THE CORNERSTONE

On the corner. Where architecture and ground converge

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In the New Testament we find the following reference: "the stone the builders rejected has become the cornerstone". And indeed it is the cornerstone, or rather the cornerstones, that define the structure of an edifice and establish its spatial order.

My interest in the cornerstone, and hence in writing this paper, goes back a long time. While all buildings obviously have some form of hard base, I observed long ago that stone buildings define themselves from their encounter with the ground.

In the past stone buildings used to have large base stones which related well to the nature of the architecture. These stones were not only larger or treated differently but not infrequently the stones used were more resistant. Their encounter with the ground was, and is, that important both in a conceptual and a constructive sense.

It would appear that things have changed somewhat. In some instances I have noticed very small pieces of stone that stand in stark contrast with the immense size of these buildings. At times, little strips and small triangles appear in the most visible and surprising spots and so astonish us even more. These sites cry out loud for larger stone pieces.

Of course, in the majority of buildings, this meeting place of vertical plane and the ground is perfect or at least adequate. Once the stones are proportionally large enough, such points can be adequately resolved.

What I propose to discuss here is that unique spatial situation which is the corner, corners in buildings, the angles of architecture: the encounter of the two planes of the façade with the ground, or that of the two planes of the façade with the roof. These are moments, points, of particular spatial tension.

And I find yet again when considering the theme of the cornerstone, that rather than it being as black and white as finding a specific solution to a specific problem, if we approach the matter from a more abstract perspective, we inevitably find ourselves dealing with much more general questions that are at the center of architecture, touching its core, its origins. As always I discover that architecture is a question of ideas, but also the material execution of them.

THE WALL BORN AND RAISED FROM THE GROUND: THE BASE

It is possible that the first construction ever completed in stone was a wall, and that it was built in order to offer protection from the sun and the prevailing winds. Or shade and shelter, like the Roman wall at Pescile in Villa Adriana. On the other hand, perhaps it was first built on account of that human impulse to close off and demarcate one's own territory.

Beyond speaking of the meeting of wall and ground, of the vertical plane with the horizontal, we should speak of how the wall itself actually starts from the ground up, which is what it really does. For reasons of stability and constructive logic, the first stones of a wall should be larger than the rest of the stones that make it up or at least of equal size, but never smaller. Of all of them, the first stone should demarcate a crucial point and be special, if not the largest.

The base, which is the moment of encounter between the wall and the ground, should always be made of stones larger than those used in the rest of the building, and the former should be generally sturdier than those resting upon it.

I know that those little stone triangles and strips occasionally arise in large buildings because of natural growth, environmental factors, or the shifting of sidewalk and ground levels, when the stones are actually larger inside. This fact, however, does not make it seem less odd.

Moreover, I am well aware that many of the buildings in question are not properly stone, but cladded in stone. Nonetheless, one should demand that the base stones be larger (and never smaller!) than those in the rest of the building for reasons of solid construction and sound logic. To be clear, they should be conspicuously larger in all three dimensions, even in girth and never little strips, triangles, or flimsy pebbles.

The present discussion, then, should begin with the constructive resolution of the sidewalk understood as the border of the plane upon which the building rests. This juncture should be resolved, both from a conceptual and constructive point of view. Architecture is exhaustive down to the last detail.

Likewise, any discussion of the base, and its borders and resolution, ought to remind us to consider the building's meeting point with the sky: for reasons similar to those operative at the base, we should speak of the building's upper extremities, and how the cornice, or uppermost section of moldings along the top of a wall or just below a roof and its crown, must also be well resolved in stone buildings.

The stone wall is not, as some people suppose, an abstract plane whose parts can be cut, pasted, and carelessly interchanged at its base, peak, or anywhere in between.

THE ANGLE. THE CORNER

If the intersection of the vertical plane of the wall with the horizontal plane of the ground is important, the meeting of the two vertical planes at the angle –the corner– is no less important.

Smaller stones or other materials should never be allowed at this point either. Many non-stone buildings have stone corners. And in stone buildings, the stones at the angles tend to be larger, or at least never smaller. Because the corner is the logical point of departure from which to begin constructing, one should always begin with whole pieces.

When it is a matter of large, load-bearing stone walls, the corners tend to be unproblematic, among others, for basic reasons of stability. However, when it is a matter of buildings that are just cladded in stone, we again find serious problems of disparity in their façades. Sometimes one sees pieces in their corners that are too small for such an intense spatial point.

The corners of buildings are of the utmost importance. One truly sees architecture starting from corners: they constitute and define cities.

THE KEY TRIHEDRAL ANGLE. THE CORNERSTONE

If the foundation, the cornice, and the corner are important, the point where the corner meets the ground is perhaps of even greater importance. It is so important since it is point of greatest gravitational tension, the key point of reference for an entire building.

Buildings are designed and redesigned with the points of their structure in mind. When the walls must bear gravitational weight, they are designed with reference to their lines and, most importantly, with reference to the meetings of these lines with the corners. These angles are vital points of reference and resistance. It should seem obvious then that the first stone of this foundation at the intersection of the horizontal and vertical at ground level must be the strongest and most durable. Accordingly, when a building begins to be constructed, this stone has always been the largest and most visible; when inaugurated, the most celebrated: the cornerstone.

Until a few years ago, there used to be a lovely custom of making the cornerstone visible. It tended to be placed conspicuously at eyelevel so that it could be seen clearly, usually on the most visible corner of the building. Moreover, the date of its completion was engraved on it, sometimes in Latin, but always with Roman numerals. Inside the cornerstone itself, a metal box was often placed containing documents pertaining to the history of the new building.

COLUMBIA UNIVERSITY

At Columbia University, these beautiful cornerstones are there for all to see in almost all of its campus buildings.

If one walks from Avery Library to Teachers College, one passes by the Pupin Building at 538 W 120th Street. This building by William Kendall, an architect who worked with McKim, Mead & White, proudly shows its cornerstone which reads: “CORNERSTONE LAID AUGUST SEVENTH MCMXXV.”

Doubling back down the same sidewalk towards campus, there are multiple buildings built for Columbia in that period by the same firm. They all have cornerstones of this sort: the Chandler Building at 3010 Broadway declares at eyelevel “CORNER STONE LAID JUNE THIRD MCMXXV;” at 2960 Broadway, near the gates of the main campus, the Dodge Miller Theater states “CORNER STONE LAID DECEMBER EIGHTEENTH MCMXXIII;” of course, Avery Library, where the Columbia School of Architecture is

located, also has a proper cornerstone at the right corner of its main façade: “CORNER STONE LAID JUNE SEVENTH MCMXL.”

However, none of the new buildings of the prestigious University of New York, one of the most renowned in the world, seem to have inherited this deep-rooted, traditional custom of architects.

THE CORNER OF AIR

What happens to the cornerstone when, as seems to be the case in the majority of contemporary architecture, the corner is a glassy or airy construction? What happens when the defining, external structure of a building is downplayed precisely in order to achieve maximum transparency?

It is fascinating how architects, when they actually consider the substantial issues of architecture in depth, are able to conceive of spatial challenges that are not easy to resolve. The dissolution of the corner, the moment of greatest structural stress–making it with air–is a perfect example.

In 1950, Mies van der Rohe boldly and passionately attempts this in his beautiful design for a house measuring 50x50 feet, supported by only 4 pillars in the center of its four façades. In such a simple way, instead of putting the pillars on its four corners, Mies liberated the corners and made them out of air. Indeed it must be said that decades previously, in 1921, he had already attempted to achieve the very same result with his competition entry of the glass Friedrichstrasse skyscraper and its “angles of air” and again in 1922, with his magnificent Glass Skyscraper where the curved outline of the glass facade entirely does away with corners.

ADDENDA

We have completed a very radical yet wonderful building in Zamora made out of the same stone as the Cathedral facing it. Naturally, we have also endowed it with a large and extremely special cornerstone.

The edifice we’ve built is the headquarters for the Advisory Board of the Regional Government of Castilla-León. The site used to be the garden of an ancient convent, so complying with the competition title, Hortus Conclusus, we erected large and thick walls in golden sandstone that trace the irregular shape of the plot, as if it were a huge stone box open to the sky.

Inside, to house the series of offices requested of us, we made a very delicate transparent glass box of orthogonal shapes with a double skin wall called mure trombe, in which the exterior skin is constructed with the largest glass sheets currently manufactured and fitted with structural silicone, so that the transparency is complete and free of any metal element. The walls are so transparent they seem like they were made from pure air.

Its air corner, or better, air trihedron is constructed, levitating, in such a way that it seems impossible to be real.

The box of stone walls, built with 1.00x0.75x0.08 meter pieces, has a base with larger pieces, or at least, never smaller than the general size. Little strips and little triangles were strictly prohibited.

Furthermore, as mentioned above, in the corner in front of the cathedral, we've placed a large stone, measuring 2.50x1.50x0.50 meters. It is the biggest the quarry and the industry could supply and could be placed. Since it stands over the ground line by 1.50 meters and is placed horizontally, its impressive size stands in clear relief. It is our building's cornerstone, and not only grounds theoretical considerations but settles questions of durability. On it we have engraved the following words in Latin: HIC LAPIS ANGULARIS MAIO MMXII POSITO. And for similar reasons we have engraved on the most visible angle of the glass cube: HOC VITRUM ANGULARIS MAIO MMXII POSITO.