
THE PRESENCE OF THE GERMANIC IDEAS ABOUT URBANISM AT THE SCHOOL OF ENGINEERING FROM PORTO ALEGRE, BRAZIL (1896 - 1930)

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This paper aims at discussing the role of the School of Engineering from Porto Alegre, between the years 1896 and 1930, as a channel for the introduction of ideas about the construction of cities, according to the urbanism widespread in Germany, from the mid-nineteenth century. The present study reveals the context of Porto Alegre, the capital city of the State of Rio Grande do Sul, in the South of Brazil. From that, the study adopts the School of Engineering and some of its engineers in the period know as/called the Old Republic as a means of conducting a historical narrative, analyzing the correlations of the School, both with the Germanic presence, as with urban issues. The research investigates which ideas circulated, as well as the means or vehicles by which these ideas have come to it. Furthermore, the research identifies at least two characters who had contact with this Germanic knowledge about city planning, while they studied at the *Technischen Universität zu Berlin* and analyzes the contributions of both to the spreading of these ideas over Porto Alegre.

Keywords

modern urban planning, urban planning in Germany, transfer and resonance of ideas, urban planning history, Porto Alegre, Engineering School

How to Cite

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INTRODUCTION

Between the end of the 19th century and the first three decades of the 20th century, the city of Porto Alegre went through major changes, involving socio-economic, populational, political - administrative and locational factors. These changes were closely linked to the pursuit of progress and urban modernization. At that time, we could identify the presence of a recent urban culture in Brazil, evidenced by the plan of Belo Horizonte, the new capital of Minas Gerais, authored by Engineer Aarão Reis, in 1894; urban reforms in the city of Rio de Janeiro, between 1902 and 1906 through the work of Engineer Pereira Passos, with avenues inspired by Haussmann's urban transformation in Paris; the plan of Engineer Saturnino de Brito for the extension of the city of Vitória, Espírito Santo, in 1896; and the opening of Avenida Paulista, in 1891, Anhangabaú Valley Plan between 1911 and 1916 and so many others improvements in São Paulo.

Within this context, Porto Alegre was also a capital city run by a strong and authoritarian government, represented by the Partido Republicano Rio-Grandense (PRR), a political party of republican motivation with explicit moral and philosophical principles, which were rooted in the positivism. The strong German presence in the capital due to the immigration that started in 1824, and the prevalence of a *Muttersprache* (mother tongue) within many social groups, including the technical environment, became important factors which contributed to the spreading of the Germanic culture.

Amongst the evidence that motivated this study, is the presence of important publications, manuals and treaties about Germanic urbanism at the Engineering School Library. Many questions emerged from documents: was there a movement of ideas in Porto Alegre regarding the Urbanism as it was known in Germany from the *der Städtebau* concept? By what means and vehicles? Through what figures? Could the Engineering School have been a path? Therefore, the present work aims at discussing the role played by the Engineering School of Porto Alegre and the contribution of some of its engineers within this context, meeting the collective effort to contribute with the field of city's history knowledge and the Urbanism in Brazil.

THE ENGINEERING SCHOOL OF PORTO ALEGRE AND THE CONTACT WITH BERLIN

The Engineering School of Porto Alegre (Figure 1), founded in 1896, had its origin associated with a political party and is recognized as an important technical education institution, which has always preserved an active participation on the city's history. The school aimed at preparing technicians, qualifying engineers and, as we may infer, provide the State with industry, transportation and farming development.

The school's main intention was to qualify engineers, "aiming only at being useful to the motherland empowerment", by providing them with the necessary theory for the practice of the profession¹. It also intended to divide the extensive science of engineering into special courses, in order to capacitate professionals more specialized in some of the different fields of engineering. The idea of courses lasting as long as two or three years, allowed people from less favourable socio-economic backgrounds to obtain a vocational qualification, so that they could become independent and useful to the country and family.

From the beginning, the teaching staff was also composed by professionals who had been closely related to the Germanic environment. Among the professors hired in 1898 was, for example, the engineer Rodolpho Ahrons, who had recently returned from his studies in the Prussian capital and who contributed substantially to the profession practice and teaching.

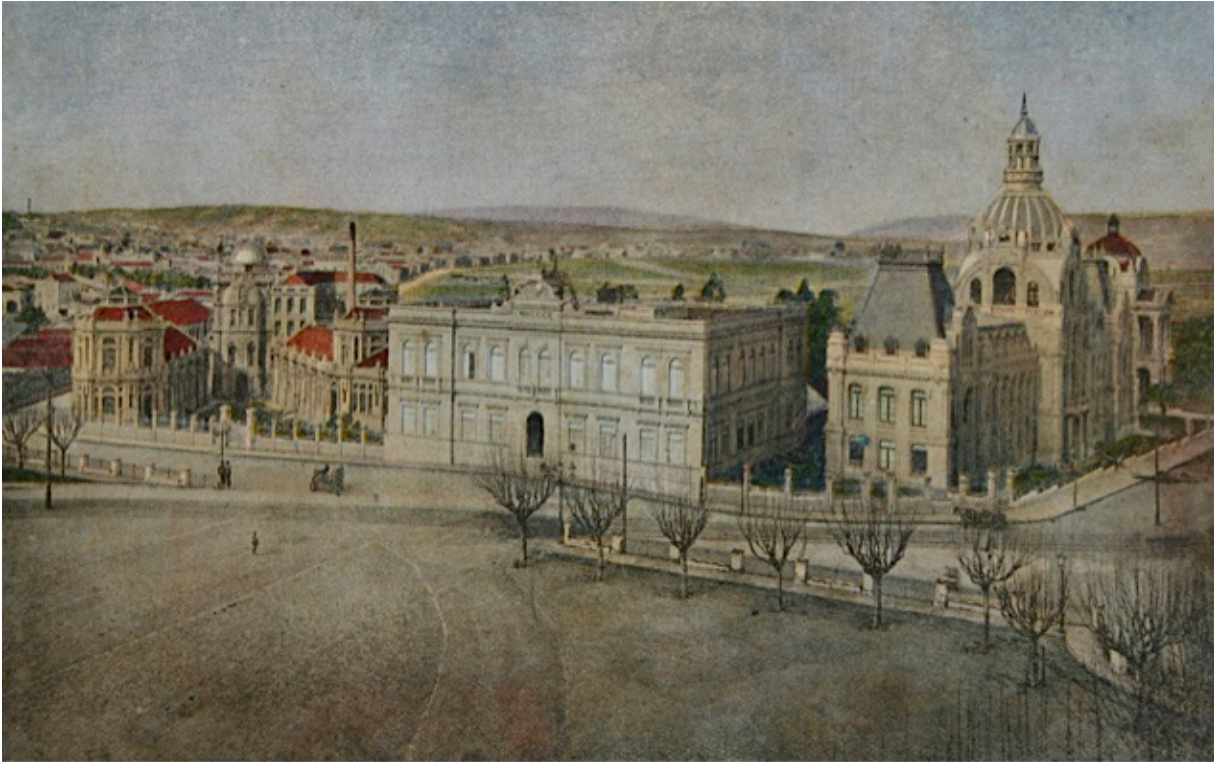


FIGURE 1 Engineering School view, 1911

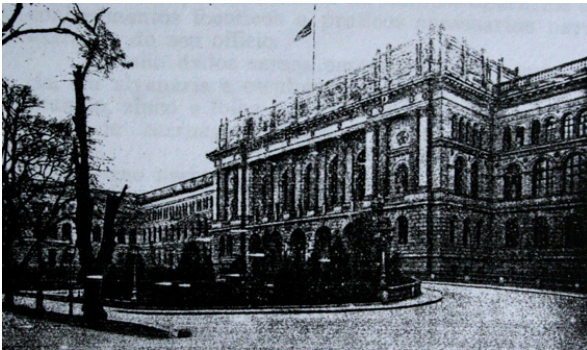


FIGURE 2 Royal Institute of Technology of Berlin main façade



FIGURE 3 Cover sheet from one of the fascicles of the Städtebauliche Vorträge, belonging to the Eng. Roberto Bruno de Escobar

No longer after 1909, the school administration sent the engineer and professor João Lüderitz² in commission to Europe – visiting France, Belgium, Switzerland, Italy and Germany – and the United States of America to get to know the professional education institutes, hire masters to the workshops and acquire material to the facilities. Because it was an excellent education establishment, he had the opportunity of visiting the Royal Institute of Technology (Königlich Technische Hochschule) in Charlottenburg, an area of expansion located west of Berlin. Figure 2 shows a rare picture - in the context of South America - from that school, published in the report by Lüderitz, when he came back to Porto Alegre.

According to McClelland³, as an institution dedicated to qualifying engineers and to contribute to technological development, the *Technische Hochschule* played a crucial role on the transformation process of Berlin in one of the biggest industrial cities of Europe. The Germanic school served as a model of technical education, which combined theory and practice. Professor João Lüderitz was amazed when visiting the institution facilities. In the present study, the focus in Berlin is due to the discovery that some engineers from Porto Alegre, such as Rodolpho Ahrons (1890-1894), Benno Hofmann (1911-1917), Roberto Bruno de Escobar (1913-1915) and Ernesto Woebcke (1921-1924) had studied at the *Technische Hochschule*, which is located there. Their registrations at that school were with the aid of the library from TU Berlin⁴. At this paper two of them will be particularly presented - they are Escobar and Hofmann.

Otherwise, the research shows that the instruction at the prestigious Germanic school was an important reference within the technical environment in Porto Alegre. In 1912 the contact between the Engineering School of Porto Alegre and both Europe and the USA became a lot more intense. Evidences of this are the frequent cases of professors sent on commissioned trips, or the professors hired abroad and the material bought, as well as the book collection and magazines purchased for the library. Not to mention that, starting from this year, the graduated students who stood out began to be sent to the educational establishments abroad to focus on their field of expertise. These pieces of information prove that the school was connected to the latest in the areas they were investing and performing at that time.

THE TRACK OF THE IDEAS THROUGH THE PUBLICATIONS: ENGINEER ROBERTO BRUNO DE ESCOBAR'S CONTRIBUTION

Born in October 6th, 1889, in Porto Alegre, Escobar finished Junior High School in 1906 and entered the Engineering School the next year, graduating as a civil engineer in 1910. Even after graduated, Escobar still kept strongly bounded to the School, and lived within the influential technical environment. Due to that, perhaps, in 1912 he was invited to be part of the Improvement Commission. Escobar, likewise João Moreira Maciel, the Plan coordinator, was initially invited as a technical assistant to work on the commission⁵.

In december 1913, Escobar enrolled on *Technische Hochschule* in Berlin to specialize in electricity, where he stayed until the next year, when World War I was sparked, forcing him to return to Brazil. Nevertheless, the time spent at this school was enough to show interest in the matters regarding city building, which were on the debates guidelines, so he also started to study about city improvements. In his trip back he brought with him a collection of books and publications, including the main titles of reference for the study of Germanic Urbanism.

Escobar died by the middle of 1917 in Rio de Janeiro, because of a severe pulmonary infection – which was probably Spanish Influenza – according to the news published in the newspaper “A Lanterna” from the Federal Capital and replicated in the newspaper “A Federação” (The Federation)⁶, from Rio Grande do Sul. The year after, the library of the Engineering School of Porto Alegre would receive a donation of 145 books for its collection, all of them belonging to Escobar. According to the news on his death, the young engineer had already foreseen the fateful outcome of his illness two or three days before, leaving his personal library to the Engineering School of Rio Grande do Sul. The delivery of the collection was conducted by Escobar's father, Marçal Pereira de Escobar, Federal Deputy for PRR, according to a letter found by the present research in the School's report of 1918.

These books are among the ones we have available now and which motivated the study topic of this research: fascicles from the Conferences about City Building (*Städtebauliche Vorträge*), by Joseph Brix and Felix Genzmer, promoted at the *Technische Hochschule* in Berlin. On one of the fascicles' title page, we identify Escobar's name written in cursive script, dated from 1914 in Berlin, as we see on Figure 3:

It was important to the research to understand how the books had landed in Porto Alegre or who had brought the books and the fascicles about Germanic Urbanism to the Engineering School. At the beginning the question was: who was Bruno de Escobar? Now it's easier to understand: these fascicles were sold at the academic environment, therefore the young engineer seized the opportunity to buy them. In addition to those books, others were found in the rare collection from the Engineering School, like the work of Reinhard Baumeister, *Stadterweiterungen in technischer, baupolizeilicher und wirtschaftlicher Beziehung*, published in 1876, which became the first widely known Germanic urban treaty, and the work of Camillo Sitte *Derr Städtebau nach seinen künstlerischen Grundsätzen*, at its fourth edition published in 1909, which also belonged to Escobar (Figure 4). Both of them are considered rare exemplars by the studies about Urbanism in Brazil. Most of the engineers in São Paulo or Rio de Janeiro had read Sitte in its French version, for instance.

How to explain Escobar's interest in acquiring these books? One possibility would be that because of the discussions about urban problems to be faced in Porto Alegre, the young engineer, as a member of The Plan Commission, may have had his attention aroused to the "urban" theme. Such must have been his interest, that he acquired the most important books and publications on the theme and attended some workshops during his short stay in Berlin. However, when looking into his brief history, one of the questions presented during this research is explained: the means through which these books, which were fundamental to the Germanic Urbanism, arrived at the Engineering school.

THE TRACK OF THE IDEAS THROUGH EDUCATION: ENGINEER BENNO HOFMANN'S CONTRIBUTION

Benno Hofmann was born in October 10th, 1892 in São Leopoldo, the fortress of Germanic colonization in Rio Grande do Sul. In 1912 he started the Civil Engineering course at *Königliche Technische Hochschule zu Berlin*, which he finished in 1916. He was therefore a figure who had his entire education in Germanic environment, in a context where the "relatively new science" concerned about city building was profitably nurtured⁷.

Among the disciplines that were part of the syllabus during Hofmann's education, some related to the city building emerged, such as the ones taught exactly by his professors, Brix in disciplines as *Wasserversorgung der Städte* (Water supply in the cities) and Genzmer in disciplines as *Geschichtliches und Stadttypen (...) für Architekten und Bauingenieure* (Urban art, history and types of cities (...) for architects and civil engineers). While Brix⁸ focused on technical issues related to the urban expansion project, Genzmer⁹ brought aspects concerning the city landscape into debate. These contents come up on Benno Hofmann's speech when he demonstrates concern with both technical nature questions and esthetic issues of perception.

In 1917 and 1925, Benno Hofmann contributed with papers to EGATEA Journal – the acrostic from *Engenharia, Ginásial, Astronômico, Técnico, Eletrotécnico e Agronomia*, all courses that the Engineering School offered at that time -, the first technical journal of engineering produced in Rio Grande do Sul, which circled between 1914 and 1934. The first paper was written as soon as the engineer arrived in Porto Alegre, what demonstrates that he got immediately involved with the technical environment of the capital, specially the Engineering School and its engineers. At this paper entitled "General considerations on water, its properties and use for water supply in cities" thereby addressing the "general policy of modern hygiene" according to Souza¹⁰.

Hofmann's ideas reinforce the perception that the sanitation issues ruled the debates about city building at the beginning of the 20th century in Porto Alegre, as well as in the other Brazilian cities. The second paper published in 1925, covered in two parts, is entitled "Notes on street construction of cities". The text starts with a criticism about "some street layouts made in an unregulated and objectionable way".

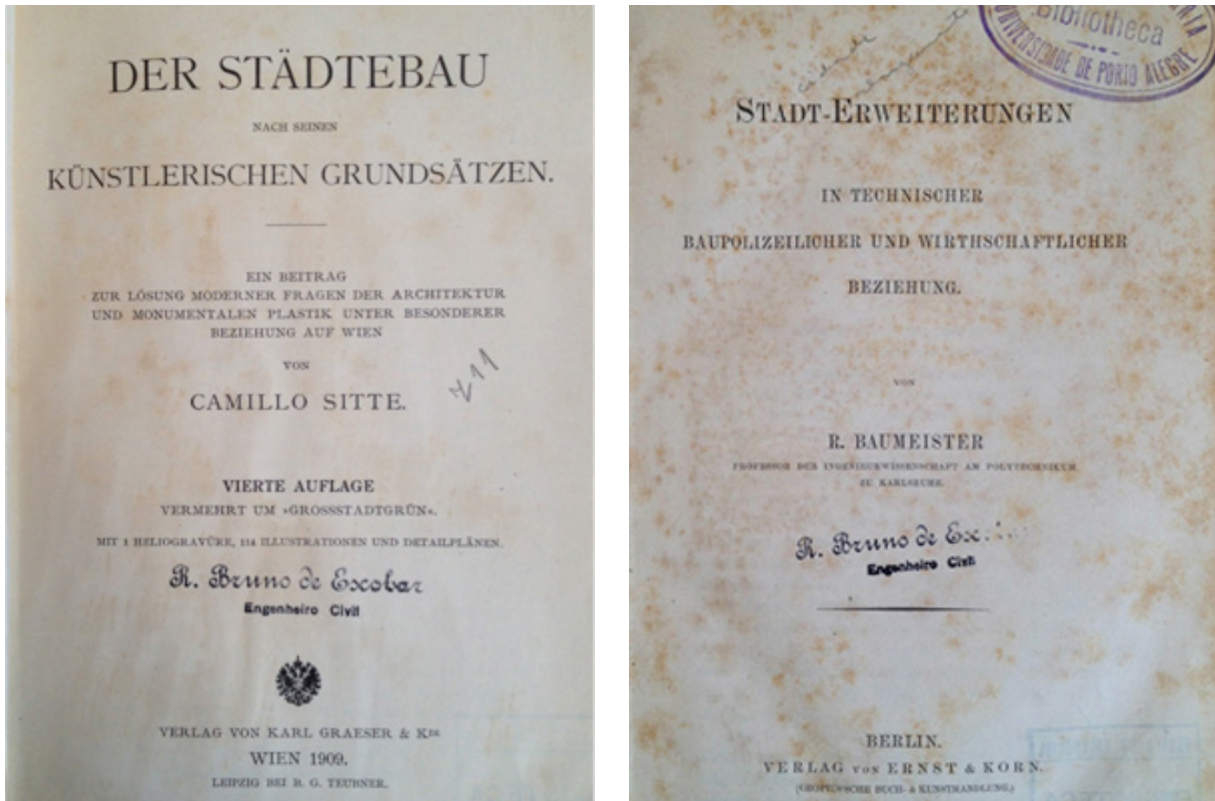


FIGURE 4 Reinhard Baumeister's and Camillo Sitte's books, belonging to the Eng. Roberto Bruno de Escobar

They are gradually made, according to occasional demands, and they don't follow a right plan. There isn't a general project to the new neighborhoods, designed under the modern needs of science or cities construction art (Urbanisme, Town Planning).¹¹

Hofmann introduces the idea of general plan for a new neighborhood, therefore addressing the question about city expansion, which in his opinion should be done according to the modern urbanism thinking. The author rejects the non-observance of any method previously thought based only on opening new streets that neglects the land topography as well as any hygienic and health condition. His criticism also lies with the “absolute” straight and perpendicular layout, the mathematical equality and the mechanical act, which result on a neighborhood that “offers the aspect of a chessboard with a dull and distasteful consistency with no variation to break it, rest and delight our sight” (Hofmann, 1925, p. 1). Furthermore, the engineer points to the fact that this approach would be meeting the economical conveniences of the people to whom the lands made into streets belonged to. Hofmann's speech was, undoubtedly rooted on the modern urbanism elements.

*If we don't want to compromise our cities future, not only concerning it's ornamentation but also its salubrity; if we want to be proud of having a city with the requirements of a modern city, built according to the modern norms, it will be necessary to abandon this erroneous system and to adopt another one, the only true system, which dictated by the progressive evolution meets the demands of an easy circulation of vehicles, health, convenience and aesthetics requirements.*¹²

The engineer claims that this “relatively new science” still hadn't found local recognition and “up to now, as I'm aware of, we still don't have an Engineering School in Brazil that includes in its syllabus a discipline about this subject”. He also indicates that the European schools had already introduced this discipline in their programs. Hofmann's pioneer feature is found when he shows mastery of the vanguard urbanism and a concern about city building based on the European references.

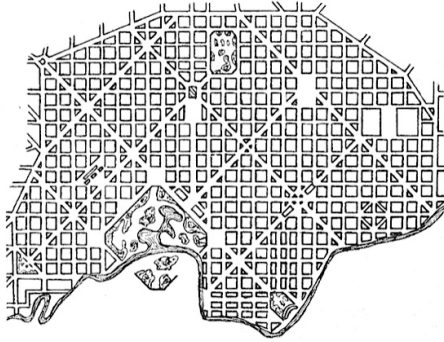


FIGURE 5 Plan of Belo Horizonte, by Aarão Reis in 1894

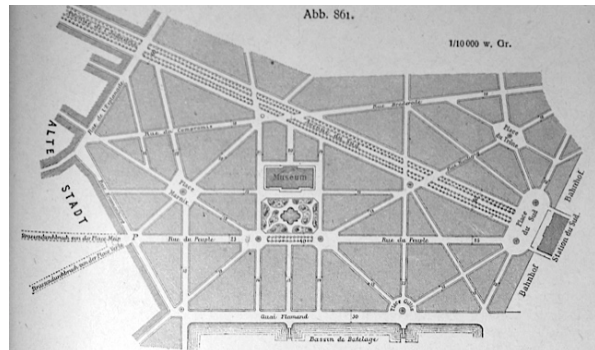
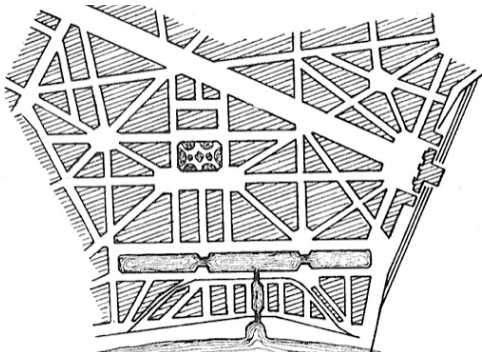


FIGURE 6 Diagonal layout in an extension of the city of Antwerpen according to Hofmann, on the left, and according to Stübben, on the right

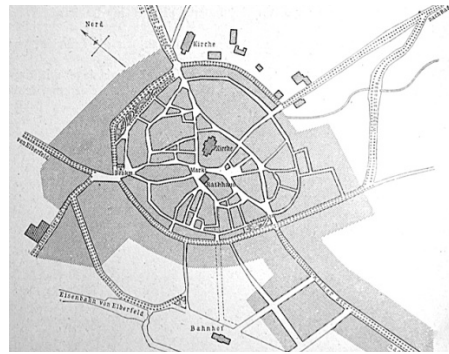
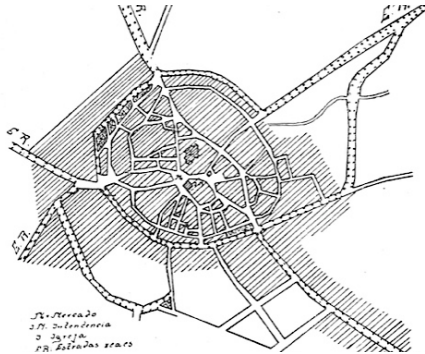


FIGURE 7 The medieval city of Lennep, according to Hofmann, on the left, and according to Stübben, on the right

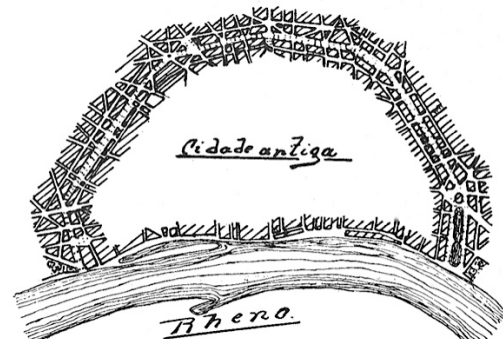
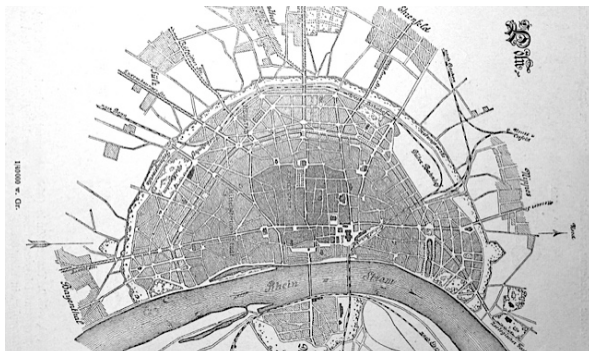


FIGURE 8 On the left an example of the outer circled street of Köln used by Hofmann, from Stübben's project on the right

Hofmann's paper presents an analysis of the city shape and addresses the use of models. In order to do so, he uses illustrations on which it became necessary to think about to better understand this figure's role on Porto Alegre's transfer of ideas. During this research we observed the similarity between the drawings used on Hofmann's paper and illustrations from other sources. From a textual and graphic comparative analysis, we could verify that Hofmann fundamentally used the concepts of layouts, streets and parks widespread by Stübben in his work *Der Städtebau*, first published in 1891. The comparative analysis was conducted through a copy from the third edition, published in 1924. In practice there wasn't the strictness on the citation of references. In spite of that, the reader is advised at the beginning of the paper about who the masters followed by Hofmann were (Sitte, Hénard, Stübben, etc...). It's hard to measure the influences suffered, however, the comparison between the discourses allows us to make an analysis between the local author and the ones with Germanic origin, through which is possible to prove that he is associated to Stübben's context. We could verify an extraordinary similarity between the discourses from both and therefore, from this analysis, we started to have evidence of the circulation of these ideas in the local environment.

The first Idea from which Hofmann makes use is concerning the highway system, which Stübben¹³ treats in his book as 'streets network system'. Hofmann¹⁴ changes only the order of presentation between the different kinds, but discusses through Stübben's speech the fundamental kinds of layouts for a city's arrangement of streets project: the rectangular type, the diagonal system and the radial system, calling the last one as a natural system once it refers to the natural development of a city, which happens from a central point like a church or the fairs park. In discussing the rectangular and diagonal layouts, Hofmann takes as example the Plan of Belo Horizonte, from the engineer Aarão Reis, 1894 (Figure 5). The new capital of Minas Gerais had been planned from the "clean state", with a checkered layout diagonally cut, inspired on Washignton's plan by L'Enfant. The plan received criticism, the most striking one was by Eng. Saturnino de Brito, who referred to the plan as "geometric lines".

However, according to Hofmann, "from the over application of diagonal streets there would be an extinction of rectangular blocks, which would be replaced by triangular ones. The author uses the example of the city of Antwerpen taken from *Der Städtebau*, according to the drawings comparison as reported by Figure 6. Stübben mentioned the example of *Quartier du Sud*, when addressing urban expansion.

As an example of the radial system, Hofmann uses the drawing of de city of Lennep, in Germany. The author reached the conclusion that the medieval city model would be the type used as a basis for the architectural plans of modern cities, as it would put together the advantages of the rectangular plan – preferably presenting rectangular blocks – and the advantages of the organic type, because of the radial and circular streets that would facilitate the traffic. Incidentally, the same street was used by Stübben to describe the layouts from the medieval cities, as evidenced on Figure 7.

Simões Júnior¹⁵ points out some of the basic principles of the Germanic ideas, amongst which there was "the debate concerning the best layout for the streets, applied first and foremost in the urban expansion areas: if they should be straight or curved (*krumme oder gerade Straßen?*)". When talking about the streets, particularly the outer circled of an urban nucleus, Hofmann draws attention to the example of Köln, in Germany (Figure 8).

These are just some examples of the engineer Benno Hofmann's appropriation from the ideas spread by Stübben about city building. Among other things, Hofmann's discourse drew attention to the threaten to the future of our cities, concerning not only their ornamentation, but also its salubrity, circulation of vehicles, health, convenience and aesthetics requirements. According to Hofmann, his "sole main" with this paper was "to cooperate in benefit of our cities and populations". It's possible to say, from this example, that Hofmann's intention of cooperation was far beyond. Permeated by a deep influence, the engineer sowed in the fertile technical environment of that time the ideas of a new discipline, the urbanism, based on its Germanic slope.

FINAL CONSIDERATIONS

The engineering school served as an open channel between Porto Alegre and Europe through which transitioned people and ideas, many of them coming from the Germanic environment. More accurately, a two-way path: there were professors going abroad in commissioned trips and students with opportunities of education and improvement; and there were masters and technicians from abroad hired to work at the school.

Through this channel, were brought here some of the most important vanguard works about city building - *der Städtebau* – published in Germany. One look at the library of the engineering school allowed us to identify in their collection books and publications about the Germanic urbanism. Therefore, the research shows the school as a guardian of a rare bibliographic collection, with books as the one by Reinhard Baumeister and Camillo Sitte, besides having kept for a long time the collection *Städtebauliche Vorträge*, organized by Joseph Brix and Felix Genzmer, holding also, among other discourses, the ones from Stübben.

The term *der Städtebau* wasn't used within the technical or academic environment in Porto Alegre. We could observe, however, that the ideas were present. Clearly, the actions related to city building were expressed in the words: “improvement”, “sanitation” and “hygiene”, which were part of the interventions roster from the modernization process of the Brazilian cities in this period.

The events of each trajectory can't be understood as isolated facts, if the intention is to think about the advent of a Germanic way of thinking through the Engineering School. One happened through the publications, while the other happened through the discourse published on the magazine from the institution. In spite of the misfortunes, Escobar's main contribution was to serve as a vehicle for the fascicles published on *Technische Hochschule* from Berlin to get to the school as a donation. The figure, however, who surely carries the Germanic ideas in his discourse is Hofmann, and through a comparative analysis it is possible to conclude that it is a transposition of ideas.

How to explain the fact that the propagation of these ideas didn't happen in a broad way and the resonances and continuities are not so explicit? Because of the harassment suffered by the Germans, mainly with the forthcoming World War II, many books in German were no longer read, were forgotten on the shelves or thrown away because nobody else spoke (or should speak) German. On the other side, in terms of lines of thoughts from Architecture and Urbanism, we can't forget that, soon after, Modernism would also suppress the manifestation of previous trends.

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Figure 1: Engineering School of Porto Alegre Report, 1912.

Figure 2: João Lüderitz. *Relatório da Viagem na Europa e Estados Unidos* (Porto Alegre: Globo, 1909). 28.

Figure 3: Inês M. Lersch, "A busca de um ideário urbanístico no início do século XX: der Städtebau e a Escola de Engenharia de Porto Alegre", (D.Sc. Thesis, UFRGS, 2014): 287.

Figure 4: Inês M. Lersch, "A busca de um ideário urbanístico no início do século XX: der Städtebau e a Escola de Engenharia de Porto Alegre", (D.Sc. Thesis, UFRGS, 2014): 287.

Figure 5: Benno Hofmann, "Notas sobre o arruamento das cidades", *EGATEA 10* (1925): 05.

Figure 6: Benno Hofmann, "Notas sobre o arruamento das cidades", *EGATEA 10* (1925): 05 and Joseph Stübben, *Der Städtebau* (1924): 465.

Figure 7: Benno Hofmann, "Notas sobre o arruamento das cidades", *EGATEA 10* (1925): 06 and Joseph Stübben, *Der Städtebau* (1924): 426.

Figure 8: Benno Hofmann, "Notas sobre o arruamento das cidades", *EGATEA 10* (1925): 82 and Joseph Stübben, *Der Städtebau* (1924): 468-469

Endnotes

- 1 Alvaro N. Pereira, 1898. "Carta ao Congresso Nacional". *Engineering School Report from 1897*. 26
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- 10 Ibid. 146.
- 11 Ibid. 1.
- 12 Ibid. 2.
- 13 Joseph Stübben, *Der Städtebau* (Leipzig: J.M. Gebhardt's Verlag, 1924). 477-480.
- 14 Ibid. 5.
- 15 José G. Simões Junior, "A contribuição germânica para a construção do urbanismo moderno (1870-1930): referência para os primeiros projetos urbanos em São Paulo". *Martius-Staden-Jahrbuch 2011*. 70.