision of the construction works is essential for the architect to tune the architectural body even more.

I have often quoted Saramago to express, in his words, that architects have little brains in the tip of their fingers, which is to say that we think with our hands. And I recently read that a great composer from Seville in the 17th century, Francisco Guerrero, used to praise Pedraza, the wonderful organ player from the Cathedral, by stating: “in each one of his fingers I see an angel”. There it is. The architect is someone who builds ideas and thinks with his hands.

In the case of music, it is easy to distinguish between building, tuning and playing an instrument.

In the case of architecture, the physical, material construction is what we consider to be the interpretation of the initial idea.

And then light, as air in music, will cross the space created by the architect so that it sounds well. And, as if it were a miracle, when light arrives, that power of touching time is produced, something that cannot be grasped but is nevertheless within our reach, and deeply moves us. That light is the builder of time is not a correct sentence for an educational text. This special miracle is a tangible reality we can touch.

In my Caja Granada building, the clear and definitive proposal consists on the dialogue between the large central space and sunlight. I have never seen two interpretations alike- each day and each hour sounds in a different way, and always sounds well. And it always manages to thrill us deeply, including me.

The directors of my Nursery for Benetton in Venice have put out a little book I found very exciting, since it was full of images showing that they had

clearly understood my intentions for that building. In one of those images, a little girl was touching the imprint of the Sun on the wall, while shouting “Il sole! Ho tocatto il sole!”

And just now, on my table, I mean on my computer, still beating, the ungraspable space that a young Portuguese architect, Paulo H. Durão, and I are developing for Gallarate Airport in Milan, where we planned a box filled with radiant light, as if it were a cloud trespassed by sunlight. I hope to come back here and show you the built work.

FINALE

Definitely, when proposing this comparison between musical instruments and architectural spaces, I want to insist once more that the works of architecture that really matter are not born from fashionable fads or arbitrariness or from easy formalism able to impress the ignorant. On the contrary, architecture demands clarity in its generating ideas, precision in its development and adequacy in its construction. And always an understanding of light as its main component.

We all know the classification of architecture works proposed by Paul Valery in his Eupalinos: mute buildings, speaking buildings and singing buildings. Well, to make them sing, we must conceive them well, tune them well, and build them well. And thus architecture will sing the highest music and will be able to bring light and happiness to mankind.

AN IDEA FITS IN THE PALM OF A HAND

On small-scale models as a synthesis of the projected space

Jewish laws prescribed that when a first-born son was presented in the temple shortly after birth, the offering consisted of two turtle doves or pigeons. And if the family were very poor, a handful of wheat would suffice: the wheat that would fit in the palm of one's hand.

That wonderful Jewish custom, which I learnt about when writing this text, moved me deeply on account of what it shares with this proposal of making models capable of fitting into the palm of one's hand.

At the Master Classes for Advanced Projects in Architecture, or MPAA, which I taught at the Madrid School of Architecture, ETSAM, during the academic year 2011-2012, I gave my students for the first time a rather curious exercise: that of constructing a model so small that it fits into the palm of one's hand. Because I thought at the time, as I think now, the idea of a project should be able to be materialized, synthesized in such a small model that it fits in the palm of one's hand. Because an idea has no size; it fits in the palm of one's hand.

In order to achieve this, the model had to be done in a size and scale that demanded the elimination of everything superfluous, synthesizing to the maximum the idea generated by the chosen project; rather like materializing the architectural idea in its purest state.

I have repeated a thousand times to my students William Blake's poem in which, in order to express what we should dream, he tells us: "to see a world in a grain of sand", to which he immediately adds: "hold infinity in the palm of your hand". In the same vein, the idea of holding something —in this case, architectural form— in the palm of one's hand, was my intention with this exercise.

I will never tire of repeating that in Architecture, as in any creative work, it is indispensable to have a clear idea of what one wants to do: "*Architectura sine idea vana architectura est*".

The more than positive experience of my strategy on that Masters Course prompted me to again request these little models from my regular students for the current academic year 2012-2013, right at the outset, as they embarked on their own projects, while they were still germinating ideas. And once again the strategy proved to be extraordinarily worthwhile. I must confess here that it is something I have been doing with my own projects for some time, and what I have also continued to do with all my latest projects.

But, what is the purpose of such a reduced model? Indeed what is the purpose of making a model at all at a time when computers can generate 3D virtual models that can move in all directions? Well, although this is true, what is also true is that one can never achieve on the flat screen what only can be produced with a real model: the simultaneity of understanding three-dimensional space and its relationship with humans and light. The understanding of its relationship with sunlight, when the model is placed under the real sun, is something ineffable and infallible. I have never seen anyone placing their computer screen in the sunlight to see what happens. Because nothing would happen. And furthermore, if this scale-model is small, very small, devoid of any unnecessary additions, it must be capable of representing the idea which one wants to develop in the project with maximum precision. That is the ultimate goal of all these operations.

So the approach with these little scale-models is not the same as someone making a miniature. Far from it, what I am looking for here is the precision of the idea through form.

That little scale model, that idea that fits in the palm of a hand, prompts serious reflection on the project itself, the kind of reflection that is characterized by research and at times can prove difficult for non-architects to understand. This was what a good friend of mine, a marvelous industrial engineer, said to me. He couldn't understand why I make these models

when I could use the very advanced computer programs available today. I still think that this little model is an instrument that is not only efficient but indispensable for project research.

There is nothing more satisfying for an educator than to verify the validity of new teaching strategies applied over time with the hand of experience. And in this particular instance it is that same hand that makes it possible to capture ideas, ideas materialized in small models. Because for a true architect, an idea fits nicely in the palm of one's hand.

THE BRAIN IS SQUARE

There are still some set squares to be found in my studio. These are used not so much for drawing, which is done in Autocad, but for the many scale models that we do ourselves. When I was a child my mother used to bake the most magnificent home-made tarts. And so it is in my studio today, that I make the tarts, the scale-models, and, better still, so does my team. Our models are always home-made.

We use set squares to control the right angle, which is a basic ingredient of architecture: the angle at which the vertical of gravity and the horizontal of the earth plane always meet. It is not by chance that the right angle has been the most used geometrical mechanism in the history of architecture. In cross-section on account of gravity, and in plan on grounds of order.

But before I proceed to say anything further on the right angle, I feel I should at this stage confess that the reason I have decided to address this subject is not solely in honour of Heinrich Tessenow, whose Gold Medal I have received. Let me explain. I have read in the press that a team of American scientists based at Massachusetts General Hospital have discovered that the brain is made up of parallel and perpendicular neuronal fibres that cross paths at right angles. In other words, that the brain is square.

These latest findings from researchers using the most advanced MRI technology suggest that the physical connections of the human brain, rather than being a tangle of wires as previously believed, are arranged in an astonishingly simple criss-cross pattern. It would appear therefore that the wiring of the brain is geometrically arranged in a grid structure rather like the checkerboard streets of Manhattan. Or the classic layout of a circuit board. It is also true to say that naturally enough the ancient tenet that the

shortest distance between two points is the straight line, remains true, and was not, something discovered by our American scientists.

I have always been accused of obstinately insisting on and using right angles, both horizontal and vertical, while other architects are leaning, twisting, bending, curving and folding, so you can imagine how this amazing *new* discovery was like music to my ears. With architects everywhere rolling out acute and obtuse angles, having read the news I quietly smiled to myself in my own straight-lined, rectangular, square corner. And, you know, a corner is usually just that, a straight-lined rectangular trihedron. Nevertheless, many of today's self-styled theorists prescribe angles of varying types, in fact anything but right angles, as indispensable elements allegedly lending originality and modernity to the architecture of today.

You will perhaps comprehend therefore my sheer delight on learning that the brain, which is the seat, the cradle of reason, is equipped with such an orderly, grid structure of connections, arranged orthogonally like Ikea's Expedit shelving units, if I dare make such a comparison.

I still remember how, having commenced my studies at Madrid's School of Architecture, as an undergraduate under Alejandro de la Sota, an architect who followed in the footsteps of Tessenow and Mies, the draft designs I presented of my first project the following year were totally orthogonal. They were so imbibed with German orthogonality that my new tutors were not impressed: "you have to be more expressive, less bland", they told me. With remarkable docility I toiled diligently for the entire weekend and the following Monday I presented them with a new project full of curves and turns and expressive gestures, heavily stamped with influences of Gaudi and Wright. Delightful drawings that were warmly and publicly extolled by my teachers. Indeed so warm and enthusiastic was their praise that, whether out of loyalty to Sota and Tessenow, or simply following my own wilful and contradictory nature, I decided on the spot to revert to my lost orthogonal designs and my set squares. As a result my work failed to receive the highest qualification from those formerly enthusiastic examiners. But, let me tell you something: that incident taught me a lot. I elected to swim

against the tide for my own beliefs, as I have always done in every aspect of my life. And I continue to do so to this day, despite what others may think.

While attending the Aachen Congress on Mies van der Rohe that I spoke of earlier, apart from visiting Rudolf Schwarz's uncompromising stark church and Charlemagne's rich Palatine chapel, Eduardo Souto de Moura and I devoted much time to speaking about architecture. And Souto, as he sipped away at his Riesling, told me with a smile that I was one of the few who had remained faithful to the straight line and the right angle. And I nodded happily in agreement on hearing such a comment from an architect of his stature.

In my latest project, a house by the sea in Zahara, in the south of Spain, which we have just begun to build, the right angles are so straight and upright and the box is such a straightforward box that in the end it will be a large box built in Roman travertine integrated into the sand of the beach, the roof of which, a radical flat horizontal plane, is the main protagonist of the space. Like a Temenos where the gods will mingle with mortals. Like something Tessenow himself would have designed. More Tessenow than Mies.

Because there on that exquisitely beautiful beach gravity is the same gravity that it always has been, that of Newton's apples, which still fall vertically, straight down, always perpendicular to the ground.

And there too in that little spot of paradise, the horizon is still horizontal. So horizontal and straight is the horizon defined by the Atlantic Ocean right in front of us.

That very same horizontal plane that Tessenow or Mies would build if they were to raise their heads not only in recognition of the work of the team of leading American scientists in discovering the physiological orthogonal arrangement of the brain, but also to corroborate something that is for them and for me so elementary as orthogonality in architecture. Because the shortest distance between two points is still the straight line. And because apples still fall vertically, orthogonally to the horizontal plane of the ground.

THE ORDER OF THE WORLD

> Ma troisième maxime était de tâcher toujours plutôt à me vaincre que la fortune et à changer mes désirs que l'ordre du monde.
>
> Descartes*, Discourse on the method.* Third part. 1637

Descartes wisely advises that it is better to master ourselves rather than fortune and to change our desires rather than the order of the world. But now there are too many architects who put their own desires before the order of the world, creating disorder with their capricious architecture. And they prefer fame and fortune rather than mastering themselves. In short, Descartes defends reason as the tool for life. And how could I not be in agreement with Descartes when it is my firm belief that reason is the primary and principal tool of an architect?

The work of the architect is to bring order to the world. To physically organize the world, organize territory, organize cities, organize every building, organize rooms and organize services. Organizing means bringing order and to bring order to space, to establish the order of space is the work of the architect: bringing order to the world, order to territory, order to cities, order to every building, order to rooms, order to services.

What Palladio wished to do with his Villa Rotonda, was it not to organize, to bring order to the whole world? More than a house, it was a temple and more than a temple what the architect was trying to do was to make it the center of the world.

When Palladio designed the Villa Capra, Villa Rotonda, in 1566 on a hill on the outskirts of Vicenza, he wanted to build something there that was more, much more than just a villa. He builds a villa where the axes that traverse and articulate it are made visible. And with these axes that reach

infinity he intends to bring order to the whole world. And he does. The two cardinal axes permit the Villa to become the centre of the world. Palladio brings order to the world.

Was it not to organize, to bring order to the emerging world that Michelangelo sought for with the Campidoglio square, the very epicenter of Imperial and Papal Rome, when he brought about the emergence of the world not just to be contemplated but also to hold in his hands?

When Michelangelo designs this sublime space, he creates something more than just a square. The two converging palaces and the position of the Dioscuris Castor and Pollux, apart from constituting an exemplary exercise in perspective, are no more than an excuse to make the world emerge there, at that very spot. And God knows he does it. Michelangelo brings order to the world.

What did the architects of Manhattan, Paris, Barcelona or Madrid do but bring order to these cities?

When G. Morris, J. Rutherford and S. de Witt brought order to Manhattan, they had no idea that the order imposed there in 1811 was to continue to be valid, and more than valid, two centuries later. The perfect grid plan of its avenues 150 feet wide and its streets 60 feet wide, is to this day extraordinarily efficient in its layout. When I go out walking in New York I am reminded how right these measurements are. One feels at home on these avenues. Their dimensions are just right, not too large, not too small.

When in 1865 Baron Haussmann decrees his modernization program for Paris, in spite of considerable opposition, he knows that he is imposing an order that will turn Paris into the capital of the world. As clear as daylight. And in the same vein, Cerdá in Barcelona and Castro in Madrid. And Bogotá and Lima and Buenos Aires. And so many other cities in the world. Something as logical as establishing the order of space, clearly the work of an architect. An architect who knows that reason is his primary and principal work tool.

Is it not to organize, to bring order to nature what man does when he plants thousands of olives and vine on a grid plan drawn up with string like a fishnet? Is it not to establish a very definite order? Is it not favoring nature? There are those who appeal for freedom, or who argue about the lack of freedom of the olives and the vines when it comes to choosing their position in nature. This brings us back to Rousseau and the age-old discussion of the noble savage.

And within this organization of the world and of nature, man uses, or rather he should use reason as his principal tool. And architects most of all. Because reason is the principal tool of the architect, of the creator. Cervantes in his short but marvelous prologue to Don Quijote writes: “I would this book, as a *child of my intellect*, were the fairest, gayest and cleverest that could be imagined…” He clearly states that reason is the principal tool of every creator. Because literary creation is also the result of reason, of the intellect.

What is it if not to bring order to the world what I strive to achieve with each and every one of my projects? I have a project on my desk for a white tower in Dubai, and all that I have done is to bring order, create order, put in order. I have done nothing more than create order, guided by reason. The tower brings order to the territory which becomes its principal point of reference.

To create order is to organize. I have had to organize the territory with my building: once the legal norms in relation to the other towers around it have been scrupulously adhered to, my tower brings order to the space there. The first operation with this new piece consisted in bringing order to the pieces in closest proximity. With my tower bringing order to all the other surrounding towers. Next I had to vertically order the functions, dimensions and character that I wished to include on every floor of my tower. Then in each apartment I had to put in order the programs stipulated for 1, 2 and 3-bedded apartments. Then within each apartment I had to put in order each and every one of the pieces, including bathrooms. Then within each bathroom I had to put in order every single element, including the door. In short, bringing order, creating order, putting in order.

And the facade of translucent white glass, is nothing more than another exercise that demands rigorous order, bringing a facade to order. Bringing order, creating order, putting in order.

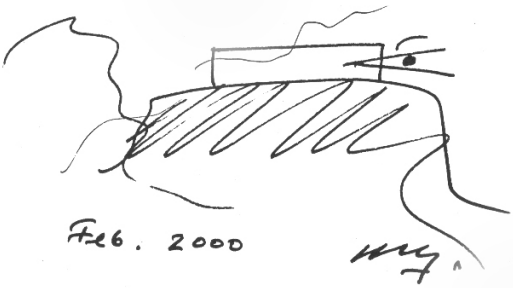
It is my intention to bring order to the space with the establishment of cardinal points, rather like the threads of a spider's web. That is what I wish to achieve with my white tower in Dubai. Because there is not another tower in the world so square, so smooth, so white. Square, which by marking the cardinal points, seeks to be the center of the world. Smooth with the minimum envelope. White with the pure whiteness of an Arab minaret.

In poetic terms, I wanted to combine Beauty and vertigo in designing this tower in purest white, slender and tall, ever so tall, as if it were the minaret of a great mosque. Striving to achieve the most beautiful tower in the world. Knowing that Beauty belongs to the world of order, or better still, the dream of an order tempered by reason. Because creating order means bringing silence and calm to what is in order. Which is exactly what I propose to bring about with my architecture: silence, calm, order. That serenity, that silent music, that order that I believe architecture, in all its forms, should always provide us.

Because as Descartes goes on to say in his Discourse on the Method:

> There is nothing that is completely within our power except our thoughts, so that after we have done our best regarding things external to us, everything where we fail to succeed is, from our point of view, absolutely impossible. And this alone seemed to me sufficient to prevent me from desiring for the future anything but what I was to acquire, and thus render me contented.

Or as Le Corbusier put it in more simple terms: "Space, light and order. Those are the things that men need just as much as they need bread or a place to sleep."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THE APPLE AND THE LEAF

On how in architecture there are no indisputable truths

Isaac Newton was resting under an apple-tree in his garden when an apple fell on his head. Being endowed with such a privileged head and thoughts faster than lightning, he rose forthwith from his afternoon nap and set about calculating the acceleration of gravity.

Had Sir Isaac Newton had a little more patience and had he taken his time in getting to his feet, he might have noticed how, following the apple, a few leaves also fell from that same apple-tree, and while they fell, they did so in quite a different manner to the apple.

When an apple falls from a tree it does so with implacable verticality, on account of its weight. But when a leaf from that same apple-tree falls, it does so in quite another way, more slowly and never vertically, because of its light weight and its shape. The leaf, although imbued with the same gravity as the apple, seems to fall with greater freedom.

One of my professors once asked me to analyze a text of his on the structure of space and load-bearing structures. With good reason I have repeated over and over again that structure establishes the order of space, apart from transmitting the load of gravity to the ground.

Throughout the history of architecture, loads have always descended vertically, in a straight line, from the highest point of buildings through the load-bearing walls or pillars, down to their foundations and through them, to be transmitted to the ground, and unload. That is why, in the entire history of architecture, pillars and columns have always been vertical. All of this is nicely synthesized in the story of Newton and the apple. However, in the last century various different things began to occur, all thanks to steel.

And so it is today, at the beginning of this third millennium, that architects have begun to play around with the possibility of changing the direction of loads and, better still, their unloading, and have started in diverse ways to move around the pieces of this orthodox jigsaw puzzle.

And as some find a facade with an orthogonal frame rather boring, where the pillars coincide vertically and where the horizontal border line of the floors tends to be continuous, they have decided to play around and so what started out as a simple rearrangement of carpentry went on -and why not?- to become a rearrangement of pillars. You will all have seen housing projects where, while the apartments are the same, the windows are different. You will also have begun to see buildings where the pillar structure appears on the façade with the pillars leaning this way and that, according to the fancy of the architect in question. These architects know that with steel everything is possible in quite an uncomplicated way, even if it works out a little more expensive.

And given that they have started out with the facade, why not venture a little further? And, knowing that a floor structure can be reinforced however they fancy, they decide to reinforce the floor to receive those pillars wherever and however they wish. A good friend of mine said to me, and with good reason, that he considered “all floor structures like a capital”, whereupon I added that it was the capital that was the greatest common divisor, but also the most costly one.

And so pillars have begun to dance rather like the blessed spirits of Gluck’s *Orpheus and Eurydice*, and as they want everything to be seen from the outside, they move things about in all sorts of ways in order to achieve this. You only have to look at all the architecture published these days in magazines and blogs. “Structures everywhere have spread their legs wide” claimed my good friend, who is a trifle outspoken. There is a new building in New York, very near my home, where, instead of dancing, what the pillars are doing is shaking themselves silly.

But I, who have always defended orthogonal structures, also argue that structures do not always necessarily have to be orthogonal. Over and over again I tell my students something that I am convinced of: there is no unique truth in architecture; of course there isn't! Because neither in architecture nor in practically anything do indisputable truths exist.

To begin with, we can see how Velázquez in *The Surrender of Breda* paints 25 upright spears, which are implacably vertical, and 4 inclining spears which make this somewhat less noticeable. In doing so, Velázquez, wants to communicate an air of peace and calm, which is what this painting of the lances transmits. It is also true that two hundred and fifty years earlier Paolo Uccello had painted *The Battle of San Romano* with 25 tilted lances and only 4 upright, vertical spears, lest there be any doubt. Uccello thus wished to communicate the turmoil of that battle. Both paintings, one in the Prado and the other in the Louvre, are magnificent, whether with tilted or upright lances, as determined by each artist.

And let us now return to Newton's tale of the apple and the leaf. Apples fall vertically and when Newton, following such a significant event, began to thoroughly study the matter he discovered that the force of gravity, that *g* which caused the apple to fall so undeviatingly, was 9.8, or, in other words, that acceleration due to gravity is 9.8 m/s2.

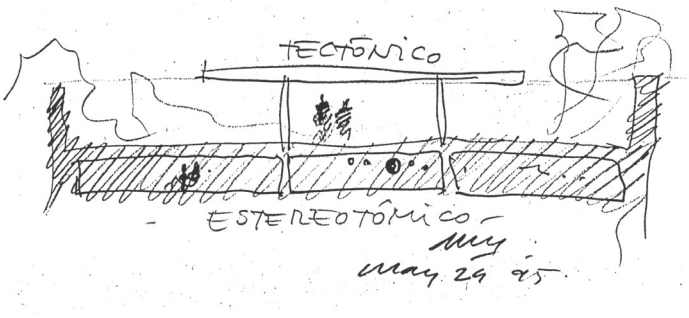
Of course, if Newton, who was rather a formidable guy, with a brain quite out of the ordinary, instead of running off to study all that, had remained a little longer under the apple-tree, he would have been able to observe that its leaves also fell to the ground. However, instead of falling as abruptly as the apples, they did so in a much more subtle manner: they danced in the air so gracefully that Newton would have been fascinated, as we would have been with him. After all, there is not just one way of falling. For indeed, the leaves, once they had fallen, might well have taken off again, on account of the wind, and continued their dance to the amazement of the apple and Newton himself.

And so, should our architecture follow Newtonian rectitude or could it dance to whatever sound we program for it? Is there not something arbitrary in the decision?

Rafael Moneo in his inaugural address before the Royal Academy of Fine Arts of San Fernando makes “certain considerations regarding the arbitrariness of form in architecture”. He speaks of how the Corinthian capital developed by chance. Of how “an arbitrary gesture transformed a basket enhanced by an acanthus plant into an essential element of construction”. He goes on to say: “arbitrary decisions from the past are calling out to be forgotten while all architectural theory sets out, through rationality, to justify form”, and he concludes: “Architects will not be freed from their obligations towards form and, so it could be that despite our resistance, the phantom of arbitrariness would make its appearance once again”. Because, as I have said before, in architecture there are no indisputable truths. Needless to say, we could also perceive this arbitrariness as freedom.

However, it is also true that when making use of this freedom that steel allows us, by designing structures that are less orthodox, we are predetermining our future freedom to be able to make changes. In an orthogonal structure, when we wish to eliminate a pillar we make a larger beam and that’s that. The many architects who regularly carry out rehabilitation work know that well. But to make any structural change in these “dancing structures” is much more complex.

Freedom has its price.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ON INTELLECTUAL ENJOYMENT IN ARCHITECTURE

I want to focus on *Intellectual Enjoyment* in Architecture, that feeling of enjoyment that presents itself with every discovery, with every new project conceived and, above all, and in a very special way, at the outset of every new work.

How can I express in words the overpowering feeling of intellectual enjoyment that has occasionally possessed me in recent times? Time and again, something related to Architecture touches us in such a special way that we are possessed with that intangible quality that I have termed intellectual enjoyment. Many architects reading these words will understand perfectly what I am speaking about.

As this very special *je ne sais quoi* has been happening to me lately, I decided to write down my thoughts on this none too original discovery. And I discovered that what we call intellectual enjoyment, intellectual satisfaction, intellectual pleasure, tends to happen more frequently and more especially as one gets older. The enjoyment I get from reading Homer's *Odyssey* is quite distinct from the joyful wonder I felt the first time I came across it. And that deep and profound feeling happens with a frequency that quite surprises me. It is like a joyous radiance that quite takes your breath away.

Plato said to a young apprentice in philosophy:

> The burning impetus that propels you towards the reason why is beautiful and divine; but while you are still young, practice and train yourself in those philosophical efforts that do not appear to serve a purpose and are what the crowd calls idle talk; otherwise, truth will escape your grasp.

That very stage of renewed youth is where I would like to be when speaking of the intellectual enjoyment.

MEMORY

I know well that all this is largely due to memory. As the years go by, our memory fills up in such a way that relationships often occur between things and events, which becomes a reliable source of this intellectual pleasure. And, like a well, this memory needs to be replenished with the water of knowledge, which requires time and deep study. That devotion to study, considered an obligation in our youth, becomes a pleasure in later life.

Saint Augustine speaks of the enormous space of memory, the *aula ingenti memoriae*. The memory that is not only able to accumulate new knowledge but, better still, to bring it all together. Who has not been surprised on recognizing common themes or ideas in authors that would seem to have nothing in common? To recall —to re-call— is to travel to the heart, to put the heart back in someone or something that happened.

And St. Augustine is so clear when he speaks of memory that we have only to transcribe his wise words:

> And I enter the fields and spacious halls of memory, where are stored as treasures the countless images that have been brought into them from all manner of things by the senses. Men go forth to marvel at the heights of mountains and the huge waves of the sea, the broad flow of the rivers, the vastness of the ocean, the orbits of the stars, and yet they neglect to marvel at themselves. Nor do they wonder how it is that, when I spoke of all these things, I was not looking at them with my eyes–and yet I could not have spoken about them had it not been that I was actually seeing within, in my memory, those mountains and waves and rivers and stars which I have seen, and that ocean which I believe in –and with the same vast spaces between them as when I saw them outside me.

TIME

I still remember the frisson of excitement on reading “Burnt Norton”, the first of T.S. Eliot’s *Four Quartets*, when Jorge Manrique’s *Songs on the death of his father* came into my head and into my heart. When I put the poems of Eliot and Manrique together before me, even the order in which they spoke about time, past, present and future, were the same. And the same desire was there.

And while Eliot writes: “Time present and time past / Are both present in the future time / And time future contained in time past. / If all time is eternally present / All time is unredeemable.”

Jorge Manrique had previously written: “And so we see the present / as if at some point absent / and finished; / if wisely we judge, / we’ll know the not yet now / is past.”

It seems as if Eliot had read Jorge Manrique’s couplets on the death of his father and was feeling something similar to the intellectual enjoyment we are talking about. Past, present and future.

And it has finally dawned on me that the doxology of the “Glory be to the Father and the Son and the Holy Spirit” that we Christians frequently repeat closes with “as it was in the beginning, is now and ever shall be, world without end”, which is the same way of understanding the poets’ time past, present and future.

I must admit that I have since searched and found poems and poets that work with the same structure on time. Even Shakespeare has joined the encounter with poems like his Sonnet 129: “Had, having, and in quest to have, extreme”; And those encounters are the reason for the intellectual enjoyment we are talking about. Any poet reading these lines will understand perfectly.

The universality of the human being in time and space is so clear that unsurprisingly on reading the beautiful poem “The Three Oddest Words”

by the wonderful Polish poetess, Wislawa Szymborska, I was rendered speechless by the words: “When I pronounce the word future, the first syllable already belongs to the past.” With less material than architects, with almost nothing, how is it that poets can have so much strength?

ARCHITECTURE

In Architecture we find intellectual enjoyment in many moments, the three principal ones being, in my view: the moment of recognition, the moment of conception and the final or nearly final moment.

RECOGNITION

The moment of recognition in Architecture, on visiting a significant work for the first time, is the cause of great intellectual enjoyment. To recognize, on viewing for the first time a work of architecture that we had never seen with our own eyes but had studied so many times, in chapter and verse. This moment of intellectual enjoyment occurs when we witness at first hand something which was already familiar to us. We architects are very well acquainted with this. I shall never forget the first time I entered the Pantheon in Rome. I cried. This intellectual enjoyment produced by Architecture is somewhat akin to what is known as the Stendhal syndrome. Stendhal syndrome is an impulse provoking a rapid heartbeat when we are faced with a particularly beautiful work of art. It is named after Stendhal, who, on visiting the Basilica of Santa Croce in Florence in 1817, wrote in his book “Naples and Florence: a journey from Milan to Reggio”:

> I reached this emotional turning-point where those celestial sensations of Art are met with passionate feelings... Everything spoke so vividly to my soul. As I emerged from Santa Croce, I had palpitations of the heart. Life was drained from me. I walked with the fear of falling to the ground.

CONCEPTION

The moment of conception, the moment an idea is born. This happy idea is no chance occurrence. Quite the contrary, it tends to happen when, faced with all the ingredients, the architect starts thinking, researching patiently almost always over a considerable length of time and produces an idea as a result. An idea capable of being materialized. In his book “A Beautiful Question”, Frank Wilczek, Nobel prize-winner in Physics in 2004, refers to *incarnate*. Personally I prefer the term *materializing an idea*, which is what we architects do. The question is asked: does the world incarnate beautiful ideas? And my response is yes. For in that joyous moment when one knows that potentially everything is already resolved, the idea is so powerful that it is generally the cause of enormous intellectual enjoyment.

It is the moment that we have so often called inspiration. When following a battle in our thoughts, with our inner selves, in which we architects look for that added something capable of substantiating a new work, inspiration appears at a very precise moment, the vibrant instant we call inspiration; then everything is turned upside down, a thousand Handelian trumpets sound, and our being is invaded by that intellectual enjoyment so difficult to describe and so easy to recognize. And the idea is born that is capable of bearing fruit, of materializing.

NEARLY FINAL

The final or nearly final moment of a work that we have conceived and initiated very often produces that intellectual satisfaction.

There is no satisfaction comparable to what one experiences when the built work reaches the stage when those spatial operations conceived by the architect in his head, explained in his writings and expressed in his drawings, become reality. I must confess that I shall never forget the emotion I felt on seeing for the first time the sunlight shine through the open skylights in the central area of my Bank of Granada. I cried openly like a child, like Ulysses on hearing the bard’s song. Not only was I witnessing

the entry of that solid, real, material light; it was something much stronger. That slowly moving light placed the whole area in tension and made it resound divinely, just as music does when the air comes in contact with a musical instrument. It was the very history of Architecture recalling other related episodes that I had studied so many times.

When my mother baked a flan, it was a time of celebration at home. And just before taking it out of the oven, where it lay in its *bain-marie*, we children observed the ceremony of introducing a knitting-needle into the almost set liquid. If it came out with even a touch of the mixture adhering to it one had to wait a little longer, as it was still a little too liquid. But if it came out clean –oh, so clean– then it was proof that it had set. And it was party time.

That is what happens to me with my works. And having mentioned the experience of the Granada box, which was built over 15 years ago, I must tell you of my latest, as yet unfinished, experience. Before me right now, a space that promises to be, that will be something marvelous: the main area of the sports pavilion for the University Francisco de Vitoria, which is just about to set. It is almost there, but we have to wait just a little longer for the needle to come out clean. The structure is beautiful, now entirely painted white. The two translucent northern walls give a marvelous light. The two southern walls, white inside and out, reflect and qualify this equally marvelous white light. A facade, inside and out. The remaining elements will also be white. I can imagine it, I can already see it, all filled with an extraordinary light. Just like a *boîte* à *lumiére,* which is what it is. And I know that it won't be long now, not long at all, before the needle comes out clean, when the baked flan is set. And I know that right then that feeling of intellectual enjoyment will invade us all.

Because, as we architects well know, when a work emerges and receives the light, in the same way as a musical instrument receives the air and plays, it produces a feeling of intellectual enjoyment very difficult to describe.

And so I'd like to finish off on a musical note. The story goes that when Handel's servant used to bring him his hot chocolate in the morning, he often found the maestro sitting there with large teardrops on the paper before him, smudging his recently written notes and the servant would stand there stock-still while the chocolate went cold. I have absolutely no doubt that the maestro was in a complete trance, in a moment of sheer intellectual enjoyment. Perhaps that is why, when we listen to the "Rejoice Greatly" from Handel's *Messiah*, we cannot but feel that rejoicing, that jubilation, that intellectual enjoyment.

PROJECT DESIGN IS RESEARCH

There are countless reasons that demonstrate why an architectural project is a work of research

Architectural practice, which we architects call project design, from the initial idea to the basic project, followed by the construction or working project and from there to site management, is, or should be, a real work of research. And by the same token, its transmission, the teaching of project design, is also, and must be, a real work of research.

In this text, “Project Design is Research”, it is my intention to show how design in architecture is research. Because, while this may be difficult for those who are not architects to understand, project design is research. Any architectural project is, or should be, a real work of research.

WHAT IS PROJECT DESIGN?

To design a project is to think, to reflect and to decide, to respond, to conceive; to thoroughly analyze all the existing data and then diagnose a problem in order to finally solve it. Project design, in architecture, is something more serious, more scientific than most people believe.

An architectural project is the development of an idea that is the result of a long process. An idea that is capable of being built and, as with every research process, one that always has a purpose and a concrete result.

An architectural project is not simply drawing sketches of the first thing that occurs to the architect. It is never a mere whim, the product of an ingenious mind.

To design is to give a unified response to a multitude of questions. To design is to give a simple answer to a complex question. It is to adopt a decision from diverse possibilities. To design is to generate an idea that

when materialized, when formalized, is capable of solving all the questions raised.

In order to design one needs to know the problem well, to recognize it, and to know how it has been resolved throughout history, so as not to re-invent the wheel. It involves knowing the place well, being cognizant of the conditions and the requirements, the existing conditions and the wishes of the person commissioning the assignment, being familiar with the new technologies that make it possible to find new solutions.

Designing requires research. How could it be anything else? Searching, testing, exploring, finding. In short, studying the problems thoroughly to come up with the best solution. With all the time and dedication needed to reach the best possible result, at the slow, deliberate pace characteristic of all research projects.

And to carry out this project research, you do not need a microscope. There are those who think that to be a researcher you have to be looking through a microscope, just like Pasteur himself. They, indeed much of our present society, might accept that architects are researchers, if they were to see us working on our project designs under a microscope. For to these wise men of Zion, as a Spanish painter once replied when asked what he was painting: if it ends up with a beard then it will be Saint Anthony, and if not, the Immaculate Conception! How wise such sayings can be sometimes! And how ignorant our present-day society!

PROJECT DESIGN: WHAT IS IT NOT?

Design projects are everything except the more formalization of bright ideas, or the result of chance.

In the well-known fable by the Spanish writer Tomás de Iriarte, an ass plays the flute quite by chance.

> Passing my abode, some fields adjoining me, a big ass on his road came accidentally.
>
> And laid upon the spot, a flute he chanced to see, some shepherd had forgot there accidentally. The animal in front to scan it nigh came he, and snuffing loud as wont, blew accidentally. The air it chanced around, the pipe went passing free and thus the flute a sound gave accidentally. “O then”, exclaimed the ass, “I know to play it fine; and who for bad shall class this music asinine?”. Without the rules of art, even asses, we agree, may once succeed in part, thus accidentally.

I think this fable summarizes extremely well much of what I want to say here. For indeed, what turns the ass into a flautist is not the fact of playing music or designing. Many an architect is capable of playing the flute that makes a sound by chance. In the same way that composing or performing music is something wonderful but complex, designing and building architecture is perhaps still more complex and wonderful.

You have to listen carefully to your clients to know what they want. If their wishes are reasonable, as they usually are, you have to try to translate them into the best possible design. And if what they want goes against nature, you have to convince him that this doesn’t make sense. Because the client is not always right, at least as far as architecture is concerned.

It’s like the patient who, on receiving his doctor’s diagnosis, questions its merits or failings and puts forward his own bright ideas to his doctor, “because, you know, doctor, I know myself better than anyone”. I, personally, try to do everything that my doctor tells me. And I’m doing very well.

Some think that project design is a democratic act. And they are wrong. An architect should listen carefully, very carefully, to what the patient has to say, but after that it’s the architect’s job to diagnose. It’s not the client’s job to design.

Nor is design what some architects do, putting down on paper the first thing that occurs to them. As they think they know, they put down the first solution that comes to mind. And that's how it turns out. That is not project design, much less research.

Other architects think that to design well you have to follow the latest trends. And after soaking up all the most fashionable magazines, they try to do something similar. And that's how things turn out the way they do. Perhaps if they all were to read E.H. Gombrich's beautiful book, *The Preference for the Primitive*, it might clarify many of their ideas.

WHAT DOES RESEARCH INVOLVE?

To carry out research is synonymous with analyzing, investigating or examining. Research is carried out because something is unknown and a solution needs to be found. The concept of research is applicable to different fields, especially scientific or historical.

It would seem however that research is something reserved for the usually bearded *eminence grise*, standing behind their microscopes, probing into matters that our society considers scientific. As if architecture did not quite reach that high level!

Maria Moliner's dictionary provides us with a long list of synonyms in Spanish for the verb *to research*, which translate as: to analyze, to investigate, to examine, to seek, to inquire, to trace, to search, to browse, to interfere, to scrutinize, to rummage, to dig out, to probe, to sound out, to explore, to stir up, to study. And the synonyms for the word *research* as a noun are: analysis, inquiry, examination, search, exploration, inquisition, inquest, study.

Poets do their research when striving to come up with the precise word to translate the idea they want to express in a poem and for the sake of the metrics, placing a word with the greatest precision in the exact right place. And they are well aware that a word that in one line says little or nothing

is capable in another line, in another position, of producing the sound of a thousand Handelian trumpets and stirring our hearts. They spend as much time researching, seeking out and finding the word, as in placing it in the precise place.

Musicians do their research when, knowing the ethereal nature of music, they forage between the lines of sheet music to devise a way of placing the notes to achieve the intended result. Their research involves both seeking and finding the notes and placing them in the right place.

Painters do their research when, knowing what they want to paint, draw a sketch on the canvas that reflects the theme that is later covered over with the painting, resulting in a successful outcome astonishing their very authors and capable of transcending them.

Creators, all creators, do their research when they work tirelessly on their creations every day, every single day, with the conviction that their creation will one day transcend them, as indicated so well by my friend Stefan Zweig.

But neither the poet nor the musician nor the painter, nor almost any other creators have to fight against the laws of gravity as architects do. Neither the works of poets, musicians or painters can fall down. Nor, like architects, do they create for reasons of necessity.

Architects carry out research when, after analyzing all the conditions and the requirements of a new project, they gradually unveil an idea capable of responding to them all. Their research into seeking out and finding the idea is just as painstaking as the development and the construction of that idea. It involves investigating and exploring the place, the *locus*, in its physical and its historical aspects. It examines and analyses the function to be developed and the construction itself, as well as the aspects related to aesthetics and beauty.

And in this vast and complex research that is architectural practice, architects must attend to many different questions: what they want to achieve in relation to the function; how they want to do it in relation to the construction; when they want to do it in relation to the technology of their time; for whom it is being done in relation to the finances and the idiosyncrasy of the client; where it is going to be done in terms of the place, the locus; and why it is being done, that is open to many and very diverse answers. It would seem that we have closely followed the seven questions of the Quintilian Hexameter: *quis, quid, ubi, quibus auxilius, cur, quomodo, quando*. (*quis* = who; *quid* = what; *ubi* = where; *quibus auxiliis* = by what means; *cur* = why; *quomodo* = how; *quando* = when.).

Quintilian's questions are similar to the famous *Ws* often quoted in journalism: What? How? When? Who? Where? Why? The six *Ws*, also known as the five *Ws* and one *H*, is a concept used in writing and news stories, but also constitutes a basic formula in information gathering, problem solving and scientific research.

Perhaps the simple achievement of *Utilitas*, *Firmitas* and *Venustas* proposed by Vitruvius, may constitute a more appropriate response to these questions, not forgetting that Gravity builds Space and Light builds Time.

THE IDEA AS A RESULT OF THE FIRST STAGE OF RESEARCH

Just like a medical analysis, an architect should carefully study the symptoms of the project in order to be aware of all the circumstances involved so as to come up with the most accurate diagnosis, which is what we understand as the project concept. We have already explained this sufficiently.

The idea is like a distillation that needs time, like a good wine. Time for research. As the classics would say, if the idea is clear and distinct, everything will go smoothly.

RESEARCHING THE LOCUS

When studying the site on which to build, whether in a natural or historic city setting, the architect carries out a great deal of research on the *locus*. The *locus* includes everything from topography to landscape, from climate to history.

On my desk at the moment, I have the project of a house perched high on a rocky ridge facing the Atlantic Ocean. I can assure you that, in addition to the obligatory on-site visits to this beautiful spot, we have not only drawn but already produced several topography models at different scales, in order to better understand the site. In-vestigating, looking for the vestiges of the layout that the site indicates to us.

Analyzing the surrounding landscape, to know where and how the house will be facing, focusing it, underlining it and framing it.

Studying the climate of the place to decide on the type of architecture that best responds to the prevailing conditions.

Knowing the history of that place. Knowing what others have done before us to avoid replicating what others have done.

All of this is a research exercise to inform ourselves thoroughly and become fully acquainted with the site to produce a diagnosis based on the greatest wisdom that we are able to summon up. It has never been easy for non-architects to understand the huge importance of the placement of architecture on a site. It truly is so important.

RESEARCH ON THE FUNCTION, UTILITAS

Following an in-depth analysis of the program, when a first idea begins to emerge of what orders the spaces so that the requested functions are well ordered and articulated, the arrangement of functions and circulation flows are not as obvious as it might seem.

For that very sizing and organizing and connecting of each of the requested functions is also research.

RESEARCH ON THE STRUCTURE AND THE CONSTRUCTION, FIRMITAS

When working on a structure, the skeleton of the building, we must always understand that the structure establishes the order of space; it builds the space.

The architectural translation of the space involves the absolute control of the structure through its precise calculation to guarantee the stability of the work, to guarantee the security of its resistance. For this the architect uses calculation tables which are put to good use. And knowing that there is not just one possible structure for each work, the architect pursues a real work of research here.

Norman Foster, when designing the Hearst Tower at Columbus Circle in New York, did his research and decided to build a facade structure of overwhelming logic. Piano and Rogers carried out their research when they constructed the Pompidou Center in Paris, where the structure is the main protagonist.

Here I'd like to allude to a personal example. In the context of the project for the Pavilion Sports Center for the Francisco de Vitoria University we studied a variety of structural alternatives, researching, seeking to find the simplest solution: the most logical and the most economical. After numerous work sessions with Andres Rubio, the architect with whom I calculate the structures of my works, and with Ignacio Aguirre, my main collaborator on that project, we finally came up with the solution of the simple trusses that were later built and placed there.

And when we work with materials we are also involved in research; investigating materials: stone, concrete, wood, steel and glass, but also graphene or EFTE and structural silicone.

RESEARCH ON BEAUTY, VENUSTAS

But, oh, *Venustas*! Oh Beauty, how to reach her?

I know it is not easy to understand how one can actually carry out research into something that seems so ethereal -but is not- as beauty. All the creators in the world have employed research in the pursuit of seeking and finding beauty.

We pointed out earlier how everything in architecture is form, that inescapable form. And it is that form that shapes the load-bearing suspension in the air and establishes the order of space that one way or another leads us towards beauty.

Mies Van der Rohe did his research into form when he introduced the solution of acute angles in his Friedrichstrasse building, on account of the visible perspective transparency and for similar reasons in his beautiful unbuilt Glass Tower.

In this context it is appropriate to speak of how in my Cala house, which we call *Raumplan house*, because of its spatial conformation, the reason for this arrangement of spaces, is a pure exercise of project research. The simple concatenation of double-height spaces in a simple ascending helical movement produces spatial effects that are enormously effective. To achieve this we did substantial research work involving countless drawings, plans and models.

RESEARCH ON LIGHT AND TIME

If there is one central material in architecture it is light: light that builds time. When people speak of me as the architect of light, as has happened on over and again, I have always answered that neither I nor anyone else can take ownership of that prerogative. Light is a theme of architecture itself. As a friend of mine said: "*architectura sine luce nulla architectura est"*.

In an attempt to explain how that control of light, far from being something intuitive, is a question that requires great precision, I invented the existence of light tables, tables for calculating light just like the structural calculation tables that we all use. Because working with light is a true work of research, perhaps the most specific research work in architecture.

Light that builds physical time, but also builds that other time, the *distentio animis*, which leads us to the capacity of light to make time stand still, to suspend it in an architectural space.

TEACHING AS A RESEARCH PROJECT

And so we finally come to the transmission of project design, to the teaching of architectural design in Schools of Architecture, which is also, and should be, a work of research. Those of us who teach know that we learn more than we teach.

Teaching project design in Architecture on account of its root cause also becomes a real work of research.

A professor in charge of project design who carries out research on a daily basis in his own work, in his architectural practice, can only operate in the same spirit when he teaches. Teaching is not a mere transmission of the results of the designing activity, but is in itself an activity of research.

Many of the questions raised by educators in their daily lives as teachers in a school are resolved in their studios when they are designing. And *vice versa*: some of the questions that architects pose in their studios are resolved in their everyday teaching work.

That is why I always advise my best students to stay on in teaching when they graduate. Being a teacher provides a privileged position for producing the best possible architecture, for developing the role of researcher. Designing and teaching, teaching and designing become inseparable

actions that mutually benefit one another. They are the two sides of the coin in the context of project research.

It is acknowledged that good architects -the best- if they take up teaching, cannot fail to be involved in research in their projects and their teaching. I have always stoutly defended that desirable balance for an architect between teaching and constructing.

Back in 1986, when I had to present a Research Project for my candidature for the Chair of Design at the School of Architecture in Madrid, I presented a real project, that of the Orihuela Library, which was under construction at the time. And in that thick document, I already put forward quite an outspoken defense of the architectural project as a research project.

CONCLUSION

I have endeavored to demonstrate through the countless reasons outlined here, that project design in architecture, what we call architectural practice, and its transmission through teaching, constitute a real work of research requiring an investigative spirit so well described in the words of St. Augustine: “Let us seek as those seek who have not yet found, and find as those find who are yet to seek”.

And so it is, truly, that an architectural project is a labor of research.

ON THE WISDOM OF THE ARCHITECT

> Wisdom is a reflection of the eternal light, untarnished mirror of God's active power, and image of his goodness. Although she is alone, she can do everything; herself unchanging, she renews the world, and, generation after generation, passing into holy souls, she makes them into God's friends and prophets; for God loves only those who dwell with Wisdom. She is indeed more splendid than the sun, she outshines all the constellations; compared with light, she takes first place, for light must yield to night, but against Wisdom evil cannot prevail.
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> *Wisdom 7, 22-28*

T.S. Eliot makes an accurate distinction between information, knowledge and wisdom. First in his poem Choruses from the Rock, written in 1934, and later in his paradigmatic essay *What is a Classic?,* the text of the key-note address before the Virgil Society in London on October16, 1944.

In *Choruses from the Rock* he writes: "Where is the wisdom we have lost in knowledge? / Where is the knowledge we have lost in information?"

And in *What is a Classic?* he writes: "In our age, when men seem more than ever prone to confuse wisdom with knowledge, and knowledge with information".

I am an increasingly fervent admirer of T.S. Eliot. Maybe for the same reasons that Octavio Paz gives us in his acceptance speech for the T.S. Eliot Prize: "The magnet that attracted me was the excellence of the poem, the rigor of its construction, its depth of vision, the variety of its parts and the admirable unity of the whole."

Besides being a wonderful poet and a wise one at that, T.S. Eliot was a true sage. Because I must confess –a daring confession indeed– that what I, who only know that I know nothing, would like is to become a wise architect, as my teachers were. And when talking to my students about Beauty, in the same way that I tell them that they, as architects, can also achieve that Beauty which is not reserved for exceptional beings, I also tell them that they can become wise, that they can attain Wisdom. Let me explain.

Being equipped with all the information is very good, because if we filter it and order it judiciously, we can achieve knowledge. That is a very knowledgeable person, we sometimes say. But that is not enough. Because afterwards, if you are unable to process that knowledge, it is of no use. But if we *cook* it, if we develop it for a specific purpose, it becomes activated, it becomes truly useful. Which is what the wise do.

I am convinced that, like Beauty, Wisdom is not reserved for a mere few. All the sages I have met have turned out in person to be normal, simple and direct; in a word, humble.

INFORMATION

Today we have more sources of information than ever thanks to IT resources. I have never known where those thousands of people are, who produce and order and put such a quantity of information at our disposal. Google and its fellow-search engines are admirable. They provide and make available to us comprehensive and orderly information that makes some people think that libraries are no longer essential, although this can never and should never be so. But if the Library of Alexandria was on fire, all that would be required to remedy the disaster is for someone to have taken the precautions and have had the patience to store all that digitalized information that occupies so little physical space.

I remember my last sabbatical year at Columbia University in New York. Every day I spent a long time studying, in its marvelous Avery Library, which is where the School of Architecture is located. I was the only one

who had books on my desk and who wrote by hand, hastily filling up my notebooks. The others were buried in their computers, in sepulchral silence, isolated by their headphones and illuminated by the divine light of their screens. I never saw anyone get up to consult a single book or write anything by hand.

And all that overwhelming information is now available to the millions of users, people who more often than not waste their time with nonsense on their iPads, iPhones and iPods.

Because information is still simply information. If it is not processed, it remains like an inert material. It might help to turn someone into a scholar. On the scale of being informed, knowing and understanding, they remain on the first steps of the ladder.

KNOWLEDGE

But if information is processed, ordered and developed, one gets to the next stage, which is knowledge.

Whenever I'm writing a text, the first thing I do is prepare a script. Of course, before that I have to find a good excuse to tackle a particular topic. In this case, it was reading the wonderful text of T.S. Eliot's *What is a classic?,* which quite by chance I happened to receive as a gift twice in the same week, in a delightful little edition by the National Autonomous University of Mexico in 2013.

When we take on board a considerable amount of information and store it in our memory, it can later be studied and related to a topic with the result that we attain a certain amount of knowledge of the subject in question –what we have always understood as studying a subject.

And so I view a School, in my case a School of Architecture, as an instrument not only for the transmission of information but also for its development. It is an instrument for the creation of knowledge, and for its

transmission. Like coffee beans that need to be selected, toasted, ground, and filtered with hot water in order to achieve that final delicious potion. And, perhaps, having tasted that splendid coffee, the neurons awake and even lead one on to wisdom.

I have been studying the *Meditations of Marcus Aurelius* for several years, the text that our stoic emperor wrote in Greek. I already have 44 different editions in several languages, and it goes without saying the enormous enjoyment it gives me every time I go there. But I assure you that I still know nothing about this amazing person, or about his work, although I have dared to publish something about him and the numerous editions of that wonderful text.

I remember as a child I always saw my father studying. And with all that he knew, I wondered why he was still studying? My father was a surgeon and he was for a time Assistant Professor of Anatomy at the Faculty of Medicine in Valladolid. His record was brilliant. And he was a true sage who was an example to us all his life, never ceasing to study. This is what I, now, try not to stop doing.

“Knowledge is science, the know-how provided by many data, combining induction and deduction, which does not tell me what it is, but what I can do. Science tells me what I can do, but not what I should do.” This is what Emilio Lamo de Espinosa has to say in a clear article on information, science and wisdom. It is wisdom that deals with the ultimate meaning of our existence. Without wisdom, science is no more than an archive of instruments. And he concludes by saying that: “we are swamped with information, with solid scientific knowledge, but almost completely starved of wisdom”.

WISDOM

According to T.S. Eliot, after information and knowledge, comes wisdom. But what is it really to be wise? To know everything about everything? To know everything about something? Because once we know a great amount

of things relating to a particular subject, we surely could take one step further, we should attain something more.

Maybe it would be something like a doctor's diagnosis. Having gathered all the information on the patient, which is then filtered by the doctor's knowledge, everything should lead to an accurate diagnosis, capable of solving the problem.

In *The Book of Kings*, we are told how the young King Solomon asks God for his listening ear and how God grants him the gift of Wisdom.

> Now, O Lord my God, you have made me king instead of my father David. But I am but a boy, and I barely know how to behave. So give your servant a discerning heart to govern your people and to distinguish between right and wrong.

God was pleased that Solomon had made that request, so he said to him:

> Since you have asked for this, and not long life or riches for yourself, nor have you asked for the death of your enemies, but for discernment in administering justice, I will grant you what you have asked for. I will give you a wise and discerning heart, as no one before you has had nor will ever have again.

That is why, when we speak of wisdom, we have to quote King Solomon, the wise Solomon. Wisdom as the capacity of discernment.

Of course, in addition to the wisdom of the learned doctor in his diagnosis, or the wisdom granted by God to Solomon, I am reminded of the wisdom of my friend García Márquez in his wonderful text that is always worth re-reading, "The Cataclysm of Damocles", in which he proposes that "for the cost of a single nuclear warhead, one could reach out, if only for a Sunday in autumn, and perfume the Niagara Falls with sandalwood". If this isn't wisdom, may God strike me down!

ON THE WISDOM OF ARCHITECTURE

Of course, some of you will say: what is an architect doing talking about wisdom? Why? What for? I am doing it because, among other reasons, I think that to make the best architecture possible, it is necessary to be wise. “He who knows only medicine doesn’t know medicine”, said Marañón. Well, he who knows only architecture, doesn’t know architecture, say I.

I remember well my teachers, the architects who were my teachers at the School of Architecture of Madrid, who were truly wise. How discerning they were about architecture. They combined professorship with being extraordinary architects. They were true teachers. Their project critiques were classes where one talked about everything. Philosophy or History, Music or Poetry were all topics that emerged in the most natural way from their rich pool of wisdom. This was more than information and more than just knowledge. This was wisdom.

And those teachers were wise. Francisco Javier Sáenz de Oíza in his apocalyptic classes, Alejandro de la Sota in his quiet classes, Javier Carvajal in his precise classes, Julio Cano Lasso in his delightful classes and Miguel Fisac in his classes without classes. All of them were true sages. They all had a capacity of discernment about architecture, and about life. Of each of them, it could be said that they were a fountain of wisdom. I would like to be like them.

So too were those egregious professors under whom I studied a Selective course at the Faculty of Sciences, Madrid, in the 60s, which I will never forget. Enrique Gutérrez Ríos, Salustio Alvarado and José Javier Etayo Miqueo were true sages in such complex subjects as Chemistry, Biology and Mathematics. They were so wise that not only had they acquired the knowledge of such topics, but they transmitted them to us with crystalline clarity, with convincing conviction.

I have recently published a text on “Project design is Research: a Project design is a work of research”, because I firmly believe that it is so. I would

like that text, like this one, to be like depth charges. In that text I describe how, more than 30 years ago, I dared to present a project of mine under construction at the time, the Library of Orihuela, as the Research Project for my candidature for the Chair of Design. And all the members of that generous tribunal, full of wisdom, with Oíza and Carvajal at the head, understood it perfectly and accepted it as a work of research.

ON THE HISTORY OF ARCHITECTURE

How can we not understand that the History of Architecture, with capital letters, is full of architects who were sages?

Ictinos and Callicrates (5th century BC), the Greek architects of the Parthenon of Athens were true sages. The Parthenon, and before it, the Acropolis, were creations out of time; they were of yesterday, today and tomorrow. Not surprisingly, both Le Corbusier and Mies van der Rohe were photographed in front of those ruins, as a testimony to their timelessness, and in recognition of the roots of their architecture, which is ours. As is Thassos Tanoulas (1947) today, the wise architect who is currently restoring the Propylaea.

And, was not Apollodorus of Damascus (50-130), architect of the Pantheon of Rome, a true sage? Definitely. The structural and building operation of this architectural marvel can only be the result of a privileged architect's head. Every time I go back to study and analyze the Roman Pantheon, I continue to learn.

And of Marco Vitruvius Pollio (80 BC-15 BC) with his *De Architectura*, what can we say? How many times in word and deed have we not used your *Utilitas, Firmitas* and *Venustas?*

Andrea Palladio (1508-1580) was so wise, that in addition to making first-class architecture, and writing the *Four Books of Architecture*, he has continued to influence architects to this day. And so, Mc Kim, Mead and White

(1869) guided by the Italian, designed the most representative buildings of Columbia University in New York.

When Michelangelo officiated as an architect in the Campidoglio, he showed how wise he was, making the world visible, making it emerge in that unequalled space. And to crown it all, there he placed our Marcus Aurelius on horseback in the center of the world, to make that spatial operation even more visible.

And so great was the wisdom of Sir John Soane (1753-1837) that, to contradict the architect of the Pantheon, in proposing his lightness vis-à-vis the heaviness of the Roman dome, he makes the light of his suspended domes slide down the edges, causing them to float. If this is not wisdom, may God strike me down!

And Le Corbusier (1887-1965) and Mies van der Rohe (1886-1969) what could we say of these two old sages? The two of them were proudly photographed on the Acropolis in front of the Parthenon, as if wanting to bear witness that they, the great modernists, have their feet, their roots, in history and in this way are revolutionizing the world and building new history.

And even Jorn Utzon (1918-2008), like an old druid, who withdrew with his wisdom to his house in Mallorca. We can still hear the echoes not only from his Sydney Opera House, or from Can Lis, but also from his *Platforms and Plateaus*, a key text published in 1962 that has influenced so many architects.

FINALE

To do things in the best possible way in life, in all fields, and also in architecture, we should try to approach wisdom; we should try to be wise. This involves not only having all the information, developing it and acquiring knowledge, but above all, then, on reaching that attainable wisdom, always studying and discerning in order to make it the best, or better than the best.

And if we started out with T.S. Eliot as our guide, we're returning to him again now. Because in a nutshell, this business of being wise is nothing more than being able to bring together present, past and future time: what the poet proposes in Burnt Norton, the first of his Four Quartets: "Time present and time past / are both perhaps present in time future / and time future contained in time past. / If all time is eternally present / all time is unredeemable".

NOTA BENE

And these words by the Spanish author Baltasar Gracian, in his *Art of Prudence: a companion for a man of sense*, couldn´t be more adequated to finish. He wrote:

> Man is born uncivilized. He is ransomed from the condition of beasts, only by good education. The more he is cultivated, the sooner he becomes man. In respect of education, Greece had reason to call the rest of the world barbarous. There is nothing so rude as ignorance; nor nothing that polishes so much as knowledge.

WINKING MY EYES

On the drawings in Architecture

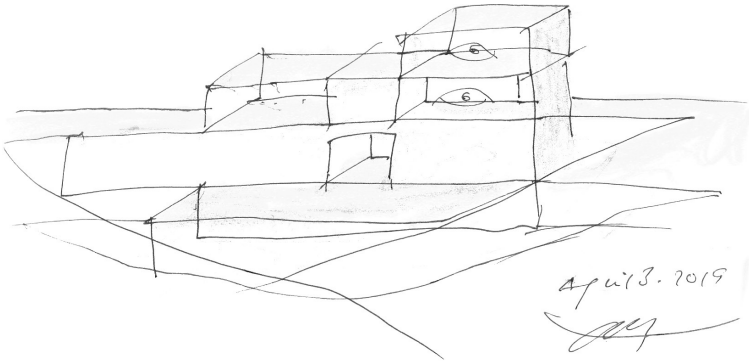
> To see a World in a grain of sand,
> And a Heaven in a wild flower,
> Hold Infinity in the palm of your hand,
> And Eternity in an hour.

How many times have I repeated this beautiful poem by William Blake to my students, trying to inculcate them with how much of the ineffable the best Architecture has. “To see a World in a grain of sand” has quite a bit to do with what a diagram is in relation to the project that it explains to us. While the dictionary says that diagram is a “graphic figure that explains a specific phenomenon”, knowing how complex constructed architecture is, we are surprised by the diagram’s capacity, as a small and simple drawing, to express so much. Like the grain of sand does in regard to the world.

I have written time and time again that Architecture is *built idea*. And to build these ideas, one needs design plans that can express what and how this reality is. These drawings are like anatomical cross-sections of the new architectural body. They are the development of other, simpler drawings that defined the project in a more general manner before. And if we keep pulling the thread, we reach a key moment: the beginning. There, the very schematic drawings appear which are the diagrams. The diagram is the key drawing that contains within it the seed for the entire project. It would be like the fetus in which the heart already beats, in which the being that is going to be born, further developed, already appears wholly complete. That is the diagram in a work of architecture.

In my architecture, diagrams have played an important role. And whenever I am asked for documentation to publish a project, I include some diagram to explain my intentions clearly.

The diagram expresses the idea precisely. It is the first concretion from thought to reality. When I draw a diagram, it seems as though I wink my eyes in the attitude that Shakespeare describes so well at the beginning of his beautiful Sonnet 43: “When most I wink, then do my eyes best see, / For all the day they view things unrespected”.


April 3. 2019

RELATIONSHIP BETWEEN STRUCTURE AND SPACE IN ARCHITECTURE

How could I say no to write a text about the relationship between structure and space in architecture?

Every day becomes clearer to me the central role of the structure in the architectural fact. I have repeated many times that the structure builds space likewise light builds time. That the structure stablishes the order of the space and that this is the main task of architecture: to organise the space.

The structure is such essential in architecture as the skeleton in the human being. The human skeleton is a beautiful structure provided with an astonishing perfection. I have described many times, in a way that my students could understand, that if Halle Berry is so gorgeous is because, among everything else, she has a perfect skeleton. Of course, over time I had to change the reference by Scarlett Johansson because my students also changed. How much of the beauty of Ms. Johansson comes from her skeleton, from a perfect bone structure.

And the same thing happens with the skeleton of animals. Their structure is perfectly suited to their size and their function. Therefore, the elephant will have big and dense bones and birds, having to fly, will have small and hollow bones, light ones. Thus, I wrote this in a text for my *Principia Architectonica* that I significantly entitled: “Of elephants and birds”.

Alejandro de la Sota, my master, teaching us already on the first year’s degree, spoke to us about the relevance of the structure. And he suggested us to imagine a woman that would give birth to a baby and she would realize that was born without skeleton. And that the doctor would be called to open the baby and introduce a skeleton. Well, this way some architects, wrongly, behave. They invent forms and, afterwards, they call the doctor, the engineer, to insert a skeleton, a structure. The structure, the skeleton,

in the human being and in the architectural space, must be present from the first moment of conception.

The History of Architecture is a History of structures. Stunning structures that have sprinkled the world with beauty. From the Pantheon in Rome that is a prodigious structure, to the Crown Hall in Chicago by Mies Van der Rohe, passing through so many gothic cathedrals. Structures.

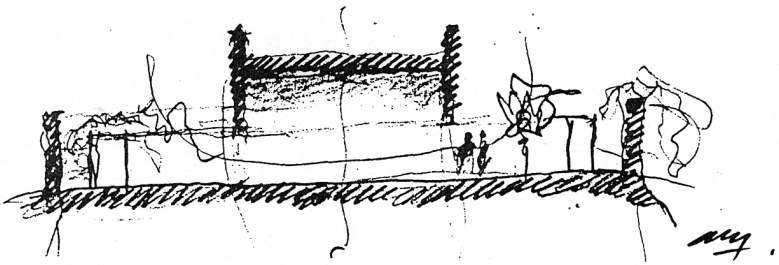
And if I talk about Spain, about its modern architecture, I have to mention the Maravillas Gimnasium by Alejandro de la Sota or the BBVA tower by Oíza, or any work of Fisac, all of them in Madrid. structures.

And if I talk about Switzerland, I will never forget a visit in Zurich to the School in Leutschenbach by Christian Kerez with Joseph Schwartz and Juan José Castellón. A pure and wonderful structure, different but beautiful. From this visit I wrote the text “The apple and the leaf” defending the possibility of different options, within the logic, for structures in architecture.

A young Spanish architect, Alejandro Cervilla, in his PhD Thesis *The language of the structure* wrote:

> A building under construction with the structure standing up, clean, tidy, without enclosure, is a wonderful skeleton. In fact, this is one of the most beautiful moments in the life of a building. When its skeleton is exposed, without anything else. When structure and gravity are the protagonists.

And if the structure is fine, is logical, it will only use the essential number of elements to solve the problem and, at the same time, to reach the beauty. As if it would be Poetry. As the American linguists E.B. White and William Strunk repeated “omit needless words”. Or as proclaimed by our Mies Van der Rohe, even better: “Less is more”.



ON THE PANTHEON IN ROME

How many times have I written about the Pantheon in Rome?

I wrote about *Beauty* in my inaugural speech at the Royal Academy of Fine Arts of San Fernando, on “Relentlessly Seeking Beauty”. And I wrote “On Intellectual Enjoyment”, in my recent farewell lesson from the School of Architecture on the occasion of my retirement. And in both speeches I spoke about the Pantheon, because in the Roman Pantheon both come together, Beauty and Intellectual Enjoyment.

And why do I choose to do it over again? The answer is very simple. Because I’m not the only one who mentions the Pantheon when discussing beauty. Because many of the greatest writers in the world have written about the Pantheon and so magnificently!

The Roman Pantheon is the most beautiful piece of architecture in the world, capable of arousing deep emotion. Yesterday, today and tomorrow. I made a deal with my students many years ago that when they visit the Pantheon, if they shed tears, they have to send me a postcard, telling me that they have cried. All those who have written have cried. And I’ve amassed a sizeable collection of postcards of the Pantheon in Rome, all handwritten and a few smudged with tears.

I must confess that the origin of this text, of this *excursus* on the Roman Pantheon, is the discovery that Cervantes, in his novel *Don Quixote*, speaks of the Pantheon, through the words of the ingenious knight himself.

And Cervantes (1547-1616) is joined by Stendhal (1783-1842), Henry James (1843-1916), and Marguerite Yourcenar (1903-1987) and others whom I cannot include here for reasons of brevity.

CERVANTES

I still recall my puzzlement when a good friend of mine, knowing of my devotion to the Pantheon, told me something that I did not know, that I had not been aware of: that, in Don Quixote, Cervantes had spoken of the Pantheon. And of course, Cervantes lived for a while in Rome.

At the end of 1569 Cervantes was in Rome as page to Cardinal Acquaviva. And so Rome appears in some of his works, such as *The Lawyer of Glass* and *The Works of Persiles and Sigismunda.*

But what hardly anyone knows or mentions, is that Cervantes was in the Roman Pantheon. He describes it so well in chapter VIII of the second part of *Don Quixote* that I have no doubt but that he was there.

But let us proceed to the text.

> And something of the same sort is what happened in the case of the great emperor Charles V and a gentleman in Rome. The emperor was anxious to see that famous temple of the Rotunda, called in ancient times the temple "of all the gods," but now-a-days, by a better nomenclature, "of all the saints," which is the best preserved building of all those of pagan construction in Rome, and the one which best sustains the reputation of mighty works and magnificence of its founders. It is in the form of a half orange, of enormous dimensions, and well lighted, though no light penetrates it save that which is admitted by a window, or rather round skylight, at the top; and it was from this that the emperor examined the building. A Roman gentleman stood by his side and explained to him the skilful construction and ingenuity of the vast fabric and its wonderful architecture, and when they had left the skylight he said to the emperor, "A thousand times, your Sacred Majesty, the impulse came upon me to seize your Majesty in my arms and fling myself down from yonder skylight, so as to leave behind me in the world a name that would last for ever." "I am thankful to you for not carrying such an evil thought into effect," said the emperor, "and

> I shall give you no opportunity in future of again putting your loyalty to the test; and I therefore forbid you ever to speak to me or to be where I am"; and he followed up these words by bestowing a liberal bounty upon him. My meaning is, Sancho, that the desire of acquiring fame is a very powerful motive. What, thinkest thou, was it that flung Horatius in full armour down from the bridge into the depths of the Tiber? What burned the hand and arm of Mutius? What impelled Curtius to plunge into the deep burning gulf that opened in the midst of Rome? What, in opposition to all the omens that declared against him, made Julius Caesar cross the Rubicon? And to come to more modern examples, what scuttled the ships, and left stranded and cut off the gallant Spaniards under the command of the most courteous Cortes in the New World?
>
> Chapter VIII Part two, *Don Quixote.* Miguel de Cervantes

Cervantes, in the words of Don Quixote, speaks here of the "temple of the Rotunda" describing it as being "in the form of a half orange and of enormous dimensions", a clear reference to the Pantheon.

And after relating in this passage the gentleman's impulse to seize his Majesty the Emperor Charles the Fifth on his visit to the Pantheon and fling himself from the skylight, with the idea of becoming famous, Cervantes takes advantage of the situation to sing the praises of humility in the words of his Don Quixote:

> All these and a variety of other great exploits are, were and will be, the work of fame that mortals desire as a reward and a portion of the immortality their famous deeds deserve; though we Catholic Christians and knights-errant look more to that future glory that is everlasting in the ethereal regions of heaven than to the vanity of the fame that is to be acquired in this present transitory life; a fame that, however long it may last, must after all end with the world itself, which has its own appointed end. So that, O Sancho, in what we do we must not overpass the bounds which the Christian religion we profess has

> assigned to us. We have to slay pride in giants, envy by generosity and nobleness of heart, anger by calmness of demeanour and equanimity, gluttony and sloth by the spareness of our diet and the length of our vigils, lust and lewdness by the loyalty we preserve to those whom we have made the mistresses of our thoughts, indolence by traversing the world in all directions seeking opportunities of making ourselves, besides Christians, famous knights. Such, Sancho, are the means by which we reach those extremes of praise that fair fame carries with it.

How could anyone remain immune to such beauty, not to mention someone with the extreme sensitivity of Cervantes? And consequently, and so very understandably, he passes it on to us, his readers, in his finest work.

STENDHAL

And Stendhal? Stendhal, author of novels as well-known as *The Charterhouse of Parma* and *Scarlet and Black* also wrote of the Pantheon. How could he not write about the Pantheon in his *Walks in Rome*? So let us go straight to what he wrote:

> The *most beautiful* memory of ancient *Rome* is, without a doubt, *the Pantheon*. This temple has suffered so little that it seems to be the same as in the *Roman* era. In the year 606, Emperor Phocas, whose column in the Forum was uncovered in the 1813 excavations, gave the Pantheon to Pope Boniface, who consecrated the temple as a church. What a pity that all pagan temples were not handed over to the church in 606! Ancient Rome would have remained almost entirely in place.
>
> The Pantheon has a great advantage: in a matter of seconds one is overcome by its beauty. The visitor stops at the portico, advances a few steps, sees the church and that's it. What I have just said is enough for the visitor; he does not require further explanation; the spell that the monument casts on you is proportional to the sensitivity

that Heaven has given you for the fine arts. I do not think I've ever met anyone who is not in the least excited to see the Pantheon. This famous temple has a quality not found in Michelangelo's frescoes or in the statues on the Capitoline Hill. I believe that this immense dome, suspended above their heads without any apparent support, inspires fools with fearfulness, which quickly turns to a sense of calm and they tell themselves: "And it is, however, to please me that they have taken the trouble to offer me such strong feelings!"

This famous temple is no more than one hundred and thirty three feet in diameter and thirty three feet high. It was built by Marcus Agrippa during his third consulate, in the Roman calendar year 727, twenty six B.C. or one thousand eight hundred and fifty-four years ago.

The inscription on the frieze of the portico reads:

M · A G R I P P A L · F · C O S · T E R T I V M · F E C I T ·

It was restored by the emperors Hadrian and Marcus Aurelius, and finally by Septimius Severus and Antoninus Caracalla. There is not the slightest doubt in this respect, since the following inscription can be read on the portico architrave:

I M P · C A E S A R · L V C I V S · S E P T I M V S · S E V E R V S ·
P I V S · P E R T I N A X ·
A R A B I C · A D I A B E N I C · P A R T H I C · P O N T · M A X ·
T R I B · P O T · X I · C O S · I I I · P P · P R O C O S ·
E T · I M P · C A E S · M A R C V S · A V R E L I V S · P I V S ·
F E L I X · A V G · T R I E · P O T · V · C O S · P R O C O S ·
P A N T H E V M · V E T V S T A T E · C O R R V P T V M ·
C V M · O M N I · C V L T V · R E S T I T V E R V N T ·

Agrippa was Augusto's son-in-law. He dedicated this temple to Jupiter the Avenger in memory of the famous victory his father-in-law obtained near Actium against Mark Antony and Cleopatra (one

> thousand eight hundred and fifty-nine years ago). In it were the statues of Mars, protector of Rome, and of Venus, protector of the family of Julio.
>
> The total height of the Pantheon (one hundred and thirty-three feet) is divided into two equal parts; the upper half is occupied by the curve of the great dome; the architect has divided the lower half into five parts. The first three fifths, moving upwards from the pavement, display a Corinthian order entirely similar to that of the portico. The other two form an attic with its cornice.
>
> The Pantheon is the most perfect remaining structure of ancient Roman architecture.

Stendhal wrote so many pages on the Pantheon that I will not dwell any further on it.

HENRY JAMES

Henry James, who was born in New York and became a naturalized Englishman in 1915, wrote many wonderful short stories including *The Last of the Valerii*, in which he writes beautifully about visiting the Pantheon. Not long before that, shortly after his arrival in Rome, he had declared: “Finally, for the first time, I live!”

In *The Last of the Valerii*, Henry James tells the story of a rich American woman who marries a Roman aristocrat, Count Valerio, in whose garden a statue of the goddess Juno is discovered. The count becomes infatuated with the statue, is and falls under her spell, rather like a religious conversion. And at a culminating moment in the story the Pantheon takes on the role of protagonist:

> I wandered about Rome, turning over these questions, and one afternoon found myself in the Pantheon.

A light spring shower had begun to fall, and I hurried for refuge into the big rotunda which its Christian altars have but half converted into a church. No Roman monument retains a deeper impress of ancient life, or has more of the form of the antique faiths whose temples were nobler than their gods. The huge dusky dome seems to the spiritual ear to hold a vague reverberation of pagan worship, as a shell picked up on the beach holds the rumour of the sea. Three or four persons were scattered before the various altars; another stood near the centre, beneath the aperture in the dome.

The sun was struggling through the clouds without, and yet a thin rain continued to fall, and came drifting down into our gloomy enclosure in a sort of illuminated drizzle. The Count watched it with the fascinated stare of a child watching a fountain, and then turned away, pressing his hand to his brow, and walked over to one of the rather perfunctory altars. Here he again stood staring, but in a moment wheeled about and returned to his former place. Just then he recognised me, and perceived, I suppose, the curious gape I must have fixed on him. He waved me a greeting with his hand, and at last came towards me. He was in a state of nervous exaltation—doing his best to appear natural.

“This is the best place in Rome”, he murmured. “It is worth fifty St. Peters. But do you know I never came here till the other day? I left it to the forestieri. They go about with their red books and their opera-glasses, and read about this and that, and think they know it. Ah! You must feel it —feel the beauty and fitness of that great open skylight. Now, only the wind and the rain, the sun and the cold, come down; but of old— of old”—and he touched my arm and gave me a strange .smile— “the pagan gods and goddesses used to descend through it and take their places at their altars. What a procession, when the eyes of faith could see it! Those are the things they have given us instead!” And he gave a pitiful shrug. “I should like to pull down their pictures, overturn their candlesticks, and poison their holy-water!”

MARGUERITE DE YOURCENAR

And finally, for now, Marguerite de Yourcenar, author of the novel *Memoirs of Hadrian,* in the center of which the Pantheon makes its appearance. In the chapter "Saeculum Aureum", Hadrian has the following to say:

> "The construction of a temple for All Gods, a Pantheon, seemed increasingly desirable to me. I had chosen a site on the ruins of the ancient public baths given by Agrippa, Augustus' son-in-law to the people of Rome. Nothing remained of the old structure except a porch and a marble plaque bearing his dedication to the Roman citizens; this inscription was carefully replaced, just as before, on the front of the new temple. It mattered little to me to have my name recorded on this monument, which was the product of my very thought. On the contrary, it pleased me that a text of more than a century ago should link this new edifice to the beginning of our empire, to that reign which Augustus had brought to a peaceful conclusion.
>
> "On the same day, with graver solemnity, as if muted, a dedicatory ceremony took place inside the Pantheon. I myself had revised its architectural plans, drawn with too little daring by Apollodorus. Utilizing the arts of Greece only as ornamentation, like an added luxury, I had gone back for the basic form of the structure to the primitive, fabled times of Rome, to the round temples of ancient Etruria. My intention had been that the sanctuary of All Gods should reproduce the likeness of the terrestrial globe and of the stellar sphere, that globe wherein are enclosed the seeds of eternal fire, and that hollow sphere containing all. Such was also the form of our ancestors' huts where the smoke of man's earliest hearths escaped through an orifice at the top. The cupola, constructed of hard but lightweight volcanic stone, which seemed still to share in the upward movement of flames, revealed the sky through a great hole at the centre showing alternately dark and blue. This temple, both open and mysteriously enclosed was conceived as a solar quadrant. The disc of daylight would rest suspended there like a shield of gold; rain would form its clear pool on

the pavement below; prayers would rise like smoke toward that void where we place the gods."

With such authentic testimonies from four extraordinary writers, how could anyone doubt the beauty of the Roman Pantheon? Architecture, perhaps with a stronger force than any of the Fine Arts, can achieve a beauty capable of moving our hearts and our heads, producing true intellectual enjoyment. That intrinsic beauty, the beauty in which the best Architecture is clothed, is what we find so eminently vested in the Pantheon of Rome.

And should we continue –and continue we will– studying the Roman Pantheon, and the creators who have had a relationship with it, we would never end. Goethe in his Italian Journey writes: "The Pantheon is one of the buildings in Rome that has taken such a firm hold of my soul that there is hardly room for anything else".

Velázquez displayed his portrait of Juan de Pareja on the doors of the Pantheon, when he entered the Academy of Saint Luke and the Congregation of the Virtuous in Rome. Eduardo Chillida wrote about his feelings on embracing the column of light that came from above. Rafael Sanzio and Arcangelo Corelli were buried there. And our Royal Academy of Fine Arts of San Fernando, houses the drawers of the Westmorland containing many drawings of the Pantheon. And so much more.

SUSPENDING TIME

On time. On the ineffable detention of time

In this text, I would like to analyze why some architectural spaces are able to stir up such an inner commotion within us. Although it may seem an abstract concept or theme more properly pertaining to poetry or philosophy, this concept of suspension of time occurs with an especially real and palpable force only in architecture. When we stand before or inside certain architectural spaces, time seems to stop, suspend itself, and become tangible to human beings.

There is no denying the profound emotion –the suspension of time– one feels on entering the Roman Pantheon. There time stands still and we are moved. I still shed tears every time I go back. I often mention to people the deal I've made with my students for many years now. When they visit the Pantheon they have to send me a postcard, a *cartolina illustrata* with a picture of the inside, telling me whether or not they cried. All of those who have written have cried. I've amassed a good collection.

This metaphysical time that poets, musicians and philosophers express so well is the same time that those of us dedicated to architectural creation seek to capture. It is a central theme of architecture.

"Burnt Norton" is the first of the *Four Quartets*, one of T.S. Eliot's key works. In its first five lines, the word *time* appears seven times with surprising reiteration:

> Time present and time past
> Are both perhaps present in time future.
> And time future contained in time past.
> If all time is eternally present
> All time is unredeemable.

The Spanish poet Jorge Manrique ineffably claimed in the following lines:

> Beholding how each instant flies
> So swift, that, as we count, 'tis gone
> Beyond recover,
> Let us resolve to be more wise
> Than stake our future lot upon
> What soon is over.
>
> Let none be self-deluding, none,
> Imagining some longer stay
> For his own treasure
> Than what today he sees undone;
> For everything must pass away
> In equal measure.

And the Cuban poet Fina García Marruz, also expressed it so well in a poem inspired by Pindar:

> Become who you are, who is the one that you were,
> On yesterday and not tomorrow time insists,
> Become, knowing when you are no more,
> What you wished shall remain.

And we could continue with quotations from countless poets who have understood that time, past, present and future is the central theme of artistic creation. From Poetry to Architecture.

I will never forget how, when my building for the Caja Granada headquarters had just been inaugurated, one of the people who worked there recalled having wept on entering the central space for the first time. Right there, at that very instant, time stood still. I must confess that, years later, every time I return there and enter that space, my heart still skips a beat, and even more so if the sun, up to its usual tricks, alights upon and strolls over its alabaster walls.

These experiences exemplify, each in unique ways, the suspension of time that I'm speaking of here.

Architects must deepen their understanding of the architectural mechanisms that make these results possible. Suspending Time and finding Beauty. I'm still trying to hit upon that perennially elusive *Beauty itself* that every artistic creation seeks to embody, and most especially architecture since it is a form of high art.

It might be helpful to consider how architecture, in comparison to other art forms, is the only one whose creations are capable of physically enveloping man, its protagonist. The experience of being able to stand inside a work of art in flesh and bone pertains solely to architecture, and is impossible to produce in the other arts.

If a space built with gravity, with materials possessing an unavoidable gravitational weight is tensed by light –light which itself builds time– so that we are moved through the physical, beyond the physical, then we can properly say that we have attained architecture. Architecture happens when we succeed in stopping time in the constructed space: entering within dreams-come-true.

I will not tire of repeating that time is a central theme of architecture: time that is structured by light; capable of stopping our hearts or tying them in a knot, much more than the forms of a passing style or the exquisite adornments of the best construction. *Utilitas* and *Firmitas* only acquire their full meaning when *Venustas* is attained.

Time in Architecture can be analyzed from many perspectives: the time of *Utilitas*, the time of *Firmitas* and the time of *Venustas*. Not forgetting the time of Memory.

THE TIME OF UTILITAS. FUNCTION

There is a time that refers to the capacity of ensuring that the function for which the building was erected will endure. A time relative to function: use, utility, *utilitas.* Time of *utilitas* insists that a building carries out the functions for which it was commissioned and, moreover, that it be adaptable to different functions over the long haul. When I was a student we learned this in terms of the *architecture of boxes* and the *architecture of cases*.

The case meets the requested function exactly, but it can't be used for anything else. A knife sheath can't be used for a spoon; nor is a spoon holder appropriate for knives. If the question is changed, the answer is no longer valid. It tends to happen when, in addition to the specific nature of the function, the dimensions are also strictly bound within certain settled parameters. A low income housing building, even if it is well-resolved to the last millimeter, will most certainly not serve for anything else.

The box, in contrast, can admit many different functions over time. Obviously, the larger the size of a space, the greater the number of different functions it can allow. Boxes endure the test of time better than cases do.

Time is kinder to boxes than cases. And kinder still to larger boxes rather than smaller ones. Berthold Lubetkin, architect of the penguin ramp in London, was right when he said that he did no more than build boxes, shoe-boxes in concrete.

THE TIME OF FIRMITAS. CONSTRUCTION

There is another time that speaks of physical duration, of the effective combination of materials that culminates in the most perfect construction of architecture. The word *firmitas* means strength, and a well-constructed building will be able to last many years and will remain on solid footing for a long time. All of the great masters of the past have been, furthermore, very good builders whose attention to *firmitas* allows us to admire their words in flesh and blood today.

THE TIME OF VENUSTAS. BEAUTY

The time of *Venustas* is that which can be suspended, that stops when we encounter the particular beauty of an artistic creation. It is the most difficult to control, but for that reason it is what most interests us.

All of architecture's treatise writers have sought to come up with a few universal rules that would not only serve to transmit certain forms or styles, but also emit a beauty always capable of moving men deeply.

It is a difficult enterprise. Just as happens with many excellent cookbooks in which nothing is spared to provide every last detail and consideration regarding a recipe, the exquisite dish still requires a skilled and passionate chef. No recipe can guarantee the quality of the cooking. The same thing is true in architecture; one needs a good head, a good hand and one has to have a talent for it.

THE TIME OF MEMORY. PERMANENCE

Another thing is the time that the building is capable of remaining in men's memory: a built work's resistance to oblivion, or in other words the thing that secures its trajectory into architectural history, which has little to do with current fashion or passing fame. Those of us who are no longer children have seen lofty names and works that mean nothing today. The phenomenon, controlled and exaggerated by the press, still works at full strength. Many of the names that make up today's architectural *A-List* are sure to disappear tomorrow, their fame short-lived. They will never remain in men's memory.

But there are other, quieter sorts of architecture that are much more eloquent and capable of transcending our tendency to ephemerality. Above and beyond fashion and vanity, our aim should be to erect more profound architecture for history. Such architecture has a different rhythm, and belongs to truth and beauty in fullest sense.

The time of memory –of permanence– is “the difficult desire for duration” (*le dur desir de durer*) which Paul Eluard spoke of poetically and which is so profoundly rooted in the will of every creator: the will to transcend. Drummond de Andrade put it so eloquently: “I am tired of being modern. Now I want to be immortal.”

And it is Memory that enables us with the passage of time to value more highly those works of architecture that are truly worthwhile. In that wonderful volume *War of Time* by Alejo Carpentier, time passes simultaneously backwards and forwards. Carpentier manipulates time in such a way that only the novel, imagination guided by memory, can achieve; so it is that on his death, Don Marcial at the feet of Ceres, starts going back in time, living his life backwards to his birth. Sentences such as “the furniture was growing taller” and “when the furniture had grown a little taller still” and then: “but now time passed more quickly…”, are Carpentier’s tricks of the trade to explain this backward progression of time.

Doesn’t something similar occur when we return after a long period of time to some of the best artistic creations and suddenly we understand them perfectly? Not only that, they seem even better than they did before. So it is that like Marcial in *War of Time* I read the poems of Horace and Virgil with so much more pleasure than I did when obliged to read them as a child. I used to learn and now I learn too. And I enjoy. And here and now, just like that, time appears to stand still.

In a very special way this is what occurs with Architecture. I must confess that on my most recent visit to the Pantheon time stood still when that stream of light, travelled across the deep coffers of its bare dome at something other than physical speed and I felt it with much greater intensity than on the first occasion many moons ago. Thus, we architects must remind ourselves that the possibility of stopping time, of halting the sun as Joshua did, is something that we are capable of, just as we are capable of creating something that transcends us.

HISTORY

There are many buildings in History with that special capability of causing us to lose our sense of time.

The Roman Pantheon is the example *par excellence*. Well built, and a perfect embodiment of the universal function endowed to it by its creator, the Pantheon is also overwhelmingly beautiful. All of the great creators have understood that when they've been inside of it. Suffice it to quote Henry James when he recounts the memorable scene of Count Valerii kneeling inside the Pantheon as the sun struggled through the heavy clouds above with the rainwater making the light from on high material. Exquisite. Or Piranesi's engravings of the Pantheon that should in the libraries of all architects.

And if I had to give just one example of contemporary architecture, I would recommend visiting the Burgo Tower by Eduardo Souto de Moura in Oporto. Not only is it impeccable in its function and its construction, but also in its radical beauty. Going in, out, and through it, and I speak from my own experience, is like escaping from time. This building clearly reflects its historical period, the third millennium that we live in today. Essential.

THE BLUE-EYED ROTHKO

Every time I enter the Olnick Spanu family home in Manhattan my heart skips a beat: there in front of me, I see a painting by Rothko, my favorite painter, in an unusual size and color. Its small dimensions and blue and green tones completely sweep me away. A good friend of mine, with whom I often discuss this painting, tells me it is "the blue-eyed Rothko." He's right. I can witness to the fact that there, in front of this wonderful painting, time stops, it disappears.

It happens that painting, like architecture, shares this special capacity to carry us away and suspend time. I'll never forget my first visit to London when, with Sáenz de Oíza, my beloved teacher and Spanish master, we

stood in front of Velázquez's *Venus of the Mirror* in the National Gallery. Time, space, desire –everything– disappeared. In that brief infinite lapse we stood as if in divine rapture.

MUSIC CAPABLE OF STOPPING TIME

I will never forget the moment when Peter Phillips, director of The Tallis Scholars, in an interview he gave in early spring 2011, before performing Tomás Luis de Victoria's *Requiem* in New York, spoke of *suspended time*.

In that interview, the words flowed from his mouth as if in a cascade: intensity, sobriety, profundity, precision, simplicity, clarity, but above all, suspension, referring to time. When asked where his musicians had sounded best, he answered in the Sydney Opera House by the master Jorn Utzon. It could not have been otherwise.

The concert, devoted entirely to Tomás Luis de Victoria, and commemorating the fourth centenary of the Spanish composer's death, was long, but I would say that for all of us who filled the packed church of St. Mary the Virgin in 46th Street, everything happened in a second. Time stopped there, in the way that only beauty can make possible.

And if I were to mention a contemporary musician in this context, I would choose the American composer Thomas Newman, and author of *Dead already*. You need only to hear this music to understand at once what I'm talking about.

SORT OF DISAPPEAR. CINEMA

And while we could survey all artistic creations and discover that the crux of the matter is always the same, namely reaching man's heart through his head, I am going to limit myself to a couple of examples of how film, the seventh art, is also capable of stopping time.

An unforgettable scene comes to mind: the white plastic bag floating in the air in the film *American Beauty*. Sam Mendes magically transforms something so basic from a novel into a masterful visual piece. Given the supreme beauty of something so simple, we all cry with Wes Benly and Thora Birch. There, time disappears and our heart dissolves in five infinite minutes.

Of course, Billy Elliot expresses it still more clearly in that "sort of disappear" that he repeats twice when the panel asks him what it is that he feels when he dances. With a stroke of genius Stephen Daldry summed up something as abstract as suspended time in artistic creation so precisely in this beautiful little phrase!

> TEACHER: "What does it feel like when you're dancing?"
>
> BILLY ELLIOT: "Don't know. Sorta feels good. Sorta stiff and that, but once I get going... then I like, forget everything. And... sorta disappear. Sorta disappear. Like I feel a change in my whole body. And I've got this fire in my body. I'm just there. Flying like a bird. Like electricity. Yeah, like electricity."

THE SECRET OF ARTISTIC CREATION

Architecture, painting, literature, music, and film are, in fact, no more than the creative works of human beings which redeem us and make this life worth living.

Edgar Allan Poe in his *Philosophy of Composition* captured this suspension of time so well:

> Truth, in fact, demands a precision, and Passion, a *homeliness* (the truly passionate will comprehend me) which are absolutely antagonistic to that Beauty which, I maintain, is the excitement, or pleasurable elevation, of the soul.

That “pleasurable elevation of the soul” is precisely the suspension of time that we are referring to here.

Our works go on to “transcend material and limited life.” Stefan Zweig, in that essential text I have quoted so very often, *The Secret of Artistic Creation*, manifests this with such force: “there is no greater pleasure or satisfaction than recognizing that man is also capable of creating everlasting values”.

Works that are worthwhile transcend us; they transcend their creators and no longer belong to us. They already belong to the memory of men.

ADDENDA

I began this text recalling the capacity of the Caja Granada’s central space to move us. While this suspending time is one of the final purposes of architecture, I also know that I am trying to explain something that is beyond expression.

If one can speak of the profound impact of seeing the palpable light on the alabaster of the Caja Granada, I would describe what we feel when we walk through the extremely white ramp of the Museum of Memory of Andalusia, also in Granada next to the Caja, as luminous wonder. It is a moving *promenade architecturale* that I believe is indeed worthwhile.

In my houses, however, the sensations are very diverse: quiet calm in Gaspar House and Guerrero House, turned in upon their white courtyards; serene transparency at rest in nature, looking down from their podiums towards sought after peace in De Blas House in Madrid, the Olnick Spanu House in New York, and Rufo House in Toledo.

Suspending time is after all more closely linked to the slow pace of light and the vertical space than to the greater mobility of vision, to horizontal space and transparency.

Other projects of mine produce feelings of yet another kind. Such is the case with the building for the Advisory Council of the Regional Government of Castilla-León, in front of the Cathedral of Zamora. This is a box of powerful sandstone walls open to the sky, and we are stunned when we go inside and behold the extreme delicacy of the glass box constructed within it.

It is a similar operation to what I did years ago in Mallorca with the BIT Center. The *marés* stone box enclosed an ordered plot of alternating orange trees and white pillars which complimented a simple slab that protects the basic glass box. Both of the *hortus conclusus* projects, Zamora and Mallorca, strike us through the powerful contrast between the primitive stone walls and the intelligently deployed advanced technology. Both buildings, Zamora and Mallorca, moreover, lead us to an eloquent silence of contemplation.

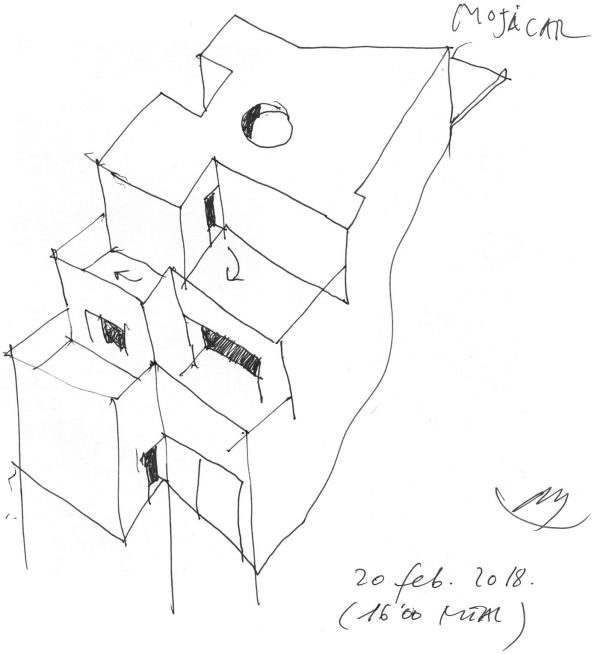
If I were asked to divulge my trick or recipe, I'd say I have none. I manage to throw myself with my head and heart into each job I do, dedicating an enormous amount of time –thousands of hours– to each project. I want each of my works to unfold in the light of truth always, knowing, as we already knew, that beauty is the splendor of truth. John Keats beautifully encapsulates this metaphysical recipe in the conclusion to his *Ode to a Grecian Urn*: "Truth is beauty, beauty truth. That is all". Knowing, as we already knew from Plato, that "Beauty is the splendor of Truth".

Paul A.M. Dirac, 1933 Nobel Laureate and one of the great physicists of our time, proclaimed, "Beauty and truth go together in theoretical physics". Could today's architects, instead of musing on vanities, concur with the poets, philosophers, and physicists in the primacy of the pursuit of truth, and attempt to actualize this all-too-possible miracle of the suspension of time?

Le Corbusier, in simpler language, spoke of the "unspeakable space," and on other occasions, of how the most useful buildings were those that "fulfilled the desires of the heart." The master was so very right. And if we started with a poet, T.S. Eliot, we will conclude with another, William Blake. In his *Auguries of Innocence* he proposes:

To see a world in a grain of sand,
And a heaven in a wild flower,
Hold infinity in the palm of your hand,
And eternity in an hour.

This eternity is what we would like to achieve with our architecture.


Mojácar
20 feb. 2018.
(16'00 MUM)

ON SURRENDER AND UNIVERSALITY

T.S. Eliot, Ortega and Sota. Moreover, Gombrich and Melnikov

All creative work, including architecture, requires a degree of self-sacrifice, of depersonalization, if one is to achieve greater universality. So we are told by our protagonists: a poet, a philosopher and an architect.

And well might you ask: what is the connection between a poet, a philosopher and an architect? What has T.S. Eliot to do with Ortega and Gasset, and with Alejandro de la Sota?

T.S. Eliot (1888-1965) was an American by birth who became a British citizen and writes poetry like the angels. Ortega (1883-1955) is a clear and transparent Heideggerian. And Sota (1913-1996) is a laconic, Bachian Spanish architect. The three could well have known one another because they are contemporaries. Had this happened, they would have been surprised to learn how much the poet, the philosopher and the architect had in common. If we were to ascribe a single adjective to each of them, one could call T.S. Eliot transparent, Ortega clear and Sota laconic.

And all three coincide in their respective genres - poetry, philosophy and architecture - in the demand for a certain sobriety of expression, a certain surrender of the individual, as a prerequisite for universality.

T.S. ELIOT

In his essays *What is a Classic?* and *Tradition and the Individual Talent*, T.S. Eliot stoutly defends the need for the extinction of personality in his work in the interest of greater universality. The first wonderful text is a speech he delivered in 1944 as the first President of the Virgil Society of London. The second text dates from 1919, and in it we find many of the arguments that had previously appeared in the former.

> When an author appears, in his love of the elaborate structure, to have lost the ability to say anything simply; when his addiction to pattern becomes such that he says things elaborately which should properly be said simply, and thus limits his range of expression, the process of complexity ceases to be quite healthy, and the writer is losing touch with the spoken language.

Try exchanging the words author and writer with the word architect.

> There comes a time when a new simplicity, even a relative crudity, may be the only alternative.
>
> Now, to some extent, the sacrifice of some potentialities in order to realize others is a condition of artistic creation, as it is a condition of life in general.
>
> In short, without the constant application of the classical measure, we tend to become provincial.

T.S. Eliot uses the term provincial. I don't know if in English the term provincial, has the same pejorative connotations as the word provinciano in Spanish. But the poet's idea in his search for the universal is very clear.

> A distortion of values, which confounds the contingent with the essential, the ephemeral with the permanent.
>
> But my concern here is only with the corrective to provincialism in literature.
>
> The progress of an artist is a continual self-sacrifice, a continual extinction of personality.
>
> There remains to define this process of depersonalization and its relation to the sense of tradition. It is in this depersonalization that art may be said to approach the condition of science.

Lying next to it on my table is a little gem: an original edition in English of *What is a classic?* edited by Faber & Faber in London in MCML, 1950. The quotations have been extracted from this edition.

ORTEGA

Ortega in his essay *En torno al Coloquio de Darmstadt* de 1951, said:

> In effect, style, has a very peculiar role in architecture, which it doesn't have in other arts, even in the purer arts. Paradoxical though it may seem, that is how it is. In other arts style is merely a question of the artist: he decides —with all his being and with a level of decision-making that runs deeper than his will and consequently acquires an aspect of necessity rather than free will—for himself and unto himself. His style does not and cannot depend on anyone else but himself. But the same is not true of architecture. If an architect produces a project with an admirable personal style, he is not, strictly speaking, a good architect.

In 1951 an architectural congress was held in Darmstadt which was attended by Heidegger and Ortega. And surprisingly Ortega dares to directly criticize that style of personal architecture, *provincial* in Eliot's terms, with such clarity. It reminds me of the work of an extraordinary architect like Gaudí, and how his excessive personality takes from the universality that we find in maestros like Mies Van der Rohe or Le Corbusier.

And Ortega goes on to say:

> The architect finds himself in a relationship with his art, very different from the bond formed between other artists and their respective works. The reason for this is obvious: architecture is not, cannot be, must not be an exclusively individual art. It is a collective art. The genuine architect is an entire people, which provides the means of construction, its purpose and its unity. Imagine a city built by *amazing*, but dedicated architects, each out for himself, and his own individual

> style. Each one of these buildings could be magnificent and yet the overall effect would be bizarre and intolerable. In such a scenario, far too much emphasis would be given to an aspect of all art which has not been sufficiently remedied; its capricious element. Its capriciousness would manifest itself naked, cynical, indecent, intolerable. We would not be able to see the building as part of the sovereign objectivity of a great mineral body, but displaying on the contrary the impertinent profile of someone who is doing whatever he feels like.

It would seem that Ortega's words could have been uttered today regarding much of the arbitrary, capricious architecture that we see being built.

SOTA

> One tires of seeing beauty and the grace of things (perhaps they are the same) being pursued with added embellishments, knowing the secret is not there. My unforgettable friend J. A. Coderch used to say that ultimate beauty is like a beautiful bald head (Nefertiti, for example), from which one had pulled out each and every hair, lock by lock, with the pain of ripping them out, one by one. Painfully we must tear from our works the hairs which impede us from achieving their simple, simple end.

These expressive words from the Spanish architect Alejandro de la Sota (Pontevedra 1913) close the book on his work (Pronaos Ed. Madrid 1990) and define so well the views on architecture and life itself of this true maestro, who began each day playing a Bach sonata.

Sota's architecture has that extreme elegance of the precise gesture, of the exact phrase, that so accurately touches silence. The silence of his work and his personality is gifted with the difficult capacity to fascinate. So close to poetry, to poetic breath, to hushed music.

Sota's architecture is especially encapsulated in the Gymnasium of the Maravillas School in Madrid. This superb building is impressive in its

extraordinarily terse, pithy, absolute simplicity. So much so that for non-architects it goes unnoticed and may be hard for the layman to understand the beauty contained therein. For the same reasons that it is difficult for them to understand Mark Rothko's painting. This simplicity of the most logical architecture led Sota to say: "I believe that not making Architecture is a way of making it. And when asked about the Gymnasium of the Maravillas School he simply replied: it solved a problem."

A little more and we could hear Sota saying that "architecture is not a turning loose of emotion but an escape from emotion", which is what T.S. Eliot wrote about poetry.

How could we fail to recognize an identical universal breath in our three creators? As the years go by, I must acknowledge the great intellectual enjoyment produced by the inter-action of these characters and these issues in one's memory. How great and profitable is the passage of time!

NOTA BENE

And, just when I thought this text had concluded, Gombrich appears. Well, it's not as if E.H.Gombrich, whose wonderful text *The Preference for the Primitive* I know for such a long time and is on my desk, has just appeared out of the blue. Simply that I periodically reread a selection of very special texts that I keep together on a shelf of favorites. I have spoken many times of the enormous intellectual enjoyment of returning over the years to one's sources.

The book opens with a quotation from Cicero that says everything: "However, though they captivate us at first sight, (they) do not afford any lasting pleasure; whereas we are strongly attracted by rough and faded colouring in the paintings of antiquity". *(*Cicero, *De Oratore III*.xxv.98).

And Gombrich says: "The more the artist knows how to flatte the senses, the more he will mobilize defences against this flattery" (p 27).

In the end, this preference for the primitive is a clear expression of the need for personal sacrifice in order to attain universality.

Or, as my old friend Melnikov said:

> Having become my own boss, I entreated Architecture to throw off her gown of marble, remove her make-up and reveal herself as she really is: like a goddess, naked, graceful and young. And to renounce being agreeable and compliant, as befits true Beauty.

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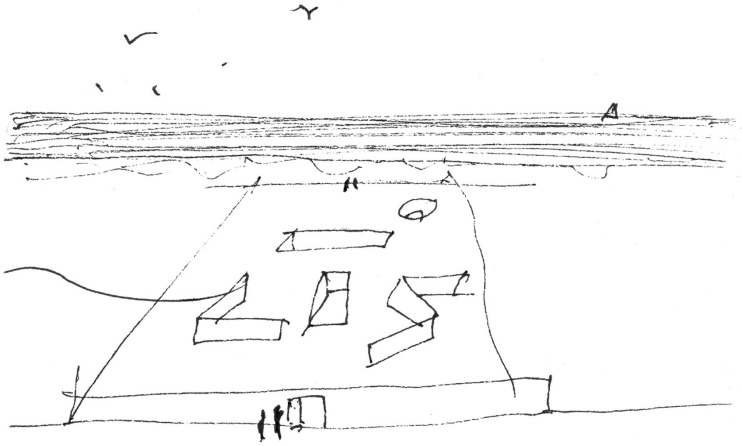

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