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## FROM COMMON TO SPECIAL: A MATTER OF DESIGN AND CRAFTSMANSHIP

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### OD POWSZECHNOŚCI DO WYJĄTKOWOŚCI: KWESTIA PROJEKTU I KUNSZTU

#### Abstract

History gave many different shapes to the appearance of concrete. The most important architectural material of the last century is now becoming more discussed, perhaps because its true final quality is quite difficult to control during the construction phase.

But being a material, which, at the same time is very new (for its potential) and very old (for the craftsmanship necessary to a perfect result), it is still a very large field of study that can be deepened and thoroughly investigated.

Some examples from the older architecture (first half of the 20<sup>th</sup> century) and from an Italian architect who “imported” into Australia the most up-to-date techniques (second half of the 20<sup>th</sup> century): both examples to show the extraordinary nature of this material.

*Keywords: concrete technology, architecture technology, prefabricated panels, Bologna, first XX century, Sydney, second XX century*

#### Streszczenie

Historia na wiele sposobów kształtowała wygląd betonu. Najważniejszy materiał architektoniczny ostatniego stulecia staje się obecnie przedmiotem coraz liczniejszych dyskusji. Być może dzieje się tak dlatego, że trudno jest kontrolować jego ostateczną jakość na etapie budowy.

Będąc materiałem, który jest zarówno bardzo nowy (ze względu na potencjał) jak i bardzo stary (ze względu na kunszt wymagany do jego doskonałego wykończenia), beton stanowi bardzo rozległe pole badań, które wciąż może być zgłębiane i dokładnie analizowane.

W artykule omówiono przykłady starszej architektury (pierwsza połowa XX wieku) oraz dzieła włoskiego architekta, który przeniósł najnowsze techniki budowlane do Australii (druga połowa XX wieku). Oba przykłady ukazują niezwykłą naturę tego materiału.

*Słowa kluczowe: technologia betonowa, technologia architektoniczna, płyty prefabrykowane, Bolonia, pierwsza połowa XX wieku, Sydney, druga połowa XX wieku*

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In its history, cement had many uses and many different ways to appear.

Since it was *armed*, as it is said in Italian or French, or *Stahlbeton* in German, or *re-inforced* as it is said in the Anglo-Saxon countries, in a less bellicose way, it has certainly become the most important material of the last century, at least in Europe.

The starting point of this meeting is very meaningful, where we remember the deep theme of *transmutation*:

“*The dream of transmutation, the transformation of one (common) thing to another (superior) one has been forgotten*”, tell us the organizing committee, but *to transmute* basically ...*to change from one nature, form, substance, or species, into another...*<sup>1</sup> that is far more than transformation, or transition...

A change like this seems to be much more related to life than to the apparent coldness of the stones. But is the work of architecture, and like all the things of life, between the simple and the complex, as between the common and the superior, the borderline is very small, and it is easy to slip from one meaning to the other.

This is perhaps the reason why cement has been sometimes the best and often the worst material that surrounds us in the construction world.

It possesses great qualities. But we have to compare these with its “defects”, defects that are less obvious today, but perhaps more important, and are making it less used than in the past for valuable buildings.

In fact, its wide use, which was made possible by the quality of skilled workers of the last century, and the way in which work was organized in the construction site, is today more difficult to control.

Outlet and quality of concrete, drying, hardening: a long series of steps to be followed on the spot, and which are very difficult to control later.

Concerning the type of contracts necessary in this new century, cement is becoming a more and more “dangerous” material, making it difficult to control in the various stages of the construction contract.

Yet, it has come to very high levels, both architecturally and technologically.

I would like to show some apparently opposing, now ancient, far-reaching examples over time. The examples, however, refer to the quality of the material, certainly not as we will see, to the importance of architecture.

In Bologna, we look at some buildings that, at that time, represented *modernity*.

In Sydney, 50 years later, realized with great craftsmanship, by an Italian of great spirit, we look at some buildings that, in their turn, represented *modernity*!

All are very *ancient* today...

It is interesting to see the ornamental and decorative level that this material could achieve at the beginning of the twentieth century.

Fifty years later, however, it was used on the other side of the world (there, *down under*!) for the first time for something that was not paving or foundation, but to transform in decoration the first on site precast panels that were realized there.

The new buildings of Via Rizzoli, at the beginning of the twentieth century, realized in Bologna after a controversial work of building demolition and consequent enlargement of

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<sup>1</sup> Webster’s New Collegiate Dictionary, Merriam co. Pub. 1949.

an urban axis that was to become fundamental, and which was already part of the ancient *decumano*, also represented a great novelty in terms of internal distribution as well as urban planning.

They combined, together with a strong speculative interest, a great deal of new urban features, as they concentrated many different and important activities in the new blocks; all the activities that would become important in the centres of all cities, and which were already in the big metropolis.

Shops, offices, cinemas, theatre, cafes, residences... the whole new city in a single block. Especially offices as well as meeting and entertainment areas were organized in a completely new way.

All that was accomplished with a typically eclectic architecture (perhaps a bit heavy for some), I would say generally accepted – but never particularly loved, that helped to hide its great technical and innovative qualities.

These were the first buildings in Bologna with a structure entirely made of reinforced concrete, but at the same time, used all the different qualities of cement and its various mortar compounds to make on-site or prefabricated elements, for all the decorative features. Even today, you will struggle to distinguish real stones from the artificial ones (as they were then called).

But, then, the term *artificial stone* was more traditionally precise – a bit maximalist we would say today – and among the *artificial stones* were also numbered all bricks.

How the concrete could be used to make artificial stones, decorations or much more, is more difficult to understand today, but it was delegated to individual operators and probably left a little to the “professional secret” of the best craftsmen and the best companies.

An example, from the manual of Levi, one of the most important and used the early twentieth century in Italy<sup>2</sup>:

*“a) Pietre artificiali svariatissime, che si ottengono gettando entro apposite forme smontabili, il calcestruzzo convenientemente impastato, e comprimendolo sino a che rifluisca sulle facce uno straterello di malta, che ricopre l'interna ghiaia o pietrisco. Si preparano così di getto blocchi per muraglioni, blocchi minori, pieni o forati, per muri comuni e tramezzi, conci per volte, nonché pietre decorative o di finimento di qualsiasi specie, quali stipiti, pezzi per cornicioni, capitelli, balaustre, mensole, ecc. per la fabbricazione di mattoni pieni o forati in cemento, sabbia, e ghiaietta, di tegole piane in cemento analoghe a quelle laterizie, di piastrelle grezze o colorate a disegni, si hanno svariatissimi tipi di macchine, che permettono una rapida ed economica produzione.”*

As you can see, this is quite a generic explanation, that commits the final result to the builder's quality and abilities, and especially to his true craftsmanship qualities, even for a mechanized job.

### **Bologna, Palazzo Ronzani, detail (ill. 1).**

In Bologna one of the first interventions of this kind is the Palazzo Ronzani, realized on the project of Gualtiero Pontoni and Ettore Lambertini, at the corner of the new via Rizzoli, following the demolitions completed in 1911, of the ancient buildings placed along the Mercato di Mezzo and via Orefici<sup>3</sup>.

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<sup>2</sup> Ing. C. Levi, *Trattato teorico pratico di costruzioni civili, rurali, stradali ed idrauliche*, Ulrico Hoepli, Milano, IV edizione, 1917.

<sup>3</sup> Da Fabrizio Apollonio, *Sostituzione edilizia e ristrutturazione urbana. Palazzo Ronzani*. Parametro n. 198, Sett/Ott. 1993.



This building, a forerunner of the later achievements that characterized the modernization of the city centre, became the emblem of a “new Bologna”, the quintessence of private speculation that distinguished the entrepreneurial fervour of the emerging bourgeoisie.

It was the building with which, with clamour and resonance, the new ruling class renewed its image and confirmed a definitive evolution towards modernity and progress.

The project indeed fully and proudly reflects its *modern* character, both in stylistic and technical-constructive terms. Here, however, the term *modern* refers to the meaning it could have at the beginning of the twentieth century, not to what then assumed over the century, with the success of *rational architecture*.

In fact, in the renovation and replacement of buildings, which are accompanied by the emergence of new commercial arteries, there is a temporary space of architectural presence where themes and motifs of Parisian and Viennese origins are introduced.

Decorative ornaments, made in ceramic by Arturo Colombarini, show the *modern* character of the intervention. Not usually, elements that emphasize the commercial destination of the building are juxtaposed to others that express the character of the time just opened: the two winged male figures that embrace the arched windows of the noble floor, hold one *caduceus* – the winged rod with the two twisted snakes that is Mercury’s symbol – and the other a valve of a steam engine, symbol of the new era.

From a constructive point of view, the building is particularly demanding, on the one hand, to meet the needs of the client, who required the maximum profit from the commercial point of view, and, on the other hand, to solve the problem of building such an imposing volume.

The size of the building and therefore the need to be equipped with the appropriate foundations merges happily, with the utilization of the underground volume.

This palace is a forerunner of the subsequent achievements also from a technical point of view. For the first time, in fact, an entire building in Bologna was built in reinforced concrete.

Over an area of over two thousand square meters can thus be found a varied set of functions: at the underground, there is a cinema room for about two thousand places; on the ground floor, along with the cinema foyer, a café-concert-brasserie, a dozen shops, a restaurant and an hotel that also occupied the upper floors; offices, studios and warehouses used the mezzanine and part of the first floor; apartments were housed on the remaining floors.

### **Bologna, Palazzo del Commercio, detail (ill. 2).**

The other two blocks, going to the *Two Towers*, less famous for a less eclectic engagement and for a lesser-reaching position in the centre of the city and its square, were equally important for the distribution and production techniques used. Even in these buildings, a maximum

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Ill. 1. Bologna, Palazzo Ronzani, detail

Ill. 2. Bologna, Palazzo del Commercio, detail

Ill. 3. Sydney, Australia Square, 1963

Ill. 4. Sydney, Martin Place, Prudencial building, Elisabeth St. 37 – 33 (circa 1978)

Ill. 5. Sydney, Martin Corporation, 201 Elisabeth St., Park St. corner 1970 (arch. A. Kahn & Associated)

Ill. 6. Sydney, 1–19 Oxford St

Ill. 7. Sydney, Young Street 9–13, Whincombe Carson

Ill. 8. Udine, ex Blanchini

use of decorations and artificial stones was made, all made of concrete, with techniques that today seem us very difficult and almost unrepeatable.

On the other side of the world, and fifty years later, the architect Rinaldo Fabbro (1922–2016)<sup>4</sup>, emigrated in Sydney in 1949, where he could not directly exercise as architect for the lack of recognition of the title (and perhaps also for many different planning habits), did his best devoting himself to working with cement and reinforced concrete, materials that he knew very well by his tradition, today we would say that he had them in DNA, as his grandfather seems to have worked in the cement structures of the Tsar's Mint.

Fabbro dedicated his work to prefabricated buildings and, starting from early examples of mosaic and similar decorations, and special structures (including cement barges for the military navy), and moving on to increasingly complex buildings, arrived to use in many examples in Australia and other eastern regions, concrete prefabricated panels, almost importing into that area – accustomed to other constructive systems – concrete used for other things besides pavements.

His buildings, dating back to the 1960s and 1970s, nowadays are perhaps a little artisanal, compared to the contemporary ones in Europe, even if in their great industrialization, but were exceptional in terms of capacity, inventiveness and fantasy, in an apparently closed field, in that part of the world.

In 1956 he founded a company, Fabbrostone PTY LTD, and became so pioneer in Australia for many new techniques, linked to cement. The necessary factories were made, first in Sydney, then in Canberra and Melbourne. Approximately 500 people were employed.

Great and diverse work was done in Australia, but also across the sea, in New Zealand, Fiji Islands and New Guinea.

Looking at the panels, façades and buildings he built over the years, and comparing them with what was around and what was accomplished then in Sydney at the time, we can really understand the value of his work.

He started from below: looking for the right men and the right pebbles for the surfaces he would then make.

Organization and architectural technique together.

Always trying to solve new problems. Because every time he invented something new.

In the pictures shown here, it's good to see how many panels and the many details, which in the general scheme may seem very similar, are always different, in form and technique: for each façade he invented a new surface. The base is prefabrication, but there is always a way of working related to the dexterity of the craftsmanship.

### **Sydney, Australia Square, 1963 (ill. 3).**

For its new skyscraper, Arch. Seidler looked for a different surface and asked Fabbro if he could use a concrete *coating* applied to the structure<sup>5</sup>.

But Fabbro suggestion was completely different: to realize prefabricated, “to lose” panels, with externally worked surfaces that are perfectly precast and serve as external moulds,

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<sup>4</sup> A. Pratelli, (*Rinaldo Fabbro*) *Una storia down under: Lavoro, architetture, tecniche*, capitolo in “La Valigia dell’Architetto. Omaggio a Rinaldo Fabbro”, Comune di Magnano in Riviera, UD, 2012.

<sup>5</sup> *Two Towers. Harry Seidler: Australia Square, MLC Centre*, text by Philip Drew, Photography Max Dupain, Horwitz Grahame Books, Sydney, Karl Kraemer Verlag, Stuttgart, 1980.

while at the same time making perfect finished surface. Only in this way the work could last a long time.

He also suggests hearing Pier Luigi Nervi in Italy, for confirmation. Nervi – and we realize it now back in time – had just concluded, admired all over the world, both the Palazzetto dello Sport of the Olympic Games in Rome, and the large buildings destined to remember the hundred years of the United Italy. Those structures were absolutely innovative.

Nervi confirms the great value of Fabbro's suggestions and will end designing the structure of Australia Square (in the low floors ceilings we can still recognize, as new, its touch).

If we stop a moment to study the work for this very important cylindrical skyscraper, we can highlight some of the most important technical innovations imported in Australia by Fabbro.

Due to the height of the building in the central area, it was not useful to apply coatings or plastering, as it was then in use. Fabbro used large precast open concrete moulds, with a perfect external cement finish and white quartz chips, which, on the one hand, serve as extremely durable finishing panels, on the other hand are used as mould to lose: In them, the ironed structure is *drowned* or laid; this saves time and ensures a perfect finish. After many decades, the panels can be washed again and come back as new.

If in his work the panels are of many different types, this basic idea is almost always present, and winning. Quartz for the “cobblestones” of the outer coating, panels all prefabricated and all different for the big pillars. He, who had to prepare the panels, to save on the material, suggested the shrinking upward of the pillars. Doing so the panels have to be always different, tightening upwards. The pillars thus stand up in a form that just get noticed, very lightly flaring downward. They give the structure a slight movement that still makes it today brand new.

Today, as then, the large prefabricated slabs are perfect and if we look in the right way and with the right light, we can see from the shadow that the surfaces are not flat. A secret you almost don't see, but you can appreciate without knowing it, in this exceptional structure. (Structure Fabbro Ferro Cement, 1968)

**Sydney, Martin Place, Prudential building, Elisabeth St. 37–33 (circa 1978) (ill. 4).**

Here, the architect, A. Williams, wanted a surface of sand colour, then chiselled. A factory bench for the panels was prepared, then a big *comb* was built. The *comb* was then passed over the panels before the last cement grip, making this very particular finish, which makes it alive and vibrant, despite its simplicity. The panel is box-like, concave.

**Sydney, Martin Corporation, 201 Elisabeth St., Park St. corner 1970 (arch. A. Kahn & Associated) (ill. 5).**

Fabbro realized the particular striped panels here, putting a wall of ropes on the formwork decks: from this stratagem comes the particular, vibrant and new vertical texture. Still today a modern example. The particular panel's finish gives great strength and durability to the surface.

**Sydney, 1–19 Oxford St. (ill. 6)**

Horizontal panels in red gravel. But the live concrete panel pillars have been chiselled by hand after their production, the result being an extremely alive surface, much less *dull* than what would come from a simply industrial production.

When Fabbro was saying “I have changed the face of the city,” citing his countless façades, he certainly said the truth. Even though the city has since then changed its face again.

However, many things seem to us to be exceptional (as in fact are) if we realize the period and the place in which they were made.

In reality, when I met him – he was already 90 years old – Fabbro still seemed young, and in a sense appeared to have just emigrated, not because he looked like this (he was actually a citizen of two worlds) but for the spirit that accompanied him and his gaze, that looked far away; as it was still in the days he left.

Remember the introduction to this meeting: *the dream of transmutation...*

**Sydney, Young Street 9–13, Whincombe Carson (ill. 7).**

The coating is made on site; it has recently been washed and well cleaned, still perfect.

Here you can understand something about the man.

That's how I like to see Fabbro (90) putting his palm on the surfaces he made forty years earlier, and touching it and feeling it is still perfect, the satisfaction of a job well done: this – more than the architectural significance – is the teaching he can give us.

Looking at these many examples, we can understand how cement can be “dull” when used indifferently, and how much it can be alive when used wittily (can be said so?) and with true craftsmanship (nowadays, to speak with contemporary narrative one would say with *passion*, if not with *emotion!*).

But always the matter of things, if seen in the detail, can tell us many stories.

From fossils in a stone we can understand very ancient phenomena.

The same, sometimes, from our artefacts.

Let's look at this step.

**Udine, ex Blanchini (ill.8).**

We are in an old school, now used in Udine for Courses in Humanities and Education.

In many Italian towns, old elementary schools (or similar) are now used for University teaching, and usually, in their *dull* simplicity, they are also the ones that work best, usually more comfortable than those invented in the last times for New Universities!

Here the staircase's steps are, after almost 100 years, made of cement grit.

This means that the real steps were prefabricated, while some absolutely identical thresholds were probably laid on site, most likely almost at the same time.

From here some details that today almost slip us, but show the mastery of the ancient master builders.

Here a threshold (the elevator you see alongside is obviously new...).

What could have happened to the little dog that then (I imagine with the rage of the bricklayers) ran twice (in both directions) on the newly laid concrete grid?

Who knows, maybe the second time he ran there, was when, scared by the screams of the attendants, he ran back on his steps...

Even the production that uses the highest industrialization and innovation needs the best quality craftsmanship, and can tell a story.