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THE STRUCTURE OF SPACE: CUBISM AND MODERNISM. FIGURES AND ICONS IN JOSEF GOČÁR'S WORK

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Abstract. This research paper relates to a number of works by Josef Gočár, a Bohemian architect who was active in a time period between "Cubist" vanguardism and "Rationalist" modernism.
The theme regards the search for a general method which evaluates the key elements of the structure of space in architectural design. The main asset of architectural composition has traditionally been the close association between the syntactic order of the elements and a semantic perception of space. The aim of this essay is to explore the relation between the role of the experimental design regarding the multiple and changeable architectural experience and the creative process of architectural work.
The methodological experience hereby demonstrated refers to a specific case study that belongs to the scientific research carried out by Gočár and his researchers' group at the Prague Fine Arts Academy (AVU). His work is hereby re-interpreted in an effort to explore the experiential contribution to the architectural design discipline, and the figurative aspect, by reexamining various characteristics of his practical experience as an architect involved in the civic priorities of the city, from the scale of urban settlement to the individual design work.

Keywords: modernism, functionalism, spirit of the place, vanguard, character of space, Czech cubism, structure of form.

Introduction

The investigation had an important role in order to acquire further information, and it is considered a basic instrument of knowledge of the structure that subtends compositional procedures adopted by Josef Gočár. The graphic processes are used as tools for conception, verification, evaluation and communication of the individual project components and the architectural space (Lukeš *et al.* 2010).

This procedure makes it possible to trace the original intuition underlying architectural work, where the ideation is translated into clear typological choices. Form and construction are summarized symbolically in a form of language closer to the formulation of the architectural idea. The investigative method plays the role of a knowledge instrument that verifies the structure that subtends compositional procedures. There are many steps we followed in this investigation. The first step consists of selecting the architecture by principles that follow the main aim of the research, through the analysis based on the study of plans and drawings. Following the identification of the primary sources it is necessary to proceed with two-dimensional drawing reconstruction of the design according to the traditional representation of the architectural project: plans, sections, elevations. Second step: after re-drawing, a work of interpretation based on the proportioning of the elements that compose the project is developed. The resulting schemes are geometric reconstructions checking the correct reproduction and also the critical reading of the architectural work. This allows us to go back over the process used by the architect in the conceiving design project, from the idea to the concept. Third step: after finishing the two-dimensional drawings we proceed to three-dimensional reconstruction of the project, through conventional graphics programs, focusing on an overall reading of the architectural form. Fourth step: the combination of three significant bi-dimensional drawings (a plan, a section and a facade) with the exploded axonometric view derived from the three-dimensional reconstruction and drawn using main construction lines. This procedure makes

Fig. 1. J. Gočár, Villa Glücklich in the Baba district, 1933 – Czech Pavilion at the Paris International Exhibition 1936 – Church and Monument to Tomáš Baťa at Zlín, 1940, re-drawing of ground floor and upper floor plans, cross section, longitudinal section, elevations and 3D reconstruction.

it possible to trace the original intuition underlying architectural work, where the ideation is translated into clear typological choices. Form and construction are summarized symbolically in a form of language closer to the formulation of the architectural idea (Fig. 1).

The research group at Politecnico di Milano[1] have carried out this study by reconstructing some of Gočár's key projects which, for the purpose of greater clarity, have been schematically referred to various stages of his work: an initial "Classical" phase, an intermediate phase which was more narrowly "Cubist", and a final "Rationalist" phase. This division, despite being schematic, allowed us to compare a number of different figurative results (Švácha 1991b), in the belief that there were a number of constants cutting across the bulk of his work[2].

The cubist approach to the space

Anticipating the new figurative tendency of cubism was the magazine Styl, published from 1908 by the Manes Group. Together with the Old Prague Club, of which a key member was the architect Zdenek Wirth – author of the first monographic collection of Gočár's work, produced as far back as 1930 – the magazine was a receptacle for the promotion and affirmation of new talents (Wirth 1930).

An initial issue arises as to the role and contribution of Gočár to the ferment of the avant-garde (Švácha 2000). In order to provide an answer to this, we must consider the phenomenon of "Czech Cubism" (Vybíral 2012) and his cultural contribution to the new approach of the architectural space (Deinhard 1972; Von Vegesack 1992).

At the end of the 1890's, in Bohemia generally and Prague in particular, industrial emancipation was a decisive factor alongside the political reawakening being expressed through intellectuals such as Otakar Hostynsky and Jan Gebauer (Raynaud 1990), together with Tomas Garrigue Masaryk, future president of Czechoslovakia, and others (Toman 1995). This generation of intellectuals succeeded in opening up Prague's horizons to contemporary cultural developments in other European capitals such as Paris, Berlin and Moscow (Lamarová 1978). France, in particular, held a strong attraction in the affirmation of a cultural identity alongside a Viennese influence within the Austro-Hungarian Empire (Benešová 1980). In this mix Franz Kafka introduced the base for escaping Prague's characteristic individualism with his profanation of the angst of Bohemian nationalist misanthropy, while Jaroslav Hasek with his sharp sense of sarcasm made fun of the volubility of the conservative middle classes. The lively political atmosphere of the period was linked to intense cultural activity, especially in association with the manifestos of new programmes for literature, theatre, music and the figurative arts (Švácha 1985b; Lukeš 1990).

We hereby aim to survey key examples of the genuine innovation in architectural experimentation and to provide an area for the comparison of different architectural experiences (Valena, Winko 2006). In this case, the particular scope is the direct investigation of

[1] The reconstructions of the works of Josef Gočár were made by the group of researchers the School of Civil Architecture in the Architectural Design Workshop I under Prof. Domenico Chizzoniti, and the Interior Architecture Workshop, under Prof. Marta Averna, coordinated by Letizia Cattani, Benedetta Govi, Matteo Noviello, Luca Preis, Gaia Preta, Patrizia Rosi. The MOA Laboratory of Politecnico di Milano also worked on the project.

[2] The Prague Technology Museum (Národní Technické Muzeum) has a number of subsidiary archives including the management of several foundations which comprise all the material relating to numerous architects. The Josef Gočár material was kept in an archive by the River Moldava. The flooding of August 2002 caused serious damage to the archive and recovery of the material involved a considerable amount of restoration work. All the material relating to Josef Gočár is now kept at the Museum's main location. Some of the drawings are kept at the Museum of Eastern Bohemia in Hradec Králové, Muzeumvýchodních Čech v Hradci Králové.

the materials, such as the original drawings of the project, photos and architectural surveys, so as to restore its compositional methods going back to the initial creative impulses.

According to Veselý (2005), there is a new possible perspective on Czech pre-war architecture. He demonstrates that few features were strictly shared with cubism in its attempt to approach a universal creativity such as the other contemporary architectural movements in Europe.

With specific research methods and tools of analysis, and taking this idea into consideration, our purpose is to favour previous work, studies and research into single cases or groups of projects. Methodologically this recognition and reconstruction were carried out using traditional items of the architecture material, such as plans, sections, and 3D views, but with the support of an appropriate critical process around the concept of space in order to emphasise the construction of a modern identity in the Bohemian context (Von Vegesack 1992; Toman 2004).

Architecture, in particular in the person of Jan Kotera, had made a significant contribution to breaking the conservative mould through the Association of Figurative Artists, SVU Manes, and a prestigious magazine with the emblematic title of VolneSmery (Free Orientations). SVU Manes focussed on the figurative arts in Paris (Murray 1997) organising a series of events which blended trends within French Fauvism and German Expressionism (Kotalík 1987). This interest in the avant-garde figurative arts movements encouraged a diaspora within SVU Manes, with the convergence of a new generation of scholars into an important group of artists: the SUV, Skupina Umelcu Vytvarnych (Group of Figurative Artists), conditioned primarily by Parisian Cubists and in particular by Cezanne and later by Picasso and Braque, together with the parallel seductive appeal of Apollinaire. A new generation of writers and artists joined the group, including the painters Antonin Prochazka, Emil Filla, Josef Capek, the architects Vlastislav Hoffman, Josef Chochol, Pavel Janak and of course Josef Gočár (Švácha 1985a).

The new idea of space: cubism and modernism

The relationship of Gočár and his colleagues with Cubism was to be of short duration. From 1910 to 1914 and the outbreak of World War One, Cubism worked its spiritual impetus through to exhaustion. The magazine Umelecky Mesicnik (Art Monthly), which was very close to Riegl's belief (Pächt 1963; Zerner 1976) in the primacy of the idea over the material (Deinhard 1972), in just three years from 1911 to 1913, built up an impressive collection of critical essays, in particular on the relationship between the underlying principles of the form structure and those regarding the adoption of a new figurative approach (Eugene 1971).

All the considerations on the sensitivity of space were made by the mathematician Henri Poincare and transposed by Jaroslav Kabelka (1913). This extension to "plasticism" (Emmerson *et al.* 1994) of the architectural space is a new vision, which characterises all of the first phases of Bohemian Cubism (Lahoda 1992). According to Yve-Alain Bois (1997), the analysis of this phenomenon should be carried out not only through a formal exploration. "*… But what of cubist painting (that is, of the cubism of Picasso and Braque)? Did it have any effect on architecture? Can we find for it any architectural equivalent? We would be wrong, I believe, to look for this at the merely morphological level (the superficial level at which the analogies defining both cubistic and cubic architecture operate). It would have to be found, instead, at the structural level of cubism's formation as a semiological system…*" (Bois 1997). This is, therefore, reasonable, but in order to understand the peculiar interpretation that Gočár carried out in his entire career, it is necessary to properly study his idea of space through a formal and geometrical analysis of his compositions (Fig. 2). In other words, we would demonstrate the way in which Gočár transfers and deciphers the semantic structure of cubism after the brief intermezzo around the first world war and the possible continuity in his architectural production: "*…Their forms reject the orthogonal structure system of classical architecture, from using oblique lines or crystalline formations with the aim to achieve a dramatic expression. Similarly, building on the tradition of Gothic architecture, those forms tried to dematerialise the buildings and emphasise the expressive power of the constructive skeleton…*" (Vybíral 2012). Rather than penetrating the structure of space in the first period Gočár, like several others, proceeds from simple surface deformations, such as in the houses in Tychanova str. in Prague (1911–1912), moving to the decomposition and cantilevered re-composition of the geometric solids in the drawings for the extension to Villa Binko at Krucemburk (1913) – the reason why this type of work could not be defined strictly *cubist* but perhaps *cubistic*.

A different propensity for Cubist ideas and their innovative application to architecture was already apparent in the plans for the House of the Black Madonna in Prague dating 1911–1912. This was a year before the commission for the Wenke store in Jaromer (Fig. 3), and in 1911 Gočár started working on the spa pavilion at Bohdanec, a small town between Hradec Kralove and Pardubice (Panoch 1999). Gočár's progress in just

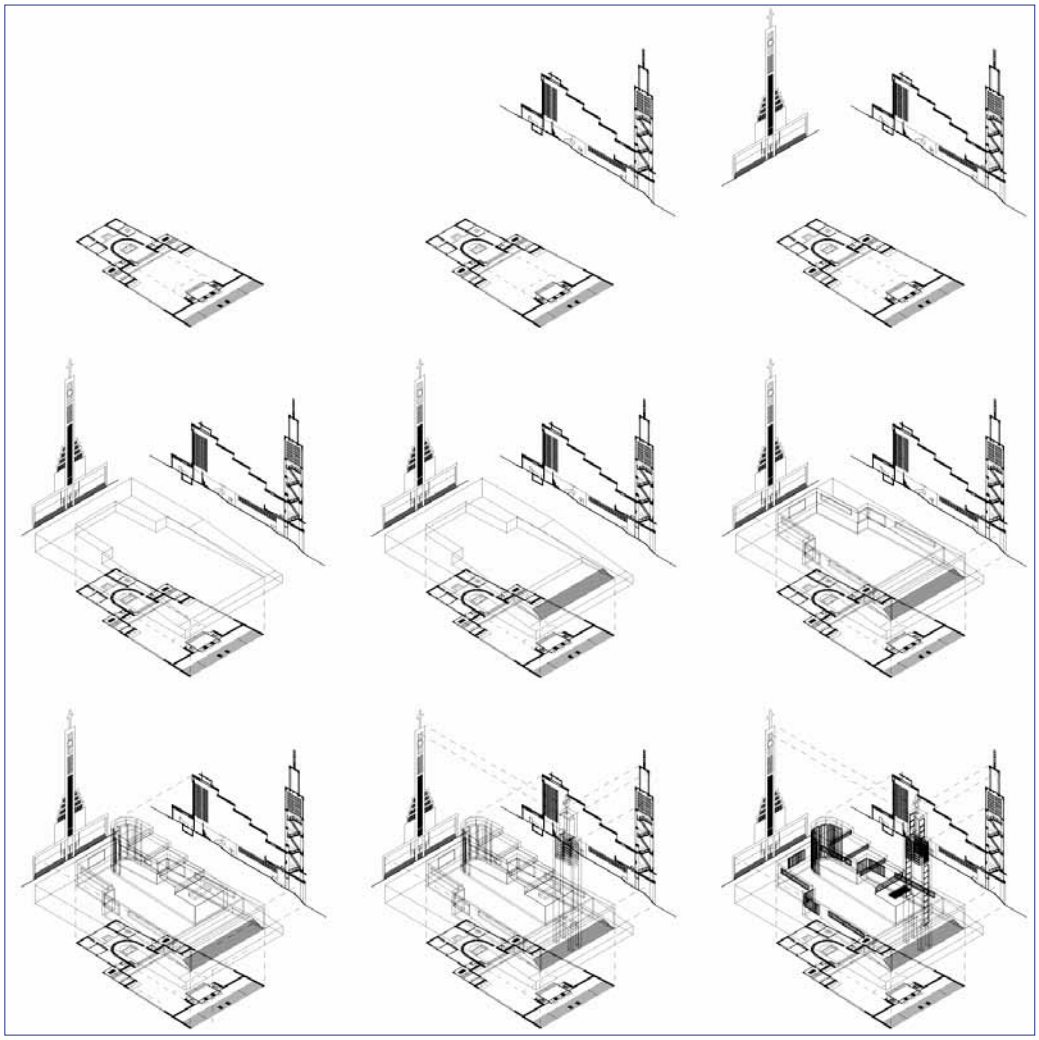

Fig. 2. J. Gočár, Church of Saint Wenceslas in Prague, Vršovice, 1928–1929

one year is impressive, having previously been committed to a figurative language in dialectic with mainstream European architecture, with his opening up to the fervour of Cubism. Such is the intensity of his enthusiasm and commitment to it that in a few years, from 1910 to the outbreak of World War I, all Gočár's work focuses on extending the expressive potential of such a significant and absorbing figurative adventure (Švácha 1991a).

Having discarded the first thoughts of a conventional solution which would have tried to save money by linking up with the existing pavilions, Gočár fixes on a design for an isolated structure, a stand alone pavilion set in the midst of the park and detached from any conditioning by the urban surroundings. The architectural device he opts for is a long gallery on two levels. The way Gočár gives architectural expressiveness to the facade by means of elements set at different levels generates multiple levels of structural depth. This effect is enhanced by the regular compact division of

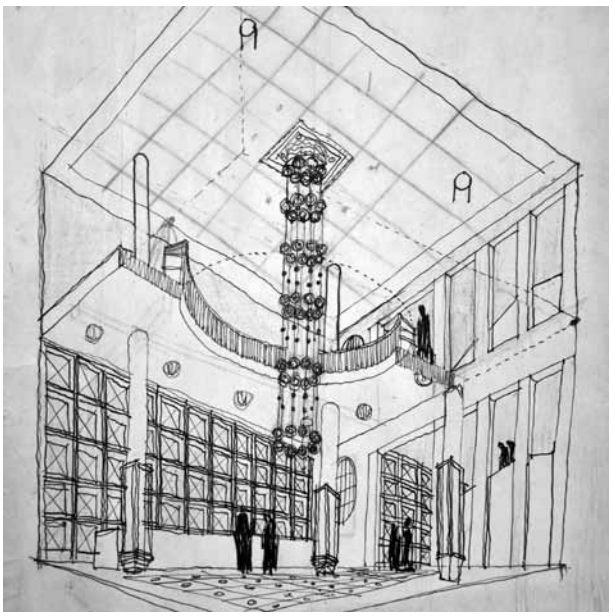

Fig. 3. J. Gočár, Wenke Department Store in Jaromer, 1910–1911 free hand drawing of interior elevation by J. Gočár

the facade, an arrangement of prismatic mullions linking the portico upper loggia to the ground floor. The decision to highlight the structural framework shows the architect striving for a complex geometry which is able to bring out this prismatic effect of the architectural mass, which is itself formally characterised by a mixed-linear section, bare on the line of the facade. The search for depth in the facade is reinforced by a complex system of windows, with the shutters shaped so as to a form a cusped surface along the frame, and a division of the uprights and the cross pieces set obliquely, following a geometrical pattern which highlights the elevation view (Fig. 4).

In this case, the idea of composition starts to move from the structure of the form, and the geometrical effect of the prism, to the composition of the space (Fig. 5). This is the reason why one of the most important examples of this space composition technique is an architectural pattern that is not linked to the conventional idea of Cubism at formal level, "the superficial level at which the analogies defining both *cubistic* and *cubic* architecture operate", according to the definition conceived by Y. A. Bois (1997).

Many authors have already expressed several concerns about the reliance on the Parisian influence, which produced its limit and perhaps even its fortune in the international context. We should try to move the research, not only on Cubism, from easy genealogy and dependence on the Parisian culture to place it in its context and analyze it in the tradition of the Bohemian culture. For this reason, we tried to explore this ductility in Gočár – who theorized hardly anything (Švácha 2006) on Cubism – contrary to his colleagues Janak and Hoffman – in seeking a line of emancipation from the current culture for Czech architecture. This research was conducted mainly in those projects which are more anomalous than the conventional cubist canons (Vybíral 2013).

Fig. 5. J. Gočár, Villa Strnad in Prague, 1925–1926

The conception of space for Gočár could be demonstrated by analysing a significant case around the year 1910: the project for the church in Louny (Fig. 6). The building is for a protestant community willing to accept a new architectural experiment, and Gočár certainly makes the most of the opportunity. Compared to the Lutheran institution in Hradec Kralove (Kubíček 1926), the architectural layout is here more incisively conditioned by basic geometric shapes, the square and the circumference, which in a variety of combinations

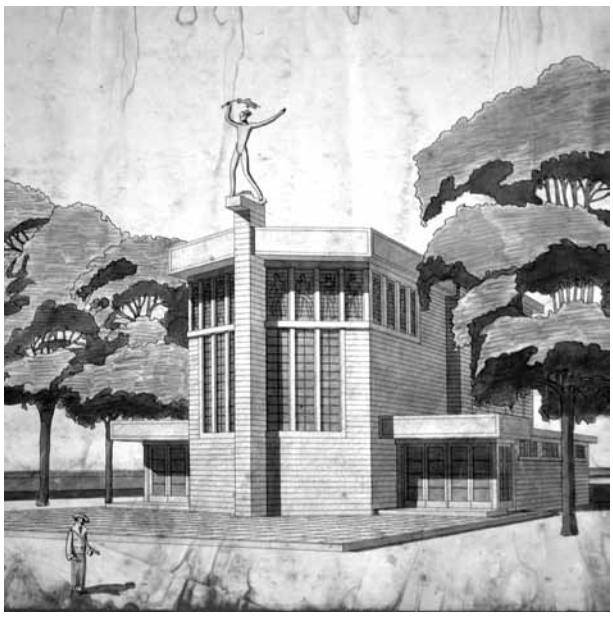

Fig. 4. J. Gočár, Czechoslovak Pavilion at the Paris International Exhibition 1924–1925

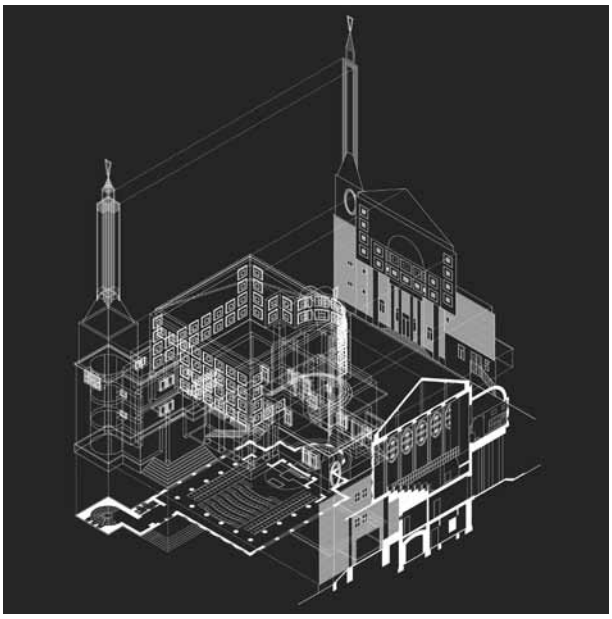

Fig. 6. J. Gočár, Project for Protestant church in Louny, 1909–1910, 3D reconstruction

create the spaces for the various activities. The structure of the space is characterized by combining stereometric masses as discrete elements with a precise will of expression through the ostentation of its geometrical structure. They are not prisms and pyramids but the intuition of pure Plato's forms of space that a few years later (1916) Ozenfant theorizes in a famous article (Fry 1966).

The complex is ordered round a central structure, a genuine suspended theatre space, leading off to the semi-circular apse, the bell tower, a square with built-in spiral staircase, and a self-contained lower square for residential use. The central plan properly places the church at the upper level. Access is via stairs, which lead worshippers from the lower level into the main hall. This same route on the lower floor along a corridor is where the residential and service areas were located. The main hall, being the fulcrum of the entire project, has been the subject of a great deal of careful thought and establishes a relationship between the space for worshippers, rising through tiers towards the altar, and the semi-circular apse, similar to the relationship between a theatre stage and auditorium. This principle, a kind of stage-set for worship, is highlighted by the presence of an ambulatory and an adjacent balcony, giving the impression of sitting in a sort of theatre, the real "audience for worship". At this level the ambulatory opens onto the apse space, which contains the quire, raised up above the area of the altar.

The view of the quire from the hall is filtered through a round archway in a theatrical set piece, with two smaller similarly shaped openings to the side, linking the quire to the ambulatory via a colonnade. Two rows of parallel seats occupy the balcony space, protected by a balustrade and opening onto the whole hall.

Every activity is graced with its own structure, which characterises it figuratively: the raised hall, a prism on a square base, protruding with respect to the fulcrum of the base it is positioned on. The semi-circular apse is covered with a hemispherical dome linked to the hall and supported by a semi-circular colonnade, which rests on a tiered base. The bell tower is separate from the rest, which rises vertically through the superimposing of basic geometric forms: "...*Gočár became a great architect the moment he learnt to link the potentialities of the Late Art Noveau Style, which he made his own as a pupil and then colleague of Jan Kotera, with the potentialities of modern building technology. In this respect Gočár began to play the role of a Czech Auguste Perret in the architecture of Prague in the late 1910's... In a 1909 competition design Gočár wanted the glass cupola of the council hall of the new wing of the Staré Mesto (Old Town) Town Hall, to hang on a ninety-metre-high steel girder in the shape of a steeply stepped pyramid. This unprecedented technical feat was meant to be united with the expression of a new style, which several months later led to cubist experiment*..." (Švácha 1997).

Yet, the architectural achievement cannot occur exclusively as a logical combination of elements, inferred by theoretical analysis of the program and of the available technical means, such as the functional programme, the technological manufacture, the aesthetic choices (Lukeš 1985). Being a transformation of space, the architectural achievement depends on a unifying creation process, in which every component usually undergoes conversions through the influence of the general context. The designing process cannot be exclusively learned through logical mechanisms, although it is obvious that the analytical methods are necessary, but it is empirically assimilated crosswise with practice and training: the main process through which Josef Gočár explores his poetics is the combination between the experimental activity of composing and the practice of the construction. This practice anticipates by several years the dramatic events of the First World War, which mark the end of this fascinating time, apart from a brief isolated period in the 1920s in the unsuccessful attempt to perfect a "national style" for the new Czechoslovak Republic (Benešová 1996).

Within this intense cultural context, we have tried to explore how certain principles relating to the decomposition of the architectural mass, geometrical deformations of space, showed themselves in Gočár's work as it moves from the brief "Cubist" mirage to the more concrete aspiration of "Rationalism".

The approach to the form

In this regard, other questions arise – firstly regarding how authentically this aesthetic approach is considered as experimental innovation at that time, and secondarily the figurative conditioning provided on the one hand by cultural vanguardism and on the other hand by the classical Bohemian tradition, as written by Vlastislav Hofman (1911). To create a visual order by architecture, Gočár needed a method based on a general theory of architecture he was improving by his activity. After defining the planning of tasks, he identified the items required to accomplish them. These actions were fulfilled by integrating the impulse of the cubist creative patterns with the new needs of functionalism. That is why the creation of this "critical process" as a working method had assimilated theory and practice, by coordinating different factors: the rejection of formalism as a solution for architectural problems, with the purpose of avoiding any strict adherence to the thought of functionalism (Švácha 1991a). This is, in our judg-

ment, the most distinctive feature that characterized Gočár's contribution to the so-called "Czech Cubism".

All of Gočár's subsequent architectural output consistently shows a "Cubist" aspiration, which was not fully sated in the years preceding World War One. This extraordinarily fruitful first period was also particularly characterised by his first experiments and explorations in the neoclassical tradition such as the flight of steps leading to the Virgin Mary Church in Hradec Kralove (1909–1910) and the Wenke Department Store at Jaromer (1910–1911).

The importance of the Wenke Department Store in Jaromer (Hölz *et al.* 1994) lies in the unique compositional scheme with the transparency of the main frontage, in particular bearing in mind what an early work this is, with the first designs dating back to March 1910.

In these years Gočár was involved in the flight of steps leading up to the Virgin Mary Church in Hradec Kralove and the House of the Black Madonna in Prague as well as the plans for the Podoli Sanatorium in Prague (Burkhardt 1978). This was a decisive period for typological experimentation and the development of a figurative code, which would characterise his whole career and the fortune of the Bohemian master. These were years when the Viennese architectural culture was making itself felt throughout the Austro-Hungarian Empire and Bohemia was no exception, particularly in consequence of the exposure to such long-established figures as Otto Wagner, Joseph Maria Olbrich and Josef Hoffmann (Lukeš 1998). And yet the architecture between the end of the nineteenth century and the beginning of the twentieth was focused on updating and articulating the figurative legacy deriving from the nineteenth century manufacturing tradition, with the industrial revolution being seen as a sure guarantee of the possibility of progress (Janatková 2000). In those same years, Walter Gropius, with the Fagus Workshops he built at Alfeld-an-der Leine in 1910–1911, was not just building with a closer adherence to the technological foundations, but was also reflecting on the expressionist "transgression" with a radical break from tradition (Koula 1940). Relevant in this architectural context of figurative inspiration was the emancipation of technology, which at this point was running production and society itself.

Gočár started surprisingly quickly to experiment in Jaromer with the relationship between the opaque and transparent surfaces of the facade, which had already been alluded to in the 1907 project by the builder Masa (Wirth 1929).

Gočár, taking up the theme, takes this transparency principle to extremes by placing a thin steel mesh to support the entire infill glass of the facade on three levels, placed in front of the reinforced concrete structure, which is set back and hidden from direct view from the outside (Merlìtková 2011). This heralds the disappearance of the architectural order and the structural division of the facade. At the same time the structural cantilevering onto the road of the attic area, which houses the permanent displays of Wenke toys, presents itself in a way which anticipates the taste for a composition of the facade free from any structural considerations. A few years later, immediately following the end of World War One, this approach would become part of the language of the whole European Modernist movement. The sole concession to the Viennese Secession is the placing of 10 fluted columns, set back from the line of the facade and clothed in black ceramic tiles at the uppermost level. The building's ground plan adopts the schema that Wenke wanted – to have a space which would be suitable for display and as such maximum visibility for the goods.

Four corner pillars forming a classic "tetra-columns room", with an enormous oval-spaced hollow providing a visual link between the two levels, classically define the virtually square space of the main showroom on the ground floor**.** The gallery area is connected to the ground and first floors by a stairway placed in an intermediate position between the main showroom and the area behind (Fig. 3). The tension between the pared down nature of the construction and the wealth of decoration are typical aspects of the project (Pistorius 1969; De Giovanni 1935; Burkhardt, Lamarová 1982).

The set back entrance, which links the street level with the shop level via four steps, is protected by a cantilevered canopy, embellished with a four branch candelabra suspended from metal chains. The load-bearing frame structure is left visible with a surface finish of dark panels, blocked by shiny metal frames on the verticals and concentric cornices along the beams and levels of the deck.

To explain this critical attitude, one urban project, in particular, is especially important in Gočár's experimental way of approaching the structure of form. Before being asked to draw up the plans for Hradec Kralove (Fig. 7), Josef Gočár completed a minor job which would subsequently turn out to be highly significant in its small scale anticipation of a more general strategy for drawing up urban development plans, which would in turn have a major influence on future town planning. The plan (Vanichý 1928) proposed a dialectic relationship between the historic centre and the periphery, an issue which had remained unresolved for many years after the demolition of the city walls. Divergent, even opposing, attitudes prioritised either safeguarding the ancient heart of the city or promoting

Fig. 7. J. Gočár, Urban project for the city of Hradec Králové, 1927

the sustainable development of the modern city, while supporting in both cases the maintenance of the historic centre's morphology and typology common to many European cities with long-established structures and activities: the main square, the cathedral, the Town Hall etc., notwithstanding the mutilation resulting from the destruction of the Baroque period walls in the second half of the nineteenth century (Janatková 2000). In working on a new project various approaches thus come to the fore: on the one hand the need to incorporate the explosive growth of the post-industrial city with the latent risk of an undifferentiated urban fabric which would contaminate – whether by replacement or completion – the city's historic nexus; and on the other hand the need to exclude the logic and programs exploiting the area of the historic heart, with the equally evident danger of the centre segregation (Kubíček, Wirth 1939).

In the case of urban connections such as the flight of steps leading to the Virgin Mary Church, Gočár's structure is conceived as a bridge through the city walls. It is intersected by the arrangement of a series of architectural features: an arched portal at the top, at first landing level rising from the large intermediate base, with a lamp-post at the centre of the arch, and a series of lesser features modulating the rest of the ascent.

The arrangement is one of perforated diaphragms, in which the voids of the incisions of the ultra-thin walls in vertical cement are a negative of the metaphorical representation of a classical order through the gigantic dilation of the arched portal and the sequence of perforations of the raised balustrade well above the handrail. As such it forms the prelude to the emancipation of modern architectural expression already precociously pioneered by Gočár in the first decade of the twentieth century. Without abandoning the functional requirements of the project, this minor work bends the bulky element in the ossified monumentality of the Bohemian academic tradition through the non-materiality of empty walls, like subtle theatrical backdrops, which allow views of the city while hiding others, so as to restore a theatrical setting to the real image of the new city (Benešová *et al.* 2000).

Rather than sticking with the orthodoxy and certainties of contemporary Functionalism, as followed by the bourgeois Bohemian ideology at that time of growing industrialisation, Gočár preferred to look to the "classicist" home-grown tradition, so as to follow a more problematic path in grafting the principles of the extraordinary "Cubist" period (Švácha 1995), as well as to transpose and reinterpret them in the new Rationalist tendency following the end of the World War One.

One of the most important purposes of our research is to propose some new meaning on Gočár's architectural production in order to explain his effort to enhance the emancipation of the Czech architecture from the contemporary academicism. This takes place through the crystallization of the space not as the deformed surface of the casing, but rather as an alteration of the third dimension, achieved through the interposition of classic quotations. This formal analysis is reflected in volume-height of the Warehouses Wenke or in the classic hypertrophy of the project for Hradec Kralove. Yet, paradoxically the conditions for the recuperation of this figurative orientation were more favourable once the false vision of reducing architectural space to an allusive kineticism of surfaces was abandoned and architectural plans could diversify from painting and sculpture by reclaiming the third dimension and a tectonic concreteness. This formal analysis thus aims to demonstrate how the dynamic construction of material (which, in the most analytical period of Cubist aesthetics, amounted to a simple definition of the superficial add-ons to the building, like a sort of stuck-on prism, with no penetration into the architectural structure as a whole, except in a few rare cases) blossoms again in all its expressive versatility in this second period.

The structure of the form

The recourse to a purist figurative repertory through the arrangement of basic geometric shapes even more closely linked to the classical tradition in architecture

forces a reconsideration of the constructional aspect, which affects the entire structure and does not stop at a building's surface modelling. In this respect, whereas the categorical imperative of Functionalism in the reconstruction years may have conditioned much of the architecture of the time and re-appropriated the elementary order of Euclidean geometrical space, Gočár's vision takes on board the full force of the Cubist sensitivity and applies it with great dexterity to the new Modernist period (Lukeš, Setlík 2006). Consequently the idea of the segmentation of space through the multiple slippage of surfaces, rather than the deformation of the composition into sloping lines or oblique plains or decomposition of the perspective, brings a whole new vitality. Thus at the threshold of this new figurative period there is a vigorous re-emergence of, for example, the arrangement of geometric blocks for the Gallery in Hradec Kralove. The placing of protruding elements form the line of the frontage and an entirely Cubist diagonal deformation of volumes which, in a decreasing sequence and on multiple levels, takes over the interior courtyards (Krátký 1990). Moreover, Gočár had already worked on a number of exhibition galleries, including the National Gallery in Prague, for which he won the design competition in 1923, and so had built up a certain authoritativeness in the field. He was accordingly asked to come up with a series of studies and preliminary drawings.

The entrance is configured as a stereometric glass prism rising the full height of the building and resting on the base which includes the entrance. Flanking the large entrance hall is a stairway giving access to the upper floors. The ground floor in the longer arm is taken up by a big display area for drawings and architecture, while the two side wings, front and back, are given over respectively to temporary exhibitions in one big room and to sculpture in three separate rooms. Gočár's figurative approach, in this case, has been shorn of all avant-garde accretions and is perhaps one of his first explorations showing the full expressiveness of a purist language. The project consists essentially of a linear structure broken up by a regular pattern of flat surfaces of glass, alternating with big areas of continuous and transparent background reaching full height with large opaque stretches. Although there are only few designs in the archives at the National Museum of Technology in Prague, they all show very clearly how Gočár went from a figurative exploration within the Cubist avant-garde to a broader Rationalist language, but without ossifying in Functionalism, which was a significant constant in much of the architecture of the period.

The plastic "alteration" of the architectural mass, through the device of tiers, turns up in different projects. This is a theme particularly dear to Gočár as a means of giving monumental status to a public building (Šlapeta 1991). The apparent ease with which he organises the ground plan in the designs for the Bat'a cinema in 1926–1927 enables him to use this expedient increasingly in all its expressive power for stairways which enclose the hall on the median transverse axis on the one hand, while on the other they circle the foyer area thereby freeing up the central space which is the hub of the composition (Teige 1930). This deformation using tiers has a corrosive effect on the geometrical mass of the first plans for the competition for St Wenceslas Church in Prague (Fig. 8). Gočár, reacting positively to a suggestion from one of his pupils, Alois Wachsman, in the final version exploits the sloping nature of the site by arranging a sequence of ascending volumes in the central nave, thereby amplifying the expanding effect of the interior space (Šlapeta 1987, 2002). This is a recurrent theme in Gočár's work and it is highly expressive, confirming how these typological inventions tend to reinforce certain figurative insights of the Cubist tradition transposed into this form of "Expressive Rationalism" (Švácha 2004).

Pavel Janak (1911), who went further in exploring the susceptibilities of material and the complex Cubist vision of space, argued in a famous article entitled "Prism and Pyramid" that emphasis of rhythms perceived in depth and dramatisation of space should come about first and foremost through composition rather than ornamental exhibitionism (Moravánszky 2006). This act is a stimulus to a deeper and more coherent reflection on the structure of the architectural

Fig. 8. J. Gočár, Church of Saint Wenceslas in Prague, Vršovice, 1928–1929

space (Janák 1911). This effort regarding the expressiveness of the material led Cubist works to stop at the "dynamics of the shape". This limit consequently influenced architectural criticism, which, while agreeing with the expressive intent, suspended its judgement on how such significant works were not able to penetrate into the European architectural context, despite being "innovative and original".

Since Gočár had worked through the ideological impetus of the first Cubist phase (Lahoda 2010), a more meaningful interpretation is still needed for his numerous attempts – some of which were more successful than others – to transform the body of the building and its static stereometry. So the continuity of approach in Gočár's work between the second decade of the twentieth century and the period after the First World War, irrespective of its figurative expression, turns out to be stylistically apart but still comparable in terms of typological experimentation (Lahoda 1992). It was stated earlier that one of the purposes of this examination of Gočár's work was to make a different contribution to official architectural histories, through direct investigation of the authors' materials and above all to make empirical reconstructions of the development of the design concept. However some clarification is called for. In studying the guiding principles of Cubism's analytical phase we attempted to ascertain if this predisposition to figurative manipulation did not also condition the subsequent period not just in the tendency to adopt a figurative code "derived by analogy" or transferred through linear results, but also the adoption of certain procedures, attitudes and proposals that combined in constructing a new architectural foundation. At the same time the necessity of cultural reorganisation of architectural practice was sanctioned by the political situation, with the national autonomy the young Czechoslovak Republic had finally won from the decadent Austro-Hungarian Empire (Švestka, Vlček 2006).

The prototypes and the reproductions consistently feature analytical re-drawings, in ground plan and section (Fig. 9), reconstructions of frontages and three dimensional models, useful for surveying a number of invariables in the design process. These reproductions were made in order to capture some figurative constants, where the starting point would appear to be genuinely "Cubist", despite the renunciation of the formal rhetoric typically displayed by that experience (Fig. 10). The deformation of corners, variously re-elaborated in the villas of the Baba quarter in Prague's Dejvice district, erodes the idea of the geometric prism by either interposing hollow components which are geometrically defined by discreet blocks and arranged as open spaces and terraces, as in the case of the Villa

Fig. 9. J. Gočár, Church of Saint Wenceslas in Prague, Vršovice, 1928–1929, re-drawing of ground floor plan and longitudinal section

Fig. 10. J. Gočár, Villa Sochor at Dvůr Kralové, 1928–1931

Kitlica 1932–1933 (Fig. 11); or through the repeated superimposition of horizontally "sliding" planes to produce protrusions and hollows with respect to the facade line and to give the colonnades and upper level loggias, as in the case of the Villa Glucklich 1933 (Templ 1999). This erosion of space had already been successfully piloted with its breaking up of geometrical rigour of Villa Strnad in the Bubenec residential district in 1925–1926, by dilating the cantilever effect of the block on top of the two floors below, with their windows going full height, and a winter garden placed therein (Fig. 5). If on the one hand Gočár is scrupulous in emancipating the typology of the urban villa at a time when this was a widespread focus throughout European architecture, on the other he continues his experiments with public buildings (Figs 12–13) especially churches, in a style of

Fig. 11. J. Gočár, Villa Kytlica in the Baba district, 1932–1933

Fig. 12. J. Gočár, Railway-workers building in Hradec Králové, 1933–1934

Fig. 13. J. Gočár, Grandhotel in Pardubice, 1927–1932

Cubism elevated to disturb the conventional architectural structure of these types of building.

Several years on, this tendency towards planimetric "distortion" was to influence the designs for the Saint Wenceslas Church in Prague, on a completely free and unrestricted site. This theme allowed Gočár in his explorations to continue experimenting with his adopted figurative style so that he was able to come up with genuinely innovative typologies, the legacy of that same Cubist dynamism which inspired him so often (Hilmera 1999).

Conclusions

The study of these projects and their successive evolution aimed to take account of the development of Gočár's ideas. Unlike many of his colleagues, Gočár had a prodigious output in terms of actual projects and rather less in terms of publicising his ideas. We are not aware of any genuinely theoretical writing on architecture from him, apart from the occasional description focused on methodological approaches to specific projects in progress.

This paper aims to explore the critical dimensions of a practice that was in fact antecedent to a precursor of non-conventional approach to the European Functionalism. For Gočár, this attitude departs from those that followed modernism like an idea of unconscious and impulsive reproduction of needs of the new patterns of use. This process of knowledge does not merely concern the functional and utilitarian aspects. The expectations of the practice of architecture also involve general interests in its ethical component and its

aesthetic results. Gočár's attitude towards architectural criticism also relocates the importance of Cubism as inspiration to transform some rigid aspects of Modernism.

These strong feelings toward the structure of architectural form, previously experimented in the phase of Cubism, coalesced with the new architectural and social orientations. The values, the ideas, and the approach of Cubism were not replaced mechanically, but filtered through a critical approach to the architectural form with a new relationship between the value of the past and the opportunities of the present.

The drawing is the most effective tool to represent the cognitive reality, both measurable and easy perceptible, through discrete and synthetic models. In this work we tested the possibility of bringing back the instrument of representation beyond its critical threshold of descriptive intelligibility. We have attempted to investigate, through the iconic nature of his work, the creative aspect of the design process. Therefore we tried to formalize the ideation of architectural space through some exemplary steps of representation, highlighting a formal parallel between the meaning (signified – the project) and the signifier (sign – the drawing).

The final result of this research is the analysis of Gocar's "non-conventional" approach to the conception of space, and the applicability of the experimental research to the architectural environment as a valid source to open the mind to a more conscious and critical consideration on the architectural design process: a tool to develop a more concrete way thinking about the conception of architectural space.

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