Abstract

The second half of the nineteenth and early twentieth centuries architecture faced the challenge of responding to the demands and the technical and aesthetic innovations associated with the emerging industrial reality. This panorama of transformations and formal experimentation was associated, among other things, with the diffusion of Art Nouveau. In Brazil, the style had little appropriation among the architects, gaining distinction, however, through the architecture produced by Victor Dubugras. Numerous projects conceived by the architect incorporated a language that combined an impressive resourcefulness, in what refers to the articulation of the aesthetic formulation with the constructive development, synthesis found in one of its most symbolic and representative designs: the Mairinque Railroad Station. This article makes a reading of the plastic and constructive characteristics of this building. It also investigates how a series of interventions executed in the building compromised the original design as a single, sober and cohesive element. It shows how, a landmarked building, the structure of the construction is preserved, but the subtle composition of its spaces and details – colors, textures, frames, etc. – was lost and with it, perhaps, the main quality of the design.

Keywords


DOI: HTTP://DX.DOI.ORG/10.11606/ISSN.2317-2762.v24i43p12-31
RESUMO

Na segunda metade do século XIX e início do XX, a arquitetura viveu o desafio de responder às demandas e às inovações técnicas e estéticas associadas à realidade industrial emergente. Esse panorama de transformações e experimentações formais associou-se, entre outras coisas, à difusão do Art Nouveau. No Brasil, o estilo teve pouca apropriação por parte dos arquitetos, obtendo notoriedade, contudo, na arquitetura produzida por Victor Dubugras. Grande parte dos projetos concebidos pelo arquiteto incorporava uma linguagem que associava uma expressiva desenvoltura, no que se refere à articulação da formulação estética com o desenvolvimento construtivo, síntese encontrada em um de seus projetos mais simbólicos e representativos: a Estação Ferroviária de Mairinque. O presente artigo faz uma leitura das características plásticas e construtivas dessa edificação. Investiga, também, de que forma um conjunto de intervenções realizadas no prédio comprometeu a concepção original do projeto como um elemento único, sóbrio e coeso. Mostra como, tombado, o arcabouço do prédio está preservado, mas a composição suíça de seus espaços e detalhes – cores, texturas, esquadrias etc. – foi perdida e, com ela, talvez, a principal qualidade do projeto.

PALAVRAS-CHAVE

I. Introduction

Among the profound impacts of the Industrial Revolution are those that affected architecture, reflecting in innovations of techniques, languages, programs, typologies and building materials, such as concrete, glass and iron. New programs and typologies - such as railroad stations and industries opened a field of experimentation in architecture “where the technique could be applied with greater freedom and daring, and its typological definition was influenced by the possibilities presented by the new materials [...]” (FINGER, 2013, p.152, our translation.)

We will never be able to perceive the real nature of the period from a study of its public buildings, government residences or monuments. Instead, we must turn our attention to the analysis of more modest works. It was in routine constructions, intended for purely practical purposes, and not in the Gothic or classical “revivals” of the early nineteenth century, that decisive events took place. Events which would lead to the development of new potentials (GIDEON, 2004, p. 192, our translation).

In this context, the Art Nouveau style manifested itself as one of the new possibilities and changes in expressions of thinking and making architecture. It happened simultaneously in several countries of Western Europe and America and received different denominations: it was known as “Liberty Style” in England, as “Jugendstill” in Germany, as “Sezession” in Austria, as “Style Nouille” or as “Art Nouveau” in France, as “Arte Nova” in both Portugal and Brazil, and as “Stile Liberty” in Italy.

The style developed as a disruption with the architectural revivalist and the historical trends that preceded it, for seeking to figure as an expression of the present or even to propose futuristic points of view (BARILLI, 1991.) Art Nouveau is considered by Barilli (1991) as a process of regional experiments linked to the use of available technical innovations, thus involving aesthetic characteristics and diverse theoretical formulations. Exploring the formal possibilities of the new techniques, Art Nouveau qualifies as one of the first attempts to replace the classical systems enshrined by Beaux Arts.

According to Champigneulle:

[...] The ways their forms of expression deeply reflected the individualism of the authors. They set out to an adventure, each one following their personal techniques, temper, sensitivity, reflections, spiritual tendencies and their own means of expression. By creating a modern art applied to their time, they surrendered to the futureless accomplishments, which, are believed to have been done on purpose to disconcert the public (CHAMPIGNEULLE, 1984, p.89, our translation).

In Brazil, Art Nouveau was expressive in the early twentieth century industrial and rail growth. This style was implemented in the country as an “exotic art”, was imported, relying on the intermediation of foreign designers, under the sponsorship of an elite enchanted by the great European metropolis. Among the few style-related architects are Karl Ekman and Victor Dubugras.

Born in Sarthe, France, Victor Dubugras (1868-1933) had his professional training in architecture in Buenos Aires. In 1891, he went to São Paulo and
The present article brings partial results of an ongoing master’s research.

The association between railroad architecture and iron architecture was a major theme in works developed by authors such as Silva (1986), Costa (1994) and Kühl (1998).

Pursued his career. He first worked at Banco União as a real estate portfolios agent along with Ramos de Azevedo. Around 1895, he started working at the Department of Public Works of the State of São Paulo, where he designed a series of projects for primary schools, prisons, forums and city councils. In 1896, he opened his own office, developing, since then, several private projects, among which several residences in Avenida Paulista, Vila Buarque and Higienópolis, in São Paulo stand out. In 1902, he designed his first work which was considered as a transition between eclecticism and Art Nouveau: Vila Uchôa.

The architecture developed by Dubugras distinguished itself for the association of different tendencies which would cause him to work experimentally and to seek expression according to the constructive processes employed. Throughout his career, the architect used Neogothic, Art Nouveau and Neocolonial repertoire, in consonance with the various stages of Latin American architecture from the nineteenth and first half of the twentieth centuries.

Dubugras did not choose a narrow “vocabulary”. There are no ready-made or exhaustingly repeated solutions; nor is there a landmark that runs through his career. If there is any constancy, it would be the incessant search for innovation. Each project consists in a specific research that approaches the techniques, the forms and the sensitivity of the architect at the moment of creation (MIYOSHI, 2012, p. 91, our translation).

In the extensive production of this restless professional, the architecture historiography has consecrated the Mairinque Railroad Station as his most exciting project, which is constantly pointed out as exemplary and innovative. For this project, the architect articulated the potentiality of unpublished forms, revealing a great resourcefulness in the use of the Art Nouveau vocabulary.

Given the unique characteristics of the Mairinque Station in the context of the Brazilian railroad stations, this article intends to present, at first, a reading about the design project proposed by Dubugras, addressing the architectural concept employed, the assimilation of Art Nouveau and the use of new technologies. Further on, there’s an evaluation of the impacts caused by the changes on the language adopted in the building.

2. ATTITUDE, METHOD AND PROJECT

The railroad architecture implemented in Brazil was strongly influenced by European models since it was inspired by its programs and forms, applying new constructive techniques and industrialized materials.

Both in Europe and in Brazil, much of the railroad architecture produced adopted a juxtaposition of plastic solutions in the same complex. Bem (1998) points out that while the main volume of the buildings uses masonry and architectural styles of the past, the most advanced technological and material resources were applied in the roofs that sheltered the embarkation platforms, due to the lack of tradition and specifications of the program.

The spatial and plastic designs frequently adopted by Brazilian railroad buildings were influenced mainly by English references, by having a primarily rectangular volumetry of one or two floors, with the main facade symmetrical and valued in...
Due to the great number of divergences found in several authors and works regarding the date of the project and its inauguration, this article presents the periods indicated by Kühl (1998) and Reis Filho (1997) and the one presented under the Lardmark Designation no 24383/86, for they are in compliance with what was detected by the study’s authors.


The Mairinque Railroad Station, designed in 1906 and inaugurated in 1908 in countryside São Paulo, differs from this standard. However, when inserted to the production of its designer (Victor Dubugras) it is exceptionally better qualified. It is possible to evaluate that the design attitude assumed by Dubugras in this project was not an exception in his production. The architectural approach adopted for the Mairinque Station complies with the one held by him during the twentieth century, when he developed an architecture of bias that was clearly functionalist, emphasizing constructive aspects, suggesting an ornamentation that did not make concessions to merely decorative appeals. The architect used ornaments, but never failed to integrate them to the volumetric composition.

The language simplification did not mean framing projects into simple geometric forms, as would later occur. One of the characteristics of his works is precisely the intense exploration of the possibilities of the volumetry, opened by the new forms of implanting the buildings on the ground and by the usage of new constructive techniques (REIS FILHO, 1997, p. 62, our translation).

For Mairinque Station’s design, Dubugras uses a volumetric tripartite system (Figure 1), through a central rectangular volume flanked by two curved and symmetrical lateral volumes, whose parts unite in a composition by juxtaposition, which results in the reading of the building as a unique object.

Once the building was positioned between the railways, the access to the station was solved by an underground passage, which ended up helping the island-platform station not to have front, lateral and back façades. This symmetrical volume without corners dismisses the hierarchy of façades and erodes the very notion of it.

Its architecture indicates the adoption of a functional approach, but it is tied to formal treatments with schemes of curves, straight and simple lines. The main rectangular volume, covered in dome, is illuminated by a large glazed panel with a central position in the volume, to which clocks have been incorporated. The clocks were considered as a symbol of the industrial world and the organization of rail transport and were placed on façades and internal spaces of railroad stations, as well as in factories and schools.

Four turrets supported on pylons and finalized with flat slabs were added to the composition. Although, at first, they appear purely ornamental, the turrets...
shelter the water reservoirs and would also serve as a support for the passage of the telegraph lines. Therefore, they are an example of formal treatment of a functional demand in order to mask its use. As Toledo (1985) observed, these turrets, although secondary, emphasize the composition of the building's volumetry.

Despite the fact that many Art Nouveau buildings presented elements applied as ornaments, in Mairinque Station there is an obvious intention to reconcile aesthetic to functional demands. According to Nestor Goulart Reis Filho, "the only purely decorative elements in the station, besides the large glazed panels, were the fillets in the plaster of the tower, which were repeated in the interior, marking the stems of the pilasters and columns and the corners of the walls" (REIS FILHO, 1997, p. 65, our translation). Considering that they have received a significant treatment, the panels were used for the interior illumination. The decorative function could be limited to the fillets.

Two lateral volumes, smaller in height and larger in longitude, complete the composition. Built as modular and rhythmic elements, they have a plastic force that has already been pointed out:

[...] These, in their upper part, present a series of pilasters finalized by straight beams, which support a practically flat cover [...] The structural elements were deep enough to ensure, on the outside, the installation of a bench between each one of the windows [...]. These volumes reveal the presence of a complete domain of the plastic language [...] (REIS FILHO, 1997, p. 65-66, our translation).

Though designed as symmetrical volumes, the shape bending of the lateral volumes is discontinued in the lower part of the composition (Figure 2), by the variable rate of openings resulting from the needs of the program they housed. In one of them, the warehouse did not require many openings; in another one, the buffet exhibited wide doors and benches along the blind walls. The series of benches confined between the wall and the pillars is another example of the mixture of constructive elements, functional needs and plastic treatment.

One of the components that reinforce the peculiarity of the volumetry proposed by Dubugras was the large cover of platform protection, which presents, when extended, the same sketch of the limit volumetry. Executed in cast iron and suspended by steel cables linked to the volume of the building, this cover surrounds the entire Mairinque Station. Bruand states that “it recalls the affection
that Dubugras displayed for Art Nouveau" (BRUAND, 1997, p.49, our translation.) In fact, the entire project is committed to this language, with which the cover is in compliance with. Sueli Ferreira do Bem (1998, p.385, our translation.) points out the importance of this cover in the qualification of the platforms, which is no longer treated as "[...] an element attached to the building, it is now engaging and flows all around the elliptical central volume [...]". In fact, with this delicate cover, Dubugras integrated the platform into the building, without compromising its unity.

In his precise description of the building (Figure 3), Nestor Goulart Reis Filho observes that in the building’s upper part, above the cover of the platforms, "[...] the structure’s interspaces were divided in half and protected with small blades, like ‘brises-soleil’" (REIS FILHO, 2005, p.32, our translation.) These brises not only allow a controlled lighting and ventilation to the interior, but also ensure lightness to the two lateral volumes.

The rhythm of the pillars foreshadows a modular structure, reinforced by the insertion of apparent pluvial conductors regularly placed towards the face of each one of them. The concrete benches are restricted to a slab, and set between the pillars beside small fillets drawn on the columns. They compose several horizontal lines, that dialogue directly with the strong vertical lines represented by the columns and pluvial conductors which, in turn, are integrated to the platform cover’s structure. This set draws a harmonious system of parallel and perpendicular lines, with different materials and thicknesses, which is also integrated by the ribs of the aluminum tiles.

These design choices gave the building a delicate balance between straight and curved, full and empty, and horizontal or vertical lines and shapes.

As already brought up by Reis Filho (1997), the modulation is also present in the organization of the interior of the building, where the author highlights the innovation at partitions of the ticket offices in the central hall, by the use of a modulated structure of vertical metal parts, integrated to smooth concrete and glass plates. According to the author, such models would be similar to those later used in offices in São Paulo in the 1940s and 1950s.

Figure 3: Full volumetry of Mairinque railroad station. Source: drawing made by the authors (2017).
Toledo (1985) indicates that Dubugras’ project for the Mairinque Station expresses congruence with designs developed in the same period in Europe that followed an *Art Nouveau* stand more committed to rationalism and geometry. The author points out a link between the station with the works of Joseph Maria Olbrich, especially the Secession Haus (1897) and the Stoclet Mansion (1905) by Josef Hoffmann. About these, it may be added that while the Stoclet Mansion uses a relatively simplified ornamentation – rhythmic openings, well defined vertical and horizontal lines in a partially symmetrical composition – the Secession Haus incorporates, at the upper portion of the symmetrical volumetry, four towers that surround a large dome and accommodate a vaulted structure.

Among the projects that are similar to the Mairinque Station there is an unbuilt theater designed by Charles Rennie Mackintosh for the Glasgow International Exhibition of 1901. For its design, the architect uses few ornaments and inserts four towers, with two different typologies at the building’s extremities. Each tower show geometrized lines and is finalized by slightly curved slabs. However, while the two frontal towers have circular volumetry, the two posteriors have orthogonal volumetry. Another attribute of the project which demonstrates proximity to the Mairinque Station, is the large arched glass panel, in the central volume and in the marquise cover.

In this sense, it is incontestable that Dubugras closely followed the international production and was committed to the purposes of a close articulation between form and technique, as already observed by Bruand:

> It is evident that he maintained a continuous contact with Europe, through specialized art or scientific magazines, always preserving a balance between the formal and the constructive aspect itself (BRUAND, 1997, p.50, our translation).

Depending on the perspective, Mairinque Station can be attributed to the *Art Nouveau* style or identified – such as Reis Filho (2005) did – as a protomodern work, since it is a building totally built in reinforced concrete, using concepts like modulation and rationalization of components.

### 3. Intervention x Project

The Mairinque Railroad Station has been evaluated by historiography as one of the main *Art Nouveau* buildings by the architect Victor Dubugras and the most innovative architecture project developed by a railroad company in Brazil. In the historical narratives about Brazilian architecture, the constructive and plastic characteristics of Mairinque Station are, for the most part, valued by the precocity of solutions and the expressive plastic quality of the building.

Following this interpretation, Benedito Toledo (1985, p.6, our translation) considers the Station as “one of the most evolved architectural manifestations of its time”.

This representation of the Station was well-established since its building. Reis Filho (1997) points out that the design was enthusiastically received at the time.
of the Station inauguration, proving that the contemporary architects were aware of the innovative aspects of this work. In this sense, Segawa (2014, p.33, our translation) points out that “the most surprising writings impregnated with an early modernity were made about the work of the architect Victor Dubugras”.

In an article published in 1908 in the Polytechnica Magazine about the recently inaugurated station, Pujol Junior gives a detailed and complimentary description of the work, which proves the attention drawn by the building:

*The general external composition of the building is, on top of everything else, extremely original and well-succeeded. The central volume that rises in a widely illuminated by large glazed panel in full arc hall; the two semicircular secondary volumes perforated by large doors and by a series of small openings in shutters; the upper bodies in bow-windows, attached to the hall; the elegant and light porch that surrounds the whole building, extending its inviting shelter over the gare and, at last, the most curious element, the interesting turrets that rise to the corners of the main volume: everything joins together and completes naturally, effortlessly, composing an set full of originality, elegance and vivacity; a set that reveals all the simplicity of the internal disposition, which brings the first sight, given the distribution, the comfortable, airy and light and full of criteria interior; which […] in the simplicity of its quasi-geometrical ordering, immediately resembles the new material with what the work is made of - simple reinforced cement […] simple in its composition lines* (JUNIOR, 1908, p.188, our translation).

It was, therefore, a work well received by its contemporaries and reaffirmed as exceptional by its characteristics and the contrast with the nationwide architectural production of the time in which it appeared by researchers who dedicated themselves to study it through more accurate analysis.

According to Lynch (1999), a “milestone” has as its fundamental attribute the condition of singularity. That is, aspects that express unique qualities in the context which it is inserted in, making the work recognizable and identifiable.

Under this perspective, Dubugras’s project is undoubtedly a milestone when it foresees specific and original characteristics when compared to the constructions of the period in which it emerged.

The recognition of its significance as a building of exceptional architecture led the Council for the Defense of Historical, Archaeological, Artistic and Tourist Heritage (CONDEPHAAT) and the National Institute of Historic and Artistic Heritage (IPHAN) to preserve it in 1986 and 2002 respectively. The building, though in poor condition, remains preserved in its general characteristics. However, it has endured alterations that, despite reversible and inexpressive, has affected the Station deeply. These alterations are minor, carried out diffusely and sometimes tenuously, but when grouped, they intensify and potentiate the *sui generis* commitment of the building.

Certain interventions, that compromise a great deal of the landmarked building’s integrity, are: the replacement of the two clocks by panels of stained glass; the painting of walls and fillets; occultation or accentuation of pluvial conductors; the replacement of the stained-glass windows and turrets, the alteration of the lobby through the implementation of walls, and the removal of the ticket offices.
A symbolic and fundamental item in the composition of the railroad stations was the clock. Symbolizing the linear time that governs the industrial world and the railroad system, the clock was systematically placed in towers or façades in railroad stations. In Mairinque, the building had two clocks, one on each side of the volume, exactly centralized.

Both clocks were suppressed and replaced by colored stained glass. Because of such replacement, a new detail was introduced to the composition, which, even though it didn’t deface the initial form, changed a decorative detail of a railroad world symbol and a mark of stations.

The large glazed panels that compose the entrances to the lobby were also altered (Figure 4). The originals ones were described as “[...] light green cathedral glasses giving a pleasant internal light and a harmonious tone to the exterior with the color of the walls” (JUNIOR, 1908, p.191, our translation).

These glasses were replaced by a translucent material, without the “scale” arrangement of the original. Thus, in addition to the suppression of the instigating panel’s shape, the lighting conditions inside the lobby were altered.

Regarding the handling of external surfaces, Pujol Junior (1908, p. 192, our translation) observed in 1908 that “the exterior plaster is made of white Lafarge cement and coarse sand, gotten after two sieving, offering, thus, a homogeneous grain”. Through this excerpt and through the analysis of photographs taken in the period of its construction, it is possible to verify that the surfaces and the painting of the building were conceived as a way of evidencing and ascertaining a notion of the composition’s balance and unity. The materials used and the way they were applied are not only understood as the determination of the formal specificity of the building, but also are organized as part of the development process of the constructive techniques from the period.

This aspect of the original construction has not been preserved. Through the various paintings executed in the lower part of the station volume (Figure 5), it is possible to conclude that the color was changed and the volumetry was sectioned, and began to transmit a horizontality not foreseen in the design. The benches lodged between the columns, in turn, lost the visibility that the clear wall once provided. A distinct formal configuration was created, diminishing elements and shapes that were accentuated by the original painting.

Figure 4: Clock replaced with stained glass.
Source: A (FAUUSP Library’s Collection), B (CONDEPHAAT, 1986), C (Authors’ collection, 2016).
In the original design, the lower portion of the turrets featured a series of refined ornamental fillets that created texture (Figure 6), but not sharp contrasts.

Through paintings on the turrets’ components, the simple lines of the fillets in the plaster were emphasized by coloring the internal relief of the ornaments, producing a series of specified plans that were granted greater visibility in the construction and produced a clear dissociation to the adjacent elements.

The turrets had their light green glass replaced by another with a more accentuated color. This was another attempt to “improve” the building, not taking into consideration that such alterations do not match the original sobriety that characterized it. There was also dissociation with the glass panel of the central volume: originally the turrets and glass panels bore light green glasses. This element, now, is composed by transparent glasses, and those glasses present intense greenish coloration.

Similarly to some exterior plastic features that were distorted by the painting, the action by constructive interventions is also noticed. This was the case of the intervention seen in the pluvial conductors (Figure 7). Dubugras proposed that circular conductors would be attached to the front of the pillars, accentuating the modular and rhythmic language of the structure. However, this constructive plastic resource was removed from the volumetry. To substitute the originals, rectangular conductors were attached to the pillars’ sides, semi-embedded in a masonry protrusion that does not match with the initial approach.

Figure 5: The proposed volumetry and the different results obtained with the implementation of paintings in the volume of the station.
Source: A (FAAUSP Library’s Collection, 2015), B and C (CONDEPHAAT, 1986).

Figure 6: The original turrets had subtle little details that did not counteract the original sobriety of the building.
Source: A (FAAUSP Library’s Collection, 2015), B (CONDEPHAAT, 1986), C (Authors’ collection, 2015).
The pillars operated the same type of inverted reading found in the turrets, since the reliefs delimited by the delicate fillets had their painting reversed. They received, therefore, a highlighting they did not possess in the original composition.

This elimination of vertical lines represented by the water conductors and the widening of the horizontal strips accentuated the horizontality of the construction, which can be understood as a “modernist” intervention.

In a second intervention, the conductors were returned to their original places. However, painted in bright red, these vertical elements rise in the construction and do not recover the balanced association with the original pillars.

The space of the Station hall had its shape and sense deeply affected. The large sequential openings that connected the central volume to the lateral volumes were constructively changed when closed with masonry, extinguishing the internal connection between the volumes and creating two niches, that, although expressive, is difficult to read in a station (Figure 8).

The removal of the ticket offices – modular, austere and innovative – resulted in a large void in the interior. These actions have damaged the permeability of the internal spaces, preventing the recognition of the original function of the hall and compromising its reading and plastic qualities.
4. Final Considerations

Victor Dubugras’ work’ contribution to Brazilian architecture has not been granted protection compatible to its relevance attributed by historiography yet. The Mairinque Railroad Station - his most celebrated design either as a milestone of Art Nouveau, or for its association with protomodernism – exemplifies both his merits as a designer and the misunderstanding of these qualities, exposed by interventions conducted.

While most railroad stations referred to elements derived from historical eclecticism in the building’s volume and the new materialities in the cover of the platforms, Mairinque Station escapes from this dichotomy, and uses – firmly and competently – new technologies and materials, both in the volume of the building, and in its cover. The volume proposed by Dubugras evades the standards established during that time as it breaks with the façades hierarchy. The building qualifies plastically for expressing great formal potentiality, integrating functional and aesthetic demands, with a careful use of technical and constructive resources and the vocabulary from the Art Nouveau style.

The delicacy and balance of the building, however, demands care that has not been properly addressed. Alterations, even punctual, have compromised the original conception of the project as a single, sober and cohesive element. Changes in the language of the constituent components – emphasizing or covering them – results in the loss of spatial fluidity and dialogue between the parties that compose the volume outlines an orientation not predicted, leading to an arbitrary detachment from the building as it has been carefully designed. Although the structures of the building are preserved, the fluidity of its spaces and the subtle composition of its details – colors, textures, frames and etc. – were lost and along with them, perhaps, the main quality of the project.

References


Author’s note
Project funded by the São Paulo Research Foundation (FAPESP) – Process number: 2015/02470-0.

Editor’s note
Submitted: 02/25/2016
Accepted: 05/29/2017
English revision: Fernanda Gomes da Silva Sanchez

Amanda Bianco Mitre
Instituto de Arquitetura e Urbanismo. Universidade de São Paulo (IAU-USP).
São Carlos, SP.
CV: http://lattes.cnpq.br/9299879262629565
mitre.amanda@gmail.com

Telma De Barros Correia
Instituto de Arquitetura e Urbanismo. Universidade de São Paulo (IAU-USP).
São Carlos, SP.
CV: http://lattes.cnpq.br/9710818435783855
tcorreia@sc.usp.br