

Translation and/or representation

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ARQ Lecturas Readings

Pensar, mirar, dibujar, construir... la arquitectura plantea un traspaso del campo abstracto (¿digital o mental?) a un tejido material; la representación, asociada a esa transferencia de información, necesita de cierta síntesis. Recordando el mapa de Borges, ¿cuál es el punto de una representación indiscriminada, que no omite ningún aspecto de su modelo?

“*First I think and then I draw my think*”, so the English sculptor Eric Gill quoted a child, who was asked how it went about doing such a nice drawing. He opposed the child’s to the art-student’s approach: “...*first I look and then I draw my look*” (Gill, 1940)

I see the opposition as factious, since what you think would never have got into your thinking if you had not looked first. The look and the think are tightly interdependent.

But Gill’s aphorism has its use if you wish to understand why drawing is an essential process which has given its name to a large body of human activity: the *Arti del disegno, les Arts du dessein* –which are unfortunately called the *Visual Arts* in English. It also helps one to understand how *disegno* translates or transforms into *artifact*.

The Dictionary of the French Academy before coming on to drawing defines *Dessein* as “*Intention de faire quelque chose, projet, resolution*”. It is that intentionality of drawing that I wish to talk about –the intention of the draughtsman towards an end other than the drawing: a painting, a sculpture, a building– that is how I used the word *artefact*. Such intention involves a transition from the capture of a thought or a sight by drawing a line or lines round it to the more corporeal business of other techniques –in short– a form of translation.

This may involve, at its simplest, a passage from the sketch, the preparatory drawing, to the painting –or even from the terracotta or plaster *bozzetto* to the fully formed stone or bronze figure; or even more indirectly from project sketches to models and working drawings– to the building proper. Notoriously, every passage from one stage to another inevitably involves a loss of spontaneity, even of authenticity; yet spontaneity, which many critics hold to be the guarantee of authenticity, has been valued more highly by critics for a century and more than the monumental scale or full accomplishment and smooth finish of the final work –the higher and grander *res ipsa*.

In that way, the passage of the work of art through the different stages from conception to completion is analogous to the filtering which the conception incarnate in the sounds and shapes of one language undergoes in its passage to quite another. Since I write this in English, my thoughts are made up of English words, which some of my readers will receive directly, while others will need to transform them into French or German or Italian ones. My English text may even be turned into one of those other ones –and however deftly and ingeniously this is done, my English-word thoughts will suffer an inevitable change since words of one language will never quite coincide with those of another.

You need only think of the half a dozen English versions which appeared to be needed to translate a very simple, innocent-seeming French sentence: *Longtemps, je me suis couché de bonne heure*. Although such an analogy is invoked for sculpture and painting, architecture is rarely mentioned in this context –even though the passage from sketch project to the building is even more laborious than that of the painting or sculpture– with all its inevitable forfeitures and contaminations.

At the beginning of the first treatise on architecture of modern times, Leon Battista Alberti finds it necessary to define the nature of the archi-

Thinking, looking at, drawing, building... architecture is always proposing shifts from abstract territories (digital or mental) to material bodies. This information transfer needs some synthesis to be done within its associated representation. Just like in Borges’ maps, what is the point of representation if there is no interpretation involved?

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tectural operation, which, so he wants his readers to understand, is among the highest of all human achievements –and his definition is polemical. He starts by refuting a commonplace view of the architect: “*It is no carpenter (tignarum fabrum) that I would have you compare to the greatest exponents of other disciplines: the carpenter is but an instrument in the hands of the architect*”¹.

The commonplace that Alberti rejected depended, in part at least, on the ambiguous status of the medieval master mason, but also on the misleading homology between the Latin *tectum*, which means roof or covering, and forms the second part of the word *archi-tect*.

It therefore ignores the primary Greek sense of *architekton*, “*the chief craftsman*” (Rykwert, 1983)².

In the fifteenth century the noun *architectura* was indeed taken to mean the *roof, roofing*, the topmost covering. It was even sanctified by the fact that St. Joseph (and therefore Jesus himself before his mission started) worked as a carpenter. The offending commonplace had the authority of Johannes Balbi’s *Catholicon*, which may well have been the most popular medieval word-list or dictionary. Its author gave its date as 1286 but the book was often copied and printed over the next 250 years³.

Intent on ennobling architecture, Alberti then proceeds to his own emphatic definition:

“*Architectum ego hunc...constituam* (he says, and I translate) “him I consider the architect, who by sure and admirable reason and method knows both how to devise (in his own mind and through his own energy *-tum mente animoque diffinire*) as well as to realize in construction (*tum et opere absolvere*) whatever can be most neatly and aptly fitted out (to accommodate) the noble actions of men (*dignissimis hominum usibus bellissime commodentur*)- by working it out in terms of the movements of weights as well as of the joining and massing of solid bodies”.

Please note that the primary architectural operation is the working of stable reason and admirable orderliness of method- and that it is an operation of the mind, since it is in the mind that the building project is first devised; only then can it be translated through compositional skills (the joining and massing of solid bodies) and the operations of mechanics (the movement of weights) into “...*whatever might beautifully shelter the noble actions of men*” (Alberti, 1485).

Obviously, any direct translation from a mental operation to the solid fabric is impossible. In fact, the slighted carpenter can only become the instrument in the architect’s hand after the mental construct had been formulated into a sequence of instructions. These may be reduced to simple verbal directions when the project is a simple one, while the craftsmen are highly trained and independent. But the normal instruction will be (as it has usually been in the past) in the form of a drawing. Like the carpenter, so the stonemason and bricklayer, the blacksmith and even a more demanding and finicky joiner or plasterer had procedures which were routine and which they acquired as a matter of course and as part of their craft. No precise specification or instruction –certainly no drawing– would have been required before the middle of the nineteenth century to tell a bricklayer to lay his bricks in a Flemish or

¹ *Non enim tignarum adducam*

fabrum, quem tu summis caeterum disciplinarum viris compares: fabri enim manus architecto pro instrumento est. Architectum ego hunc fore constituam, qui certa admirabilique ratione et via tum mente animoque diffinire tum et opere absolvere didicerit, quaecunque ex ponderum motu corporumque compactione et coagmentatione dignissimis hominum usibus belissime commodentur. Cf MT Cicero De. Clar. Or. Sive Brutus, 73, Ego me Phidiam esse mallem, quam vel optimum fabrum tignarum.

² The Latin *tectum* is related to the Greek *steg* -which relates to covering; hence the *architector* is one who concerns himself with *top covering*; as Du Cange has it, *faber qui facit tecta*, while the modern use of the term is a transliteration of *archi-tekton*, the chief craftsman or maker; *tekton* from the Greek *techne*, *tek*: making, begetting.

³ *Tignarum fabrum* literally means *joist-maker*, but is a common term for building-carpenter.

⁴ That particular headless diorite statue of Gudea of Lagash (reigned ca 2.100 B.C.) is now in the Louvre, but there are several other statues of him there with the head intact.

⁵ One of the fascinating exceptions is the rather elaborate drawing of Donato Bramante’s tempietto at San Pietro in Montorio (a central-perspective drawing of the circular building) which has suffered various attributions, including inevitably one to Bramante himself. It has now been given to the late sixteenth-century painter, Federico Barocci.

Among Michelangelo’s drawings, the study for the Laurentian library staircase (Casa Buonarrotti, Florence, 92 a) has some central vanishing-point sketches of the arrangements of the ramps. But clearly, such drawings are quite exceptional and contrast with the vast mass of orthogonal drawings and of details, some of them elaborately drawn and shaded.

⁶ Like Palladio and Vignola, Scamozzi had two ladies flanking his frontispiece, whom he called *Theorica* and *Experientia*, but he also includes a number of other figures.

English bond –or improvise his own one for that matter– or to tell a mason how to make a scribed joint in an ashlar wall. Only when a departure from such typical procedures was demanded, when explicit direction might be needed, did some graphic indication become essential. The passage from the mental conception to the built form involves a double translation therefore: first from the architect’s mind to the graphic –usually his own– presentation, and secondly, from the drawing to the building, through the collaboration of those craftsmen who, like Alberti’s carpenter, would act as his *hands*.

In their relation to the architects they are therefore more like singers and instrumentalists to a composer and his musical score than studio assistants working from the master’s sketches on the canvas. The graphic indications need not be drawn materially to scale, but may be pegged onto the site directly, drawn –or perhaps more accurately– stretched with bits of string.

But from very early times, instructions were condensed through scale reduction onto a surface that could be manipulated –some kind of drawing board. The cliché *on the drawing board* recently acquired the sense of practical and sensible –in opposition to *theoretical*– almost as if there need be no mental operation before the drawing of the lines; almost as if the mental, the strictly theoretical part, as it were –did not need to precede drawing-board work.

And yet when allegorical figures of architecture appeared in the sixteenth century –sometimes as lady-like statues, sometimes as so many *putti*– they were usually shown handling compasses, set squares, protractors, and rulers –which were drawing instruments, not chisels, trowels and plumb-lines– the instruments of the builder. On the frontispiece of both Palladio’s or Vignola’s treatises, for instance, the title is flanked by two ladies representing theory and practice who carry drawing instruments: for theory, a quadrant and a square; for practice, a scale and compasses. Clearly, design was also understood as a process that is done *on the board*; it was the immediate outcome of a chain of reasoning.

Work on the drawing board was therefore considered the essential passage from thought to materiality.

Moreover, drawing was most commonly done in some orthogonal form: plan, section, elevation or even projection. This is true at least since the time of Gudea, the Patasi or bailiff-prince of Lagash towards the end of the third millennium, who is shown, in a statue, holding a drawing board on his knees. This board or table has a plan of a temple building drawn on it and lying to one side, a scaled ruler and the stylus with the help of which it was drawn. The sculptor of the statue seems to be alluding to a well-established practice rather than displaying an innovation, as if the process of scale representation on a drawing board was well-established by Gudea’s time.

Since then, such orthogonal and relatively abstract drawings have been the most common method of representing the project back to the architect himself, as well as forward to the builders who have to act as his hands⁴. Orthogonal representations, not perspective drawings, seem therefore the architects’ preferred methods of visualizing. Even though the rules of perspective construction had been formulated theoretically –also by Alberti in

the fourteen-thirties– it was only towards the end of the seventeenth century that a few architects began to design through perspective sketches.

In the corpus of about a thousand surviving drawings by Andrea Palladio (some of them both splendid and elaborate), there is not a single perspective drawing. There are practically none by Michelangelo. Leonardo’s *visions* of his centrally-planned churches are orthogonal projections, even if his drawings for a new city are sometimes detailed in perspective –but these are of course not *design* drawings; they are theoretical illustrations, presentation images –as are the projection drawings which illustrate the books of Filarete and Francesco di Giorgio⁵.

I have appealed to Alberti because he seems to me to have been among the most clear-headed and perceptive persons ever to have written about such matters: I would even venture the opinion that he was the most clear-headed of all.

Alberti is particularly instructive about how the architect conceives a project (even psychologically so), and how the passage from the first notion to its representation modifies it -of necessity. He confesses that he himself had conceived building projects with which he was very pleased, as long as they stayed in the mind; once he drew them out, he found errors in the very bits which had particularly pleased him while the project was only a thought; inevitably perhaps, accurate measuring and scaling of the drawing often revealed yet further misconceptions.

In the translation from drawing to three-dimensional model, more mistakes –even regarding numbers and dimensions– would sometimes appear (Alberti, 1485). That three-dimensional model, he thought, was an essential instrument for the designer –which is why he was so strenuously opposed to prettified or over-realistic ones. He wanted them almost immaterial -instruments for the full working out of the conception.

Of course, the completed version, the final step, is the translation from representation -(from any form the model might take, mental-noetic or scaled and physically present) to the thing proper, to the architectural object in its full materiality- and it cannot be accomplished by its deviser or inventor alone, but requires the collaboration of craftsmen with him and with each other.

One of Alberti’s most erudite successors, Vincenzo Scamozzi, being a rather dogmatic Aristotelian, had to put all the varieties of both form and material into categories.

Inevitably he asserted that forms were excellent in themselves, while materials –which are confused and shapeless by their very nature– can only aspire to potential excellence.

For all that, he warns the architect (whose job it is, after all, to give form to brute matter) against doing any violence to these humbler elements and Alberti would not, I suspect, have found his warning ill-advised:

“*Non é molto lodevol cosa che l’architetto tenti di far come violenza alla materia: in modo che egli pensi di ridur sempre a voler suo le cose create dalla Natura...*” “*It is no matter for praise if an architect makes as if he were violating material; as if he were bending the things nature made to his own command, to give them the shape he has willed...*” (Scamozzi, 1615)⁶.

Yet Alberti would have formulated this question rather differently, interested though he was in the nature of materials and methods of

construction. It was not a matter of categorical distinction for him, but rather a problem of translating one kind of operation into another. For Alberti the whole tangible and phenomenal part of building did not belong to the realm of invention and beauty, but to that of realization, of sensibilia and therefore of ornament: it was not, for him, a matter of imposing one category on another, but rather that of giving the notional a perceptible body, of enfleshing or incarnating –of absorbing the tangible and visible stuff into a mental model, or of adding the quality of perceptibility to the inherent beauty of the mental construct.

Still, even the passage from concept to graphics, from graphics to scale model, cannot ever be literal. Like many good translations it may –at every stage– reveal unsuspected inconsistencies and blemishes in the original. However, since the project has to be reformulated in the translation from two to three dimensions, the author at that stage can correct his errors –or purge the blemishes on his original scheme.

Alfred Tennyson, it is said, would never correct his poems on his own manuscript, but would have them set up in type by a local printer at Freshwater on the Isle of Wight –not for publication, but to be able to work on them as if they were not his own, to provide a kind of alienation from the text which first the printed proof and later the typewriter afforded, and of which the computer has robbed us.

The support and help of graphic translation, on which many writers have depended, has now been withdrawn. It has also eroded the limits over which we need to pass from the mental image to the graphic representation and affects all the further stages in correction that Alberti mentioned.

To return to architecture, however: once the craftsman begins to execute the project from the model –usually wooden and homogeneous– and the concept has to be worked out in masonry and carpentry, and goes through the hands of several craftsmen belonging to different trades and working in very different materials, the process of translation from the representation to the *ipsa res* will involve another set of corrections and *pentimenti*, which may sometimes be much more far-reaching than those of a painter or sculptor.

You may follow the process in some clamorous examples: imagine Michelangelo being commissioned by Pope Clement VII to paint the *facade* (the term used both by Condivi and Vasari for the altar wall) of the Sistine Chapel. The first conversation about the commission probably took place near Florence in 1533, yet both he and the Pope would surely have

stationed themselves mentally in the Sistine Chapel –the Pope presumably thinking of the wall as it then was, while Michelangelo stripped it mentally of the paintings by Perugino and Fra Angelico which were already there (and perhaps of his own lunettes as well).

He must have thrown a projection, as it were a slide, from his mind through his eye onto the rough plaster. We know a good deal about Michelangelo’s problematic return to Rome soon after and of the preparations of the real wall, and about Sebastiano del Piombo’s interfering suggestion that the vast painting should be done in oils (a kind of work, Michelangelo thought, fit only for women and loungers like Sebastiano) –and Michelangelo’s return to fresco.

He could then have had no doubt –as we also know, but in retrospect– that between this image he had first formed in Florence and the accomplished thing, there would be many months of self-doubt, and a working out of the composition in all its details; and that there would follow the years on the scaffolding during which, with his assistants, he would painfully translate that original, primitive projection into cartoons to be brushed on the vast and very material, empty but expectant surface.

The Sistine *Last Judgement* has had many enemies: prurient and overbearing, like Pietro Aretino or Galileo Galilei, or marginally more theological, like Paul IV Caraffa and the Fathers of the Council of Trent (De Maio, 1978; Redig de Campos, 1964) but it was also intensely admired from the beginning, frequently copied and engraved. And –so many thought– it had no equal in the history of western art.

Any painter, however humble, beginning work on a plaster surface or on canvas, will have had some such intuition as Michelangelo must have had in Florence, without which the placing of a first line on a surface is impossible. Some will arrive at that moment by working through many different detailed preliminaries, while others may have the notion ready in the mind before they begin on any drawing.

Long before he undertook the *Last Judgment*, Michelangelo had spent several painful years painting the vault of the Sistine Chapel; he would have known, from that first moment of Pope Clement’s commission, which of the existing paintings on and around the wall, including some by himself, would have to be removed to make way for his vision.

He had long been meditating on the figure of the resurrected Christ –to which some of the preparatory drawings done just after the Pope

⁷ A number of early drawings exist: Casa Buonarroti (Florence) 65 F. Slightly later ones are in the Museum at Bayonne and in Windsor. Michelangelo, however much he valued the

instant *conchetto* had no respect for over-rapid execution, as is clear from an account of his conversation given by Francisco de Hollanda (Summers, 1981).

approached him– allude. Between the first commissioning of the fresco by Clement VII de Medici in 1533 and its completion (under Paul III Farnese) eight years later, the original vision of the Resurrection had become the Last Judgment that we know⁷.

But I return from that sublime achievement to my primary problem of building –and here again I can appeal to Michelangelo: would he have had an analogous vision when contemplating the heroic vaults of Bramante’s unfinished Saint Peter’s which he was to reshape and transform so that they could carry the dome he designed?

The story of that remodelling and of the dome is central to the history of western architecture and has often been told (Frommel, 1994; Millon and Smythe, 1998; Ackerman, 1986). What interests me in this context, however, is that Michelangelo’s prime move was to reject all the projects that had been proposed or even partly built between his being commissioned and Bramante’s first scheme fifty years earlier. He decided to return the church (which the architects in charge of the structure between himself and Bramante had cramped into a Latin-cross shape with a long nave) to a centralized, Greek-cross plan.

Early on in his involvement, two models of the dome were made: in fact he seems to have made the first one, of terracotta, himself –though it has long since disappeared; and following that, he had carpenters make a larger –fifteen feet high– composite lime-wood model which survives, though it was also modified after Michelangelo’s death first by his successor as the architect to the fabric, Giacomo della Porta, and again, nearly two hundred years later, in the seventeen-forties, by Luigi Vanvitelli who was then responsible for repairs to the structure.

Michelangelo’s own initial notion therefore went through a double plastic transformation: from the kneaded and hand-shaped one to the built-up version. He had dismissed his immediate predecessor’s project –that by Antonio da Sangallo– with undisguised contempt.

A huge model –about twenty-five feet long and fifteen feet high– had been made of it; it had been intended as the definitive statement, the perfect contractual working document of the project; Vasari considered it Sangallo’s masterpiece. Yet Michelangelo took his rejection so far that he actually mutilated the Sangallan model, adapting parts of the interior to try out his own proposals.

This kind of working back, manipulating the representation in the interest of *another*, a different conception is no longer any form of translation, since it involves distorting the

⁸ Though, of course, such a model will allow him to judge of many ornamental matters: such as quantities of materials and even costs.

⁹ A good survey of contemporary drawing techniques is provided by Jean-Paul Saint Aubin in *Le Relevé et la Représentation de l’Architecture*, Paris, 1922.

translation to correct the faults of the original text. This is where my analogy between the linguistic and the built may no longer be helpful. Analogies have limited use, in any case, and should not be forced. I have already suggested one limit of it when I mentioned Alberti’s notion that the conceptual project is in a different sphere from the materiality of construction, which belongs with other sensibilia such as the climate or the quality of the soil and water and where the building stands, or even the name of the site. Yet until that last category shift, the analogy of translation has been as useful in considering Alberti’s description of the design process as it has been for the work of the architects of earlier times and as it would also be for many of his successors who may not have been as clear headed as he. However, something more radical happened to the process in the course of the last century and a half, as the building site first –and the techniques of drawing and representation later– were increasingly industrialized and mechanized; here again translation provides a close and useful analogy.

Perhaps the easiest way to disentangle this particular strand from the many developments with which it is enmeshed may be in a discussion of the professionalizing of design. It is not so much the teaching of it or *qualifications* that concerns me, but the role of the model and the drawing. About models, Alberti had taught an austere doctrine –as I suggested earlier: they are not for showing to the client as a dinky baby-building all tarted up with colours and model trees– that would be mere display of what Alberti termed ornament; on the contrary, they are to be the architect’s own way of working through his project, his method of translating the mental notion or even the two-dimensional graphic account of it into the solidity proper to building (Alberti, 1485)⁸. With the industrializing of the building site, a new factor and another stage –appears in the process of translation: the working drawing is no longer the architect’s instruction to the builder, but becomes a binding, legal document in a three-way contract between patron and contractor, contractor and architect. Not, of course, that patrons and builders were not litigious in the past: Hammurabi’s Code compiled in Babylon some three centuries after the time of Gudea of Lagash (whose statue I mentioned earlier) imposed very heavy penalties for building failure –including the death penalty for a builder if his patron was killed when a house collapsed.

The Greeks exhibited building contracts and specifications, which were engraved on stone tablets beside the buildings to which they

referred; Vitruvius counted the law as one of the essential disciplines of the architect –and so on (Bottéro, 1987; Driver and Miles, 1952). In my generation, however, the building process has been locked in a tight mesh of contract and regulation that is a product of an investment economy controlled by corporate patronage, of different production and assembly methods, and a much more highly organized –because much more capital intensive– building technology. This has thrown more weight on the drawing: the three-dimensional model is now a relatively insignificant aspect of the process of representation. It would seem that the mechanization of the drawing process in the computer which is very recent –just over thirty years old– will become another factor in smoothing that process.

What is increasingly obvious, however, is that the passage from the graphic representation to the three-dimensional scale model can now be made by a relatively simple mechanical operation on the screen⁹; and a wood or plastic –or even a stone– model can be plotted or cut directly from computer software (Ragazzo, 1994).

And because of the very ease with which computer representations –both two and three-dimensional– can be altered in this way, they will no longer be regarded as reliable *documents*. This problem has already arisen acutely in the financial world where screen-registered and transmitted information is not considered binding. Of course, *hard* copy is required for documentation, and the contractual importance of drawings and models will –perhaps paradoxically, because of the very ease of computer operation –give increasing weight to the graphic quality of the drawings and the communicative power, the precision, of tangible and three-dimensional models.

I surmise that the quality and value of a translation from one language to another depends much more on the translator’s mastery of the language into which he is translating, on his judgment and skill, and less on his knowledge of the language of the original text. That is why the mirage of a literary computer-aided translation fallen below the horizon.

It will be no different, if my analogy holds, for building. The idea of a project entirely computer-generated from numerical data fed into it seems an even more tenuous mirage to me; and the idea of concept-less designing seems logically excluded in view of what I had said before. There is no escape from the translative cycle of concept-representation-realization. No designer worth his salt will pass from the screen image to working out its details on the computer without *realizing* his project in three dimensions: I do not mean by this that he will

construct the project three-dimensionally on the screen to turn it this way and that –virtually. No, the designer will want, will need to have a tangible three-dimensional model to sense the real nature of the project. At each stage of the design cycle, choice and judgement –as well as mechanical skill– will have to be exercised. It almost seems therefore, if my paradox holds, as if the mechanization and now the digitalizing of the means, having focused attention on elaboration and precision, on the quality of representation –will have returned us to the final, the inescapable physicality of the building. There can be nothing virtual about a piece of architecture, which is the visible, penetrable tangible product. The experience of our senses alone can validate –or disqualify– any process, however ingenious and refined, which generated the building we use and enjoy. [ARQ](#)

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