

# IRON AND CAST IRON IN THE ARCHITECTURE OF BUCHAREST LATE 19<sup>TH</sup> CENTURY

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**Keywords:** Bucharest, architecture in late 19<sup>th</sup> century, iron, cast iron.

**Abstract:** Changes in the architecture of the city after the second half of the 19<sup>th</sup> century will fully benefit from the large scale adoption of iron and cast iron as constructions materials. These materials are used as a technical solution against the spread of fire or to reinforce buildings, at the same time allowing the transition from a “closed”, massive architecture to a “framed” one, a landmark of the great Western cities brought to this area by foreign architects working during this time. Cast iron pillars and laminated profile beams (sometimes even rail tracks) will gradually replace massive masonry and allow the opening of interior spaces to the “light” of the streets. In the context of the disappearance of a major part of the built heritage, researching the archives may provide an objective insight of the print left by the two materials on architecture and the city.

**Rezumat:** Transformările suferite de arhitectura oraşului după a doua jumătate a secolului al XIX-lea vor beneficia din plin de adoptarea la scară largă a fierului şi fontei ca materiale de construcţie. Aceste materiale sunt folosite ca soluţii tehnice împotriva propagării incendiilor sau pentru ranforsarea clădirilor, dar permit, în acelaşi timp, trecerea de la o arhitectură „închisă”, masivă la o arhitectură „vitrată”, emblemă a marilor oraşe apusene adusă în acest spaţiu de arhitecţii străini ce au profesat în această perioadă. Stâlpii din fontă şi grinziile din profiluri laminate (uneori chiar şine de cale ferată) vor înlocui treptat zidăria masivă şi vor permite deschiderea spaţiilor interioare spre „lumina” străzilor. În contextul dispariţiei unei părţi semnificative a fondului construit, cercetarea de arhivă poate oferi o imagine obiectivă a amprente pe care cele două materiale şi-au lăsat-o asupra arhitecturii şi oraşului.

Regarded in the mid-19<sup>th</sup> century only as technical solutions against the propagation of fires or for the reinforcement of buildings severely damaged by earthquakes, iron and cast iron would gradually become, towards the end of the same century, an intrinsic part of a new architecture that was to reflect the transformations that Bucharest and society in general were undergoing, at the same time with the political changes and the designation as capital of the United Principalities.

Adopting the two materials in construction was difficult, since “traditional” techniques using wood, wattle and daub, and brick masonry were preferred. This fact can be justified by the lack of certain natural resources, of a metallurgical industry and especially of commercial connections fit to provide substantial amounts of iron and cast iron on the city market.

The rapid development of the city, largely uncontrolled by authorities, as well as numerous disasters taking place at the turn of the 19<sup>th</sup> century, made the issue of applying building regulations to be raised increasingly often. A decisive role in this respect was played by the fires of 1784, 1804, 1806, 1823, 1825, 1835,<sup>1</sup> but especially by the one which broke on Easter Day 1847 when almost a third of the surface covered by the capital city was damaged by flames.

On 13 September 1804, less than a month after the fire that burnt down the central area of the city from *Hanul Şerban Vodă* (Şerban Vodă Inn) to the *Sfântul Gheorghe Nou* Church and from the *Bărăţie* (Catholic Church) to the Princely Court, a regulation is written by the great boyars, concerning the building possibilities so as to eliminate the “danger of fire”. Specifications are laid down on the widening and aligning the streets, on imposing a constant height standard and especially on how to erect new buildings to avoid future disasters. The new buildings were to be made of masonry, their roof covering from tiles or tin sheet (“tins”) and the wooden elements, when they could not be eliminated, would be lined with fireproof materials (brick, barrel tiles, corasan,<sup>2</sup> earth, gypsum, tin), “rafters to be fixed in the wall, and the eaves made of brick projecting out about one palm and a half, on top of those rafters wood boards are to be placed, then tin, and over the boards corasan and then barrel tiles”.<sup>3</sup> As for the openings, these could

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<sup>1</sup> Corfus 1975, pp. 232-235 and Ionescu-Gion 1899, pp. 233-237.

<sup>2</sup> According to the explanations offered by August Scriban, the term is of Turkish origin and denominates a type of cement. Initially it meant only the cement produced in Khorasan – a Persian province where this material was used. Scriban 1939, s.v. corasan.

<sup>3</sup> Urechia 1900, p. 406: “căpriorii să fie intraţi în zid, şi straşina să fie din cărămidă scosă afară ca de o palmă şi jumătate, peste care căpriori să se pue scânduri, tenechele, şi d’asupra scândurilor corasan şi apoi peste corasan olane”.

be made of wood, but “those who would have the power, if they would like, will line them with iron”.<sup>4</sup> These measures, although made public, would not be applied immediately, even if the sanction implied dismantling all non-compliant construction. For the following years, various documents kept in the national archives mention buildings made of wattle and daub in the centre of the city, as well as narrow lanes, shingle covers, smithies and apothecaries, but also buildings whose owners comply with the new regulations. Authorities try to impose these decisions however, insisting most of the times on issues concerning widening the streets, elimination of makeshift buildings and of functions liable to fire risk, but also of flammable materials. In 1817 Prince Caragea decides to demolish stands and eaves that are “protruding into the street”, a problem readdressed two years later by Alexandru Șuțu. In 1823 “because the peril of fire happened again and a number of outbuildings did burn”,<sup>5</sup> the great boyars resume the debate on the regulation approved at the beginning of the century by Constantin Ipsilanti.

Yet iron is not used in construction only in the form of small connecting pieces (nails and bolts) or of protection elements against burglaries or fire, but also for structural purpose. Earthquakes taking place at the beginning of the century weakened the city’s larger constructions, and that of 1838 turned many of them to ruins. As a consequence, owners and authorities try to find solutions to make the structures safe. A current method, considering the large number of documents where such mentions appear, is that of “iron binding”. Architects Johann Fraywald<sup>6</sup> and Xavier Villacrosse draw up several reports, immediately after the earthquake, in which they recommend strengthening certain buildings with iron. Consolidations are taken in discussion for the inns of Papazoglu and Manuc, the church of Șerban Vodă Inn, the Radu Vodă and the Stelea churches, but also buildings of lesser importance such as the merchant shops in the central area of the city. Interesting in this respect is the report that the two architects make about Manuc’s Inn, where three consolidation solutions for the wing facing the Dâmbovița River are advanced, all taking into consideration reinforcing the structure with iron. The first project proposed to dismantle the upper floor and to join the lower walls with iron elements. The second one indicated pulling down the dividing walls and rebuilding them from the bottom to the top, while connecting them to the wall facing Dâmbovița through “iron joints pieced together head to head”.<sup>7</sup> The last reinforcement proposal proposed to tear down the building to the stable ceiling level and fixing iron joints placed two fathoms apart. For the blind wall facing the adjacent property of Captain Toma, leaning out off vertical, they suggested bringing it “...in its place by iron ties”.<sup>8</sup>

In 1839 city architect Johann Fraywald proposes the superior of Radu Vodă monastery to repair Stelea Church, a place of worship in his care, using “iron ties in the German fashion”.<sup>9</sup> Consequently, a firm contract is signed between hegumen Sava and contractor Josef Weltz. In one of the provisions of the document, it is said that there will be “...iron ties all around the church, and six cross joints made of massive iron bars, from one side of the church to the other, running through its interior, bound by bolts from both sides, so that the rails are stuck outside, for safety against any damage to the church”.<sup>10</sup> This extremely suggestive text describes the structural system proposed for the reinforcement and indicates the construction elements: iron bars, rails, and bolts as binding elements.

A similar case is the one of Stavropoleos Church where Genotie, its hegumen, asks for the advice of architects on its consolidation.<sup>11</sup> They tell the churchman that “...if he will bind it with iron, it will grow stronger than new, since the masonry is all too good and no peril threatens it”.<sup>12</sup>

<sup>4</sup> *Ibidem*: “cei ce vor avea putere, de vor voi le vor căptuși cu fier”.

<sup>5</sup> Potra 1975, p. 97: “fiindcă iarăși s-au întâmplat primejdii de foc și au ars o sumă de binală”.

<sup>6</sup> In the documents of the time the name is found in various forms: Freiwald, Fraiwald, Frayvaldt, Feiser, Faiser.

<sup>7</sup> Potra 1975, p. 448: “legături de fier puse cap în cap”.

<sup>8</sup> *Ibidem*.

<sup>9</sup> *Ibidem*, p. 458.

<sup>10</sup> *Ibidem*, p. 459: “legături de fier jur împrejur bisericii, cum și șase legături cruciș din druguri groase de fier, deoparte a bisericii pînă în altă parte, pînă din lăuntru bisericii, strânse cu șurupuri din amândoa părțile, ca să se poată înțepeni șinele pînă dinafară, pentru siguranța vătămării bisericii”.

<sup>11</sup> The text does not mention the name of the architects.

<sup>12</sup> Nedioglu 1924, p. 159. Soon after the 1838 earthquake, architect Fraywald writes a report where he states the necessity of pulling down the church bell tower (actually the dome) “without delay”. In 1845, the same hegumen Genotie asks for the approval of Bishop Neofit to raise the church again. Because of missing funds or perhaps out of other reasons, the project is abandoned, so the proposal of consolidation with iron is advanced.

From all these documents one can draw the conclusion that in the mid-19<sup>th</sup> century the technology of “iron binding” was no novelty at all, and that there were specialists able to provide various technical solutions, as well as well-trained craftsmen, ready to apply the described techniques. The properties of iron were familiar to architects, proved by the solutions that were adopted. The material’s property to resist tension is speculated in such a way that the proposals to reinforce the structure with diagonals, pulling leaning walls to their initial position, the use of tie bars may surprise the contemporary researcher through their modernity.

Major changes in the architecture of the city took place after the Great Fire, in 1847, when the *Regulation for dividing the capital of Bucharest in 3 boroughs*<sup>13</sup> is adopted. This document establishes, for each individual area, the rules for placing new buildings, the construction materials as well as some technical solutions regarding the issues of fire-prevention and hygiene and health. In borough I, the city centre that had been largely destroyed by the fire, it is again stated that building “of masonry” and “covering” with barrel tiles or iron is mandatory, this time the measures being more rigorously applied.<sup>14</sup> From this moment on one can talk about an expansion of the “uses of metal”.<sup>15</sup> In the same context iron could also be used “for the parapets of exterior corridors and balconies and the fencing of properties”.<sup>16</sup>

*The Regulation for Alignments and Buildings* adopted in 1848 “continuing the line of building prescriptions provided by the 1847 Regulation”<sup>17</sup> will add details concerning the structural elements of buildings. Besides “regulating the relationship with the municipal administration” or setting the conditions “which a construction needs to fulfil in relation to the street”,<sup>18</sup> certain technical issues about erecting the buildings are also addressed, “prescriptions that aim to put order and a general structure in the façade”, establishing a series of measures to prevent fires. Wooden lintels are eliminated as a technical solution for openings in street façades and balconies are “authorized”, providing they are made of stone or iron. A few basic building regulations regarding the vertical correspondence of openings on the façade as well as minimal dimensions for the height of parapets are also indicated.

Changes in the mentality of the society starting in the early decades of the 19<sup>th</sup> century and the Western influences that reflect upon it become more prominent after 1850. The commercial relations with Western countries develop as a result of the expansion of the land transport system,<sup>19</sup> heavily influencing the social and economic life.

The large amounts of merchandise arriving from industrialized countries that enter the market after the signing of trade conventions bring fundamental changes in the principles of trade, the advertisement and image becoming elements of connection between the consumer and the trader or producer. Thus, even if one cannot speak about impressive dimensions or significant private investments, commercial architecture is the one to reflect, to the highest extent, the changes in society.

In this context, architects and builders will start using cast iron and iron, finding in the “new materials” resources for spectacular changes: shops will open themselves to the “light” of the streets, and the enhanced sizes of their openings will allow “reading” the interior from the public space, as well as exhibiting the commercialized goods in the most attractive way. The opaque walls of past centuries will be replaced by large shop windows where merchandise arriving from Leipzig, London, Paris, Milan or Berlin will attract a clientele that is more and more accustomed to the models of the Western world. In the central area of the city and along the main streets, imposing buildings with large surfaces and ample spaces will be erected, alongside smaller constructions that follow the lines of the existing urban fabric and the designs of French-school academism. The owners, craftsmen and architects impose transparent façades and opening the ground floor towards the street, a public space that

<sup>13</sup> The city was divided in three concentric areas, from the centre to its periphery. Lascu 1997, p. 48.

<sup>14</sup> “After advancing the law of 1847 buildings are to be made by masonry and covered with tiles or tin, after a plan presented by the owner, following provisions of the building Regulation. AN-DMB, PMB Collection, Technical Service, file 99/1855, f. 246.

<sup>15</sup> Lascu 1997, p. 49.

<sup>16</sup> *Ibidem*.

<sup>17</sup> *Ibidem*.

<sup>18</sup> *Ibidem*, p. 50.

<sup>19</sup> The remaking of the roads and building of a railway network connecting Bucharest to the Danubian harbours or the European railway system.





Fig. 1. Main façade of Petre Enciulescu's houses. Fully glazed commercial ground floor. 28, Lipscani Street (AN-DMB, PMB Collection, Technical Service, file 30/1870, f. 20).



Fig. 2. Second façade of Enciulescu property, facing Gabroveni Street (AN-DMB, PMB Collection, Technical Service, file 30/1870, f. 21).

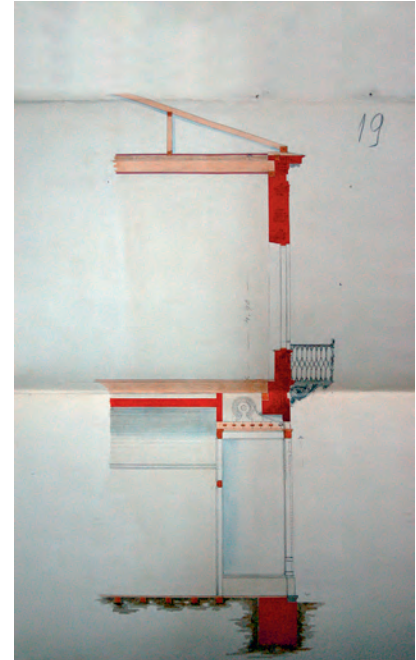


Fig. 3. Vertical section through the façade area, facing Lipscani Street (AN-DMB, PMB Collection, Technical Service, file 30/1870, f. 19).

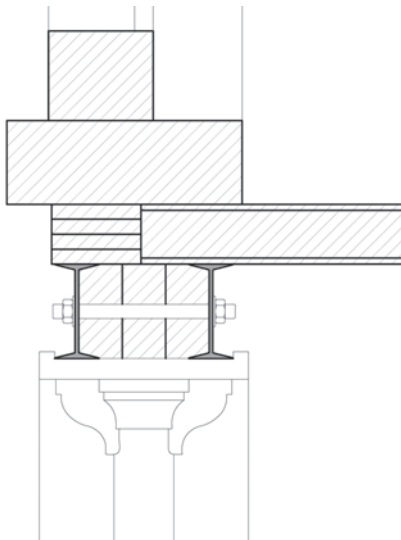


Fig. 4. Construction detail – lintel support on column (Denfer 1894, p.274 – redrawn).

transcends its practical nature, becoming one of promenade. The high cost of land determined the configuration of plots that are small or of atypical proportions, forcing many of the new buildings to fall between these lines, thus using laminated iron profiles and sometimes cast iron pillars, mostly due to technical and economic reasons. “New shop windows” and interior cast iron columns, lintels<sup>20</sup> and beams made of laminated profiles will gradually replace massive masonry elements in façades or the vertical structural elements of interior spaces, thus increasing both the surface of shops and their windows.

Such an example is the project submitted by Petre Enciulescu in the spring of 1870 to “restore the houses” at 28–30 Lipscani Street, in the suburb of Sfântul Nicolae Şelari (Saint Nicholas of the Saddlers).<sup>21</sup> Technical details on the materials and building solutions are missing from both application and drawings, only the existing and proposed walls being marked. One can observe however the completely different image of the façades as compared to the typical architecture features that were used until not long before.<sup>22</sup> The shop window facing Lipscani Street is generous, the access to the two spaces being solved by recesses

<sup>20</sup> Imposed by the 1848 Regulation, they now provide the opportunity to make larger openings as well.

<sup>21</sup> AN-DMB, PMB Collection, Technical Service, file 30/1870, ff. 17–22. It generally matches the current building at no. 24 – the former Bercovici Bank.

<sup>22</sup> “Opaque” façades, with narrow openings ending in segmental arches, the image of an architecture limited by the materials and technologies of the time, but also by an “introvert” living style, adopted under the Ottoman influence.



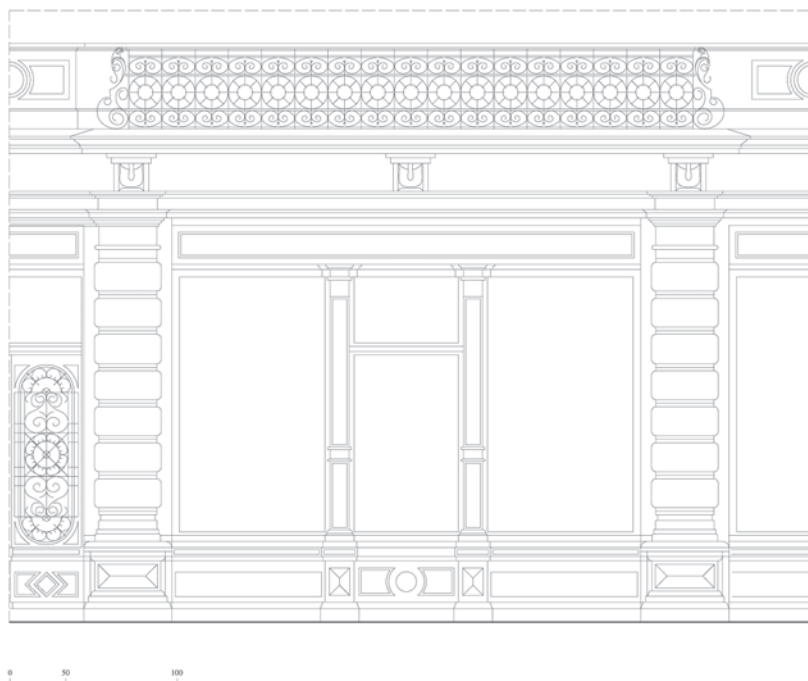


Fig. 5. Shop window detail. Cross section. Captain Ath. Fănuță property. 28, Smârdan Street (AN-DMB, PMB Collection, Technical Service, file 24/1885, f. 92 – redrawn).

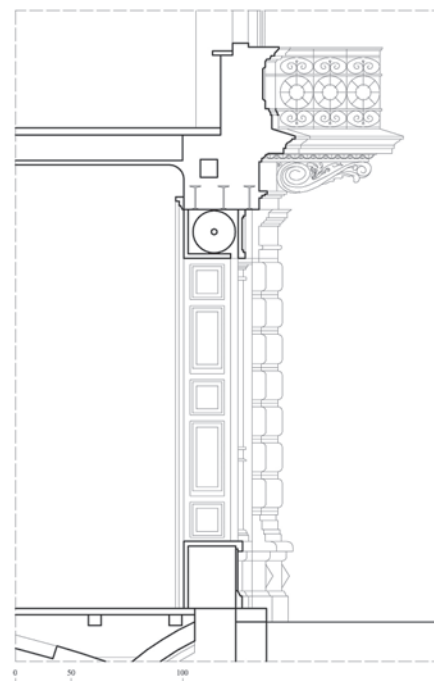


Fig. 6. Shop window detail. Cross section. Captain Ath. Fănuță property. 28, Smârdan Street. (AN-DMB, PMB Collection, Technical Service, file 24/1885, f. 93 – redrawn).

from the façade plane, allowing the increase of display surface next to the entrances. The area facing Gabroveni Street offers a similar image with the former, being dominated by shop windows with generous surfaces, protected by roller shutters (Figs. 1, 2, 3).

The solution for the new shop windows is not resulting from a mere rudimentary assembly of building elements at hand, as it might seem at a first glance. On the contrary, these are incorporated in an elaborate constructive ensemble that most likely has its provenance in French architecture, as it is found in late 19<sup>th</sup> century building and architecture treatises published in France, brought here by architects working in the capital and other Romanian cities.<sup>23</sup>

Structural pillars within these subassemblies have a particular configuration, being almost always plated in wood, hidden inside the over-sized mullions of the joinery. On account of this reason, their shape is among the simplest – a column with no base, no fluting or decorations, topped by a splayed capital with no ornaments. At the top two consoles are placed perpendicularly to the plane of the façade, elements supporting two or three laminated profiles acting as lintel or beam (Fig. 4).

The detailing of the project for the construction erected by captain Ath. Fănuță in 1885 at the junction of Șelari and Smârdan streets highlights these solutions, the openings of the ground floor shop windows being edged at the top by an ensemble of three laminated profiles that discharge on a pair of cast iron columns set into the breadth of the mullions and placed symmetrically on both sides of the entrance door.<sup>24</sup> In the vertical section and on the main façade, the masking of the roller shutter box is made through a thin moulded wooden panel, integrated in the woodwork (Figs. 5, 6).

<sup>23</sup> Ramée 1875, pp. 407-414; Denfer 1894, pp. 268-271; Aucamus 1898, pp. 167-170.

<sup>24</sup> AN-DMB, PMB Collection, Technical Service, file 24/1885, ff. 91-95.



Fig. 7. Shop window with access opening framed by cast iron columns and protected by exterior roller shutter. Façade of. 42, Franceză Street.

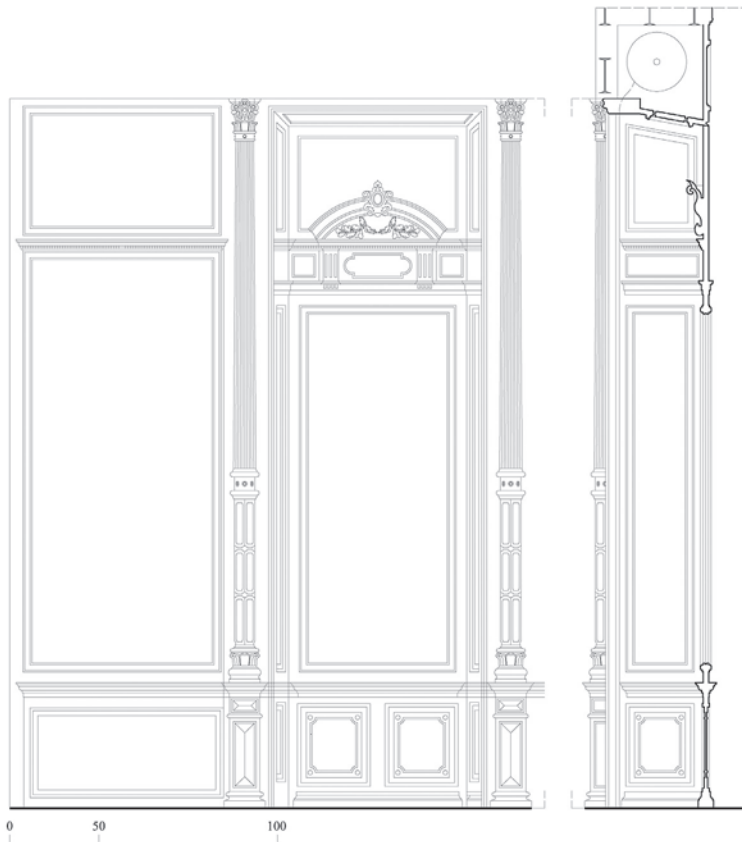


Fig. 8. Shop window with access opening framed by cast iron columns and protected by exterior roller shutter. Façade and cross-section detail. 6-8, Bărăției Street. (AN-DMB, PMB Collection, Technical Service, file 46/1888, f. 175 – redrawn).

A particular solution of this detail reiterated in several existent constructions from the old commercial area of the city consists the concealment of the roller shutter box behind a mask of brick masonry supported by a double “T” (“I”) profile. Most often this rests on cast iron columns, split in half lengthwise and attached to the woodwork. These are treated with classical decorative elements and most likely share a role in reinforcing the shop window (Fig. 7).

Conclusive details about technical solutions are found in the project submitted for approval of interventions on the façade at 6-8 Bărăției Street,<sup>25</sup> signed by architect George Rosnoveanu. The opening of the shop window is bordered at the top by three laminated profiles supported by two columns with a circular section, made of cast iron pipe, placed inside intermediate mullions. On the exterior the latter are also doubled by two cast iron columns split lengthwise. Besides their constructive role, these also have an ornamental role, being richly decorated with eclectic elements. The relatively small opening of the window (4.10 m) could have allowed a solution without intermediate supports, but this would have implied the use of larger laminated profiles (Fig. 8).

The analysis of preserved examples shows that architects, builders or clients equally opted for shop windows with and without intermediate supports, the choice most likely being based on economic criteria or, perhaps, the availability of materials on the market.

Two other projects, smaller, but fit to illustrate different technical solutions adopted in this period are those of the building erected by Elena I. Dalles in 1889 at 68 Lipscani Street<sup>26</sup> and that of the building in the property

<sup>25</sup> AN-DMB, PMB Collection, Technical Service, file 46/1888, f. 175.

<sup>26</sup> AN-DMB, PMB Collection, Technical Service, file 33/1889, ff. 194-196. The current building is at no. 80, Lipscani Street, and 43, Gabroveni Street.

of the Kalinderu Church at no. 23 on the same street.<sup>27</sup> In the first example, the approx. 5.80 m distance between the two longitudinal walls allows, as seen from the characteristic cross section, the use of wooden beams to carry the floors without intermediate supports, but for the area of the façade, architect Ioan I. Rosnoveanu chooses to reduce the span by introducing a pair of cast iron columns that support the three laminated profiles acting as lintel (Fig. 9). Metal “I” profiles, either simple or double, are also used to support dividing walls, where the openings require it and of course to cover the basement where a system of narrow segmental brick vaults on metal rails.

For the second construction, comparable in size to the first and built ten years later, the vaulting is made of segmental brick vaults and laminated profiles, a frequent formula for those times. As for the shop window, although the image suggests two columns placed symmetrically to the entrance, the scale of the drawing and the inaccuracy of the architectural plan cannot confirm their existence (Fig. 10).

A relevant example, from 1890, is that of the project imagined by Paul Gottreau for Petrovici Armis, the owner of a plot at the intersection of Smârdan and Lipscani streets.<sup>28</sup> Although this is the case of a rather large built surface, the subdivision of the interior space both on the ground floor and the mezzanine, the vertical circulations, as well as the light shaft imposed by the construction regulation will considerably reduce the total built area. In these conditions the architect will use, on the ground floor, isolated cast iron structural elements that increase the surface of the shops. Along with their obvious structural role, the pillars are decoratively shaped,

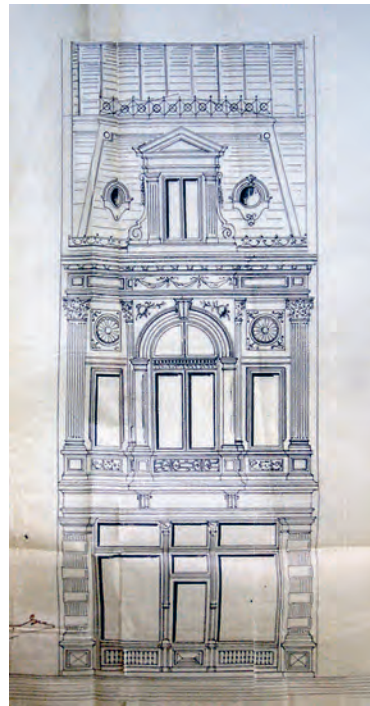


Fig. 9. Centered access framed by cast iron columns. E. Dalles property. Street facing façade. 68, Lipscani Street. (AN-DMB, PMB Collection, Technical Service, file 33/1886, f. 195).

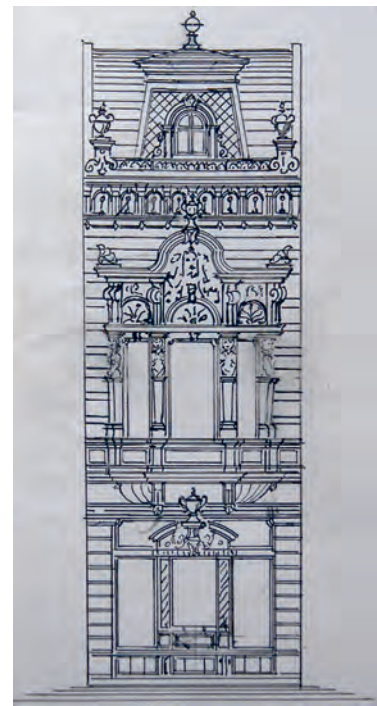


Fig. 10. Similar solution at Kalinderu Church property. 23, Lipscani Street (AN-DMB, PMB Collection, Technical Service, file 379/1899, f. 42).



Fig. 11. Detail of isolated cast iron column. Armis Petrovici property, arch. P. A. Gottreau. 27, Lipscani Street.

<sup>27</sup> AN-DMB, PMB Collection, Technical Service, file 379/1899, ff. 39-42. Current postal number 39.

<sup>28</sup> *Ibidem*, pp. 55-61. Currently no. 27, Lipscani Street.





Fig. 12. Façade of *Magasin au bon gout*, arch. Filip Xenopol. 8, Lipscani Street (now no. 16).

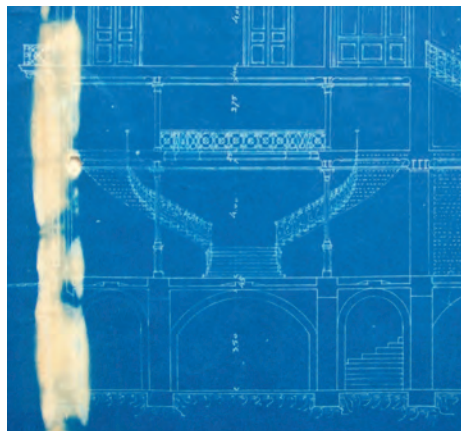


Fig. 13. Cross section (detail), *Magasin au bon gout* (AN-DMB, PMB Collection, Technical Service, file 15/1893, f. 244).

being provided with a pedestal, flutings on their whole height and Corinthian-styled capitals (Fig. 11).

A construction that is remarkable for its interior and façade is the one designed by architect Filip D. Xenopol for a tenement with a commercial ground floor at no. 8, Lipscani Street, known by the people of Bucharest as *Magasins au bon goût* (Fig. 12), belonging to Albert Ascher.<sup>29</sup> Unlike the solutions used in this period for buildings with generous commercial surfaces that are subdivided for rent, here the proposed solution aims to treat the interior in a unitary manner. The two over-ground storeys of the shop are connected functionally through a large symmetrical three-flight staircase and visually through a central void. Both the flights and the floor void are bordered by richly decorated wrought iron railings. The image is completed by slender cast iron columns that support both the floor over the ground floor and the one over the mezzanine. Unfortunately, differences appear between the plans and the cross-section, making the precise marking of their position impossible, however outlining to a good extent the intention of the architect (Fig. 13).

A project which is one-off due to the requirements of the owner is that of Iordache N. Ionescu who, in 1895, wishes, “to contour through walls and iron columns an open garden having in case of rain a mobile crystal roofing”,<sup>30</sup> as well as to connect it to his restaurant at no. 3, Covaci Street. To increase the total area, architect A. Schuckerl proposes setting a walkable terrace at an intermediary level. The floor, made of laminated profiles and small brick vaults was supported by three cast iron columns with capitals, placed on foundations of rectangular stone blocks.<sup>31</sup> One has to observe the way in which the interior is decorated, with richly ornate friezes, arched elements on columns and consoles, as well as two niches with statues (Figs. 14, 15).

Interventions on the façades of buildings are imposed, in some cases, by authorities willing to reshape the alignments of major streets. The streets are straightened, the distance between the building fronts increases, the architecture of the façades changes, and the city acquires a Western image. Such an example is that of the *Dacia Society* which, in 1874, begins the works for the repair and extension of its headquarters, the former Filipescu Inn. Interventions imply both the reshaping of the façade towards Podul Mogoşoaiei (Mogoşoaia Street),<sup>32</sup> as well as that towards Lipscani Street, which will be partly demolished along the new alignment of the street (Fig. 16). Architect Alexandru Orăscu, the author of the project,

<sup>29</sup> AN-DMB, PMB Collection, Technical Service, file 15/1893, ff. 236, 237, 244. On the plot occupied now by the former Chrissoveloni Bank (currently the National Bank of Romania). Current address: 16, Lipscani Street and 7, Stavropoleos Street.

<sup>30</sup> AN-DMB, PMB Collection, Technical Service, file 426/1895, f. 1: “a stabili prin ziduri şi colône de fer uă grădină în aer având pentru caz de ploaie şi acoperişu mobil de cristal”.

<sup>31</sup> *Ibidem*, ff. 4-7.

<sup>32</sup> An important street of the city which, starting with 20/2 September 1878 will be given the name of Calea Victoriei. “*Monitorul Primăriei Bucureşti*”, 38, 29/11 September 1878, p. 512.

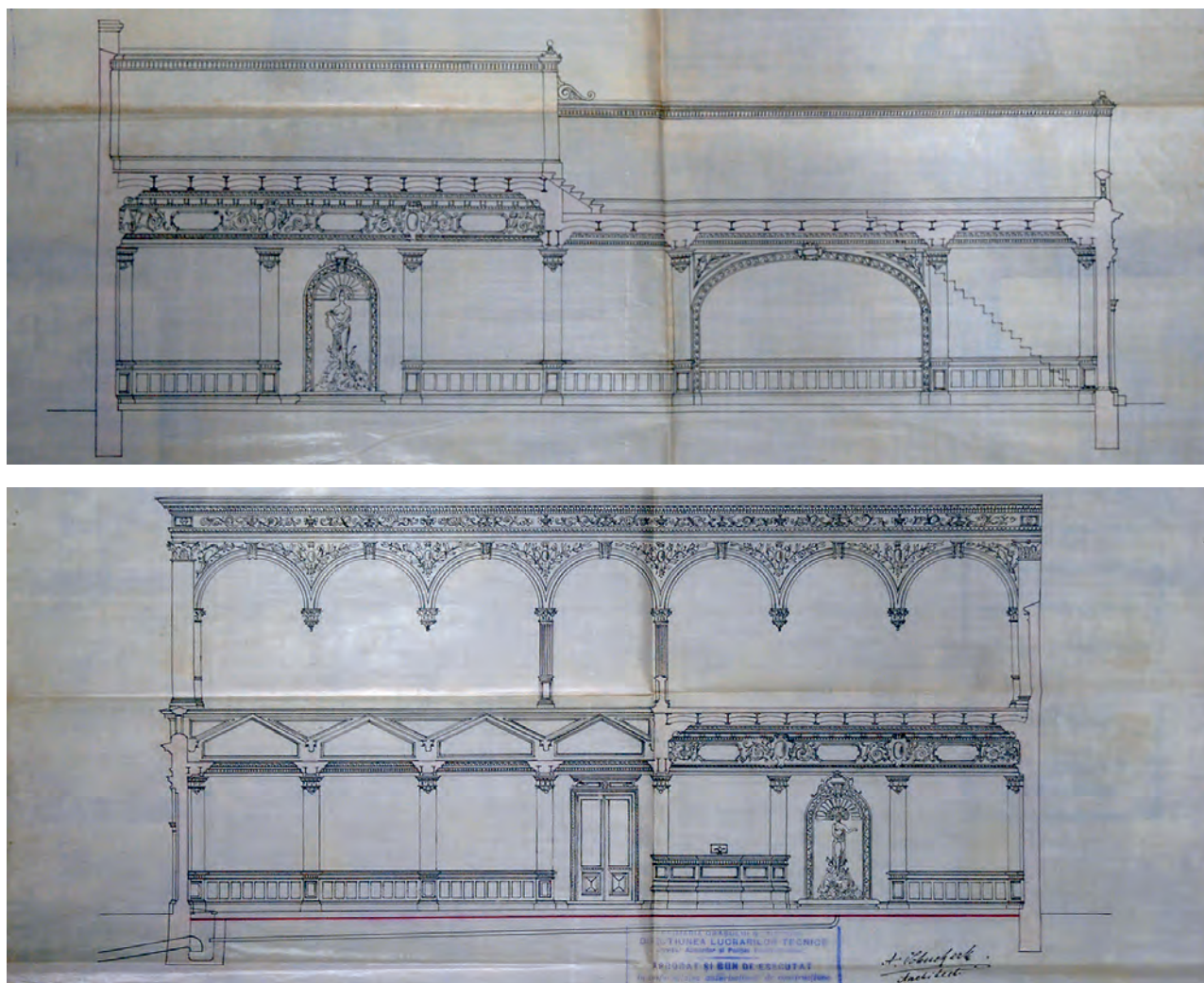


Fig. 14-15. Longitudinal sections through courtyard. 5, Covaci Street (now no. 3) (AN-DMB, PMB Collection, Technical Service, file 426/1895, f. 5).

will propose for both façades a solution with large windows that open to the street at the ground floor,<sup>33</sup> a solution adopted a year earlier by French architect Paul Gottereau for his design of A.G. Assan house, on the same street.

Another construction which underwent interventions as an effect of imposing a new alignment was that relatively close to the Dacia Society, at no. 6, Lipscani Street.<sup>34</sup> In 1890 the Marcus Brothers (or Frații Marcus, *Marcous frères*), famous merchants of the time, request that “the current façade be cut and placed on alignment”.<sup>35</sup> The project signed by architect Al. I. Rosescu proposes the replacement of the structure of

<sup>33</sup> AN-DMB, PMB Collection, Technical Service, file 11/1874, ff. 101-107. The building is currently at 14, Calea Victoriei.

<sup>34</sup> A construction currently included in the building of the Romanian Bank for Development at 14, Lipscani Street.

<sup>35</sup> AN-DMB, PMB Collection, Technical Service, file 41/1890, f. 2. Previously, in 1886, they had commissioned architect Anton Onderka a project to renovate the house on Lipscani Street. The façade which was more richly decorated followed the same compositional principles, with an ample development in the upper area of the first floor. AN-DMB, PMB Collection, Technical Service, file 13/1886; see <http://a-craciunescu.blogspot.ro/>.



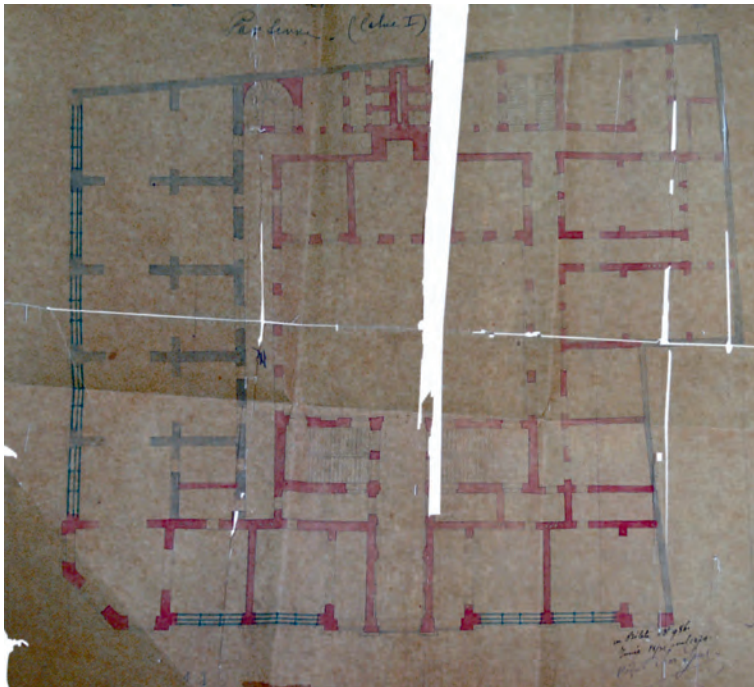


Fig. 16. Palace of Dacia Society. Project for aligning, repairs and extension. Ground floor plan. 14, Calea Mogoșoaiei (AN-DMB, PMB Collection, Technical Service, file 11/1874, f. 104).

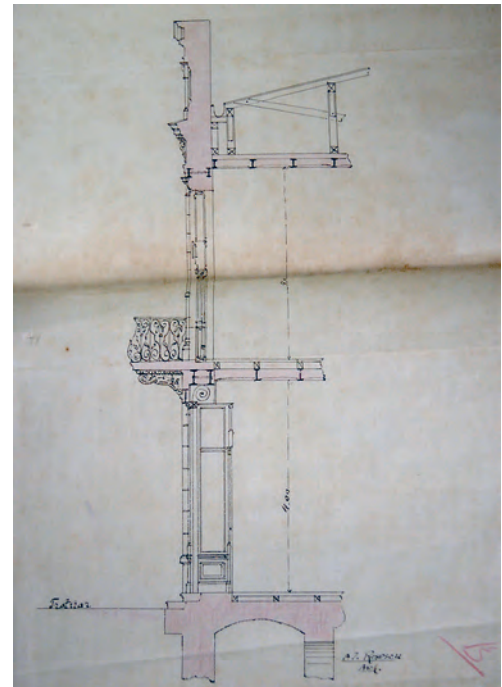


Fig. 17. Aligning project. Detail of vertical section through façade. 6, Lipscani Street (AN-DMB, PMB Collection, Technical Service, file 41/1890, f. 3).

the two old wooden floors with “iron rails vaulted between them”,<sup>36</sup> rebuilding the façade and making a new tin sheet cover. The openings of the façade will be topped by lintels from pairs of “I” profiles provided with separators (Fig. 17). Inside, columns will be used to allow for the changes in layout of the upper floors, to replace massive masonry elements and to reduce the span. No matter the case, they also have a decorative role, having a series of specific ornaments of a classical or eclectic manner.

In the same period, an important number of buildings will be erected on Calea Victoriei, an old street with a special status in the social life of Bucharest, which gradually acquires a marked commercial character.

Among the first buildings to be provided with large glazed-in surfaces at their ground floors was House A. G. Assan (later Hotel Metropole), built in 1873 according to the project of French architect Paul Gottereau.<sup>37</sup> Although the surface of the ground floor is rather generous, a significant percentage is occupied by an inner courtyard, vertical circulations and a few dwellings facing Academiei Street. The thus reduced surfaces of the commercial spaces facing Calea Mogoșoaiei and the importance of their opening to the street will impose the solution of bordering the windows with iron beams supported by cast iron columns, so that the bulky volume of the masonry walls is replaced by the much more slender verticals of cast iron. The resulting image of a massive volume “placed” on a glazed register will be found from now on in most new buildings, offering an evident unity to the street.<sup>38</sup> The solution of “the open ground floor” will be later repeated in the projects of a large number of buildings built on this street over the last decades of the 19<sup>th</sup> century (Figs. 18, 19).

<sup>36</sup> *Ibidem*: “traverse de fer boltite între dânsel”.

<sup>37</sup> AN-DMB, PMB Collection, Technical Service, file 15/1873, ff. 149-152.

<sup>38</sup> From the same archive research, a considerable number of projects were identified, for new buildings or interventions on the existing buildings on the segment between Splaiul Dâmboviței and Piața Amzei Street. For a relatively short while (a few decades, until the demolitions under the reign of King Carol II) these buildings offered a unitary character at the level of fronts and pedestrian traffic. The few preserved period photos can confirm and add to the image of the late 19<sup>th</sup> century, outlined in the projects found in the archives.



A solution similar to that of Assan House can be seen in the case of the project for the Continental Hotel.<sup>39</sup> The façade on *Strada Regală* (Royal Street currently I. Cămpineanu Street), and the ones in the inner yard had small openings on the ground floor, just like those on the upper floor, while the ground floor facing Calea Victoriei is opened to the street via the five large shop windows. Even if the project does not provide clues about the detailing of the woodwork, postcards of the time show an already common solution, with the access door centred and framed by columns.

At the end of the ninth decade of the 19<sup>th</sup> century, on the grounds of “Bishop Nifon” Foundations on Calea Victoriei, at the intersection with Doamnei Street, a building is erected, whose silhouette can still be observed today. The project signed by architect Paul Gottreau<sup>40</sup> proposed the disposition of the construction on the perimeter of the block, on three of its sides, with its central area occupied by the volume of the main staircase and by the access corridors which connected the three wings. The layout differences between the ground- and first-floor plans are made possible by a system of beams supported by cast iron pillars. Consolidation interventions altered the interior space in the wing facing Calea Victoriei, through the insertion of a partial level and the incorporation of the cast iron elements in concrete. In spite of this, the wing facing Doamnei Street preserves intact the original aspect of the construction. The slender cast iron columns are detached from the inner walls, supporting beams that in their turn support the dividing walls from the upper level (Fig. 20).

The initial project provided the configuration of the shop windows next to the corners of the building with laminated profiles supported by cast iron columns with consoles. The changes brought to the façade facing Calea Victoriei excluded the vertical elements, however they were preserved in place in the case of the shop windows on Doamnei Street. Although they are present in the overall picture, the columns are just outlined, lacking decorative elements. The upper segment is closed with two toruses suggesting the area of the

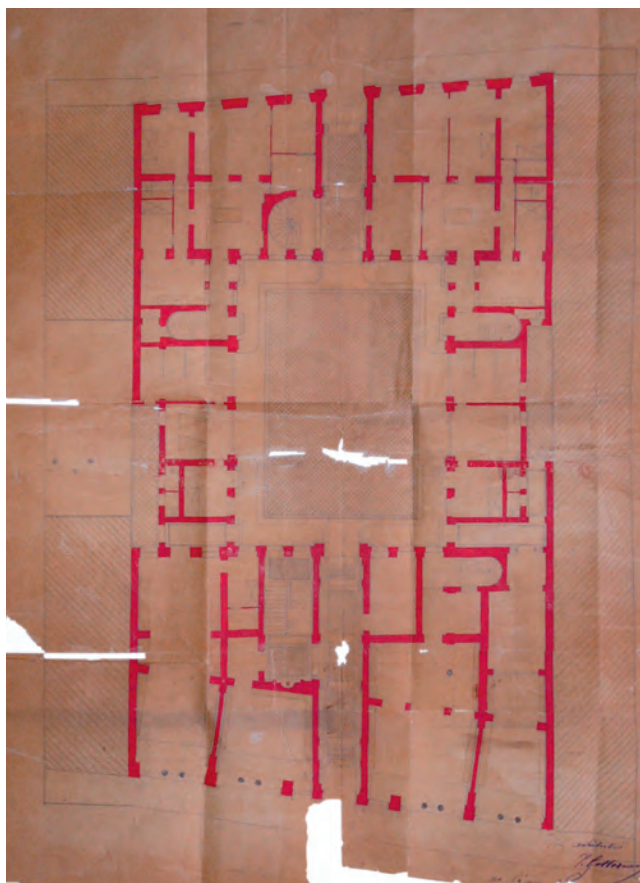


Fig. 18. Assan House, arch. P. A. Gottreau. Ground floor plan (AN-DMB, PMB Collection, Technical Service, file 15/1873, f. 150).

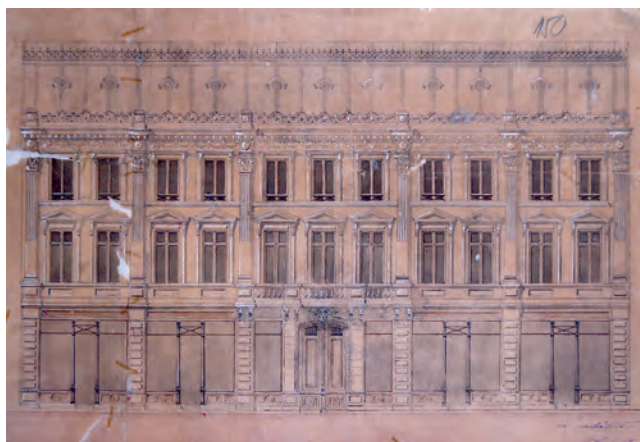


Fig. 19. Assan House, arch. P. A. Gottreau. Façade facing Calea Mogoșoaiei. 66, Calea Mogoșoaiei (AN-DMB, PMB Collection, Technical Service, file 15/1873, f. 152).

<sup>39</sup> Dated 1882 and signed by architect Emil Ritt v. Förster. AN-DMB, PMB Collection, Technical Service, file 5/1882, ff. 192, 294, 296.

<sup>40</sup> AN-DMB, PMB Collection, Technical Service, file 41/1888, ff. 20-26.



Fig. 20. Nifon Palace, arch. P. A. Gottreau. Isolated columns. 30, Calea Victoriei.



Fig. 21. Nifon Palace, arch. P. A. Gottreau. Detail of shop window columns facing Doamnei Street.

capital and a superposed fragment provided with consoles, also closed with a series of molding (Fig. 21).

Houses Stetorian<sup>41</sup> and Emanuelle<sup>42</sup> built in 1880 are included in the typology of small buildings, but can be considered different from the other investigated examples for their architect Anton Onderka's concerns for the organization of interior spaces. In both cases, eccentric light shafts are introduced, marked on the ground floor by skylights. Both vertical and horizontal circulations are focused around these areas. The floors construction is solved with laminated profiles supported by cast iron fluted columns, and capitals decorated with elements imitating the shapes of the Corinthian order.

The project of Emanuelle house submitted in a first draft in January 1880<sup>43</sup> will be changed a few months later as a result of the municipality's decision to open a new street on the southern side of the property. The new project would propose a building with façades facing the Imperial Street and Calea Victoriei, the latter being characterized by generous shop windows, cadenced by cast iron columns.<sup>44</sup>

In the same year, between the two properties a third building will be erected, designed by architect Ioan I. Rosnoveanu. He will not seek a special solution for the inner space, shaping a strictly functional layout organized around the commercial area and the access to the upper floors. One can notice the symmetrical composition of the main façade, dominated by the ample surface of the shop window providing unity to the whole front of the block.

The three buildings placed between the Imperial and Calvin Streets generated an image which is characteristic of Calea Victoriei in the late 19<sup>th</sup> century, turning into a valued model, applied along the commercial streets of the capital, as well as in other cities of the kingdom. The reference to the western world, the connection of the street with the interior of the shops, the advantages of large shop windows with generous display areas, made this constructive solution to be adopted without reserves by clients, architects or entrepreneurs for almost four decades.

Representations in the projects provide a brief image on the conformation and the dimensions of the metal pillars, but the detailed study of certain elements that are still part of the existing built heritage of the old centre adds valuable information regarding their shapes, their decorative treatment or their relationship with other constructive subassemblies.

One has to notice that, despite the apparent recurrence, in any of the investigated projects or in the surveys drawn during the field research, no standard dimensions, decorative elements or subassemblies of these

<sup>41</sup> The Stetorian property is at 51, Calea Victoriei, at the corner with Calvină Street. AN-DMB, PMB Collection, Technical Service, file 19/1880, ff. 65, 73-77.

<sup>42</sup> The Emanuelle property is at 47, Calea Victoriei, at the corner with Imperial Street. In the request for issuing the construction permit, it is mentioned at number 51. The 1889 alignment plan of Calea Victoriei clarifies beyond doubt the issue of owners and the postal numbers between Imperial Street and Calvină Street (today Știrbei Vodă).

<sup>43</sup> AN-DMB, PMB Collection, Technical Service, file 19/1880, ff. 25-28.

<sup>44</sup> *Ibidem*, ff. 393-396.

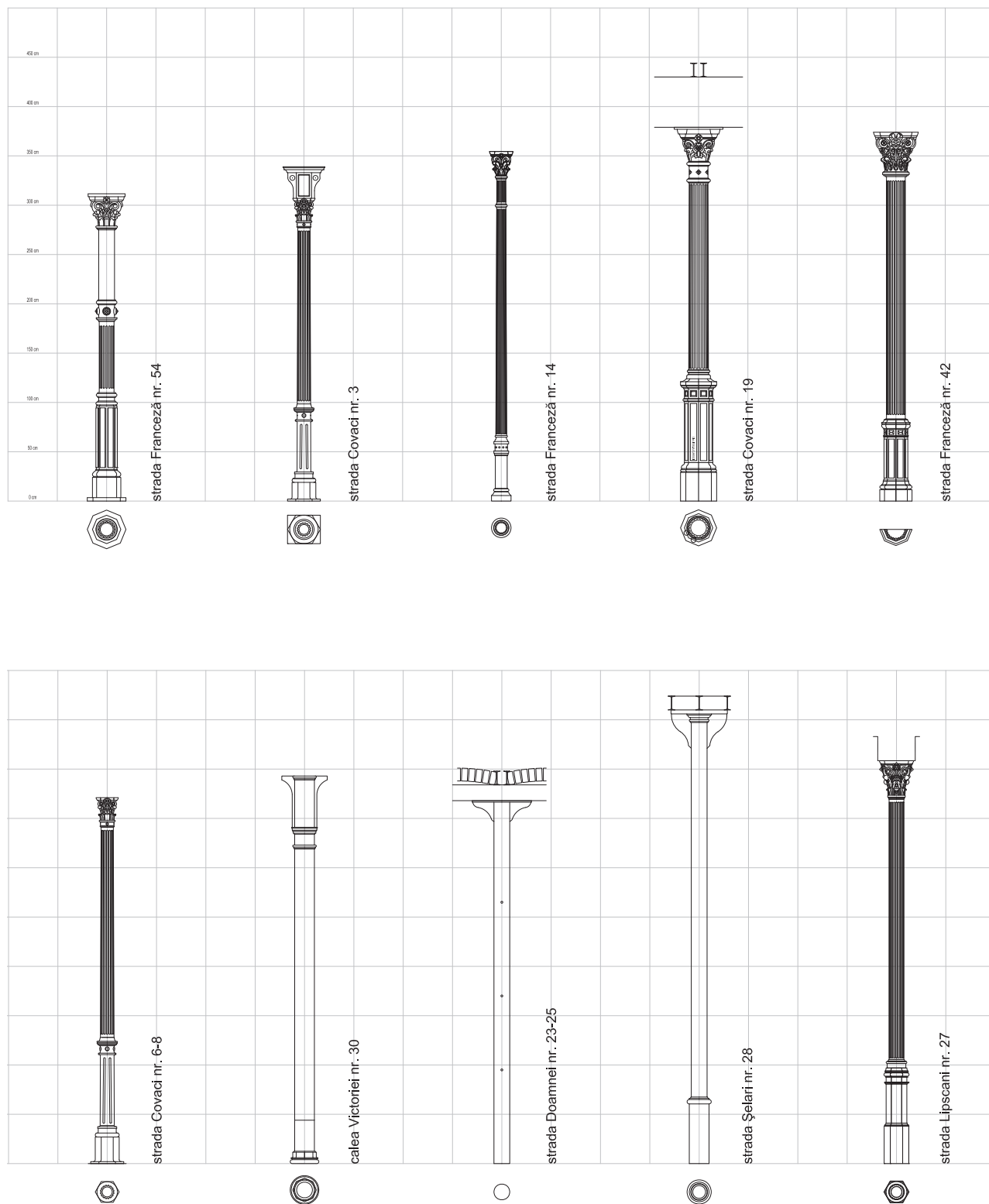


Fig. 22. Scale drawing of cast iron columns identified in the old city centre.





Fig. 23. Particular detail of cast iron column. Fleuron detail. 54, Franceză Street.



Fig. 24. Detail of cast iron column – extension. 8, Covaci Street.

pillars could be identified, either inside or on the façade, details varying in each of the researched cases. The composition of columns follows the shapes and elements of language adopted from classical architecture, interpreted in a particular manner that speculates the properties of the material. Each subsection, the pedestal, the shaft and the capital gets additional mouldings, various decorative elements generating different relationships and proportions in each case. In many of the cases, the pedestal is subdivided in two areas: the base, with an octagonal or circular cross-section and a height between 10 and 30 cm, and the second section that connects this base to the shaft of the column, similar in section, but narrower. The height of the second area is between 30 and 90 cm, and it is distinctive through a specific ornament, most often with frames that are carved or in relief and spherical calottes of variable sizes, placed between two mouldings similar to tori.<sup>45</sup> The shaft of the column always has a circular cross-section of a variable diameter decreasing from bottom to top.<sup>46</sup> This is decorated with flutings, ranging between 16 and 24, without any connection between their size and their number (Fig. 22).

A particular example worthy of mention is the building at 54, Franceză Street. In this case, the shaft has a special treatment, being subdivided in its turn in two different areas decorated and delimited by mouldings and ornaments. Here, only the lower part is decorated, with elements similar to flutings, but that project out of the column plan, and the connection with the upper part characterized by a smooth surface is done via a “collar” outlined by composed mouldings and decorated with four fleurons (8 cm diameter) (Fig. 23).

In general, capitals refer to the Doric and Corinthian orders. Superposed acanthus leaves, volutes, smaller or larger fleurons, egg and dart decorations create the most varied shapes, their composition abandoning classical rules in favour of a decoration as rich as possible. The different floor heights, the lack of standards in this respect often implied that metallic columns would not correspond to the required heights. In this case, the adopted solution was one of compromise, the

columns getting an “over-extension” with minimal decoration or even without an ornament, in high contrast with the rest of the ensemble (Fig. 24).

Specific details and configurations found in a large number of projects for new constructions or interventions, identified in the archives of the city are evidence of the large-scale use of cast iron and iron elements and confirm the influence these materials had on the architecture of the city. Their use by craftsmen, engineers and architects working in the second part of the 19<sup>th</sup> century generated, towards the end of the century, a unitary image along the main streets of the city, characterized by large shop windows cadenced by slender verticals. Many of the mentioned buildings are lost, an effect of numerous interventions to modernize Bucharest, other were radically transformed so one can hardly recompose the images which the people of Bucharest would have seen each day. Old photos, archive projects and the study of buildings still unaltered by inappropriate interventions represent firm reference points in recomposing the lost shapes, and the study of details brings additional clarifications regarding production workshops and the building techniques used at a large scale in Bucharest, in the late 19<sup>th</sup> century.

<sup>45</sup> There are a few examples in which this element is not decorated or it is vibrated by flutings similar to those on the shaft.

<sup>46</sup> This is a necessary mention since in the Anglo-Saxon space pillars that use the optical corrections of classical architecture in an exaggerated manner are also used, their diameter growing up to a certain height (usually about 1/3 of the height) and decreasing then towards the top.

## Bibliographical abbreviations:

- |                    |  |
|--------------------|--|
| Aucamus 1898       | E. Aucamus, <i>Menuiserie, serrurerie, plomberie, peinture et vitrerie</i> , Paris, 1898.  |
| Corfus 1975        | I. Corfus, <i>Însemnări de demult</i> , Iași, 1975.  |
| Denfer 1894        | J. Denfer, <i>Architecture et constructions civiles. Charpenterie métallique, menuiserie en fer and serrurerie</i> , I, Paris, 1894.           |
| Ionnescu-Gion 1899 | G. I. Ionnescu-Gion, <i>Istoria Bucureștilor</i> , Bucuresci, 1899.  |
| Lascu 1997         | N. Lascu, <i>Legislație și dezvoltare urbană. București 1831-1952</i> , București, 1997, ms.   |
| Nedioglu 1924      | Gh. Nedioglu, <i>Stavropoleos</i> , BCMI XVII, 4, 1924, pp. 147-168.   |
| Potra 1975         | G. Potra, <i>Documente privitoare la istoria orașului București (1821-1848)</i> , București, 1975.   |
| Ramée 1875         | D. Ramée, <i>L'Architecture et la construction pratiques</i> , 1875, Paris.  |
| Scriban 1939       | A. Scriban, <i>Dicționarul limbii românești (etimologii înțelesuri, exemple citațiuni, arhaizme, neologizme, provincializme)</i> , Iași, 1939. |
| Urechiă 1900       | V. A. Urechiă, <i>Istoria românilor</i> , Seria 1800-1834, tom. XI, București, 1900.   |