The History of City Planning at the Faculty of Architecture, Warsaw University of Technology: Theory and Practice

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Abstract. This article seeks to underline the role played in project work by the history of city development. From the outset, the teaching on this subject at the Faculty of Architecture of Warsaw University of Technology combined theory and practice together closely, as is evidenced by both the curriculum as such and the ways in which it was taught. Moreover, it is attested clearly in the CVs of those who taught the subject. This paper, therefore, presents the roles played by various different urban planners and researchers into the history of urban planning, when it comes to the evolution of teaching on planning propaedeutic and urban-planning design. From the moment it came into being in 1915, the Faculty of Architecture had thought architectural planning and planning as such, as well as urban-planning design, with this also linking up with the study of the history of architecture and the history of city planning. Only the second institution in Poland (after Lvov in 1913) to establish a Department of City Planning (hence one dealing with urban-planning design), lecturers here were both practising architects and urban planners, and researchers in the field of history. The co-founder of the Faculty of Architecture, Tadeusz Tołwiński (1887-1951) began teaching in this field with a view to its serving as a basis for further work on design in cultural circles. And in his first handbook on urban-planning design (from 1934), that author devoted his first volume to a discussion of historical cities. The second then dealt with the design of the contemporary city, while the third volume dealt with the design of urban green space. T. Tołwiński’s approach to design took account of the achievements in the new field thereof that urban planning represented, such as the zoning of cities and the development of communal transport; while also linking this up with the sensitivity of a designer seeking to create a beautiful and healthy environment for living in the city that is at the same time loaded with significance. Wacław Ostrowski (1907-1990) expanded the scope of teaching on the urban-planning history in order to include the city in the times of the Industrial Revolution, as well as the start of the 20th century. Affording broad treatment to the matter of history of city planning, he at the same time drew attention to the ecological, social and cultural dimensions of the city creation process. Teresa Zarębska (1932-2003) continued with teaching of the basics of urban-planning design as first laid out by her predecessors. In her activity, she focused on research work, the results of which gained immediate implementation in the teaching programme for the subject, officially known as the History of City Planning. However, it was further her service to expand the teaching to include matters of the protection of urban structures. She then combined her research and teaching work with activity serving the protection of heritage towns and cities. And through to the present day, a key thrust to the teaching at WAPW has been for theory to link up with practice. For ultimately, there is no way to design in European cities without having some knowledge of the way in which they developed.
1. Introduction

The contemporary dynamics of changes that take place in the sphere of broadly defined city construction has forced the evolution of understanding the role of an architect in this process. From the position of a creator, an artist, an architect has become more like a manager, and the earlier individualism was substituted by the ability to work in a group. In a world of growing interdependencies, the position of this profession has become even more interdependent on other industries, although still an architect's responsibility is to coordinate a project. This also applies to an architect-urbanist who, acting on a larger scale, takes responsibility for urban-scale changes. In the educational process at the Warsaw School of Architecture, these two professions still run in parallel, and design issues on different scales are interwoven, forcing students to optimize the proposed solutions. It seems that the methodical assumption is correct, especially that it is sourced in more than 100 years of teaching experience, and it assumes that an architect must be aware of the consequences of actions on the micro and macro scales.

The second strong line of architects' education is making them aware of the importance of context and consequences of interfering with it in the design process. Each action of an architect is an intervention, therefore the more important from this point of view is to know the specificity of a given place. This strong trend results from the conviction that in contemporary design, especially in European cities, it is impossible to ignore their many years of layering and cultural values. Therefore, it seems obvious that it is necessary to study historical conditions to consciously make design choices, including those that in terms of style are deliberately separated from the environment. This creative consciousness must be built based on theory and practice.

Thus, from the establishment of the Faculty of Architecture at the Warsaw University of Technology (FA WUT) in 1915, the teaching of architectural design and planning, as well as urban design, was related to the study of the history of architecture and the history of city construction. University lecturers who, as the second in Poland, started the course of city construction (after Lviv [1913]) and established the Department of City Construction (in 1935 renamed the Department of Urban Planning), i.e. a department dealing with urban design, were both practicing architects and urban planners, as well as researchers in the field of history. From the very beginning of the urban design course for architects, the history of city construction has been treated in the Warsaw School as propaedeutic of urban planning and design, and lecturers have associated didactic activities with their own scientific and design work. Also, from the point of view of a rebuilding capital of the country which after 200 years regained independence, it was extremely valuable to educate future specialists in the field of architecture and urban planning in the city. Thus, the department became an expert base for the expanding city of Warsaw. In fact, positions at offices or expert functions were often assigned to lecturers of the FA WUT, and student works were used at exhibitions organized by the magistrate.

This article seeks to underline the role played in project work by the history of city development. From the outset, the teaching on this subject at the Department of Architecture of Warsaw University of Technology combined theory and practice together closely, as is evidenced by both the curriculum as such and the ways in which it was taught. Moreover, it is clearly attested in the CVs of those who taught the subject. Therefore, this paper presents the roles played by various different urban planners and researchers into the history of urban planning, when it comes to the evolution of teaching on planning propaedeutic and urban-planning design.

2. History of Town Building - a base for the first modern regulation plan of Warsaw, 1916

Tadeusz Tołwiński (1887-1951) was the first lecturer in City Construction at the Warsaw University - in parallel to the organization of the Architecture Department, he coordinated the work on the first modern urban plan of Great Warsaw and worked out a plan to rebuild the medieval Kalisz destroyed in the first days of the World War. The future professor at the Department of Architecture combined
design activity with scientific and didactic activity from the very beginning, working out a workshop that would allow him to develop a fundamental piece of work in the future - an urban design textbook which is now valued today as a historical position.

Probably still as a student at the Technical University of Karlsruhe, Tołwiński became interested in Howard’s garden city idea, which was treated as a method of solving the housing issue in big cities. In 1909, he published a series of 6 articles in Warsaw’s “Przegląd Techniczny” - a journal for technicians and architects - presenting the principles of Howard's idea and presenting to Polish readers, along with a critical commentary, English garden settlements he had discovered, including the first garden city erected at that time - Letchworth. In 1912, T. Tołwiński won a competition for the partition of the first suburban garden city of Ząbki, in which he adapted Unwin’s urban planning to the Polish tradition, designing a centre of layout along the lines of a small, modern Polish town. In the same year, at the Congress of Doctors and Hygienists in Włocławek, he delivered a lecture which in the Polish environment gained the importance of the ideological program of contemporary urban planning. Emphasizing the importance of a comprehensive approach to city planning, he emphasized that "the artistic richness of medieval cities should make us protect those monuments and avoid barbaric destruction of everything that does not correspond to modern civilization requirements [1]. In 1915, he designed a small garden settlement for war veterans and their families in the area of one of Warsaw's forts, which a year later was connected to Great Warsaw, and he did not take any money for this.

In 1916, the contest for the reconstruction of Kalisz - a city destroyed in the first days of World War I, which was regarded as a Polish city with the earliest metrics, as it was marked on the map of Ptolemy of the 2nd century AD, a great monument of medieval urbanism and architecture - was finished. The contest, the preparations of which started in 1914, announced in 1915 by the Circle of Architects in Warsaw, became a unique experience for Polish architects. It was assumed that the elaborated principles of the historical reconstruction of Kalisz would become a model for the reconstruction of Polish cities destroyed during the war. "The reconstruction of Kalisz will be at the forefront in a series of similar works in Poland after the war" [2]. Attention was paid to the importance of behaviour in the reconstruction of the historical plan, in a situation of almost total destruction of the historical buildings.

The presented competition solutions tried to resurrect the genius loci of the historical heart of the city, designing architecture that in terms of dimensions, proportions and composition related to the destroyed historic buildings, and was based on a slightly corrected medieval plan. The contest was not limited only to the reconstruction of the medieval city - it also concerned the development of the territories incorporated into it at the beginning of the 20th century. The work by T. Tołwiński met the conditions of the contest and received a distinction.

When the work on the first modern plan of Warsaw began, in recognition of Tolwiński’s experience in the then new field of urbanism, he was entrusted with supervision over the work plan (see figure 1). The development plan of the Polish capital was developed in conditions of World War I, in 1916, after the decision of the occupation authorities to significantly increase the city’s administrative range. The aim of the plan was to connect the areas connected to the city in a way that would guarantee the future harmonious development of Great Warsaw. For Polish architects - urban planners, it was imperative to emphasize the historical importance of the heart of the city, its objects of outstanding importance for Polish culture, and to create a modern vision of the capital of the state that regained its independence after 200 years of non-existence on the maps of Europe.

The preparation of the plan was preceded by multi-stage interdisciplinary preparations. A method of developing urban plans was worked out at that time, and it consisted in the division of planning issues between specialists, making a diagnosis of the existing condition and determinants of the
historical development of the city, multiple confrontations during discussions on results of analyses, and then gradually, after subsequent joint corrections, working out the final version of solutions [3]. Individual planning issues were developed by specialists who learnt at leading European universities, which allowed using the most innovative solutions. T. Tołwiński supervised the coordination of works, and he made sure that the plan had a general clear concept - both functional and aesthetic. It was also ensured that the plan could be implemented, indicating the need to develop a new building law that would guarantee the possibility of expropriation to implement transport improvements and that would allow the city authorities to buy out areas for the planned investments.

The plan was presented under the modest title: Preliminary sketch of the regulatory plan of the capital city of Warsaw 1, because it was expected that the work will be continued in the future. It outlined the main directions of the city's development, which, as was postulated, became the starting point for further plans developed in the interwar period.

Referring to the historical development of Warsaw, the stages of which are shown on the board devoted to this subject, an urban axis connected with the existing 18th century formation of the so-called Stanisławowska Axis. One of its historical "rays" created a monumental new urban axis of Warsaw, extending from the embankment of Warsaw westwards, on which the science district - university buildings - was threaded. This project was not implemented.

The most innovative element of the plan of Great Warsaw was the concept of green wedges, which was implemented after World War II, when Warsaw was rebuilt from wartime destruction. Wedges of greenery, separating new districts and aerating the densely developed city centre, were to be created from the connection of areas not yet developed, excluded from the development, associated with existing complexes of greenery, parks, squares and cemeteries. The urban greenery was to be complemented by a large folk park at the southern end of the city, where sports facilities, an Olympic stadium, race tracks, swimming pools and exhibition grounds on the opposite bank of the Vistula River were planned. Another innovative approach to design at that time was city zoning. A central district coinciding with the existing historic downtown, residential districts separated by green wedges, equipped with their own district centres, and a large industrial district were designed in Warsaw.

As assumed, the plan was created for subsequent design stages in the district scale, and then, on the architectural scale. Today, the plan sketch was unduly related to the style of the French nineteenth-century design school, but it should be noted that the authors had repeatedly said that they only "reserved" a place for future squares and architectural realizations the form of which will match the spirit of the new times.

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1 The preliminary sketch of the regulatory plan for the capital city of Warsaw includes 4 boards in a scale of 1: 10.000. The basic board collects information contained in three boards concerning: railway and city transport, the historical development of the city, the participation of urban greenery, existing and designed, in the city plan. An element of the plan is its description developed by T. Tołwiński, published by the Circle of Architects in Warsaw as Notes to the Sketch of the preliminary regulatory plan of the capital city of Warsaw, printed as a manuscript, Warsaw, 1st December, 1916.
3. The history of city construction for builders
Wacław Ostrowski (1907-1990), named Leyberg before the war, graduated in architectural studies in 1929 at the Gdańsk University of Technology. He was awarded the architect engineer diploma in 1933 at the University of Technology in Warsaw. He was a lecturer in a temporary office of the Warsaw University of Technology in Lublin organized in 1944, as the acting head of the Department of Urban Planning. There, he also gave classes on the history of city construction. Waclaw Ostrowski’s first encounter with the teaching of the history of city construction resulted in a series of publications in
this area. He met Tadeusz Tołwiński when the professor was a consultant in an urban studio in Lublin, where Ostrowski was the manager. This acquaintance resulted in a doctoral dissertation devoted to the history of spatial development in Łódź and the textile district during the Congress Kingdom, written under the supervision of Professor Tołwiński. In the years 1952-1972, he was employed at the Faculty of Architecture of the Warsaw University of Technology, from 1955 he was the head of the Department of Urban Planning and the Basics of Urban Construction, he taught urban design and the history of city construction. He was the promoter of many outstanding works in the field of city construction, covering the issues of their historical development but also applied urban planning, such as the work on the method of determining and applying gross density indicators in urban planning, or work on the spatial structure of a neighbourhood unit and organization of pedestrian traffic, or another one devoted to the issues of urban centres of small Polish cities, as well as the program and spatial structure of city centres performing the functions of sub-regional centres. He took care of staff development, mobilized to conduct research, the results of which were to be used for didactic work. At the same time, he made sure that the research is applied in practice.

Although the design path of his career was initially associated mainly with residential buildings, he soon discovered that it is his calling to deal with design on a larger scale. This was confirmed by his participation in many urban competitions or the development of a plan for Poznań, but also organizational and administrative activities.

He was an architect-urbanist, appreciated by the circles for knowledge and professionalism, as well as teamwork and management skills. It is not surprising that in the years 1930-39, at less than 23 years old, he worked as the head of an urban studio at the Faculty of Civil Engineering at the City Board in Łódź. After the outbreak of the war, he did not stop working in the profession and secretly worked in a secret architectural and urban studio of the Warsaw Housing Cooperative, or when escaping from the Gestapo, at the Commune Board in Biskupice, and later in Lublin.

Invaluable after the war as well, he played a key role in the reconstruction of Warsaw, when he became the head of the Urban Planning Department of the Capital Reconstruction Office. He was also a co-organizer of the Urban Planning and Architecture Institute established in 1949, and its scientific director for urban planning. He became the manager and organizer of the Department of History and Theory of Architecture and Urban Planning of the Polish Academy of Sciences founded in 1954. The Institute was an important centre that conducted research on the history of Polish and foreign cities. The team led by Ostrowski developed an interdisciplinary research method on the history of city construction used in many studies. The publications by the UPA used the Instruction on how to register cartographic sources to the history of city construction, which was later used extensively in urban and conservation activities [5].

His rich publishing output (about 100 works) is proof of great involvement in urban affairs. Tracking Wacław Ostrowski’s activities in various fields allows capturing their mutual dependencies. Consequently, he combined didactic, scientific, organizational and implementation work. He encouraged his employees and initiated design and research work, nurturing the principle of applying research in practice. Conclusions he drew from one work were successfully used in other areas. For example, his publications on tools and procedures related to municipal management, or interest in regional planning, and urban transport issues were related to the experience gained from working at the City Office of Łódź. He courageously pushed his visions and encouraged others to be courageous as well, which was best expressed in a publication in the Polish Review of "More Daring in Planning and More Courage in Realizing our Plans" [6]. He boldly reached for and quoted the achievements of other countries in the field of city construction (including American, English, Swedish and French experiences). In a sense, the sanctioning of its leading position in the world of urban planners was the fact that it was he who was asked to formulate the definition of "city" for an encyclopaedia published
in 1966. Finally, in the last creative stage, he focused on the problems of historical building complexes in contemporary cities.

The subject of greenery had a special place in his studies. The conviction that it is the natural environment that complements human life can be found in all of his works and publications. Ostrowski often referred to the achievements of English urban planning, in which the idea of a garden city played a very large role. Based on his own experience, knowledge of the history of urban planning, he contributed to construct the methodological basis for shaping cities in the spirit of sustainable development. Even when his career and belief in national socialism led him to take up the problems of industry in urban planning (in the socialist economy the industry played a very important role), he also indicated its detrimental impact on air quality and thus the quality of people’s lives.

The book entitled "Introduction to the history of city construction. Man and the environment" (see figure 2) published after the author's death, should be treated as the best work of the author - a kind of a testament. The original title was to be "History of city construction for builders", and the second was to be "City as an ecosystem". According to Ostrowski's philosophy of educating architects, the history of city construction was to be the starting point and inspiration for designers. The final title of the book was proof of the author's awareness that these two elements: man and the environment, should be at the basis of the art of city construction. Humanistic optics in the context of the environment, i.e. the influence of human activity on the environment, proved to be most important, because the phenomenon of the city is man's work, after all. In the section entitled "What history for city builders?", the author puts the motto of his book: "An urban planner is interested in the evolution of the city's shape, both in the past and in the future, as an expression of the development of the urban community, its ideology, the building program he wishes to implement, technical means he has, etc." [7]. The role of the multidisciplinary character of urban planning and the interdependence of various elements of the urban ecosystem became very clear in the book.

According to Ostrowski, the beginnings of contemporary urban thought should have been sought during a breakthrough period, when the technical thought took over the world and completely changed the image of the city. He treated the industrial revolution as a breakthrough point in civilization, and the industrial city as a product of industrial civilization, and contemporary urbanism as a reaction. He popularized foreign achievements known in this field in Poland. In the development of modern urban planning he emphasized the role of ground-breaking Polish achievements and studies, such as the 1871 project to organize the city of Kraków, the contest for the Great Kraków Plan of 1909, or the previously mentioned original plan of the Circle of Architects of 1916, developed under the direction of Tadeusz Tołwiński. At the same time, he emphasized the role of the development of the theory of city construction, pointing to Drexler's lectures at the University of Technology in Lviv and the fact that Tadeusz Tołwiński set up the Department of City Construction at the Warsaw University of Technology.

Wacław Ostrowski indicated that this increase in the movement of modern urban planning after World War I resulted from the need of the state's responsibility for the fate of its inhabitants. The changes at that time were obviously translated into urbanization processes. An expression of Waclaw Ostrowski's thoughts in this area were books on contemporary urban planning (also published in French and English). The social perspective and the author's sensitivity to social issues were clearly visible there. As he noticed, this was the result of many years of neglecting the industrial day, when a man was replaced by a machine, thus becoming objectified. The publication shows that ideologically, the socialist thought was closer to him, which is why he often quoted ideas proclaimed in socialist countries, deeply believing in their rightness. When forming the contemporary urban thought, he also attributed a huge role to the scientific and technical revolution. At the same time, he pointed to the devastating influence of human activity on the natural environment, condemning the blind belief in the
achievements of industrial civilization. He wrote about quantitative growth, which turned out to be wrong, and about the need for qualitative growth.

In his works, he mentions man as an element of the ecosystem which should live in harmony with the environment and respect for natural resources, which should abstain from excessive exploitation of nature in line with the idea of sustainable development. Believing in the creative role of man, Ostrowski warned against the organic, and hence chaotic, development of the city. As he claimed, an "organic city" must be built in a rational and functional way, if it is to be a comparison with the creations of nature [8]. He pointed to logic and rationalism in the natural world and justified it with the fact that an organic city is actually a broader concept than a functional city; therefore, it must have more respect for natural resources and minimized the negative impact of man on the natural environment.

As a continuator of Tadeusz Tołwiński's work, Ostrowski proved that to shape a better living environment, urban activities should be based on and use past experiences, as well as respect historical and natural values, and meet social needs.

Figure 2. Cover of the book by Waclaw Ostrowski entitled "Introduction to the history of city construction. Man and the environment", edition of 1996 [7]
4. History of Town Building - a base for reconstruction and conservation plans of Polish towns

Teresa Zarębska (1932-2003), a professor at the FA WUT, continued the line of teaching the basics of urban design set out by her predecessors. In her work, she concentrated on making the program of the history of city construction more modern as it was still treated, in accordance with the tradition of the Warsaw school, as propaedeutics of urban design. She focused on research work the results of which were immediately implemented in the curriculum. She combined didactics with conducting works on spatial development plans for historical structures of Polish cities. She prepared dozens of elaborates concerning the history of spatial development of Polish cities. The most well-known, cited as scientific papers, include studies on the history of the development of the northern district of Warsaw - Bielany, and the right-bank district of Warsaw - Praga.

Among the research constituting a methodological basis for the protection of historic structures in the spatial development planning of cities, there is the "Study of the revitalization of the historic urban centre of Kalisz", developed in 1975 in a team (together with A. Chylak) under the supervision of Wacław Ostrowski [9]. The study to which an elaborate on the historical development of Kalisz was prepared by T. Zarębska, who participated in the subsequent stages of the study, became an example of a new methodology of work in the environment of historical structures. In contrast to the previously used "static" progress of works, consisting in the development of conservation guidelines, and then, the development of a spatial development plan for the centre, the new methodology was "dynamic". A designer acting as a consultant was included in the next stages of the study. As a result of many consultations of historians of urban planning, conservators and designers of new elements of the structure, a joint position regarding possible and desirable changes in the historical team was worked out. As for Kalisz, it was decided to withdraw from the original historical transformation of the heart of the city into the city and region's administrative centre, and it was decided to design a new centre located outside the historical structure, but connected in terms of communication.

The Kalisz study was divided into two stages: the first one was limited to defining the area of immediate conservation interest: a protection zone of the historical structure, its exhibition, and a restricted zone for archaeological research and the area of archaeological observation and supervision during construction works. Elements showing the advantages of particular units, separate historical units, as well as elements degrading them were indicated. At this stage, conservation conclusions were not formulated on purpose, as the assumption was the designer's creative contribution to their development in the next stage. The second series of works concerned the preservation and the current situation of the historic centre. The possibility of taking over new functions by historical objects was defined as the basis for further project work. The technical condition of buildings, their current function and ownership status were analysed, whereas valorisation was worked out in terms of artistic and historical values. Only this study initially indicated the possibility of a possible adaptation of historical buildings to new purposes. After estimating the "absorptivity" of the historic buildings of Kalisz, it was decided that even in the case of renewal of historic buildings and restoration of streets, the city structure that was based on the medieval tissue would not accommodate the proposed modern functions. Preparations for the design were interdisciplinary and had many stages, and the future designer took part in each of them.

In Master's diplomas supervised at the Faculty of Architecture, Teresa Zarębska used a similar scheme of designer's work, responsible for preparing the most comprehensive range of historical and spatial analyses, and proposing solutions only after a detailed reconnaissance of the historical structure (see figure 3). The research included: determining the significance of a given city in a region, the history of the city, factors: geographical, social, cultural influencing the shape of the structure of the city, and study on the form of space: dominants, spatial axes, relations between significant buildings, valorisation of monuments, assessment of the conservation degree of greenery. Renewal projects of small Polish towns consisted of emphasizing their values that were very modest. The general rule was
to submit to what the environment of a given city dictates. Architectural building extensions proposed by graduates were not replicas of non-existing buildings. The professor encouraged students to search for the forms of expression of the present era, but warned against an excessive manifestation of "modernity".

Teresa Zarębska's merit was a significant extension of the curriculum with issues of protection of urban structures. The main field of research interests was the development of cities in the modern era. She also made the curriculum for the cities of the Ancient times more modern.

She combined her research and didactic work with activities for the protection of historic cities. In this field, as in the sphere of urban history research, she was an undisputed authority in Poland.

Figure 3. Sample board from the diploma thesis developed under the direction of Teresa Zarębska. Subject: Siemiatycze, graduate: J. Sylwestrowicz, academic year 1985/86. Board number 7 (one of 13 boards). Project of renovation of market and monastery (use of the monastery for new functions), revalorization of the market frontage [11]

5. Results and discussions
Urban planning requires a broader view of many problems. It is not without a reason that it is called an interdisciplinary science that combines many disciplines to ultimately enable the development of a better urban environment. By expanding knowledge of the achievements of past eras, a base is being built to protect the memory of valuable landscape elements that strengthens the city's identity. The careers and achievements of the professors of the Warsaw School of Urbanism presented in the article

2 T. Zarębska published works on the history of cities of the Renaissance that were based on source materials. A. Szmanter writes about Teresa Zarębska's didactic work in the context of the connection with her scientific work [10].
are proof of the rightness of this thesis. For years, the propaedeutic of teaching urban design at the Faculty of Architecture of the Warsaw University of Technology has evolved. However, the History of City Construction is still the basis for preparing graduates for to work in a cultural environment. At present, students are still being shown the achievements of the civilization of the Antiquity but the scope of discussing the history of cities has shifted towards presenting the development of cities in the era of industrialization and the inter-war period.

6. Conclusions

Nowadays, observing the behaviour of the construction market in Poland, we feel a clear separation of applied urban planning from the history of its development. The connection between academic centres and the urban planning process are also weakening. The results of the research are to draw attention to the benefits of interdisciplinary cooperation, which for years has successfully been developed at the Faculty of Architecture of Warsaw University of Technology, and to the huge role that well-educated architects and urban planners, aware of the value and historical urban development, have to play in urban landscape protection.

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