
"CETTE AUTRE NÉCESSITÉ ESSENTIELLE: L'URBANISATION" – ELECTRIFICATION OF THE URBANISATION OF THE NEBULAR CITY

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The advent of modern utility systems together with improved transport infrastructures and information technologies introduced new spatial arrangements and temporalities in the territory. In time, these reveal a notion of urbanisation that does not only takes place in or directly adjacent to the traditional (territorially bounded) city, but in which co-evolving processes lead to differentiated territorial arrangements.

Belgium's distributed urban condition – the 'nebular city' – emerged out of the interplay of such multiple territorial arrangements. Often, it is explained by a historical roots in policies of industrial dispersal, while historical efforts to actively accommodate and organise the territory from the broader perspective of urbanisation are assigned a secondary role only.

This article, however, takes a close look at two projects from the 1930's that took the emerging condition of dispersal as their starting point and which both reflect on the role of urbanisation in the reproduction of the conditions in which industrialisation, among other processes of modernisation, can take place.

In particular aspects surrounding the Belgian electrification are examined. Although not one of their main drivers, the electrification is both intertwined with the rise of industrial production and the development of an urban modern lifestyle. Only in the 1930's, however, Belgian spatial planners started to explore issues concerning the distribution of electricity and its spatial and economic consequences.

Both projects are embedded within the international debate on the functional city and present Belgium as a particular case. They show the general delay and mismatch between the process of industrialisation and urbanisation because of the nation's chosen development path, both in spatial and temporal terms.

Keywords

industrialisation, electrification, functional city, Belgian urban planning history, distributed urbanism

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INTRODUCTION

The notion of the functional city still stirs the imagination of practicing urbanists and urban researchers. It has been praised as the ideal – rational and universal – modern city as well as berated for its rigidity and sterility, both by urbanists and those who had to live in places designed according to its principles. Yet, before the functional city was characterised by this notorious discord, it was part of a much larger discussion. Essentially, the functional city had to be the answer to questions about the territorial conditions of extended industrialisation which occupied many spatial practitioners.¹ The participants of CIAM IV assembled to search for strategies that dealt with the various processes of industrialisation that were taking place all over the territory and the changes they brought about. In their efforts they tried not to hamper and preferably even enlarge the beneficial effects caused by industrialisation (e.g. increased mobility, higher standard of living), but at the same time attempted to diminish the nuisances it generated (e.g. traffic congestion, pollution).

Therefore, CIAM IV was set up as a congress where a wide range of cities was analysed and compared in order to find strategies that could be applied in other places. This approach made that a lot of different influences and contexts were present during the event, resulting in a much richer debate than can be deduced from the reduced and rather dogmatic notion of the functional city that appeared in Le Corbusier's Athens Charter.² Still, besides an identical key to the maps and an assigned succession of panels on which the various cities were presented, all contributions started from the idea that an advantageous rearrangement of the industrial territory could be obtained by – and at the same time should lead to – urban structures that could accumulate the opportunities engendered by industrialisation.

In this article, two Belgian projects that suggest urban transformations to cope with the territorial effects of the rummaging industrialisation will be elaborated. Both projects operate within the same perspective of reassembling loose dynamics of industrialisation into a comprehensive framework so an efficient and productive urbanism might be created. The first of those projects was severely influenced by Le Corbusier's discourse on the functional city: the highway project for Ghent of Jerome Desplanques and Gustave Magnel. The second has its origins in Belgium's CIAM IV contribution: the studies on Charleroi by Victor Bourgeois.

Both projects are bound by the context in which they were envisioned: Interbellum Belgium. Already then, the nation's territory was characterised by a widespread dispersion which held the conditions for what over time would result 'the nebular city':³ The rhizomatic dispersion of population, functions and activities across the Belgian territory. The nation's distributed urban condition is often explained by its historical roots in policies of industrial dispersal: railroads, canals and highways were constructed in order to make the necessary resources such as land and labour accessible and this all over the country. Furthermore labourers were encouraged to dwell in the countryside in order to keep wages low, to avoid major public investments in means of collective consumption⁴ and to consolidate social power relations.⁵

In addition to this prevailing perspective of the nebular city being rooted in policies of industrialisation, the two projects presented show a glimpse of the urbanistic debate on the distributed development model Belgium had chosen for. Moreover, both projects are projects of urbanisation. In the accommodation and organisation of the territory, the authors of the projects believe, the territorial and social context is brought about that guarantees the continuity of the industrialisation process. Urbanisation, in other words, is crucial for the reproduction of the condition in which industrialisation can take place. As such, the study of these projects complements the understanding of the history of the nebular city by offering a perspective of urbanisation rather than industrialisation.

To do so, this article specifically looks at references to the distribution of utility services, and the electrification in particular. The provision of services such as electricity can, certainly in the beginning, be understood as an aspect of (a policy of) industrialisation. Nonetheless, the consummation of these services soon becomes entangled with a modern, urban lifestyle. Studying the changing attitude towards the territorial impact of one particular process – the electrification – within one particular context – the Belgian territory – might shed light on the attempted shift from a perspective of industrialisation to a perspective of urbanisation.⁶ As such it might help to create a more precise understanding of the debates on the functional city, and in particular of its Belgian local variant.

‘POUR UN URBANISME HÉROÏQUE...’

In October 1937, the Belgian engineer Jerome Desplanques⁷, wrote a letter to Le Corbusier to discuss the findings of a remarkable study he undertook. He introduced himself in the following words:

“Monsieur Le Corbusier,

I am very fortunate to possess and to have read almost all of your works; I have visited the very interesting pavilion ‘des Temps Nouveaux’ and all this has woken a very vivid sympathy for the ideas you defend.

As director of the electricity supply of the Ghent agglomeration (200.000 inhabitants), I have become well aware of the importance of the problem of urbanism. And this importance is no less for all the other public services and for many activities in the social sphere and in the economic sphere in general.”⁸

In what follows, Desplanques presents the results of a project that combines reflections on the tracing of a highway route, a planning scheme that allows for an efficient distribution of electricity (as an example for all other public services) and a sanitation operation for city slums. By then the engineer, was already working for almost three years on this project. It was initiated as a counterproposal for the arrival of a highway near Ghent. This highway, linking the capital Brussels with the seaside city of Ostend, would be the nation’s first, but was planned to pass almost six kilometres south of the major city of Ghent. With the consent of the Ghent city council, Desplanques together with professor Gustave Magnel⁹ attempted to divert the planned route more towards the city centre and at the same time took the opportunity to address some other planning issues in the Ghent agglomeration.¹⁰ Their eventual proposal was a trajectory that crossed the city centre and subsequently left the agglomeration at the north.

Desplanques would reveal himself as the public advocate of the project. He presented the project to the minister¹¹ and other politicians¹², wrote articles and defended it on scientific conferences. In 1938 he was also interviewed for the widely circulated magazine *Bâtir* in an article with the telling title: “Pour un urbanisme héroïque...”¹³

Throughout the study rationality and efficiency serve as the main guiding principles and references to the technical and economic transport and distribution of electricity are manifold. In his contribution to the ‘Fourth Belgian Road Congress’, for example, Desplanques writes: “In the study of lines of communication [voies des communications] which can be equally called ‘canalisations for vehicles’, we can usefully take inspiration of a technique already this perfect, that of the establishing of canalisations of electricity, of water, etc... etc... etc...”¹⁴ He then substantiates this with, among others, the practice of establishing electrical substations in places of high consumption and not just anywhere afield. By analogy, slip roads should not be located away from the city, but exactly close to densely populated areas. Such a functional and rational logic, often illustrated with examples pertaining to the distribution of electricity, can be found throughout his discourse.

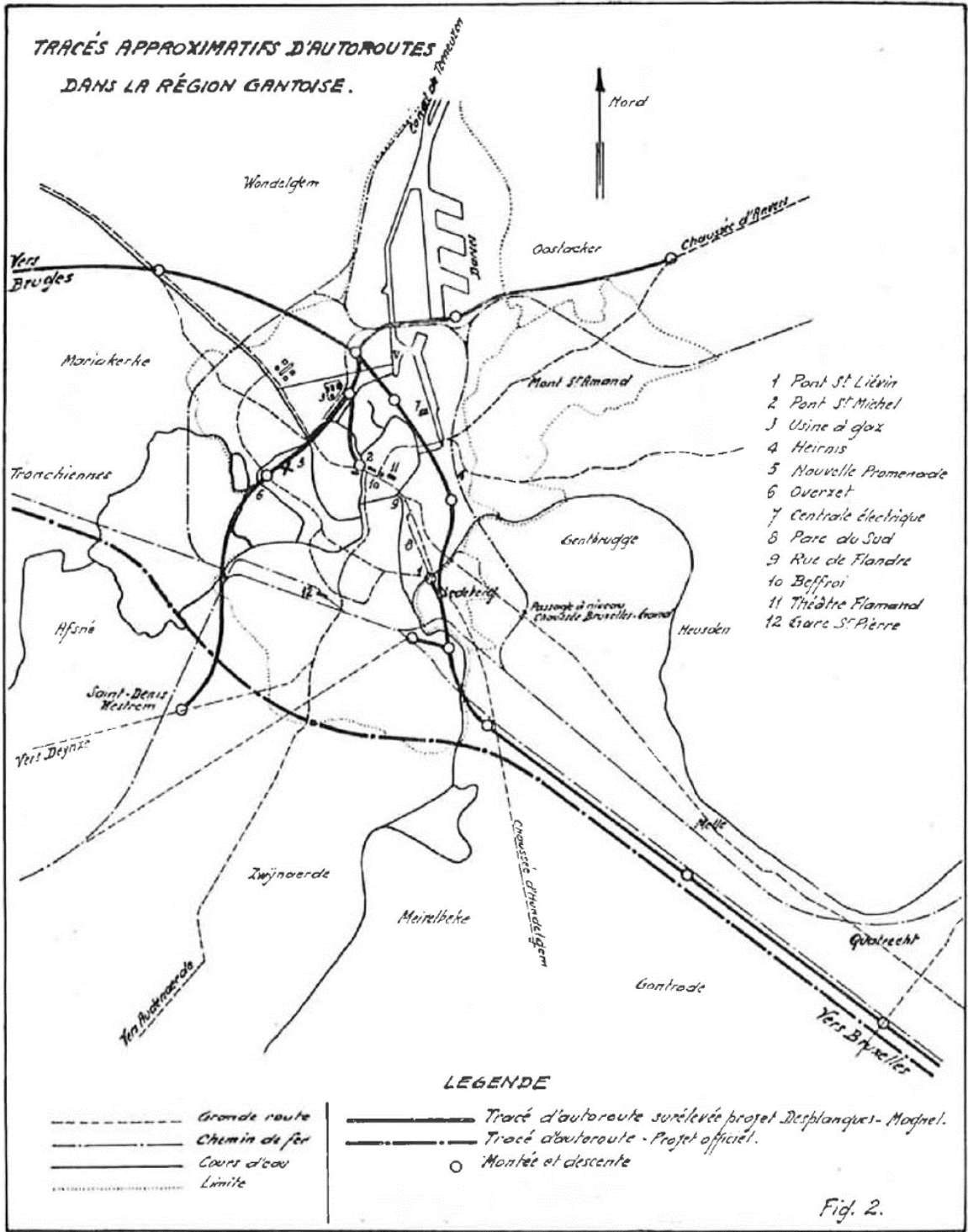


FIGURE 1 Map of the different trajectories of the Brussels-Ostend highway as used by Desplanques. The thick dash-dotted line in the south shows the original trajectory, while the thick solid line going through the centre and the (industrial) north of the city shows the trajectory proposed by Desplanques and Magnel. Furthermore the interplay with other types of transportation (the fine lines; dashed for major roads, dash-dotted for railways and solid for waterways) as well as possible slip roads are indicated (the white dots). The historical city centre is the area surrounding the number 10.

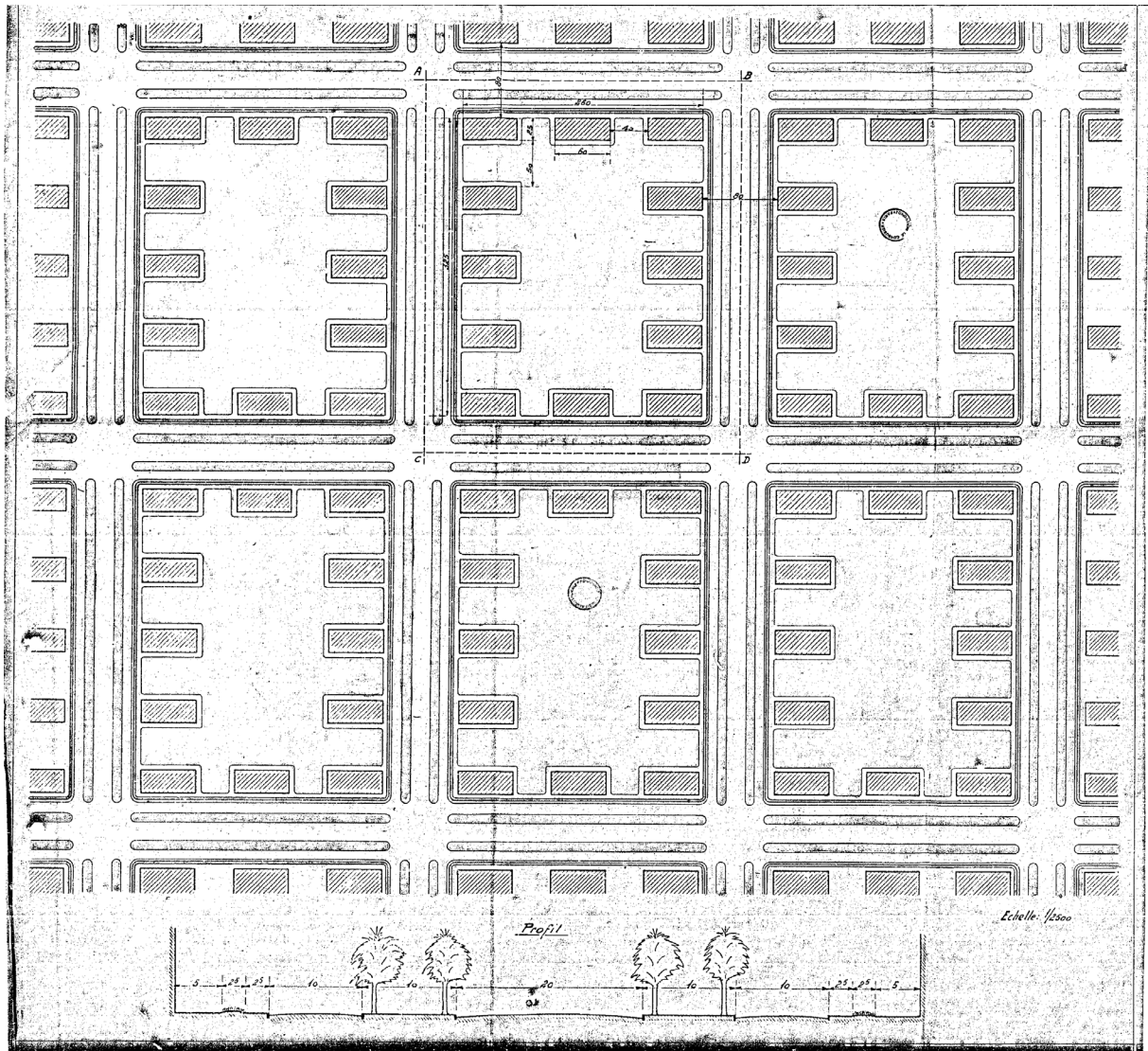


FIGURE 2 A scheme of the first type of settlement pattern in Desplanques' study, complemented with a section of the road.

The arguments put forward in support of the Desplanques-Magnel project can be divided in three groups. First there are the reasons why the highway should make a deviation north of the city. When only evaluated by the distance between Brussels and Ostend, this is indeed a detour. According to Desplanques however, this detour would be advantageous in light of some other infrastructural issues.¹⁵ Not only would it link the city centre of Ghent directly to the future highway system, but also to its industry and its harbour, both situated in the north. Moreover, a much more elegant arrangement can be conceived that would connect Ghent to Brussels, to Ostend and Antwerp and link the latter city – Belgium's second city – with the coast, Lille and Kortrijk. Finally, since the volume of traffic with as destinations Ghent and Ostend or Ghent and Brussels is much larger than that between Brussels and Ostend, this apparent detour proves even beneficial when viewed from the perspective of the overall traffic flows. This is illustrated by Desplanques with "a basic computation"¹⁶ that enables to visualise on a diagram the profit gained in time for the different trajectories on the future highway.

Tracés approximatifs des routes dont il est question dans le rapport.

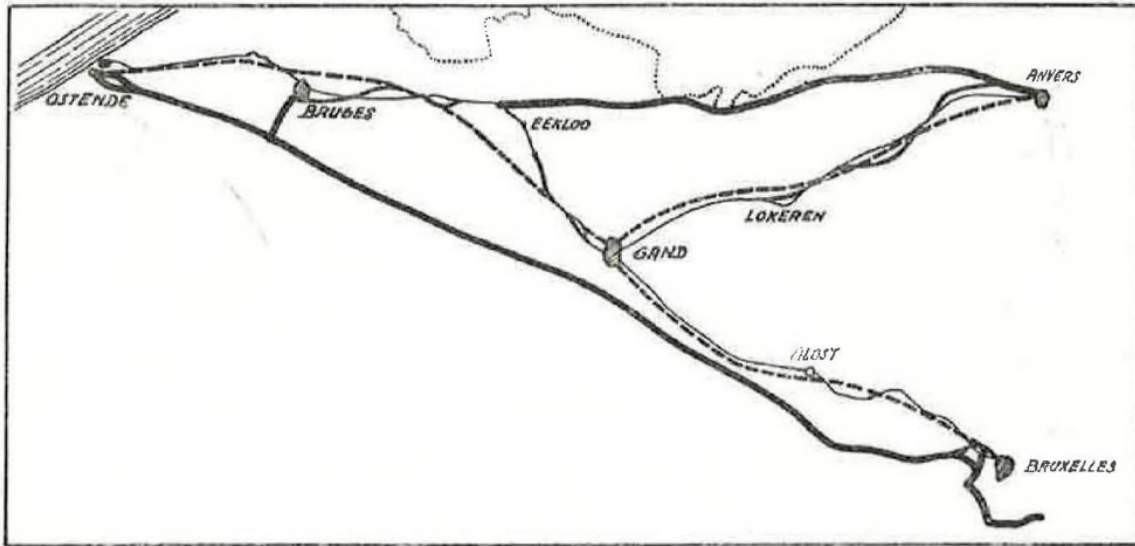


FIGURE 3 Overview of the major roads and highways that existed or were planned during Desplanques' study, as used in his publications. Full lines show the planned routes that bypass the city centre of Ghent, dotted lines the arrangement that becomes possible in the Desplanques-Magnel project.

Desplanques also brings forward a negative argument for the planned route six kilometres south of Ghent. Such a trajectory should be avoided, because the highways' passage would attract new urban developments in between the current city centre and the highways' access. This would inevitably spread the urban agglomeration of Ghent.¹⁷

Protecting the well-defined urban centre from sprawl and urban dispersion is the main concern of the second group of arguments. Desplanques deems dispersion irrational since it is inefficient and leads to high costs for society. To theoretically underpin this standpoint he compares three paradigmatic settlement patterns: one with freestanding tower blocks of eleven floors, one with buildings with three floors and one with single-family houses. For these three types of settlements he calculates the cost of electricity distribution – which he considers a *pars pro toto* for all (public) services –, the required surface area and the amount of public and private space available. The first pattern turns out to be the most profitable on all levels and therefore Desplanques considers a dense agglomeration preferable over the less compact types.¹⁸

In this exercise, Desplanques finds an argument for highways to cross large agglomerations, but to avoid smaller ones. The latter type would grow due to the accessibility of the highway, causing a too big dissipation of the urban. Likewise, neglecting the already existing urban centres would result in dispersion and would generate ribbon development along the access roads. This type of development causes for Desplanques the most unsafe roads and are the basis for a loose, hence inefficient settlement pattern.¹⁹

A last group of arguments concerns the opportunities the Desplanques-Magnel project has to offer for the city of Ghent itself. Besides better embedding the city in the nation's infrastructural framework, re-tracing the highway's route makes it possible to envision a plan to "urbanise" and modernise what the engineer calls the slums surrounding the city centre. With the same rigorous zeal with which he calculated his basic computation that indicated the most appropriate route in function of time, distance and speed, Desplanques figures the maximum public investment that might be spent in order to still be beneficial in comparison to the southern route.²⁰

Although he leaves the actual design of the new modern neighbourhoods to the skill of architects and urbanists²¹, he concludes that such a project is technically and financially certainly feasible.

The manner in which the proposal deals with the highway and its territorial consequences (in particular for Ghent) show the great importance Desplanques attaches to the project of urbanisation and the place of the engineer therein. He ascribes a very specific and important societal role to urbanism that cannot be attributed to a single utility service such as the electricity distribution. Exactly because of its comprehensivity, an appropriate model of urbanisation is crucial for the economic and by consequence social spheres of society.²² Yet such a model could, in his view, only take advantage of “[t]he engineer who, in so many domains, has showed his bold, beneficent, at times staggering power to create[.]” And he continues:

“[He] has to take the lead of a movement to resolutely address the study of the multiple problems of the road and of urbanism, in collaboration with the architect, the artist and the hygienist. He will once again render an immense service to the collective and in this way, better than the most distinguished economist, he will set things right and to prepare the ground for the realisation of an ever better future.”²³

ANOTHER FUNCTIONAL CITY (IS POSSIBLE)

With the highway project and its urbanistic implications, Desplanques is involved in the debates on the accommodation of the Belgian territory. He firmly takes position in favour of the city and argues against the further dispersion of infrastructure, dwellings or urban functions. Or, as is written in a discussion on the Desplanques-Magnel project, a “prominent city, resolutely modern, or rather triumphant” which will only materialise if “urbanism intervenes vigorously”²⁴. The city Desplanques pleads for is of course no other than the functional city.

Nonetheless and to a seemingly greater extent than his mentor Le Corbusier²⁵, the Belgian engineer also takes into account the logics behind the current dispersed nature of the territory. From the second half of the nineteenth century onwards, Belgium’s spatial policy had been centred around the easy access and use of land and labour and a generalised mobility in order to propagate the industrialisation. Combined with an administrative system which was distributed over powerful municipalities, provinces and a liberal oriented central government this resulted in the chaotic dispersion of activities all over the territory.²⁶ His discussion of the highway as an indispensable connective infrastructure in Belgium’s multipolar economy, combined with understanding the necessity for accessible, but well-delineated villages makes that Desplanques’ plea for the functional city can be read as an attempt to rationalistically restructure this condition of dispersion in the Belgian context.

The way in which Desplanques employs the functional city to achieve his goal was not the only take on the concept within the Belgian territory. Moreover, just as the concept of the functional city varied considerably among the supporters of the modernist views on the city, so did the ideas for the reterritorialised Belgian urban framework. This becomes clear when Desplanques’ vision for Ghent is juxtaposed to the studies undertaken by Victor Bourgeois on the region of Charleroi as the latter’s studies reveal yet another layer of the discussion on the functional city.

Unlike Desplanques, Victor Bourgeois was a prominent figure. He stood at the forefront of Belgian modern architecture and was elected vice-president of CIAM. In his recent monograph on the architect, Strauven notes Bourgeois’ broad approach to urbanism.²⁷ His combining of the ideas of the functional city with that of Milyutin’s linear city, Otlet’s universalism and Geddes’ emphasis on survey, reveals a non-dogmatic understanding of the concept. This made that Bourgeois’ relation to the organising committee of CIAM IV, presided by Cornelis Van Eesteren, was rather turbulent. Also the Belgian contribution to the congress, which Bourgeois supervised, attests of his nuanced take on urbanism and urbanisation.



FIGURE 4 The north-south axis as illustrated in the Belgian contribution to CIAM IV. In the north lies Antwerp, with its major seaport and good connection to the administration in and the bourgeois culture Brussels. From the capital, different types of transportation networks radiate all over Belgium, with a significant bundle linking the city to Charleroi. The latter city lies in the middle of the economically important string of Walloon coal basins, square to the southern end of this ABC-axis.

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In the Belgian contribution, the nation's territory is interpreted as the interplay of various processes of urbanisation. Within the multipolar network of merchant towns that characterised the territory since the Middle Ages, the rise of a north-south axis is observed. The authors of the project argue that the historical strengthening of the functional complementarity and of the communication channels along this axis made it the spine of the nation's economic framework.²⁸ It connects the logistics of the Antwerp seaport, the light industry and administrative centrality of the capital Brussels and the heavy industry of Charleroi. According to Bourgeois and his collaborators, none of the Belgian cities, and these three in particular, can be considered outside their relation with this axis and its secondary branches.

Bourgeois' CIAM contribution wanted to analyse both the separate and the combined territorial logics that shaped these three cities. Internationally, his effort had limited impact on the theoretical development of the functional city. This might be due to none of the Belgian contributors being aboard the S.S. *Patris*.²⁹ Furthermore, the discussion of the multipolar Belgian territory proved to be a rather singular case. Most of the CIAM contributions started from the historical city and remained attached to its centre, e.g. Le Corbusier's 'reconstruction' of Paris into a 'concentrated city'. While other distributed city models, where for example introduced by the German and the British groups of CIAM, these were centred around a single main city. A discussion of the German Ruhr, which probably would have needed a similar approach to that of the Belgian ABC-axis was, although asked for by Gropius, not presented on the congress.³⁰

Nonetheless, throughout the 1930's, the architect would elaborate his studies on Charleroi.³¹ Not only was this his native town, also its genesis and particular type of urbanisation fascinated him: "Charleroi has grown by force of a single factor: Industry. [...] It owes its development to a sole economic determinism."³² In his studies he analyses the industrial logics that drove the emergence of the Charleroi agglomeration, but also develops strategies to coordinate these territorial processes. Indeed, he writes, after accommodating the development of industrial activities "it is now time to proceed to this other essential necessity: urbanisation."³³

In the way Bourgeois deals with services such as the electricity distribution his strategy to reach this objective becomes clear. He recognises the necessity of electricity in the emergence of industrial production processes and locates the original significance of the service there. He goes on, however, to emphasise that extended benefits can be achieved when the organisation of such services is over time embedded in a more comprehensive perspective. Also the utility of electricity in the modernisation of the home must be taken into account, for example. Therefore, Bourgeois argues in favour of shifting the approach to the accommodation of the territory from a logic of industrialisation to one of urbanisation..

His text is illustrated with schemes and maps with a key inspired on the CIAM conventions. Also the topics Bourgeois deals with resemble the different zoning categories used by CIAM. In the book *Charleroi, Terre d'urbanisme* he and René De Cooman successively address 'industry', 'transportation' (by road, water and rail), 'dwelling', 'planting' [*verduration*], 'physical education and recreation', 'zoning and agglomerate functions' (administration, health and provisioning) – according to the chronology in which they came to affect the Charleroi region. In each of these categories Bourgeois tries to understand the logics that drive their development, their function in the greater whole and makes proposals to retrofit these logics from a comprehensive perspective. In the end, this results in a coherent vision for the region rather than in a distinct project. "It is not a question of increasing the pace of public works, but of coordinating the activity of about thirty communities and their inhabitants – industrials and individuals – of arranging the needs and their fulfilment in order to make a reasonable and harmonious whole."³⁴

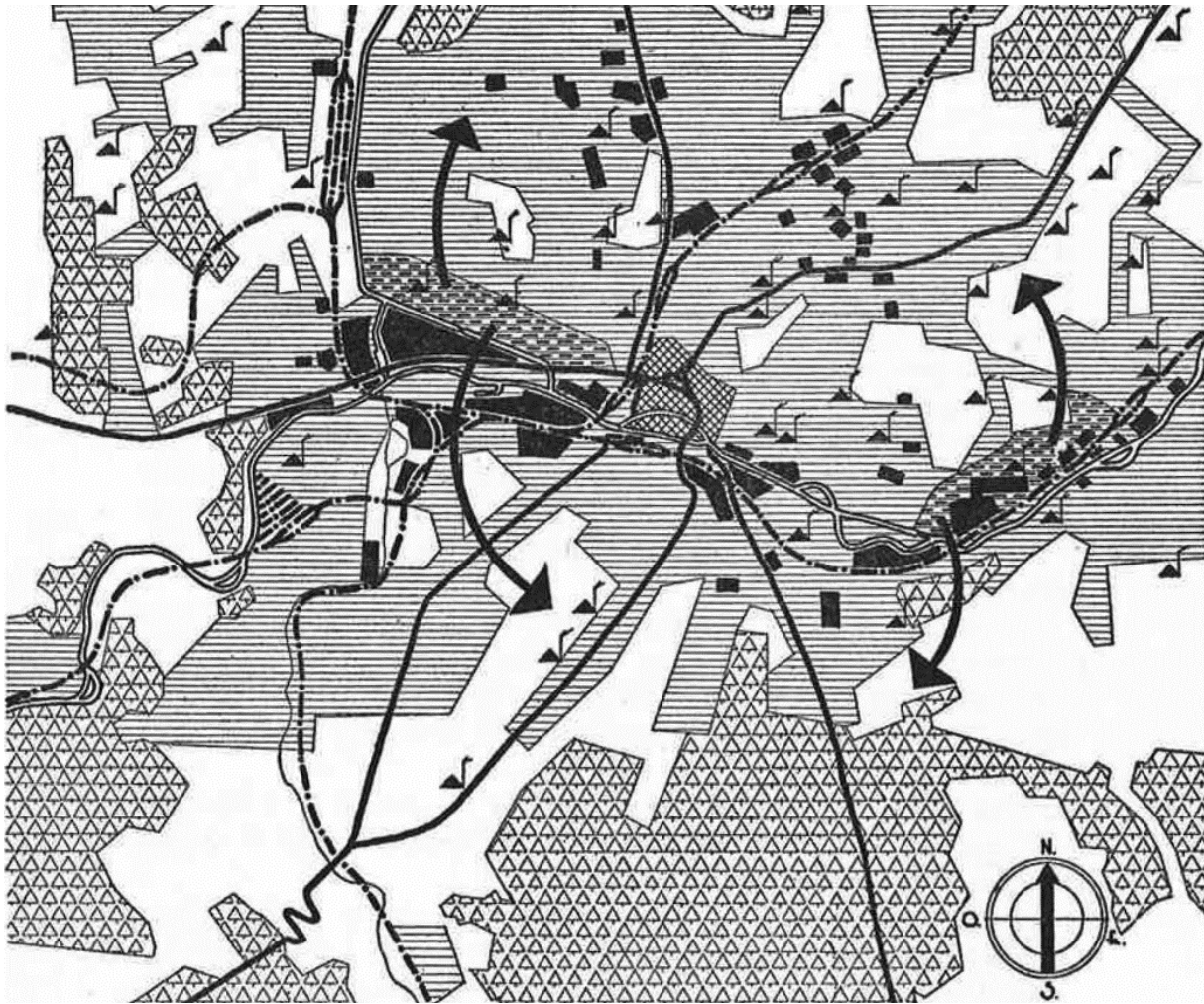


FIGURE 5 Map discussing the suitability of dwelling space in the region of Charleroi, drafted – with a CIAM-like key – as part of Bourgeois' studies. Bourgeois proposes to progressively move the dwellings that have historically been constructed around the polluting factories in order to create separate industrial and (healthy) residential zones.

DISCUSSION AND CONCLUSION: THE NEBULAR CITY AS A FUNCTIONAL CITY

Desplanques was aware of Bourgeois' studies. In his letter to Le Corbusier, he stated to have participated in one of the workshops that were organised as part of their research trajectory and “was pleased to observe that his conclusions were the same as mine”.³⁵ Indeed, as well Desplanques as Bourgeois tried to embed the ideas on the functional city in the Belgian territorial context, but at certain points their approach differs. Desplanques emphasises the reciprocity between the various types of services and accommodation that are being spread all over the nation and pleads for a more conscious attitude in their planning. Bourgeois, for his part, examines the various processes of industrialisation that have shaped the territory and tries to envision an urban structure that improves the outcome of their interplay and that can generate new opportunities.³⁶

In their projects Desplanques and Bourgeois developed an approach to the Belgian urban condition inspired on the international debate on the functional city. As such they can be considered the vehicles through which the urban ideas and ideals of the modern movement resonate locally. Nonetheless, both projects are still marked by the characteristics of their Belgian context. These works do not merely elaborate these ideas in conceptual plans, but try to search for the functional city in (what later would become known as) the nebular city.

Both authors are concerned with the loss of efficiency and opportunities that might result from the loose and chaotic dispersion that characterises the nebular city. To avoid ‘the great waste’³⁷, Desplanques argues to better engage the dynamics that come with the laying out of territorial accommodation. In this way he wants to rationalise the territory in order to minimise the costs of the economic and societal organisation that implements itself on this infrastructural framework. The nuance Desplanques displays in his consideration for the route of the highway, however, somewhat gets lost in the schematic and decontextualised vision for a modern Ghent.

By acknowledging the logic of the dynamics in the multipolar Belgian territory, Bourgeois reveals a functional understanding of the existing condition. He then goes further to advocate a generative, creative coordination and rearrangement of the processes that shape the territory. In his view, it becomes the task of the urbanist to conceive structures that are as well capable to accumulate as to engender opportunities in line with this multipolar functionality of the Belgian territory: “[U]rbanists reconcile the most diverse interests and assays in light of a better reciprocal return of things that come forward and things that edify. In other terms, urbanism perfects the relations between natural elements and the organised basis of the territory. It is the amelioration of relations and reactions of the outside world.”³⁸

As well Desplanques as Bourgeois see improving the efficiency of the territory as preventing the possibility of a parasitic urbanism.³⁹ Their projects start from a position in favour of the collectivity and want to avoid that some can profit disproportionately from opportunities in the territory or from societal efforts (e.g. public investments such as the electricity distribution).

In the dense, but chaotic interplay of the manifold processes of industrialisation and modernisation, complicated by the traces of several territorial strategies of former modes of production, the plea for urbanisation that is expressed in the projects of both men seemed to offer a meaningful and rich perspective to reterritorialise the Belgian territory. Since this condition has merely changed and the impact of these logics and processes has only endured, such an ‘art of urbanisation’ might still be valuable to deal with the questions of urbanisation today.

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Notes on contributor

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Image Sources

- Figure 01: J. Desplanques, Organisations du réseau routier, 39.
- Figure 02: Fondation Le Corbusier [T2(12)214].
- Figure 03: J. Desplanques, Organisations du réseau routier, 44.
- Figure 04: René De Cooman and Victor Bourgeois, Charleroi, 33.
- Figure 05: GTA-ETH Zürich.

Endnotes

- 1 The metropolis can be described as a first urbanistic answer to the industrialisation. However, the ever growing cities, the extension of industrial activities in terms of size and geographical scope and its social implications made that new strategies had to be found to cope with the spatial consequences of industrialisation.
- 2 This becomes clear with an overview of all the contributions. Evelien van Es et al., eds, *Atlas of the Functional City: CIAM 4 and Comparative Urban Analysis* (Bussum: THOTH, 2014). assembles all contribution of the congress and includes as well some revealing essays. Especially those of Daniel Weiss et al. (11-24), Sokratis Georgiadis (49-59) and Sophie Wolfrum (83-90) go deeper into this particular discussion.
- 3 The 'nebular city' is a notion used for describing the dispersed condition of the Belgian territory. Although the notion was only introduced in the Belgian context around the turn of the 21st century, it appears as well in studies that research the historical logics and processes that produced this particular condition.

- 4 Investing in collective consumption (housing, education, health care, ...) could largely be avoided by distributing these costs over the resources of the many local communities. See on this Dieter Bruggeman and Michiel Dehaene, "Urban Questions in the Countryside: The history of Electricity Networks as Collective Consumption in Early 20th Century Belgium" (paper presented at the RGS-IBG Annual International Congress, Exeter, September 2-4, 2015).
 - 5 On the history of the nebular city, see, for example, Bénédicte Grosjean, *Urbanisation Sans Urbanisme: Une Histoire De La "Ville Diffuse"*, (Wavre: Mardaga, 2010); Maarten Van Acker, *From Flux to Frame: Designing Infrastructure and Shaping Urbanization in Belgium*, (Leuven, Leuven University Press, 2014); Greet De Block, "Designing the Nation: The Belgian Railway Project, 1830-1837." *Technology and Culture* 52, no. 4 (2011).
 - 6 The research on which this article is based is part of a project that wants to investigate this shift from industrialisation to urbanisation in the Belgian context. It does so by looking at the evolution in the way in which the territorial impact of the provision of electricity was dealt with. While these kind of utility services were initially only seen as a way to induce industrial productive activities, this research tries to examine to what extent reflections on its possible role in projects of de- and reterritorialisation led to the (determined) consolidation of the industrialised territory in a logically coherent urbanism – urbanisation.
 - 7 Jerome Desplanques (1891-1943) is quite an enigmatic figure. Apart from his professional career as director of the Ghent municipal electricity company little is known about the man: He commissioned (Jan-)Albert De Bondt to erect several of the company's buildings (technical as well as administrative and residential buildings) and his own villa in Asse. Early in the Second World War, Desplanques joined the originally left-wing resistance movement 'Independence Front', likely because of a connection to the freemasons lodge 'De Zwijger'. At that time, this lodge mainly grouped people within the academic circles of Ghent University.
- See Dossier Desplanques Jeromes [archival document], PM 156, Nationaal Museum van de Weerstand, Brussels; Lucien Deconinck, "Verslag over de weerstandsbedrijvigheid gedurende de bezetting" [archival document], 4A2/5, box 8, dossier weerstand 1944-45, Universiteitsarchief UGent, Ghent; Anthony Demey, Norbert Poulain and Andrea De Kegel, *Jan-Albert De Bondt, Architect* (Ghent: Provincie Oost-Vlaanderen, 1994); P.-L. Flouquet, "L'architecture industrielle expressive: les sous stations électriques gantoises de J. Alb. De Bondt," *Bâtir* 47 (1936): 884-886;
- 8 The original text reads: "Monsieur Le Corbusier; / J'ai le grand bonheur de posséder et d'avoir lu presque tous vos ouvrages; j'ai visité le très intéressant pavillon des "Temps nouveaux" et tout cela a éveillé en moi une très vive sympathie pour les idées que vous défendez. / Comme directeur du service d'électricité de l'agglomération gantoise (200.000 habitants), je me suis rendu compte combien est important le problème de l'urbanisme. Et cette importance n'est pas moindre pour tous les autres services publics et pour beaucoup d'activités du domaine social et du domaine économique en général." J. Desplanques to Le Corbusier (18/10/1937) 1, accessible in the archives of the Fondation Le Corbusier T2(12)187-190, translation by the author.
 - 9 Gustave Magnel (1889-1955) was a professor at Ghent University well-known for his pioneering work on reinforced and prestressed concrete.
 - 10 Leen Meganck, "Bouwen te Gent in het Interbellum (1919-1939): Stedenbouw, Onderwijs, Patrimonium: Een Synthese" (doctoral thesis, Ghent University, 2002) 39-40.
 - 11 As he recounts in Jerome Desplanques, "Tracé de l'Autostrade Bruxelles-Ostende dans la région Gantoise," *Bulletin de l'Association Permanente des Congrès Belges de la Route* 9 (1935): 7. The minister in question must have been Hendrik de Man, who commissioned the construction of Belgium's first highway as part of his policy of Grands Travaux to temper the effects of the long-lasting depression of the 1930's. As an international renowned champion of the rationalistic 'planism' the manner in which Desplanques writes of the laconic attitude of the latter's objections ("Gand ne compte que très peu de contribuables" and "le passage par Gand n'intéresse ni les Bruxellois qui vont à la mer; ni les Anversois qui vont à la mer ou à Lille") is remarkable.
 - 12 As shown in P.B. "Un projet d'autostrade Bruxelles-Ostende traversant diamétralement Gand," *La Flandre Liberale*, June 27, 1935, 3; Belgian Chamber of Representatives, Acts, 23 May 1935: 1182-1183.
 - 13 P.-L. Flouquet, "Pour un urbanisme héroïque...: L'autostrade Bruxelles-Ostende et le problème gantois" *Bâtir* 50 (1937): 1007-1010.
 - 14 Jeromes Desplanques, "Tracé de l'Autostrade Bruxelles-Ostende," 3-4 & 6-7; J. Desplanques to Le Corbusier (18/10/1937), 2; J. Desplanques, *Organisations du réseau routier*, 14-15; P.L. Flouquet, "Pour un urbanisme héroïque..." 1008 & 1010.
 - 15 Jeromes Desplanques, "Tracé de l'Autostrade Bruxelles-Ostende," 3-4 & 6-7; J. Desplanques to Le Corbusier (18/10/1937), 2; J. Desplanques, *Organisations du réseau routier*, 14-15; P.L. Flouquet, "Pour un urbanisme héroïque..." 1008 & 1010.
 - 16 J. Desplanques, *Organisations du réseau routier*. The of the basic computation he uses throughout his texts (e.g. p. 14). The diagram can be found as figure 1 on pp. 22-23.
 - 17 Jeromes Desplanques, "Tracé de l'Autostrade Bruxelles-Ostende," 7-8; J. Desplanques to Le Corbusier (18/10/1937), 2; J. Desplanques, *Organisations du réseau routier*, 15-16; P.L. Flouquet, "Pour un urbanisme héroïque..." 1009-1010.
 - 18 J. Desplanques to Le Corbusier (18/10/1937), 1 & annexes; J. Desplanques, *Organisations du réseau routier*, 16-27.
 - 19 J. Desplanques, *Organisations du réseau routier*, 6.
- Unfortunately for Desplanques ribbon development would in time develop into one of the most recognisable characteristics of the Belgian built environment.
- 20 Jeromes Desplanques, "Tracé de l'Autostrade Bruxelles-Ostende," 4; J. Desplanques to Le Corbusier (18/10/1937), 3-4; J. Desplanques, *Organisations du réseau routier*, 12-13 & 27-28; P.L. Flouquet, "Pour un urbanisme héroïque..." 1008-1009.
 - 21 J. Desplanques, *Organisations du réseau routier*, 17-18.
 - 22 J. Desplanques to Le Corbusier (18/10/1937), 1; J. Desplanques, *Organisations du réseau routier*, 3-4 & 32.
 - 23 The original text reads: "L'ingénieur qui, dans tant de domaines, a montré sa puissance audacieuse, bienfaisante, quelquefois déconcertante de créer, devrait prendre la tête d'un mouvement pour attaquer résolument l'étude des multiples problèmes de la route et de l'urbanisme, en collaboration avec l'architecte, l'artiste, l'hygiéniste. Il rendra un immense service de plus à la collectivité et ainsi, mieux que l'économiste le plus distingué, il mettra de l'ordre dans la maison et préparera le terrain pour la réalisation d'un avenir toujours meilleur." J. Desplanques, *Organisation du réseau routier*, 38. Translation by the author.
- In his letter to Le Corbusier he, however, downplays this belief in the capacities of the Engineer: "Je n'aurai pas la prétention de dire que cette façon d'envisager certains aspects de l'urbanisation est complète. Je pense toutefois avoir montré que l'urbanisation est un problème complexe où l'étude de l'ingénieur peut utilement seconder l'art de l'urbaniste." J. Desplanques to Le Corbusier (18/10/1937), 4.

- 24 The original text reads : “La ville des Comtes [Ghent] se trouve placée dans la quasi-impossibilité de devenir une grande ville résolument moderne, c’est-à-dire triomphante, si l’urbanisme n’intervient avec vigueur.” Pierre-Louis Flouquet in, “Pour un urbanisme héroïque,” 1007. Translation by the author.
- 25 As well Le Corbusier’s statements on the ‘reconstruction’ of the centre of Paris as the 1933 plan for the left bank of Antwerp reveal an only minimal attention for the broader territorial contexts of these cities. See, for example, Enrico Chapel, “From Paris to Athens,” in *Atlas of the Functional City: CIAM 4 and Comparative Urban Analysis*, eds. Evelien van Es et al. (Bussum: THOTH, 2014).
- 26 These three aspects are well-known topics in the study of the emergence of the nebular city, see for example Bénédicte Grosjean, *Urbanisation Sans Urbanisme*.
- 27 Iwan Strauven, *Victor Bourgeois (1897-1962): Radicaliteit en pragmatisme. Moderniteit en traditie*, 2 vols. (Ghent: Ghent University, 2015).
- 28 Victor Bourgeois, “4me Congrès Internationale d’Architecture Moderne: Extrait du Rapport sur l’Urbanisme en Belgique,” *LEquerre* 12 (1933): 8-10 ; and Iwan Strauven, “Belgium: a Peculiar Meeting between Nikolaj Miljutin and Patrick Geddes,” in *Atlas of the Functional City: CIAM 4 and Comparative Urban Analysis*, eds. Evelien van Es et al. (Bussum: THOTH, 2014).
- 29 See Iwan Strauven, *Victor Bourgeois*, 296-297 (note 50 & 51).
- 30 See Enrico Chapel, “From Paris to Athens,”; and from the same volume Gregor Harbusch et al. “Established Modernists Go into Exile, Younger Members Go to Athens”; and John R. Gold, “In Search of the Linear City”.
- 31 Apart from the CIAM contribution, Bourgeois would work at his studies on Charleroi in the frame of a lecture for L’Association des Géomètres du Bassin de Charleroi, a commission for l’exposition de l’eau and a study during the war for Le Centre Belge d’Etudes et de Documentation. See René De Cooman and Victor Bourgeois, *Charleroi: Terre d’urbanisme* (Brussels: Art et technique, 1946) 9-10 in which he assembles these studies and Iwan Strauven, *Victor Bourgeois*, 316-317.
- 32 The original text reads: “[...] Charleroi a grandi sous la pression d’un seul facteur : l’Industrie. [...] Elle doit son développement au seul déterminisme économique.” René De Cooman and Victor Bourgeois, *Charleroi*, 15. Translation by the author, emphasis by De Cooman and Bourgeois.
- 33 The original text reads: “Il s’agit maintenant de passer à cette autre nécessité essentielle: l’urbanisation.” René De Cooman and Victor Bourgeois, *Charleroi*, 67. Translation by the author.
- 34 The original text reads: “Il est question non d’augmenter le rythme des travaux publics mais de coordonner l’activité d’une trentaine de communes et de leurs habitants – industriels et particuliers – d’hierarchiser les besoins et leur satisfaction pour en faire un tout raisonnable et harmonieux.” René De Cooman and Victor Bourgeois, *Charleroi*, 67. Translation by the author.
- 35 The original text reads: “Je m’empresse de vous dire que j’ai assisté cet hiver à une conférence de l’urbaniste belge Monsieur Victor Bourgeois sur l’urbanisation de la région de Charleroi, et où le problème de l’urbanisation était étudié d’une façon beaucoup plus complète du point de vue économique et social. J’ai eu le plaisir de constater que ses conclusions étaient les mêmes que les miennes.” J. Desplanques to Le Corbusier (18/10/1937) 4.
- 36 A crucial, third figure in this respect, and for the visibility of the ideas of the modern movement in the 1930’s in general is Pierre-Louis Flouquet. It was he who interviewed Desplanques on the highway project for the magazine *Bâtir* and it was he who would give the engineer the contact details of Le Corbusier (as written on the visiting card of J. Desplanques, accessible in the archives of the Fondation Le Corbusier T2(12)186). Flouquet was also a close friend of Bourgeois. Already in 1922, the two friends co-founded the avant-garde group 7 Arts which published an eponymous magazine. About Flouquet, it can be argued that he offered the advocates of the modern movement a platform to their ideas and present their projects.
- Flouquet figures in a several studies on modernism, architecture or urbanism, but his life and work are never the prime subject. Other studies focus more on his role as a poet or painter. An ongoing doctoral research project by Irene Lund at the Université Libre de Bruxelles and Ghent University tries to shed more light on this intriguing and important person.
- 37 See Le Corbusier, “Le grand gaspillage: Exposé à Chicago,” in *Quand les cathédrales étaient blanches: Voyage au pays des timides* (Paris: PLON, 1937), 193-201. Deplanques quotes this text extensively in J. Desplanques, *Organisation du réseau routier*, 7-8.
- 38 The original text reads: “[...] les urbanistes concilient les intérêts et les essais les plus divers en vue d’un meilleur rendement réciproque des choses qui poussent et des choses qui s’édifient. En d’autres termes, l’urbanisme perfectionne les rapports qu’ont entre eux les éléments naturels et le fond organisé du territoire. C’est l’amélioration des relations et des réactions du monde extérieur.” René De Cooman and Victor Bourgeois, *Charleroi*, 11. Translation by the author.
- 39 Both men describe this aim very precisely:
- J. Desplanques: “[...] l’urbanisation rationnelle des grands centres [...] mettrait à la raison les parasites nombreux, plus ou moins visibles et voraces qui rongent toutes les activités réelles de notre vie économique et portent entrave au développement harmonieux de notre vie sociale.” As quoted by P.-L. Flouquet in, “Pour un urbanisme héroïque,” 1010.
- V. Bourgeois: “Aussi est-il condamné à sacrifier l’aspect individuel ou égoïste au profit du groupement, de la cité, de la région.” René De Cooman and Victor Bourgeois, *Charleroi*, 11.