

## On the architects' drawings and their estimation

Miguel Angel Baldellou

Drawing is probably the most accurate tool with which the architect approaches the exterior world and by means of which he displays his own one. That is why it has become the most efficient way to present the particular aims of each project. The dexterity of an architect in this particular art has always been considered as part of his creative capacity. And, therefore, a large part of his education has been dedicated to his appropriate training in diverse efficient and suggestive techniques of representation. Preliminary drawings have, in the same way, acquired a certain status in relation to those strictly included in the project's technical documents. Moreover, these drawings are considered author's works and so rather valuable documents. The intermediate documents which act as mediators between the "idea" and the "work" are increasingly being estimated by researchers, critics, scholars and simple observers. The adequate classification and availability of these drawings, whose artistic significance is probably minor, has become a key issue in the latter years for our contemporary advanced societies, and has already produced some conflictive situations. Some recent experiences in the context of a historical research project, have made me meditate upon the following points.

1.- The enormous amount of sketches, schemes, drafts etc. produced in the process of begetting an architectural idea, besides pointing at a certain route for development, usually a hard and difficult route, and revealing the many difficulties which may be found in the translation of a complex thought into a simple form, become valuable documents themselves for the person who produces them, but just while his is in the process of "thinking". Thus, when his own thought is finally fixed, they become irrelevant. That is why sketches tend to be subsequently destroyed in the offices. Some of these drawings are, nevertheless, kept as a testimony of a genial idea or of a significant turning point in its development. Sometimes, they are even reproduced in a posterior stage, trying to capture that unrepeatable moment. They, thus, become a kind of "guide for the interpretation" of the technical documents, the genuine image of the project's character, and its author's, of course. In any case, this type of drawing has a documentary and functional quality which makes of them relatively valuable elements. But, the inescapable collection-rage of our prosperous society transforms them into rarities, unique proofs of the artist's mastery whose possession is something rather satisfactory for the most exquisite. The inheritors of this enormous mass of documents, so much appraised by the scholars and the fetishists, are thus trying, usually by means of special Foundations, to squeeze the last profits from these functional and preliminary works.

2.- The whole procedure includes an

extraordinarily confusing attribution of authorship to pieces which are usually not signed. In this kind of context, we find some individuals who try to improve their personal circumstances either facilitating or hindering the access to this drawn documents.

In this sense, I have been recently impressed in a displeasing way by the activity of the confusing figure of the Berlin Kunstbibliothek director, whose absolute lack of interest in the diffusion of the cultural works under his custody is complemented with a kind of suspicious bureaucratic zeal which can probably be overcome by means of negotiation. I have also found other equivocal individuals, though probably not so radical, which act as guardians to the memory of a certain author. The Le Corbusier Foundation is another example of what I try to say. Acting as self-styled Maecenas, some powerful institutions acquire an immense collection of documents of diverse authors which may be launched in an international context, in such a way that, after a careful process of controlled production, the real exploit begins. We can mention the paradigmatic case of the Barragán collection, transferred from Mexico to Switzerland by Vitra, a profitable operation for the architect's heirs and a prejudice for those who visit his works "in situ". Moreover, in this particular case we can see how the "out of context" condition of really accessory objects makes of them fit for a museum.

Once the exact value of the object is determined, in a rather arbitrary way, in economic terms, who is to enjoy the wealth? The author, his heirs, the institution which paid for some hypothetical rights, the photographer who is capturing its image, the company which publishes it or the gallery exhibiting it? Because, for example, when we deal with written works, the right does only exist when we talk about the reproduction of the complete text. Quotations and quotation marks are usually the way to solve the problem. So it is a certain way to express an idea which is protected, not the idea itself.

But, in architecture, which is the idea that should be protected? It is not in any of its materializations but it is previous to them all. Or, some times, posterior. Whose idea is it? Where and when does it appear? What is supposedly protected through the charge imposed on the "idea"? This is the mechanism, not the idea, invented by the merchants of other's ideas. By the "managers". The middlemen.

3.- Because it seems evident that, for us, architects, the interesting thing about a drawing is in what it represents and not in the way it represents it, more in the idea or ideas suggested by it than in the drawing itself, though it might be an excellent work. The persuasive capacity of the drawing, in fact, can result in some confusion as it might suggest and imply different ideas to different observers,

to different examiners, to different members of a jury or to different clients. So they are the vehicle of many tricks intended to obtain the applause, the vote or the passing grade. And, as they are the ones which obtain the success they become even more important than the idea itself. The idea can become a secondary issue. I have already seen some excellent architects who, victims of their own fascination and just in search of success, have replaced rigor with self-complacency and their possible ideas with mirages which are just caricatures of their own drawings. They have, thus, become dependent on their own scenography. The whole procedure is probably something encouraged from the schools of architecture which are, thus, mistaking their real mission.

For other people, if we leave aside that possible suggestion of an idea, the drawing is only a drawing. From this point of view, its potential value can just be "artistic". But as we talk about architectural drawings, their relative and intermediary quality results in a certain lack of coherent criteria for their estimation. Thus, the authority or "authorship" of the work is somehow magnified as the only possible reference.

This uncertain evaluation has as a consequence the apparition of the merchandise sharks. The middlemen who can concentrate the eyes of the public on a certain architect's drawings.

## Unnoticed anniversaries

José Manuel Prieto González.

The 25th of september of 1844 was a significant date for the history of architecture in our country. That was the day of the publication of the Royal Decree which approved the new educational plan for the Beaux Arts studies within the Saint Ferdinand Royal Academy. This decree fostered the autonomous development of the architectural studies as something separable from other associate programs as those for painting or sculpture. Thus, it resulted in the creation of the Special School of Architecture which would depend, for some time yet, on the Academy as its educational surveyor. The recent celebration of its 150th anniversary has been the occasion for the current representatives of the institution to proclaim the event. The same happened 50 years ago with the centenary. But as time goes by, the anniversary itself becomes history and new events demand their own celebration. The question of what should be remembered and what should be celebrated is an arduous one. We will just mention the opinion of the anthropologist Fermín del Pino when he affirms that "the search for our genealogy in the professional past (and the finding of relevant solutions for the present in it) seems to be a necessity of every social group". Thus, anniversaries and celebrations become an excuse to look for "parallels or predecessors or

Current times prove us how it is possible to divide a creative process into a series of separable elements: what is "thought", what is represented in the architect's drawing, and which is intended to be widely recognized and what is "produced", as a technical feat. Different languages, different values. If, on one hand, computers tend to transfer the "fascination of the representation skills" from the author to the machine, on the other, the artist tries to hide himself behind a personal language which does not need to be shared. We go back to the times of the magicians, the owners of the secret of beauty, which can just be obtained from the sect, with their permission.

From the last period of relevance of the architect-artist (at the beginning of the current century) to the expected times in which the strict "conventional" representation will be the center of the discussion, Le Corbusier's drawings, recently exhibited in our COAM Cultural Foundation, are a refreshing relief. These are not signed (so the Le Corbusier Foundation should express an inescapable doubt about their authorship), and they were not intended to be displayed (What would the master say!). They were not intended to represent or show something. They just point at certain things. They were simply thought. That is why they thrill. Drawing is just to think in a certain special way. ■

just terms of comparison, without which we would not be able to understand, in a correct way, the present nor the future". In his sense, the issue of the architectural Roman grants, as related to the reformation atmosphere of those times, could be an interesting thing to be remembered. First of all, this will reveal us how the system has worked up to our days. And secondly, applying the anthropologist's formula, this is a good example of the differentiated itineraries of two separate groups, that of the architects and that of the engineers, both working in the building field. The architects alone could enjoy those grants as a characteristic privilege.

When the School was created, these grants were already a century old. They had not always been conferred regularly because they depended on the circumstances of public funding. The reform, encouraged by the government in 1844, affected the educational programs but not the grants. This means, among other things, that if the Saint Ferdinand Academy had lost competencies in education it had retained its power over the grant, which it had to administer. So the recently born Special School of Architecture had nothing to do with them and they continued being distributed by the Architectural Section of the Academy. Now,



if the grant system was not reformed, it was obviously affected by the new circumstances. And the result was that there was no grant conferred during the years following the organization of the new educational plans, because the authorities thought it was better to wait a little until the effective results of the new policy would be made visible. In any case, this waiting period was not very long. On the 15th of September 1847, a Royal Order announced the concession of two grants of twelve thousand "reales" for two students of architecture who would be conferred in 1848 and 1849, respectively, after a competition. It was required that they were fifth course successful students without the "architect title".

Following this resolution, the Architectural Section of the Academy began to organize the process in April 1848 and commissioned the academicians Antonio de Zabaleta and Anibal Alvarez, who taught in the Special School and had received Roman Grants in their youth, to prepare the exams. It had taken them to much time to take such a decision and the initially established calendar was not accomplished, because both teachers had many responsibilities. In fact, the members of the Architectural Section could not revise the proposed terms of the competition until the month of August. The most significant fact about them was that the acknowledged aim of the examination was not "to probe the aptness of the contenders, that is initially assumed to be positive as they have all passed their official exams, but to examine the relative merit of each competitor and discover the most remarkable artistic capacity among them, the skills they have developed in their analysis of the great monuments of the past". From this point of view, the intended aim of the grant was to foster that kind of artistic architectural aspiration. The technical studies included in the architectural program, whose importance had been settled by the 1844 reform, were not contemplated. In this way, the grants to stay in foreign countries continued to be a typical academic product, whose main interest was to demonstrate that architecture was an art and not a science.

The priority of the artistic skills defined by Alvarez and Zabaleta in their proposal determined the brevity of the exams which were just intended to explore such capacities. The competition had three parts: in the first one, the contenders had to draw and color a piece of architecture copied from a plaster model or from other drawings; in the second, two days later, they had to draw an original ornament; and in the third, two more days later, they had to design a building, plan, facade and section, dedicating a second day to the building's details, structural calculations, ornament and some written explanation. Each part took fifteen hours, except the third one which employed two days and thirty hours. The particular theme of each exam was decided by lot and was the same for all the contenders, if there was more than one. Thus, each competitor would verify his exercises alone, being surveyed by academicians who could not talk to him. Finally, he had to conceal

his personality under a pseudonym or an original motto. Those who did not obtain the grant could try again in following contests if they had not obtained, in the mid time, the architect grade. The idea was to preserve the educational design of the grants and separate them from other professional alternatives.

So the old traditional examination formula, with its sudden/reflection dichotomy was abandoned and a new system was adopted that did also differ from the model of the final tests to obtain the professional degree. This new formula was more based on sketches and ideas, than on complete products, on professional instinct more than on the pictorial and aesthetic effect of the results. These facts implied that contenders had no possibility to do it outstandingly well. But it was rather interesting to examine their capacity to offer a quick answer to a problem posed, without the help of a reflective and careful analysis of the issue. This evaluation of an immediate effect was rather illuminating about the pupils' aptness, more than any exercise delivered after several months, which is not even guaranteed to be the pupil's own work. In any case the use of the copy as a means to certify the contender's ornamentation capacity reveals the artistic bent of these exams. We must take in account, though, the presence, at least minimum presence, of the structural design in the examination program.

Francisco Jareño (1818-1892) and Gerónimo de la Gándara (1825-?) were the two only contenders aspiring to obtain the 1848 grant. There was a difference of seven years between them. Although both had achieved their architectural studies successfully, as might have been expected from their subsequent professional careers, it seems that the first one had more problems in this first stage of their education. In the list containing the results of the final examinations for the 1846-47 academic course, De la Gándara is, together with Elías Rogent, José Segundo de Lema and Ignacio Macías Arévalo, one of the four pupils from the fourth course who had passed all the subjects; Jareño instead, was a fifth course pupil who had failed in "Drawing" and who had yet to pass a fourth course subject, "Analysis of Buildings". So, the next year, both were fifth course students. Both passed this time all the subjects and finished thus their studies. The grades obtained during that year were rather significant for our story. Both obtained the first place in the list of the "Composition" discipline.

As they both applied immediately to the Roman Grant, they were liberated of some of the requisites to obtain the architect degree, to which they could also apply after their successful examinations. They could replace the exercises required for the degree with some of the grant's tests and forget about the two years of practice previous to the final examinations. On the other hand, they could not apply effectively until two years after the concession of the grant. Two years which replaced those of practice.

The first part of the examination process



began on the 16th of August, 1848, Wednesday, towards 6:00 a.m. One of the contenders, we do not know who, extracted a ball from a box with the number 2; this meant they had to draw a "a Renaissance capital". Following the same procedure, three days afterwards, they selected the theme for the second exercise, "design an ornament for a piece of frieze (height: 14 inches, length: 22 inches) with shades". We must remember that the teachers from the School of Architecture had already provided the possible themes while the effective ones were decided by lot. In this sense, and, in order to understand the intention of the topics selected, we will see what said the balls belonging to the second exercise which remained in the box. They all implied the design of, for example, "a landscape orientated ornament for a sacred building", "a pulpit for a Renaissance style cathedral", "a capital for a pilaster to be placed on a Government Building including the arms of the Spanish ensign", "an entablature for a Chamber of Representatives, with the appropriate ornament applied to cornice, frieze and architrave", "a piece of ornament for the body of a pilaster without possible moldings", "the pattern for a ceiling in a rich hall" and "the ornament for the vault over a semi-circular apse on a church's central nave, as those from the Middle Ages". So the intention was to design the ornament of the architectural elements within civil and religious buildings, mainly in a classicist style. But the old exclusive role of classicism was something past and now it was possible to refer to the Gothic style and other middle ages manners. We can still observe the importance of the late Renaissance as a reference for a tolerant and plural historicism, as a conciliatory solution to the old disputes between different styles, as the clear

representation of the new "eclecticism". Two teachers from the School of Architecture, Anibal Alvarez and Antonio de Zabaleta had already proved their interest in these issues.

The third and last exercise took place during the 22nd and 23rd of August of 1848. As we have said, it had two parts. This time they had to "design a gate for a city as Atocha's, with a register and a guard house". They were informed that the gate should have five arches, so that the central one would be traversed by the main road, the two adjacent ones by promenade carriages and the two extant ones by pedestrians. At 9:00 p.m., after fifteen hours of continuous work, they handed in their projects, including the plan and the facade, using a scale of an inch and a half to ten feet. The second day was basically dedicated to the dossier. Jareño concealed his authorship under the motto "Quod tibi fieri non vis alteri ne feceris", which can be translated for "Do not do to others what you would not like to be done onto you", a sentence that seems a message to the members of the jury. De la Gándara, on his side, adopted the pseudonym "Bramanti".

Francisco Jareño began his written account with the historical predecessors of the present city gates. He cited the Lion's Gate in Micenas which he called a cyclopean construction. He centers then on construction details, evaluating the theories of national and foreign scholars on the issue; among others, he quotes Perronet, Ganthey and Lagrange. He finally refers to some questions about ornament and decoration.

As a representative of the bourgeois mentality of the time and convinced about the role of architecture as a serviceable art, he leaves aside symbolic and allegorical considerations to concentrate on his gate's two functions: it must "provide a comfortable means to circulate either for carriages or people" and be a "safeguard parapet" capable of defending the city from any attack. The gate contains, thus, an elevated platform to place a watch and even a loophole from which to open fire. So, unlike his opponent, his interest in functional and practical issues, made him forget the enormous representative and symbolic potentialities, the artistic qualities, of such an architectural element, rather similar to a triumphal arch.

And so as to the construction process, after mentioning the "descriptive geometry and its applications" as the "science of sciences of building", he uses "mechanics" to determine for example the horizontal strain produced by the vault over the central void and, thus, the width of the pillars and the arch. From an stylistic point of view, his ornamental option goes to the Renaissance which is, according to him "the most agreeable style for the senses, the most appropriate for the buildings of our times because it conforms our habits and customs". In this sense, he also mentions the current practice of erecting multi-storey buildings. He does not want to innovate and just tries to select from the past the most appropriate style for the present times. We have already mentioned the predilection of the School teachers for the Renaissance and this was obviously assumed



by the pupils. Jareño does nevertheless mention the Greek style, declaring that he will make an extensive use of it while he says that the, so called, Greek-Roman style is just appropriate for buildings "whose significance would allow a large scale".

In any case, as a young individual affected by the new fashions, he affirms he has found in the Gothic and Arab architectures "some traits which could be agreeable for the senses", "beauty and harmony", which should nevertheless be subject to the building's own symmetry and good proportion which are the key elements for any "correct composition". Finally, he proves himself a righteous supporter of Romantic freedom and concludes his report alluding to the proper qualities of a genius as "sine qua non" conditions for the good practice of artistic architecture. He says that it is necessary "to be born with those capacities, because only those who had the necessary instinct and vocation will improve their skills in this discipline..."

This was not a strange thought for his teachers, although we could think that their own educational condition should prevent them from supporting such a view. On the contrary, they were probably the living origin of this point of view and the ones who transmitted it onto the pupils, specially Zabaleta. Now, this evaluation of innate qualities cannot be accepted without the contribution of education. In this sense, inspiration is useless if it is not combined with the principles of science. While the scientific part of architecture can be learnt, the genius is the source of the artistic part. So the real symbol of architecture itself was that combination of genius and education, its double essence as an art/science, as it had been conceived in the 1844 reform. Zabaleta would confirm this statement some years later. The real architect must be born an architect but he must also become an architect. Nothing new, Goya had said the same thing almost sixty years before that. But Goya's ideas on education would have probably resulted in something different from the fixed methods and the fulfillment of a mandatory educational program under the tutelage of the government of the 19th century School of Architecture. Students in this School were subject to the old Classical style as the only possible alternative, and they had no option but to learn what their teachers taught them, in spite of their own preferences. That is probably why Zabaleta, himself, during the elaboration of the 1855 plan, decided that, from the fourth course, the students would select their own master, the teacher that pleased them most, for the development of the artistic part of the degree. But, after an almost miraculous progressive period of two years, moderates were again in power and began to control an educational system they could not admit to be so free.

Gerónimo de la Gándara began his dossier with some general considerations about the architecture of the time, which were current issues among the professionals. He says that the "general character" of the architecture of the time, its adoption of conventional, either exterior or interior, forms does not depend upon

the "architect's arbitrary decision" nor upon the way of life of the society to which it serves. With a realistic approach, he does not consider art to influence society the way some affirm, nor does he think that what is called the "spirit of the times" should affect artists in a really effective way so as to make them mistake good and bad taste. He is not so radical as Jareño, but he hopes it will be possible to create an art belonging to the present times, a period he calls "anarchic". But he also says that any old system which could agree with the habits of the present times is better than a trifling modernity, "born out of an stressed imagination, in a clearly capricious and unnecessary way". The thing is, how to discriminate these useless efforts.

He then goes directly to his specific issue, beginning with the differences between the old exemplars of the selected architectural type and the models required by the present necessities. In any case, this does not imply that he should not try to offer a brilliant design, either as a means to prove his erudition or his artistic education. So he affirms he has sought inspiration in the "magnificent" Roman gates, in the Tower-Gates of the Middle Ages and in the "simple barriers of the Imperial civil architecture". He did it, in fact, taking just details from here and there and never a whole conception, although that could be precisely the first impression for his skilled use of classical architectural vocabulary.

As it happened with Jareño, his design was more a response to the functional requirements of the construction, and he tried to adapt it to the current regulations affecting urban traffic. De la Gándara did even go beyond his contender in this sense. He made the two extreme arches (flat lintels, in fact) low and unimportant pieces because they were just intended for pedestrians and were "an accessory part of the monument". So the composition centered on the three extant arches: the central one, with a forty feet span, was "the monument's main feature". This arrangement implied a pyramidal structure completely different from Jareño's horizontal understanding of the type. The key to this complete dissimilarity was also in the different treatment of the supplementary dependencies of the register and guardhouse on either's part. While Jareño built two powerful and well defined masonry bodies adjacent to but independent from the gate, De la Gándara's option was to insert them within the main structure, within the large pillars supporting the central arch. This location was justified as a means to maintain the gate watched over at any time. Although it cannot be appreciated in the drawings, De la Gándara tells us that he planned to open some small windows on the facades to illuminate the ground floor of these dependencies. These openings would be placed in the vertical joints between the carved stones (following the example of the Septimius Severus Arch and Trajanus Column), in order to maintain the ornament untouched. The first floor could receive light from the lateral walls. He tries to justify everything.

And about the ornament designed, he says it is "simple", "elegant" and also "monumental": he includes bronze letters attached to the stone masonry; builds an attic level with pilasters and niches, with the arms of the different provinces whose access to the city includes that gate and bass-relief scenes of historical and heroic deeds; he also designs another bass-relief for the central pediment including the National arms and allegoric images of the arts, the industry, commerce, security etc... De la Gándara finished his essay with a brief account of his project's building system, which, he says, has no difficulty. He just point out that, after calculating the central vault's horizontal stress and the required width of the pillars supporting it, he had some difficulties in designing the central arch's archivolt. Because, if he had decided to use "banded" voussoirs, he would have obtained complex vertical and horizontal joints which, together with the inclined planes of the voussoirs themselves would have resulted in a difficult adjusting of the moldings. So he employed another pattern whose only disadvantage was to require some acute angles in the stones surrounding the arch.

Both dossiers were, at last, rather correct exercises and both fulfilled the requirements of the examination. But that by De la Gándara was probably more complete and extensive, both in its form and substance, than Jareño's. And we can say the same thing about the projects. De la Gándara, moreover, voluntarily included some water-colors of the entablature and the stonework pattern in the central arch, and Jareño did nothing of the kind.

The tribunal had to decide. They examined both exercises on the 24th of august. It was expected that the academicians Zabaleta and Peyronet would take part in the deliberations. But that same day, they both decided to resign as the contenders had been private pupils to them. We are not really sure about it but it seems De la Gándara had studied with Zabaleta and Jareño with Peyronet. In any case, it is strange that this fact had never been mentioned before, what would have allowed to replace these members with others. We must keep in mind that the current regulations of the School of Noble Arts, which also ruled the Special School of Architecture, explicitly proscribed public professors to impart private lessons. But it seems this rule was systematically broken.

## Art nouveau architecture

"Everything the human soul knows about happiness, pain, torment, all the beauty in store for the future generations, must be made visible through form and color, design and movement, building and expression", H. Obrist, "Wozu über Kunst schreiben", in *Decorative Kunst*, 1900; republished together

Besides, in our case, both contenders had already left the school and probably the rule did not affect them. In any case, the truth is that the extant members of the architectural section, apparently overlooking that possible irregularity accepted as "rather fair" Zabaleta and Peyronet's considerations and allowed them to quit the jury. Because "neither the regulations nor the current habits of our Academy have foreseen such a case and there is nothing prepared for it". Now, although the "diplomatic" members of the tribunal stated that both Francisco Jareño and Gerónimo de la Gándara had differently and brilliantly resolved the proposed case, they decided to issue secret votes. The contender concealed under the pseudonym "Bramanti" (De la Gándara) obtained seven out of nine votes, while the one who presented the motto "Quod tibi..." (Jareño) had the two remaining ones. They were not evaluating the exercises, they just tried to decide, among two magnificent proposals, the most deserving for a unique grant. Finally and taking in account the "extraordinary merit" of the second contender, the Commission decided to ask the government to provide an extra grant.

During the following six days, both exercises were exhibited. De la Gándara obtained his grant through a Royal Order of the 25th of september, 1848. And Jareño was also very fortunate as the government accepted the proposal of the academicians and conferred the second grant in exchange for that spared for the next year. If we think about the subsequent trajectories of the two main characters in our story, the Solomonic decision of the Academy was a good one.

Curiously enough, the first one to arrive in Rome was Jareño: he was at the Italian capital city on the 29th of november 1848. Fifteen days afterwards, De la Gándara arrived in there. Both introduced themselves to the instructor of the Spanish pensioners without any credentials from the Spanish government and this fact resulted in some trifle inconvenience. They had five years of grant ahead or better four years with the possibility to extend their stay an additional year. In any case, they did not obtain their architect title until 1854 (by Royal Order of 21st of january), and a clause suspended the recognition of those years of profession until they would deliver onto the Academy the works and projects required by their grant. ■

Adela Acitores

with other essays by Herman Obrist in "Neue Möglichkeiten in den bildenden Künsten...", Leipzig, 1903.

We have chosen this quotation among the many suggestive and rather appropriate definitions by Obrist, to introduce the times and the language of the artists belonging to the



Art Nouveau movement.

The architect, an individual related to many artistic ways of expression, was someone devoted to the search of beauty in both his own works and in everything surrounding him. The idea of harmony was based on the conviction that the new and so much expected language would inundate every aspect of life. That would be the only proof of the real emergence of the authentic "Art Nouveau man". This movement, a proper artistic answer to the particular needs of a modern society (in both an aesthetic and functional sense), was developed in an autonomous way in the different nations.

The architecture of the past, the artistic tendencies and aesthetic theories of the 19th century, together with the visible presence of figurative decoration are elements that could make us think of the art nouveau period as the end of a long journey before the emergence of the Modern Movement. That could be a correct interpretation. However, I think it is more exact to think about this movement as the first attempt to break with the past, to advance a new architectural concept, a new language, which was intended to encourage the renovation of art and which prepared the way for the Modern Movement. This point of view places Art Nouveau as a key movement in the history of architecture, which is more than is normally acknowledged.

The Art Nouveau had a special influence in the world of graphic arts and in that of architecture, this last being, besides, the meeting point of all the minor or decorative arts. Thus, the architect, who was also interested in graphic design, became the designer of the exterior and interior decoration of the buildings, their railings, exposed structures, friezes, mural paintings, mosaics, glassworks, switches, door handles, etc..., he did also design much of the furniture and house equipment, that is, the quotidian objects of the house dwellers. Chairs, tables, sofas, every kind of furniture, chimneys, mirrors, carpets, curtains, lamps, vases, picture frames... this versatile personage was interested in everything.

The world of building was, from the days of the Arts and Crafts movement full of the most diverse opportunities for architects. We must think that the new style implied a completely new way of living and that means that it affected the most insignificant detail. The Art Nouveau architect had to produce an enormous amount of drawings, and he did it in a most enthusiastic way, with care and sensibility, as can be perceived in the archives of the most important architects of the time.

In this Art Nouveau context, design and ornament appear as the two key terms. The first because every single object can attract the artist's eye, that is, everything can be designed (a letter, a number, an invitation, a piece of cutlery or a teapot). The latter because ornament is present in every design, creating a complete, if not naturalistic at least inspired in nature, repertoire.

It is difficult to find drawings belonging to

these architects which have no architectural intention, whatever their content may be. Because, as we have seen, everything is related to architecture.

The lily flowers watercolor by H. Sauvage, a rather naturalistic drawing, which appears to be a simple artistic work, is, in fact, the first analysis of that kind of flower in order to incorporate it to a decorative repertoire after a subsequent process of stylization and geometrization (fig. No. 1). This was a common practice among the first graphic designers, the acknowledged predecessors of Art Nouveau (as E. Grasset or W. Crane), who used to work with two versions (naturalistic and reinterpreted) of every object.

### Design and Nature

It would be rather unfair not to name the inspiration in Nature, which has already been mentioned, as one of the elements which determined the enormous success of the Art Nouveau proposals. As they publicly admitted in texts as in lectures, Van de Velde, Guimard, Horta, Hankar, Bonnier, Sauvage or Gaudí inherited from Ruskin, Viollet or Morris a deep conviction which placed beauty in Nature only. They also learnt from these predecessors that art should not just imitate nature but reinterpret it.

Sometimes they chose the world of plants as motif. Others, as in the case of the three kiosks designed by Louis Bonnier for the Paris 1900 Universal Exhibition, it was the maritime zoology that inspired the artist's fantasy. Louis Bonnier, as well as René Binet, was rather influenced by Ernst Haeckel's theories. This French maritime zoologist (who classified a number of species) was rather interested in the world of art and he used to say that inspiration on nature was necessary both because of its own beauty and variety and because we would deal with self-supporting models. Thus, Bonnier's three proposals emerged in the night by means of the electric light (the great star of the exhibition), as radiolaria skeletons recovered for ephemeral architecture (figs. Nos. 2, 3, 4 and 5).

### Drawing and Architecture

In spite of the widespread invasion of design, we can find some authors as Sauvage who can display a large quantity of artistic drawings without a clear purpose, besides their being graphic means of expression. Among his drawings, we find portraits, landscapes, architectural elements or even buildings not intended to be erected, without a definite owner nor particular circumstance which would deprive it from its artistic function (fig. No. 6).

In the realm of graphic design, we can count many illustrations about the most diverse motifs. One of the drawings, alluding a legend from Bretagne, contains an architectural motif colored in black and red in which the Art Decó style touches even the tree branches (fig. No. 7).

Thus, the cover pages designed by Hector



Guimard and Henri Sauvage for the "Revue D'Art" and "La Construction Moderne", respectively, are of a completely diverse character (figs. Nos. 8 and 9). While Guimard's offers a clearly graphic, two-dimensional image tinted with just two solid colors, representing a peacock surrounded by curves and whip lashes, Sauvage draws a rather suggestive and expressive landscape, with a kind of symbolic character and unmistakable artistic intention.

### Drawing and Design.

The connection between drawing and graphic design is so evident that, sometimes, it is rather difficult to draw the line between both. When we talk about Art Nouveau design, these faint limits tend to disappear for good, because in this case, much more than in any other, design is mere and pure drawing.

We can easily perceive this unity when we contemplate, together with the designed object (architectural or other), the preliminary drawings that made it possible. Then, we understand how its generation is based on the movement of a hand or even an arm and responds to the artist's inner impulse in a move (as Van de Velde put it) in which the artist gives part of himself, of his artistic experience, to materialize a concrete object.

Without the influence of the concept of Empathy or *Einfühlung*, we would not be able to find such a unity, the transmission of a real subjective experience, the artist's experience beyond place and time, which makes us live again the act of creation.

### The scale and the expressive line

These ideas can be easily clarified by taking a look at Guimard's drawings, of which we keep a good collection. Many of his sketches, or completed drawings reveal their own generative process. From architecture to interior space, passing by the most diverse elements, the only remarkable difference is the influence of scale.

Thus, in the small perspective sketches for the interiors of the Hôtel Nozal, in which the curves tend to define the different surfaces, shaping the space and its decoration, the drawing is accomplished by the movement of

fingers only (fig. No. 10). When the scale is greater, as in the case of one of the sketches for the railings for Paris Underground, it is the hand that tries to define, through successive and superimposed lines, the ultimate design (fig. No. 11).

The large size of some of Guimard's drawings is due to his use of a natural (1:1) scale for some architectural elements as railings or chimneys, furniture or ornamentation (fig. No. 12). In these latter cases, the difficulties of sketching for artisan purposes, indicating measures and exact sections, increase. In any case, the continuous change of size and cross section of any organicist element frustrated the use of any geometry.

Thus, the only option was the full size drawing, in which the use of *chiaroscuro* and an occasional indication of cross sections were enough to communicate the desired volume. This volume was defined by the drawing itself and, thus, became the result of an imposed equilibrium of light and shadow modelling form. Now, the full arm defines the rotating radius and it is its gesture that transmits the inner strength of the artist.

### The decoration of elements integrated in architecture.

The ornament, as something undistinguishable from design, not as an added, superfluous element, can reach the smallest details. It acts as support of the most incredibly fantastic conceptions inspired in unreal beings, or in the maritime world, or even in microscopic images. In some occasions, the process of abstraction suffered by the original motif makes us mistake the animal and vegetal forms.

The extensive production of drawings by architects who began their careers as graphic or interior designers, or as designers of objects of art and decoration and finally reached architecture, includes every type of design and metric or conceptual scale. This type of evolution coincides with the extension and development of the style itself.

These men, significant and restless designers, exceptional draughtsmen and artists devoted to both the quotidian and the sublime,



adopted drawing as their means of artistic expression, transmitting through each sketch or plan, the sense and the strength which can finally be found in their architecture. Drawing is not a mere instrument mediating between architect and architecture. Architectural drawing or any drawing that acts as a support for design is worth our attention and study. It is not only the functional way in which the image of an object is transmitted. In many cases, the very texts, the framing, everything can be intended for artistic expression and is, thus, delicately accomplished.

It is undoubtedly true that the most attractive and suggestive drawings are usually those of the buildings whose projects were not completely defined at the time of their realization. In these cases, the architect draws a proposed view in order to imagine the final result. These drawings are sometimes just passing ideas, almost impressionist images which can, nevertheless, bear a clear resemblance of what would be the project. These rather personal sketches are not intended to communicate any definite information. They help their author himself to express his ideas and intuitions while his project is developed (fig. No. 13).

The expressive and merely artistic function is something constantly present in the Art Nouveau architectural drawings (we should understand the term architecture in the broad sense promoted by William Morris). Even in the most technical drawings, where the functional or productive purpose is the main aim, we can find artistic intentions.

## The architect's drawing beyond his design.

Javier García-G. Mosteiro

Do we have to repeat that every great architect has also been a great draughtsman? History has clearly taught us that drawing and thinking are closely related in architecture; has taught us that this double flux cannot be analyzed in merely instrumental terms. Architectural drawing is essential to design and even attains other remote spheres of architectural thought. It is rather obvious (although the late development of the architectural drawing methods make it somewhat difficult to see) that drawing is the best possible tool, not just to conceive architecture, but to understand, analyze, ... and learn how to see architecture (one's own and other's).

The case of the architect Luis Moya is a rather interesting one, in this sense. The significance of his graphic production which includes, besides the drawings for specific projects, many other examples of architectural drawing, has the added value of a conscious theoretical reflection about drawing itself (2).

The different texts by Moya on this particular issue reveal a clear interest in the

We know that architectural drawings can be significant objects by themselves, but in Art Nouveau this is nearly always the case. Art Nouveau design is always something personal, subjective, transcendent and this is mainly due to the influence of graphic design, the origin and the basic means of expression of the whole current; to the necessity of reproducing in a two-dimensional support a three-dimensional reality which is the source of a new conception of the object of design as a graphic image; to the influence of the drawn line in real design, together with the development of abstraction and stylization processes; to the mentioned unification of drawing and design and, finally, to the necessity of incorporating every artistic means of expression to the new language, as it happens in the case of H. Sauvage and Ch. Sarazin's drawing for a seashore villa (fig. No. 14).

This drawing is not a quick sketch about a yet open project, but a precise representation of a completed design. We are not dealing with preliminary ideas, intuitive, fresh, genial, expressive ideas of an emerging project. But the architect has placed his beautiful design for a real villa by the seashore, within a carefully delineated environment. Earth, sea and air are designed as architecture itself. The dynamic sense of the strict ink lines describe to our retinas the wind and waves of a concrete moment which we can perceive as in a painting by F. Kupka. Architecture and its graphic representation speak the same language.

The artistic expression of an Art Nouveau architect is always present in his graphic means of representation. ■

dialectic relationship between thought and graphic action, which represent the two sides of the creative act: on one hand "the complete and instinctive vision of the work which is about to be done"; on the other "the alteration of that vision by means of its interaction with diverse elements along the design process" (3). Moya was specially curious about a possible introspection into the unconsciousness and tried to elaborate a theory of the creative moment incorporating chance as an active factor; manual drawing (hand) would play the main role in the process of begetting an idea.

The hand makes spontaneous movements which are a residue of acquired habits, of other movements which were ordered by the mind itself, through the brain. As these spontaneous movements appear in particular moments, in which consciousness is at rest, the author himself can be shocked by the drawn solution, the unexpected solution (4).

Drawing is, for Moya, a catalyst: the dialogue between mind and hand is the

dynamic element in the creative action.

Moya's graphic education, together with his well known natural skills for drawing, resulted in interesting contributions: his own familiar environment, his ambidextrous capacity, explicitly encouraged from his early youth, his training with important draughtsmen as his uncle Juan Moya, Pedro Muguruza..., and above all his years at Madrid's School of Architecture. In those years (the twenties) the School experimented a renewed interest in drawing. Young professors, supporters of the "regeneration" ideals, tried a new type of integral education, intended to train architects and not "specialized professionals", in which drawing would be the natural link between the diverse disciplines, acquiring thus a new predominant role. Many years later, Moya would refer to that "spontaneous symbiosis" between drawing education and other subjects as Construction, History of Architecture, Composition... (5). This atmosphere of collaboration between the diverse architectural disciplines was complemented with the current policy, adopted by the School in those years, of organizing "study trips". These were intended as an opportunity to draw from life and analyze diverse motifs, mainly monuments, and encourage a real and immediate contact with the diverse aspects of the architectural world. In Moya's case, this drawing preparation was transformed into a real extra-scholar educational program. We must mention, as a significant fact, that his own final degree project was published in the *Arquitectura Española Magazine* together with his survey plans of the Chapel of Our Lady of the "Portería" in Avila, a labor which complemented, in a rather positive way, the academic degree (6) (Figure 1).

This extra (out of the school's discipline) training of Moya's graphic skills included his taking part in diverse cultural circles and artistic gatherings of the late twenties. He had a close relationship with some prominent members of the "1927 Generation", specially the painter Moreno Villa, a key personality within the Student's Residence Group, with whom he cooperated in some occasions. He was also a permanent member of the Iberian Artists Gathering (8) and that of the School of Vallecas "presided by Benjamín Palencia and Alberto" (9). He was even present in the gathering of the Café Pombo where he was introduced by his uncle, the painter Gutiérrez Solana.

The interesting collection of paintings and drawings, realized by Moya in those years, reveals his proximity to the artistic movements of the time (Figure 2). His works also reveal, beyond his unquestionable artistic capacity (10), his architectural method: his understanding of drawing as the best possible means to comprehend and disclose architecture. In the many copies and analysis drawings of architectural monuments, made by Moya in his younger years, we can see his own building vocation. Moya does never fall into the rather evident temptation to manage these

motifs in a pictorial way. His constructive determination is always present. In every one of these drawings, we invariably find some constructive quality that makes of them real architectural drawings and not just drawings of architectural motifs (Figures 3-6). In a curious text from his School years, he clearly defined his own conception of architectural competence: "it consist of a kind of builder's instinct, of a capacity to determine, without calculation or reasoning, which parts of a building are capable of bearing their correspondent loads. And this kind of capacity is probably acquired by examining and analyzing good architecture" (11).

In this sense, we must remark how the architectural character of Moya's drawing method attains even his drawings about non-architectural motifs: color acts as a real organizer in his landscape water-colors. Is it the architect or the painter that draws them? (Figure 7).

But Moya had always two sides (12). Even in these first exercises, these pictures from life in which drawing is a means to capture reality, we can find a kind of escape towards the fantastic. Many of his urban scenes, his interior views of Madrid's baroque temples... present (and this does not affect their constructive rigor) a certain bent towards the unreal. They are a preparation for his fantastic drawings.

Moya was always attracted by the drawings of architectural fantasies. This is a constant feature during in his student days and throughout his professional career. Now, we must say, from the beginning, that we talk about authentic "architectural" drawings, not about pictorial, more or less expressive compositions with an architectural "background". They bear, in fact, a graphic reflection upon the real core of architecture (Figure 8).

Through his multiple drawings, Moya demonstrated his interest in the architectural expressive codes. In his compositions, we can easily perceive (sometimes in a surrealist way) traces of the unconscious which reveal us some profound aspects of his architectural thinking. It is to be noticed how, in this first fantasies, we already find some of the archetypes and symbolic forms which will be adopted by Moya in later years (we already envisage colossal structures as those visible in his proposal for Columbus' Beacon or in his *Architectural Dream*). He makes use of the most varied architectural languages, from the most primitive and exotic (13) up to avant-garde symbolism. He is also very influenced (evidently influenced) by his master Anasagasti, whose fantastic drawings are clear predecessors to many of Moya's compositions. Finally, we see the emergence of the Classical language, so characteristic of his own architectural work. The significance of Classical language in Moya's drawings is due to its structural quality, "a clear, harmonious and comprehensible expression" capable of organizing the unconscious contents of a collective spirit (14). The



gradual process through which these contents are assimilated is clearly visible in these compositions.

The motif of the "ideal city", rather frequent in Moya's thinking and also in his built works, is also the background and main theme of these fantasies, in which we can recognize some undeniable sources (we can feel the atmosphere of Piranesi's and Valadier's works) (15). The "ideal city", presiding Moya's fantasies with stubborn continuity, from his youth up to his late works, is represented by a continuous metaphor of its architecture (Figure 9), often seen as ruined after a catastrophe (the devastating power of time itself) (Figure 10).

In this sense, we must mention a series of architectural chimerical drawings dedicated to the celebration of Christmas (16), a series he initiated in 1947 and kept growing once a year until his death (Figure 11). It is rather significant to notice how, in this drawings of metaphysical and surreal spaces, we always find an allusion to the "ideal city" and its fatal destruction. In this case, the metaphor refers to Saint Augustine's "fallen Rome", represented by its own ruins or by the figure of a woman (Figure 12).

The drawings on the fantasy of "Architectural Dream for National Exaltation", the most widely known among Moya's do also refer to the motif of Death. These were drawn during the civil war and intended a kind of meditation upon drawing, as a means to control the mind in such hard times (17). The evident danger of death was their main determination (Figures 13-16).

Now, should we include these drawings of the "Dream" in what is called paper architecture? the sequence completes a real project which can be built in real space and time. Its location within the city is clearly defined (18) and we have details of the building systems employed, mainly based on the use of the then latest product: reinforced concrete. In some way, the hollow pyramid of the "Dream" is the possible materialization, thanks to an innovative structural system, of the impossible colossal cenotaphs by Boullée. But we must observe how this architecture is inescapably linked to the drawings representing it. The suggestive title of "Architectural Dream" implies two different ideas: on one side, the "Dream" as a proposal, as his aspiration for a city, which can be related to his other drawings on "Great Urban Complexes"; on the other, the "Dream" as a superimposition of oneiric and subconscious images. The location of autonomous architectural objects over a metaphysical surface (specially the great hollow pyramid and the triumphal arch) has a clear significance.

Piranesi's surrealism, as represented by the "Mars Field" and the "Via Appia", began to act as a guide. De Chirico and his empty spaces, silent spaces among expressive architectural motifs, forms recognized by a collective unconsciousness, was his following inspiration in the composition of the elements surrounding the pyramid and everything that

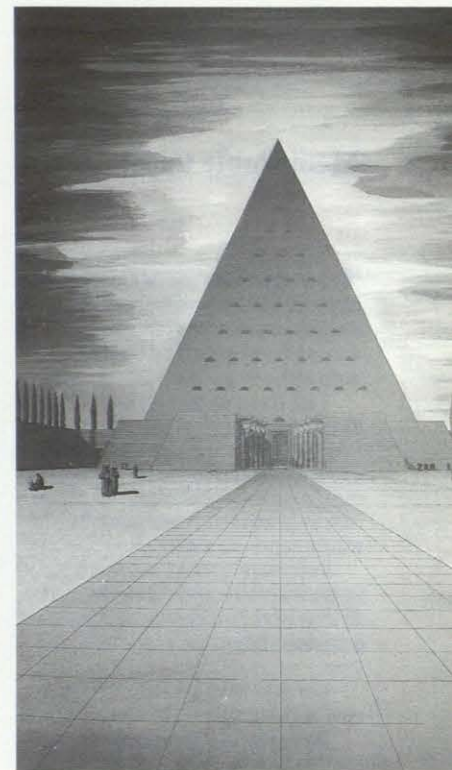
came to complete the monument (19).

The pyramid and the arch, over the two main axis -the funeral and the triumphal- are the real expressive background of the monument, two focuses with which Moya creates a complex code suggesting the symbolic contents of unconsciousness. If the arch recreates what Moya would call "the sign of the gate", the contradictory carved pyramid would be midway between the "sign of the menhir" and the "sign of the cavern". In fact, we know that, when Moya was making these drawings, he began to study Jung's archetypes of the collective unconsciousness. Leaving aside the Classical dress, subsequently applied to the proposal, the truth is that it is based on a purely architectural expression. The Classical choice is, from Moya's point of view, just the result of the semantical capacity of the Classical language. The friction between Moya and the Modern Movement then, was based on his deep belief in the inappropriateness of "functionalism" to transmit the symbolic contents of the unconsciousness (20).

In the drawings of the "Dream" and in the rest of Moya's drawn production, we can

perceive how his drawing modeled his own thinking, how it represents his complex and sophisticated personality. There is a kind of tension between Moya's views of monuments and his own fantasies (and between both types of drawing and his architectural works). If we study other series of drawings, as those dedicated to the geometrical analysis of the Parthenon, the graphic comparisons between diverse architectural types, the illustrations for his texts (specially those for his Treatise on Ceramic Vaults), the reconstructions of lost or never built architectures... we would perceive new aspects which will complement our analysis. We cannot segregate Moya's drawings from his own passionate architectural and intellectual adventure, his thinking about architecture.

His legacy reveals us the constancy of his own method: his permanent use of drawing as an architectural tool, always trying to avoid graphic self-complaisance (should drawing be just a means to obtain a result or the way to pose an open question?), is a rather significant (though singular) example of what drawing could be for our architectural profession. ■



## NOTES

(1) The architectural works of Luis Moya Blanco (1904-1990) are among the most significant in the Spanish architectural panorama of the twentieth century. They have been deeply studied by Antón Capitel in his book "La arquitectura de Luis Moya Blanco", COAM, Madrid, 1982. His graphic works have been analyzed by the author of the present article in a doctorate thesis called "Dibujo y proyecto en la obra de Luis Moya Blanco", which was presented in 1996 in the Madrid's Superior School of Architecture.

(2) He obtained the degree in 1927 and began to work with his uncle Juan Moya Idigoras (professor of Modeling and Architectural Details) in Madrid's School of Architecture. He became professor of Drawing of Elemental Composition himself in 1936; in 1963 he was appointed Director of the School and organized the department of Architectural Projects. Later on, he joined the Architectural School of the University of Navarre as professor of Aesthetics and Composition. Moya's interest in education has made possible our wide knowledge about his thought on architectural drawing, which he revealed through essays, educational papers, articles, lessons...

(3) L. Moya, "Consideraciones para una teoría de la Estética", University of Navarre, Pamplona, 1991, page 225.

(4) Ibid., page 226.

(5) L. Moya, review of "Sobre un intento de reforma didáctica (en la Facultad de arquitectura de Roma)", *Arquitectura* (Madrid), No. 61 (January 1964), pages 46-47. Vid. Javier García/G. Mosteiro "El cuaderno de apuntes de construcción de Luis Moya" in "Cuaderno de apuntes de construcción de Luis Moya. Curso 1924-1925", Instituto Juan de Herrera, Madrid, 1993, pages 13-34.

(6) *Arquitectura Española* (Madrid), No. 21 (January-March 1928). Though we know that the education of the architects was then mainly based on their training in drawing, we should say that Luis Moya was specially interested in the issue. He practiced his drawing from life in a continuous way, either within the surroundings of the old School of Madrid, full of baroque architecture, or in his summer stays in different provinces. He used to say "the best way to know our old monuments is to draw them". This educational approach to drawing will be always present along Moya's professional career.

(7) He finished his studies in "the famous year of 1927" (L. Moya, "Don José Moreno Villa, director de la Revista *Arquitectura* durante la época de la 'Generación del 27'", in "José Moreno Villa (1887-1955)", Ministry of Culture, Madrid, 1987, page 31). Among other names, we must mention Aleixandre, Lorca, Panero, Rosales, Villalón... (L. Moya, "Notas sueltas sobre las madrileñas tertulias de café en los años 1923 a 1953", in "La obra de Luis Gutiérrez Soto",

COAM, Madrid, 1978, pages 368-370).

(8) The exhibition "Iberian Artists" was inaugurated in 1925 and included works from artists belonging to several generations: from Solana, Vázquez Díaz, Pancho Cossío, Arteta... to the very young Dalí.

(9) L. Moya, op. cit., 369.

(10) In Moya's drawings we find analysis and representation, but most of all expression. Moya rejects simple graphic representations just aiming at the description of an object and encourages drawing as valuable and autonomous in itself, though linked to its object.

(11) L. Moya, "Arquitectos", *El Pilar* (Madrid), No. 14 (March 1925), page 126.

(12) Moya's double personality has two extreme poles: realism-idealism (vid. Rafael Moneo, introduction to Antón Capitel's book, op. cit., page 10).

(13) Even in Luis Moya's student notebooks, we can easily notice his interest in primitive and oriental architectures, specially from India and America.

(14) L. Moya, "Sobre el sentido de la arquitectura clásica", in "Tres conferencias de arquitectura", COAM, Madrid, 1978, pages 7-29.

(15) The motif of the "ideal city" will also be present in some of his most important architectural works as the "Labor University of Gijón".

(16) Vid. M.A. Frías Sagardoy, his presentation to "Felicitaciones Navideñas por el arquitecto Luis Moya", Royal Academy of Beaux Art of Saint Ferdinand and School of Architecture of the University of Navarre, Madrid, 1988.

(17) "Sueño arquitectónico para una exaltación nacional", *Vértice* (Madrid), No. 36 (1940), pages 7-12 and 61.

(18) Beyond Madrid's extension, in the Argüelles District. In relation to the exact location of this fantasy, we must remember (as does Capitel) that "many modern fantasies do not bother to find a location, reduced to be mere images or models, as Sant'Elia's drawings, which are rather close to some of the ideas of Moya's 'Architectural Dream'" (A. Capitel, op. cit., page 76).

(19) L. Moya "Sobre un 'sueño arquitectónico'", in Alberto Humanes (dir), "Madrid no construido. Imágenes arquitectónicas de la ciudad prometida", COAM, Madrid, 1986, pages 174-177 (174). Here, Moya explains how he thought about Boullée and Ledoux and specially how he tried to follow "Villanueva's example in his method of creating architecture": we must remember that, during the civil war, Moya was dedicated to the translation of Kaufmann's essay "From Ledoux to Le Corbusier".

(20) L. Moya, "Tradicionalistas, funcionalistas y otros I", in *Revista Nacional de Arquitectura* (Madrid), No. 102 (June 1950), pages 261-269 (262).



## Memorable trips

"I try to stay at home", he used to say. He was depressed by the inescapable and brutal development of historical cities, the disproportionate waste of the old towns and landscapes.

It was always some obligation that forced him to travel and that normally implied that we, at least, eluded the weekends. The distance was usually a rather short one which fact forced us or perhaps allowed us to take the car. He was never at the wheel but he was always the pilot with the map on his knees.

It was always a ride for two; he and one of us. We visited some works or the site selected for an architectural contest. Sometimes, he was a member of the jury and we also took him there.

We had to get up very early. There were many day hours ahead.

Once on the road, he was eager to leave behind tolls and highways, with their constant pavement over palings and caves.

We eluded the tense driving of the three lane motorways and took the narrow country roads, almost deserted, some with a good roadbed and all of them with beautiful surrounding landscapes: unlimited, infinite territories, flat as the palm of the hand; the limpid blue just traversed by the tense fly of a jackdaw; I remember the sudden surprise of a shadowy valley, a luxuriant and tender green, with the thin and delicate branches of the poplars, silver colored as sabres, lifeless during the winter. Where was that valley? Where did the road lead? Why do I remember it? The truth is that every ride was made longer by our taking every lane to pass through a small village, attracted by a beautifully sounding name, just to get there and verify that this was the only worthwhile remain. That and perhaps a beautiful stone tower in the village church. "One of the many villages whose return to silence and dust cannot be stopped"...

If we were bound to Valladolid, Oh! What an occasion to pass by Coca! The land of the Roman Emperor. The inscription says: "Flavius Theodosius the Great, born in Coca in 345, died in Milan in 395, a Great Soldier, Good Christian, Wise, Fair Legislator". He writes it down on his notebook and draws some sketches leaving his hand enjoy the smooth foldings of the powerful brickwork walls: the castle retaining walls. The Nava de la Asunción tile kilns are rather near.

We traverse the Eresma River valley and we get to Iscar. The castle is on top of the village. He wants to get there to take a look at the beautiful ruin of the wrecked tower.

He makes some

### Diego Cano Pintos

calculations and determines that we have made 49 extra kilometers.

Should we go to Salamanca? "Instead of taking the Avila road or that passing through Sanchidrián, we could go to Arévalo. There is so much to visit there... and then there is Madrigal on the same road, the town with a round perimeter and those High Towers. That is the way Francisco Coello painted it, with its rotund circular wall and that is the way we should imagine its ideal urban fabric".

And Salamanca! the city of the River Tormes, a golden city. He makes some sketches, trying to avoid, to camouflage, the new buildings and makes an effort to represent the green and luxuriant margins of the abundant river. Way down the river, we go around the Peña Celestina; it is the La Palma depression which goes up to the Clerencia Building. From there, he continues his sketching, more perspectives, alternatively from lower or higher points of view, from a certain distance... the landscape, ideal panoramas, utopian views... drawings from life with diverse techniques; "ink stains, some soft pencil or brush dashes, rather succinct, in search of an essential image. Others are "scratches", a rather expressive name we shouldn't lose; they are quick pen drawings in which we can perceive the scratching strokes. There are also some really finished drawings". And then hours and hours at the desk, identifying, reconstructing, generating and meditating upon the destiny of our towns and cities. In the case of Madrid's "facade", his studies, besides his own beautiful sketches from life, included old images, the analysis of the drawings by Hoffnaeger, Wyngaerde, Texeira... Goya's paintings. This process resulted in the production of a series of images, beginning with a muslim Madrid, and then through the diverse courts of the different reigns to finish up with a monumental and utopian proposal for Madrid: "the Madrid that could have been..."

And if we were going to Soria? He announces: "We stop in Medinaceli and get the byroad to Almazán, to contemplate the Gormaz Castle, the castle which seems a

mountain chain. Time has merged the architecture and the supporting soil in a single material, a single color; it is the same stone and the same clay, after all. It is now difficult to distinguish nature from man labor". And we do so. It is worth the trouble! Shadows are sharp at this time of the day and, as we pass by, the elongated profile, eroded and decayed, transforms itself, gets more dramatic, more powerful.

In Burgo de Osma we visit the spacious cathedral. Villanueva surrounded its altarpiece with the circular chapel dedicated to the Venerable Palafox and the vestry, solving a complex space with real mastery.

So far, we have made 51 extra kilometers.

Now, we finally get to Soria, passing by Calatañazor and we contemplate the landscape and the valley that witnessed the retreat of the defeated Moor King...

In another travel to Soria, we stopped in Sigüenza. He was very interested in revisiting the reclining statue of the "Doncel"; "how this stonework expresses the soul in a serene meditation upon death"...

Traversing the Sierra Ministra, we get to the Torralba valley, the land of the mammoths. Oh, shame! it is Monday and we find the museum, an old awkward house, closed. "We must turn back". Five kilometers up to Medinaceli.

Lerma, Covarrubias, San Pedro de Arlanza, Salas de los Infantes, Santo Domingo de Silos and the Carazo plateau...

The city and its landscape... beautiful texts, beautiful drawings.

Segovia and Avila...

Cuellar, Pedraza, Sepúlveda and Riaza...

Salamanca, Ciudad Rodrigo, Turégano...

Atienza, Gascuña de Bornoba, Robledal de Corpes... Jadraque.

Santiago, those great stone walls! surrounded by moors, oak woods and orchards...

Cuenca... Numancia.

Mérida, Trujillo and Cáceres...

Each city has its color. Each

one, its beautiful name; as the poet

said, they are full-length names...

The untranslatable marrow of our Spanish tongue".

Navalcarnero, Camarena, Ocaña and Toledo... Toledo and the Cigarral.

Toledo... Visited and drawn from many perspectives, "feeling once

again a deep interest in the landscape which is beginning to be present in the drawing: the shadows of the cliffs, the glow of the waters, the green color of orchards and poplar woods; the silver hue of the olive trees, the golden shade of the stubble and the bronze shine of the holm oaks; the brown and red color of the recently cultivated labor fields..."

"Drawing from the same place from which El Greco contemplated the city, under a cloudy sky and placing in it the Cathedral spire while I cannot see it from here".

Toledo, so rich in hues; Pozo Amargo, a split crevice. "Ocher, gold, plumb, steel grey... a reddish or earthen range depending on the light".

The Tajo sounds from its deep valley...

"distant and old sounds, captive sounds... In the confusing and constant turmoil, we might distinguish cries, barks, carts, bells... sounds that come from distant times".

"...the shadows advance through the valley; finally, we just see the light of the setting sun over some peaks. The April sky becomes violet, the water gets dark, with a glow of mercury and, one by one, the first lights begin to be lighted".

"We can learn so much by visiting our villages, our old districts, drawing them, contemplating the natural and easy way some difficult problems are solved with real mastery; strongly slanted piazzetas with many bystreets at different levels, generally solved with incredible soundness, by means of curved surfaces. The natural and elegant way in which every functional problem is solved and how intricate difficulties seem to be easily overcome. What beautiful stairs, railings, covered walkways, stepped piazzas... can we find in our old cities! What a rich tradition in urban design! What an amount of neglected knowledge!

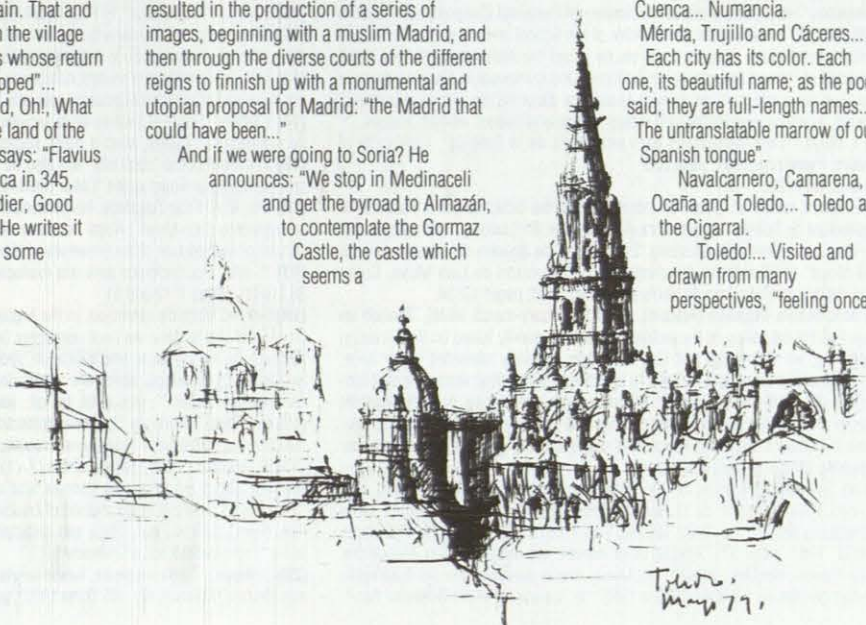
When we were children, he encouraged our drawing. We used wax colors then: horses, frightened cats, harlequins, whatever...

The first time I "went out" to draw with my father was in 1970. We went through the streets of Madrid, in a cold though sunny December day. I remember it as if it was just today. I stood by him, contemplating how he realized one of his most beautiful drawings, with a nimble, violent and energetic stroke. It took him three or four minutes, including the watercolor touch, in the precise spot, in order to obtain a powerful volumetric image of light and shadow. It was the Saint Andrew Church; Madrid's most beautiful temple, in his opinion.

Then, we went to the Plaza Mayor. We drew the equestrian statue of Philip the Third. I had the hands so cold... and the feet too. I was rather concentrated, and I drew a heavy, solid horse... I was just distracted by the fly of a white dove with a red ring round its leg...

From then on, many journeys, long and worthwhile...

We had one prepared yet, to Tarazona, with his most dear friend Fernando Chueca. "All right, we take the car, one of my children will ride it..." ■





## "The royal goose game" or "Playing with form" (Aldo Rossi's drawings)

Helena Iglesias

Some time ago (1), I tried to clarify some points about the architectural drawing issue. The architectural drawing considered as an artistic product, that is, as the result of an autonomous (or half autonomous) process: the production of works of art. A process which makes of the "real" architectural work, the "space represented", the either erected or just designed building, a mere motif or theme for the development of an artistic graphic work, that is, a self sufficient object which has no other principle nor end but its own existence, its own portion of reality.

This way of drawing architecture implies a certain approach, both in the graphic conception and accomplishment of the work and its intended meaning, which is rather similar to that of painting. That is why I conceived for them the term "architectural painting-drawing", trying to differentiate them from the usual technical architectural drawings.

The real building, the represented architecture, is to them what the real landscape was to Claudio de Lorena's paintings or a high society lady to J.S. Sargent's: that is, a motif, which becomes the theme of an specific work of art.

We are dealing with a rather special and heterodox way of establishing a relationship between a "space represented" (the real or designed building) and a "space of representation" (the drawings). Because, in architecture, the usual thing is to consider drawing as a mere instrument, as the necessary (and rather convenient) means to materialize an object, with no further intention but that of being a faithful representation which would be able to attain its proper end, the erection, the final existence of the building.

Architectural drawing was historically conceived as the appropriate means to aid the design and material accomplishment of architectural works. This fact implied that, with time, the drawings should be observed more as objects of study than as artistic objects. The mere documentary use of the architectural drawings can be perceived in the fact that they are nearly always analyzed in connection with their represented object (2), that is, they are used to clarify the different design stages, the date of certain conceptions, etc... In most of them, the artistic quality is not relevant.

But this general rule should not prevent us from admitting the existence of that "other" type of architectural drawings. Those which present themselves as autonomous objects, which cannot be observed as intermediate stages in an assembly line.

In fact, in some way or another, the mentioned general rule promotes the apparition of these "other" drawings. The assumed or imposed necessity of dominating drafting and drawing techniques in order to become an

architect propitiates the graphic game as an alternative activity. The architect becomes a person who enjoys himself drawing and that is a good reason for making those "other" drawings.

But there is still another good reason which is the easy way and the lack of responsibility of drawing in comparison with real architecture. It is so easy, so quick and so cheap to dream upon drawn architecture. It is so immediate and so satisfactory, that is rather logical to draw everything that is not to be erected (or cannot be erected) and transform it into an artistic creation.

In Piranesi's own words: "as we cannot expect nowadays that architects may realize their work in an effective way; either because Architecture itself has now fell from that blessed perfection which it attained in the glorious days of the Roman Republic or in the subsequent times of the powerful Caesars; or because there are no contemporary supporters which would become modern Maecenas to this most noble discipline; in any case, as we do not see nowadays such kind buildings as demanding and expensive as the Nerva Forum or the Vespasian Amphitheater or Nero's Palace, and there seems to be no prince nor private civilian who would be interested enough to made them known; I cannot see other procedure, nor, I should think, can my modern architect companions, but explain my own ideas through drawing..."

Now, we should keep all these things in mind if we are to analyze Aldo Rossi's own architectural drawings. Because, we will see, Piranesi's lament is rather relevant to our issue, rather premonitory even.

Among the whole graphic production from the second half of the twentieth century, we cannot find more powerful, more suggestive, more puissant nor radical drawings than Aldo Rossi's.

We must say, that this particular period, specially the final third of the twentieth century, has been a rather prolific epoch for graphic art. A time for invention, originality, novelty and variety. Because, after a period of graphic drought, which began in the thirties, when the avant-garde movements were already spent, and during which the arid black and white plans became mandatory (very few architects (4) kept drawing for pleasure and, even these, made it in a rather concealed and embarrassed way, in travel notebooks and private papers), the Archigram group brought a new age, rich in drawings and variety, an age which is still ours.

But, as we have mentioned, Aldo Rossi's drawings are probably the most significant among those produced during the last third of the century, the most widely known, the most widely published. They are also interesting because they are rather old. They reveal how

early he decided to take interest in architectural representation, a decision he has maintained along his life and which can be seen as a real personal necessity.

This decision, or assumed necessity, was based on another previous and even more important one: the assumption that it is important to make one's own work known and exhibited; the decision to project one's own personality by means of written texts, drawings, designs, lectures or erected buildings, always trying to use the most public tribunes. So, he embraced diffusion, press, publicity, almost propaganda, the intervention on public affairs etc., and this contributed to the widespread recognition of his drawings.

Now, if we think about it, which are those so well known drawings? Is anybody capable of pointing out the specific drawing (the exact drawing) which seems to be so familiar an image?

I am referring to another particular feature of Rossi's drawings: their impressive number. He made hundreds of versions, thousands of drawings on the diverse issues he selected.

So, what our memory really recalls is the sum of hundreds of versions of, for example, the Modena Cemetery, with all possible variations (or those in Segrate, Gallarate, Venezia, Fagnano, Olona, Trieste, Chieti, etc...), and every new version we come to see joins this summarized and imaginary version of our own Modena Cemetery.

So, we have many, many, many drawings... And we also have the relations between them, the similarities which make them merge in our memory.

If we take a careful look at them, we will notice the apparent means of production: many of the extant documents are really copies or collages on which a hand has work to produce something else.

Thus, we should probably examine this enormous graphic production by starting from the very beginning (if this beginning exists at all).

In any case, we will try to determine a double (though possibly imaginary) starting point: the origin of the "plans" and the origin of the "sketches" (or "studies").

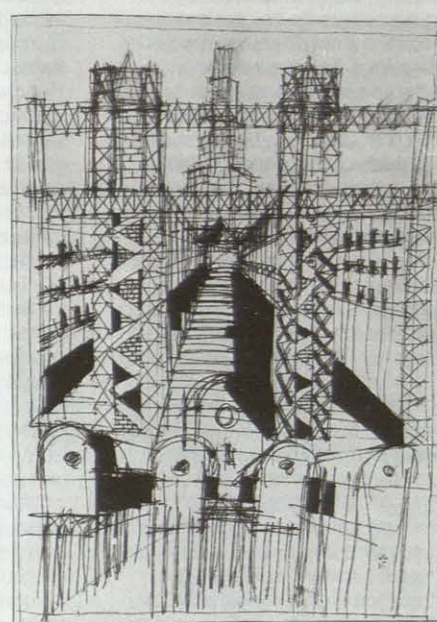
Let us start with the first "plans", those belonging to the contest project for the Monument to Resistance, in Cuneo, 1962. They are extremely rigorous, with completely "dry" dashes, with mournful shades. The volumes are placed on the paper in such a way that, even with such simple forms as those, it seems rather difficult to clarify the spatial relationship between them... And we see enormous capital letters whose meaning is

more graphic than linguistic.

This will be the rule with all the "plans" thereafter, at least until the mid eighties. We will always find sharp shadows, thick black lines on the cross sections, letters, but just on the title, and extremely dry dashes. Trying to avoid every possible "frivolous" feature, he eludes window glazing, doors (let's forget rotations), and frames (it seems glass is a self supporting element).

Nothing can sweeten the dry and austere dashes, the volumetric, conceptual character of the drawings... They are like old plans, 18th century plans, drawn with care. It is just the intact blackness of the ink, which is not affected by chemical change, that reveals us we are not in front of one of Ledoux' drawings.

So, they are plans which, in Venturi's words, could be considered "ugly and vulgar",



"La vida cálida". Dibujo a tinta

"The warm life". Ink drawing

83

but willingly ugly and vulgar, in an evident way. In fact, there is always some alteration, some extra work, which transform them into "something else".

This "extra work" can be different in each case: the usual thing is the alteration of a copy. The copy will incorporate some color, or pieces of collage, and will be finished with an sketching technique. So let us go back to the sketches.

From the very "graduate project" of his University years, we can perceive his sketching skills: thick pencil or color pencil or wax strokes which built quick perspectives, informal, spontaneous, slightly careless drawings: "artistic" strokes in rather personal or just preliminary sketches.

So, we just have a description of the way these drawings are produced: they are sketches



or plans which are superimposed, creating a grid which is a new graphic reality. Often worked upon a film copy of the previous plan, although sometimes we also find opaque papers.

This superimposition of drawings can be related to other constant feature in Rossi's plans: formalistic repetition.

Here buildings are never buildings: just forms. When these forms are arranged so as to materialize a real architectural project, what we have is an instantaneous image (which can be subsequently altered) of a form or a group of forms which assume a temporary texture, dimension and meaning which is not essential to them, but just dictated by particular circumstances of time, place, location and budget.

But this instantaneous materialization (in Segrate, Gallarate, Fagnano, Olona, Trieste or Chiari, etc...) will not prevent these forms to continue their own life, their own development, the adoption of new dimensions, new textures and meanings, the incorporation to new constructions which will permit them to be either big or little, a tiny monument in a public square or an American Cathedral, a students hall of residence or a cemetery, a Venetian theatre or a cafeteria at San Carlone or San Carlino, a crematory or a town hall, an ossuary or a housing block.

And we find forms belonging to Segrate in Gallarate's plan and vice-versa. Forms belonging to Gallarate in Modena's drawings, the world theatre of Venice on the blocks of a students hall of residence, Broni Trieste over Chiari (or vice-versa), everything mixed up.

Those drawings for the Student's House, towers made up with triangles by other towers made up with triangles, which are added to the Bay House to build a group which is called "Warm Life", as a drawing for Segrate can be called "American Cathedrals"... And this will continue with drawings capriciously entitled ("Trieste is a woman", "Seville, Seville", "Construction on a hill", "Added architecture" and so many others). A formalistic dream, in which the continuously altered scale of things and the quality of the representation, will prevent the materialization of a possible reality.

Urban coffee pots apparently born to be the essence of the city fabric. Domestic architecture with extremely big objects. Monuments of the twentieth century which are shorter than a mere boy. San Carlone reinforced with beams and transformed into a building. Dwarfed Buenos Aires towers which will never be authentic towers because they are more likely wide than high buildings. Growing or diminishing blocks. Empty pyramids or pediments used as crownings, roofs, eaves, small fountains, urban monuments, used everywhere.

That is, altered scales to make things either big or small, any size, and evidently useless or, better, used in a rather arbitrary way.

So these obsessive forms are prior to the buildings themselves: and the buildings do not long to exist anymore, as Louis I. Kahn's do (5), because they have not a real formal

identity, but are conceived as a mere support (patient, suffering support) for the dreamlike and longed for forms to become real.

Moreover, the drawings are even prior to the forms themselves and become real tyrants to them (and subsequently to the buildings represented). Because they are more real, more authentic. And, when we think about Modena's Cemetery, we are probably visualizing the hundreds of drawings, collages, oil paintings etc... even that stylized floor plan called "The Royal Goose Game" because of its uniform colors and its general arrangement. It is as if the real Modena's Cemetery was not so real, was more phantasmagoric than its drawings.

If this is the case with Modena's project, what could happen with other real architectures erected up to the first eighties?: dry and austere buildings, almost impossible to enjoy, as "ugly and vulgar" as the above mentioned first plans, competing with their baroque, rich, fabulous and colorful drawn counterparts. The rich conception, the multiple meaning of the drawings becomes shallow rhetoric in the built forms.

So we have found a conscious will to make "painting" with architecture, in which the use of real forms as motif or theme is just a starting point for the construction of a new and completely different graphic reality. We could recall here Monet's own garden: there is a relation of dependence between the real garden and the painting: the garden is built in order to be painted, in order to become a pictorial motif.

Well, this is probably not an accurate likeness, as the garden did really exist, with all its beauty and its seasonal change, and restoration has revealed its convivial character. And we can be rather doubtful about the pertinence of erecting much of the architecture drawn by Rossi in those years. It would better had stayed on the paper.

Now, from those days on, Rossi's effective building activity increased, but we will not talk about the many circumstances of those works, but about their influence in his drawings.

He kept drawing as much as always. Either original or inspired motifs. But we can spot some differences.

The weak sketch, almost a caricature, of the elevation for "Il Palazzo" finds its counterpart in the real building: a parody of Albini's "Rinascente". Thus, a drawn caricature becomes the appropriate likeness of a built caricature. But, we will see even worse things.

The drawing for the Hotel Duca in Milan is a perspective over an elevation, in Otto Wagner's mood, and I just can find an adjective for it: it is "corny". We were used to powerful and colorful drawings, and this pale image of the Duca di Milano speaks another language, implies a new conception: we have a new Rossi talking to us. This new mood can be traced in other drawings as those for the Villa Alesi, the Casciana Bianca Church, Tokio's Sun Tower or the Friedrichstrasse housing blocks: they are all so "corny" that, in Ortega y Gasset words (6), they "warm" you.

We just have some nice sketches to console us from so many pale lines, so over-

finished drawings. Among the most valuable ones, we find the drawings for the Seregno Library, almost a Boullée, or the main cross section for the Lido Movie Palace in Venice, a color perspective which brings to us the good old days. The buildings themselves are more and more disappointing, more frivolous. And the drawings adapt themselves to them, incorporating glazing, frames, door rotation

lines, walls and well finished patterns. They begin to be irrelevant as graphic art.

So Piranesi's lament came finally true. It was, as we said, premonitory and forewarning. If there had been no prince nor private civilian at hand, and he had just expressed himself through drawing, the relation between Rossi and Piranesi would have been even more close. ■

## NOTES

- 1.- In an article called "Dibujo de arquitectura y cuadro-dibujo de arquitectura" published in *Arquitectura* 304. We can find an appropriate use of these ideas in the doctorate thesis on Expressionist Drawing made by Almudena Ribot under my supervision.
- 2.- Any scholar knows about the significance of a drawing or a plan for historical purposes. They reveal us the particular history of old buildings, most of them built in several stages. The finding of a new drawing is always an important event. But it is much more unusual to find artistic evaluations of architectural documents. The main thing about them is usually their relation with the building represented.
- 3.- In "Prima parte d'architettura e prospettiva", acknowledgement to Mr. Nicola Giobbe, Introduction.
- 4.- Architects like Le Corbusier, Alvar Aalto or Kahn. But they tended to conceal or just leave their graphic production unpublished, at least for some years.
- 5.- The so called "wanting to be" is in some way related to the idea of "form".
- 6.- The quotation is taken from Julián Marias who tells us how Ortega y Gasset, contemplating an interior design, said: "corny things warm us". And that is true, corny things, stereotyped and over-finished things have a tendency to warm us.

## Drawing and architecture: two parallel roads

Pedro de Llano

1. Let's take the first sketches of one of his projects. The A Caeira House, for example.

If we compare them to their final result -his architecture-, we will notice how these drawings, whose architectural power make graphic skills appear as unimportant, allowed their author to translate a seminal idea, a prototype, into a definite form by means of a prolonged process. They reveal us, without doubt, the complete coherence between the thought and built work of a master like Alejandro de la Sota.

In this particular case, the architect seems to reach his paramount architectural model by means of abstract and preliminary sketches through which he tries to analyze a text by Saarinen. "According to his thoughts -he writes by the drawing-, man's dwelling can be represented by an sphere divided in two by the earth's plane. The interred hemisphere would be used for resting, inactivity, recovery and thought; the hemisphere located above would be the place for activity, where what has been thought is realized. The first with earthly materials; transparent, crystalline, the second one."

As man frees his thought, the crystalline hemisphere departs from the soil, becomes a flying, unattainable object... As man feels the necessity of repose, of resting, the interred hemisphere goes deeper and deeper, becomes a hidden element...

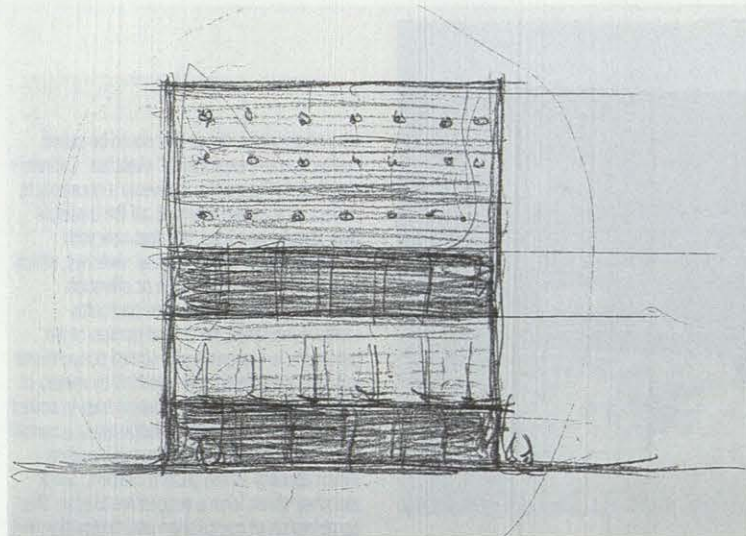
First, the concept. Then, its graphic image. And, after that, development and the due instructions, the musical score according to which the orchestra will perform the concert.

The project is, simply, that score with the help of which the different actors in the building process will have to perform a real concert, a process of materialization, that will finally reveal us how an attractive idea can beget architecture. The question is, then, how to formalize that idea. An idea that was probably present in other previous projects and which, in this case, is represented by means of a parallelepiped floating above a half buried element to which it is linked by means of a "pilotis" level, in a rather abstract and introverted drawing. His graphic style is again, clearly revealed by the laconic and conceptual cross section in which - as a means to emphasize the gap between both parts - the intermediate body disappears, being reduced to a faint dotted line representing the stairs.

This is a good and clear example of the graphic abstraction employed by the master and whose paramount illustration could be his minimalist proposal (never erected) for the Bankunion Building. A limpid, elegant and ethereal glass parallelepiped emerging from a small wood, as an homage to rationality.

In his work, we can see how, more and more, the strictly necessary drawings reveal us a clear and logical evolution towards the





immaterial. The diagram, the most elemental geometric dash, is enough to show us the idea, and will become in time real architecture. There are so few... As his thought becomes more synthetic, his drawings become more and more abstract.

In his drawings, the simple, limpid line, is the main feature. It contains all his power, his personality and reveals us an unlimited world of subtleness, refinement and rigor.

If we can perceive the idea with just a pair of drawings, why more?

The architectural drawing process seems to be reduced, in Sota's case, to a few synthetic sketches which contain, nevertheless, all the necessary data for its materialization. He tried to reduce his expression to just the few unavoidable dashes which he judged enough to communicate with his audience. There is no trivial line. Each one defines a certain fundamental feature. The extra dashes which could prevent the correct understanding of the drawing are eliminated... His rigorous architecture is logically the result of a rigorous graphic process which is a limpid and austere compendium of his conceptual meditation.

**2.** As we know more about the architect's world, we begin to perceive the presence of strong links between his built work and the preliminary graphic process leading to it. As we undertake a deeper analysis of his creative evolution, we notice the parallelism between both trajectories: that of his built architecture and his drawings.

Starting from an initial descriptive naturalism, his drawings were soon deprived of the suffocating academicism imposed by the conservative Spanish culture of the post war period, and began to lead him towards a new and original personality.

Towards the mid years of the century, Alejandro de la Sota had already abandoned the artificial trend which was his environment and began to work on a rather sculptural kind of architecture represented by means of rather vigorous and personal sketches, already announcing his future graphic development... "We can learn everything -he said then- from the art of brevity, listening music, reading poetry... drawing...", and thus, he learnt how to

thrill us with his drawing for the staircase of Dr. Arvesú's house, as with a poem, a melody.

Those were years for maturing, in which the eager master assimilated everything about architecture which happened to fall in his hands. In which, starting from a really artisan like methodology, he tried different routes to finally overcome the complete isolation of the Spanish architecture of the time and reach the status of the great authors, their innovative technology, their graphic language... In which the evolution of his own architecture would bring the abandonment of the brushes, the chiaroscuro, the perspective, as dispensable means of expression, and the adoption of new graphic criteria that would remain almost unchanged throughout his career.

The smooth, refined and flexible drawings which, in time, would become the best definition of his work, were then beginning to take shape as a most natural means of expression, as the language through which he would be able to materialize two works of architecture that are, undoubtedly, among the most significant of those days: the Civil Government Building in Tarragona and the Maravillas Gymnasium.

A simple diagram reveals us the composition process for the rather Plasticist facade of the Civil Government Headquarters, one of the most beautiful designs of his whole career. Again, a simple and exceptional cross section, an unpretentious sketch, will settle the bunch of ideas behind the whole project for the Gymnasium... The graphic language used by Sota in the development of his architecture became then even more rigorous and austere, in search of an spiritual integrity which was his own ideal.

"I, sincerely, think -he wrote about Chillida's sculptures-, that the world would be different if people liked abstract art: that's what I think. If humanity would raise itself so, so much, that it stopped being, relations between men would improve, would be different, new. We must enjoy things just at that point where they stop being themselves, that is, their true origin. Where, of their whole surface, just a pure obstacle, their noblest part, is left."

Enjoy things when they stop being themselves... A beautiful proposal which can

be perceived in his works, in his drawings... which presides his whole career; a constant intellectual endeavour to get rid of the accessory, in search of the very nucleus of each concept. A kind of inspiration that would make of his architecture and his drawings the culmination of the most austere positivism, the most synthetic abstraction.

**3.** His drawings, those drawings that were the offspring of his temperament, of his peculiar creative world, would become the main support of his architectural activity and, in many cases, the most significant reference for many proposals that are nowadays a living heritage for contemporary Spanish architects. They are an essential element for the comprehension of his work.

Through the delicate and precise dashes of those sketches, which determine the first image of each proposal and reveal in a most clear way the essence of each idea, Alejandro de la Sota was able to isolate his most dear peculiarities. He used a sensible and personal language, devoid of any artificial trick, a real graphic

thinking, to obtain the "key" of every project. And this graphic rigor did not prevent him from creating inimitably delicate works of art.

He thought, and thought... and then, his pencil, his roll pen, began to shape that thinking with brief and concise dashes. That was the moment in which the idea took form and only then, its essence could be transmitted by means of a pair of simple and undoubtedly limpid images. We must accept that the line is the shortest way between "the will to create and the created object", and yet his sketches, pure lines, seem almost hurried, unfinished...

In his nimble, free, simple drawings, so far from self satisfaction, the line, which is the best approach to a yet to be shaped idea, will appear as voluntarily uncompleted, in order to remind us that architecture must be made with the brain and not with the hand. Drawing is, after all, just a means to communicate something. In Antón Capitel's words "his career can be resumed as a constant endeavour to achieve, in each project, the first drawing that led to it. Accomplish it." ■

## "Obscure the draft but the verse clear ..."

*Lope de Vega: "Rimas Humanas y Divinas del Licenciado Tomé de Burguillos".*

**José María Lapuerta**

The architect is about to quit his drawing. He is old. He is at his old desk, looking at the empty office, breathing absence, caressing memories. On the other desks, rolled plans, ruined scale models, sketches... His practice is now just an archive for the drawings and the stories about them: the time they were drawn, who made them, whom did they teach; those which went astray, those which carried out their mission, revealed something, disclosed something, those which pointed out unexplored routes... The architect is about to quit his drawing, but he will just stop after he's done everything else.

The previous paragraph could be the beginning of a history of architectural sketching in which those preliminary drafts and their authors would appear as the characters of a novel: ambiguous, concealing enigmatic features, consciously exposed to the reader's interpretation: the destiny of some drawings in the hands of others... The novel would have the structure of a sketch in itself. This would result in different interpretations, arising, in every reader, the wish to finish it up, forward and backward steps...

This literary approach could have been rather attractive either for personal reasons of for the novelty, as it is so different from the architect's daily routine. But a more educational approach was soon seen as necessary. If Robert Venturi (1) says "one should never see the sausage as it is made in the factory", he is trying to justify why pupils do not usually receive definite answers when they ask: how large should a sketch be? Should I keep my

preliminary drafts? Should I show them? Whom should I show them? Should the exact order in which I make use of the different systems of representation finally affect my design? How can I detect a new feature as a signal to rethink a whole project?... Their teachers take sketching for granted. To elaborate a direct and specific lecture on sketching seems to uncover its magic quality, to kill the spark of individual genius that must be in it. But if we see our masters within their factories, if we come to study their drawings, we will feel curious about them, we will want to imitate them, to make new attempts, to comment them, to compare our work with our companions' own drawings, to compare our own methods with those followed by the architects we admire most. We will probably feel the necessity to reflect upon our own design strategies, if we do have them at all.

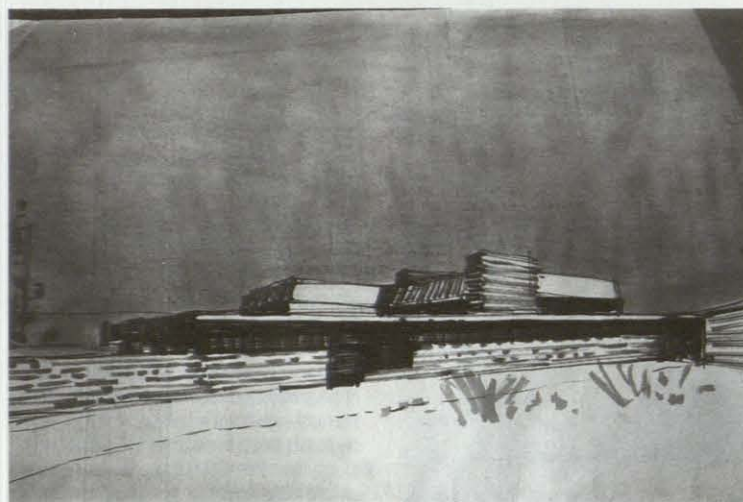
The architectural profession, as we know it nowadays began towards the end of the Middle Ages. During the Renaissance, the architect ascended from his previous stage as a manual worker to be considered a real gentleman, an intellectual worker. Thus, the site drawing, that directly intended for the construction of the building was segregated from the conception drawing, the drawing incorporating the artist's thinking. As he was not supposed to be always in the works, the architect required a document in order to communicate his ideas, in order to show them before they were erected instead of waiting, probably centuries, to see them up. So he assigned drawing this particular role, that of becoming the symbol of his own profession, as



poets have writing and mathematicians their numbers. If we would imagine Leonardo's studio, we would not find many differences with the present practices, in spite of the five centuries elapsed. We would even understand the master from the small village of Vinci as he expressed his satisfaction to have acquired the status of an architect who "...is comfortably seated at his desk, can dress as well as he feels like, while his house is clean and full of beautiful pictures (2)". Leonardo's sketches are singularly modern. It is incredible how little our systems of representation have changed. But above all, it is incredible to see how his sketches can be mistaken for Paxton's or any other modern architect's. Mainly because, unlike other type of drawings, sketches have never been subject to an educational regulation. We can think that, if these documents are not intended to be shown, their features can just be the offspring of an author's own architectural process.

Sketches, Leonardo's or other modern architect's, are quick drawings. The word *schizzo*, which is the origin of the actual sketch, did also mean emerge, or the stain left by a spilled liquid (3). Anyway, in this case, quickness is due to its being a drawing for the author himself, expressive and unfinished, but also to the capacity of the images themselves to merge and create new structures. Some elements are missing in them, materials appear as abstract and quick stains, we just see parts of the project drawn... The architect uses his techniques over rough, unprepared surfaces and will not even try to make straight lines or to place the different views in an aligned position. He will not complete sketches which are nothing to him anymore. These will remain as unintelligible documents for everyone, even for him, after a few months. It is the language of immediacy, whose keys are spent when the next drawing appears.

Sketches, Leonardo's or other modern architect's, are small drawings. They renounce to any exact scaling and just try to express approximate proportions. The first sketch made by Francisco de Asís Cabrero for the Calvo Sotelo Monument (Fig. No. 1), which was originally just a 3 cm. drawing, is not the less expressive when it is enlarged. Not a bit. There are two reasons for that tiny size, though. On one hand, a small drawing is something quicker, and the small piece of paper on which it is drawn is something easier to carry, to be found. On the other, we must mention some characteristics of the visual perception. Once we surpass the 15°, our visual field begins to present some inaccuracy, as the central part of our retina has ten times more photo-receptors than the rest. For moderately complex fields, as sketches are, the efficient visual capacity would be reduced to 6°, which means that, for our normal desks and our usual distance to them, we can just have accurate perceptions of 6 cm. sketches. If we make larger drawings we will have to move backwards, or just look alternatively at each of its parts. In this sense, we must mention the exception of José Antonio Corrales, who



usually makes Din A-1 or Din A-0 sketches. He places his board in a vertical position and then moves forward and backward to reach the drawing's extremes.

The particular characteristics of sketches make us conceive them as systems of signs, while the whole process of their production can be understood as a real discourse. In terms of linguistics we are before one of the best examples of polysensuousness, as it is interpreted in diverse ways either by different people or in different moments. That is, we are not dealing with conventional signs. Moreover, sense comes after observation and is deduced from the group of signs in a personal and individual way.

Systems of representation have changed very little along the years. Modern alternatives to euclidian geometry as a basis for representation (those based on fractal mathematics) are not currently applied to sketching. Nothing is neutral or transparent in graphic forms and the use of diverse conventions, the selection, the priority and exact order of the systems of representation, will finally affect the character of the information given. In this sense, if we study different projects by Spanish master architects, we will find out how Corrales has not a single perspective view amid his more than 200 extant sketches. Fisac can show us just plans, while he tells us how his elevations were never understood and he was forced to make scale models. Cabrero, Oiza and Molezún have every kind of sketch. Architects represent themselves in their projects so they select a particular point of view. Thus, sketched perspectives usually imply a certain close relationship between the architect and his work. The only general statements we can make is that most of the sketches represent the buildings' plans; that, in spatially complex projects or in those which make use of some device for natural lighting, we usually find cross sections; that an extensive use of perspective is usually linked to expressionist and rather visual projects; while the axonometric is related to hard geometry, to a play of volumes and their interconnections.

Line sketches are the most frequent ones. But their lines are ambiguous, uncertain. They can display sectioned objects, materials,

significant points. Some lines are stronger dashes, they long to stay in their place. Others have no definite sense, they are the result of the pencil's play, always searching. Color and texture may appear as uniform patterns, dots, dashes, they can imitate a natural aspect or be abstract conventions (Molezún used plastic or glass surfaces over which he placed the drawing to obtain stripes or dots. Patterns will be used to fill walls and surfaces or to differentiate the figure and its background. We usually find other languages by our graphic signs. Areas, dimensions, words like O.K., THIS, arrows, asterisks, telephone numbers etc... Some architects deliver their unfinished sketches onto their collaborators with written indications. Midways between the drawing and the word. Just on the corner of one of Oiza's sketches we may read "012A"; he had just decided the secret motto for a contest in which he was to take part; if we look at it for a moment, we will read OIZA (Fig. No. 2).

Corrales (Fig. No. 3) goes as far as to cut the sketching paper as a triangle, similar to that of the site lot. He probably wanted the paper itself to inspire his project. And this proves the importance of the material support. Fisac always drew on used papers or on the back of commercial propaganda (Fig. No. 4). The sketch on Fig. No. 5 is probably the first draft for the "Arriba" building: the envelope on which it is drawn reveals us how the project was two years older than we have ever thought, and how the first idea was to design an even more radical building, more modern.

Photograph in figure No. 6 shows Molezún's personal cupboard where he kept every possible type of drawing tool; improved ruling pens, which staggered to draw dash-dot lines, or thick dashes, tree inking pads, carved out in rubbers, some strange rulers invented by him, roll pens of every kind, collected in different trips around the world...

Drawing instruments must be quick, immediate, with no required preparation, easy to carry, in order to bring them with us in any occasion. That is why it is rather infrequent to find sketches drawn with thick roll pens (the "flomaster") or color ink, as Molezún's (Figure No. 7).

We can now mention a rather interesting

kind of drawings, those that could be called "collection and exploration" sketches. Cabrero's drawing, in Figure No. 8, reveals a necessity to collect, in a certain moment, all the available data about a new idea. We deal now with drawings bigger than the usual sketches, which include a characteristic plan or elevation belonging to the project. This particular element, occupies the central portion of the paper and is a squared and scaled conventional drawing, completed and extended by means of loose hand sketches. Completion tries to collect the architect's current knowledge about a certain idea. Then, there is nothing but exploration which appears on the paper's borders, quick sketches which form a suggestive cluster. This combination of compilation and exploration will probably result in a new compilation drawing including the conclusions obtained in the previous one. These small drawings are pure graphic stains, rather abstract, meaningless without their context. Small drawings are the source of change, large drawings manage that change, represent continuity. Architects interchange forms and functions of well known architectural examples. They sum, subtract, multiply and do every kind of sophisticated operation with the architecture they have experimented. The sketch in Figure No. 9 was handed by Father Le Couturier onto Le Corbusier in order to explain him the expected image of the Dominican Convent: the cloister and the refectory to one side, the church in front, the library on the second floor, between both, even the situation of the staircase was defined. And Le Corbusier's final plan is very similar to this preliminary sketch, although he somehow subverted the building type. The cloister is not surrounded by a corridor. In fact, it is almost impossible to contemplate its interior. It is not a flat surface and there is no access to it. Moreover, it is traversed by two passages which link the church, the refectory and the dormitory...

Why is it so unthinkable, even for a master's educated and trained mind to draw, once and for all, a definitive project. We think that mind is just prepared to manage a limited number of issues at one time. Some authors say our limit is seven images. We can say that our brain has not enough RAM memory. Many authors talk about a kind of nebulous idea which is gradually clarified. Corrales, in the project for his own house, drew every geometrical possibility for the site. He could not manage to solve it mentally. Moreover, once the triangular perimeter defined, he drew up to thirty different floor plans; every possible geometry...

Architects are also capable of interpreting their own dashes better than anybody else. They see more in them than actually is. The circles in the Corrales' plan (Figure No. 10) can be tables, trees, spiral staircases, parts which must be thought over, parts which are already defined... Sketches are deliberately ambiguous because architects do not know enough about their own designs. They just draw what they know. The hand tries to capture the appropriate image, as with a net. These ambiguous images require



completion, deserve completion. So the first ones drawn, when we know so little about the project, will be the most ambiguous. Thus, the architect becomes the interpreter of his own sketches. If others do it, they will see different things. The final aim of the sketching process will be to avoid ambiguity.

The sketch in Figure No. 11 is one of Olza's drawings. It was preserved in a bunch of some 50 stapled sketches, all of them belonging to the enlargement project for his house. He writes: "See house (in Cairo), house card". He has to see the house he is interested in and also complete a cardboard card on it. He writes down pages and books. The sketch is then preserved and stored in order to keep a record of selected images. Although sometimes, these images are just used as antithetic exemplars. In this sense, we can mention the interesting theory of Bergson: the image as a mould to imagination.

Cano Lasso (Figure No. 12) used to say how he redrew every window and incorporated the brickwork pattern in every possible alternative design in order to make them all attractive choices. A new development is not something that naturally occurs. A dissatisfied architect tries to find out the new possibility; tries to concentrate on it and start again from the very beginning. He must be alert and recognize the slight dash which can bring important changes.

Sketches in modern architecture are like the very product's patent, a document revealing authorship; we find in them what cannot be copied. Signed sketches are claims for

authorship and its rewards. The commissioner and the general public must be satisfied thus, as consumers of artistic products. Sketches are probably not so important as the buildings themselves, but they set their architectural value as it can be said that buildings are erected with the help of too many people. If we really knew who, when and for what reason every sketch and drawing was realized within a certain practice, who did the conceptual sketching, who did the structural schemes or the details, we would know the role and status of everyone in the office, its real structure.

Although it is rather obvious, we must say that, of all the sketches, we can just mention and analyze the extant ones: we know nothing about the destroyed ones. Fisac began by saying that he did not keep a single sketch, but some of them were produced at last. Molezún did not store them, he dispersed them, gave some and destroyed the rest. Cano Lasso carefully kept a selection of drawings within folders. Olza kept everything. Corrales does also keep almost every sketch and stores them in the boxes we can see in Figure No. 13.

Now, to finish up, it would be interesting to ask the anonymous architect who is the main character of this story: "How can we draw better sketches?" Alejandro de la Sota used to say that it was important to make hand copies of the masters' sketches. He said: "a thousand works copied, a thousand surprises, a thousand inspirations..." (4). Leonardo agreed with the Spanish master architect: "...because the hand, once the intelligence accustomed to pick up flowers, will not pick up thorns..." ■



is a physical and dynamic element which can only be present in the assumption of the fourth dimension through one's own experience; it is not the same thing to practice some sport and to see others practicing it, to dance and see other dance, to love and to read love novels. In the cinematographic representation, we also miss that complete participation, that conscious will and assumed freedom which must be present in the direct experience of spaces". Zevi discussed thus a rather historical issue. And came to an obvious conclusion: no system of representation can replace a direct and personal architectural experience.

This old dispute has recently been raised again with the application of data processing methods to architecture. Could computers offer us a new and more complete way of representing and identifying architecture, capable of replacing the observer's natural view? Expectations were probably exaggerated and that is why the incredible advance of the latter years does not seem to fulfill the desires of those who announced a new method for the representation of space, the architectural computerized graphic methods.

### Modeling, photographic realism and animation

In a first moment, this new technique centered on architectural drawing, simply trying to imitate the usual drawing methods of the architects. But soon, two-dimensional electronic drawing was replaced by computerized three-dimensional modeling (figure 1), which brought a real conceptual change in the way architectural objects were managed: it was now possible to work from the beginning with three dimensions and thus, the different representations of an object were electronically linked. They were not anymore partial documents, but related data building a unique model that was saved in the micro-processor's memory. In functional terms this means that alterations made in one plan are automatically transferred to elevations, sections, axonometric views and perspectives.

Data processing methods have not introduced many changes in the formalistic aspects of architectural drawings (project or survey plans). Nowadays computers are almost "transparent" tools, that is, their presence is somewhat blurred, nobody asks anymore if a drawing has been produced by hand or by

computer. It is the same, in fact. The interest is again centered on the results (graphic documents) and not the means (traditional or electronic tools).

This is rather comprehensible as architectural representation has a kind of graphic inertia. Two architectural drawings from very different periods are more similar than the architecture they represent. After the linear austerity of most of the architectural drawings belonging to the Modern Movement, the three main currents of the eighties have just produced ephemeral stylistic manners in their graphic works. Thus, post-modern architects tried to recover some old techniques as color pencils, water-color, gouache in order to incorporate to the plans the pastel colors of their buildings; high-tech architects centered on detail, trying to emulate the engineers' manner; Deconstructivists, on their part, distorted their forms and also their systems of geometric projection, specially axonometric views and perspectives.

The following field explored by the architectural data processing systems has been the search for photographic realism (Figure 2). The three-dimensional models created by the design programs are complemented with textured surfaces representing building materials in order to obtain, under certain lighting conditions, perspective views of an incredible realism. Some mathematical devices as complex as "radiosity" have obtained electronic images of buildings which are practically undistinguishable from real photographs. For the design process, this means we can pre-visualize the final result before taking any decision. This procedure performs the same function as the traditional color perspectives which were presented to the clients or the juries.

But a fixed image was not a real advance and the next step was the incorporation of the fourth temporal dimension in the representation of architecture: what we call, in data processing jargon, animation (Figure 3). Conceptually speaking, it bore no difficulty at all: the thing was to create a sequence of perspectives following a preestablished path, in such a way that the final result would produce a kind of architectural promenade. But, for some time, there was a technical problem for this: as fixed images became more realistic, the sequence took more time, as movement itself became more realistic, you needed more images per

## NOTES

- (1) Venturi, Robert, in Rowe, Peter G. "Design Thinking". The MIT Press, Cambridge, Massachusetts, 1987.
- (2) Blunt, A., "Artistic Theory in Italy 1450-1600", Oxford University Press, Oxford, 1962.
- (3) Celeste, Patrick, "Vocabulaire Traditionnel des dessins d'architecture" in the catalogue, "Images et imaginaires d'Architecture", Centre Georges Pompidou, Paris, pages. 150-158.
- (4) Sota, Alejandro de la, "F.L.L. Wright", Pronaos, Madrid, 1989, page. 224.
- (5) Cennino Cennini, Introduction to Leonardo da Vinci's "Treatise on Painting", (Spanish edition Editora Nacional, Madrid, 1983, page. 23), as read on Llano, Pedro de "Alejandro de la Sota, "O nacimiento dunha arquitectura", Excm. Diputación de Pontevedra.

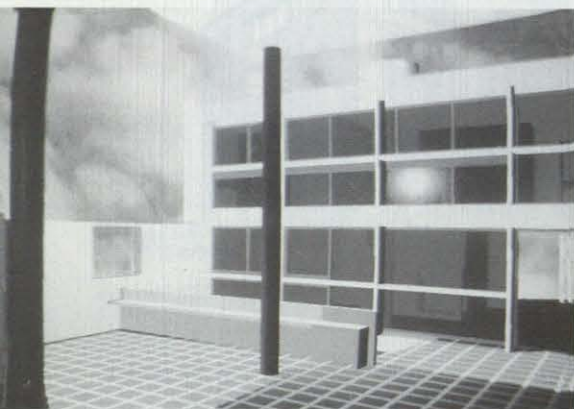
## From Computerized Modeling to Virtual Reality.

Jorge Sainz

Almost fifty years ago, Bruno Zevi, in his "Learning how to see architecture", wrote the following words about representation: "Plans, facades, cross sections, scale model and photographs, films: these are our tools to represent space; each one of them, once we have assumed its architectural sense, can be analyzed and improved; each one of them offers some original contribution which can make up for the deficits of the others".

Cinema was then an innovative technology, in this field which was still to reveal its capacity to display architectural images. For architecture, it meant the possibility to attain a personal experience of buildings, which were usually known through drawings and photographs. "Films", said Zevi, "can show us one, two or three possible itineraries to capture a certain space, but space must be apprehended through infinite routes (...) There





second to create it. This technical problems were surmounted by the idea of using the video to show the final result; so, once all the calculations done, visualization could be performed in a quick way as many times as would be required. Thus, we obtained a kind of architectural videoclips which, in the case of "on board" projects allowed us to visit non-existing buildings. We had attained the level of the cinema.

### Interactivity, multi-media, cyber-space

Data processing methods had so far just mechanized traditional representation (drawing, photography and cinema). But, from the beginning, the idea was to obtain more ambitious results which can be summarized by the three following concepts: interactivity, multi-media and cyber-space.

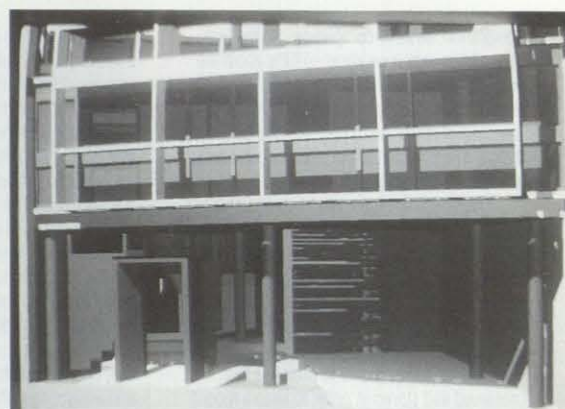
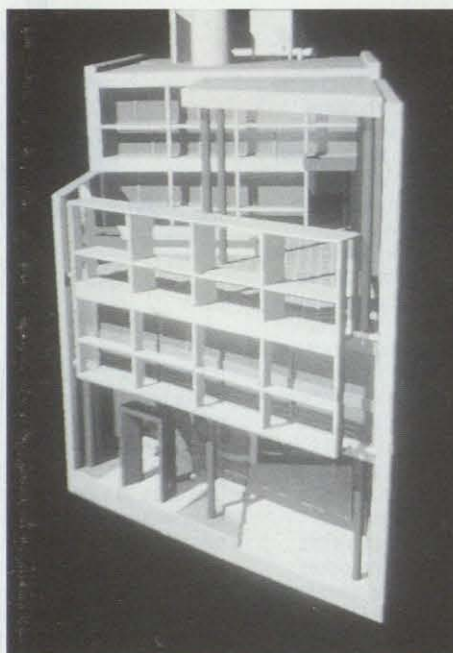
To create a fixed itinerary inside a certain building was something rather narrow for such a powerful technology as graphic data processing brought. It was necessary to set the "visitor" free to select his own points of view, angles and paths during his visit to the computerized model. This implied "interactivity": to each selection made by the observer, the computer should, on its part, answer by the selection of the required data. This also implies that the computerized model should be completely built within the processor, include every possible detail with its geometry, texture, color and lighting, so as to make possible every view of the interior and exterior with the selected lighting conditions. The volume of information required is rather impressive, even for middle size buildings and this means that no personal computer can manage it. This type of "visit" can just be accomplished with a powerful equipment (workstation or greater). The other solution is restrict the possible itineraries to a few. This last possibility was adopted in the first commercialized CD-ROM's dedicated to architectural issues: in "Exploring Ancient Architecture" (Medio, Redmond, WA, 1993) which includes tours to seven ancient constructions, from Stonehenge to the Magentius Shrine; and in "Frank Lloyd Wright" (Microsoft / Byron Press, New York, 1994)

which displays walking tours to the Larkin Building and the Robie and Ennis Houses. We

have also seen, rather recently, a new technique which is based on a continuous merging of photographic images which allows some "virtual" visits to museums like the Musée d'Orsay (Montparnasse Multimédia / Réunion des Musées Nationaux, Paris, 1996) by means of a selected itinerary (Figure 4).

Drawing can incorporate text, photography is usually a pure fixed image and cinema combines moving images with sound, voice and music.

But the graphic data processing systems can incorporate all these ways of transmitting information, together with their own ones: digital synthetic images, three-dimensional models, vast documentary data bases, related data bases. The adequate combination of all these elements has resulted in what we call "multi-media presentations". By means of this system, we can learn about a building's technical data or print a bibliography about its author; we can listen to an off voice relating a detailed description of the building with a musical background; we can revise the diverse sketches, plans and details as we observe the photographs, videoclips or computerized images; we have the opportunity to visit the building through an interactive itinerary as those we have already mentioned and we can listen to an architectural critic delivering his appraisal or its author himself with his detailed account of the project's intentions. We can see some examples of this procedure in pioneer CD-ROM issues: "Mario Botta architect" (Victory, Lugano, 1994), initially published as an interactive CD (CD-i), what explains its resemblance to a TV show, with fused images and a narrator; or "Josep Lluís Mateo at ETH Zurich" (Producciones New Media, Barcelona 1995) the first volume in a series called "Registros de Arquitectura" in which the architect himself explains his works with the help



of a high quality graphic design (Figure 5).

These new systems of architectural representation or access to architectural

knowledge are compatible with a rather conventional computer equipment, that is, a more or less powerful CPU with a screen capable of displaying images and loudspeakers to deliver sound. It was not yet the real experience of architecture on site but something rather close to it. The objective was then, to get even closer.

The experience acquired in the development of methods like the flight simulation, for the training of military and commercial pilots, was gradually adopted in other fields, until we reached what was called the "virtual reality boom", towards 1990. Its most characteristic result was the "cyber-space". Based on the scientific fantasies of the novel "Neuromancer" (1984), by William Gibson, this new concept of space (a space which cannot exist but within the micro-processor's circuits but which we can perceive as if we were inside it with the only help of a helmet, two mini-screens, two mini-speakers, a data-suit affecting our senses and a platform registering our movements) stirred the world of computers and inspired the graphic designers and most of the architectural intellectuals of the time. Many theories were developed on the possible effects of these procedures not only on the experience of architectural space but also on our culture and civilization. We heard descriptions of architects taking virtual walks around their own cyber-projects and modifying, at their will, the building's plans just by pushing its walls. We had around two years of cyber-space fever which were not backed by the required technical development. In order to have such a thing as a complete and very realistic image of a building transforming itself at our slightest command, we would have to count on an incredibly powerful machine, with a memory and a calculation capacity far beyond the current equipments. What could have been

the sense experience revolution came out to be just applicable as an improvement for teenagers entertainment. Now these devices, thanks to their commercial success, are the ones encouraging technical development in this field. The closest thing to a virtual reality experience is the driving of a race car within an electronic game.

Cyber-space is a rather attractive concept for architectural applications, from a mere theoretical point of view, but it seems to have no possibility to become real, not even virtually real. The perceptive requirements of real architectural space are so complex that the development of computers capable of offering this kind of experience seems far beyond the possibilities of a professional use. It seems we can just expect some entertainment. If we want to envisage the future of the virtual reality technology we must go to the movies. In the film "Disclosure", Michael Douglas puts on an electronic helmet, a data glove, gets onto an electronic platform and departs for a fantastic trip into a cyber-space which is something rather similar to an infinite Saint Peter's central nave (Figure 6).

When data processing technology should allow this kind of experience in a reasonable way, probably architects will begin to make their designs with the help of this representation means. Probably then, the great architectural monuments will be visited at home. But until then, we can still pay attention to Zevi's words: "when we have a life experience of space, we know that no conventional representation can replace it. We have to go there ourselves, we have to be enclosed within the space, be part of it, become the measure of the architectural organism. Everything else is useful for educational purposes, intellectually fruitful, practically necessary, but is nothing but an allusion, a training for that supreme moment in which our physical, spiritual and human parts will experience space by means of an integral and organic immersion. That will be the hour for architecture". ■

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## Architectural drawing and computers

Francisco Rodríguez de Partearroyo

After so many years recommending and praising the usefulness of computers as excellent tools for architectural graphic expression, it seems now that the widespread presence of computers in architectural practices is something irrevocable.

My first experience with computers occurred towards 1980, when the first affordable personal computer, the Olivetti M-20 with 42 Kb of RAM memory was made available. Mine included a rather primitive Basic program for building costs analysis.

Until 1984, when I tried the 128 Mb Apple Macintosh, I did not realize a personal computer could be so useful, so easy and funny a tool; could pay such a magnificent service to graphic art and architecture. The possibilities were infinite and went far beyond the computerized two-dimensional drawing. The third dimension, color, lighting, texture, even the fourth dimension (time), obtained by animation, were really at hand and permitted the simulation of architecture before its being built.

In those days, the late eighties, some brilliant and young students of architecture used to work in my practice. They were, for the most part, rather skilled in pencil and ink drawing and therefore rather skeptic towards computers.

But I had always been very fond of graphic art and new technologies. Photography, cinema, video and finally computers allowed us to tell stories through images. Stories and why not, architecture. My personal interest made me attend diverse Congresses and Fairs in the U.S.A. on computer aided graphic art as the Siggraph and AEC Systems, which aroused my enthusiasm.

Within the practice, always in an informal and self-educating way, we gradually began to learn about the different drawing programs, 3D modelling, electronic painting, animation, interactivity etc., always in search of the late novelty, always reading specialized issues which also helped us to solve the problems we found. Programs and computers were progressively improved, made easier to use, quicker.

As I envisaged a period rather poor in architectural commissions, I created a company, Arquimática, dedicated to offer project presentations similar to those we already made in our practice for our own projects. The truth is that we almost had a unique client, but the experimental character of each job, each presentation, for a contest or a building project made of the whole thing a fascinating enterprise.

Nowadays, I still work with the same people in the office, those students and architects who have gradually learnt how to use computers, how to enjoy them as accurate, personal, efficient and expressive drawing tools. Within our team, we have specialists in

every aspect of computerized work, modelling, interactivity, presentations, or simple 2D drawing. And everybody can take part in the final effort to finish up a certain project thanks to the LAN work. This is the fascinating thing about working with computers. Because it can create a real feeling of companionship. Presentations are complex jobs and must be done in very little time.

We still make a rather extensive use of pencil drawings and include them in our presentations. Pencil drawings can be improved by means of computer programs. They can incorporate color, diagrams, etc... In any case, pencil drawings are usually the means to express the project's first ideas. First ideas are always in pencil. This most noble and ancient tool is still the best instrument for sketching, drafting, correcting and expressing architecture. Pencil can produce expressive shades and textures simply by means of a differentiated pressure.

But computers are better tools when we need dimensions, modules, axis etc... Axis for composition, structural axis, geometric grids, complex or not, are the base of the whole project as a document. And computers help us to introduce, in an accurate way, these elements, so dear to engineers and which have been traditionally neglected by architects. Probably because we have been educated in a kind of blind confidence in drawing skills, in scale, to produce architecture.

Computers require dimensions, exact measurements. Things must have from the beginning their appropriate size. Computers do not allow any inaccuracy, any thick line concealing a drawing error. And I consider this exigency to be rather positive for architecture.

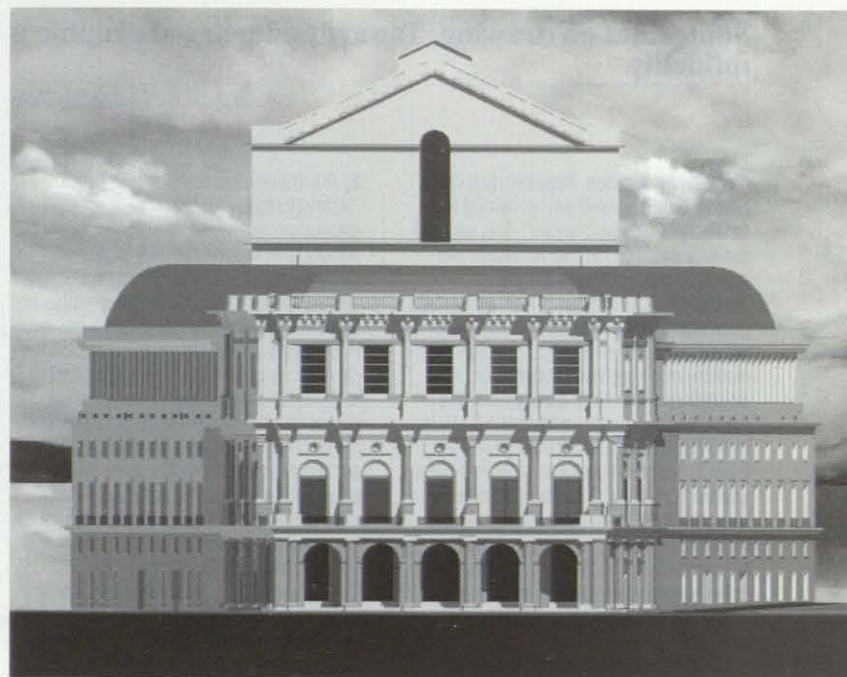
Another significant characteristic of computerized design is the need to organize work in a correct way. Multi-layer drawing requires a certain discipline on the part of a team, in order to assume certain conventions intended to organize collective work.

We also make use of 3D modelling as a device for volumetric verification. Once we have a simple diagram of the project drawn in the computer, we can start with the third dimension.

This volumetric verification of the design in any of the project's stages is really useful. We are not so interested in photographic realism, although it is important to count on it when we realize superimpositions on digital photographs, in order to verify the impact of a building in its real context.

Black and white electronic three-dimensional images can be used as cardboard or cork scale models, by means of an appropriate shading and, thus, represent the project's basic idea in a rather clear way.

We also try to make the most of the project's written documents and edit them as



real printed texts. These should become a real synthesis of the project, their public face.

We usually include many drawings belonging to different design stages within these written documents, in order to make them lively and expressive dossiers. Because we think that they should express in a clear, synthetic, quick and legible way the project's main ideas. Functional schemes, significant sketches and final images act as appropriate illustrations for the text.

Leaving aside the production of any project's official paper documents (plans and dossiers), computers offer alternative means to communicate architectural ideas. This is the world of interactivity, that is, the means to select alternative accesses to a single project. I was always interested in the possibility of explaining a project in different ways, using interactive devices. Probably because I like discourses so little and images so much.

Interactivity goes far beyond cinema, we could call it hyper-cinema. It implies the possibility for any user to "visit" a building project the way he would prefer.

In Arquimática we realized an interactive presentation of the project for the Royal Theatre. As I had to explain the project to so many people and in so many occasions, the computer became a dear companion to me.

The project's drawings, plans, perspectives, 3D models, etc... were incorporated to the computer in an interactive way as they were produced. We tried, thus, to have a means to explain to whole project in just ten minutes. And this was not very easy as it was a really complex project.

We finally produced a CD with all that information, which we presented in the 1996 Venice Architectural Biennial. It contains everything about the Royal Theatre:

preliminary sketches, first ideas, variants, final proposals and also photographic reports of the building works and the final result. I really do not know if it has been a profitable venture, but it was very interesting for Arquimática and the truth is that the authorities always knew how the building was to be finished.

Our most recent experiment has been the use of Internet as a means to make Arquimática's latter projects widely known. We have created our own Web page in which we try new methods as Quicktime VR which provides interactive tools to manage a 360° image within an either real or virtual space and with the possibility to merge both spaces.

Computers offer new possibilities for the representation of the space. Virtual reality is interactive in itself and this kind of technology will be fully developed in the following years. We will represent space just as if we were inside it and reconstruct architectures from past or future times.

The world of virtual reality will represent a kind of discipline in which we must take part as architects, individually or through the Schools of architecture.

The world of virtual reality and its interactive possibilities (virtual walks, visits and even alterations) will open new fields for architects interested in virtual architecture, which is something rather easy to build and rather harmless ■

**Note:** the drawings illustrating this article have been realized by Arquimática, S.L. which is actually integrated by F. R. Partearroyo, Angel Martínez Díaz, Francisco Martínez Díez, David Márquez Latorre, Julián Matía Sánchez, Faustino Ocaña Vázquez, Alfredo Calosci, César Carretero Pindado, Rafael Cañizares Torquemada, Pedro Sorribes Bayo and María Angeles Montes Matienzo.  
<http://www.arquimatica.clv.es>



## Some lines on drawing. Towards a theory of graphic infidelity

Leopoldo Uría

1. In certain occasions, Alejandro de la Sota referred (in a disgusted way, of course) to architecture's "graphic festival". This personal position, based on his own minimalist and essential approach to architectural representation, is completely different from the current feeling that drawing is an enjoyable, relaxed and hedonist activity. Our actual, post-modern, architects have established a rather satisfactory relation with drawing: drawing is the most useful and powerful friend. It can be the means to formalize the most advanced ideas, to communicate the most sophisticated graphic "narrations". Everything that can be thought, can be represented. Everything that can be represented, can be built. Everything that can be built, can be communicated. These three (design/building/narration) are basically the current links between architecture and drawing.

This relaxed and trustful relationship, based on the three mentioned levels of interconnection, has two complementary aspects. On one hand, we are witnessing a tremendous process of conceptual and epistemological enrichment of the representation procedures. The current post-avant-garde, late-avant-garde and hyper-avant-garde movements imply an extreme "graphic climax", which explores and extracts, from the drawing methods, unheard of potentialities. We will say more about it. On the other, the fast development of technical and hyper-technical graphic procedures, in the data processing realm, has implied the third historical technical revolution, after the Renaissance discovery of perspective and Monge's code. Although this latter sphere has its fervent supporters and its desperate detractors (and this is not the place to examine either's reasons), it seems rather evident that we deal with too powerful a medium to be considered just a simple tool.

In this way, everyone involved in the world of architectural production/creation has its own toy. The schizophrenic dichotomy between operative professionals and provocative speculators has a clear counterpart in the visibly varied graphic offer. The first sector demands exact tools and finds them in the new electronic procedures, which simplify the work and offer the appropriate accuracy to communicate with profane clients. The virtual procedure appears as the most faithful technical visualization, and implies the culmination of the old ambition of representation as exact simulation. Those involved in a theoretical and graphic hyper-conceptualism, can also find the appropriate means to fabricate sophisticated and counter-figurative images, capable of transmitting ideas and solutions and answer "high tension" operative demands. So everybody is happy and mind his own business.

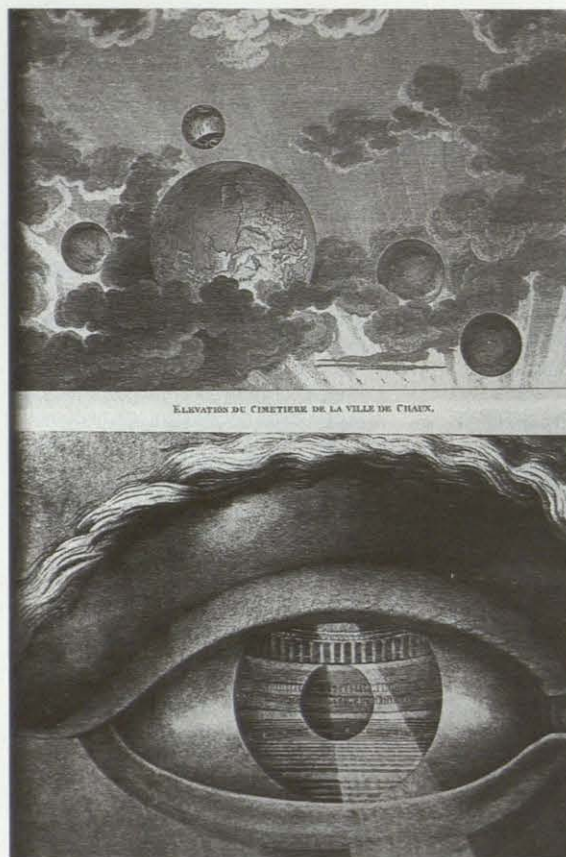
2. But this development of the, so called, "architectural/graphic territory", is somewhat unbalanced as it attains the whole production without time for reflection: that is, we walk through a territory with no map or, better, with an incomplete map, as those 19th century charts full of unexplored lands and scientific inaccuracies. Many reasons could explain this circumstance. Drawing (as language) is used in an unpremeditated way. It needs not to be backed by a theory. Very often, the theoretical approach is considered a real burden, a rigid and useless obstacle. In this sense, Bonta expressed his three statements about the relation between practice and meditation, in any operative system:

1. Activity is prior to theory.
2. Systematic reflection reduces, in a first stage, the operative capacity.
3. The theoretical systematization finally increases the system's operative capacity.

This could be a sufficient explanation for the initial unevenness between both terms and the conceptual and systematic weakness of the drawing procedures. But we can mention other circumstances. Some of the possible systematization strategies are extremely complex and rather difficult to apply. Not only for those who limit themselves to a professional "instrumentalism" but even for those committed to a speculative use of the graphic skills. That is the case with the semiological and structural approaches, whose strict terminology is more apt for analysis than for practice. Moreover, architects are accustomed to the use of a "light" or "weak" theory in these matters: graphic reflection is more complex than drawing and not always so profitable. The typical architect is not usually prepared to suffer the difficulties of elaborating a graphic theory in order to acquire a certain intellectual finesse. Even less if the road is full of obstacles, dangerous and hostile enemies. In any case, this conceptual misery found in the graphic procedures can be easily extended to every aspect of the design practice.

3. All these reasons account for the situation, but they are not intended as a justification. We must think about drawing. We must approach this activity in a more self-conscious and reflective way, without losing the values of spontaneity, intuition and graphic energy. In José Ramón Sierra's words, we must "discipline" drawing, make it conceptual, structured: not in a dogmatic or academic way, but creating a flexible and efficient theory.

This expansive and unlimited theorization can be useless in the unconscious and careless realm of everyday practice and "graphic service corps". In that kind of sub-territory it is not necessary to expand or deepen our knowledge about what is effectively done. But we may need this attitude if we try to



the image realm tended to become a presentation of images with a bit of reflection; we must surpass the mere commentary on the current graphic paraphernalia.

b) A general approach capable of incorporating the whole graphic process, with all its local and temporal variety and complexity. Current analysis tend to be historical, partial, limited to "solid" and finished sectors. Our modern graphic reality ("fuzzy and blurred") is just a secondary issue in that kind of study; we know much more about a letter

attain a more ambitious intellectual level; that of speculative/provocative and transgressive architecture; that of reflective lucidity.

These two parameters are also present in any reflective study of language as the basic reference of a deeper reality: thought. In this sense, we must say that this kind of reference is absent in the diverse graphic theories. These have made use of other conceptual sources (the semiological/structural sign, the mental psychological image etc.), but have neglected the most important one. Our theoretical discourse about the graphic world could be a good opportunity to acknowledge once and for all the priority of language as the source of every representation procedure.

This basic nucleus of knowledge has been studied from the point of view of the literary world and from that of the philosophical and linguistic pulpits. A normal talking individual has no necessity to reflect upon his unquestioned use of language. It has been people like Joyce (who felt it as a creative necessity) and Wittgenstein and company (because of their epistemological lucidity) who had tried to open up language to see what is inside it.

4. Once we have stated the necessity (at least for an important sector) to advance in our knowledge about graphic procedures, we must now delimit the scope of our reflection, what can be sought and what can be finally found.

The first point can be specified by the following three aims:

a) A explicit analysis of the terms of representation as something disconnected from "graphic action". Maldonado used to say how the reflection upon the abstract qualities of

from Raphael to Leon X than from Eisenman's graphic inventory.

c) A perplexed inquiry about drawing that should go beyond its simple use as a, more or less brilliant, translator of ideas or graphic problem-solver, in order to consider it as the source of formal uncertainty. In this sense, we can also conceive a project as an entity which is not just a solution to the problems posed by the external circumstances, but a mechanism which has its own inner terms. External data become part of the solution and are, in fact, created by the project itself. We can recall here Nietzsche's radical view which affirms that reality is a creation of language and, so, our comprehension of reality can just be based upon extreme linguistic rules: "What we call 'Truth' is just a process of logical and expressible falsification of the world". Going back to our graphic issue, drawing can solve just those problems whose articulation and resolution can be expressed through graphic means.

What we have said, so far, can be summarized by the following metaphor: the graphic territory, instead of Sota's "festival", is in fact, a real labyrinth. The mythical idea of the labyrinth is somewhat related to the notion of "confusion", but we must take it as unsolved "complexity" (and, thus, the confusion). What we can obtain of our meditation is a map of that graphic labyrinth, indicating possible itineraries and not exits, because this is a labyrinth to stay in. So we must achieve a clear idea of the confusion, and attain this clarity through knowledge, instead of assuming a pseud-transparency that is just the result of intuition or ignorance. Finally, we must admit



that clarify does not mean solve. That is another problem.

#### 5. The ways within the labyrinth

Our initial approach to this mapping of the graphic language will consist of an analysis of the present circumstances in order to apply our discoveries to past times. Contrary to what is usually done. If we undertake such an exploration, we will detect four significant features which must be present in any synthesis.

Plurality/Atomization.

Priority of the image.

The image as a substitute to reality.

Figurative conceptualization/virtuality.

We can conceive these parameters as different entries to our labyrinth.

Let us get in.

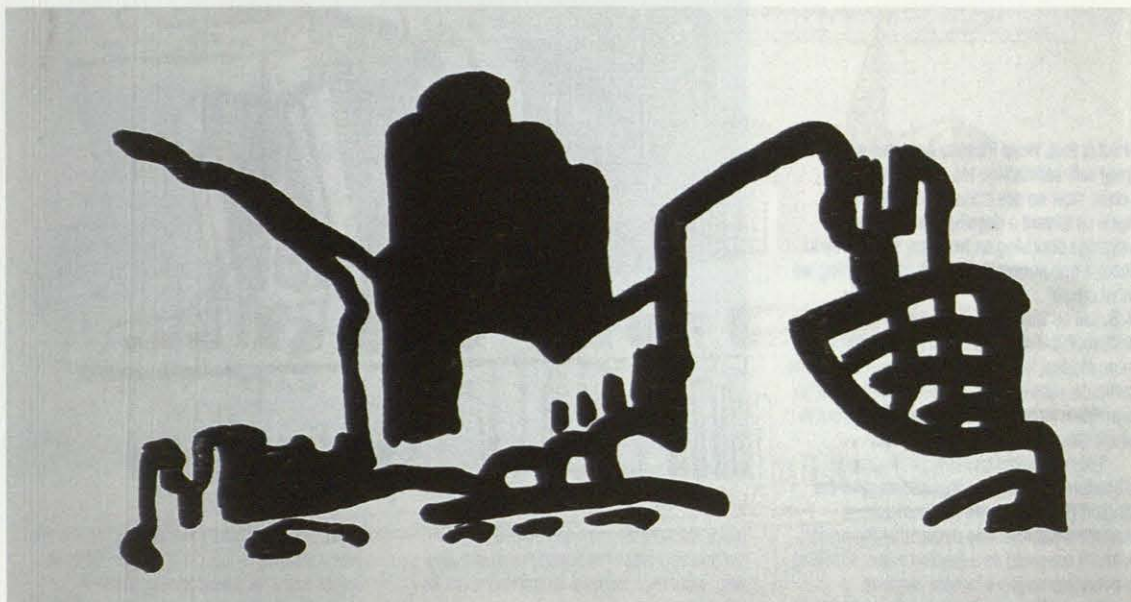
#### 6. Graphic Strategies.

The first characteristic we may notice is the current "graphic profusion". The drawing supermarket has its racks full with more sections and products than ever (the Harrod's of representation). We can find from a pin to an elephant. In historical terms, this enormous amount of graphic production (we will later see its qualitative variety) is the result of an accelerated multiplication of the graphic/architectural strategies.

##### 6.1. (Graphic Section No.1)

The Classical, post-Renaissance, graphic process (we know so little about the other) presents a rather abundant production within the limits of a restricted graphic variety. This is clearly possible, as the development processes of drawing and architecture follow very different paths, in rhythm and complexity. We will take a brief look at both. Although, we have usually heard about the Classical period as one in which architecture is confidently secured by the use of strict and stable codes, this is not exactly true. The Classical world includes many contradictory terms and its apparent easiness is almost accidental. If we keep our territorial analogy, then our "Classical territory" is the support of a dialectic opposition between central and peripheral movements. The first include the innumerable codes and canons (from Brunelleschi, Alberti, Bramante, to Soufflot and the late-Classics); it is the realm of a disciplined Classicism. But the second group is that of the explorers/empiricists, which move along the boundaries of the central territory and tend to enlarge it (Michelangelo, Giulio Romano, Borromini); we talk about Classical Mannerism. Moreover, even beyond those boundaries, we can find the transgressors, those who escape from any limitation (Piranesi, the Utopian Radicals, the Illuminists): that is the Classicism of Freedom.

Well, behind this stylistic development we find a much more stable undercurrent of representational procedures. First of all, Classical drawing is always a narrator of architecture itself, always at its service. Then, graphic regulations are relatively stable and limited as based on two main policies: the geometrical construction of the drawing and



the definition of the desired image. The first one is undertaken by means of the strictly regulated "genuine" perspective (this is probably the most widely studied issue in the history of drawing) and the orthographic and conceptual definitions. The second element is developed by means of a gradually refined process which will be culminated by the impressive figurative productions of the Beaux Arts period (the drawings for the Rome Awards and those for the Paris Opera House are real "graphic summae", top works). This splendid process is, nevertheless, a rather quiet one. Both procedures try to consolidate their codes, preserving them for centuries, without significant graphic disturbances. Every linguistic revolution is, in fact, made possible by the stability of this repertoire; thus, the innovative proposals of the proto-modernists Ledoux/Boullée/Lequeu are expressed by means of orthodox watercolor drawings in which the architectural modernity is opposed to the strictly correct graphic procedure. The graphic novelty is just an exception: the case of Piranesi's spatial perspectives (the space is rather absent in the Classical period) or Ledoux' superb "spherical" images (the Besançon theatre's eye). Thus, we finish with our brief and agreeable historical excursus.

##### 6.2. (Graphic Section No.2)

In the dialectic realm of the Modern/Post-modern opposition, though, the graphic panorama is completely different. In a first stage, the graphic image stops serving architecture to become an integral part of it. For the first time, we find a syntactic/linguistic drawing procedure which is the vehicle of the project's ideologic parameters. Modern drawings are real graphic ideas full of double sense contents: they not only display the tension of the project itself, of the project's terms, but also encourage certain formal results through the use of graphic techniques. So, we find a more profound relationship which results in a more varied approach to graphic production. Currents, principles, group's poetics and linguistics, "new spirits" and "new styles" are translated into our well known

ideographic canons: Rationalist/Neoplasticist axonometry and conceptual drawings, Futurist figuration, Abstract Constructivism ("Plastical" compositions) and Figurative Constructivism (Chernijov's hyper and micro perspectives), Expressionist passionate sketching, etc...

But nothing is so clear and regulated. Together with these dogmatic and sectarian strategies, we find plural and eclectic tendencies: the case of Le Corbusier's Abstract and Perspectivist plural approach and, specially, the splendid heterodox view of Leonidov who tries to escape from a Constructivist dogma. In any case, this could be the second chapter of our history of the architectural/graphic strategies.

##### 6.3. (Graphic Section No.3)

The third and, so far, last, stage, is the hypertrophic development of post-modern graphic procedures, a real exasperated elephantiasis.

We have advanced from "ideologic plurality" towards a biographic atomization: because the group is not anymore the support of one's own graphic ideal, there is no such a thing, anymore. We behold a kind of graphic onanism which is increasing, in a most extraordinary way, the current number of graphic "jargons" and, thus, reducing the number of each one's followers. They are real individual "talks" without a basic common language, real single-speaker languages. Architectural/graphic half-languages, sub-languages, micro-languages. We cannot elaborate anymore a canonical classification, just an alphabetic list of names and surnames: Stirling's Mannerist experimentation, Hedjuk's conceptualism (the most committed member of the "Five"), Botta's self-quoting manner (his "di sitto in sú" neo-narrations) and, above them all, Eisemann's graphic philosophy.

These will be our starting points to penetrate the labyrinth.

7. Priority of the graphic world and image as a substitute to reality.

(Graphic Sections No. 4, 5 and 6.)

7.1. This second approach is in some way intermingled with the previous one and, in fact,

it makes use of some of the latter's results. We have, so far, stated that historically speaking, the graphic world has not only increased its variety but also its significance in the project process. In his succinct analysis of the Modern movement, Subirats points out, as basic features, its innovative will and its formal experimentation. According to our own conception of a new way of dependence between language and representation, we can talk about a Modern graphic "will" which is absolutely different from the more modest Classical attitude towards graphic art, which may be brilliant and splendid but which is limited to a reduced number of group or individual intentions.

7.2. The most relevant aspects of this new approach are related to some typical characteristics of our "image culture". The principal reference of the role of image in our modern conception of the universe can be found in the artistic world. We can see how, in some way, art tries to detach itself from reality, to become independent and more "creative". But, on the other hand, the real objective is to approach that reality only to apprehend and condense it, and finally replace it. So we deal with a kind of epistemological art whose most emblematic example could be Picasso's preposterous assertion that Gertrude Stein would finally look like his portrait of her. What an extraordinary proof of self-confidence! Something reasonable in Picasso's case, of course. And what a extraordinary proof of a modern spirit, too! Art is not anymore a lucid introspection in what we really are but in what we will be, a kind of "prophetic realism". Real reality is an awkward imitation in front of that simulated reality, which is the authentic one.

Far from the visual and pictorial realm of representation, this same attitude can also be found in the literary world where someone like Umbral says "things are not the way they are but the way the poet says". Truth is in literature and not in a vulgar reality. If we exploit this particular view to the end, we will attain Nietzsche's linguistic nihilism as, for him, truth (philosophical truth) is in language. But the



point is that, while Picasso assumes with a great self-satisfaction his own penetration power, now we see it as a limitation which leads us toward a negative sense of the language depriving us from any possibility to attain a true knowledge: "truth is something we must create".

**7.3.** Let us leave aside this aesthetic and philosophical discourse and go back to our more modest issue: drawing. We can find some particular examples and cases, possibly not so significant as the previously mentioned, but in which we can behold a similar effect.

The mentioned plurality of the graphic procedures (in the pre-atomized stage of the Modern period) implies for them a more consequential role: this means that the project is finally assumed as a graphic object. Drawing is not anymore just a simple narrative translator of the project's linguistic and stylistic parameters, it is an active arbitrator.

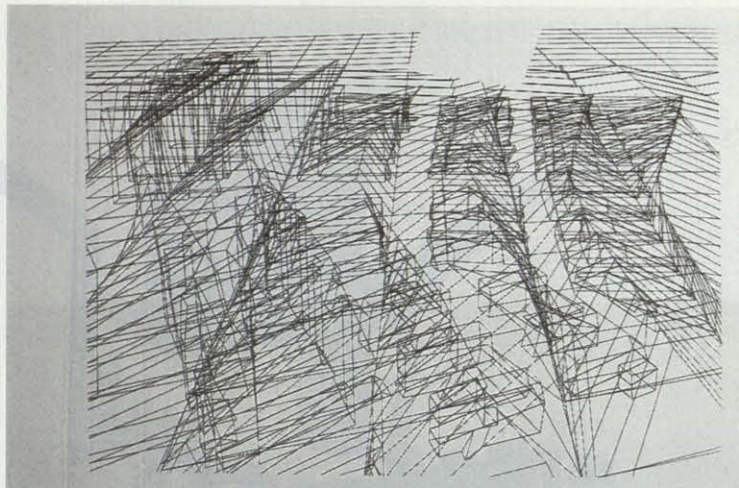
According to the Modern conception of representation, it is not a neutral/descriptive element, it is part of the project itself. We do not make a design just making use of diverse procedures and codes, we do it starting from and basing our work on them. Similarly, we also think and create starting from certain plastic and linguistic configurations.

Inside the graphic/design territory, we can also detect how this new conception of the visual procedures affects the idea of the project as a whole. So, the project is not anymore considered as a mere architectural problem, just posed by the external data: this pre-Modern view is just possible from a restricted professional perspective. It is the project itself that creates its own data and its own solution from the point of view of a more radical intellectual approach. That is the project's true epistemological condition, which goes far beyond the usual efficiency required by the professional architect.

The primary role of the graphic procedures can just be understood as part of this generalized active character of the thought/creation/representation means and procedures. There are no neutral means nor procedures, nor neutral language for any thought. Now, we can see how this characteristic has two different stages or sides: the priority of the graphic procedures both in the design process and in the world of communication.

**7.4.** The first one implies that the mentioned canonical relations between ideological and graphic tendencies are even deeper in this final stage. Moreover, the architectural panorama as a whole can be classified in graphic terms, so we can talk about different design poetics: axonometric (van Doesburg), perspectivist (Wright), sketched (Mendelsohn). This new classification is a development of the well known correspondence between both terms which accords the graphic means a primary identification/designation role.

Now, this radical view of the priority of active procedures, could be somehow restrained in two different aspects: first of all,



many ideological positions defend a consciously weak relationship with drawing and, secondly, doctrinal radicalism is not so extreme.

About the first restriction, we must admit that there are architects who have a non-graphic or even anti-graphic attitude. The most radical among them is Loos who could be considered a representative of the Viennese epistemological tradition which conceives language as an obstacle for knowledge. Loos really "rejects" drawing and has a completely opposed opinion to that described. He thinks real architecture cannot be represented and representability is for him more of a hindrance than an active value. We can find other similar views, though probably not so radical. Some think drawing is a burdensome chain, a kind of "graphic imposition", a serfdom. Gaudí could be a good example of this anti graphic attitude as he admitted he just made one drawing in his whole life (the facade of Barcelona's Cathedral), as a student. And he confessed it as a real sin. He went so far as to say that only vulgar architecture requires plans. For his experimental and speculative approach to architecture, drawing was a real limitation. As if the project could be a paper document, a bureaucratic form to facilitate architectural works. We can also mention Lino Cabeza's description of such an attitude in other architects like Gropius: he "had the drawings made by others".

The second restriction which diminishes the mentioned priority of the graphic procedures refers to the coexistence of diverse design methods together with the ideological orthodoxy. Thus Rietveld designed his Schroeder House by means of three-dimensional procedures (scale models) and conventional perspectives, rejecting van Doesburg's dogmatic axonometric. In the same sense, we have already mentioned Leonidov's alternative view of the Constructivist universe, with his splendid pictorial proposals (very Chagall-like). And, finally, the most radical Neo-Plasticism did not always expressed itself through the orthodox axonometric. Le Corbusier used the most diverse techniques and Terragni made many projects in just visual terms. His monument to the fallen, in Como, was represented on the same day of its inauguration.

**7.5.** These remarks have taken us to the final consideration of this point. We should talk about narrative drawings. Because the dogmatic and ideological "graphic orthodoxy" has expressed itself much more through narrative or communicative drawings than through design ones. This is rather logical as our "culture of the image" is something closely related to a "culture of communication". We must consider the significance of the graphic communication through diverse publications and periodicals. The present world's "hyper-graphism" has something to do with that kind of architectural trend.

Among the many aspects of this particular point, we must mention the importance of what we could call "canonical synthesis". That is, the extremely communicative graphic images which condense a whole project, the essence of a whole design. So we have the many drawings included in a project and, parallel to them, a unique image, a real graphic project which reveals the substance of the other one.

We can find some significant precedents in the Classical period. Vignola's splendid cross section/perspective of the Villa Farnese in Caprarola, for example, or the famous "seventh design" by Herrera/Perret which describes and condenses the canonical image of El Escorial. This particular episode of the proto-Classical communication is extremely interesting as it reveals Herrera's exceptional lucidity, as he

was capable of controlling by graphic (and rather economical) means the terms of the whole monument. In this case, the image replaces the real object, becomes its essential conception, the representation of its architectural authenticity.

In the Modern/post-Modern panorama this particular aspect becomes an explicit and generalized feature. Although, in our case, those graphic synthesis must compete with the extensive use of photography. We know Le Corbusier used to "rectify" the first photographs of his works, he did not need to amend the drawings. Herrera's sagacity is made more evident by these facts. He understood how an image could become more important than the erected work itself. In this sense, we can name Stirling as a mannerist and somewhat experimental master in this particular manoeuvre of the graphic supplantation of reality. His splendid "graphic projects" for Leicester or Cambridge and his late drawings on Stuttgart have surpassed the significance of any photographic report. In Stirling's case, we must say, as with Picasso's, that his works will finally look like his drawings.

#### **8. Towards unfaithful representation**

As a final and rather programmatic consideration about the discussed issue of the "graphic labyrinth", we must conclude that the most profound and conceptual aspects of drawing are somehow linked to a certain quality which transcends mere figuration. The capacity of the graphic language to penetrate reality is connected to its own nature as a conceptual device. In the same way, the extraordinary significance of language itself is increased by the use of an artificial device, the word. The basic statement of this final section should be that a faithful method of representation is less efficient. The artificial character of certain devices is the result of their unfaithful quality. That is the basic condition which makes possible for drawing the incorporation of a world of contents, objectives, roles, as an active, pluralist and questionable procedure. ■

## **The drawings of García Fernández brothers**

**José Luis García Grinda**

The origins of the drawing activity of the García Fernández brothers, my father José Luis and my uncle Efrén, are not widely known for obvious reasons. Within the family, my father was considered a bohemian, an artist, while my uncle was the serious guy, who became an architect at an early age (Madrid, 1953). My father, José Luis, instead, was Assistant to Public Works, while he kept painting and drawing every kind of thing and was a member of the Spanish association of Water-color.

Once married and a father to several

children, he studied architecture (Madrid, 1964), and he and I, the elder child, shared the blue table on which he made his plans and scale models and I did my homework for the Secondary School. He's becoming an architect, leaving aside his vocation and interest, was a kind of vindication in front of the family.

My father's drawings, prior to his architectural degree, were of a pictorial character. He used the most varied motifs and techniques, usually painting from life. He was a water-color specialist and drew rural and urban



landscapes, taking advantage of his travels all around the Iberian Peninsula, commissioned by the Direction of Seaports. The represented many maritime motifs, either popular ones or industrial and seaport themes. He was also interested in representing human figures; his wife and us were his models. He also employed the pencil technique and, sometimes, oil painting, on cardboard or plywood.

Y remember one of his many exhibitions for which he chose urban motifs. A collection of water-colors in which the buildings were represented as simple volumes, with just light and color, a kind of simplified Cubism. These water-colors, either based upon previous sketches or taken from life, became interesting predecessors to his subsequent works.

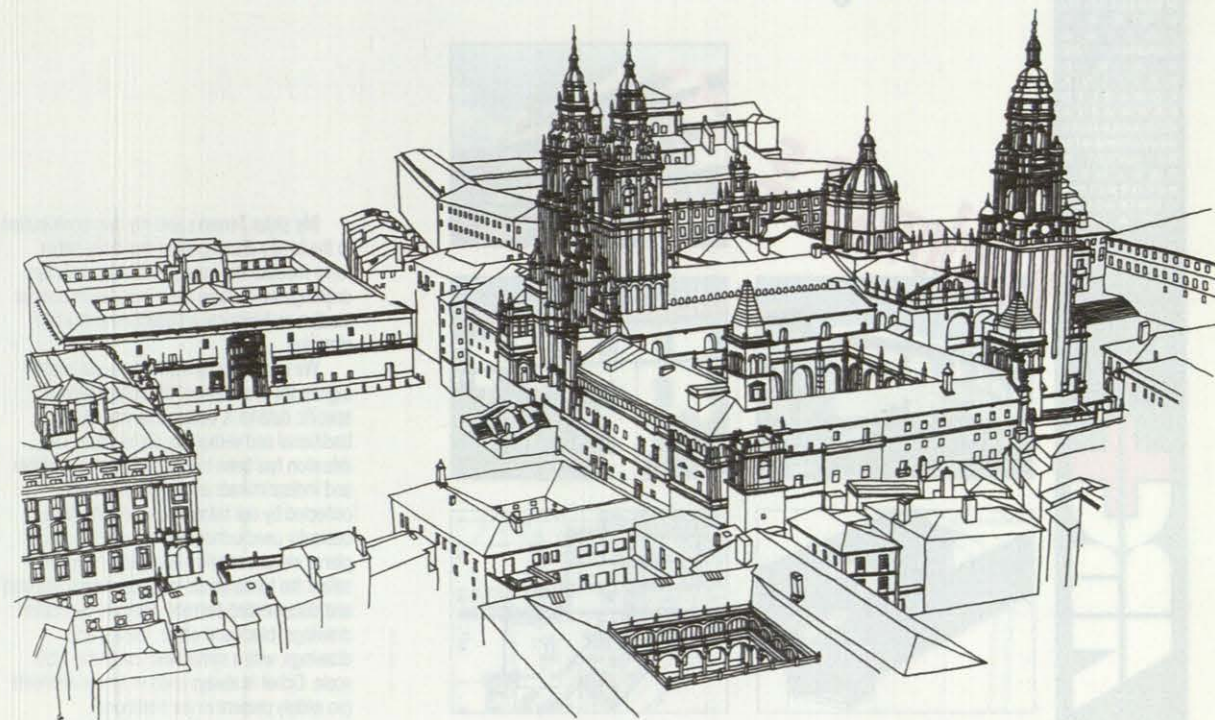
My uncle Efrén's first drawings, previous to his partnership with my father José Luis, were also travel sketches. He was a passionate mountaineer and his relation with nature made him specialize in landscape drawings, representing either natural beauties or rural life. He used gouache and water-color, and he continued with these techniques after he settled in the city of León, in the fifties, where he worked as an architect for the Urban Evaluation Service of the Ministry of Finances. From this period, we can also mention some drawings of the Cathedral of León, as an interior view in which he used a mixed technique with color gouache for the glass-work and grey ink for the stonework of the supports, the vaults and the walls.

During the sixties, the two García Fernández brothers began to collaborate in the production of architectural drawings. They first published a monographic work on the village of Castropol (Asturias), in the *Arquitectura* magazine. But it was the publication of the book "España Dibujada" which made them conscious about the importance of their graphic work (1).

Before the sixties, both brothers had worked together in the compilation of data for the new master-plan to renovate the old center of the city of Lugo. This period is full of special memories. As a ten year old child, I had to pull the measuring tape to calibrate the architectural elements of this city's main streets, as the Rua Nueva, in order to collect the necessary data to fabricate some 1:20 scaled elevations which are still a wonder for me. This planning work was among the first urban refurbishment projects in Spanish historical cities.

But most of the drawings belonging to that period of the sixties are line drawings taken from life, in enlarged DIN-A2 size papers. The usual procedure was to make pencil sketches on site and then use the ink line in the studio to soften the differences between both brothers' styles. In any case, if we analyze the finally published drawings, we can see how the most detailed among them, those which include accurate descriptions of both the architectural elements and the vegetation, belong to José Luis, while Efrén's are more free, less defined and more pictorial likenesses.

This personal appreciation is even more evident in the original sketches, in which José Luis began to conceive a rather accurate and



rigorous technique for architectural drawings which was to be widely adopted in later years.

The most significant drawings are those representing panoramic views of towns and cities, as those of Luarca or Cambil, which offer a 180° view. They were drawn on site, using a rotating board, over a roll of white wrapping paper which was winded and impressed as a film roll. Some of these drawings are 3.5 m long, and the public found them very impressive when they were exhibited.

These drawings were published in "España Dibujada", together with many floor plans and elevations of both the rural and urban areas of Spain. The book includes a large variety of vernacular building types as, raised granaries, barns, "cabazos", traditional housing or urban and rural clusters, as well as historically relevant buildings. These are the result of the joint efforts of both brothers either in collaboration or individually. There is no possibility of differentiating either's contribution. The drawings present very different scales, from 1/25 to 1/200, and the techniques used also vary. There are loose hand sketches and technical squared drafts. Some are two-color drawings with black and ochre shades for the stonework and the timber or brickwork, respectively. Some include details of the window frames, special ironmongery, etc... always orthogonal projections.

The final aim of this enormous graphic production was, on one hand, the diffusion of drawn architecture and, on the other, the documentary use of the collected data.

As we have mentioned, the detailed and accurate style of the drawings by José Luis (his reconstructions) and his connection with the restoration and preservation works in historical monuments, influenced the widespread use of this type of architectural drawing in the General Bureau of Beaux Arts as a previous stage to any restoration project. The technique was used as a means to analyze and study the monuments and, thus, the accurate detail replaced the old elevations and cross sections with different patterns and symbols to conceal the lack of

precision. Some collaborators of those years as José Sandoval, kept working on this line in a rather successful way.

During the seventies, Efrén and José Luis continued with their work in a similar style to that of the "España Dibujada" book and published "El Camino Real del Puerto de la Mesa" (2). Efrén specialized on vernacular construction types and published "Hórreos, paneras y cabazos asturianos" with line drawings of these auxiliary structures; orthogonal projections, basically, plans and elevations. José Luis, on his part, published "Segovia en el paisaje" (4) where he continued with the panoramic views in pen drawings of the city skyline, complemented with landscape representations and handwritten texts.

We must also mention the drawings realized as part of the urban planning projects, among which the city maps drawn by José Luis for the completion of Special Master-plans for historical centers. In the Burgos' one, we find a 1/1000 scale city map (5) in which we can see the ground floor of all the buildings in the city, together with the diverse urban elements. This was a clear precedent to the lately elaborated map of Madrid, made on the occasion of the city's Special Plan. Or the recently published work dedicated to the architectural heritage located on the route between Madrid and Guadalajara (6), where drawings include schemes of the building's plans and elevations.

In the drawings produced by José Luis and Efrén during the eighties and nineties, we can spot some differences. Efrén recovered a type of drawing he had previously employed in, for example, the views for San Miguel de Laciara or Villablino, made in 1954 and published in "Alfoces y Pueblos: León" (7). These, like the drawings displayed in the 1.997 exhibition, were taken from life, with pencil and water-color. They are not exactly water-colors, nor exactly pencil drawings, they can be seen as colored drawings.

These views from life are complemented with plans and elevations similarly delineated. We can also find some maps of towns based on

aerial photographs. The irregular loose-hand line in the orthogonal projections is complemented with color shading, not as a means to define shadows and depths, but as an efficient resource which clarifies and corrects the drawing's inaccuracies. In any case, they reveal how, in spite of age, the hand is still as good as ever.

The work of this indefatigable draughtsman, this traveler burdened with a drawing board, would produce, besides the drawings related to a professional career, many others of different places as Portugal and Santiago's Pilgrim Way, a route which can be easily connected with the author's own personality.

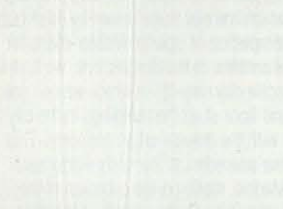
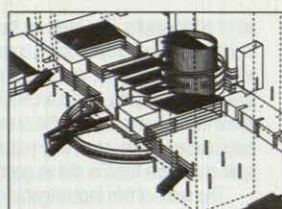
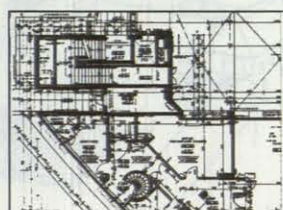
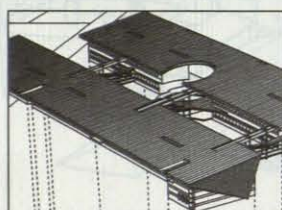
José Luis drawings, during the late two decades, have been grouped in diverse publications. We have those belonging to the new edition of the book "Santillana de Mar", by Lafuente Ferrari (8). Among these, we must mention the 1/50 scale details of the urban nucleus, made with two colors, or the complementary line drawings which are a mature demonstration of a brilliant way to represent a town and its architecture. Then, we have the book "La plaza en la ciudad" (9), followed by "Plazas de Segovia". This interest in the Spanish squares and public spaces has a clear precedent in his previous work on Madrid's squares, realized during the sixties. The rather systematic and analytic drawings comprise the plan of each square (1/500) together with several perspective line views of the public space which reveal its most significant features, including its architecture and urban furniture. There are also maps of each urban nucleus, analyzing and interpreting current or historical configurations.

The latest works by José Luis are a clear prolongation of his drawing activity. They are centered on the reconstruction of the historical maps of diverse nuclei of population. He has also elaborated some unpublished studies on the seventeenth century urban planning as well as on Latin American urban planning. His drawing technique has changed along the years up to become an essential and synthetic representation of a complex reality.



# La Tecnología CAD más avanzada

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My sister Teresa's and my own contribution to the family drawing labor has been rather more modest. We have realized documentary drawings which have been included in diverse studies on historical architecture and urban planning.

We can probably mention, as our most significant contribution, the compilation of specific data for a documentary study of traditional and vernacular architecture. Our intention has been to escape from the massive and indiscriminate amount of drawings collected by our father and uncle. We have basically used orthogonal representations: plans, elevations and cross sections which reflect the fundamental features of each selected and documented element. They are two-color drawings, black and ocher, loose-hand drawings, with a systematic use of the 1/50 scale. Ocher is always used in timber elements (so widely present in our traditional architecture) and in the projection of the ceilings and floor structures. All these drawings have been published in several books about León and Burgos vernacular architecture and in the book "El Camino de Santiago" (10).

We have also realized other type of drawings as part of a documentary project

intended to recover the traditional architecture of an specific site, as those included in the book dedicated to the Mills of the Tajuña River (11).

Besides the mentioned reconstructions and other drawings similar to those described above, we have included some axonometric views of the territory with line sketches of the building's plans. This other type of drawing is closely related to a recovery and refurbishment project for historical architecture.

So we have continued using drawings as a means to collect the necessary data and realize the necessary analysis required by a restoration project. In this kind of drawing we have either used the mentioned loose-hand technique or the strict squared line, as those for the Plaza de los Espectáculos in Nuevo Baztán, or those for the Silos Monastery, which have taken advantage of the computer aided drawing systems. In this latter case, we have tried not to omit in the computer the details that were always present in the hand drawings. The machine has proved to be both a flexible and a strict tool.

I will finish by offering these lines as an homage to the architectural drawing labor undertaken by my father and my uncle for so many years and just partially published. ■

## NOTES

- 1.- Efrén and José Luis García Fernández. "España dibujada 1. Asturias y Galicia". Madrid. Ministry of Housing. 1972. This book was based on a large exhibition of their graphic production celebrated in Madrid.
  - 2.- Efrén and José Luis García Fernández. "Castropol: un ejemplo de arquitectura urbana del occidente asturiano". Arquitectura magazine No. 96. Madrid. 1972.
  - 3.- Efrén and José Luis García Fernández. "El Camino Real del Puerto de la Mesa". Official College of Architects of Asturias and León. Oviedo. 1976.
  - 4.- Efrén García Fernández. "Horreos, paneras y cabazos asturianos". Caja de Ahorros de Asturias. Oviedo. 1979.
  - 5.- José Luis García Fernández. "Segovia en el Paisaje". Estudio Bookshop. Santander, 1982. The result of a urban planning project realized in 1975 for the General Plan of Segovia.
  - 6.- Special Plan for Burgos' Historical Center. 1976. Elaborated by this city's Town Hall Services.
  - 7.- VVAA "Patrimonio urbanístico, arquitectónico y arqueológico del Corredor Madrid-Guadalajara". Community of Madrid. Madrid, 1984. A publication realized in 1975 by the technical team of the Community under the direction of José Luis García Fernández.
  - 8.- Efrén García Fernández. "Alfoces y Pueblos: León". Official College of Architects of León. July, 1986.
  - 9.- Efrén García Fernández. "Lagos y lagunas de Asturias". Oviedo, 1987.
  - 10.- Enrique Lafuente Ferrari. "El libro de Santillana". Drawings by José Luis García Fernández. Estudio Bookshop. Santander, 1981.
  - 11.- José Luis García Fernández and Lena Saladina Iglesias Rouco. "La plaza en la ciudad. Galicia. Asturias. Cantabria. País Vasco y Navarra". Herman Blume, Madrid, 1986.
  - 12.- José Luis García Fernández. "Plazas de Segovia y su provincia". Official College of Architects of Madrid. Madrid, 1990.
  - 13.- José Luis García Grinda. "Arquitectura popular de Burgos". Official College of Architects of Burgos. Madrid, 1984.
  - 14.- Idem. "Arquitectura popular Leonesa". 2 volumes. Provincial Department of León. Madrid, 1991.
  - 15.- VVAA "El Camino de Santiago I. Vías, viajes y viajeros de antaño" and "El Camino de Santiago II. Estaciones y señales". Ministry of Public Works and Urban Planning. Madrid, 1991-1992.
- This way of representing plans, elevations and cross sections as related elements, with the same graphic scale, has been mentioned as a good example of an adequate compilation of architectural data by the scholar Paul Oliver in his recent publication "Encyclopaedia of Vernacular Architecture of the World". Vol 1. Theories and principles. Page 56. Cambridge University Press. London-New York. 1997, which includes some of our drawings.

11.- José Luis García Grinda. "Recuperación de los Molinos del Tajuña". Community of Madrid. Madrid, 1st Edition, 1987. 2nd Enlarged Edition, 1990.

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