the city & universities

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Edited by
Natalia Przesmycka

THE CITY AND UNIVERSITIES

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Contents

INTRODUCTION

Academic spaces are important but not always appreciated elements in the functional structure of Polish cities. The buildings belonging to the public universities tend to be located in various building of the city what is often due to historical reasons. The most distinguished feature of Polish higher education institutions existend or created in the postwar period, was occupation of nationalized buildings whose original function were not always related to education. The next stage of development of the academic areas was formation of university campuses. The first Polish campus was designed from scratch in Lublin and so-called Academic Township. This idea appeared at the end of World War II. At the time the peripheral area of the city, today became one of the inner-city neighborhoods.

Arising after the Second World War campuses were located mostly away from city centers. Urban planning and architecture of the campuses were designed mostly as a result of architectural competitions. Polish urbanism drew from the patterns of western countries campuses and they were also related to the new established standards and guidelines, associated with the political striving for the centralization of all areas of planning.

The specificity of higher education involves constant development, changes and adaptation to the social and demographic conditions, and more recently also, and perhaps primarily to the current market needs. Buildings and spatial arragements must meet these requirements. The specificity of higher education involves constant development, changes and adaptation to the social and demographic conditions, and more recently also and perhaps primarily, to the current market needs. The existing buildings and the entire urban systems must cope with modern needs. The necessity of modernization of the material base of universities, makes results that buildings are rebuilt, expanded and customized to the current needs. It goes not always hand in hand with respecting the original architecture of the buildings, sometimes even leads to devastation of buildings which predisposes to become contemporary goods of culture. The demolition of the buildings of veterinary clinics in Lublin, clearly shows how difficult it is to reconcile the development policy of the university with the protection of architectural value.

In this monograph focused mainly on the issues relating to the public schools since their influence on the shaping of Polish cities structure is incomparably higher than the effects of the private schools.

The problem in most of Polish cities is fencing of academic spaces, the secretion of their parts even though not functionally predispose it to become a semi-public space category with restricted availability. University buildings always were distinguished from the other buildings, not only by their scale and function, but above all by their users. Similarly, public spaces located within the university buildings are exposed to specific problems. Their use varies during the day and season. A particular problem is the periodic rising traffic. In Western Europe, this is not so noticeable, as the part of student culture is cycling. Academic spaces also affect other urban areas, especially in the centers and the old city. Student and academic culture has had a perceptible influence on the towns as long as higher education exists.

Dormitories are a special kind of place of dwelling place. They are inseparable from the academic town. The third chapter broughts closer the outline of the formation of dormitories architecture. Dormitories are a place for living for shorter or longer period of time for many students, but not for everyone. The specificity of academic cities is also developing a special market sector for rental housing targeted especially for students.

In the publication architecture and urban university buildings of three selected Polish cities are characterized closer: Białystok, Lublin and Wroclaw. Each city has a completely different history of higher education. Bialystok, the youngest university center plays an important role as the city located most in the east of the country, where before the war there were no academic traditions. Lublin is a city were before World War II existed higher education religious school (Yeshiva College, Bobolanum, University of Lublin). Wroclaw belongs to a group of Polish cities, which after the Second World War came into the borders of Poland, for lands lost with eastern borderlands. Therefore after the war newly created higher education institutions, had rich available material basis, which consisted of the heritage of existing facilities.

Analized cities and universities differs from each other in size, age and academic traditions. Despite these differences, all three are university towns, where the relationship between the university and the city was established by student life. These are cities where higher education play a key role in economic and social aspect.

Methodological note: architecture and urban development of choosen cities is described in different way, as authors put the emphasis on different aspects of described places. The chapters are maintained continuous numbering illustrations, bibliography was developed as a joint and found at the end of each chapter or part.

UNIVERSITY DISTRICTS IN THE CONTEXT OF CREATING URBAN PUBLIC SPACES

Linking the university with the functional and spatial structure of the city depends not only on the location of the campus or individual buildings in the city but also on the accessibility and quality of public spaces being formed between the buildings. Owing to their way of development and use, these areas become the university's showpieces in the landscape of the city.

Visual identity and aesthetic quality of the campus consists not only in the beauty of the buildings but, above all, in the relationship between them and the environment. Their functional priorities are determined by university authorities deciding about the possible creation of parking lots, monuments, decorative greenery or meeting places for students, teachers and residents. Like buildings, which require repairs and modernization after several decades, urban layouts of academic districts also need to face today's needs. Any change in the university district is an opportunity to improve the quality of the public space of the city; on the other hand, changes involve a number of risks, among which the largest threat is the commercial approach to undeveloped areas. The present article discusses selected European examples of functional, spatial and cultural relationships between university districts and urban public spaces.

The role of university districts in the creation of urban public spaces is primarily related to the concept of a university town. It is a city whose cultural and economic functioning depends primarily on tertiary education. In a spatial sense, a university town is a city where other urban functions are interwoven with areas and buildings belonging to universities. European university towns are further characterized by strong cultural ties between the university and municipal authorities, most commonly exhibited in joint initiatives.

University districts constitute a form of microcosm and they should blend with the system of urban public spaces, both in the spatial sense as well as regarding their participation in the life of the city. Design solutions used in the grading of accessibility inside university spaces, and their clarity as well as visual quality affect the perception of the entire university.

An outline of relationships between towns and universities

Already in antiquity, the famous Platonic Academy educated young people so they could grow into wise citizens of comprehensive education who, in the future, would be able to govern wisely and thus better serve their city (city-state)[1]. The Academy was an element strongly associated with the city and particularly important for its future development. Another famous ancient academy created by Ptolemy I of Alexandria already had a spatial framework. Among others, a library of 700,000 volumes was created to serve its needs and it was located in a prominent place in the city. Thus, the relationship between the university and the city was obvious - it was to educate young people to support the city and its future development. The decisive moment for education was the ninth century AD, when Pope Eugene IV ruled that each cathedral should be accompanied by a church school. Cathedral schools formed a network of elementary education. In the same period, education developed also in the Muslim part of the world[2]. Higher education emerged in Europe in the eleventh and twelfth centuries. The first universities became independent of the cities and associated professors in a manner similar to guilds of merchants and chambers of craftsmen. They did not need special buildings for teaching purposes. In time, guilds would establish their seats - mostly in the scattered structure of urban centres (e.g., in Bologna). The architectural form of the earliest university buildings was based on the model of the monastery, and frequently consisted of several buildings connected by an inner courtyard.

In the Middle Ages, the relationships between the city, the church and the university were very close. Often, the same persons would hold positions in these three diverse worlds. The situation became more complicated, however, when with time universities gained more independence from cities and churches and became self-governed by their own internal regulations. Breakthrough came in the seventeenth and eighteenth century, with the progress in natural sciences and the growing role of experimentation and research as basic study methods. New scientific methods and the belief that society should benefit directly from the achievements of science led to the establishment of academies of science beside universities. Despite numerous cases of antagonism between local residents and students, and the general criticism of academicism, understood as rigid and conservative attitude, the nineteenth century witnessed first true attempts at making universities more open to society. The ideas of opening universities to ordinary people and expanding scientific research into the areas related to industry and business first appeared in England in the nineteenth century[3].

[1] Philosophical school was founded approx. 387 BC in Athens by Plato. Its seat was a plane grove on the river Cephissus, dedicated to the hero Akademos, hence the name Academy.
[2] Carl-Gustaw Andren, *Knowledge - Power - Possibility. History outline of relationships between universities, cities and states*, [in:] *Univer -city*, ed. Bo Larsson, p. 28
[3] Ibid. p. 30.

In continental Europe, universities mostly had an institutional character and academic buildings were mostly embedded in the structure of the city. English architectural and urban development models of university buildings were transferred to the American continent and took the form of campuses independent of urban centres. The University of Virginia in Charlottesville, built in 1817, is considered as the archetype of a campus.

The breakthrough moment in the history of relationships of urban spaces and universities came in the late 1960's. The generation of postwar baby boomers enrolled at universities then; the awareness of the need to pursue higher education also grew considerably. This period also witnessed the development of new areas of scientific and technological research, which made it necessary to construct new, specialized facilities. The global figures of students doubled in less than a decade. Universities had to grow spatially, search for new locations and plan their development in the future. In the '70s, a number of urban planning schemes for campuses were realized. In Western Europe, they were often located outside built-up areas. Isolated campuses were not participating in the life of the city, and this phenomenon was quickly noticed by urban planners and theorists of architecture.

Modern trends in planning academic centers
- relationship with the city

Already in the late 70's, there was a turn in the philosophy behind academic campuses, considered as self-sufficient spatial units which, in principle, do not need the city to function. At that time also changed the perception of the philosophy of modernist design together with a growing interest in traditional models of urban development and historical urban layouts, in terms of their impact on the human psyche. This was associated primarily with the crisis of modernist urban models, deserted centers emptied when offices closed, and the chaotic sprawl of suburbs. The dictate of growing automobile traffic and monofunctional areas became a noticeable problem in the cities of Western Europe, Scandinavia and the United States. Christopher Alexander, who had a tremendous influence on contemporary urban planning, was invited in the 70's by the authorities of Oregon University to analyze and develop methods of planning, designing, managing and operating of universities[4]. In subsequent publications, he stresses the fact that the external physical environment should spur individualism and freedom of thought, and encourage students to think for themselves; he also compares a university to a market place. His ideal location of university buildings in urban structure is a public, open university woven into the city, with a few streets where university infrastructure is

[4] Using the example of the university in question, which has the population of 15,000 students and more than 3,000 academic teachers the author draws attention to the problems which occur in campuses isolated from the city. Alexander, Christopher, Silverstein, Murray, Angel, Shlomo, Ishikawa, Sara, and Abrams, Denny, 1975. *The Oregon Experiment.* New York: Oxford University Press.

concentrated. He recommends that the buildings be kept relatively small, when possible with open ground floors, and with floors that are connected with the ground level by means of stairs and passages[5]. In his theoretical concepts as well as their practical applications in design solutions, one can observe a very strong desire to associate universities with the urban structure both in terms of function and space.

This principle is still valid, especially in the context of urban revitalization of one of the trends in modern urban planning. Currently the town-building role of research centers and university campuses is appreciated and there is a general tendency to situate individual faculties or entire universities in downtown locations. Adapting old buildings or entire complexes to these objectives enables the creation of interesting urban spaces accompanying university buildings and being fully open to public. In the event of locating university buildings outside built-up areas of the city, the campus becomes a continuation of urban space, with inner promenades, streets and squares, and it offers features which are attractive also to persons not associated with the university.

Fig. 1. Public space in university district in Copenhagen is designed to be friendly for inhabitants and students and comfortable for walking and cycling. Left: IT University. Right: Copenhagen Buisness School. Below: Yasar University in Izmir, Turkey. Photo by N. Przesmycka 2011.

[5] "Establish the university as a marketplace of higher education. As a social conception this means that the university is open to people of all ages, on a full-time, part-time, or course by course basis. (...). Physically, the university marketplace has a central crossroads where its main buildings and offices are, and the meeting rooms and labs ripple out from this crossroads - at first concentrated in small buildings along pedestrian streets and then gradually becoming more dispersed and mixed with the town. Alexander Ch., *A Pattern Language*, Oxford 1977, p. 234.

The role of selected elements of public space in academic districts

Academic spaces join the system of urban public spaces primarily through their urban linkages. From the point of view of linking the city with the university, it is particularly advantageous to locate its buildings in existing housing development or revitalized areas.

If a university occupies a complex of buildings in the central area of a city, it is important to gradually restrict access to individual university zones, without limiting the access to spaces between buildings, which could lead to the exclusion of a greater part of the building development (e.g., entire quarter) from the functioning of the city. The key priority is to determine entrance areas, situated in public pedestrian routes, so as to create a kind of frame or entrance gate to university space. Such places often limit or completely restrict car traffic, favouring pedestrians and cyclists. It is also often the first place featuring elements of visual information of a university.

The entrance area plays a very important role in the integration of academic space with the system of urban public spaces. It is the university's showpiece and it should simultaneously invite, inform and control access in a possibly discreet manner. An interesting example is the group of buildings of Oslo and Akershus University College of Applied Sciences (HiOA). The entrance sites to the area of the campus located in the centre of Oslo feature elements identifying the space, bearing testimony to the history of the place, which was the seat of one of Norway's largest breweries (fragments of brewing machinery). Through the use of façade material used (brick), the modern architecture of the university buildings refers in a courteous manner to the tradition of building industrial facilities. The entrance area features prominent and readable visual information.

Information, in the form of boards, signs, plans, or other hints helping one to navigate the university space, should be as clear and communicative as possible. Notices in several languages additionally emphasise the international character of the university. Clear information also determines the territorial framework of space and buildings without the need for fencing or any other standardization. Information may also be introduced into the space in an original way, for example by placing sculptures next to or on top of buildings. The example of a pencil thrust into the corner of the building of the Faculty of Design at the Hochschule Hildesheim shows how one can create an element which is distinctive and informative but also intriguing, witty and communicative at the same time, and which does not compete with historic architecture bur rather highlights its assets.

In university space, it is important to provide and properly organize space for traffic, which also performs other functions. Parking space for bicycles should be a priority of all modes of transport and it should be distributed among many sites in the academic space and located as close as possible to building entrances. A portion of

bicycle parking facilities should be sheltered. Although it may seem that it is best when most of the premises are located in one place, or very close to each other, transfer space between individual buildings is desired and it is important for the proper functioning of university space. Conversation is a significant factor in the tradition of learning. It is possible to talk freely while walking between buildings.

The city is perceived from the perspective of travelling in it. In this sense, university spaces are unique – here people usually move on foot or by bicycle. For this reason, details of the surrounding space are very clearly perceived, although not always consciously. Quality and stylistic consistency of elements such as lighting, benches, litter bins, bike racks etc. in the space of the university also impacts the creation of the identity of the place.

Fig. 2. Group of HiOA buildings in Oslo. Left to wright: Entrance to the university complex from Pilestredet St., main entrance at the corner of Stensberggata St. and Pilestredet St., main pedestrian path, main entrance to the Izmir College. Photo by N. Przesmycka 2011.

Fig 3. Left to right: examples of information boards and signs in university space: HiOA Oslo., Fakultet Gestaltung Hildesheim, Germany, Iceland University in Reykiavik University, photo by N. Przesmycka 2011.

The stairs are an element which offers a lot of possibilities of architectural interpretation of public space and university public space in particular. Natural lie of the land makes their use necessary as part of the transportation system. However, the stairs are very often introduced solely to create a comfortable seating area. Students sitting on the stairs and discussing with their lecturers are a common sight in Western European and Scandinavian university spaces. Perhaps this is what first lectures looked like? Lublin is a privileged city on account of its topography – stairs are a necessity in local traffic, and their correct use in university spaces could provide very attractive auditoriums for students. Residents of the city also readily make use of well-designed and comfortable elements of university public spaces. Stairs can become an exercise area for teenage skateboarders and bikers or a meeting place for elderly people – it all depends on their location and architectural solutions.

Fig. 4. Multi-purpose stairs in the campus of Reykjavik University. Photo by N. Przesmycka 2013.

Fig. 5. University of Hildesheim, Germany. Example of the formation of campus public space by introducing multi-purpose stairs, connecting buildings with the surrounding landscape. Photo by M. Cudecka 2013.

It is particularly important to link ground floors of buildings with their environment. In the case of university buildings, the designers devote a lot of attention to entrance areas. Their configuration determines the relationship between the building

and its surrounding space. The architectural design of the entry area alone talks about its accessibility. A monumental staircase emphasizes the dignity of the institution while a glazed and open ground floor seems to be inviting visitors to come inside. There is no reason to give any particular protection to entrances of most university buildings. Stairs require their adaptation to the needs of persons with reduced mobility. This applies both to the possibility of free access, as well as to overcoming the differences in heights. The solutions used can vary.

Public space of the university should make it possible to spend as much time outside as possible. One may notice the fundamental difference between the way of spending time by students and lecturers at Polish and foreign universities. The majority of Polish students and academic teachers treat breaks between classes as a necessary evil, while studying abroad consists basically in spending time at the university. Not only students should feel well in the outside space; however, they will be its main users and most architectural solutions should be dedicated to them. Appropriately designed space encourages people to spend time in it, thus changing or creating new behaviors.

Polish public spaces campuses were mostly developed around the idea including urban. A common solution was to use symbolic precipitates space, so to give it a specific frame. The most common solution was to form the central square - the courtyard, around which were grouped individual buildings. Also in the architecture of the buildings will be happy to internal atrium regimen. Characteristic of the campuses created in the 50s and 70s was a focus on development of public spaces landscape and sculptural elements.

Within the campus in Lublin public spaces have been carefully designed as a place for rest and recreation, as well as representative. Monuments and sculptures were designed to give place to exploit and manage the space at the same time. Within the town MCSU include university patron saint statue, abstract monument - a sculpture commemorating the rector Henry Raabe and Louise Czugała. Very interesting sculpture - a monument of marriage by Alina Ślesiński Curie was founded about 1963 years. The sculpture is located at the State Hospital No. 4, in the center of the campus of the Medical University. Sculpture after a few years moved to a few prominent place, which could contribute to its degradation. Public spaces of the universities in the communist period was characterized in the arrangement and the subordination of their existing assumptions program sculptural forms and propaganda. Within the town we also find MCSU square with busts of rectors. Currently, plans are introduced as readily introduced by the university authorities. Unfortunately, the quality and aesthetic value leave much to be desired. Examples of such monuments, memorials may be boulders: University of Life Sciences and the Technical University of Lublin.

Fig. 6. Public spaces in campus of Lublin University. From left to right: The main square in the campus with the sculpture of Marie Curie Skłodowska, 70. and 2014, Middle: The main courtyard in the Catholic University of Lublin. Comparison the state in 70. and 80. Source: postacard KAW, Fot. A. Stelmach, postcard, KAW 1975 The monument dedicated to first rector of UMCS Raabe and Czugała 1975 (Source: postcard), State in 2014, Photo by N. Przesmycka

Fig. 7. Stone - monument and the problematic aesthetic surroundings of new library of the university of Life Sciences, Raade Bench. Photo by N. Przesmycka

Fig. 8. Public space at Reykjavik University. Photo by Przesmycka 2013

Seats are not only benches, but also steps, stairs, walls, lawns, portable furniture, and wooden gangways. Seating areas should be arranged to allow the students to observe the traffic and give them the choice of sitting in the sun or in the shade. Ideal places are those where one can conduct outdoor classes, weather permitting. Architectural design of the elements of public space should correspond to the architecture of academic facilities but also refer to the local tradition of the place. The best are modest and simple forms, made of durable materials.

Public space connected with academic buildings should encourage users who are not associated with the life of the university to spend time in there as well. This solution has mutual benefits. For a university, it is a guarantee that the space does not become desolate, while for the inhabitants it constitutes an area of a similar nature to a comfortable urban square or promenade, though without the presence of intrusive services often located in the ground floors of buildings in traditional squares.

Residents and an academic community - building relationships in space

Integrating university spaces with the structure of the city is realized at the level of architecture and urban planning of spatial development as well as cultural and social level consisting in the quantity and quality of events happening in it and addressing them to a widest possible audience. Student holidays, festivals, student rags, and all their varieties have their own place in the public space of the city and they are of great importance for the relationship between the university and the city. During such events, universities participate in the life of the city, and the city becomes a place for

university events. However, tensions between students and residents are as old as the institution of the university itself.

An interesting example of actions "familiarizing" neighborhood residents with dormitory dwellers are receptions organized regularly by students at the University of Liechtenstein. Cultural and social events addressed to residents are held in a space arranged by the students between dormitories (located in the immediate vicinity of luxury single-family housing). The aim is to convince them to accept the neighborhood of not always quiet students from different parts of the world. During these events, students present their native cuisine, music and customs.

Fig. 9. Dormitories at the University of Liechtenstein. Opening event for students and inhabitants, Photo by Przesmycka 2013

Creative ingenuity of students in arranging public spaces is often used during cultural events and in public participation processes. In many cities, students of engineering, architecture and design participate in the creation of new public spaces as part of their exam projects, interdisciplinary workshops and cooperation with local residents. One of such actions was the project of revitalization of degraded and unused space associated with transport (e.g., under flyovers) in Milwaukee, where architecture students built a number of shelters thus creating places of social integration, built with low-cost, natural materials and referring in their form to the local flora[6]. Similarly, in

[6] *Going Public. public architecture, urbanism and interventions, joint publication*, Gestalten, Berlin 2012, pp. 12, 34-35.

2011, Stuttgart was given temporary pavilions of bionic forms, whose computer-generated architecture was implemented with the use of prefabricated elements by students and employees of the Institute for Computational Design (ICD) and the Institute of Building Structures and Structural Design (ITKE). The idea of social gatherings was also supported by the project of FABLAB HOUSE pavilions, built in 2010 on the beach in Barcelona by students of IAAC (Institute for Advanced Architecture of Catalonia). This building, which was the result of an international student competition was supposed to be a prototype of a sustainable home. During one year, it was visited by more than 20,000 people, and the building has permanently entered the public space[7]. A similar action was realized in the project Bildungsbox Mobile, during which a mobile exhibition pavilion was completed in Hildesheim in 2008. 30 young people participated in the project: students of architecture, civil engineering, wooden constructions, design, and secondary art school pupils[8]. They had only four weeks to design and personally construct the building. With the approval of municipal authorities, the building was erected in the market square, where it served as a concert pavilion and a lecturing hall for several months.

Fig. 10. Examples of students interventions in public space (HAWK, Hildesheim). Left: Bildungsbox Mobile works. Right: Open air small library for book exchange. Photo by1 Przesmycka 2013

Universities and cities should be understood as two faces of the same coin. In fact, somewhere or sometimes they rather fit into the metaphor of parallel words. Although access through colleges is presumed, colleges still have a certain degree of segregation.

In metropolitan areas, the university has not only been understood to be a force for social and economic improvement on a more abstract, national scale but it simultaneously has been recognized as a powerful catalyst for economic and social transformation in a geographically specific area. Universities are potentially ‘‘good neighbors’’ or ‘‘bad neighbors’’ for a ‘‘community’’ that may encompass a

[7] ibid. p. 39.
[8] Joint initiative of HAWK Hildesheim and Gymnasiums Himmelsthür. Information acquired during a discussion with Thomas Kauertz, initiator and tutor of the workshops.

neighborhood, a city, or an entire metropolis[9]. Finally, it is suggested that educational buildings should be seen increasingly as part of the strategy of urban development, moving towards the creation of a new urban environment in which buildings and the spaces between them are part of the same system. Educational buildings should not be isolated from the rest of the city; they are interrelated parts of one single system. The principles that apply to cities equally apply to campuses[10].

People in university city, both "town" and "gown," walk together main streets or its adjacent tributaries, doing errands, shopping, greeting friends and peering into the plate glass windows of the businesses lining the sidewalks. The mix of people is matched by the mix of commercial enterprises. This is a potential that can be used in rebuild communities programmes and further in urban renewal process[11].

However interactions between universities spaces and public spaces does not necessarily result in cooperation. Campuses were always places of new, sometimes revolutionary ideas. This relationship between town and gown lasts in Europe for over nine hundreds years. The 1960s was a period of intense changes and debate all over Europe, which was born in campuses. The success of the strategy presupposes the integration of areas for study within the metropolitan context for services and housing and an adequate system of public transport.

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UNIVERSITIES CAMPUS IN POLAND 1945 – 1989

Introduction

Higher Education in Poland after the transition period, and especially in recent years has significantly changed. The current development of higher education in the points to the growing importance of the development of the country and much greater social importance. Carried out investments in the expansion of university centers recent years significantly changed the look, functionality and accessibility of higher education. During the Polish People's transformation is its place in the body of the city, the degree of relationship with the city, as well as the same spatial structure of higher education. The university, especially university center is often one of the subsystems of the city and the region.

When designing buildings, university teams used the same methodology as for the design of complex urban teams. For these reasons, the spatial development of higher education required to take into account the following principles: _ examining existing functional relationships with scientific research institutions, cultural, etc., Located in the city, - function relationship teams' teaching and research with elements of social-housing, sport and recreation - solving urban complex in enabling the development and future growth of the organism as a whole as well as individual components (faculties, institutes, etc.). - functional flexibility of the buildings in order to allow any organizational changes, as well as allowing for the evolution of the teaching and learning processes.

Colleges erected in the years 1950 - 1981 are also characterized by a great variety of spatial forms. This diversity is mainly due to the location, as well as the size of the school and accepted patterns of functional diversity, the type of construction and the assumptions made in the design phase. Historically, these solutions are characterized by a tendency to perfectly closed plan, which was closed composition, ie. The team is not subject to further spatial development.

The experience of years of political transformation and the period when Poland received large financial support of the European Union on the development of innovation, and thus the basis for the development of higher education largely verified design ideas implemented in the 60's and 70's of last century.

This article is an attempt to identify and summarize the main objectives of the design team teaching and research universities and to identify the main principles of the system to determine their spatial systems in Poland in the years 1950-1981. The article also attempts to assess the value of new buildings erected in recent years in the areas campuses built in the 70s of the twentieth century.

Development of higher education in Poland in the years after World War II to eighties XX century

The Second World War caused enormous losses in higher education, both among the scientific staff as well as school buildings and equipment. Of the 603 existing before the war, scientific laboratories and universities only 3 remained undamaged. 357 has been completely destroyed lab, and collections saved in only 6 scientific laboratories. Of the 32 universities that existed in the pre-war Polish borders, the base of premises - and equipment in 1945, practically non-existent. Tracing the history of the development of higher education in Poland may be divided into several distinct phases:
- The period of post-war reconstruction (years 1945-1949)
- The period of expansion of educational buildings and construction of dormitories (years 1950-1955)
- The period of construction of new universities (years 1956 -1970)
- The period of construction development in higher education (1970 - 1980)
- The period of stagnation in the development of higher education (years 1981-1999)
- An initial period of development of higher education on the principles of free market (1999 - 2005)
- The dynamic development of the resources of colleges and construction of buildings associated with the innovative economy (2005 - today).

The period was characterized by the recovery of higher education a strong concentration of investment effort involving the reconstruction of objects that belonged to or higher education, or have been used for this purpose. This period is inseparable from the same time, the emergence of new universities.

In 1944 began operating a newly appointed Maria Curie Sklodowska University in Lublin. In 1945, reopened all major universities before the war, and were created in Gdansk University of Technology and the Academy of Medical; Wroclaw University and University; Torun: Nicolaus Copernicus University, Technical University was founded in Gliwice and the Technical University and Polytechnic University of Lodz. In subsequent years, creating new academic centers in Czestochowa, Szczecin, Olsztyn, Bialystok.[1]

Despite the destruction and seizure of large eastern borderlands already in 1946, there were 31 academic schools, which educated about 55 thousand. students (including the audience). In addition, 15 high schools, artistic and pedagogical educated 1,140 students. However, in the academic year 1948/49 was already active 59 colleges including 162 departments, for which educated a total of 94 780 people.[2]

Multiplied in a very short time the state in numbers of students resulted in poor housing students also increased needs for nutrition, the health care, sports and recreation. Reconstruction of multiple objects at the same time higher education has helped to preserve and save a large amount of historic buildings important to the heritage, preserving valuable architectural value, eg. At Warsaw University, Jagiellonian University, Wroclaw University, Poznan University and others.

[1] B. Popławski, *Projektowanie szkół wyższych*, Wydawnictwo Arkady, Warszawa 1982, p.17.
[2] T. Kodelska-Łaszek, *Zasób budowlany w ośrodkach szkolnictwa wyższego w Polsce – stan i rozmieszczenie*, PWN, Warszawa- Łódź, 1972. p.23.

Fig. 11. Destroyed building of the Warsaw Technical University, 1945

Fig.12. Building of the Warsaw Technical University, 1948

In the first years after the war, the construction of higher education resources were very diverse. Adapted to the needs of the university buildings of former schools, barracks, military schools, many of which survive with its educational function for the twenty-first century.

In the years 1948-1955 have begun to arise, some new objects universities (in Warsaw, Lublin, Gliwice).

Another period of 1956-1970, as a result of policies aiming at the development of industry and blocking non-development areas initially characterized by a decrease in the number of students and a moderate increase in housing base.

The main projects in this period include attempts to eliminate excessive dispersal of schools and universities in the development of centers where he had to develop the industry, such as Lublin, Krakow, Lodz, Gdansk.

Fig. 13. Veterinary Clinic College of Agriculture in Lublin - former military barracks (about 1950)

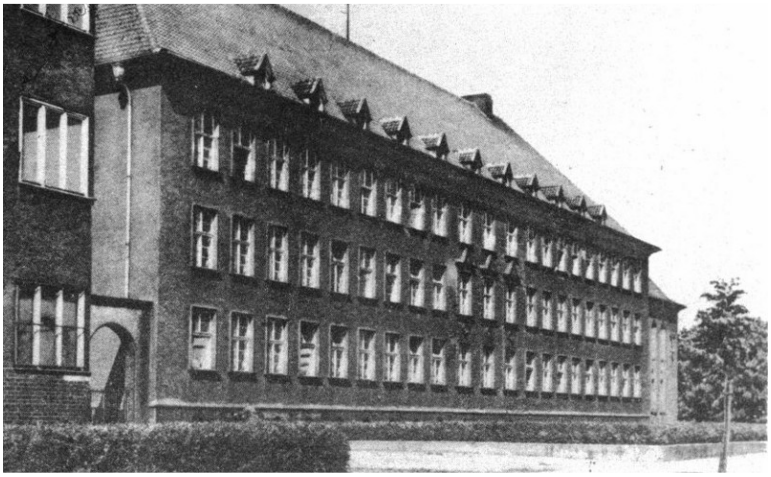

Fig. 14. Electric Department, Silesian University of Technology, former military hospital, and before World War II high school (about 1950)

The seventies of the twentieth century was a period of further expansion and modernization of higher education of their equipment. At the same time in this period has significantly increased the number of young people studying in all directions. At the end of the sixties in Poland, studied about 200,000 students and in 1979 already 300,000 students.[3]

Building resources of higher education in Poland, despite the continued growth and expansion in the years 1970 - 1980 were not sufficient to keep the growing number of students. Surface deficiencies occurring in the hinterland of teaching and research, as well as the fact that universities are working on a "second shift" (full-time, part-time and postgraduate) constitute a disadvantage for the further development of higher education. In 1970, it was in Poland, about 12 million cubic capacity building my teaching and research universities with a usable area of 2.1 million m^2, in which educated over 200 thousand. full-time students and 140 thousand. other types of student teaching. The

[3] CSO statistics and MNSZWiT

cubic capacity per student averaged total for the whole education of 35.6 m^3 and 1 student full-time study 58.6 m^3. [4]

From a general resource of 12 million m^3 cubic capacity building approximately 37% was in polytechnics, universities 24%, 12% higher agricultural schools, 9% of medical schools and about 18% for other universities. The total usable area of teaching and research facilities of universities in 1970 consisted of more than 75% of the surface of the plant, more than 15% of the surface of the inter-object and about 10% of the economic and technical function

State ownership housing base of higher education in Poland in 1978. Seriously increased and amounted to a total of about 23 million m^3 cubic capacity, including approximately 18.5 million m^3 of teaching and research facilities.

Fig. 15 Nicolaus Copernicus University in Torun

Fig. 16 Nicolaus Copernicus University in Torun

In the 35 anniversary of the communist achievements in the field of Higher Education was characterized by high growth in educational and scientific resources. If we take into account the fact that in 1945. State ownership of usable space was a little more than 380 thousand. m^2, and in the volume of 2294 thousand. m^3 is in this period was built

[4] T. Kodelska-Łaszek*, op. cit.,* p.24.

more than 16 million m^3 of approximately 3 million m^2 of facilities. teaching and research.[5]

Stages of reconstruction and development of the various types of universities Polish in the 70s of the twentieth century

Universities

Of the currently existing in the 70s of the twentieth century can be distinguished universities following three groups.

The first is the operating universities before World War II, as the Jagiellonian University in Krakow, which in 1964. Celebrated the 600th anniversary of its existence; University of Warsaw; Poznan University and the Catholic University of Lublin.

The second group consists of universities that have arisen in the first years after the liberation, and the University of Maria Curie-Sklodowska University in Lublin, which was the first after World War II began work in 1944, yet, University. Nicolaus Copernicus University in Torun; University of Lodz and Wroclaw University.

The third group consists of universities established in the late 60's. These are the University of Silesia in Katowice, built in 1968. And the University of Gdansk established in the 1970s

In 1979, there were 10 universities and 3 branches and 35 points of consultation. These included the 76 Faculties, which operated 270 institutes.[6] In the first years after World War II was rebuilt many historic buildings mostly university: In Warsaw, Krakow, Poznan and Wroclaw. The following years brought a constant and steady expansion of universities. In general, the development of these institutions in the period 1950-1970 was characterized by serious than 2-fold increase in the number of students and the same increase in the volume and surface area. In only a few universities phenomenon occurred faster growth in the number of students and the deterioration of the standard of teaching. These include University. Adam Mickiewicz University in Poznan and Lodz. A similar phenomenon also occurred in the Nicolaus Copernicus University in Torun-until commissioning in 1973 of new university buildings. Expanded offices Warsaw University (departments of geology, chemistry), University of Lodz (library, study foreign languages), University of Wroclaw (institutes and auditoriums) and the University of Poznan. However, for most plans include the construction UMCS Lublin, expansion of facilities at the Jagiellonian University in Cracow, the construction of a new campus in Torun and implemented a new university in Gdansk.

Jagiellonian University in Krakow, oldest university in Poland (founded in 1364 years), obtain the room from the earliest years. The oldest of the fifteenth century. This Collegium Maius Collegium Minus and Collegium Juridicum and W. College Physicum seventeenth, nineteenth and early twentieth W. Collegia: Philologicum, Olszewski and Witkowski. In the period between the old arsenal rebuilt Geographical Institute and Library built Iagiellońską. In the first years after the war was built Collegium Chemicum. In the years 1959-1964 was built objects of physics and mathematics, zoology and geography, humanities, an observatory on the Rock, The Jagiellonian Library and Printing, built dormitories, military studies and physical education.

[5] B. Popławski, *op. cit.*, p.17.

[6] J. Reda, *Dwudziestolecie szkolnictwa wyższego*, A. nr 2/1966, s. 50

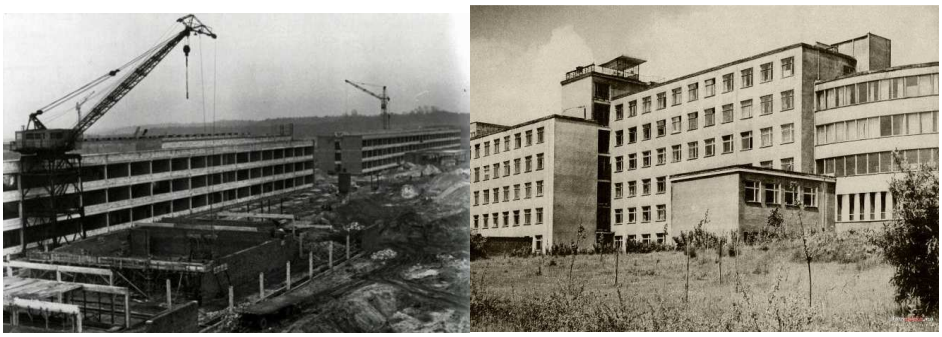

Fig. 17. Construction of the institute of chemistry and biology (1970), Copernicus University in Torun.
Fig. 18. Faculty of Biology and Biotechnology MCSU (1976)

University. Nicolaus Copernicus University in Torun, built in 1945., Initially had only two faculties (humanities and mathematics and natural). In subsequent years, grown organically. In the early years of the expansion of the university conducted mainly units and inter-student dormitories and cafeterias. In the years 1950-1970 the number of students has doubled, and the volume of buildings only 0.25%. As a result of the 1965 decision. To build a university in new areas and subsequent resolutions of the Government of 1967. About the preparations for the jubilee of the 500th anniversary of the birth of Copernicus create a modern university complex. Shots in 1973. Bielany campus, over an area of approximately 82 hectares, was conducted during six years (1967-1973). In the first stage of the buildings were built Rector and the auditorium for 1000, Institute of Chemistry, Faculty of Biology and Earth Sciences, the university library, 3 dormitories, 2 hotels assistants, cafeteria and gyms and Health Clinic Półsanatorium- with a total volume of 295 thousand. m^2 with an area of 73 thousand m^2 Centre for Radio Astronomy addition was built with a capacity of 13.4 thousand $m^{2.}$

Maria Curie-Sklodowska University in Lublin, the first socialist university, began its activity in many classrooms and dozens of rooms with a total area of 1920 m2, scattered in 15 locations. In 1945. Senate of the university reported the construction of "science city", the city authorities, for that cel.60 ha. With a rapidly growing MCSU created two new universities: University of Medical Sciences (1950 year) and the College of Agriculture (1955.). In a period of 30 years on the suburban wasteland of Lublin, was built 47 teaching and research facilities, residential and commercial. Completed buildings Departments: physics, chemistry, biology, and earth sciences, the humanities, and the College of Agricultural buildings veterinary and agricultural engineering theory, clinics and inter-library, university sports center, dormitories, canteens, etc., With a total usable area of 150 thousand. m2 and capacity of 600 thousand. m3. Also erected a 17-storey office Rector and the Faculty of Law and Economics. Design assumptions stipulated that in the university will be able to build more facilities with a total capacity of 500 thousand. m^2.

University of Gdańsk, initially designed as the headquarters of the College of Education. In the area of about 70 hectares of previously completed faculties of humanities, mathematics and physics and a part of social facilities. Staged implementation team provided a total elevation 700 thousand cubic capacity.

Higher Technical School

In the 80s of the twentieth century, there were 13 technical universities in Poland: Warsaw, Lodz, Krakow, Wroclaw, Poznan, Gdansk, Szczecin, Gliwice, Częstochowa and

converted in 1974. Higher school of engineering in Bialystok, Kielce, Rzeszów and Lublin (1977 r.) and one AGH in Krakow. In addition, if there were 5 Major engineering schools in Koszalin, Opole, Zielona Góra, Bydgoszcz and Radom.

During the 35th anniversary of the communist expanded or built offices: AGH in Krakow, Technical University of Lodz, Poznan, Warsaw and Wroclaw. University of Mining and Metallurgy in Krakow received in the years 1950-1960 new educational buildings, and now continues further expansion. The Technical University of Warsaw and built departments: electronics, precision engineering, civil engineering, thermal engineering, sanitary engineering, and many residences, among, them, the biggest, the 24-storey residences in Poland (,, Riviera "), canteens, health centers, etc. Technical University of Lodz was enriched by faculty mechanical and electrical, textile, civil engineering, chemistry, papermaking and social facilities. An interesting solution is passed in 1964. WSI complex of buildings in Zielona Góra and 1975 in Opole. Further steps to increase the resource construction of higher education was expanding Cracow University of Technology, WSI (now University) in Lublin, Silesian University of Technology, University of Technology and Agriculture in Bydgoszcz, Bialystok Technical University and Rzeszów.

Fig. 19. University of Bydgoszcz, built in the 70 twentieth century
Fig. 20. Lublin University of Technology, built in the 70 twentieth century

In the 80s of the twentieth century, Cracow University of Technology received the expansion area of 85 hectares (former airport Czyżyny). The realization of this project, involving a total of 1.5 million m2 for about 8-10 thousand. students, started in 1972.

Lublin University of Technology, whose construction began in 1972 as the College of Engineering, covers a total of about 300 thousand. cubic capacity. The college team in the 12.6 ha adapted to the needs of professional school buildings mechanization of agriculture. In the first stage has been completed and the building of the Faculty of Civil Engineering Department of Mechanical Engineering.

University of Technology and Agriculture in Bydgoszcz, previously WSI, together with the WSR is carried out on an area of 120 ha. In 1970, the construction of residences and the Faculty of civil engineering. Phased implementation is expected to team with a total volume of about 735 thousand. m^2.

Bialystok Technical University, originally designed as WSI, after conversion into the polytechnic adapted to new needs. In the area of 42.5 hectares is designed for 8 thousand team. students, with a total volume of 770 thousand. m^2. Until 1976, completed Faculty of Mechanical Engineering, 3 dormitories and a cafeteria.

Agricultural Academies

The oldest agricultural university is independent SGGW - Warsaw Agricultural University, one of the first of its kind in Europe, operating even in the interwar period. Other universities were selected from agro-forestry faculties of universities (in Krakow, Lublin, Poznan), or brought to life as new organisms. In 1979, the network consisted of agricultural academies 9 universities (in Krakow, Lublin, Olsztyn, Poznan, Szczecin, Warsaw, Wroclaw, Bydgoszcz and Siedlce). In these institutions, there were 54 faculties and 179 institutes. Among the fastest-agricultural academies, schools were expanded in Lublin, Olsztyn and Wroclaw. The phenomenon of the deterioration of the conditions of teaching at the university there was only Szczecin. New facilities were also handed over agricultural academies in Krakow, Wroclaw and Poznan.

Fig. 21. The building of the Agricultural University in Krakow (1954 - 1956)

Agricultural University of Lublin was characterized by intense expansion of research and teaching facilities and social services with a particular profile. In the years 1949-1969 the objects were put into service departments of agricultural technology, animal husbandry, veterinary and agricultural mechanization.

Agricultural University of Warsaw Agricultural University was located in several remote locations. It was therefore decided to build a new college team in Ursynow over an area of 95 hectares. Until 1981, the department completed drainage Aquatic Veterinary, dormitories and a cafeteria. '

Economic Academies

Economic development of the higher education held a moderate number of students and building volume grew relatively evenly. However, these schools belong to the group with the lowest rate university building construction falling in l student full-time study. The expansion of these schools was carried out from the first days after the liberation. Noteworthy is the construction of a new building in 1955, in Warsaw and the Warsaw School of buildings in Sopot and Katowice. In 1979, there were 6 of economic universities (in Warsaw, Katowice, Krakow, Poznan, Wroclaw and Sopot) and. These universities in 1981, there were 16 departments and 57 institutes.

Fig. 22. Faculty of economics at the University of Gdańsk (1970)

Teacher education schools

Teacher education schools "were created as independent centers after 1955. They were the universities in Opole, Gdansk, Katowice and Krakow. In 1965, WSP was founded in Rzeszow. Initially, the universities do not have their own offices and benefit from alternative premises in different objects. Only in 1958. WSP office in Opole received specially designed. These institutions showed a steady increase in the number of students with relatively small increase in cubic volume occupied buildings. In the following years, some WSP converted giving them the status of universities. In 1968, WSP and a branch of the Jagiellonian University in Katowice, were converted into the University of Silesia. Similarly, in 1970 WSP and the EEZ in Gdansk were merged in the University of Gdansk. In the year 1973-1974 there were 6 WSP 17 departments and 13 institutes. In 1974. Was incorporated into teacher education schools 6 existing schools teaching in Bydgoszcz, Kielce, Olsztyn, Slupsk, Siedlce, Czestochowa. In 1979. Was 10 Higher Pedagogical School (Bydgoszcz, Czestochowa, -Kielcach, Krakow, Olsztyn, Opole, Rzeszów, Slupsk, Szczecin and Zielona Góra) and the National Institute of Special Education in Warsaw.

Fig. 23. Academy of Economics in Poznan (1950)

Medical Schools

Medical academies as independent universities were created in 1950, only the University of Gdansk was established in 1946, and in 1948, Szczecin. Medical Academy in Krakow, Poznan and Warsaw, converted from existing medical faculties, have used previously occupied, educational and therapeutic base. They were mostly obsolete objects. Improving conditions in these universities were obtained by carrying out major repairs, modernization and partial expansion of diagnostic departments, and clinical treatment. The newly established medical schools were established in the existing municipal or provincial hospitals, tailored to the needs of teaching and research work. Development of medical schools characterized the serious increase / students and almost 2-fold increase in cubic capacity building. Only in some `stabilization centers phenomenon occurred in student numbers and volume of buildings (Szczecin, Katowice, Kraków, Poznań). Expanded office of Białystok (betting theoretical teaching hospital), built from the ground up objects,

Medical University of Lublin, providing for the possibility of a comprehensive development team to 460 thousand. 1350 meters of volume and clinical beds. In Lublin, was built in the years 1969--1972 Fizjatric Clinic and in the early 80s of the twentieth century Eye Clinic.

In the years 1960/1968 new objects created in Lodz (classrooms, faculty of pharmacy, biology), Poznan (rehabilitation clinic, pediatric, psychiatric) and Gdansk (library, classrooms). In Poland in 1979 were 10 medical schools and 1 branch, including 21 faculties and 131 institutes. The biggest investment for measuring the end-70s of the twentieth century there were 4 newly built schools in Lublin, Krakow, Katowice and Warsaw.

Fig. 24. Institute of Pediatrics, University of Medical Sciences in Poznan

In Krakow In the district Prokocim allocated an area of 120 hectares for the new team of the Academy of Medicine. Implementation started in 1960 the construction of a pediatric clinic team with- American Foundation. In Katowice-Ligota in 72 acres was launched in 1966. Team building clinics and residences.

Higher art schools

Art education as a separate body in the structure of higher education in Poland include:

1) Higher Music School in Katowice, Krakow, Lodz, Poznan, Gdansk, Warsaw and Wrocław,

2) academies of fine arts in Warsaw and Kraków and colleges of fine arts - in Gdansk, Lodz, Poznan and Wroclaw, `3) colleges theater and film - in Krakow, Lodz and Warsaw.Overall in 1979, there were 16 art schools, including 62 departments, 4 branches and 2 points consultation. Objects used by colleges -artistic The vast majority are adopted historic buildings. In the years 1945-1965 for the purpose of art education passed:,

- Rebuilt former palace Raczynski for the Academy of Fine Arts in Warsaw,
- Restored historic building at ul. Marcinkowski in Poznań for the School of Fine Arts,
- Rebuilt building 'Armoury in Gdansk for. College of Fine Arts,
- Built and expanded office WSSP in Wroclaw,
- Rebuilt team 'historic townhouses Street. Honey for the Academy of Dramatic Arts in Warsaw.

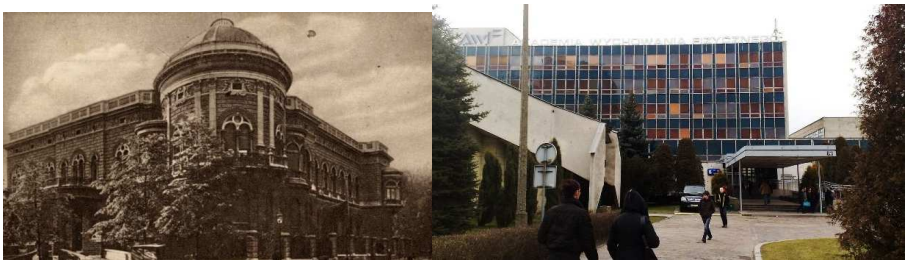

Fig 25. Academy of Music in Lodz (Poznanski Palace)

Fig 26. Academy of Physical Education and Sports in Krakow

Higher school of physical education

Physical education colleges belong to the university, in which housing conditions measured cubic volume and usable area are among the highest in Poland (volume 1 student full-time study in 1970 was 1 127 m2).

DORMITORIES - PLACES FOR LIVING AND LEARNING

The history of dormitories in Poland for students living outside of a place of education, has been conducted by universities since the fifteenth century, when the University of Krakow began to form the first boarding schools, where under the care of educators students were able to live and learn. Over the centuries, demand for temporary student housing has steadily increased. Tenement flats with small rental fees proved to be effective and necessary solutions for living close to the University.

Starting between the First and Second World War, the architecture for student residences in Poland became a manifesto for the architectural era, and an indispensable element in university districts. Built in the twenties of the prior century in Warsaw, the student house *Akademik* was introduced permanently into Polish nomenclature, defining the concept of dormitory buildings, which have since functioned independently in order to label a new type of residential architecture. Modernist architecture has redefined the concept of a dormitory. Le Corbusier`s principles of self-sufficient *machine for living*[1]have been implemented into the contemporary design of student`s residences, where compactness, economy and efficiency of design solutions are the most desirable factors.

Currently, dormitories designed according to modernist rules do not favor either studying, work or comfortable living. Cited below, research in the field of needs and expectations of students, regarding life in boarding schools shows that many of the previous centuries architectural solutions prevented proper functioning within a dormitory. Simultaneously, these same studies show that student accommodations within a dorm still has great influence on a student's selection on where to study.Unfortunatelystudent houses stil have the opinion of noisy and neglected places. The aim of contemporary trends in the design of residential buildings is to reverse these perceptions, to make dormitories comfortable for living, learning, social development and recreation.

[1] Jeanneret-Gris C.É. (Le Corbusier):*Vers une architecture*, 1923

Historical overview

The construction of the first dormitories in Poland began in the fifteenth century when, often by the will of powerful donors, universities began to locate boarding schools, derived from the latin: *bursa*[2]meaning a purse or bag , as contributions mainly came from wealthier students, donors, and philanthropists. Buildings in were partly under the care of religious orders, where tutors have been caring for residents. The majority of students living in dormitories came from poor families who did not have the resources to provide for accommodations near the university. The first such facilities in Poland were formed through an initiative by the University of Cracow. One of them was *Bursa of the poor*[3], also called the *Jagiellonian*, its namesake coming from a royal Polish dynasty. The building was founded in 1409 by John Isner, a professor of the department of Theology at the University of Cracow, who bought the building at Gołębia street in Cracow. Then, in the sixteenth century, additional resources for the renovation were given by the Queen Anna Jagiellonka, thus contributing to renaming a dormitory to the *Jagiellonian*. Initially, the building was used mainly by philosophy and theology students, originating from Lithuania, then served as a dormitory for surgeons, and finally in the nineteenth century it housed a military barracks. In parallel with the Bursa of the Poor, several new facilities were opened as a residence for students, both in Krakow and in other cities. This form of housing has proven to be extremely useful, especially for gifted people, that did not have the means to provide accommodations in the city. Classrooms and dormitories began to appear more, and more often in the surrounding grounds of universities, eventually becoming important centers of cultural and social life, showcasing different architectural styles and design tendencies of specific eras.

An extremely important architectural example of student housing and an architectural testament to its era is the student house *Hanka*[4], designed by Roger Sławski and built in 1929.The architect of the project was also the author of many other works of architecture, which helped to define an urban character in prewar Poznań, including city`s Society of Sciences edifice. The majesty of the dormitory was manifested in a number of references to the Baroque and Classical styles and followed the stream of Polish "national style " based on the elements characteristic to traditional Polish architecture , carrying in its form national ideals, highly desirable in Poland in a time of newly regained independence. Thoughtfully located on the avenue of Independence in Poznań, the building was given an ennobling and exposed position on the main organizational axis in the city. In the center of the facade resides a giant portico with monumental colonnade, and flanked by slightly extended wings of the building forming a small courtyard in the front of the building. This form is intended to arouse

[2] Kopaliński W: *Słownik wyrazów obcych i zwrotów obcojęzycznych*, De Agostini Poland.
[3] Włodarek A.: *Architektura średniowiecznych kolegiów i burs Uniwersytetu Krakowskiego*, Kraków 2000
[4] *Atlas architektury Poznania*, Wydawnictwo Miejskie, Poznań, 2008

associations with the elegance of classical palace and with oversized, archetypical Polish nobleman's mansion. Inside the building, in addition to three hundred living quarters, there are also two auditoriums and administration rooms. Previously as a complement of the building features, there was also an academic hospital.
The building, in addition to functioning as a home for students, was also used as a temporary hotel for guests of Common National Exhibition in Poznań / 1929 /, of which Sławski was the chief architect. It has become a milestone in terms of Polish architectural residences. Boarding schools developed from monastery dormitories, to buildings representative of downtown structures, with outstanding architecture and complementary interior functions, serving living, education and cultural functions.

Fig. 27. Dormitory *Hanka*, Photo by Dmitruk 2014

Constructed in 1930, the student's house *Akademik*[5] *in Warsaw* is a distinctive example of a dormitory of the interwar period. This building is extremely important, as demonstrated by the fact that his own name has been adopted for colloquial speech in the polish language describing a student housing. Nowadays, the word *akademik* is used as a synonym for any dormitory throughout the country. The building is one of three structures which create the Academic Office of Fraternal Aid. It is located in the heart of Warsaw - Ochota , Academic Street 5 and adjacent to the residential development of Lubecki Cologne. It was dedicated mainly to host poor and outstandingly gifted students. The object itself was distinguished by it's rich and unusual yet functional program, where in addition to living quarters, there was a common cafeteria able to accommodate more than 2,500 people, a library, laundry facilities, an auditorium, a gymnasium and an underground swimming pool. It was the first facility of that kind in

[5]Faryna-Paszkiewicz H.: *Akademik*. „*Ochotnik*". 56 (11), 2009

Poland , providing students with both apartments and a host of amenities designed to develop the social life of inhabitants , physical fitness and education.

The modernist idea of "housing machines" where accommodation, education and entertainment were generally within a single object began to sprout inside an "Akademik". The architectural form of the building is heavy and monumental with axial symmetry and regular rhythm of windows. Its size and location in the opening of the Gabriel Narutowicz[6] square emphasizes the importance and validity of the object and puts it on a par with other university department edifices. The building has 8 floors. Currently living quarters for students are located on floors three through eight. In total, there are 940 rooms, which are divided into one to four-person typologies while the lower floors hold administrative offices. Additionally, the dorm has a gym, swimming pool and other athletic facilities serving the needs of students from the Warsaw University of Technology. The bathrooms and kitchens on each floor are designed as a shared complex for every student on each floor.

Fig. 28. Dormitory *Akademik*, Photo by Dmitruk 2014

[6] President of the Polish Republic in year 1922

Modernist architectural concepts in residential buildings for students

Due to the first and Second World War, along with the emergence of Polish Socialist Realism[7]in 1949-1954 which was decreed as the official architectural style of Poland, modernism in Poland developed decades behind the countries of Western Europe. At the end of the 1950's, the international modernist thought, disseminated by such designers as: Le Corbusier and Walter Gropius, was given the chance to develop in Poland, as it was both modern, economical and ergonomic. Many progressive technological, aesthetic and functional solutions have been implemented both in residential and public architecture - including many university buildings.

Fig. 29. Dormitory *UMCS, postcard 1970.*

Fig. 30. Dormitory *of Catholic University of Lublin,* right Photo by Dmitruk 2014

[7]Garliński B. :*Architektura Polska*, Państwowe Wydawnictwa Techniczne, Warszawa 1953

One of the first communist era student residences built in Lublin belonged to the Catholic University of Lublin and built on the initiative of Fr. Anthony Słomkowski[8], rector of CUL, and we're constructed to be occupied by women. Buildings A and B were subsequently erected in the early 1950s. They were built in a hurry and at significant financial savings thus did not include the many modern amenities and facilities already present in the later built dormitories of UMCS[9] or Lublin University of Technology. CUL`s dormitories did not have central heating , and to raise the temperature in the buildings tenants had to burn wood or coal in the furnaces. Water wells were supported by household animals pumping water, due to the lack of connection with still developing urban pipelines. Locating buildings on the outskirts of the city proved to be a transportation problem for students living there.

Fullness of modernist design assumptions can be found in the built, Lublin University of Technology[10] dormitories of the 1970s. Four, twelve-floored buildings dominated the collegiate campus. Built as an integral part of the university campus and served as an accommodation for both polish students and foreign students. In the buildings immediate vicinity, is a canteen, library, faculty buildings, sports hall and a chapel. In the ground floors of the buildings there are administrative rooms, a small recreational lodge, meeting rooms, clinic and a kindergarten. Each of the residential floors is accessed by the use of a passenger lift. On each floor there are rooms for 1,2 or 3 people, with an area of several square meters located in the southern part of the building , as well as the communal bathroom and kitchen on the north side thereof. Rooms are connected with the system of longitudinal corridors. The buildings are connected to all urban utilities and provide tenants with internet access. Although modernist in its program assumptions propagated functionality, availability and compact solutions, in many cases, the practice of living in dormitories proved the inadequacy of these facilities to the actual necessities and realities of student life. Accumulation of residential buildings up to twelve stories, designed to increase the amount of free space between buildings, as well as savings in the price of land, eventually resulted in a large density of population per square meter of land. The result was a lack of sufficient open space between the buildings in relation to the number of inhabitants, which could be used for leisure and social life within the place of living. With the development of the automotive industry , the enrichment of society and decline in prices of cars, the public space located between the housing blocks has been further eroded by the infrastructure necessary for the operation and parking of vehicles. Energy and maintenance costs associated with the operation of lifts, in many cases began to exceed the initial savings associated with reduced surface building. Students often complain of the lack of atmosphere for learning within the modernist residences as a result of using construction materials with inadequate soundproofing,

[8] *Jaskłowska M.:Kilka słów o „Poczekajce, Lublin 1969*
[9] Maria Curie-Skłodowska University in Lublin
[10] Bobiński S., Kacejko L., Majdiuk K., Pawelec I., Pollo I., Ratajewicz Z.: *Z historii wyższej uczelni technicznej Lublina*, Lublin 1978

and complain about the noise, which naturally spreads through long, empty and straight corridors.

Modernism brought to the architecture of student halls many good solutions, such as proximity to public service facilities, universal forms of aesthetic, ergonomic and reasonable use of interior space . Some of them, however, do not correspond to the current standards of student life and many design issues require reconsideration for the needs of psychological, social and utilitarian needs of students living in modern dormitories. Currently, modern era architecture is associated with severe , hostile forms , but the timelessness of many solutions seems to be appreciated by contemporary architects.

Fig. 31. Dormitories of Lublin University of Technology, Photo by Dmitruk 2013

As an example of successful references to the tradition of modernist designs should consider dormitory *Karolek*[11] built in 2009 in Poznan. Its simple form, rhythmic (though not trivial) distribution of windows on the facade and ornamentation based only on the accent of color , clearly refer to the constructions typical to the 1970s and 80s. The issues of parking spaces for cars and associated services are solved by designing indoor underground parking, a bar , a TV room , a space for learning , guest rooms and sports hall. In the basement of the building is also a laundry and drying room. The project is an example of the successful implementation of proven design patterns and struggling to find answers to the contemporary needs of residents .

[11] Tomczak M: *Nowy akademik*. *Gazeta Studentów "Puls UM"* 2009

Fig.32. Dormitory *Karolek*. Source: http://www.frontarchitects.pl/ - designer`s website

Expectations towards contemporary students halls

So far, life in students halls was associated with a modest functional program , limited to beds, desks for learning and canteen nearby. In current years , however, this situation is changing . The transformation of, social, cultural and political systems, as well as a noticeable increase in the standard of living of citizens, have had a significant impact on the gradual improvement of the quality of the accommodation offered by Polish universities.

Educational institutions need to compete between each other for the title of modern and innovative, influences the architecture to be progressive, and tailored to the expectations of candidates. Many students , before being accommodated in a dorm, have never had to share a bathroom or bedroom with another person. According to research published in the journal *Facility Manager*[12], one of the main reasons for rejecting the university by potential candidates are unsatisfactory accommodations. In designing modern dormitories, architect should be aware that the student does not only learn in classrooms , not only eats meals in the cafeteria, and the dormitory does not only serves as a place to sleep, but serves the purpose of education and social development . It is hard to expect that a twin room with two beds, desks and chairs, a shared kitchen and toilet - all within the area of several square meters will be sufficient

[12] Caine D., Reynolds G.L.: *The impact of facilities on recruitment and retention of students,* w Facility Manager 2006

for a comfortable environment for self-improvement and quality education of students. Observing student life inside the newly constructed building of the Faculty of Civil Engineering and Architecture, of the Lublin University of Technology, it can be seen how many students spend their time on work and study in halls specially designed for that purpose. Certainly it is a big advantage of the Faculty , at the same time indicates the inadequacy of the learning environment in student halls, in which a large number of students is accommodated. Ensuring appropriate conditions for learning in the dormitory, does not have to enlarge the precious surface of the dwelling . The solution to this problem is placing inside the building small laboratories, isolated from the residential part, practical particularly at technical universities, where it is often necessary to have an additional work zone. The obstacle in adapting living spaces to the educational function can also be the case of choosing wrong room equipment. According to the observations carried out by Sim Van der Ryn[13] , many students reported demands to provide them with possibility of rearranging their rooms, according to their own tastes and needs. It was observed that women tend to organize the equipment in a symmetrical manner, contrary to men. Women, unlike men also preferred arrangement of beds head toward the wall. Placing the desks and workplaces hidden away from the eyes of outsiders happened regardless of gender. Students often organized additional divisions within the room with furniture or curtains to increase the sense of privacy and individuality. A perfect solution to freely arrange the room space by tenants is to designate the room for furniture and equipment, which under the supervision of the administration of the building would offer freedom in selecting and replacing the furniture inside the rooms, according to individual desires.

An important aspect of life in the residence halls is the development of social life. People are largely social beings, therefore the learning process in many aspects is social action. Education is not limited only to classrooms, but it happens also in the space outside them. This is apparent when observing student life at university campuses, where you can see students learning in the halls, libraries, catering establishments or in public spaces.

As said Jeff Vredevoogd from Purdue University, Indiana, USA, who specializes in improving the education and social life of students:
" Man + place + pedagogy = Opportunities"[14], which can be understood that every location on the campus of the university is a good space for science - including dormitories. So treating learning as a social activity, students living in dormitories need space conducive to education, both in its formal and informal ways. Student living space must, therefore in addition to pure accommodation, provide individualized education zone - areas where interaction, integration and cooperation of students are not only possible, but also comfortable. Flexibility in the way of organizing those sites, their mobility and the ability to adapt to a preferred form of cooperation is the key aspect in

[13] Van der Ryn S., Silverstein M.: *Dorms at Berkley: an Enviromental Analisys*. Nowy Jork 1967
[14] Ibid.

making decisions about the interior design of dormitories. A kind of blur between the function of living and working seems to be of significant benefit in the educational process of students. Younger students are able to learn from the older ones, and the errors are corrected by those more familiar in the topic. Working teams are able to form, selected in a natural way on the basis of mutual sympathy and quality of cooperation, which in the future may become the basis for the opening of joint business or professional activities. Skillfully solving functional problems of education and residential dormitory, while encouraging personal development of student as well as taking into account the social aspect of housing can contribute to a significant increase in the efficiency of learning and create an atmosphere favorable to it.

An important issue while living in a student hall is a sense of privacy and intimacy. In dormitories nowadays there are special facilities helpful for the development of social life of the inhabitants. Many problems arise , however, because of the impossibility to isolate themselves and provide a sense of peace and privacy. Many architectural projects seems to do not take into account such needs. In the currently implemented objects /as quoted above DS Karolek / designers resign from outdated solutions such as: bulk bathrooms and kitchens, moving small kitchenette and a compact bathrooms to the individual rooms. Many concepts, which work well in office or public utility buildings are mistakenly transferred to projects of contemporary students residences. Long, straight communication tracts with rows of doors to individual rooms are the perfect noise and traffic conductors, resulting from the continuous motion in this space, the rhythm of steps, or the sound of mobile phones. Furthermore, not using additional sound insulation between the living spaces and communication makes the achievement of total silence in the room almost impossible. Organizing communication through shorter, bended corridors, can significantly restrict the propagation of sound. Optimal deployment of rooms along the corridor, also can have a significant impact on increasing the sense of intimacy. Designing many small corridors linking room entrances with a small lodge is able to create a suitable semi-public space, outside the rooms and at the same time giving the impression of a certain intimacy and facilitate social events. In many embodiments, dormitories, in order to obtain the visual order, the door to each room were located opposite to each other. Often with insufficient ventilation, those doors remained open most of the time, allowing direct visual access from one room to another, which further reduces the sense of privacy.

Based on the research of psychologist Robert Sommer[15], of the University of California / USA/ can be concluded that 75 percent of students largely lost the motivation to learn if their roommate at the same time did not work. An architectural solution to this problem would be to design the rooms and equipment in a manner that is flexible and customizable to make it possible at least to some extent separate roommates from each other . In addition to furniture, to create the temporary divisions

[15] Sommer R.: *The ecology of study areas*. w Enviromental and Behaviour 2, 1970

in rooms, the ideal solution can be movable, modular partition doors, which according to needs can be folded or spread not only providing a space for individual study, but even space for unfettered change of clothing. Additionally a sense of privacy can be created by designing several small bistros and cafeterias, instead of a single aggregate consumption hall. Designing small rooms used for recreation (with TV, social games, and a small cafe) as well with several guest rooms intended only for temporary use by family or friends visiting students could also prove very useful.

Over the centuries, the concept of student accommodation offered by universities, has proven to be a practical formula, economically justified and useful. Student halls, from the late Middle Ages enabled poorer, though gifted students to receive education at universities. With the development of civilization, societies as well as the emergence of new techniques of engineering, architecture of dormitories has become the subject of transformation and adaptation to the then existing technical capabilities and standards. Strictly residential function of the buildings was gradually extended with additional functions such as catering, sports and recreation facilities and space for learning. Dormitories have become an integral part of campuses with the rank and quality of its architecture, in many cases persist university departmental buildings. Modern universities, in order to be competitive and attract students from across the country, offer a range of facilities beneficial for student`s life. Such facilities are, among others, well-equipped and properly designed dormitories. If the spatial and functional concepts tend to correspond to the actual expectations of the candidates, the architect must be aware of the needs and problems associated with living in a residence hall. By creating a truly useful and modern building destined for comfortable living for students, the architect must take into account the multi-functional aspect of such facility. The project must also be flexible enough to allow free rearrangement of the interior by its users. Only a comprehensive approach to physiology and psychology of the students and the educational profile for the university can result in complete design being a comfortable place for living, education and personal development.

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URBAN DEVELOPMENT
OF HIGHER EDUCATION INSTITUTIONS IN BIAŁYSTOK

Introduction

Bialystok is now the largest city in the north - eastern Polish - the capital of the region, the seat of the province (city rights since 1692 years).

In the history of universal Białystok city existed as private Hetman Jan Klemens Branicki [1], Which in the 90s. Seventeenth century mansion made here remodeling Peter Wiesiołowski [2] the needs of their new residence. Baroque palace premise with its garden and adjacent to them, the city gained notoriety over time across Europe and called the Versailles of the East. Also became famous Branickiego founded by the Military School of Civil Engineering (1745) - which today can be considered as a precursor of education in Podlasie. The school staff is trained military officers connected with the person hetman, but also a number of residences magnate managers [3]. Graduation, which is regarded as the first Polish military college, resulting in a rank of lieutenant and put on the list cadet regiment of dragoons. Do not, however, required the military to pursue a career. Among the teachers of the school were the military and civilians of Polish origin and foreigners. The school educated, among others, in the field of construction, mathematics, history, drawing and foreign languages.

In the 30. Nineteenth century the city was revived declining due to economic emigration factory owners who built their factories here [4]. Menchester the North, as it

[1] Jan Klemens Branicki, griffin coat of arms (1689 - 1771) - one of the largest Polish magnates eighteenth century - swordfish of the Crown, Crown hetman, hetman, Castellan of Cracow, Cracow voivode, standard-bearer of the Crown, the governor Brański. Creator of the "Versailles of Podlasie" - Baroque residence in Bialystok. In this regard, continuing the father's actions Branickiego Stephen Nicholas, who in the years 1691 - 1697 commissioned Tylman Gameren reconstruction of the castle Wiesiołowskis Bialystok. Subsequent reconstruction in the eighteenth century mansion led, among other things: Jan Zygmunt Dowel and Jakub Fontana. In its final form, it existed as a palace with side wings and the two courtyards - initial and honorary preceded by a gate (1758) designed by Jan Henryk Klemm. The whole composition is supplemented assumptions garden, zoos and pheasantry, moreover assumptions (ponds) and private open spaces and the city.

[2] Peter Wiesiołowski coat Ogończyk (??? - 1621) - Speaker of the Grand Duchy of Lithuania, Kaunas governor, tykocki and Wasilkowski. In Bialystok palace built by Job Bretfusa project, also funded in Bialystok parish church.

[3] Branicki was the owner of 12 towns, 257 villages, 17 palaces, which required "management" and "a household" these estates hence military construction and engineering school was not only the first Polish military school but also the first university in the field of management education to space.

[4] After the November Uprising near Bialystok established customs border between the Congress Kingdom and Russia, which has contributed to the rapid development of the city as a center for the textile industry. This

was then determined Bialystok, once again gained importance when in 1862 became one of the stations on the railway line of the Warsaw - St. Petersburg. In the following decades, the city included in the Government of Grodno operated by the dominant role of the center of Grodno, and in the years 1915 - 1919 was under German occupation.

In the interwar period Bialystok's become the capital of the province, which to this day carries out its metropolitan and metropolitan aspirations.

During World War II, the city was incorporated into the Byelorussian SSR (October 1939). In June 1941, the city was occupied by German forces whereby they have been included in the ambit of the Third Reich. Hostilities in Bialystok ended July 27 1944roku when fighting on the outskirts of the city, the Red Army took them. As a result of the war, including the physical liquidation of the ghetto (after the uprising in August 1943) and the Jewish Quarter in the center of Bialystok Chanajki and the planned demolition by the German army (1944) and the Soviet air raids (in the same period) the city was completely destroyed [5]. As the city officially belonging to the German East Prussia was treated as spoils of war and survivors robbed of industrial machinery and equipment and belongings residents. As a result of the war also significantly decreased the number of inhabitants of Bialystok, which with 107 000 in 1939 decreased to 56 759 in 1946.

The agreement between the Polish border and the USSR of 16 August 1945 to restore the Earth Bialystok Polish. However, the division of the border has made the Archdiocese of Vilnius, within the limits of the Bialystok was before World War II. It was then that a significant part of the clergy and seminary professors was in Bialystok, where he inaugurated the work in a new place. Thus, the town became the seat of the Seminary - the first institution of higher Bialystok. Among the returnees settle in Bialystok after World War II was also a group of professors from Vilnius, which after a short stay in the city, however, moved to Torun, where he supplied the staff of the newly created University of Nicolaus Copernicus.

Development of the universities in Białystok

The post-war development of higher education in Bialystok, thus shaping urban academic center proceeded in three phases associated with the development and the political and economic transformation of the country, region and city after World War II. The present state is the result of years of sześćdziesięciopięcio local and national politics. It is also the result of changing conditions in the period of economic and demographic and civilization, including the spread of higher education [6]. These processes have increased the number of students in Poland with less than 400 000 in 1990 to almost 2 000 000 in 2005 (five-fold increase in 15 years), after which, despite

functioned then: 28 factories, 11 spinning, weaving mills 7 and many tanneries, paper and numerous craft shops working for the textile industry. Białystok the center of Łódź and Bielsko was recognized for the third time in terms of production in areas of former Polish territories.

[5] The degree of destruction of the city was estimated at more than 75%, wherein the different sources (depending on the evaluated region) provides this value to 90%.

[6] In Poland steadily been increasing the number of students and the percentage of people with higher education, which is in the period of 2002 - 2011 has increased from 9.9 to 17.5% and on the increase. On this basis, the Europe 2020 Strategy for Poland to achieve assumed rate of 45% of the population with higher education (for the age group 30 - 34 years). This index now stands at 39.1% and was ranked slightly above the EU average.

the observed steady increase in the percentage of students, followed by the quantitative reduction of the number of students due to demographic factors . Statistics show that in the next few years the dynamics observed over the last several years of growth, the number of students will be slowed down or even decline, which opens next (fourth) stage historiikształtowania to Bialystok (Podlaskie) academic center.

Stage I- the turn of the 40's and 50. Twentieth century - is related to political decisions - and the economic rise of the post-war period, autonomous, local universities, the assumption for the purposes of education in the region. In this step, the resulting: Private Evening School of Engineering NOT (1949) - now Bialystok Technical University and Medical Academy of Bialystok (1950) - now the Medical University of Bialystok.

Stage II- a breakthrough 60s and 70s. Twentieth century - is associated with the development of the socialist city (the largest center in the region, which actively support the current central policy), and responding to consumer growing social needs, including the prestigious, associated with the formation of its image. Universities that have arisen in this stage were still usamodzielnione branches Warsaw universities or autonomous departments. In this step, started its operations Branch Independent University of Warsaw (1968) and now the University of Białystok (since 1997) and of artistic schools: Fryderyk Chopin University of Music in Warsaw, Department of Instrumental - Educational Studies in Białystok (since 1974) and the Theatre Academy. Alexander Zelwerowicz in Warsaw, Department of Puppetry Art in Białystok (since 1974). In this period (1974) also established Architectural Studies (now the Faculty of Architecture of Bialystok Technical University), which began its operations as a so-called combined studies, conducted by the Institute of Bialystok Technical University of Civil Engineering and Architecture Department of the Warsaw Polytechnic.

Stage III- mid 90s. Twentieth century - is a local response to the nationwide trend, associated with the formation of non-public schools. Their popularity was associated with an increase in the number of students and "fitting-'young people from the baby boom of the early 80s. The twentieth century. At the core of the emergence and development of private universities are economic conditions - additional jobs (FTEs more) of the scientific - teaching, associated with local universities with an established tradition. On the market they occurred universities as independent schools, most of which were university and college branches in Warsaw. In this period arose: Teacher Training College of Revalidation, Rehabilitation and Physical Education in Bialystok (1992), School of Finance and Management (1993), the Pontifical WydziałTeologiczny Section St. John the Baptist School of Theology in Bialystok (1994), Non-State Pedagogical University in Bialystok (1995), School of Public Administration to them. Staszic (1996), Higher School of Economics (1996), School of Mathematics and Computer Science Utilitarian in Bialystok (1996), School of Real Estate Management in Warsaw Faculty of Podlasie in Bialystok (1998), College of Physical Education and Tourism in Bialystok (2001) , School of Medicine (2003), School of Management (2004), and the College of Journalism them. Melchior Wańkowicza in Warsaw branch of Bialystok (in Warsaw since 1995).

Stage IV- 10 years. Twenty-first century - is related to the current demographic and economic situation and lead to the suspension of calls and a further consequence blanking faculties and universities liquidation. In 2013 abolished the Higher School of Journalism. Melchior Wańkowicza in Warsaw and thus its branch in Bialystok and the date of February 1, 2014 abolished - Higher School of Mathematics and Computer

Science Utilitarian in Bialystok. Individual non-public schools for several years, constantly changing its educational offer - justifying these actions flexible adjustment policies competencies and skills of their graduates to the needs of rapidly changing labor market. Such an argument can not be attributed planned by the University of Bialystok suspended in 2015 for filling the direction of philosophy, a fact that will set a precedent in the dimension of the country.

Map exception Bialystok University is the Archdiocesan Seminary, which, in 1945, as a result of geopolitical, was moved to Bialystok from Vilnius. The activities of this institution is beyond the influence of the current social and economic conditions - economic.

Current status - the city is currently the largest center of higher education in the north - eastern Poland. In the region there are 25 universities (including subsidiaries and departments of long-distance "university mothers" from Bialystok and Warsaw). Nich8to Among public universities, private zaś17. Most of them are located in Bialystok, where he studied more than 44 000 students, which is 94% receiving higher education throughout the region. The city has its headquarters 5 public universities and 11 private [7] . A large part of the students (76.4%) gets them in full-time education.

Had to be concluded that in a city of over 294 thousand. residents, higher education, whose rank is significantly presented in *Bialystok City Development Strategy for the years 2011- 2020 plus,* it is important for economic, social and cultural rights. Should therefore have an important spatial dimension (urban) and architectural - building and shaping the identity of the place the city's image as a modern academic center.

Reality verify these statements, and the retrospective university allows us to understand the reasons for the status quo.

[7] In Bialystok public universities operate as follows: Bialystok Technical University (from 1949, 31% of students are educated in Białystok), Medical University of Bialystok (from 1950, 10.5% of students are educated in Białystok), University of Bialystok (1968, 34.5% of students are educated in Białystok) and the University of Frederic Chopin Music Department of Instrumental - Education in Białystok (since 1974) and Theatre Academy. Alexander Zelwerowicz in Warsaw Faculty of Puppetry Arts in Bialystok (1974) (which total 0.4% of the students are trained in Białystok). There are also private universities, including the two largest: University of Finance and Management in Bialystok (since 1993) and the School of Public Administration to them. AGH University of Science Białystok (since 1996) trained more than 60% of students enrolled in private schools, and: Teacher Training College of Revalidation, Rehabilitation and Physical Education in Bialystok, Non-State Pedagogical University in Bialystok, Higher School of Economics in Bialystok, School of Real Estate Management in Warsaw Faculty of Podlasie in Bialystok, College of Physical Education and Tourism in Bialystok Medical School in Bialystok, School of Management in Bialystok, Pontifical Faculty of Theology Section St. John the Baptist School of Theology in Bialystok and the Archdiocesan Seminary in Bialystok. In addition, the region has the State Higher School of Computer Science and Business Administration in Lomza, State Higher Vocational School in Suwalki and the Faculty of Forestry University of Bialystok in Hajnówce and private universities in the group: School of Management and Entrepreneurship them. B. Ionic in Lomza, Nadbużańska Higher School. Mark J. Carp in Siemiatycze, School of Suwalki - Mazury them. Pope John Paul II in Suwalki and delegated departments of the University of Finance and Management in Bialystok: Faculty of Technical Sciences in Elk, Elk Management Department, Faculty of Economic Sciences in Ostrow Mazowiecka.

Bialystok Technical University

December 1, 1949, the Ministry of Education issued a permit for the establishment and operation of Bialystok Private Evening College of Engineering NOT [8] . The first recruit students for Departments: Electrical and Mechanical Engineering held in 1950. In 1951, he founded and Building Department and university biblioteka.W the same year the school was nationalized, also changed its name to the Evening School of Engineering. In 1956, Warsaw University of Technology is committed to nursing research and teaching of a newly created institution, and in 1964 the school zmieniłanazwę on Higher School of Engineering and embarked on a study on a daily basis. In 1974, the school received the rank of a university. Bialystok Technical University currently educates local six faculties (Faculty of Architecture, Faculty of Civil and Environmental Engineering, Faculty of Electrical Engineering, Faculty of Computer Science, Faculty of Mechanical Engineering, Faculty of Management) and one long-distance (Faculty of Forestry in Hajnówce) studies I, II and III degree niestacjonarnym.W stationary mode and its walls are studying 13 778 studentów.Uczelnia also conducts specialized postgraduate studies (10 courses). The university employs 1 326 employees, including 687 teachers. University of Technology, has the right to award doctorates in technical sciences in eight disciplines (architecture and urban planning, construction and operation of machinery, construction, electronics, electrical engineering, computer science, environmental engineering, mechanical engineering) and confer a PhD degree in technical sciences in the four disciplines (construction and operation machinery, construction, electrical, mechanical). Bialystok Technical University has its own library, Department of Foreign Languages and Studies WF, a medical clinic. The university is also the holder of the local Radio Akadera and located in the campus student club thread.

Private Evening School of Engineering NOT started its operations in Bialystok (1949) is not having its own base. Classes were held in rented halls and laboratories. In 1951, the Provincial National Council gave the university building at ul. White 1, and in subsequent years the buildings were acquired at. Grunwald pine 64 and 11. A turning point in our history was taken in 1971, the decision to build on the border of downtown and green recreational areas of modern towns Academic City. In the area of residential area [9] Between ul. Zwierzyniecka and the Rural and Forest Zwierzyniecki, provided lokalizacjękampusu, which would educate 8 - 10 thousand. studentów.Lokalizacja residential areas on the border - in this case, social housing with full infrastructure, and open green areas was consistent with general trends shaping the strategic areas of urban cities [10] . This investment beyond raising the rank and prestige of the city in the arena ogólnopolskiejlokalnie gave a chance to "get rid" of one of the fugitive shameful, because of its development, areas of the city.

[8] NOT - Federation of Engineering.

[9] The area designated for the construction of Bialystok Technical University campus at the start of the construction work was built Bialystok district typical wooden detached houses - which the structure housing the city from the period before World War II. To date, at the intersection of Rural and Zwierzyniecka niewyburzonych then left a dozen homes. The only trace of the existence of this district on campus is an orchard of fruit trees in the area of the former study WF.

[10] Bialystok University of Technology campus by st. Adjacent to the master Zwierzyniecka The structural unit of Unit, in which outside residential buildings in the 60's. The twentieth century was built: crib, two kindergarten, two schools, housing estate club, swimming pool, the team and other commercial buildings in the dining and health clinic. Currently, housing is a residential service facilities and Bialystok Technical University.

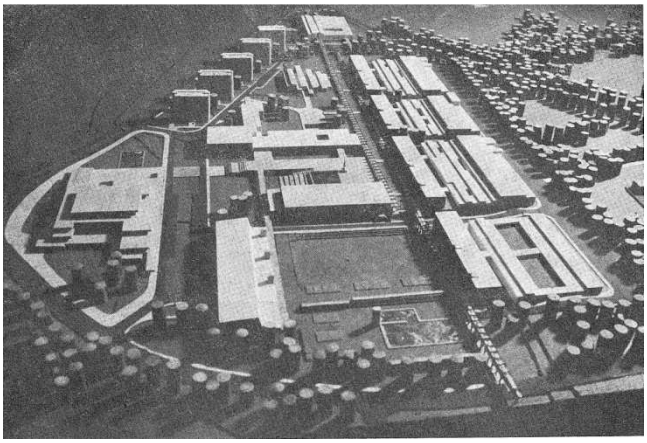

Fig. 33. model of the concept of the concept of the City of Academic team led by arch. Waldemar Hinc 1971. (Reproduction of photographs from: B. *Poplawski,* Engineering *colleges,* Arkady, Warszawa 1982, p. 221)

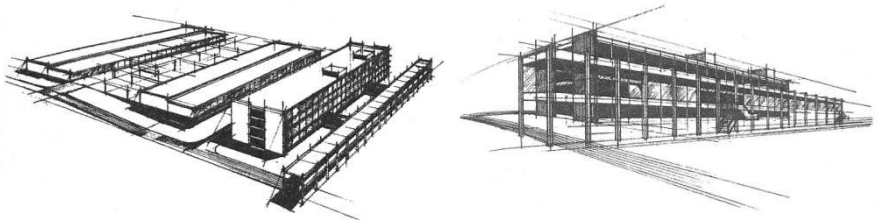

Fig. 34. Conceptual drawing of educational buildings Bialystok Technical University. (Reproduction of drawings with TP Shepher, *New Architecture Poland,* Arcade Publishing, Warsaw, 1979, p. 97)

The authors develop a concept of the spatial programme and the first buildings were erected architects derived from the Warsaw Office of General Construction Projects "Budopol": Waldemar Hinc and Richard Trzaska (Il. 1). The project involved the implementation of more than 1,000 meters compositional axis - a covered pergola pedestrian route to the south side were adhered four faculty buildings and associated teaching laboratories (three-storey high buildings). Due to the difference in height of the terrain in the northern part of the pedestrian route was run in its level, and in the south (implemented in the first stage) of enclosed structures and floors. These facilities were designed in the spirit of system architecture and modular construction techniques from the industrialized to the needs of the university campus organized a training ground production (Il. 2, 3). From the north precinct was based on the central square where were created: rector, Collegium Maius, library and swimming pool and further eastwards next sports (field and study WF) and the west: the student canteen with the club. The assumption in the west had a house close social, integrating the academic community, and on the east side it had to be continued after passing a footbridge over the street. Rural area designated for the construction of a developing university. On the campus will also include four dormitories and hotel assistant (jedenastokondygnacyjne objects).

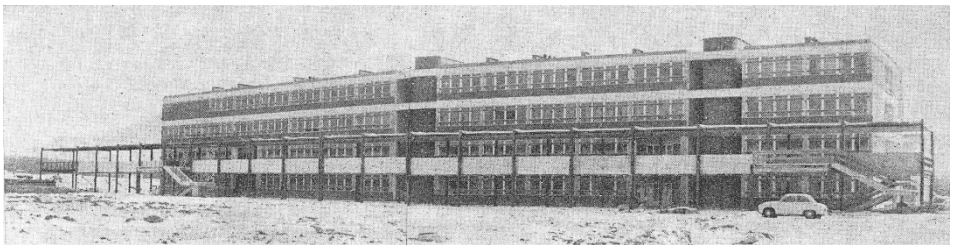

Fig. 35. The first of the completed, within the City of Bialystok University of Technology Academic, teaching building - ul. Rural 47A. (Reproduction of photographs from: B. *Poplawski,* Engineering *colleges,* Arkady, Warszawa 1982, p. 221).

In 1974, at the University of Technology campus land was given to the first object - a student house. Another was a teaching building - today housed rector (Il. 4). Construction work related to the implementation of the concept of more than forty years before going to date (Il. 6). By the end of the last century were implemented three educational buildings (Il. 6. - 13), a study of WF (currently adopted for the needs of laboratories Faculty of Electrical Engineering) (Il. 15), the building cafeteria (Il. 16. and a team of academics (alpha, beta, gamma, delta and hotel assistant) (Il. 14). Band architecture objects clearly places them in the spirit of modernism from the turn of the 60s and 70s. Century [11] . Facade reflects the modular system design concept. Band, repetitive windows give them being horizontal in nature. Used alternately white plaster and ceramic tiles bind with various sizes. Most clearly in lumps retail buildings are staircases. Are deposited in cavities and have a radiused in plan, finished lining klinkierowąnarożniki. They are also higher than the basic building blocks.

Fig. 36. Left to right: Stan invest Bialystok University of Technology area from the early 90. The twentieth century. (Reproduction of photographs from: www.strefaimprez.pl)
Fig. 37. The first of the completed educational buildings, now among other things, the seat of the Rectory PB. (Fig. M. Kłopotowski)
Il.38. Pergola a pedestrian - compositional axis Academic Foundation PB urban towns. (photo by M. Kłopotowski)

Fig. 39. Building didactic and laboratory buildings of the Faculty of Mechanical PB. (photo by M. Kłopotowski

[11] Bialystok implementation through consistent implementation is now one of the best examples of systems thinking in urban planning and architecture, space and facilities for higher education.

Fig. 40. Educational Building of the Faculty of Civil and Environmental Engineering PB. (Fig. M. Kłopotowski)

Fig. 41. Pergolas connectors individual educational buildings Part A PB. M. Kłopotowski)

Fig. 42. Halls of Residence and Hotel Assistant (foreground) PB. (photo by M. Kłopotowski)
Fig. 43. The former study WF PB, now after the reconstruction of the Faculty of Electrical Engineering Laboratories PB. (photo by M. Kłopotowski)
II.44. Building the canteen and the Club Herkulesy PB. (photo by M. Kłopotowski)

Developing and indicating the growth the university [12] commissioned in 2000 to develop a new concept for development of their land (Num. 18). Its authors were a team of architects - Architecture Faculty staff PB: Jan occupies, Adam Turkish and Grazyna Dabrowska - Milewska, in further project work team was also attended by Andrew Chwalibog and Halina Łapińska. Changes proposed by the team assumed complete remodeling of all undeveloped land spatial campus. Made some urban interiors and compositional axis, perpendicular to the existing communication over. Closed string object with one hand, team assembly hall (the former home of social location) and the other academic chapel [13] . Been suggested positioning of buildings (rector, library), and elevation of more than originally planned number of departmental facilities [14] . Further proposed construction of the hotel and Podlaskie Promotion Centre (shopping complex of buildings - exhibition). Shapes and forms volumes throws proposed facilities definitely different from the original concept and accounted postmodern, personalized answer the rigid system solutions preferred by the authors. Watch band linear facade of the early 70's. Twentieth century, a new concept was to be replaced by accented, dynamic corners and facades, watched from space invade distant sites and scenic.

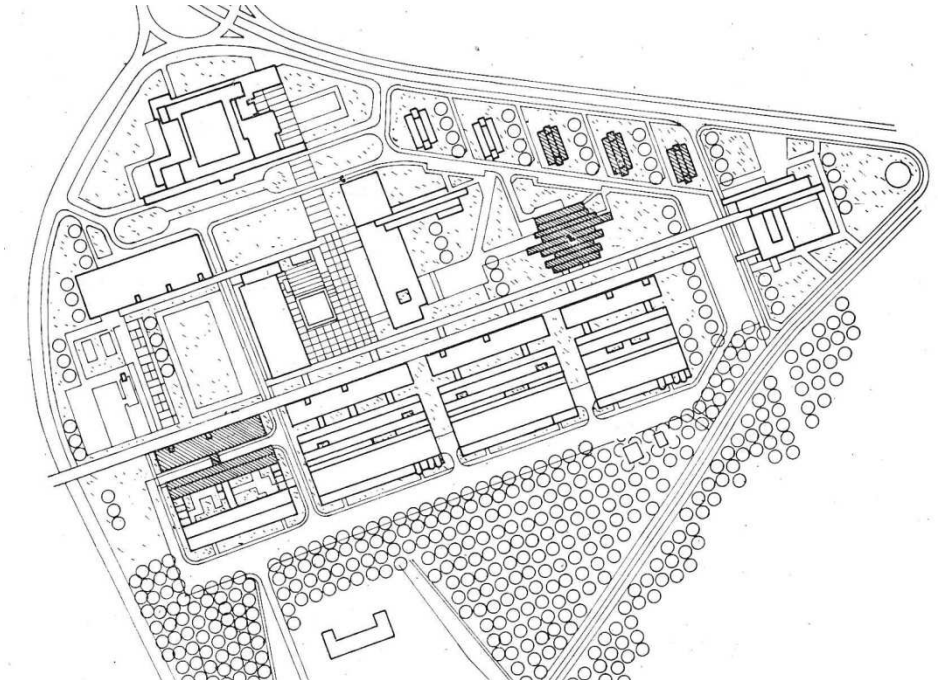

Fig. 45. Land development concept of Bialystok Technical University - arch. Waldemar Hinc with the team (1971) (reproduced photographs from: B. *Poplawski,* Engineering *colleges,* Arkady, Warszawa 1982, p. 220).

[12] In 1971, it was assumed that the target campus study will be 8 - 10 thousand. Students. In 2000 significantly exceeded the size and reached the number of over 12 thousand. and now it is almost 14 thousand. students.
[13] Originally assumed the continuation of building on the opposite side of the street. In rural areas in 2000, it was impossible for the intended use in the early 90s. Twentieth century, the area under the multi-family housing development, which has already started to implement.
[14] Programmatic decisions were related to the growing needs of the university form of office space.

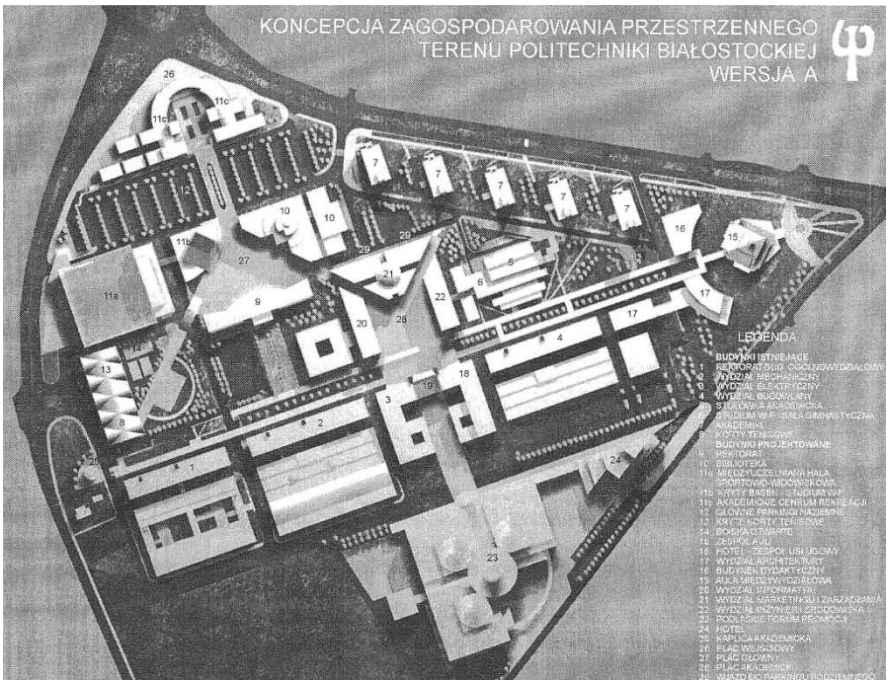

Fig. 46. Land development concept of Bialystok Technical University - arch. John occupies the band (2000) (visual reproduction of: G. Dabrowska - Milewska, *concept development of functional - spatial Bialystok Technical University campus* [in:] *Szkoła: Education and Architecture. Theory and practice of architectural creation Janusz A. Wlodarczyk,* Faculty of Architecture, University of Bialystok, Bialystok, 2002, p. 26).

Based on studies made building was designed and implemented the Department of Electrical Engineering (Il. 22.) and inter-auditorium (Il. 19. - 21) (2004, Arch. Arch. Jan occupies, Grazyna Dabrowska - Milewska, Andrew Chwalibog) and part of the objects of the Academic Sports Centre (Il. 23, 24). (2006, Arch. Arch. Jan occupies, Grazyna Dabrowska - Milewska, Halina Łapińska, realized - team sports halls and sports hall facilities). Individually designed objects maintained in check readable material throughout the campus - the red clinker and white plaster, the only new material was introduced metallic gray wall coverings and architectural details (crates, brysoleje, railings). Forms facilities were, however, the author's response to the project team on the "monotony" consistently maintained, modernist assumptions of the early 70's. Newly created objects have so far the greater number of architectural details including bay windows, sloping walls in different planes, various forms of roofing, słupy.W many places also decided to opt out of the windows of the band for "glass walls" and traditional window openings.

Fig. 47. Interdepartmental Assembly Hall at the Faculty of Electrical PB. (photo by M. Kłopotowski)



Fig. 48. Faculty of Electrical Engineering and Educational Building PB. (photo by M. Kłopotowski)
Fig. 49, fig. 50. Academic Sports Centre - facilities which are planned facilities, multi-purpose sports hall PB. (photo by M. Kłopotowski)

The development of new urban and elevation on the basis of building construction and caused conflict between the University of Bialystok and her first designer: architektemWaldemarem Hinc. After the investigation and settlement stated that the authors of a new concept of breach of copyright PB design team in the 70s. The twentieth century, which resulted in the suspension of work on the project and further studies the authors were excluded from the ranks of the SARP. Further investments in the PB are carried out in consultation with Waldemar Hinc.

In 2012, on the campus of University of Bialystok was opened Centre for Modern Education (housed a library and study foreign languages). The object was carried out on the basis of the study, which won a national architectural competition (Il. 25). Dormitory building designed by a team led by steel arch. Arch .: Agnieszka Staszczyszyn, Adrian Staszczyszyn and Sebastian Bieganowski, from Wroclaw AA Studio, located in the place of the originally planned social house and closes the north main axis of urban concept. Its architectural form is completely different from the performance on campus. The authors introduced the gray facade, decorated with "imprint" lace, inspired by the popular model of Podlasie. The property is part of a trend of Polish and world architecture since its construction, but does not have any formal relationship with buildings, realized on the campus of PB before. The spatial arrangement of the middle - "transparent" part of the building pedestrian footbridge connects the axle with the prospect of Forest Zwierzyniecki (Il. 26, 27).

Currently in the University of ongoing construction work related to the project INNO-ECO-TECH - the extension of the Faculty of Civil and Environmental Engineering (Il. 28). Object designed Poznan GpvtPracownia Architectural firm sc. Its chief designer is Gregory Pacer. The four-storey building is erected in the original planning for the construction of one - two-storey laboratory team. His throw in its contour coincides with the assumptions of the original, and the facade material solutions duplicate those already used on campus. Part of teaching refers to the band of the faculty building facades. Aula and experimental hall are covered with metal facings. Wbryle object are clearly accented staircases, which is undoubtedly the oldest reference to the implementation of the campus area.

Fig. 51. Fragment of winning the competition to develop the CSC building located on the Library and School of Foreign Languages PB. (Reproduction visualization www.Flaker.pl), courtyard entrance and façade detail. (photo by M. Kłopotowski)

Fig. 52. Building INNO-ECO-TECH - extension of the Department of Civil and Environmental Engineering PB. (Reproduction visualization www. Fakty.bialystok.pl)

Bialystok Technical University is the only one of the local universities, which has consistently designed complex campus. Its spatial value in 2008 was considered Dobro Contemporary Culture [15]. The impact of the original - linear spatial concept is assumed to be so large that further design work and construction is not offset by its meaning(Il. 29. - 31.). It is hoped that further design work is currently protected honor the main guidelines of the formal system of spatial and material solutions that define the identity of the place. Off-campus University of Białystok, ul. Separate the rural property belonging to the PB are two divisions: Architecture and Management.

Faculty of Architecture is located at ul. Fr Sosnowski 11, in one of the oldest buildings University [16] . In the period when the building housed the Faculty of Mechanical extended with him also was built machine hall - auditorium today. Previous user object was the Department of Electrical Engineering, which is in the public hall, he taught high voltage laboratory. The building was also localized X-ray chamber. Since 2003, the building is constantly modernized. The authors of the subsequent stages of repair are employees of the department. The main building has undergone thermo, according to the design team led by arch. Janusz Grycela, with finishing plaster facade gray thin-film, and some elevations hall finished profiled sheet (Il. 32, 33).

[15] In 2008, a team of the Faculty of Architecture, Technical University of Bialystok, composed of Kłopotowska A., Kłopotowski M., Niebrzydowski W., on behalf of the Mayor has developed: *List of architectural, town planning and urban elements considered good for Contemporary Culture of Białystok.* A paper that published it - is the basis of the findings of the relevant planning and conservation (conservation) in the city.

[16] Since the creation of the Institute of Architecture (now the Faculty of Architecture) Bialystok University of Technology is the third seat. The Institute started its activities in the Palace equerry Street. J. Kilińskiego 6 (now the Wedding Palace) where in the 80's. The twentieth century it was moved to the building of the former hotel workers' Street. Cracow 9.

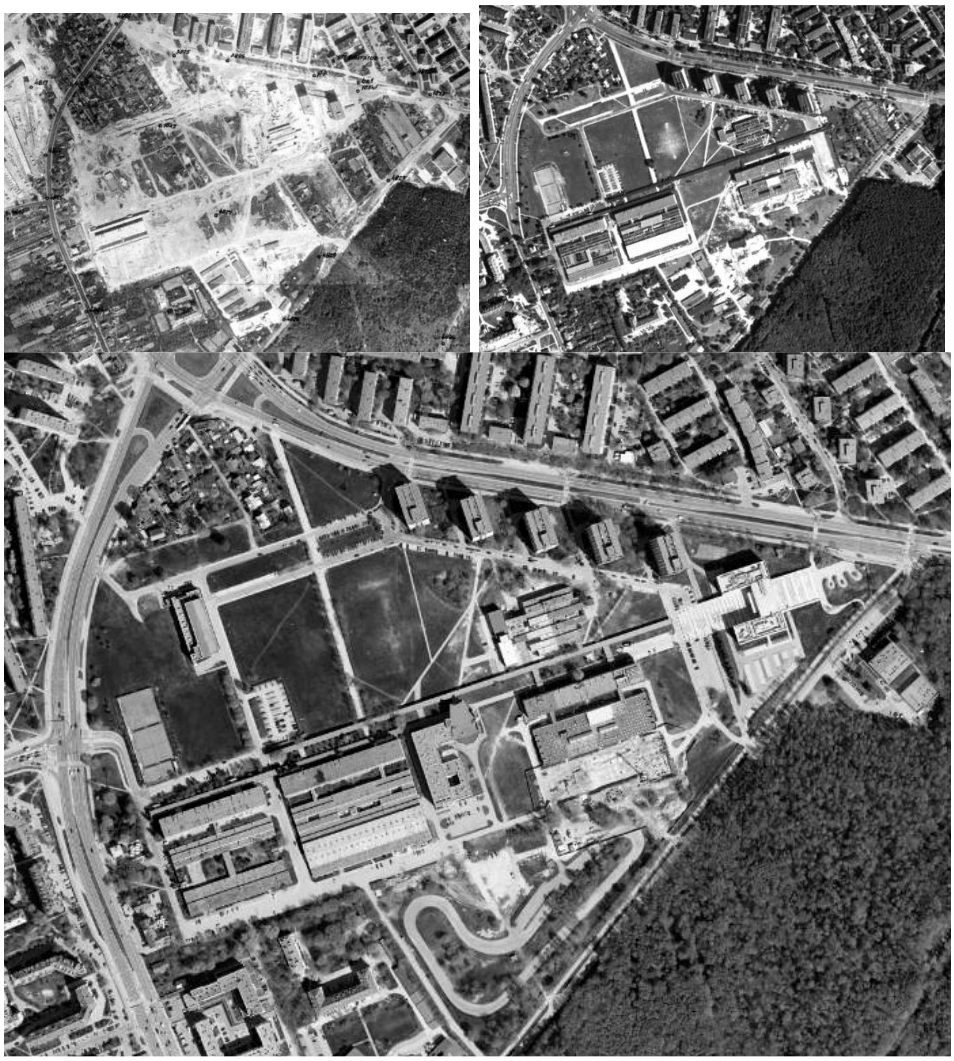

Fig. 53. Current development area of Bialystok Technical University in years: 1976, 1996, 2013 (reproduced from aerial photography: www. Gisbialystok.pl)

Fig. 54. Hall teaching building and the Faculty of Architecture PB. (photo by M. Kłopotowski)

Constructed in 2001, the Faculty of Management is located on the site of the former base of the economic base in Kleosinie University. It is located in a completely reconstructed building a post - Berlin hall steel type and renovated farm buildings. In the first stage of the modernization of the building was attended by employees of the Department of Architecture PB. Objects following renovation are decorated in pastel colors with expressive accents (chabrowymi, orange, green) architectural details and woodwork. On the facades of the buildings there are also ceramic tiles. Individual buildings, included in the assumptions given names: Dean's Office, Berlin, Philadelphia. (Il. 34. -36.

Fig. 55, 56, 57 Dean's Office, Buildings Teaching Berlin and Philadelphia belonging to the Faculty of Management PB. (photo by M. Kłopotowski)

Bialystok Technical University is also the owner of the building from the turn of the 50s and 60. Twentieth century located in the city center street. Zamenhof, 29. It houses an independent Department of Chemistry, which is associated with organizational WBiIŚ. In the near future zostanieon moved into the building INNO-ECO-TECH Street campus. In rural areas.

Bialystok Technical University has a total of nine building lots with a total area of 28.76 hectares, which is located forty seven buildings (andINNO-ECO-TECH - object in the implementation) with a total usable area of 44 856 m². This makes it the richest university in the region.

ARCHITECTURE AND URBAN DEVELOPMENT OF PUBLIC HIGHER EDUCATION INSTITUTIONS IN BIAŁYSTOK

Medical University

February 3, 1950 was established in Bialystok Medical Academy. Soon after, changed its name to the Medical University and was named Julian Marchlewski (currently unused and ignored in official university documents), which was independent university, educating the Faculty of Medicine. In 2008, under the Act the university changed its name to the Medical University of Bialystok. He currently trains three faculties (Faculty of Medicine and Dentistry and the Division of teaching in English Language, Faculty of Pharmacy and Laboratory Medicine, Faculty of Health Sciences) 4 681 students. The university graduate studies under a single master and doctoral programs. The university employs 1 293 employees, including 766 teachers. Each of the three faculties has two independent power to confer doctoral degrees and postdoctoral in the field of medical sciences, pharmaceuticals and health sciences (including university has the right habilitation in six disciplines and sciences and law odpowiednio- six doctorates in science and specialties) . Medical University has two hospitals and the Centre for Experimental Medicine, in addition: its own library, Department of Foreign Languages and Physical Education. Medical University of Bialystok owns Herkulesy Music Club and the Museum of the History of Medicine and Pharmacy and student houses.

Immediately after the establishment of the university was transferred to the needs of the most imposing building in the city - rebuilt after the war by Stanislaw Bukowski [17] Palace Branickich [18] (Il. 37, 38). The first theoretical sciences establishments located in a former conservatory [19] and nineteenth century buildings adjacent to the palace, where in the interwar period was located Teacher Training - Collegium Primum (Il. 39).

[17] Stanislaw Bukowski (1904 - 1979) - engineer, architect, urban planner, restorer. After World War II arrived in Bialystok from Vilnius. He is co-founder of the urban layout of the city rebuilt, author and co-author of Bialystok reconstructed historic buildings (including the palace Branickich) and the author of many contemporary architectural implementation (including the building of KW PZPR). He also managed the work associated with the completion of the church. Rocha.

[18] The palace is a monument Branickich Reg .: A-252 of 01.12.1958.

[19] The building of the former palace conservatory (ul. A. Mickiewicz 2b) is a monument Reg .: A-258 of 02.12.1958.

Fig. 58. Restored after the war some assumptions Branickich in Bialystok - the seat of the Medical University Rectorate. (Reproduction of photographs from: www. Umb.edu.pl)

Fig. 59. The facade of the Palace Garden Branickich in Bialystok. (photo by M. Kłopotowski)
Fig. 60. The buildings of the former Teacher's College - College PrimumUMwB now. (photo by M. Kłopotowski)

In 1954 was opened the first buildings designed for the needs of the academy - Collegium Universum (ul. A. Mickiewicz 2C, an object as good of Contemporary Culture) (Il. 40.) and the Dormitory (ul. 3 Akademicka, tel. 41. - Both located in the vicinity of its existing facilities. Their implementation in the former gardens of the Palace garden utility Branickich separated from Planty Park - the modernist assumptions implemented in the 30s. Twentieth century, the former Zwierzyniec. Both buildings are decorated in the style of socialist realism. From the south - east are based on the park avenue (Blicharskiego Joseph Boulevard), which created the compositional axis between ul. A. Mickiewicz and edifices teaching, and ul. Academic Student of the House, and ul. Z. Krasinski - where built multi-family residential buildings with apartments designed for professors (ul. Z. Krasinski 2 and st. 34 Akademicka, tel. 46., 47.) and st. MC Sklodowska - where localized Institute of Dentistry (ul. MC Sklodowska 26) (Il. 42.) And its closure was placed State Hospital (now University Hospital, ul. MC Sklodowska 24A)). The composition on the border erected multifamily housing estate closed residential

building, dedicated doctors and the average medical personnel (ul. Hospital 35A), which by białostocczan called the "Colorado" (Il. 48). Facility operated as a hostel staff professionally connected with the hospital. Educational and residential buildings designed in the early '50s were kept in a monumental style. Characterized by heavy rusticated ground floor, accented corners, pilasters on the facades and parapets with cornices imposed on them. Institute of Dentistry building trend maintained in deprived parts of buildings ZOR -owskich characterized by lacking detail, topped with a cornice elevation, with evenly spaced windows and a high roof. Hospital project was realized on the basis of a typical one of the "triplets" implemented in the late 50s and 60s in Poland[20] . Hospital building was maintained in the style of socmodernizmu, which was characterized by the use of a composition consisting of a rectangular, logically connected and interpenetrating solids, which thanks to the proportions of window openings on the facades and divisions to detail uzyskiwały few monumental charakter.Obiektowi due to the physical size of the given, functioning to this day, the name of the GIANT (Il. 43. - 45). Residential buildings like the hospital, were built in the style of heavy socmodernizm.

Fig. 61 Collegium UniversumUMwB. (Fig. M. Kłopotowski)
Fig. 62 Dom StudentaUMwB Academic Street.. (Reproduction postcards from the collection of M. Kłopotowskiego)

Il.63. Building Institute StomatologiiUMwB. (Fig. M. Kłopotowski)
Il.64. Construction GIANT Hospital in Bialystok. (Reproduction of photographs from: www. Umb.edu.pl)

[20]*Threefold* term *hospital* were called three implemented by almost the same project, hospitals in Białystok, Lublin and Warsaw Bielany.

Fig.65. Architectural details of the building of the hospital GIANT. (photo by M. Kłopotowski)

Fig. 66. Buildings at 1/3 3rd of May St. Z. Krasinski 2 and st. Academic 34 - houses with apartments designed for professors emerging Medical Academy. (photo by M. Kłopotowski)

Fig. 67. Buildings at 1/3 3rd of May St. 35A hospital - home of the corporate house doctors and medical personnel hospital average GIANT. (Fig. M. Kłopotowski)

Establishment of the 50s. Twentieth century, the university system - hospital - residential base, operated for over twenty lat.Kolejne investments Medical Academy, associated with its development, have been located in the vicinity of existing facilities. Downtown determinants decided that most of them were implemented in the area between the street. MC Sklodowska and st. Iron [21] . In 1982 he transferred to the service Collegium Pathologicum (ul. J. Washington 13) (Il. 49.), And in 1988, the Children's Hospital. L. Zamenhof (ul. J. Washington 17) (Il. 50). Both of the sites was carried out in an industrial technologies and their spatial forms reproduce typical 80s austerity measures. Contemporary, subject to a total or partial thermo, highlight the elevations of these objects used in the schematic solutions. In the case of the building at 3 J. Washington 15 was put to pasture Collegium Novum (Il. 51. - Which in its spatial design was forced to share the doctrine of postmodernism - with reference to the creator of individualism and neomodernizmu - referring to the purity of the composition. Thus, analyzing the style object can not be assigned to any zezdefiniowanych stylistic trends.

Medical University of neighborhood street. M. Wołodyjowskiego, in 1975, an industrial technology implemented Sports Hall (ul. M. Wołodyjowskiego 1) (Il. 53.), And Street. J. Washington 23 Dormitory No. 2 (1980) - two eleven-storey skyscrapers, built in technology OWT [22] (Il. 52). These objects are spatially close the whole system is currently the Medical University campus on the west side. In this area is also located Experimental Medicine Centre (Il. 54). In the early twentieth century, the University acquired on the need to expand educational base related to education in the field of dentistry, the building of the former, crèche Street. MC Sklodowska 7A (the building of the 60s. The twentieth century).

Fig. 68. Collegium PathologicumUMwB. (Fig. M. Kłopotowski)

[21] In this area there are health care facilities not associated with the Medical University: The Regional Hospital. J. Śniadeckiego in Bialystok formed after World War II on the basis of the Hospital of St. rebuilt buildings. Buildings at 1/3 3rd of May St. Beer (MC Sklodowska), Regional Blood Center in Bialystok established in the 50's. The twentieth century.

[22] OWT technology due to the elevation on the outskirts of the city in the early 70s. Manufactured label of the twentieth century, dominated the area of housing (and related) in Bialystok in the 70s and 80s. The twentieth century.

Fig. 69. Team Children's Hospital of objects to them. Zamenhof in Bialystok. (photo by M. Kłopotowski)

Fig. 70. Collegium NovumUMwB. (Fig. M. Kłopotowski)
Fig. 71. Dormitory No. 2 UMwB. (photo by M. Kłopotowski)

Fig. 72. UMwB Sports Hall. (photo by M. Kłopotowski)
Fig. 73. Building DoświadczalnejUMwB Medicine Center. (photo by M. Kłopotowski)

The latest investment, Medical University of Bialystok, it opened in 2011, the building and Education Centre - the Science of Health Sciences, ul. Hospital 37 (Il. 55, 56). The authors of the project are the arch. Arch .: Jan occupies, Arthur and Edith Kołodko courtyard - courtyard with Arkon Design Studio in Bialystok. Object with complex multithreaded yet surprisingly bold geometrical block solutions for color. Spatial form and detailed solutions allow you to put the object in the forefront of modern educational buildings implemented in the country. On its façade cladding panels were used in the following colors: gray and sharp cut-off to - orange. Color contrast has been consistently applied in the area of the holes and details. In 2012 was

opened Euroregionalne Center Pharmacy, Medical University of Bialystok (ul. A. Mickiewicz 2D, in the vicinity of the Collegium Universum, which are connected by a hyphen) (Il. 57). The hotel was located in areas of recreational sports and student dormitory, in the vicinity of the Planty Park. The designer of this building is Jan Hahn Studios - A John Hahn in Bialystok. In order to reduce its impact on the environment of the park completed mirrored facade. Undoubtedly improving the investment base housing the university, in the space is seen as wielkoskalowai formally undefined. Analysing it should be noted that the author, in a strictly defined context (cubage social realist and modernist park), sought to formally neutral solutions.

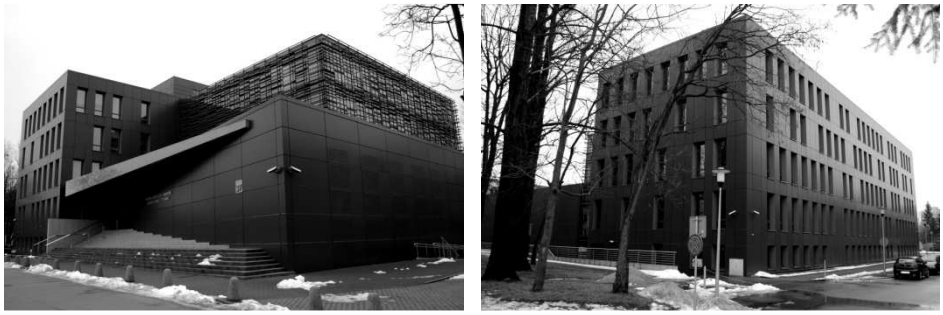

Fig. 74. Didactic - Scientific ZdrowiuUMwB Sciences. (Fig. M. Kłopotowski)

Fig. 75. Euroregionalne Center Pharmacy, Medical University of Bialystok. (photo by M. Kłopotowski)

For several years now the modernization works associated with the object, University Hospital. Initial repairs of individual branches and minor remodeling resulted in complete modernization of the building, which is scheduled for completion in 2017 (Il. 58, 59). The new investment, the volume is comparable with that of the 50s. Twentieth century, includes building the necessary clinical and specialist facilities. On the rooftop helipad is designed to be the next, the third location in the hospital team.

The project also includes the complete modernization of the existing building substance.

The latest investment currently planned by the University Medical Center of Bioinformatics and the Data Analysis Street. Military (Il. 60). The object is to fill in the landscape in the area. This is intended to serve, inter alia, a "green roof". The building will be connected to the internal communication system with neighboring Collegium Pathologicum.

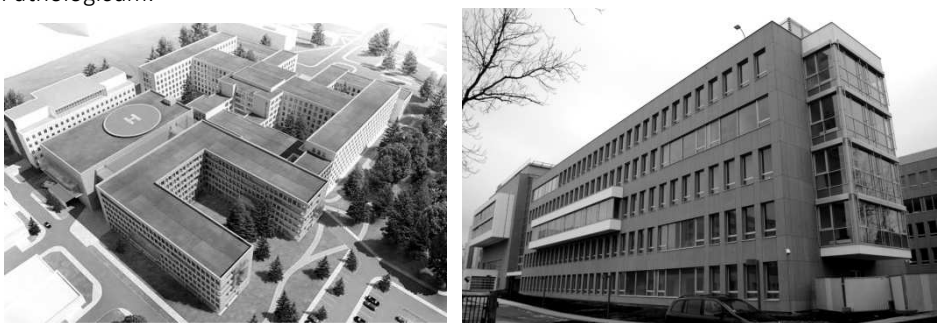

Fig. 76. GIANT Hospital Expansion in Bialystok. (Reproduction visualization www. Fakty.bialystok.pl, photo. M. Kłopotowski)

Fig. 77. Center for Bioinformatics and Analysis DanychUMwB. (Reproduction visualization www. Umb.edu.pl)

Medical University of Bialystok has fifty-fourbuilding lotswith a total area of 23.76 hectares, which are located sixty-four buildings with a total useful floor area of 40 800 m². These objects are located inthe center area between the street. A. Mickiewicza and st. Iron, do not forma coherent spatial composition of the urban dimension. The architecturaldesign ofindividual objects is a reflection of fashion trends during the formation of the project documentation. As most clearly in the space of this assumption architectural stylistic direction would indicate socmodernizm and further socreaglu-. Dueto the location of the university Rector is clearly identified Branickich baroque palace. Individual emodern facilities, probably because of the very strong cultural

context, attempts to design in a way tłowy (invisible, disappearing in space),which due to their size on the assumption it was impossible to achieve.

University of Białystok

July 15, 1968 basis of a directive of the Minister of Education and Higher Education was established in Bialystok Branch of the University of Warsaw. It entered the College of Teachers (WSN) educating three faculties: Of Humanities, Mathematics - Natural Sciences and Early Learning and Professional Studies Administration (ZSA, a branch of the Faculty of Law and Administration). In the academic year 1972-1973 vocational schools converted into a college or university, and for the purposes of its business organizational changes were made to the university. In this period also created a library. Growing branch in 1997 - under the Act, became independent. Established the University of Bialystok. Currently, the University educates 15 408 studentówna eight faculties (Faculty of Biology - Chemistry, Faculty of Economics and Management, Faculty of Philology, Department of Physics, Faculty of History - Sociology, Faculty of Mathematics and Computer Science, Faculty of Education and Psychology, Faculty of Law) and two cathedrals (Catholic Theology Katadrze and the Department of Orthodox Theology), in college I, II and III degree full-time and part-time. The university employs 1 490 employees, including 883 teachers. University of Bialystok has its own library, Department of Foreign Languages and the School of Physical Education and three dormitories, also leads the Centre of Continuing Education and University Centre of Natural History. University of Bialystok has also a branch of nonresident - Faculty of Economics - Information Technology in Vilnius.

Beginnings of the Bialystok Branch of the University of Warsaw are associated with the use of the rooms in the building at ul. St. John's 13 (now I Tax Office in Białystok) (Il. 61), from the early 90's. Twentieth century the university administration was transferred to the tower at. MC Sklodowska 14. The new university building was built in 1965 by architect. Janusz Kretowicz, for the purposes of the Union of Construction Bureaus Bialystok (Il. 62). Its location was chosen very carefully. XI storey building (at that time the highest office building in the city) located on the axis Branickich Palace, half the length of the Bialystok Avenue marches [23] - The establishment so as to be visible from the terrace of the Communist Party KW. Modern office building with a characteristic, arched curved facade and reinforced concrete, razor brisolejach, with a raised lump on the outer pillars locals gained the name of the United Nations. In 2008, he was found Dobro Contemporary Culture and protected (Il. 63, 64).

[23] Avenue marches (ul. MC Sklodowska) - made in the 50s and 60. (For May Day marches) representative street in the center of Bialystok. It was located at: building KW PZPR Provincial Court building, house unionist, Home Tech, two hospitals, department store.

Fig. 78. Buildings at 1/3 3rd of May St. St. John's 13, the seat of the Bialystok Branch of the University of Warsaw. (photo by M. Kłopotowski)
Fig. 79. The office building of the Union of Construction Bialystok, ul. MC Sklodowska. (Reproduction postcards from the collection of M. Kłopotowskiego)
Fig. 80. Head Rectorate of the University of Bialystok, a detail of the entrance. (photo by M. Kłopotowski)

The other buildings owned by the university were obtained with successive stages of development of the university and the growing needs form of office space. Thus, each of the departments are spread out across the city and are located in facilities with different period and initially performing a variety of functions.

Faculty of Law (ul. A. Mickiewicz 1) is in the nineteenth century the old school. The building was erected for the purpose, founded in 1897, first in the female high school (Il. 65). In 1919 the high school was nationalized and worked as State Female Gymnasium. Princess Anne with Jabłonowska Sapiecha family. During the war the building was a hospital organized, and immediately after the war, in a partially

demolished building, began its operations Pedagogical High School. After the reconstruction of the facility including work in the coming years primary school, secondary school and Bialystok Teachers College, which became the basis of the Warsaw University Branch. Until the mid-90s. XX housed the rector and the university library. During the renovation works carried out in the 90s. Twentieth century - warming elevations (kept in ZOR-esque style) building piecemeal and selectively reconstructed part of eclectic decoration. Also stressed the input projection, which served "pseudo forged" roof and railing. As a result of the construction work, which took restore the property to its historic decor was given a pseudo-attributes to give effect scenograficznego "fraud" (Il. 66). These actions, however, clearly indicate a desire to seek the investor base in the tradition and positive references to the possessed, the historic property. In 2005 the building was built auditorium.



Fig. 81. Female High School in Białystok - the end of the nineteenth century. (Reproduction of photographs from: Lechowski A., *Bialystok. Historical Guide,* Benkowski Publishing, Bialystok 2008, p. 312).
Fig. 82. Faculty of Law, University of Bialystok. (photo by M. Kłopotowski)
Fig. 83. Faculty of Economics and Management, University of Bialystok. (photo by M. Kłopotowski)

Faculty of Economics and Management (ul. Warsaw 63) located in the historic, Neo-Renaissance, rebuilt many times, and the extended, dating from about 1840, the residential building, known as the House Trębicki[24] (Il. 67). In 1909, its owner, by an act of donation, become a Society of Knowledge Economics. In the interwar period the building housed the Regional Court, Gymnasium. King Sigismund Augustus, Middle School Male them. Marshal Jozef Pilsudski, and after World War II: Building the high school, middle school, mechanical, high school, technical trade, economic and technical high school economics. Contemporary use of the object is thus continues the tradition of trade - economic space. Renovated historical building also seems to satisfy the ambitions and prestige users. Neo-Renaissance palace city is in fact one of the few so well preserved in the buildings of the built before World War II.

Faculty of Philology and the Faculty of History - Sociology (University Square 1) is a former KW PZPR [25] (Il. 68). Built in 1952, designed by the architect. Stanislaw Bukowski, the object is considered today to be one of the better examples of monumental architecture of the period of socialist realism public in Poland. The importance of the building increases its positioning of the closure ul. MC Sklodowska - former Avenue marches. Square outside the building at the time of passing it on to the University called University Square. In 1993 (before the usual time required fifty turning point), the building was listed as a monument - the aim was to hinder or even prevent the current user (the University) to carry out the modernization and expansion of the

[24]Tenement Trębicki - monument Reg .: A-150 of 12.30.1975.
[25] KW PZPR building - a monument Reg .: A-229 of 09.09.1993.

object [26] (Il. 69). As a result of that decision, most of the public is not designed to teach classes. Along with the Building of the University of KW PZPR socialist realism became the owner of the building of Party School of Human Resources at. W. Liniarskiego 3 (Il. 70). It reflects the characteristics of the so-called "provincial" socialist realism, which was characterized by a rectangular form solid objects, decorated rustication in the floors and skirting elevations imposed on pilasters and simplified forms of the heads of the crowning cornice. Location of university faculties on the display of the scale of the city plot builds their social prestige and forms historically and culturally conditioned distance in relation to the recipient.

Fig. 84. KW PZPR building in Bialystok. (Reproduction postcards from the collection of M. Kłopotowskiego)
Fig. 85. Faculty of Philology and the Faculty of History - Sociology of Bialystok. (photo by M. Kłopotowski)
Fig. 86. Faculty of Philology, University of Białystok. (photo by M. Kłopotowski)

[26] The old building was handed KW PZRR University in Białystok for symbolic penny.

Faculty of Education and Psychology (ul. Spruce 20) is in a modernized and extended, a typical school building from the 50's. Twentieth century (Il. 71, 72). In 1959, the new building of the street. A. Mickiewicz moved Pedagogical High School, which was the nucleus of the current faculty. The property at the beginning of this century were renovated in phases. Was carried out with the main entrance canopy, then the whole building underwent a renovation. The architecture does not arouse strong emotions now. Its location is considered to be less available, due to the distance from public transportation.

Fig. 87. Faculty of Education and Psychology, University of Bialystok. (photo by M. Kłopotowski)

Department of Physics (ul. Linden 41) housed in a building dating back teaching in 1906 for the needs of the Jewish School of Crafts. Since 1919 the building housed a Jewish High School and the School of Crafts. W. Wysocki. During the war, the building was seriously damaged. Rebuilt completely changed his style. Currently, he is on one floor lower. There is also a high roof restored. After the reconstruction, the building housed the Technical and Building - Road (Il. 73).

Faculty of Mathematics and Computer Science (ul. Pine 64) is in a former industrial building from the 30s. The twentieth century, which in the 50s, 60s and 70s was used by the Białystok Technical University (Il. 74.) and socmodernistycznym building located at ul. Legion 2 (Il. 75).

Both buildings of the Faculty of Physics and Mathematics and Computer Science are completely random because of the usefulness and the opportunity to build on the basis of the image of the university there.

Fig. 88. Department of Physics, University of Bialystok. (photo by M. Kłopotowski)
Fig. 89. Faculty of Mathematics and Informatics, University of Bialystok, ul. Pine 64. (photo by M. Kłopotowski)
Fig. 90. Faculty of Mathematics and Informatics, University of Bialystok, ul. Legionowa 2. (photo by M. Kłopotowski)

Department of Biology - Chemistry is now located in four buildings: Street. Spruce 20B - former hotel workers from 1956 (Il. 76.), al. J. Piłdudskiego 11 - house dating from the mid-20s. Twentieth century, ul. Wholesale 1 - former administrative building packaging factory in 1974 (Il. 77.) and ul. Serene 65 - buildings of former vocational schools from 1978 (Il. 78). None of the buildings was not designed for the needs of higher education and the standard of architectural and functional objects deviates significantly from the expectations of users and prestigious universities.

Fig. 91. Buildings Department of Biology - Chemistry UwB: ul. 20B Świerkowa Street, 1 Hurtowa, 65 Pogodna Street (photo by M. Kłopotowski)

Chair of Catholic Theology is located in the vicinity of the Seminary, in the old nineteenth century building at ul. Warszawskiej50 [27] (Il. 79). In building the same building is the seat of the Pontifical Faculty of Theology Section St. John the Baptist School of Theology in Bialystok.

Department of Orthodox Theology is housed in the university Rectory Street. MC Sklodowska 14.

Fig. 92 Buildings at 1/3 3rd of May St. Warszawskiej50 - the seat of the Chair of Catholic Theology, University of Bialystok. (photo by M. Kłopotowski)

Independent new investments undertaken by the University of Bialystok dates back to the mid 90's. Twentieth century and are the consequence of becoming independent university.

In 1998 a competition was organized architectural - urban design for the development of the Central Library of the University of Bialystok. The competition was won by a group of architects from Architectural Studio BNS SC from Warsaw. The authors of the project is a team which consisted of arch. Arch .: Witold Benedek,

[27] Buildings at 1/3 3rd of May St. 50 is a monument in Warsaw - Reg .: A-159 of 12.30.1975.

Stanislaw Niewiadomski, Christine Szypulska and Bozena Stanisławska - the authors of many studies of design objects related to higher education, including the Main Library of the Nicolaus Copernicus University in Torun - considered one of the best tergo type of buildings constructed in Poland during the communist era. The grand opening of the library, which was named Jerzy Giedroyc, took place in 2005 [28] (Il. 81). Object, functional and meets the needs of the users location (right size and directly connected to the Rectory), met with criticism from architectural environments. Questioned both the location - perfect closing axis Branickich Palace as well as the volume of the building - dominating the five-story, accented range of skyscrapers, buildings Street. MC Sklodowska.

Fig. 93. ZETO building in the district Bojary - the former library of Bialystok. (photo by M. Kłopotowski)
Fig. 94. Main Library of the University of Bialystok. (photo by M. Kłopotowski)

In 2002 was opened Dormitory No. 1 Street. Zeromskiego 1 (Il. 82). It expanded the living quarters of the University, consisting so far from the building at ul. 9A Cracow (1967 - originally the hotel workers') (Il. 83.), which organized the only observatory of Bialystok (Il. 84.) and st. Serene 65 (1978 - originally a dormitory school).



Fig. 95. Fig. 96. Fig. 97 Dormitories UwB: ul. Zeromskiego 1, ul. Cracow 9A. (photo by M. Kłopotowski)

[28] Until the rise of the University Library. J. Giedroyc Street. MC Sklodowska its collection in the years 1968 - 1988 were collected and made available in the building of the Faculty of Law (ul. A. Mickiewicz 1). In 1988, the library was made available for the purpose of some of the rooms in the building in the district ZETO Bojary (ul. Skorupska 9) (Il. 80). In 1998 part of the collection, including reading magazines, moved to the building Rector Street. MC Sklodowska. During this period, also considered the possibility of building extension ZETO, for the purposes of the Project Office of Higher Education BEPRON developed technical assumptions - economic and developed a design concept not realized.

Another independent investment University of Bialystok were located at ul. Spruce 20 and put to use were associated with the property belonging to the University. In 2007 was put here to use sports hall with an area of the arena almost 1300 square meters, with a dynamic façade designed by Arch. Arch .: John occupies, Grazyna Dabrowska - Milewska with Maciej Arkonia Design Studio Design Studio Kłopotowskiego with MK Project (Il. 85, 86).

Fig. 98. Sports Hall of Bialystok. (photo by M. Kłopotowski)

In 2012, the auditorium was opened, and the lecture hall of the Faculty of Education Psychology, University of Bialystok, by a team led by arch. John occupies [29] . Dynamic in the form of building, with rusty, increasing in subsequent elevation levels, is undoubtedly one of the most interesting objects in teaching (Il. 87. - 89.).

[29] Co-author of this study is to arch. Boguslaw Pszonak.

Fig. 99. Hall of Psychology, Faculty of Education, University of Białystok. (photo by M. Kłopotowski)

University of Bialystok currently has thirty-five scattered in building lots with a total surface 9.80 ha, which is located forty-one buildings with a total usable area of 23 343 m². However, they are not any coherent spatial arrangement. Their architectural expression is completely different and random. Is mainly due to the period of acquisition of the building. At the same time it is clear treatment of buildings of historical and current (latest) as prestigious, able to build the image of a modern university with tradition.

A turning point in the functioning of the University of Bialystok will be put into use objects included in the Campus of the University of Bialystok, ul. K. Tsiolkovsky. After deciding the location of ancient land allotments, ul. K. Tsiolkovsky, was included in the development of Local Development Plan. In 2008, announced a nationwide architectural competition to develop the concept of software - the spatial new University Campus, together with the draft of the first four buildings of faculty (Biology, Chemistry, Physics, Mathematics and Computer Science). The author of the winning of the competition was the arch. Marek Budzynski. The assumed spatial layout respects the LDP guidelines and forms section of the campus buildings more than 1 500 m. The various parts of assumptions, located in an area of 30 hectares, are separated by green areas, which are designed as park of a forest. In the space area of the town was located teaching facilities, living quarters and buildings Rector, administration, maintenance, and the European Centre. The spatial arrangement of stringed on a footpath, which nodes compositions take the form of round (or close to the circle) squares (Il. 90).

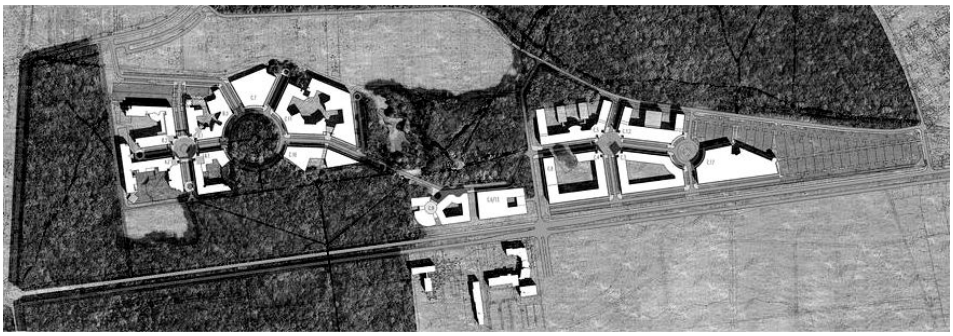

Fig. 100. The concept of the Campus of the University of Bialystok, ul. K. Tsiolkovsky arch. Marek Budzynski with the team. (Reproduction visualization: www.skyscrapercity.com)

On the basis of this work has already started to implement the first phase of the project, which is likely to be completed in 2014 [30] (Il. 91). In the area between the street. K. Tsiolkovsky and st. November 11 are now erected buildings departments: Mathematics and Computer Science, Physics, Biology and Chemistry (Il. 92. - 96.). Postmodern, multi-threaded architecture by Marek Budzynski, just like any other of its implementation is to be a symbiosis of technology (including material) and nature. Hence, reinforced concrete walls and glass objects will be accompanied by green panels on the roofs and gardens. Currently implemented part consists of two intersecting streets that connect to the central square with a ball of Science of Synthesis - a fountain placed in the center. Both the spatial layout of campus as well as the typical postmodern "stage design" form of architecture Marek Budzynski arouse emotions. Leave no doubt, however, that the realization of the Warsaw architect sign up permanently in the history of Bialystok [31] and the campus has a chance to become a manifesto ecological, sustainable architecture beginning of the XXI century.

[30] The planned opening of Bialystok Street Campus. K. Tsiolkovsky is October 2014.
[31] Marek Budzynski is implemented by the European edifice in Bialystok Center for the Arts - Podlasie Opera.

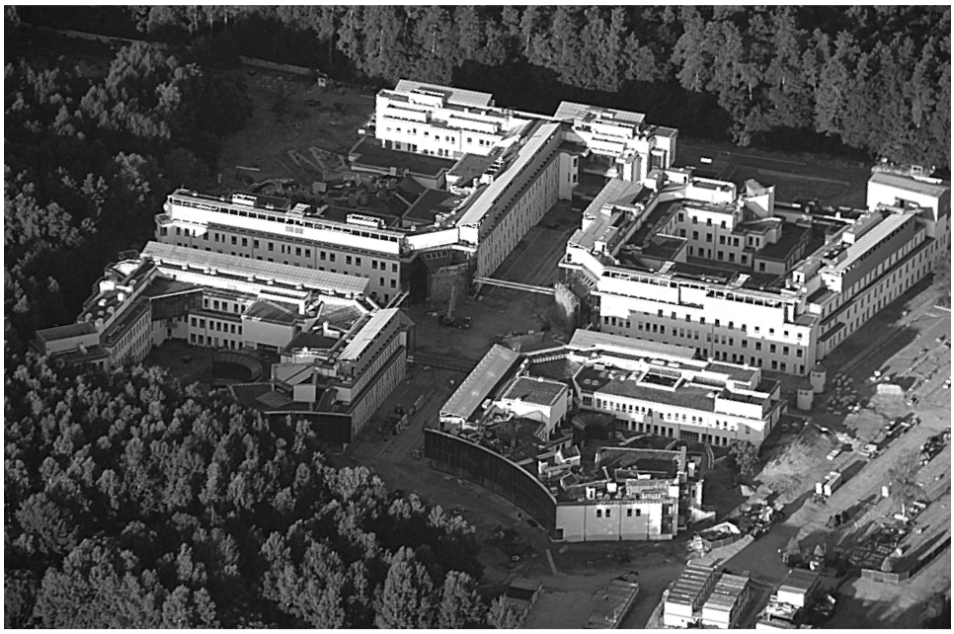

Fig. 101. Realized part of the Campus of the University of Bialystok. (Reproduction of photographs from: www.skyscrapercity.com)

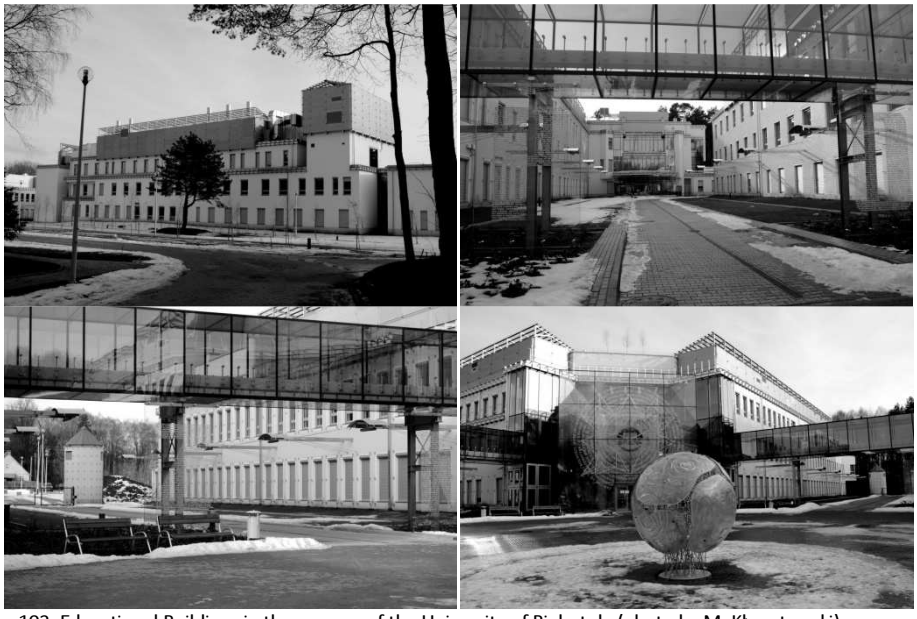

Fig. 102. Educational Buildings in the campus of the University of Bialystok. (photo by M. Kłopotowski)

The next stages of the assumptions are determined by the university's financial situation and today are impossible to determine. This results in a discussion on the merits of the whole complex is currently trudnodostępnego the city center. Increasingly, they are also raised voices talking about the devastation of this investment by the green areas of historical Bialystok. Founding Campus wedge cuts for green areas of the city. Entering wedge on the south side of the forest and open areas Solnickiego

Krywlany Airports by reserve and Las Zwierzyniecki Planty Park and further Branickich Gardens and Park Old them. Prince Jozef Poniatowski and river embankments is widely recognized as a valuable ecologically and also unique in the country.

The new investment will introduce significant changes in the structure of the functioning of the University in the city. University today began selling the objects located in the center of the city - the existing buildings Departments of Physics and Chemistry. It is also planned to sell the buildings, which housed the Institute of Mathematics and the Department of Philology and the Faculty of History - Sociology. Due to the use of 80% of their current base housing also taken the decision to sell the Dormitory No. 2.

Summary

A retrospective review of Bialystok University of style allows to classify objects belonging to them and assess their importance in the construction of the cultural landscape of the city. Analysis shaped and designed spatial systems and their constituent objects can be drawn the following conclusions characterizing urban planning and architecture colleges in Bialystok.

In relation to urban systems and locations:

- Most Bialystok universities began their teaching activities at random, not adapted, distributed in buildings (Bialystok Technical University, University of Białystok). In many cases, the state operates today (University of Białystok).
- The largest university in Bialystok seek to shape their own, separate, multifunctional, spatially coherent, team teaching - campuses (Bialystok Technical University, Medical University of Bialystok, Bialystok University, Archdiocesan Seminary in Białystok).
- The location of each large campuses is the result of planning decisions and always raises controversy. Different assumptions, due to differences grandiosity and neighborhood conditions are not comparable and are fundamentally different impact on the whole urban organism. Their spatial urban concept reflects the period of their design.
- Universities private and small public universities educating their students in small groups or individual buildings scattered throughout the city. Is visible at the same time expressed tendency prestigious location in relation to their private universities wealth (School of Finance and Management in Bialystok - Śródmiejska location and the Higher School of Public Administration to them. AGH University of Science Bialystok - the location of the historic grounds of the palace - park) and a unique course of education for public universities (Theatre Academy. Alexander Zelwerowicz in Warsaw Department of Puppetry Art in Białystok - the very center of the city).

With regard to building construction and architectural design:

- Objects Professorship Cubic individual and their departments can be divided into four groups: the objects defined styles (historical and contemporary) - recognized as valuable and prestigious; reconstructed objects, aspiring to defined stylistic patterns (imitating them); renovated and newly erected buildings styled average, no clearance is Mazursky architectural trend in general, these objects are determined by functional solutions and economic conditions associated with their creation; and objects incidental, adopted and repeatedly treated as temporary, thus underfunded because of the architectural form.

- In the group of objects defined stylistically noteworthy historical buildings from before World War II: Baroque - Branickis Palace - Rektorat Bialystok, neo-Renaissance building of the Faculty of Economics and Management, University of Bialystok and eclectic palace - seat of the College of Public Administration and the rector's house - the Academy of Theatre and School of Theology and the post-war a defined, clear design aesthetic - social realism: the building of the former KW PZPR - the seat of the Faculty of Philology and the Faculty of History - University of Białystok and College Sociology UniversumUMwB Modernist: UwB Rectorate building, buildings departments at Campus BTU postmodern: Main Library of the University of Bialystok and contemporary of diverse, difficult today to define clearly the style: the building of the Centre for Modern Education PB and Education Centre - Scientific UMwB of Health Sciences, Faculty of Education Psychology hall and campus Bialystok Bialystok.
- Subjects with an average of architectural styles, which are very common is created in the 50's and 60 .: Giant hospital and residential buildings and dydaktyczneUMwB, Faculty of Education and Psychology, University of Bialystok, in the 70s and 80s .: built buildings and UMwB children's hospital and a sports hall and dormitories of the same university, the Archdiocesan Seminary, in the 90s and 00. : PB Faculty of Electrical Engineering, Multidisciplinary auditorium PB, PB Academic Sports Centre, Centre for Pharmacy UMwB, Dormitory No. 1 University of Bialystok, Bialystok sports hall, new buildings and the College of Public Administration WSFiZ and modernized building PB Faculty of Architecture, in the years 10 .: building INNO-ECO-TECH PB Extension GigantAMwB Hospital, College of Physical Education and Tourism in Bialystok and reconstructed objects and subjected to thermo that using plastic cladding solutions had to raise their aesthetic: PB Faculty of Management and the College of Medicine and the School of Economics in Białystok.
- In the group of completely random objects with very low aesthetic value, which, unfortunately, is represented by a large group of objects are: buildings departments: Physics, Mathematics and Computer Science, Biology and Chemistry and the Dormitory No. 2 UwB and objects of the University of Music and State Pedagogical University and the School of Management.

In conclusion it should be noted that among the objects Bialystok colleges can be distinguished landmarks and contemporary cultural goods - important in the cultural landscape of the city and build its image as an important center of higher education. At the same time a significant number of objects was built (or adoptive other functions) based on economic reasons and is primarily to satisfy the expectations placed on them functional.

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HIGHER EDUCATION INSTITUTIONS IN THE URBAN STRUCTURE OF LUBLIN

Lublin as the university town

In the history of the city of Lublin importance and its main trends changed several times. The heyday and political significance for the whole country experienced a period of Lublin noble democracy since 1578 when he was appointed in the Crown Court. After the loss of independence, the city fell into decline, but still had the meaning of "political" as the administrative center. Since the mid-nineteenth century in Lublin started to develop this industry and its people saw a further direction of the city. Lublin was the center of the agricultural area, hence the main directions of development of the industry is the processing and manufacture of articles related to agriculture. Also in the interwar period Lublin developed as industrial cities, but also as a cultural center, as well as the university. After World War II as the central government decided to develop the industrial city of Lublin, partly by continuing the pre-war traditions associated with the agriculture industry, but introducing the main branch of the metal industry and automotive. In Lublin established the factory and foundry Truck Ursus. After the political transformation in the 90s the situation changed drastically. Factories fallen state, changed production profile and ownership structure and employment. Lublin become the university town.

Today, higher education is one of the main directions of development of the city, in terms of cultural, economic and economically. In the province of Lublin in 18 colleges were trained by 94.7 thousand. students[1] . Universities are among the largest employers in the city [2] . Although Lublin universities in terms of size among the schools in

[1] 2014 CSO data

[2] According to data provided by the Central Statistical Office GazetaWyborcza in February 2014 and the largest employer of college UMCS Lublin employs 3167 people. Medical University employs 2015 employees, in addition to the university shall be subject to three hospitals and Dental Clinical Center, for a total of 7390 employees. Lublin University of Technology in 1074 people are working, University of Life Sciences has 1763 employees, and the number of employees at the Catholic University at the end of 2013, the year is 2196 people. Data source: http://lublin.gazeta.pl/lublin/56,35640,15537702,Mali_nie_tacy_mali,,2.html, date read: 21/03/2014.

the country, because of the role they play in the city, as well as the spatial relationships of the buildings make Lublin can be called a university town. Academic center gives impetus to the cultural, economic, and helps to increase the attractiveness of the wider city.

The functioning of contemporary Lublin, a university town affects both the distribution of universities in the city structure and the organization itself academic year. According to CSO data, in the academic year 2011/2012, the number of students in Lublin was 83,600 persons[3] , Which placed sixth in Lublin in Poland. Lublin residents themselves counted at that time 347,678 [4] . To name the university town of Lublin, the biggest contributor to this proportion was because "the impact of the university clearly disclosed in smaller towns than in big cities, where the academic functions may die among other functions miastotwórczych" [5].

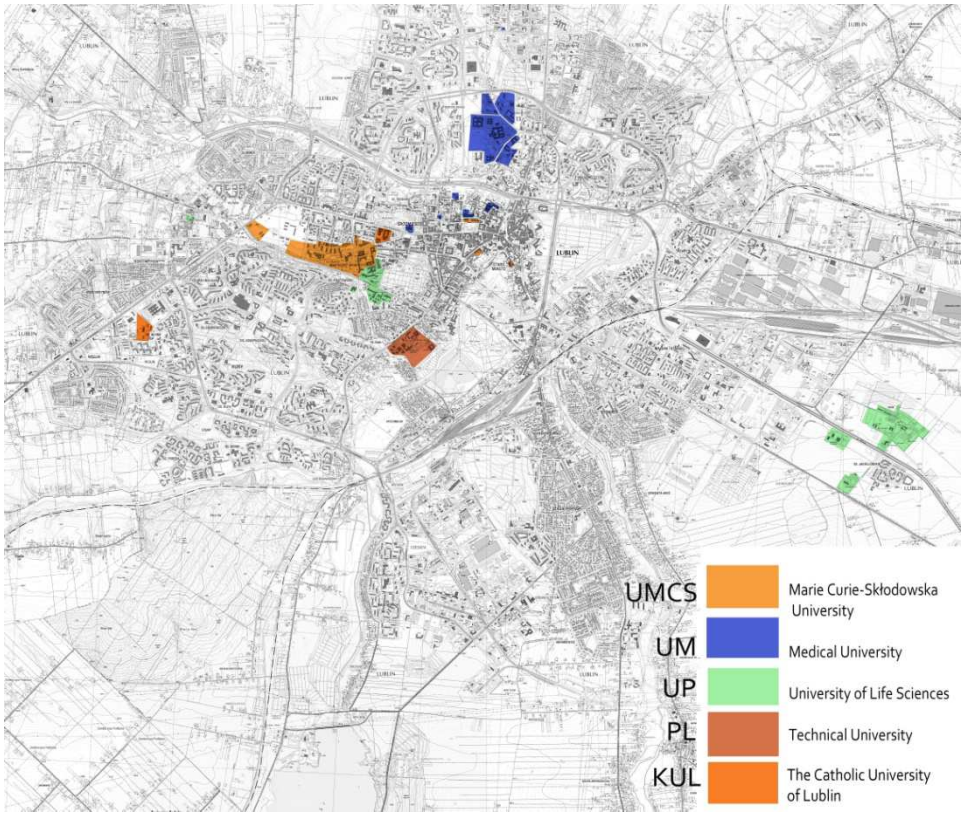

Fig. 103. Distribution of higher education in the urban structure of the city of Lublin. Fig. N. Przesmycka

[3] A. Jakubowski, S. Dziaduch, *Academic Centre in Lublin. Opportunities and Threats Development.* Statistical Office, Lublin 2013, p. 22

4 http://www.lublin.eu/Informacje_statystyczne-1-62-62.html

[5] WM Gaczek, *Universities in physical space and business center. Traditional locations central and campuses in the outer zone.* In: T. Markowski, Splinter D. (ed.), *The role of universities in the socio-economic and spatial* cities,Warsaw 2008, NSDC Sciences.

Such a large proportion of students (most of which are outside of Lublin) means that during the summer the city operates differently than from October to June. Communication problems within institutions appear from September, October changes offer cultural and social services, the largest cultural events in May and June.

In recent years, a number of residential buildings whose location and clearly show the utility of the expected future profits from rental housing to students. Some of the investments are focused primarily on foreign students. Foreigners in 2012 accounted for 2% of the total number of students in Lublin. More than half of them are students of the Medical University. All these phenomena are the essence of the contemporary academic character of the city.

Higher education in the pre-war period

The development of higher education in Lublin, we can speak only after independence. Previously developed education at primary and secondary level. In the interwar period in Lublin operated 26 elementary schools, 6 middle schools male, 7 female junior high schools, 4 seminars for teachers and 11 other educational institutions[6].

The first institution of higher education was established in Lublin Catholic University of Lublin. Giles was the initiator of the Radziszewski, rector of St. Petersburg Theological Academy. The patrons and founders were entrepreneurs and industrialists Lublin. It was formed in 1918 under the name University of Lublin. "The newly created institution was to conduct research in the spirit of harmony between science and faith, the training of Catholic intelligentsia and raising the nation to a higher level of religious and intellectual life. The motto of the University has become the slogan "Deo et Patriae" - "God and Fatherland" [7] .

The location of the university since 1922 were the old cloisters, founded in the eighteenth century, the convent of the Dominicans Observance at Al. Racławicka[8] . After the dissolution of the Order in the buildings housed military barracks and hospital. Building needed renovation. Funds for this purpose came primarily from donations clergy and gentry of Lublin. Adaptation and repair work lasted until 1933. Since 1928 the university is called the Catholic University of Lublin. Before the outbreak of World War II, the school had 1,440 students and 67 academics, had to confer doctorates and carry out habilitation in all departments [9] .

6 Among other things, the average trade school for men the Merchants in Lublin, school gardening, music school, Free School of Painting and Drawing, School of Civil Engineering, School of Crafts. Quoted from: *Illustrated Guide to Lublin* ..., op. cit., pp. 19 - 21.

[7]http://www.kul.pl/powstanie-uniwersytetu,art_49407.html, ed. G. Karolewicz, date read: 20/01/2014.

[8]Before the war the street called Avenue Racławicka currently Racławickie Avenues.

[9]http://www.kul.pl/okres-miedzywojenny,art_15528.html, ed. G. Karolewicz, date read: 20/01/2014.

Fig. 104. KUL. Source: *Photography Archive "Grodzka Gate - NN Theatre"*

Lublin Population in 1921 was 94,412 inhabitants, including the Jewish population was 37,337 (representing 39.54%) [10] Ten years later Lublin already counted 112,285 residents (including 38,935 Jews) [11] . In 1923 the world at the World Congress of Orthodox Jews in Vienna Meir Shapiro came up with the idea to build a modern building in Lublin Yeshiva, "where the acquisition of knowledge was to be free from material worries" [12] . Construction of Yeshiva enable learning all capable young Jews and allowed them to develop the rabbinical elite. Facility were built in the years 1924-1930 according to the design. AgenorSmoluchowski). College of Talmud - Yeshiva Chachmei opened in 1932.

Yeshiva building was the largest building of the educational function in the former Lublin, counting 6 floors and 18 thousand. square feet of space. In addition to teaching rooms housed the dining room, kitchen, bakery, steam showers and swimming pools, ritual bath, laundry, drying and storage. On the first floor of a two-storey hall was a lecture, acting the role of the synagogue. Over the room, along three walls there was a wide gallery, with a separate entrance from outside the building. Next to the auditorium housed the conference room, rooms, apartment rector and a library. On the upper floors of the students lived in a single, spacious rooms. The opening of the university was an important cultural and social event, attracting about 10,000 Polish Jews from all over.

The functioning of the school broke the German occupation. The building is decorated German gendarmerie and since 1942 the hospital. After the war, in the autumn of 1945. Took over the building of the former Yeshiva University of Maria Curie-Sklodowska University on the basis of the decision in Lublin housing authorities that it is

[10] *First Census of the Republic of Polish,* Polish Statistics, Vol. ActaPsychologica, 1927, pp. 22-23.
11 Second Census of Population, Statistics Polish, Series C, z. II, 8, 1937, p. 23.
[12] http://tnn.pl/Jesziwa_lubelska_-_Jeszywas_Chachmej_Lublin,3093.html, date read: 20/01/2014.

an abandoned property [13] . Then the object passed into the hands of the Academy of Medicine. In 2003 the building was returned to the Jewish Community of Warsaw, which is to in the plan include a hotel and restaurant.

Fig. 105. Yeshiva building in 1927 during construction. Source: Photography Archive "Grodzka Gate - NN Theatre"

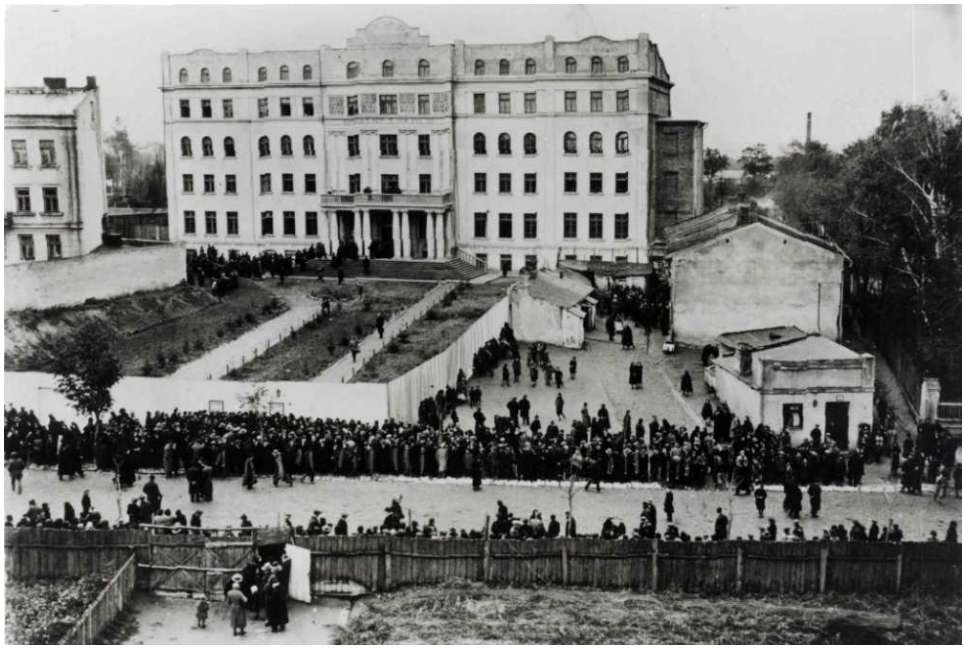

Fig. 106. Yeshiva building in 1933 at the funeral of Rabbi Shapira.Source: Photography Archive "Grodzka Gate - NN Theatre"

[13]Ibid.

Fig. 107. Interior Yeshiva - students gathered in the main auditorium of simultaneously serves as a synagogue. Source: Photography Archive "Grodzka Gate - NN Theatre"

Fig. 108. Bobolanum, the view from the water tower in Al. Racławickie. Source: Postcard 30th years.

The third institution of higher education founded in the interwar period was higher in Lublin Jesuit college called. Bobolanum. The park was completed in 1926. The building was built in the years 1923-1926, designed by I. Kędzierski. Location Bobolanum was at that time a very prestigious and in line with the future direction of development of the central part of Lublin representative. Krakow suburb street axis was continued by Avenue Racławickie. Lie along them have important public buildings and housing

development carried out in the framework of the so-called. Western district [14] . Bobolanum building was a 5-storey, designed to throw the letter C, indoor high sloping roof was maintained in the historicist style. Completed only one wing.
After 1930 years the Jesuit College merged with transferred from Krakow Academy of Theology. Thus, in the interwar period Lublin became one of the six Polish university cities (apart from Warsaw, Lvov, Poznan, Krakow and Vilnius).

After the end of World War II, in 1945, had about Lublin. 99,000 inhabitants. Two of the three existing universities before the war ceased to exist (Yeshiva and Bobolanum).

August 21, 1944 r. As the first university in Poland after the German occupation resumed its activities Catholic University of Lublin. The organization of the university had to start almost from scratch. Staff lacked scientific and administrative staff, and the building of the university, in which a hospital during the war was devastated. The first inauguration of the academic year after the war took place on 12 November 1944.
PCNL Decree of 23 October 1944 was appointed to the University of Maria Curie-Sklodowska. Initially consisted of four divisions: Of Medicine, Life Sciences, Agricultural and Veterinary. In 1949 he founded the Faculty of Law. In 1950, the Departments of Medicine and Nursing, Medical Academy was founded. Five years later, the separation of departments of Agricultural, Veterinary and Zootechnical College of Agriculture was established (since 1972 Agricultural University).

Colleges in the structure of contemporary Lublin

In the years 1944-1989 higher education developed rapidly in five universities: UMCS, KUL, Medical Academy, Academy of Agriculture and the College of Engineering. The so-called Academic township or district Academic planned and designed for the needs of Maria Curie-Sklodowska University launched the presence of universities in the planning of the city. The current structure of the functional arrangement of colleges and land belonging to them, is relatively dispersed. This is mainly due to the historical conditions of development: the allocation of real estate universities primarily other functions as their first headquarters, and development planning within their own campuses.

Spatial planning and urban any decisions taken after 1944 years were in Warsaw, in accordance with the principles of socialist centralism. Established the Central Bureau of Architectural Design and Construction of offices in provincial cities. January 25, 1945, the Board of the Faculty of Sciences passed a resolution "on the need to build in one of the districts of the city of Lublin university modeled on similar settlements abroad" [15] Upon acceptance of the idea of the Academic Senate, requested the Municipal and Provincial Council for the allocation of suitable land.

[14] N. Przesmycka, *Lublin. Urban Transformations 1815-1939,* Lublin 2012, pp. 201-207.
[15] Z. Kowalski, Material conditions of formation of UMCS, W: II, 1944, -1979, p. 53.

The location of the campus MCSU April 3, 1946 was made a year, that is, after a few years of the University of huge spatial dispersion. He had to cover an area approx. 17 ha of urban land, located in the western part of Lublin, between the streets of Deep and Al. Racławickimi, west adjacent to the area belonging to the army (the so-called. Camp West). Over time, the area belongs to the UMCS has expanded to adjacent areas and the botanical garden areas, covering a total of approx. 80 ha [16] . In order to select an architectural solutions - urban planning have been put to two competitions: the general zoning district for the redevelopment of the University and student housing estates. 16. September 1947 resolved campus contest. The first and second prize (out of seven works that entered the competition) won CzeslawGawdzik. College District has been described in detail in the chapter by IzabelaPastuszko.

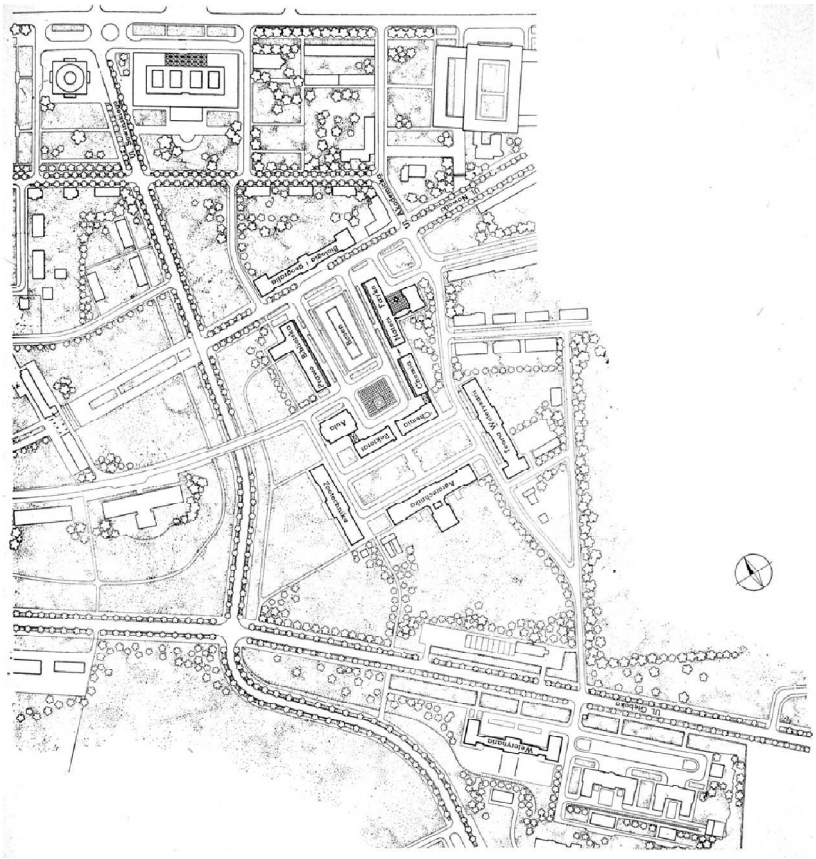

Fig. 109. The master plan for the City of Academic teaching part of the subsequent adjustments along with the environment, proj. T. Witkowski, Vol. Gawdzik, 1951, for: B. Garliński, Architecture 1950-1951 Poland, Warsaw 1953.

[16] II, 1944, -1979, p. 32. In the 70's university district already occupied an area of over 70 hectares. In the years 1946-1964 was constructed 30 buildings with a total capacity of 277 thousand. m [3,] and another five were in construction.

Fig. 110. University campus in 1970. and 2014. Postcards and Photo by N. Przesmycka

In 1948, Lublin Architectural Design Office and Construction under the direction of Eng. arch. Vladimir Fąfrowicz developed a program of the City Development Plan for the development of a temporary nature [17] Which takes into account the location and development of the university district. The general plan was completed in 1954. In 1955, the Municipal Board of Architecture and the Construction Bureau of the City Council established the Laboratory of Urban, headed by arch. RomualdDylewski. Another zoning plan was created in 1969. It regulated the distribution of higher education in the city structure indicating for each of these areas of development. UMCS have a designated area in the vicinity of the campus with the possibility of expansion into the adjacent barracks. College of Agriculture had a designated area in the district Felin, distant about 5.5km from the city center, Medical University was to develop in the southeastern part of Chekhov, College of Engineering on campus in the area of street Nadbystrzyckiej[18] . In 1971, the journal is published Architecture location plan of higher education in the city of Lublin, as a center of population of 250,000 inhabitants [19] . Today Lublin with 347 678 inhabitants has fourth scholarization level in Poland with over 80.000 students. In 2014 Lublin was on the third place in Poland with number of foreign students 3.307 (according to the Main Statistical Office).

Lublin University of Technology - the structure of space objects and directions of development of the university campus

The creation of a technical university in Lublin was associated with a more stable political situation - economic Lublin region after the Second World War. 6-year plan envisaged the creation of the Lublin region, many industrial companies, at the same time in this period Board of the Polish Federation of Engineering initiated the formation evening engineering schools throughout the country. The originators of assumptions technical school Lublin branch activists were NOT-in, with the President Stanislaw Podkowa. May 13, 1953, the Council of Ministers decided to set up in Lublin Evening College of Engineering. School organizer function took Stanislaw Horseshoe (also the first dean of the Faculty of Mechanical Engineering) [20] . Studies at the university has taken 109 people in the evening classes, ie. On Saturday afternoons and Sundays. The university initially did not have its own facilities available - inaugurations were held in the building physics UMCS, classes were held in the halls of the Technical Building, Lublin schools, areas of the Department of Inorganic Chemistry of the Academy of Medicine, Truck Factory created four laboratories available to school. No back lokalowego led to a situation in April 1958 years that the Department of Technical Studies in Higher Education Ministry decided to halt recruitment for the first year of study. In December of the same year, the Bureau's decision handed WRN Evening School of Engineering

[17] *Urban Laboratory Lublin 1955-2005,* Lublin 2005, p. 16.
[18] Ibidem, p. 40
[19] 81 445 6 1971
[20] Z. Hirsh, *College of Engineering in Lublin 1953-1973.*ActaPsychologica, 1974, pp. 17-18.

building so-called former palace Sobieski located at the (current) ul. Bernardyńska. After several years of building adapted to the needs of the emerging new faculties "electrical and construction (1963-1965), but to a large number of students also conducted classes in the barracks at. Langiewicz. In 1964, he began efforts to the creation of the Higher School of Engineering, also a training on a daily basis. Since 1973, the school had the right to confer the title of Master of Science graduates, teaching in the polytechnic system. There was a change in the university authorities (rector Vladimir strainer) and departmental structures by creating in their place 3 research institutes serving as faculty. Established a new Institute of Organization and Management.

In October 1964 the university received an area of 2 hectares lying on the south side of the street Nadbystrzyckiej, the site of a former farm. The first buildings erected for the school was intended for the Faculty of Electrical Engineering building, whose design has been adapted by the project office in Bydgoszcz with the same design department opened in Bydgoszcz. The building was opened in 1968. In addition to the faculty of Electrical housed the partially Faculty of Civil Engineering and Faculty of Mechanical Engineering. In 1971 he took over the technical WSI Agricultural Mechanization hall building and workshop at. Nadbystrzyckiej, and some of the rooms in the building on the street Okopowej where classrooms are decorated for Team Social and Political Sciences. During this period, the development of university management, directions of scientific research was directed centrally by the Ministry of Higher Education.

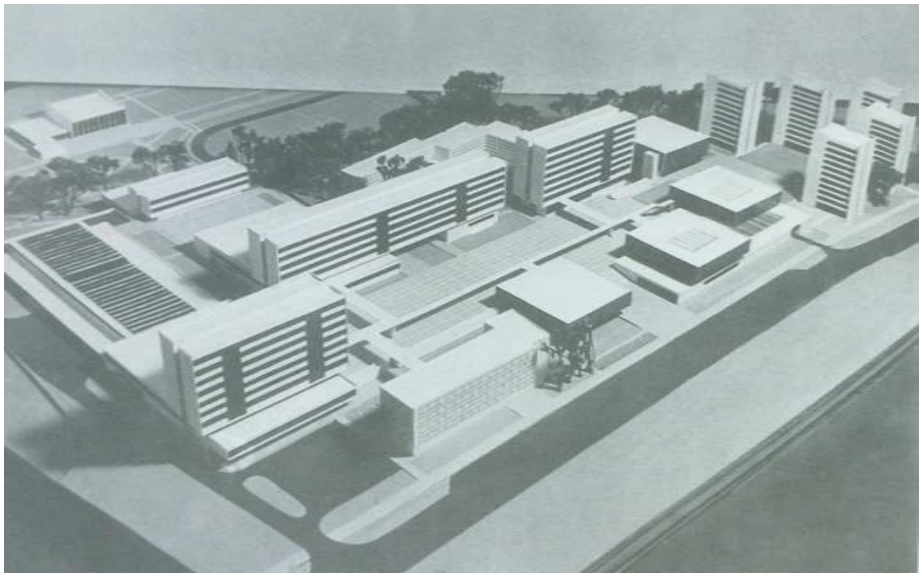

Fig. 111. A view of the canteen and the Faculty of Civil and Sanitary Engineering in the 70s. B. Model of University campus. Source: Archive PL

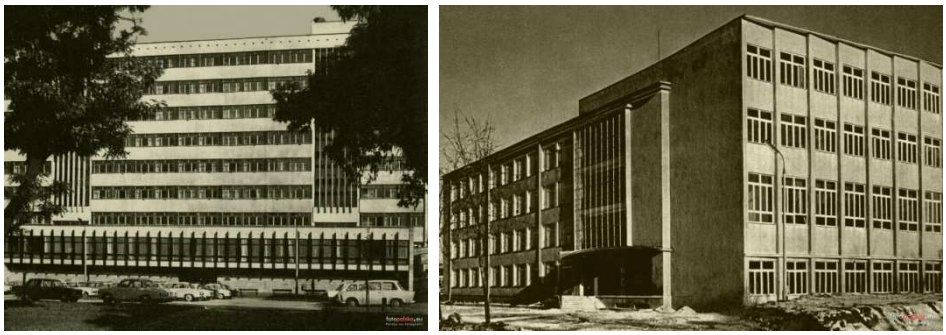

Fig. 112. A view of the canteen and the Faculty of Civil and Sanitary Engineering in the 70s. B. Model of University campus. Source: Archive PL

Development concept Street campus. Nadbystrzyckiej dealt with: Lublin General Construction Project Office ("Miastoprojekt" developed by the architects: George Andrasyuk, Stanislaus Fijałkowski and Rita and Tadeusz Nowakowskich (ed. Construction - Feminist Majority and ZbigniewPawłowscy, inst. Health - ZdzislawLachus, inst., Electric - Crackling Cyprian, roads and shape. Area - Jerzy Sierzpowski) [21] . Designed five 11-storey residences, 7-storey teaching building of the Faculty of Civil Engineering, 11-storey building of the Faculty of Mechanical Engineering. The project envisaged the creation of the campus main axis of pedestrian and central public space, parallel to the street Nadbystrzyckiej between dormitories, canteen and building departments. Communication between the buildings had to be routed further bridges at the height of the first floor. Characteristic for the planned urban concept is differentiation Building height: lower from the street Nadbystrzyckiej, higher in the central part of the campus, and the highest 11-storey dormitories. From the river Bystrica planned sports grounds. All buildings are designed in a consistent convention modernism 60s, with the horizontal divisions of the facade, accented partners and dark window joinery, contrasting with the bright plaster facade.

At the beginning of the 80s were built so. *Pentagon* -the original object and the Military Training School Physical Education and Sport. For the next 10 years stopped construction projects within the campus.

Inthe first half of the 90s were built located in the central part of campus The building of the Institute of Environmental Engineering. The architecture of the building bears the characteristics of aspiring to the title of postmodernism. Fashion at one time mirrored windows, quotes from the traditional architectural forms and aggressive colors puts the object in opposition to its neighboring blocks the modest canteen, dormitories and other departments. At the end of the 90s the university has taken over and has adopted for the purposes of the Rectory "country house, taken over from the Foundry" Ursus "two buildings under construction, along with the areas, started the construction of the so-called. "Connector" for WZiPT and renovated so. "Granary". The possibility of

[21] http://www.pollub.pl/pl/uczelnia/o-politechnice/historia/wyzsza-szkola-inzynierska

co-financing from EU funds investments resulted in the implementation of the following objects: CoE ASPPECT, WICA (2013), the Centre for Innovation and Advanced Technology (2009-2014), expanded the building of the Faculty of Electrical Engineering and Computer Science (2014).

Year 2014 was a turning point for the spatial distribution of objects in the structure of the Technical University of Lublin city. After 54 years, the university is in the process leaving the property and the street BernardyńskaOkopowej. All units are concentrated in the campus Street Nadbystrzyckiej.

Fig. 113. From left to wright: A view of the rector office and former granary, view on the main planned axis in the campus (restaurant), student's cantine. Photo by N. Przesmycka 2014.

Today's spatial layout of Lublin University of Technology campus in no way resembles an orderly and consistent assumptions of modernism. Spatial chaos, different styles and aesthetic level buildings constructed in the development of the university, as well as the changes caused by the modernization of the buildings from the 70s, make it difficult to pick up this area as the overall premise of space. The dominant compositional remaining dormitories, but due to their thermo-modernization and change the color of the facade, totally zatracono nature of the original architecture. Similarly, yellow, warm colors adopted by other departments modernizing buildings. Replacement windows and ironwork międzyokiennych belt was another activity leading to the destruction of the modernist style buildings. Temporary chapel probably in the next few years will disappear from the area of the campus, thereby giving room for new investments.

University of Medical Sciences - buildings distribution structure and trends

Medical University is now the most dispersed location in the spatial structure of the city. This situation has significantly contributed to the history of the development of the university. Initially, housing facilities for the Faculty of Medicine (still as UMCS in 1945) have provided the old pre-war hospitals located in the city center. In the hospital of St. Vincent de Pauole Street Science and Technology 16, created the clinic: Internal Medicine, Surgical Obstetrics and Gynaecology. In the hospital, the Child Jesus and the old nursery (Science and Technology 11) was established Department of Children, in a military hospital clinical departments of Internal Medicine, Neurology and Dermatology. Minority stake in Abramowicach agricultural assets allocated to a psychiatric hospital and within the Psychiatric Clinic was established. Faculty of Pharmacy received from the Regional Chamber of Pharmacists room Cracow Suburb Street 3.

Since October 1945 the Medical University facilities housed in the acquired Yeshiva building. Five years later, organized rector and the university administration in the former Chamber of Physicians Street. Quiet 6. At the same time, the Dental Clinic was completed in a former factory weights Street. Lubartowska 56. In 1954 he obtained for the purpose of Ophthalmology building at ul. Chmielnej 1 (eclectic palace belonging to the family earlier Chrzanowski) .In 1950 years faculties of medical and pharmaceutical, after separating from the UMCS been transformed into the Academy of Physicians, which after three months, took the name of the Academy of Medicine. At the beginning of October 1963 was transferred to the use of the Collegium Medicum Street. Dimitrov 9 (currently ul. Radziwiłłowska). In 1964, the building was put to use clinical hospital (PSK 4). When he began to develop the appropriate university campus.

Medical University campus was designed by the architect. George Luba. The focal point of the composition was to be urban teaching hospital. When the building was located pathological anatomy and forensic medicine, and further supporting the boiler house and garages. Triaxial communication system converge was at the height of the roundabout, on the streets: Civic Chodźki and Jaczewskiego. On the western side of the foundation completed school nurses in the eastern designed blocks of flats for the administration and nurses. Student houses were to be located at ul. Chodźki surrounded by greenery and adjacent sports grounds, which had to reach up to the newly designed street Smorawińskiego. In the years 1968-1977, four dormitories. In May 1972 he opened the building of the Department of Pulmonary Diseases. Four years later, Clinical Street (now Karmelicka) opened the Institute of Dentistry.

The main hospital building was designed by the architect. Stanislaw Roszczyk and built between 1957-1964. The building consists of a main body and side wings arranged symmetrically with respect to the main axis. This system creates a team of courtyards, all of which were designed interior designer for recreation intention patients (currently not available). The building has a modernist, a monumental form dominates the campus system.

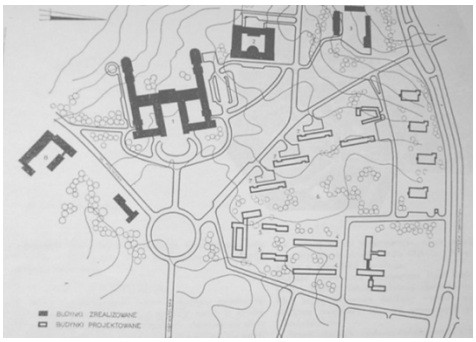


Fig. 114. The project area Medical University, arch. J. Luba. Hospital 1, 2 - building pathological anatomy and forensic, 3 - band boiler houses and garages, 4 - apartment blocks administration, 5 - blocks of flats nurses, 6 - gardens and sports grounds, 7 - dormitories, 8 - school nurses,
Fig.115.http://www.forumakad.pl/archiwum/2008/03/04_kronika.html,http://fotopolska.eu/szpitale,20,20/woj.lubelskie.html, "Samodzielny Publiczny Szpital Kliniczny Nr 4 w Lublinie - 50 lat" opracowanej przez Jerzego Jakubowicza.




Fig. 116. The campus area of the Medical University. Hospital - building pathological anatomy and forensic. Photo by N. Przesmycka 2014
Fig. 117. Blocks of flats nurses. Photo by N. Przesmycka 2014

In 1972 the Division of Nursing Faculty was appointed (1975 year), founded in 1973, Department of Dentistry. In May 1982 was opened Polyclinic building PSK 4. In April 1993, the Medical University of the property transferred to the Provincial Committee of the Communist Party former Racławickie Avenue, in the vicinity of the Saxon Garden. Thus, the university "came up" to the area called. Academic town, adjacent to buildings and MCSU KUL. Today, the building houses the Collegium Novum UM. In 2000, he opened the new building of the Main Library 18 Szkolna Street.

In 1995 there was the creation of the Department of Laboratory Medicine, in 2001, was isolated from the Faculty of Medicine, Department of English-speaking. In 2004, the Faculty of Medicine was established II. In 2008, the Academy of Medicine transformed by a vote at the Medical University of Lublin. Since 2000, new buildings

were built in the area of street Chodźki. In September 2001, the Department of Toxicology transferred renovated complex of buildings at ul. Chodźki 8, and in 2003 opened Collegium Universum Street. Chodźki 1. In 2011, at ul. 4A Chodźki Pharmaceuticum College opened.

Despite the large number of investments within the campus, its buildings, however, was not implemented in accordance with the original design. Many elements developed spontaneously or changed its character. The central square in front of the hospital became a parking lot. The idea of the existence of this site can provide public space by Alina Ślesiński sculpture depicting figures of Pierre and Marie Curie. The unveiling of her was in 1964 on the occasion of the 20th anniversary of the UMCS and initially was at the Collegium Patollogicum. This sculpture is of great aesthetic value, but it lacks the features of monuments, which may have been the cause of the devastation in the last years of the twentieth century.

Currently, the area of the campus of the Medical Universities operate primarily on the basis of the dominant role of the clinics, as the center attracts patients from all over the city and the region. The problem is the location of the campus between the streets connecting the northern part of the city center, causing significant traffic problems. Student houses have not been fully realized. Urban planning assumptions of the original campus was blurred. The study shows a view of the city of Lublin fragments UM campus sites as areas directly related to the scenic panorama of the old city and downtown. The more it is important to their development and use location as asset values. New objects do not always fit in with the architectural character of the campus.

Medical University has a lot of interesting in terms of architectural objects that make up the material cultural heritage of Lublin. These buildings are from different periods of time and have a diverse history of adapting to the current needs. A positive example of the behavior of the nature of socialist realism style architecture, with adaptation to the current needs of the Rectorate building. The building was built in the years 1950-1952 according to the design. Czeslaw Doria Dernałowicz and Zbigniew valves. Building was erected on the former military warehouses lying surrounded by the Saxon Garden. Both the interior of the building, as well as elevation have consistently designed distinctive detail (light boxes, balustrades, pilasters, terrazzo). They have been retained (which, unfortunately, is a rare phenomenon in the so-called adaptation and repair of objects from these eras).

Among the buildings belonging to the POI is some of outstanding aesthetic and architectural. One of them is the building of the hall of ophthalmology clinic. Aula was established as part of the expansion of existing facilities ophthalmology clinics in 1979, designed by Stanislaw Roszczyk. Connection to the existing building realized as an underground tunnel. Interesting form of modernist architecture predysponowała this object to the inclusion in the List of Cultural Property in 2011. Contemporary. Did not protect him, however, from the reconstruction, which was controversial among

architects. As a result, eliminated the characteristic circular skylights, roofing and changed forever erased architectural character of the object.

Fig. 118. The ophthalmology auditorium before modernization works
Fig. 119. Rectors' office.

University of Life Sciences - University of objects distribution structure and trends

The teaching in the field of agricultural sciences in the Lublin region has a long tradition. In 1862 there was Polytechnic Institute of Agriculture and Forestry in Pulawy. In 1944, as part of the UMCS formed Agricultural and Veterinary Departments. In 1955, the tendency in the creation of new universities, the then rector by prof. Bohdan Dobrzański was ordered to create the faculties of agricultural, veterinary and zootechnical separate entity science teaching and research. Separated Higher Agricultural School, whose first rector was prof. Bohdan Dobrzański. WSR in 1972 changed its name to University of Agriculture. In 2008, the college was renamed the University of Life Sciences.

Group of buildings of the university developed in two directions: the extension of the campus UMCS (in the so-called. City of Academic) at the south - west, reaching the other side of street. Deep and Felin (in place of the old pre-war assets belonging to the Chamber of Agriculture).

In the mid-50s were built teaching building Veterinarium College Street. Academic (1953-1955 proj. T. Witkowski) and veterinary clinics Deep Street. Building designers clinics were the architects Tadeusz Witkowski and Czeslaw Gawdzik. Deep Street buildings were also machine hall and ancillary facilities.

In 1955, located on the manor house and farm Felin pofolwarczne been converted into farm doświadczalne.W 1969. Building was opened Animal. In the 80's the old boiler house was reconstructed at. Deep and adapted it to the sports center and facilities for Laboratory printing industry. In 1999, after the reconstruction of the former canteen gave room for the Institute of Economics and Agribusiness at. Dobrzański. In 2000 the building was opened Agro II, and a year later Congress Center with a concert

hall for 600 seats, auditorium and conference rooms with audio-visual facilities. In 2005. Completed vivarium Street. Deep and the new headquarters of the Faculty of Food Science and Biotechnology at Skromna. The building is characterized by a high architectural quality, good typing in a rather difficult architectural context. In 2008, he opened the Sports Centre - Recreation Street Deep (proj. J. Jamiołkowska). In the years 2011-2012, a building of the Main Library University of Life Sciences in Lublin, completing the Academic towns urban layout.

The UP construction investments in recent years the greatest influence on the appearance of the street Deep. In 2013 the building was put to use building the Centre Investment and Implementation of New Technologies in Agricultural Engineering, which completely changes the street frontage of a large part of the Deep. The building provides space for the Faculty of Engineering, Department of Horticulture and Landscape Architecture and the School of Foreign Languages. Property consisting of two parallel connected buildings, houses include classrooms, lecture halls, seminar rooms, laboratories, scientific workshops. Unfortunately, the inner courtyard has not been used as a public space for students, but for the purpose of parking.
It was built in the place demolished, the so-called machine room. Fence entirely from the street does not fit stylistically to scale assumptions and additionally interferes with the continuity of the public space.Demolition of buildings veterinary clinics (2013 year) had wide repercussions in Lublin. These buildings were previously included in the list of cultural goods of the twentieth century, and the protests of social workers and residents and professionals (conservators, architects) have not yielded results. Resulting in their place team Innovative Centre Pathology and Therapy Animals, which is designed for the Faculty of Veterinary Medicine, building is heavily debatable when it comes to the aesthetic and compositional.

Fig. 120. Veterinary cliniques. 1950. source: Collegium Agronomicum http://www.kemiz.up.lublin.pl/, University of Life Sciences Publications Archive http://www.kurierlubelski.pl/artykul/zdjecia/619445,lubelskie-uczelnie-na-starej-fotografii-kolejne-zdjecia-uniwersytetu-przyrodniczego,1054739,id,t,zid.html, D - Fig. I. Burdzanowska

Fig. 121. Veterinaria. Photo by N. Przesmycka 2014.

What was left of the original space of designed campus is still considerable potential for the creation of opportunities an attractive public space of the city. The author of this square urban planning, as well as the entire complex was the arch. Czeslaw Gawdzik (partly also, the area of the library - Tadeusz Witkowski). For more than sixty years of successful children's fully imposed its functions. Enriched with good artistic monument (by Marian Konieczny). Patroness of the great University, became the real center of the public space of the university and a major part of the cultural environment of the city of Lublin. Another very important space is the Academic Park. This park was created in the fifties with all the University Quarter. In the contemporary was intended to be a botanical garden of the university. So has been designed and implemented (eg by prof. Lucian Kaznowski). Was converted into a academic park after creating a new, larger botanical garden in Sławinek. He remained a valuable collection of plant species worthy of protection, becoming a recreational space at the same time.

The buildings possesed by universities in Lublin are very important part of architectural heritage of Lublin. Anxiety can raise that institutions, which are universities destroy buildings - treasures of contemporary architecture of Lublin. As part of this, created by professionals list included the following university buildings: A-1. KUL front building, A-2, rector of UM (former Provincial Committee of the Communist Party), A-4 - the building of the Faculty of Physics, UMCS, A-5 - the building of the Faculty of Chemistry UMCS called. Small Chemistry, A-9, veterinary clinic, A-12 - Collegium Veterinarium, UP, A-10 - Eye Clinic building auditorium of UM, A-13, a complex of buildings PSK 4, UM, A-22 - Main Library UMCS, A-23 , Academic Cultural Centre of UMCS. It is significant that this list has no bearing on decisions as to the possibility of changes in the architecture of the buildings, there is no legal force. Permanently veterinary clinics were destroyed and the building of the hall of ophthalmology clinic.

Contemporary problems of shaping the existing university space:

- Little architectural competitions as a way of selecting the best projects, expansion, remodeling or construction of the university
- Densifing building
- Vague criteria for the selection of aesthetic projects (house, granary PL, change the nature of the street Deep) universities invent yourself mindlessly reversible colors on the facades of buildings (eg. They climbed, UP)
- Removal of the characteristic features of modern architecture in the 60s
- The lack of public spaces or poor quality, the elimination of squares (Raabe) for parking
- Thoughtless demolition and replacement of the architecture of poor quality, which excels in The UP (machine hall, veterinary medicine,
- Legal and ownership situation, neglect objects of historical value in the city center. It is easier to build universities something new than to renovate existing facilities. Lowering the number of objects of unclear legal situation, difficult to adapt, destruction. (KUL on Science and Technology, hospitals).
- Technical problems of collective residential buildings
- Change the function (canteens, libraries, churches encroachment (PL)
- It's what you do with buildings and spaces each university has no relation to spatial policy of the city, are excluded from the planning. No correlation with the planning of urban planning development of individual universities.
- Lack of connections with the urban green areas and green campuses. Academic park, sports area

Fig. 122. View on the campus from Głeboka Street. Postcard form 1970.

Fig. 123. View on the Akademicka Street. Photo by N. Przesmycka 2014.

Table. 1. Public universities in Lublin - comparison

Year of establishment	The name of the current school	Location in spatial structure of the city	The number of students currently
1918	Catholic University of Lublin	- dense campus situated in central part of Lublin in pre warmonastery complex - historical objects represent prewar modernism, campus developed with contemporary buildings and sport objects.	13.226
1944	Maria Curie-Sklodowska University	- campus 17 ha area, academic Park, Botanical Garden in Sławinek - different buildings, historical and modern modernistic multi-storey, after war building	24.805
1950	University of Medical Sciences	- campus area in northtern part of Lublin - first buildings in the historical hospitals - different state of architectural substances	7.358
1953	LUBLIN UNIVERSITY OF TECHNOLOGY	- campus at Nadbystrzycka Street - former buildings in the historical buildings (Pałac Sobieskich, tenement house at Okopowa Street)	10.100
1955	University of Life Sciences	- Felin campus - Głęboka Street - exchange of buildings: contemporary architecture in places after demolished buildings - Skromna Street	10.231

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FIRMITAS, UTILITAS, VENUSTAS?
URBAN COMPLEX AND ARCHITECTURE OF THE LUBLIN'S CAMPUS
IN THE CONTEXT OF THREE VITRUVIUS PRINCIPLES.

Fig. 124 - View of the campus with Intercollegiate Library (designed by Tadeusz Witkowski, 1963-1967) and the Building of Mathematics and Physics' Faculty MCSU (designed by Czeslaw Gawdzik and Tadeusz Witkowski, 1949-1954), photo by Zbyszko *Siemaszko, Archives and Museum MCSU,the photo is unnumbered.*

The Lublin's campus, its architecture and the urban complex is a unique project not only in a range of the city in which it was arisen. The analysis of urban area requires a special key selection, according to which it will be performed. Is it possible to borrow it from the ancient architect? Do the three antique principles of Vitruvius[1] - *Firmitas, utilitas and venustas*[2]i.e. *durability, utility and beauty* can serve as a metaphor for certain

[1] Vitruvius - Vitruvius Pollio, Marcus - Roman architect and engineer of war. He lived in the first century BC . He was the designer of war machines during the reign of Julius Caesar and Augustus. He is the creator of the so-called Vitruvian man, or the image of a naked man inscribed in a circle and a square, which symbolizes movement.

[2] Firmitas, utilitas, venustas - durability, utility, beauty. Three antique principles for architecture and construction contracted by Vitruvius in his ancient work: *Ten books on architecture.* See more: Vitruvius, *Ten books on architecture,* [in:] *Thinkers, chroniclers and artists about art. From antiquity to 1500,* (ed.) Jan Białostocki, word / picture territories, Gdańsk 2001, p. 51.

aspects of Lublin's campus architecture? Placed thesis will be verified in further deliberations on the University District.

The history of the Lublin's campus is dated from mid 40's of the previous century. At that time the authorities gave him birth on Oct. 23, 1944, the Maria Curie-Skłodowska University (MCSU) started making efforts to acquire land for the construction of the University District. The turning point for the listed actions was the decision of the Lublin City Council dated from the 3rd of April 1946 to transfer to the University 17 acres of square between the street Głęboka, cemetery at Lipowa street, Maria Curie-Skłodowska street and the projected part of the contemporary street of Gen. Gustawa Orlicz-Dreszer(today's street of Idziego Radziszewskiego).[3] Thus the history of the Lublin's campus has begun, which territory enlarged several times over the years.

Receipt of the above described land by the MCSU allowed to hold *public competition for the planning of the campus in Lublin,* on the 22nd of May 1947, under the auspices of Lublin Association of Polish Architects (SARP) branch[4].A year later, on the 22nd of June 1948, the second public *competition for the project sketchy hostels took place.*[5]The shape of the Lublin's campus appeared from the winning works of architects Czesław Gawdzik[6]and later Krystyna Tołłoczko-Różyska[7]with Anna Tołwińska-Górska[8].

Recollecting the personality of Czesław Gawdzik and his role as the author of the architectural and urban planning, it should be mentioned here the next excellent Lublin architect - Tadeusz Witkowski[9]. He had joined the team after the competitions, but together with Gawdzik designed the todays existing urban system and the greatest number of completed buildings in the University District. During the next sixty years of Lublin's campus construction many other architects, both from Lublin and those carrying

[3]Records of the city of Lublin, from 1944 to 1950 , Resolution of MRN in Lublin 1944-1950, State Archive in Lublin, the 22 files, signature act 20, 1949, p.6.

[4] Competition of SARP No. 155 on the layout of the University District, Maria Curie-Skłodowska University, Objectives of the campus project in Lublin, Archives of MCSU, signature ZISW 22/1, p.34-37.

[5] Ibid, pp. 47-49.

[6] Czesław Gawdzik (1910-1993) - Lublin architect, in 1935 graduated the Faculty of Architecture of the Technical University of Lviv, after graduation worked in planning teams Lodz, Krakow and Warsaw. In 1937 he was awarded with the architect Dziewoński third prize in the competition for the reconstruction and restoration of the Krakow Market Square. In 1938 he returned to Lublin for the position of head of city development plans. Since 1947 he was the organizer and designer in Miastoprojekcie Lublin, until his retirement in 1975. The most important architectural projects include buildings campus in Lublin. He also worked in the field of restoration and revaluation, including post-war reconstruction of the Cathedral of Lublin (the restoration of the portico Corazziego 1918). Czesław Gawdzik also received second prize for the project: to restore the church by square Three Crosses in Warsaw in 1948 and to extend the Catholic University in 1958. He was also co-authored album *Lublin* and *Lublin landscape and architecture.*

[7] Krystyna Tołłoczko-Różyska (1909-2001) - in 1938 graduated the Faculty of Architecture of the Technical University of Lviv. She worked in the field of urban planning, architecture and interior design, art and fashion. Between 1949 and 1959 received an award from the Ministry of Culture and the Arts. Her most important architectural design isContemporary Art Gallery *Bunkier Sztuki* at Szczepański Square in Krakow.

[8] Anna Tołwińska-Górska (1914-2002) - the Architects Diploma obtained at the Warsaw University of Technology in 1939. Since 1949 she was working as an architect in Zakopane. She was the co-designer and executor for Ornak hostels and hostels in Chochołowska Valley and Turbacz, and inn in Kuźnice and Interior House Podhalański in Ludźmierz. She also dealt in the field of fine arts drawing and formulation.

[9]Tadeusz Witkowski (1904-1986) - in 1946 graduatedthe Faculty of Architecture of Warsaw Polytechnic. From the beginning of his professional activities he worked for Lublin. Initially acted within his own studio, after the war he worked in Miastoprojekcie Lublin. The most important Lublin implementation are: 1932 - villa at the Garden Street 8, 1948 - PKO building at Krakowskie Przedmieście street 12/14, 1963-1967 - Library at Radziszewskiego street 11.

out their projects in the country or abroad, left their traces. Unquestionably, it should be mentioned here the architect Stanisław Fijałkowski[10], who begun his design work for the campusat the end of the 60's of the previous century and he is still going on.

The construction of university buildings began with the cornerstone laid in buildings of Mathematics and Physics and Inorganic Chemistry UMCS, called "Little Chemistry", on the 23rd of October 1949, and later the first two dormitories - "A" and "B" - "Amor" and "Babylon."[11] Other sixty years of uninterrupted expansion shaped the group of university buildings of modernist aesthetics, which in later years followed the direction of postmodernism, but without losing the functionalist research and creating thoughtfully designed campus with high class architecture.

During the analysis of architecture and urbanism of campus in Lublin, let us consider the first of the Vitruvius ancient principles of creating good architecture - *firmitas (durability).* This rule has been understood very literally in the past - the building must be stayed unmoved as long as possible. Today *durability* as the architecture value becomes irrational. In that context, it should be rather structural requirements. Emphasized in past times criterion of timelessness slowly begins to fade. Increasingly, it becomes apparent while there is no need to preserve the architecture for centuries. It seems to be linked directly with the technological advances that go ahead with the time of suitability of buildings and often excludesthem beforethey get old.

In the context of the presented Vitruvian principles of *durability* will not be analyzed various university buildings located in the Lublin's campus. A "region" with buildings was selectedas *firmitas* within the University District. It was dedicated to the whole project of the existing campus for these considerations. It is the main square bearing the name of Maria Curie-Skłodowska. (Ill. 2)

Although the primary project of Czesław Gawdzik was reformulated several times - the idea and the same squareetched permanently as the most important key from elements shaping the urban layout of the Lublin's campus. In this context the Vitruvian principle of *durability* was recalled. Not as indestructibility of architecture, but as the *durability of* its urban assumptions.

Basically, one of the first projects of the main square of the Maria Curie-Skłodowska University, made by Czeslaw Gawdzik and Tadeusz Witkowski and dated about 1950, assumed the compact settlement of quarters around the main square where the water tractwas situated initscenterand the obelisk monument and sculpture onitsopposite ends. (Ill. 3).

[10] Stanislaw Fijałkowski was born on the 11th of February 1934 in Mińsk Mazowiecki. In 1959 he graduated the Faculty of Architecture at Warsaw University of Technology, earning the master's degree, honors degree in architecture. In the years 1958-1961 he worked at the Department of Housing Design Teams Warsaw University of Technology, and after winning the team competition to design a residential area "Kalinowszczyzna" in Lublin in 1959 he began working as a senior designer of dedicated workshop "Miastoprojekt" - Lublin in Warsaw. In 1963 he won a competition in designing the buildings of the National Library in Warsaw. Since 1966, worked at the Office of General Construction Projects "BUDOPOL" S.A. in Warsaw, since 1970 as chief designer, and since 1983 - the general designer. He was a senior lecturer at the Faculty of Architecture of Warsaw University of Technology. Winner of over 30 awards and accolades.

[11] See more: Iza Pastuszko, *Architecture of campus in Lublin,* Publisher MCSU, Lublin 2013, p.43-45.

Fig. 125. The main square of the Lublin's campus, the name of Maria Curie-Skłodowska - modern, photo by Alexander Wolak.

Around 1951 in connection with the planned switch of University of Agriculture and Veterinary, the architects designed a second square.[12]It was located below the main square of Maria Curie-Skłodowska, in the direction of today's Głęboka street. New square ultimately wasn't established. These plans, as well as subsequent urban decisions of the campus did not change the design of the main square. Realized during the years 1949-1954, the eastern frontage of the square is the building of Mathematics and Physics Institute, and the second building called "Little chemistry" are the only existing objects from the original design.[13]Consecutive years extension of the campus of Lublin brought the change in the originally proposed destiny of buildings and their stylistics. New concepts and new university authorities changed the main square. Another architect of the Lublin campus , after Gawdzik and Witkowski, - Stanisław Fijałkowski also affected his form. At the beginning of the seventies of the twentieth century he designed a new dominant – the arrangement of buildings with the a rector's officeand the Departments of Law and Economics and a system of walkways leading to the square.[14] This architectural complex has changed the area plans of the square of Marie Curie-Skłodowska significantly. The main square of campus is still shaping and integrates the teaching and researching part of the University District.

We can assume that the main square remains constant and unchanged in the Lublin's campus. Although we see changing development around him –creation of new buildings and changes in those already existed. It remains a kind of f*irmitas.* Today it seems to be the only place where students and professors go to lectures, but it was built

[12] See more: A project of construction of campus in Lublin, Archives of MCSU, signature ZISW 22/2.
[13] Zdzisław Kowalski, *Thecampus in Lublin.History, architecture, economics,* Lublin 1972, p.49.
[14] Information on the dates of creation of objects derived from the Department of Investment and ConservationMCSU.

to organize meetings, conversations and rest. His aim was to build *durability* not only urban but also the interpersonal relationships.

Fig. 126. Model of the project's main square with its buildings in the teaching and scientific part, this Quarter of the Lublin'scampus, from around 1950, according to the concept of architects Czesław Gawdzik and Tadeusz Witkowski, *reprinted from the Maria Curie-Skłodowska University, Objectives of the campus project in Lublin, Archives of MCSU, signature ZISW 22/1, cover)*

The second Vitruvian's principle for building it's*utilitas - usability*. It's a feature of the architecture that distinguishes it from other arts (painting, sculpture). Sometimes it was concerned as the need for perfect space planning and adapting it to the requirements of future users. In the context of *usability* of campus in Lublin we must pay attention to the project of construction, assuming separation of two areas: first teaching and scientific function, localized on the eastern slope of the University District and the second - social and daily life function, situated in the western side. (Ill. 4)

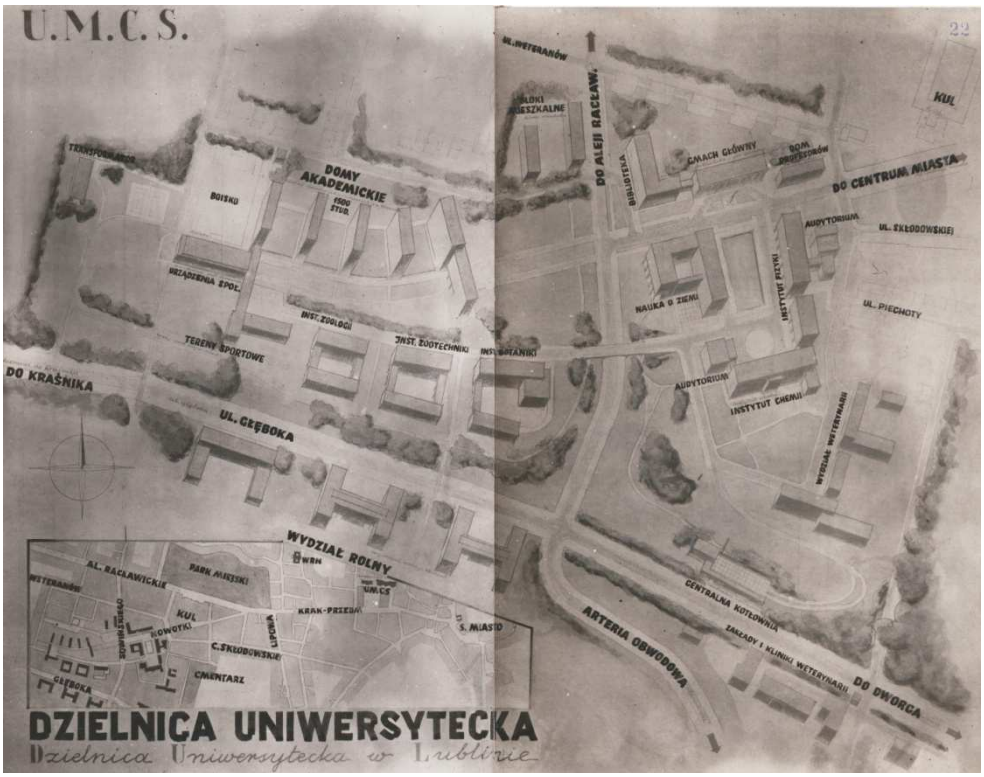

Fig. 127. Project management of campus in Lublin from 1950 (authors Czesław Gawdzik and Tadeusz Witkowski), *Maria Curie-Skłodowska University, Objectives of the campus project in Lublin ,Archives of MCSU, signature ZISW 22/1, p.22*

The project of the University Quarter is the result of the announced in May of 1947 architectural and urban design competition.[15]Initial design assumptions were subject to constant change. In the first years of the construction of the campus two zones were not so well outlined, as it is today. Determining *usability* of urban layout of the Lublin's campus was a process, which was based from its very beginning on the specific, well-defined urban assumptions with the zoning of certain functions.

The principles of modern urban design that we can find in the project of campus in Lublin correspond those contained in the "Athens Charter"[16].The postulates of rational design of cities, which - as defined by Le Corbusier[17]- satisfy basic biological and

[15]Competition of SARP No. 155 on the layout of the University District, Maria Curie-Skłodowska University, Objectives of the campus project in Lublin, Archives of MCSU, signature: ZISW 22/1, pp.34-37.

[16] "Charter of Athens" - adopted in 1933 by the fourth Congrès International d'Architecture Moderne (CIAM), formulated the principle of functional urbanism. They had affected urban planning and urban reconstruction projects after 1945. Seemore: Group *CIAM-France: Data Athens. CIAM Urbanism,* (trans.) Krystyna Szeronos (coll). John Choroszucha and Stefan Maciag, Scientific Department of Interior Design Fine Arts, Warsaw frown.

[17]Le Corbusier - actually Charles Edouard Jeanneret-Gris-, who lived from 1887 to 1965, French architect and town planner of Swiss origin. The main representative of the modernist international style. Founding Member of the International Congresses of Modern Architecture (CIAM). Creator of "Housing units" in Marseille (1945-1965) and MODULOR - measurement system based on the principle of the golden ratio, derived from the proportion of the human body. This model was adopted to the average growth of the American policeman - 183 cm. Pulled up of a human hand sets the basic height of stories net - 226 cm. Most characteristic height relating to the human body, and utilitarian objects is written by Le Corbusier in two sequences: 1) the

psychological needs of residents of urban settlements, are fulfilled. Lublin University District was designed as a kind of city microorganism.

Teaching and scientific part with a library and the group of the legibly rooms were designed, ensuring the implementation of the psychological needs understood in the context of science. Social and daily life part of campus with academic houses, residential part of scientists, social buildings, where there is a canteen, sports center or field implements for biological needs. The original project envisaged the construction of several buildings of teaching in the south-western part of the district, but later realizations excluded them from this area, leaving the social and daily life part free of educational buildings. Division of section into two parts, with two different social tasks, existed until today, is unmistakable reference to the thought of Le Corbusier about classification of modern urban planning, which is intended to serve its usefulness among other things.

The project of the Lublin campus, as well as its present implementation obey other modernist design principles, concerning also the green areas. Release of space for the green surface is readily apparent in the analysis of urban plans. Separating each university buildings, the green area join at the same time the whole estate in a living organism and has provided its residents with the opportunity of the recreational use of the land.

Undoubtedly, the most important of modern town planning principles considered in the context *of utility* is already mentioned duality. "Athens Charter" calls for separation of industrial estates from living estates. In the case of the Lublin's campus we have a division between appropriate to the nature of the District - the teaching and scientific part and the social and daily life part, which is carried out in a natural way along Sowińskiego street. The residents are provided with the opportunity of performing all the life needs via formulation of the principle of independence and self-sufficiency of the university place.

There were separate pedestrian and traffic streets and they still exist. We may call it another postulate of modern design which corresponds the *utility* values. The project of the University Quarter has assured this. The plan of Gawdzik and Witkowski distinguished both, pedestrian and those for motor vehicles streets. Subsequent reformulation of the initial projects resulted the creation of third walking alley leading along the dormitories from the Academic Center for Culture "Chatka Żaka" to the Academic Sports Center. Initially it was internal road communication, but now the parallel Langiewicz street performs this role.

The implementation of the presented modern urban design principles in the realization of the Lublin's campus differs from other Polish academic centers from the second half of the twentieth century and let this area to be called useful.

The last of the three ancient principles it's *venustas* - *beauty*, which for centuries constituted the essence of art (including architecture) and gave it a sense. The beauty in any previous era was perceived somewhat in a different way. Nowadays art seems to be more often a reflection or commentary on current events. It's hard to say about fixed canon of beauty. Architecture, which is constantly looking for new forms often surprises the unprepared recipient. It is more easier to notice *beauty* of

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sequence of dimensions, determined on the basis of a model of growth and theheight of stories and 2) golden ratio.

eighteenth century destroyed building than unfathomable architectural object from the second half of the previous century.
There are many buildings in the Lublin's campus that deserve attention. In the context of the Vitruvian principle of *beauty,* building of cultural function, called "Chatka Żaka" was selected for analysis. This University building was called "Social and Service House" at the beginning, was renamed into Academic Cultural Centre. This building was erected between 1962-1965 and designed by Krystyna Tołłoczko-Różyska.
The most surprising for the observer at the first meeting of the lump isbreakdown of the body of the "Chatka Żaka"building.It is vividly seen during the analysis of drawing project. (Ill. 5)

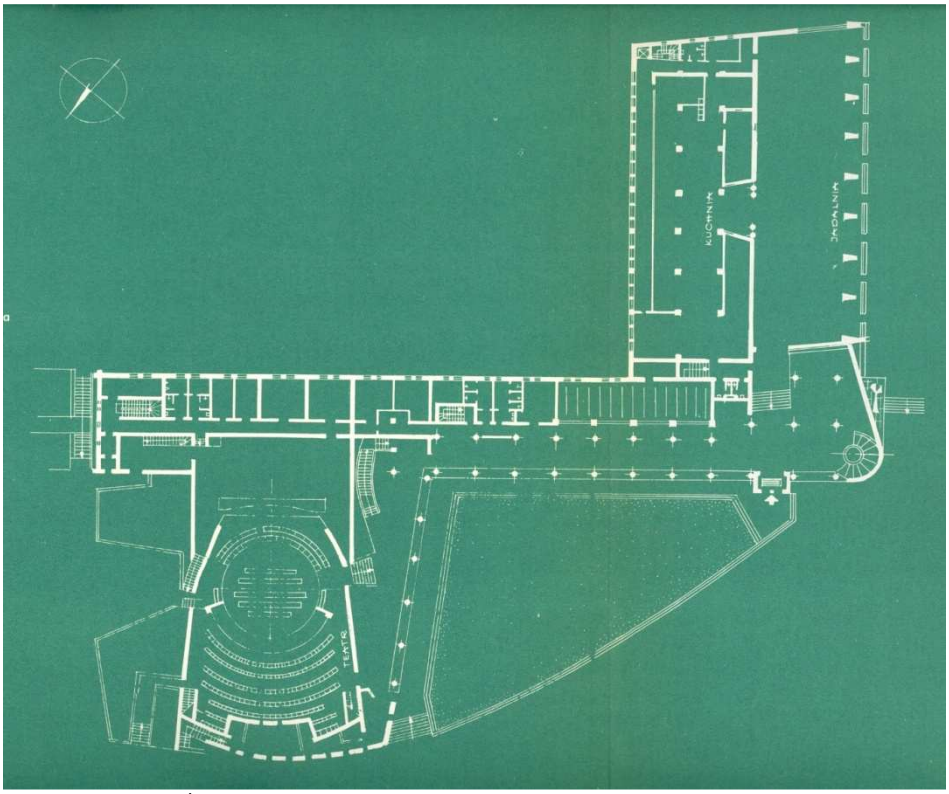

Fig. 128. The "Chatka Żaka" (architect Christine Tołłoczko-Różyska), 1962-1965, *reprinted with Zdzisław Kowalski, The campus in Lublin.History, architecture, economics, Lublin 1972, p.171*

That break down of the body of the building revealed a solid breakdown on individual cells with different functions. Their centrifugal spreading from the core of the building automatically directs us to the principles on which Gerrit Rietveld designed Schräder villas in Utrecht in the twenties of the previous century. The present building of the cultural center was maintained in the style of architecture promoted by De Stijl[18]. Not only the form of the building refers to the objectives of the movement. External structure of "Chatka Żaka"building in the form of colored mural was maintained in the

[18] See more: David Watkin, *History of Western Architecture,*(the crowd) Ryszard Depta, (ed.) Anna Marczak, Arkady, Warszawa 2006, pp. 520-521.

“Mondrian” aesthetics on one of the external walls(Ill. 6). There was also perfectly designed interior in the spirit of integration of arts. Both of them confirmed the quoted thesis.

The Mondrian colouring was not duplicated here, as well as the copying of the Schrader villa. On example of "Chatka Żaka" building we can observe how were the borrowed patterns reformulated for the local architecture. Taking care of a color coherent of the building’s outside and inside draws attention. Already not existing student canteens space was very consistently designed and perfectly executed. Yellow-black color scheme appeared on the ceiling and on the chairs or tables. All these endeavors of buildings design emphasize the enormous plasticity. We still have here a detail in the form of spatial sculpture, which was used instead of the commonly used column. (Ill. 7)

Fig. 129. "Chatka Żaka" - a mural and detail - today (project Krystyna Tołłoczko-Różyska), 1962-1965, *photo by Iza Pastuszko*

Fig. 130. "Chatka Żaka" - the main entrance - today (project Krystyna Tołłoczko-Różyska), 1962-1965, *photo* by *Iza Pastuszko*

"Chatka Żaka" is an example of a unique architecture. Last years the building has undergone extensive modernization.It should be noted that the renovation was carried with attention to the original form of the building. It is a kind of rarity worthy of notice. Styrofoam and coloristic unification of university buildings usually destroys their original form and artistic expression. Here we are dealing with attention to existing architecture and its shape. With this thinkable renovation "Chatka Żaka" regained its interesting form and we can once again admire the fresh glow of the magnificent architectural blocks. The building can be still beautiful.

Vitruvian's *firmitas, utilititas* and *venustas* or *durability, usability* and *beauty* can serve as metaphors for certain aspects of architectural and urban campus in Lublin. Borrowing these ancient architectural values allows us to look at the project on new way, as well as specific buildings of this University District. Reading these ideas of architects along with theirs buildings becomes a form of seeking common features of old and new architecture, which is invariably created by the people for the people.

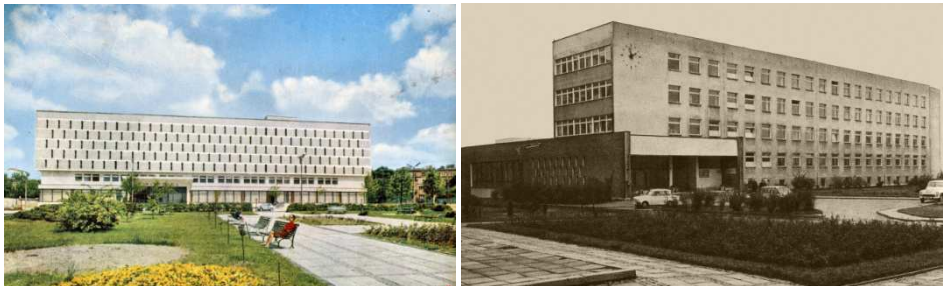

Fig. 131. Left: University Library, Photo by K. Jabłoński, pocztówka Biura Wydawniczo - Propagandowego, Right: Fig. 132. The faculty of Humanities, Fot. J. Urban, postcard, WL 1979

Fig. 133. View on Academic District from Sowińskiego Street, postcard KAW,9 1975

Campus in Lublin is an example of the changes that occurred in the architecture of the second half of the twentieth century and early twenty-first. Starting from the first buildings of the Faculty of Mathematics, Physics and Chemistry, designed in the spirit of moderate modernism according to the formula simplified classicism (enrolling in mainstream architecture called "perrets"), through much more monumental social

realism buildings like Agrotechnology and Collegium Veterinarium today's University of Life Sciences, built in 50s we're arriving to the representatives of late modernism and postmodernism. The 60s of the last century have brought a variety of stylistic forms of university buildings, such as the Humanities building in its simplicity referring to the interwar functionalist or the "Chatka Żaka" building, that was designed in the spirit of integration of arts (so characteristic for Polish architecture for the second half of the sixties of the twentieth century), containing in its design new forms of expressionism. The next years are the new polish architectural views thought entering a phase of "neomodernism", often full of color, large-pane glazing, until the present, new opportunities of operation in the structure of building on the example of the Institute of Informatics of MCSU. Cognition and protection of the entire university complex, as well as individual buildings is an important aspect of today's talks about Polish architecture of the twentieth century.

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UNIVERSITIES IN URBAN PLANNING OF WROCŁAW

High schools play a significant role in the social, cultural and education landscape of Wrocław. A lot of them - through its broad educational offer - provide for appeal of the city all over Poland and Europe both for students and potential employers who invest in Wrocław[1]. High schools constitute a relevant aspect of strategic development programmes of the city and its marketing policies[2]. The number of high schools and students together with their impact onto the demography, culture and economy of Wrocław make the rationale to create it as a regional higher educational centre.

In Wrocław, being the city with its 631 thousand inhabitants[3], 134 thousand students study at 24 high schools. They constitute one fifth (about 21%) of all the city residents. The number of universities, students and the importance of science place Wrocław at the forefront of the Polish university cities[4]. These factors cause that the higher education has a significant impact not only on the city culture but also onto its spatial structure, externalised by impressive historical and modern edifices, compact complexes of buildings and campuses spread around the city. In the diversity of spatial and architectonic structures of high schools, the following can be distinguished: autonomous sets which are located far from the centre, individual units grouped together within inner-city districts and quarters with campuses of several high schools within the so-called university district[5]. The accumulation of academic premises and their corresponding urban infrastructure in one district is an interesting issue which the authors wish to outline.

The aesthetics and quality of public spaces within these academic sets are also relevant. The operation of high schools has become a stimulus for numerous

[1] Inwest in Wrocław, http://invest-in-wroclaw.pl/kluczowe-dane/innowacyjnosc/wspolpraca-nauki-z-przemyslem/ (access: 20.11.2013)

[2] The Municipal Office of Wrocław, Strategy - Wrocław in perspective 2020 plus, source: http://bip.um.wroc.pl/wps/portal/bip?WCM_GLOBAL_CONTEXT=/bip_pl/bip/umw/programy_miejskie/Strategia+rozwoju+Wroclawia&sitePath=/bip_pl/bip/umw/programy_miejskie/Strategia+rozwoju+Wroclawia (access: 20.11.2013)

[3] GUS, data from 31.12.2012, source: http://www.stat.gov.pl/gus/5840_655_PLK_HTML.htm (access: 20.11.2013)

[4] Inwest in Wrocław, http://invest-in-wroclaw.pl/kluczowe-dane/edukacja-i-wiedza/uniwersytety-i-studenci/ (access: 20.11.2013)

[5] The 'university district' has been populary named area along the axis of Grunwaldzki square, around which most of Wrocław's universities are concentrated.

investments having an impact onto the quality of life and public spaces in Wrocław. For thousands of students a lot of new utilities are set up in the city centre and in the immediate vicinity of numerous universities and academic districts. Their standard has been raised. Students and higher education is an important city-forming factor. The intensive development of academic structures in the capital of the Lower Silesia gave birth of numerous communicational and spatial problems and not all of them can be solved on a current basis[6]. The values of urban space created by the Wrocław universities and their buildings are also a concern for the city[7]. In the present chapter we describe a spatial and urban aspect of the operation of the high schools within the metropolitan area of Wrocław.

High schools in Wrocław

Currently in the capital of Lower Silesia there have been 5 universities, 8 state or locally-managed non-university high schools, 17 non-public high schools, 2 religious high schools and 4 religious seminars. Nearly 105 thousand students get their education at the state and locally-managed high schools. Approximately 30 thousand students study at the other non-public and religious schools. It can be concluded on the grounds of these figures that the universities and public high schools are the most relevant at the educational map. The private and religious schools educate a quarter of all the Wrocław students; however, their campuses are often located at the outskirts of inner Wrocław. The subject of the paper covers the universities / high schools in Wrocław with a particular emphasis placed at the Wroclaw University of Technology. However, the peripheral location of the private high schools generates noticeable communication traffic for thousands of students, thus the spatial dislocation of their premises also requires a short outline.

State universities

Wrocław hosts the following five state universities: the University of Technology, the University of Economics, the Medical University named after the Silesian Piasts, the University of Environmental and Life Sciences and the University of Wrocław (table 1). These high schools educate approximately 100 thousand students, which constitutes approximately 75% of all the students. Such a high number of students has got a decisive influence on the development of the market of utilities within the Old Town and the academic district in Wrocław. The high schools are clearly distinguishable at the map of the city and their historical and contemporary edifices "organise" public space. Communication routes connecting their academic settlements and campuses within the last 10 years have been significantly enriched with numerous new utilities for students. Within recent years the surroundings of the high schools have also changed.

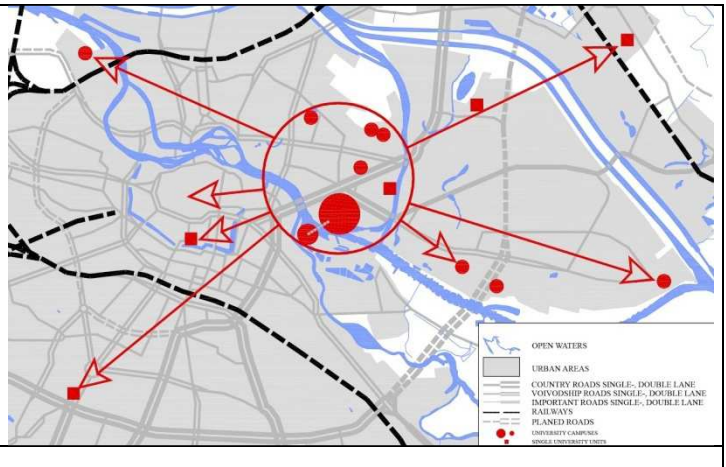
[6] Compare E. Przesmycka, „Lublin 2020 - wizje rozwojowe", eds. M. Bałtowski, M. Bielecka-Hołda, Lublin 2009, p. 100.

[7] The Municipal Office of Wrocław, Strategy - Wrocław in perspective 2020 plus, p. 43, source: http://bip.um.wroc.pl/wps/portal/bip?WCM_GLOBAL_CONTEXT=/bip_pl/bip/umw/programy_miejskie/Strategia+rozwoju+Wroclawia&sitePath=/bip_pl/bip/umw/programy_miejskie/Strategia+rozwoju+Wroclawia (access: 20.11.2013)

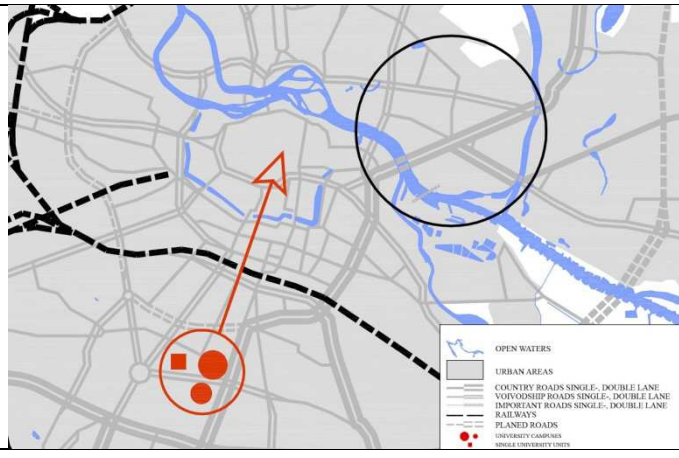
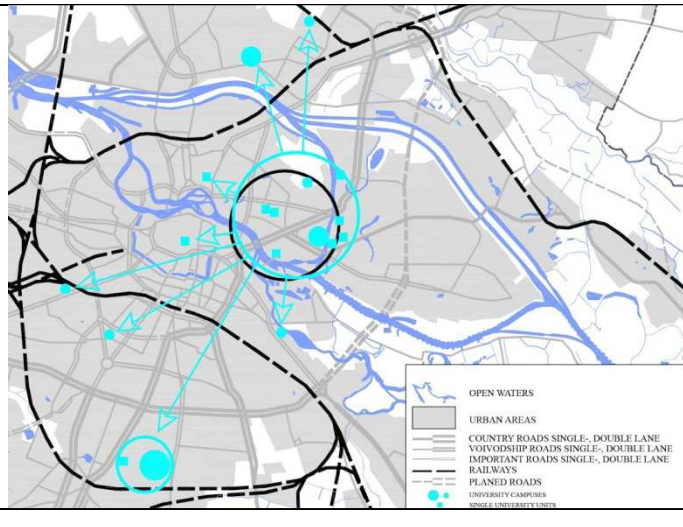
Communication and infrastructure within them have been improved. Urban biking has been wider and wider used. A short summary on the locations of the high schools in the structure of the city and a more detailed case study on the University of Technology will allow to diagnose the most relevant communication, spatial and architectonic dependencies which got developed in Wrocław together with the development of its high schools.

The University of Wrocław is the oldest high school in Wrocław which dates back to 18th century. In Wrocław there had been two high schools in operation till the Second World War: the University of Wrocław (till 1950 it also embraced the Medical Faculty) and the University of Technology (till 1945 it had been called Technische Hochschule Breslau) being located in the centre of the city. The University of Wrocław is located in the very city centre, within the neighbourhood of the Market Square, then the Medical Faculty and the University of Technology are located at Grunwaldzki Square. After 1945 two more state universities were established: the University of Environmental and Life Sciences with its campus located in Grunwaldzki Square and the University of Economics located at the outskirts of inner Wrocław in the southern part of the city. With a rise in the number of students, the universities expanded their campuses through the development of new premises within their ranges (densification) and expanded their areas establishing new campuses located mostly at the outskirts of inner Wrocław at underdeveloped lands or adapting premises which had previously been occupied and used by military forces or state-owned enterprises (Figure 1).

Table 1. State universities in Wrocław.

Wrocław University of Technology Established: 1910/1945[8] No. of students[9]: 33 775	
- few dense campuses, research complexes and student housing estates located mainly in down town - central campus consists of historical prewar buildings, after war developments and contemporary new architecture which fills up the free space of the campus situated in university quarter between Grunwaldzki square and S. Wyspiańskiego shore - smaller campuses are located in down town - extensive technical support and didactic base is situated ind down town too	

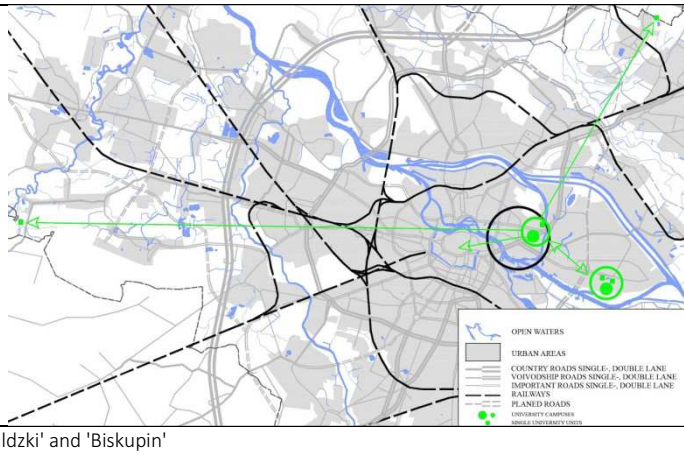
[8] School continues tradition of Königliche Technische Hochschule Breslau established in 1910.
[9] „Szkoły wyższe i ich finanse w 2011 r.", Główny Urząd Statystyczny, 2012.

Wrocław University of Economy Established: 1947 No. of students: 16 137	
- dense campus which consists of two parts located on two opposite sides of Kamienna street – main part it is prewar building complex in quarter of streets: Wielka, Komandorska, Kamienna and Ślężna, developed with contemporary objects build in few last years - second part includes after war students houses, technical support, Study of Physical and Sport Education as well as modern Center of Lifelong Learning - besides at Drukarska street in back yard of prewar tenement house the Study of Foreign Languages is situated	
Wrocław Medical University Established: 1811/1950[10] Number of students: 5 616	
- the main campus is located in university quarter bordered by Grunwaldzki square, Skłodowskiej-Curie street, S. Wyspiańskiego and L. Pasteura shores, main road of the campus is T. Chałubińskiego street, - main campus basically represents the buildings from the end of 19th and beginning of 20th century which are academical clinics, laboratories and scientific-didactic units - units located near the main campus are in streets: Parkowa, Hoene-Wrońskiego, Sopocka, Bujwida, Bartla, and Grunwaldzka - contemporary campus is in Borowska street with Department of Pharmacy and clinical hospital as well with nearly situated unit in Weigla street	

[10] In 1811 department of Medicine was founded at Wrocław University, in 1950 it was separated from the University.

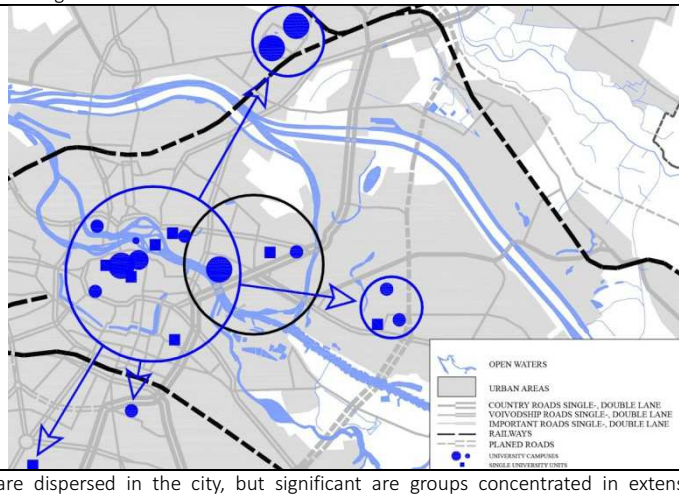
- besides university dependent units of public health care are spread around th down town in Kasprowicza, Koszarowa, Grabiszyńska, streets, L. Hirszfelda square, Prince J. Poniatowskiego, Krakowska, Kurzy Targ, Wojciecha z Brudzewa streets
- structure is dispersed, but generaly concentrated around university quarter (Public Clinical Hospital no. 1) and Public Clinical Hospital in Borowska street

Wrocław University of Environmental and Life Sciences
Established: 1951
Number of students: 10 854



- two campuses: 'Grunwaldzki' and 'Biskupin'
- main 'Grunwaldzki' Campus is situated in university quarter on both sides of Grunwaldzki square with historical main building from 19th century, modernistic prewar students house in Sopocka-Grunwaldzka street and after war and contemporary units along Grunwaldzka axis
- 'Biskupin' Campus is situated between streets: K. Olszewskiego, J. Chełmońskiego i Kożuchowska, consists mainly of contemporary buildings.

University of Wrocław
Established: 1702/1945
Number of students: 31 557



- universities buildings are dispersed in the city, but significant are groups concentrated in extensive campuses:
- main campus 'Old Town' located in Old Town's and part of down town area and includes main building and oldest departments
- 'Krzyki' obejmuje dwa obiekty położone przy ul. Pocztowej i Dawida
- Sołtysowice/Karłowice campus includes post military objects in streets Przybyszewskiego, Czajkowskiego and Koszarowa
- 'Plac Grunwaldzki' Campus gathers objects situated at Odra river side and along Grunwaldzki square axis
- other objects are located mainly in Biskupin: students' houses, Institute of Astronomy, Department of Climatology and Atmosphere Care

The location of campuses of the four universities within Grunwaldzki Square (the so-called Academic District) has resulted in the dynamic development of utilities and transformations at the area for the last decade (the first stage of the Grunwaldzki Shopping Centre (Pasaż Grunwaldzki) - a shopping mall, cinema multiplex, restaurants, fitness clubs and others; the planned second stage - expansion, new office and commercial areas). The former inefficient communication system was modernized: R. Regan Roundabout, reconstruction of the square axis, reconstruction of M. Skłodowska-Curie Street, modernizations of riverside boulevards and quays). The quality of public space was improved - new green pavements, cycling paths, small architecture elements, walkways, squares, green fountains and areas. A series of modernisation and renovation works of the existing premises were performed (renovations of facades of dormitories, residential buildings and tenement houses, renovations of older edifices of the high schools along the Grunwald Axis, construction of new premises of the congress centre of the University of Technology, the educational centre of the University of Environmental and Life Sciences and others). There have been more and more utilities at ground floors. The built-up area of the campuses (the University of Technology, the University of Environmental and Life Sciences, the University of Wrocław) has been densified. In communication terms the academic district is well-communicated with the Old Town (short distance, numerous tramway and bus lines, urban bicycles with many rental units, cable car over the Odra river). Pedestrian communication has currently been the least developed and cared-for due to unattractive areas of Społeczny Square separating the Old Town and Grunwaldzki Square. However, new built-up is planned within the area together with the reconstruction of boulevards over the Odra river (which constitute an alternative pedestrian route linking the historical and academic centres of Wrocław) has been in progress. Still there is no coherent and continuous system of green spaces - squares, residential lawns beyond the major communication routes - in the university district. The revitalisation of the facilities which are vital for landscape and space of the district: buildings at the campus of the University of Wrocław along the Odra river, residential towers with utilities and parking lots (the so-called Manhattan) by Grunwaldzki Square together with the modernization of boulevards and opening up for the river will allow to create a spaciously and functionally consistent area with its educational and utility character.

The peripheral location of campuses and individual facilities of the University of Technology generates minor students' traffic at the outskirts of the inner-city. However, their major traffic is observed along M. Skłodowska-Curie from the dormitories and the Physical Education and Sport Centre at Biskupin to the university main campus. On the route there are a lot of attractive utility and recreational premises which also serve to students (among others: the Zoological Garden, the Centenary Hall, the Multimedia Fountain, the Szczytnicki Park). Communication with the campus at Na Grobli Street is shortcut through a cable car over the Odra river, then the other campuses can be reached by public transport or on foot in 15-20 minutes (Table 1, point 1).

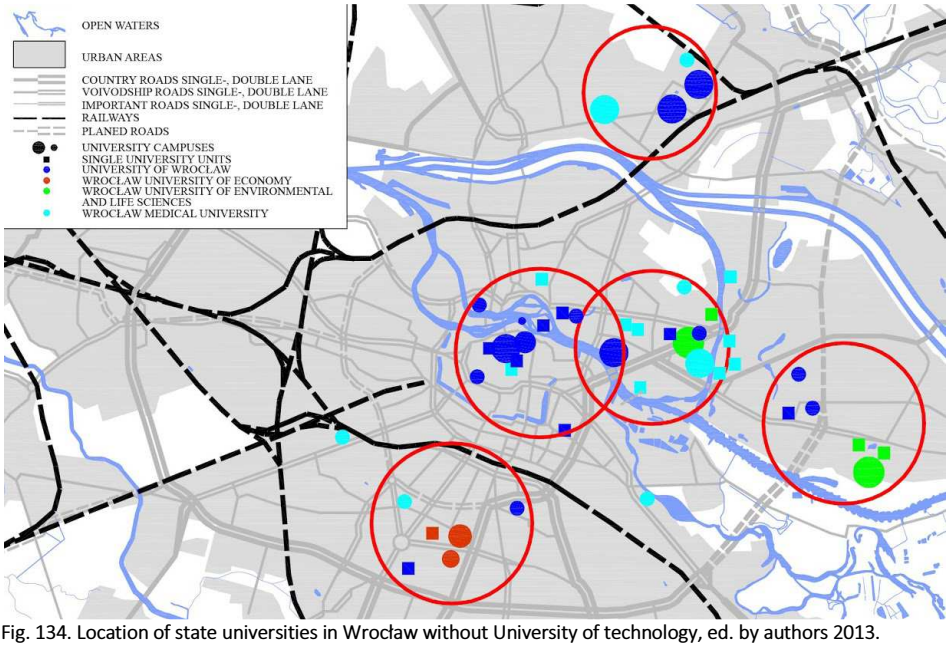


Fig. 134. Location of state universities in Wrocław without University of technology, ed. by authors 2013.

In case of the University of Wrocław, students' major traffic is mainly generated between the Old Town, Karłowice / Sołtysowice and Grunwaldzki Square. Karłowice is the least accessible (Table 1, point 5).

A significant level of traffic is also generated between the sport and didactical campus and dormitories of the University of Environmental and Life Sciences and its main campus at Grunwaldzki Square. Its peripheral centres (e.g. Pawłowice) are poorer connected with the main campus but are not characterised by increased students' traffic (Table 1, point 4).

The Medical University is most poorly communicated. Its main campus in the area of medical clinics at M. Skłodowska-Curie Street together with its individual premises located in the academic district and partially in Biskupin have got hindered communication with other units located in Karłowice, the Old Town, Grabiszyn and Krzyki. The campus at Borowska Street within the area of the hospital is the most inconveniently linked. Although there is a new road connector with the inner-city ring-road and a new tramway line at Świeradowska Street, then however a considerable distance from the centre and no well-organised space around the campus (no integration of communication junctions, a significant distance from facilities, large-surface parking lots) have a negative impact onto the surroundings of the hospital (Table 1, point 3).

The location of the University of Economics and its campus at the southern edges of the inner-city being close to the major communication routes and junctions (the axis made by Ślężna Street and Powstańców Śląskich Street) facilitates students' access to the centre of Wrocław. The university campus is tight (it has been densified with new investments for the last 10 years). However, in spite of its new facilities and

improved space of the campus itself, the environment has largely been of low standard (the southern residential area is dominated by blocks of flats). Streets, pedestrian and bicycle paths, squares, parks and other elements of urban infrastructure have not got much in common with standards which can be observed in the academic district or within the Old Town (Table 1, point 2). 2).

The location of the universities within the area of Wrocław is very relevant as several areas of concentration of high-school facilities and their campuses can be distinguished. We can distinguish a distinct academic district in the area of Grunwaldzki Square. Undoubtedly, the Old Town has also got academic features due to the accumulation of buildings of the University of Wrocław, especially in the northern and western part of the Market Square. Apart from the Old Town and Grunwaldzki Square, the following can be distinguished: Biskupin, Karłowice / Sołtysowice and Krzyki where the university buildings are scattered (Figure 1). The location of the universities in the close city centre and east, north and south off the Old Town causes that the communication within these districts is well developed. At these areas the last decade saw an increasing number of new commercial projects and municipal investments being made in communication and transport infrastructure. The local western centre (within the Magnolia Shopping Centre) being under development is located at a considerable distance from the core city centre which currently has started to be polycentric (the Old Town, Grunwaldzki Square, Przedmieście Świdnickie, Biskupin). The west part of the city has still been of little attraction for the high schools in Wrocław.

Other state and locally-managed high schools

Wrocław - apart from its five major university centres - has also got eight state and locally-managed high schools which are presented in detail in Table 2. Just like the major university centres, other state and locally-managed high schools are mostly located within the inner-city (Figure 2). Their campuses are generally compact and usually consist of one or up to several buildings.

Most public non-university high schools are located in the centre of Wrocław where they densify the Old Town and provide it with interesting high-school facilities (new edifices of the Academy of Fine Arts, the Academy of Dramatic Arts or the Academy of Music). Only special schools like the Military Academy of Land Forces and the Academy of Physical Education are located away from the city centre. The Academy of Physical Education is situated in a modernistic complex of the Olympic Stadium with its modern infrastructure surrounded by greenery and water. The Military Academy of Land Forces is located within extensive military areas in the north-eastern part of the city (Sołtysowice). The campus of the Academy of Physical Education together with the university campuses in Biskupin forms an academic complex with its loose structure filled with greenery. The campus of the Military Academy of Land Forces together with neighbours - the campuses of the University of Wrocław and the Medical University constitutes a loose academic complex fitting into intimate developed areas of Karłowice and Sołtysowice. Away from the city centre beyond the inner-city in Skarbowców Street at Krzyki there is Teachers' Training College of foreign languages. The environment of the high school does not belong to attractive areas. Moreover, a small number of students and its neighbourhood with cosy and intimate "garden-settlements" are not

favourable to improve communication. Racławicka Street, located close to the College, will soon gain importance as a local communication axis when it links Oporów with Przedmieście Południowe through Ślęza River; however a prompt quality improvement of the surrounding area should not be expected (Figure 2).

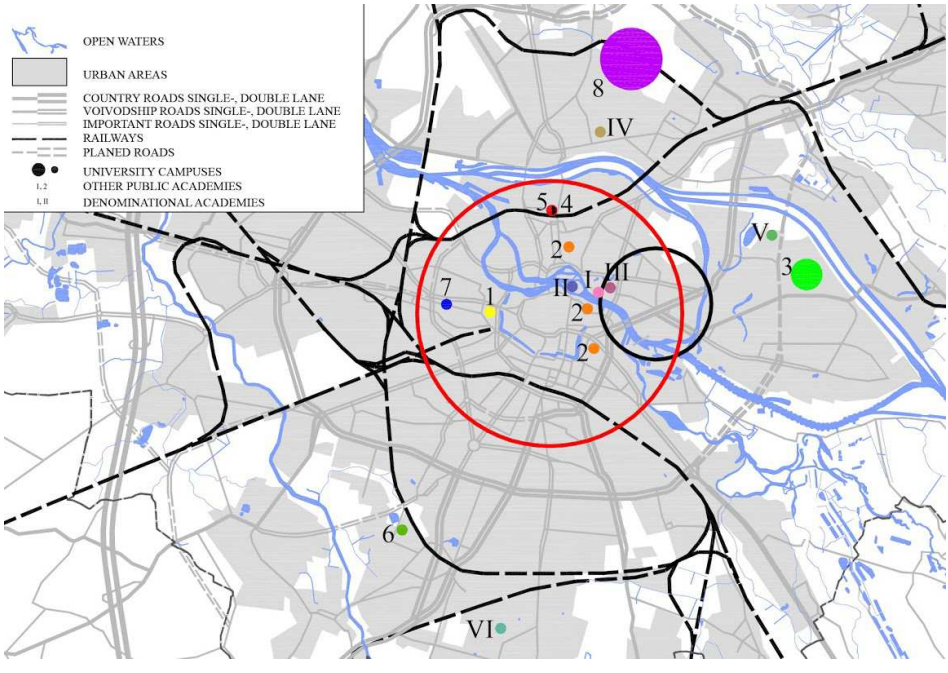


Fig. 135. Other state and local municipal academies, ed. by authors 2013. Numbers as in Table 2

Table 2. Other state and locally-managed high schools in Wrocław.

Other state and local municipal academies		
Lp.	Academy	Location in spatial structure of the city
1.	The Carol Lipiński Academy of Music in Wrocław Established: 1948 No. of student: 621	- dense campus situated at borders of Old Town, in housing quarter at John Paul 2nd square - representative main building from the 19th century at the square, modern development in 2013.
2.	The Eugeniusz Geppert Academy of Art and Design Established:1946 No. of student: 130	- two campuses situates at borders of down town, 1st in quarter at Polski square, 2nd in R. Traugutt street - old campus includes frontage buildings – half of housing quarter in Polski square and Frycza-Modrzewskiego street, new campus is group of old buildings and modern object developed in stages - besides students' house in H. Pobożnego street at Nadodrze quarter.

3.	Academy of Physical Education Established: 1946/1950 No. of student: 4 210	- dense campus situated in Biskupin neighborhood surrounded by park in prewar Olympic Stadium complex between J. Paderewskiego and A. Mickiewicza streets by the river bypass - historical objects represent prewar modernism, campus developed with contemporary buildings and sport objects.
4.	The Grzegorz Piramowicz College of Teachers Established: 1992/1998 No. of student: 400	[11]- former school's prewar building from the beginning of 20th century with characteristic shape dominating on side of viaduct in Trzebnicka street.
5.	College of Social Service Workers in Wrocławiu Established: 2006 No. of student: no data	- former school's prewar building from the beginning of 20th century with characteristic shape dominating on side of viaduct in Trzebnicka street.
6.	The Foreign Languages College of Teachers Established: 1990 No. of student: no data.	- modernistic multi-storey, after war building in Skarbowców street in private housing neighborhood at the border of down town, without bigger influence on architectural environment.
7.	The Ludwik Solski State Higher School of Theatre Państwowa Wyższa Szkoła Teatralna in Cracow (Branch in Wrocław) Established: 1946/1972[12] No. of student:490[13]	- since 2012 modern dense campus in Braniborska street - contemporary architecture campus designed for school of theater.
8.	General Tadeusz Kościuszko Military Academy of Land Forces 1923/1944/ Established: 2002 No. of student: 2 571[14]	- large campus situated in Czajkowskiego street, mainly after war buildings.

Non-public high schools

Non-public high schools providing education to one fifth of all the Wrocław students (about 20%) are presented in detail in Table 3. These are high schools which are mainly located within the city outskirts; some of them are situated in the inner-city (Figure 3). The schools located in the city centre usually occupy historical buildings, which were modernized for educational objectives. In contract, the high schools located at a considerable distance from the city centre form new campuses.

Due to a considerable number of students studying in the largest non-public high-schools in Wrocław, their heavy traffic can be observed between the city centre and clusters of private high schools within the inner-city outskirts(Figure 3). The University of Lower Silesia located at Strzegomska Street on the route connecting Nowy Dwór (a large block-of-flats housing estate) with the city centre. It is well connected

[11] http://pl.wikipedia.org/wiki/Kolegium_Nauczycielskie_we_Wroc%C5%82awiu (access: 20.11.2013)
[12] In 1972 branch in Wrocław was founded, source: http://www.pwst.wroc.pl/index.php?c=static_building&sid=58 (access: 20.11.2013)
[13] In Wrocław branch in 2012 studied 80 students at acting and ca. 80 at puppetry department, source: http://www.pwst.wroc.pl/ (access: 20.11.2013)
[14] In 2012 r., source: http://invest-in-wroclaw.pl/kluczowe-dane/edukacja-i-wiedza/uniwersytety-i-studenci/ (access: 20.11.2013)

with the Old Town. The quality of space around the high school (mainly areas of large production plants and railway grounds) is not considered to be high. Apart from its basic communication routes and greenery there are no representative areas there. Most private high schools have their locations in the vicinity of communication junctions and routes thanks to which they are provided with accessibility. However, it does not go hand in hand with the standard of public spaces.

Table 3. Non-public high schools Wrocław

Private academies in Wrocław		
No.	Academy	Established, no. Of students, location in spatial structure of the city
1.	University of Lower Silesia	(1997/ca. 8500[15]) - university campus is situated in post industrial quarter at borders of downtown next to Strzegomska, Robotnicza and Wagonowa streets - mainly after war buildings, dispersed structure.
2.	University of Social Science and Humanities	1996(2004 in Wrocław)/13500(2100 in Wrocław)[16] - renovated post-industrial building from 1960s. in A. Ostrowskiego street at Grabiszyn neighborhood.
3.	Wrocław School of Information Technology WWSIS 'Horyzont'	2004/no data - group of prewar buildings and Wejherowska street at downtown's border.
4.	Academy of Phisiotherapy in Wrocław	1999/ no data - situated in T. Kościuszki street in dense frontage urban structure.
5.	University of Business in Wrocław	1997/no data - contemporary building in A. Ostrowskiego street, object draws attention to form and color.
6.	College of Management Edukacja in Wrocław	1997/no data - object in Krakowska street.
7.	The Helena Chodkowska Academy of Technology and Economics	1992(2010 in Wrocław)/ no data - object situated in Piasek Island, interacts with mass in św. Jadwigi street and promenade from the river side.
8.	COPERNICUS College of Information Technology and Management	2001/no data - single building in Szczepin neighborhood in Inworocławska street

[15] http://pl.wikipedia.org/wiki/Dolno%C5%9Bl%C4%85ska_Szko%C5%82a_Wy%C5%BCsza_we_Wroc%C5%82awiu (access: 20.11.2013)

[16] http://www.swps.pl/wroclaw/wydzial-zamiejscowy-we-wroclawiu/kontakt-wroclaw (access: 20.11.2013)

9.	The International University of Logistics and Transport in Wrocław	2001/ ca. 1200[17] - prewar barrack building from 1905 in Sołtysowicka street, building with significant and dominant cubature in the area.
10.	Non-public College of Medicine	2006/no data - college is situated in Nowowiejska street in dense prewar frontage quarter.
11.	College of Artistic Crafts and Management	2002/no data - school is situated in tenement house at Macieja square in dense prewar frontage quarter.
12.	WSB School of Banking in Wrocław	1998/no data - situated at orders of downtown in postindustrial quarter in Fabryczna street.
13.	College of Education and Sport Department in Wroclaw	2002/1480[18]
14.	Philological School of Higher Education	2002/2000[19] - building inside housing quarter by H. Sienkiewicz street.
15.	College of Humanities	2002/no data - main building is situated in postindustrial quarter in Robotnicza street.
16.	College of Management and Coaching Faculty of Sport	2009/no data - building in I. Paderewskiego street next to Academy of Physical Education.
17.	College of Management and Banking in Poznan, Wroclaw Branch	1992/no data - main building in postindustrial quarter in Robotnicza street.

[17] http://pl.wikipedia.org/wiki/Mi%C4%99dzynarodowa_Wy%C5%BCsza_Szko%C5%82a_Logistyki_i_Transportu_we_Wroc%C5%82awiu (access: 20.11.2013)

[18] In whole school in 2006, source: http://pl.wikipedia.org/wiki/Wy%C5%BCsza_Szko%C5%82a_%E2%80%93_Edukacja_w_Sporcie_w_Warszawie (access: 20.11.2013)

[19] http://pl.wikipedia.org/wiki/Wy%C5%BCsza_Szko%C5%82a_Filologiczna_we_Wroc%C5%82awiu (access: 20.11.2013)

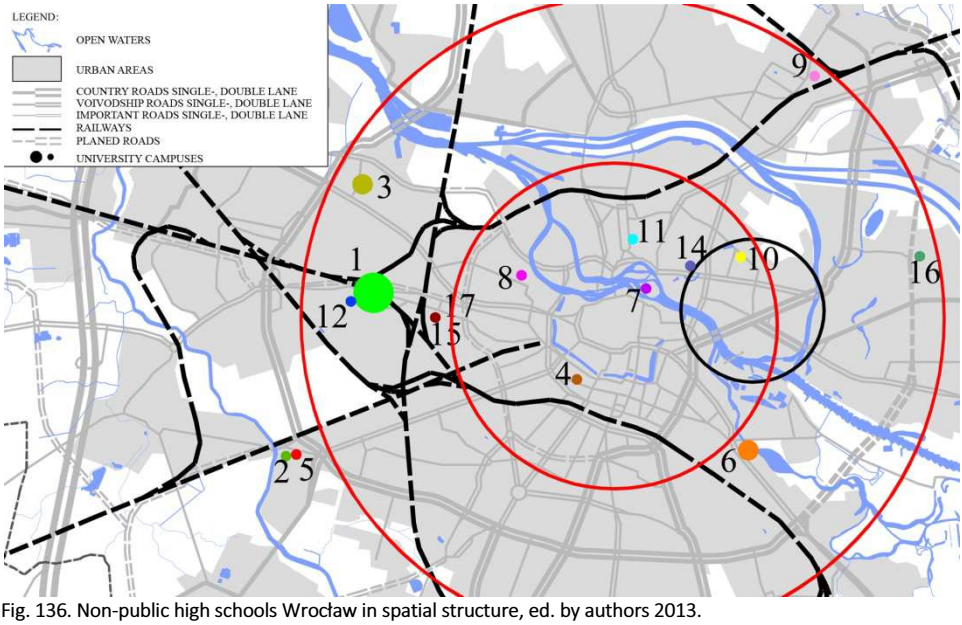


Fig. 136. Non-public high schools Wrocław in spatial structure, ed. by authors 2013.

High schools of churches and religious organizations

Wrocław - apart from its secular high schools - has also got 6 religious educational institutions shown in Table 4. The Pontifical Theological Faculty founded in the early seventeenth century is the oldest one. The most important of them are located in the vicinity of Ostrów Tumski (former Cathedral Island) and at the Piaskowa Island. Mostly their edifices are located by sacral establishments in historical buildings and their surrounds are maintained at a high standard. The other three high schools are religious seminaries located on the inner-city outskirts (with no significance at the academic map of the city (Figure 2)).

Table 4. High schools of churches and religious organizations in Wrocław.

Church and religious association academies in Wrocław		
No.	Academy	Established, no. Of students, location in spatial structure of the city
1.	Pontifical Faculty of Theology in Wroclaw	1702/1968[20]/no data - objects situated in Ostrów Tumski along Katedralna street, they are forming Ostrów's silhouette from the river side.

[20] Faculty of Theology is continuator of the prewar faculty derived from the University of Wroclaw.

2.	Evangelical School of Theology in Wrocław	2006/no data - object situated in Piasek Island, interacts with mass in św. Jadwigi street and promenade from the river side.
3.	Metropolitan Higher Theological Seminary	1947/no data - building situated in Ostrów Tumski at Katedralny square, dominates with neogothic large mass in northern frontage of the square.
4.	Theological Seminary of the Franciscans (OFM) in Wroclaw	- religious school within the monastery in group of buildings in Kasprowicza street, main object dominates with large mass and scale in surrounding.
5.	Higher Theological Seminary of the Claretian Fathers (CMF) in Wroclaw	- religious school within the monastery in small object at private housing neighborhood on 'Wielka Wyspa' island, without impact on the environment.
6.	Theological Seminary of the Fathers of the Sacred Heart (SS.CC) in Wroclaw	- religious school within the monastery in small object at private housing neighborhood on 'Wojszyce' neighborhood, without impact on the environment.

WROCLAW UNIVERSITY OF TECHNOLOGY

Historical backgrounds of the Technical University of Wrocław

Breslau (Wrocław), the capital of the Silesian region, sought permission to establish a technical university since the end of the 19th century. It was in 1902 when Wilhelm II, the Emperor, gave permission to build the Königlische Technische Hochschule Breslau (the Royal Technical University in Wrocław). After the First World War the university name changed to the Technische Hochschule. The newly designed buildings of the University of Technology were to be located close to facilities belonging to the medical university clinics, forming a complex of high schools - the nucleus of the modern academic district.

The establishment of the high technical school in the Silesian Province was caused by the development of mining, processing, chemical, metallurgical and machine-engineering industries within the region. Various scientific and industrial groups were in its favour (apart from the Silesian Landtag)[21]. The Technical School was opened on 1 October 1910. However, the formal opening took place on 29 November 1910 and it was attended by Wilhelm II, the Emperor.

Under the statue signed by the Emperor, the High School was to have the following Institutes: Machine and Electrical Engineering (Abteilung für Maschineningenieurwessen und Elektrotechnik), Chemistry and Metallurgy (Abteilung für Chemie und Hüttenkunde), General (Abteilung für Allegemeine Wissenschaften). It was just in 1915 when the school was planned to be expanded with the Department of Construction and the Department of Mining. These plans were interrupted by the outbreak of the First World War. The fourth one - the Department of Construction - was established as late as in 1928[22].

The Great Economic Crisis initiated a combination of the University with the Technische Hochschule into one institution under the name of the University of Silesia. However, the total merger did not take place, only some institutes were common for both universities. Military actions undertaken in relation to the outbreak of the Second World War hindered further development of the university and its official closure took place in the second half of January 1945[23].

[21] "Technische Hochschule in Breslau. Festschrift zur Eroffnung 1 Oktober 1910", Breslau 1910.

[22] Maria Rochowicz, „Techische Hochschule. Dzieje budowy i styl", [in:] „Księga jubileuszowa 50-lecia Politechniki Wrocławskiej 1945-1995", pp. 69-76.

[23] "Festschriff der Technische Hochschule Breslau zur Feier ihres 25-jahringen Bestehens 1910-1935", Breslau 1935.

The Decree of 24 August 1945 on conversion of the University of Wrocław and the University of Technology into Polish academic schools established high schools in Wrocław. Under the above provision one high school - the University of Wrocław combined with the University of Technology in Wrocław with their joint authorities - was established. At the beginning the following six faculties were set up: Law and Administration, Humanities, Mathematics and Natural Sciences, Medicine with Pharmaceutical Unit, Veterinary Medicine, Agriculture with Horticultural Unit and four technical faculties: Chemistry, Mathematics and Electrical Engineering, Metallurgy and Mining. The first Polish lecture was held on 15 November 1945[24].
The division of the Wrocław universities started in 1949; however their final split took place in 1951. The University of Technology became an autonomous Higher Technical School. The following eight faculties were set up: Architecture, Land and Water (Civil) Engineering, Electrical Engineering, Mechanical Engineering, Sanitary Engineering (since 1990 - Environmental Protection), Aviation, Chemistry and Communications (since 1966 - transformed into Electronics) located at B. Prus Street (currently E-1 building) and in 1953 - Agricultural Mechanisation. Further in time the following faculties were established: Mechanical Engineering (1954), Mining (1968), Engineering and Economics (1968), Fundamental Problems of Technology (1968)[25].

Spatial development of the University of technology campuses

The High School obtained a land plot with its area of 3,4 ha in the north-eastern part of the city. In the south it bordered with Ufer Straße (S. Wyspiański Embankment), in the north - Borsing Straße (M. Smoluchowski Street) and in the west - Hansa Straße (C. K. Norwid Street). The land plot was divided by newly settled Heidenhain Straße (I. Łukasiewicz Street). The streets were named after the prominent scholars. In 1903 a grid of streets and building blocks were set up[26]. The design of the High School was developed in the Department of Construction at the Ministry of Public Works in Berlin (Figure 4). Some controversy emerged in terms of the validity of the streets. The Magistrate of Breslau considered Ufer Straße to be the main street with all the university buildings to be located nearby. Due to the irregular shape of the land plot, it was decided to build up the site from within Borsing Straße. An attempt was made to project the built-up area from within S. Wyspiański Embankment, however, the Department of Construction did not approve any of the projected proposals. The architectural concept was made by Georg Thür who has designed a complex of the University of Technology in Gdańsk. The execution of the project was commissioned to Ludwig Burgemeister. The supervision over the construction was entrusted to Hans Breisig, the governmental counsellor. The construction site was also attended by Gustav Oelsner and Carl Vogt, Frantz Nath, Conrad Nonn, Josef Maas (District Inspectors).

[24] Ryszard Czoch, „Stan budynków Technische Hochschule", [in:] „Księga jubileuszowa 50-lecia Politechniki Wrocławskiej 1945-1995", pp. 17-18
[25] Wspólnota z Uniwersytetem (1945-1951)", [in:] „Księga jubileuszowa 50-lecia Politechniki Wrocławskiej 1945-1995", pp. 141-150
[26] "Technische Hochschule in Breslau. Festschrift zur Eroffnung 1 Oktober 1910", Breslau 1910.

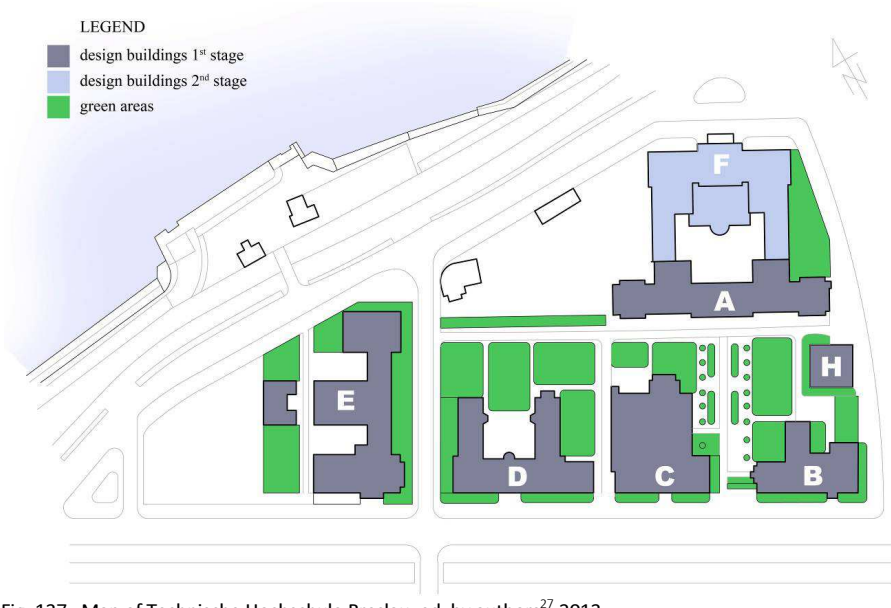


Fig. 137. Map of Technische Hochschule Breslau, ed. by authors[27] 2013.

Due to the bad financial situation, the construction of the university was limited to the implementation of the most relevant scientific background. The first stage included the construction of the main building (A) and the Institute of Electronics (B), the Laboratory of Machines (C) (Figure 5), the Institute of Chemistry (D) (Figure 6) and the Institute of Metallurgy (E) (Figure 7). All the buildings were located along Borsingstrasse (now M. Smoluchowski Street).

[27] Elaborated on basis of Techische Hochschule map, source: „Księga jubileuszowa 50-lecia Politechniki Wrocławskiej 1945-1995".

Fig. 138. A-4 building of former dawniej Machine Laboratory (C), now the Institute of Heat Engineering and Fluid Mechanics, phot. E. Pol 2013.

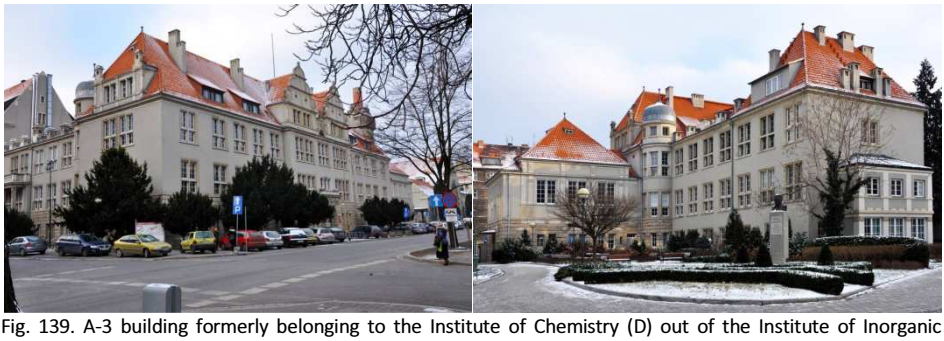


Fig. 139. A-3 building formerly belonging to the Institute of Chemistry (D) out of the Institute of Inorganic Chemistry and Metallurgy of Rare Elements, Physical and Theoretical Chemistry. A-view from the M. Smoluchowski street, b-view from the courtyard, phot. E. Pol 2013.

Fig. 140. B-1 building formerly belonging to the Institute of Metallurgy (E) from the S. Wyspiański shore, currently Institutes: Material Science and Applied Mechanics, Organization and Management, Inorganic Technology and Mineral Fertilizers, phot. E. Pol 2013.

The proposed projection of the main building was simplified to a square, all the other buildings were also modified. Many projected outbuildings were omitted, thereby leaving a simple form. On the other hand, the Machine Laboratory was enlarged twofold compared to the original project. Also a longer facade of the Institute of Electrical Engineering changed its location - it faced the north (and not - as it had been projected in the plan - towards the south). Also the Institute of Chemistry was modified through a reduction of its cubature. In turn, a completely new building design of the Institute of Metallurgy was made (initially it had been to become a part of the Institute of Chemistry). The building was located from within Heidenhain Straße (I. Łukasiewicz Street). Most of the buildings were completed in 1910, only the Institute of Metallurgy was completed in 1911.

The Technische Hochsule buildings were styled in German-Dutch renaissance in its Silesian variant. The built-up site was surrounded by green areas and its main entrances highlighted by forged bars made by Jaroslav Vonka. The First World War stopped planning to expand the main edifice designed by Ludwig Burgemeister[28].

After the end of the First World War a decision was made to extend the university campus (Figure 8). Numerous concepts on the extension of the university emerged under the framework of the city reconstruction. One of them was created by Max Berg, a well-know Wrocław architect (a designer of the Centenary Hall). However, the poor economic situation reduced these extension plans to minor investments. In 1924 the Collegium Musicum and music lectureship was set up and in 1925 - the Institute of

[28] Elaborated on basis of Techische Hochschule map, source: „Księga jubileuszowa 50-lecia Politechniki Wrocławskiej 1945-1995".

Metallurgy received a new rolling mill. In 1925 a decision was made to extend the main edifice from within Ufer Straße (S. Wyspiański Embankment) (F) (Figure 9) according to the design made by two architects: Max Schirmer and Heinrich Müller (known, among others, for urban projects presented at the WUWA exhibition in 1929). The expansion of the main edifice consisted in a combination of the existing building with a new southern block by means of two arched wings and its adaptation to a complex shape of the built-up quarter. The building was commissioned for use as soon as in 1928. A building of the New Chemistry (G) was the last investment prior to the outbreak of the Second World War (it started in 1938). Construction works were stopped by the war. Until that time the building was erected up to the ground floor. After the war, within 1948-1951, the Institute of Chemistry was further expanded by Tadeusz Broniewski[29].

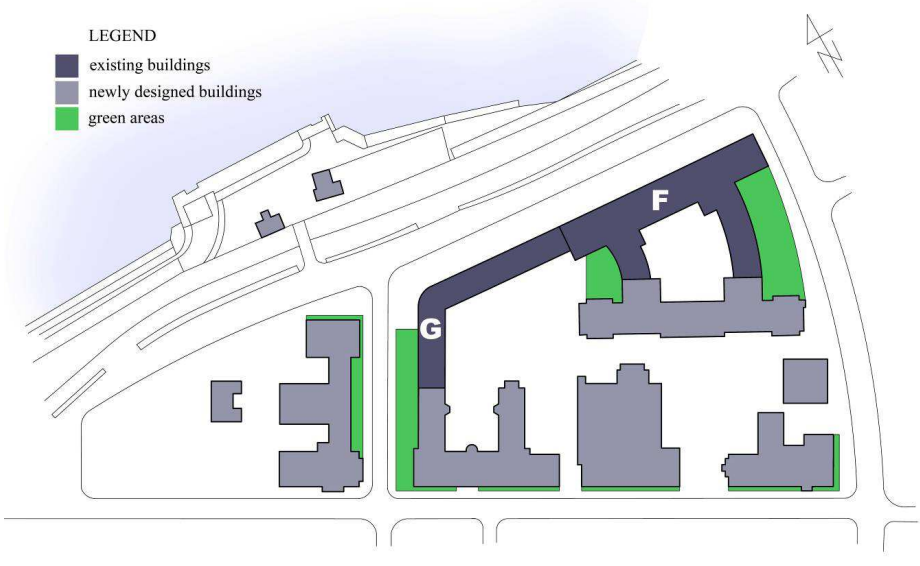


Fig. 141. Map of Techische Hochschule in second stage development, ed. by authors[30] 2013.

[29] Maria Rochowicz, „Techische Hochschule. Dziej budowy i styl", [in:] „Księga jubileuszowa 50-lecia Politechniki Wrocławskiej 1945-1995", pp. 69-76.

[30] Elaborated on basis of „Techische Hochschule, Dawna Królewska Wyższa Szkoła Techniczna, obecnie Politechnika Wrocławska, między ul. Cypriana Kamila Norwida/ Mariana Smoluchowskiego/ wybrzeżem Wyspiańskiego, [in:] „Atlas Architektury", vol. I, p. 155.

Fig. 142. Wing of the Main Building (A-1) from the C. K. Norwid street designed by Max Schimer and Heinrich Müller, phot. E. Pol 2013

An increasing number of students contributed to the erection (in 1928) of a students' house designed by Fritz Behrendt and Heinrich Knipping with its location by the Odra river. Siedlengsgesellschaft A.G. Breslau (Wroclaw Society Association Joint-stock Co.) was the investor.

The complex of the Technische Hochschule buildings was acquired by the Polish administration on 2 July 1945. The University of Technology acquired the following buildings occupied by the Technische Hochschule between M. Smoluchowski Street, I. Łukasiewicz Street and S. Wyspiański Street: the Main Edifice, the Laboratory of Machine Tools located from within C. K. Norwid Street (formerly the Institute of Electronics), the Institute of Electrical Engineering (formerly the Institute of Electric Engineering), the Laboratory of Machines, the Institute of Chemistry ("Old" Chemistry"), the Institute of Metallurgy and the unfinished building of the "New Chemistry"). In addition, the university obtained buildings belonging to the Baugewerk- und Höhere Maschinenbauschule at B. Prus Street.

The first post-war years saw repairs and adjustments of the buildings for an increasing number of students. The reconstruction and organisation of the acquired buildings was supervised by Dionizy Smoleński accompanied by members of the Academic Guards of the University of Technology, German workers and first University staff.

The first extension of the campus began in 1948-1949. The following were built: a building for the Department of Metal Processing located at the corner of M. Smoluchowski Street and I. Łukasiewicz Street (currently B-4 Building), a building for the Faculty of Mechanical Engineering (designed by arch. Andrzej Frydecki) by I.

Łukasiewicz Street (currently B-5 Building) (Figure 10) commissioned for use in 1952 and the started-before-war "New Chemistry" building (A2 Building)[31].

Fig. 143. Building B-5 built in the 1950s according to project of prof. arch. Andrzej Frydecki, phot. E. Pol 2013.

At the beginning of the 50s a project on undeveloped Grunwaldzki Square for 1960 was presented as a scientific centre consisting of the University of Technology, University of Wrocław and Higher Agricultural School and Medical Clinics. The expanded complex of the University of Technology was to be a part of the so-called Grunwald Axis designed by Marian Spychalski. The concept on land management of the University of Technology in the 50s was made by Andrzej Frydecki (Figure 11). 22 July 1950 saw a start of construction of twin buildings (currently D1 (Figure 12) and D2) for the Faculty of Electrical Engineering and Aviation (their design was made by prof. arch. Tadeusz Brzoza and prof. arch. Zbigniew Kupca, together with their team). The construction planned to be completed in 1953 was moved to early 1955. The built-up site was to be accompanied by green areas and a square at which the Monument of the Murdered Professors of Lvov designed by prof. Borys Michałowski was erected.

[31] Elaborated on basis of „Techische Hochschule, Dawna Królewska Wyższa Szkoła Techniczna, obecnie Politechnika Wrocławska, między ul. Cypriana Kamila Norwida/ Mariana Smoluchowskiego/ wybrzeżem Wyspiańskiego, [in:] „Atlas Architektury", vol. I, p. 155.

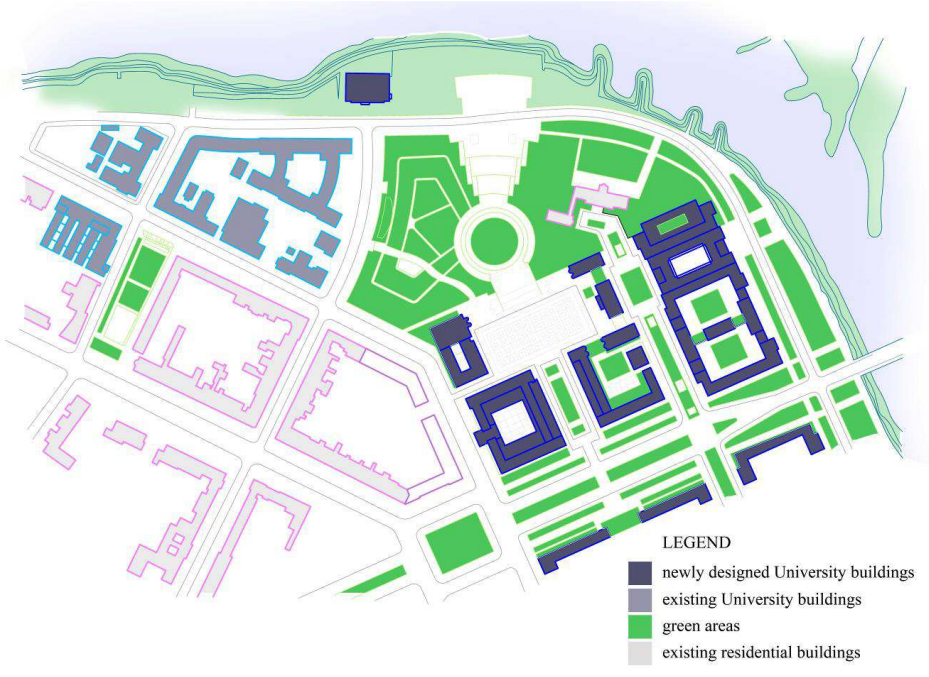


Fig. 144. Concept of University of Technology area plan for land use along the Grunwaldzka axis, ed. by authors [32] 2013.

Fig. 145. Building D-2, phot. E. Pol 2013.

[32] Elaborated on basis of plan for land use. Daniela Przyłęcka, „Nie od razu Wrocław Odbudowano. Plany zagospodarowania przestrzennego, koncepcje oraz projekty urbanistyczne i architektoniczne a ich realizacja w latach 1945-1989", Wrocław 2012, p. 92.

A significantly increasing number of students made it necessary to build dormitories for them. Within 1954-1956 a students' house at Ł. Górnicki Street (T-4 in 1954) and dormitories at Grunwaldzka Street (T-2 in 1955 and T-3 in 1956) were commissioned for use. These buildings is an adaptation of similar assumptions set up in Warsaw and designed by arch. I. Jankowski.

The 60s and 70s are a period of further expansion of the complex of the University of Technology buildings. Most of the newly-projected buildings were erected within the quarter formed by the following streets: Z. Janiszewski Street, C. K. Nowid Street and S. Wyspiański Embankment and the so-called Grunwald Axis. Prof. arch. Tadeusz Brzoza and arch. Krystyna and Marian Barscy were major designers of the new edifices. Apart from the mentioned built-up quarter, new buildings were also erected at Gdańska Street, J. Chełmiński Street and E. Wittig where the academic campus was set up. In mid-60s a development concept of Grunwaldzki Square proposed by Krystyna and Marian Barscy (to establish "Rondo" Inter-academic socio-cultural centre) emerged (however, it was not implemented)[33]. Within 1971-1975 all the required strengthening construction was made along the spatial management area of the main campus of the University of Technology developed in the 70s as designed by Krystyna and Marian Barscy. In the early 90s it was improved by prof. Marian Barski. The most important assumption of this project was to combine the twin buildings (D-1 and D-2) with the library.

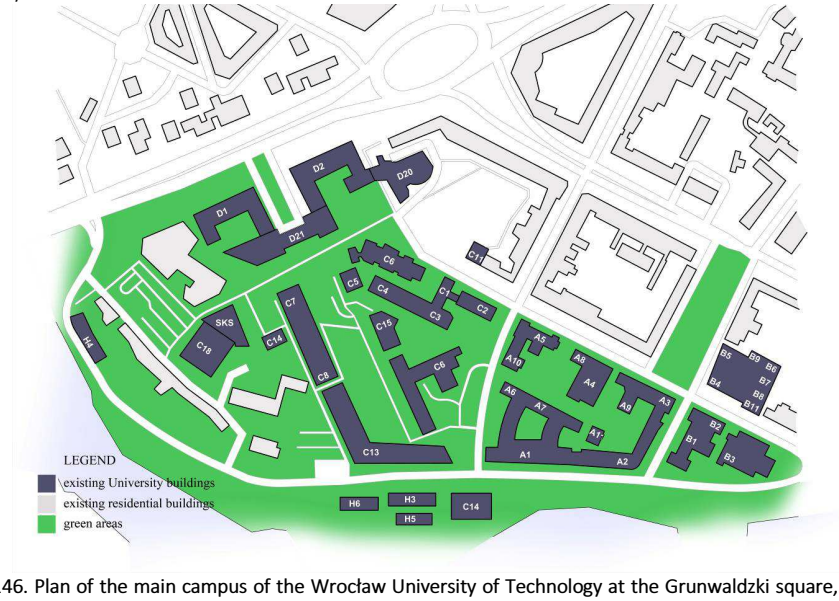


Fig. 146. Plan of the main campus of the Wrocław University of Technology at the Grunwaldzki square, ed. by authors 2013.

In 1964-1968 there was one building erected for the Faculty of Electronics (C-2) and one for the dean's office with two auditoriums (C-1, designed by Tadeusz Brzoza and Zbigniew Kupiec). The next one (C-3), designed by the same authors for the needs

[33] Daniela Przyłęcka, „Nie od razu Wrocław Odbudowano. Plany zagospodarowania przestrzennego, koncepcje oraz projekty urbanistyczne i architektoniczne a ich realizacja w latach 1945-1989", Wrocław 2012.

of the Institute of Technical Cybernetics, was commissioned for use in spring 1970 and its expansion was completed at the turn of 1971 and 1972. The Institute of Telecommunications and Acoustics obtained a new edifice (C-4) in 1971 and two year later the Institute of Chemical Engineering and Equipment Thermal acquired C-6 Building. 1969 saw a start of the construction of a new building for the Institute of Construction (C-7) and new office premises (C-8) designed by Krystyna and Marian Barscy which were completed as late as in spring 1980 (Figure 14).

Fig. 147. Buildings C-7 i C-8 (on left), C-5 (on right) and building of Electronics Library (in backyard), phot. E. Pol 2013.

C and D Buildings were supplemented with temporary one-storey buildings for the Institute of Mathematics (D-6), the Department of Projects and Designs (D-5) and the Department of Social Services (C-9). Apart from the construction of large-scale investments for the Faculty of Electrical Engineering, sporadically there were also low-standard, ready-made premises set up, for example barracks within the area belonging to the Faculty of Architecture at B. Prus Street (E-4, currently non-existent).

In 1972-1975 a building for the Institute of Electromechanical Systems (A-10, designed by Krystyna Barska and Rudolf Staniek) was erected from within C. K. Norwid Street altering the original layout. Then, further edifices for the Faculty of Mechanical Engineering (B-8 in 1971 designed by Maria Molicka and B-9 in 1978-1988) were erected from within M. Smoluchowski Street. At S. Wyspiański Embankment, new buildings for the Institute of Civil Engineering (H-3, 1970) and for Institutes of the Faculty of Chemistry (H-6, 1978) emerged.

Apart from the expansion of the main campus at Grunwaldzki Square, buildings were also erected in new locations. At Gdańska Street in 1970 a new edifice for the Institute of Chemistry and Technology of Petroleum and Coal was completed (F-1,F-2, F-3, F-4 was rebuilt) and in 1977 - a new office building (G-10 designed by R.

Jagoda and M. Grajewska) was commissioned for use. Then at J. Chełmiński Street in 1974-1977 there were a complex of sports premises for the Physical Education and Sport Centre (P-4 and P-2) and a building of the Institute of Electrical Power Engineering (P-20, 1974) built. New investments were made at Długa Street (M1 and M2 commissioned for use in 1971 and M-3, M-4 and M-5 completed in 1975). Then in 1978 a new campus was built at Kowalska Street (U-5 and U-6). Apart from the construction of its new edifices, the University of Technology acquired the existing buildings and adapted them for didactical purposes. These include: a 20th-century building at K. Szymanowski Street (S-5, owned by the University of Technology since 1971) and a tenement house at Teatralny Square (K-3, built around 1870, acquired in 1976).

Due to an increasing number of students, new areas at E. Wittig Street were allocated to build a students' campus. The first dormitory (T-15, designed by Leszek Zdek) was completed in 1974 and the remaining three ones were commissioned for use in subsequent years (T-16 in 1975, T-17 in 1976 and T-19 in 1981, all of them designed by Leszek Zdek) and the Assistant's Hotel (T18 in 1977).

In the 80s and 90s, above all, minor campuses at Kowalska Street were expanded (U-7 and U-8 in 1980, U-9, U-13, U-14 and U-15 in 1994, U-9, U-13, U-14, U-15 in 1997). At J. Chełmiński a new laboratory building for the Institute of Power Engineering (P-20, 1989) designed by Józef Woźniak was built. The University expanded its educational facilities with one more location at Bracia Gierymscy Square where in 1981 a new laboratory and didactic pavilion of the Institute of Construction and Operation of Machines (P-14 designed by Józef Korniak) was commissioned for use. Minor changes occur within the area of the main campus located at Grunwaldzki Square. At the beginning of the 90s a new building (C-5 designed by Tadeusz Brzoza) for the Faculty of Telecommunications and Acoustics at Zygmunta Janiszewski Street was completed. In 1997, the Institute of Mathematics obtained a new building (C-11 designed by Marta Kwolek-Januszkiewicz). The building was located at the site of an unrealised project made in 1978 (the works were stopped in 1983) for the Clinic of the University of Technology. At the end of the 90s the building in which the Centre of Foreign Languages has been seated (H-4, designed by Bogusław Wowrzeczka) was reconstructed. The initial adaptation project proposed by Tadeusz Szczerbak in 1989 was not implemented.

After 2000, the largest expansion took place within the main campus at Grunwaldzki Square. In addition, the University of Technology got expanded at areas located at the other part of the Odra river (Na Grobli Street). In order to link the two areas, a cable car (so-called "Polinka") was set up at both sides of the Odra river (Figure 15).

Fig. 148. Cable car 'Polinka' combining Main Campus and Geocentrum Educational-Research Unit Na Grobli street, phot E. Pol 2013.

All the investments were implemented in accordance with the concept of urban and architectural spatial development of the central campus of the University of Technology (created in the 70s) within Z. Janiszewski Street, C. K. Norwid Street, S. Wyspiański Embankment, J. M. Hoene - Wroński Street and Grunwaldzki Square. The acquisition of funds from the European Union for the development of technical infrastructure made a significant impact on such extensive expansion.

A building of the Wrocław Technology Transfer (B-11, 2000, designed by Paweł Osielski) was one of the first designs created in the period of time. A new edifice of the Faculty of Mechanical Engineering and the Faculty of Computer Science and Management (B-4, 2004, designed by Andrzej Mikuła, Urszula Wiśniewska, Jacek K. Wiśniewski) was the next one. The Scientific and Research Centre of the Faculty of Electrical Engineering (D-20, designed by Ewa Frankiewicz, Adam Winiarski) was commissioned for use one year later. The Integrated Students' Centre (C-13, designed by Bogusław Wowrzeczka) (Figure 16) was opened in 2007. In the same year the renovation of H-3 Building (designed by Bogusław Wowrzeczka) was completed. In 2009 a building projected for the Research Back-Office Centre (C-15, designed by Andrzej Ilow) linked with C3 and C4 Buildings was commissioned for use. In recent years the following were commissioned for use: the Students' Cultural Area (C-18, November 2013) (Figure 17), the GeoCentrum Educational-Research Complex at Na Grobli Street (L-1, December 2012, designed by APA Kuryłowicz & Associates (Figure 18) and the BIBLIOTECH - Community Library of Sciences and Technologies (D-21, June 2013) (Figure 19). The TECHNOLOPOLIS - Centre for Advanced Studies in Information and Communication Technologies has still been under construction (the construction began in 2010).

Fig. 149. Student Culture Zone (C-18), phot E. Pol 2013.


Fig. 150. Building of Students' Integrated Center (C-13), phot E. Pol 2013.

Fig. 151. Geocentrum Educational-Research unit in Na Grobli street (L-1), phot E. Pol 2013.

Fig. 152. Building of Library of Science and Technology 'BIBLIOTECH' (D-21), phot E. Pol 2013.

Apart from the investments within the main campus, the expansion also covered the complex of buildings at Długa Street where in 2008 the MikroNano Laboratory of the Faculty of Micro-system and Photonic Electronics (M-6) was commissioned for use. Also, the complex of buildings at B. Prus Street obtained a new edifice (E-5) derived from the early 20th century.

Currently there have been ongoing renovation works consisting in the adaptation of the existing buildings for new needs. The following are reconstructed: H-4 Building for scientific, administrative and cultural objectives together with B-1 and B-2 Buildings (designed by Archikon) with their planned date of completion in 2014.

Summary

In spatial terms, public schools, especially the oldest ones, concentrate their seats in the city centre and inner-city area. The university premises are located more or less at compact campuses. Basically three periods of development of the university premises in Wrocław can be distinguished:

The first one refers to years to 1945 covering premises which were projected for the universities from their beginning or were passed to them for educational purposes just after 1945. The most important premises designed for the universities can include the main edifices of the University of Wrocław and the University of Technology. Among the most important premises which had been originally intended for other purposes but used after the war by the universities, the following should be mentioned: all the buildings within the main campuses of the University of Environmental and Life Sciences, the Medical University, the University of Economics, the Academy of Music and the modernistic premises of the Olympic Stadium used by the Academy of Physical Education.

The second period refers to years from 1945 to 1990 when - after the war damages - the city recovered (together with its universities). A lot of completely new premises belonging to the University of Wrocław and the University of Technology were built at that time. For example: a complex of socrealistic and modernistic premises at Grunwaldzki Square, at F. Juliot-Curie Embankment, sports centre and students' dormitories. New campuses away from the Old Town were set up. For example the university premises at Biskupin or the academic clinical hospital at Borowska Street.

The third period refers to years from 1990 to 2004 when, as a result of the political changes, the organisation of the universities changed. There were no major investments in their infrastructure. The proprietary and structural transformations, especially at military areas, opened new prospects for the Wrocław high schools (e. g. the campus of the Wrocław University at P. Czajkowski).

The fourth period begins with the accession of Poland to the European Union in 2004. This is the beginning of numerous new projects co-financed from EU funds. The Universities and other public institutions have acquired funds for their implementation. The dynamic development of new premises and the modernisation of the existing ones can have been observed. Renovations have been made to the historic main edifices of the Wrocław University, the University of Technology, the University of Environmental and Life Sciences with their campuses extended. There are also new campuses set up (for example the GeoCentrum of the University of Technology or New Faculty of Pharmacy of the Medical University). Some old premises have been disposed of by the universities. New units related to new technologies, new research centres and intercollegiate projects have been set up. New premises have been localised beyond

the city centre. A demand for conference facilities has been growing nowadays; thus they have been set up in recent years.

Till 1990 most of the university premises and campuses got concentrated in the Old Town and the Inner-City within the main public spaces of Wrocław. Since 2004 together with the development of their facilities, establishment of new premises and fulfilment of space requirements, the main edifices and the most interesting architectural objects have gained prestige and begun to meet administrative and representative purposes. The development and modernisation of the university facilities were accompanied by road and infrastructural investments which - apart from their engineering aspects - had a significant role in the quality improvement of public spaces of the University district and the Wrocław Old Town. Although, the new premises located away from the city centre and the development of the old premises in the Inner-City forced the authorities to develop urban infrastructure, it should be remembered that Wrocław - under its strategy - puts a significant emphasis on image-related issues connected not only with the brand of the high schools but also with the aesthetics of the university edifices and the quality of their surroundings. On one hand, the development of the universities led to the re-organisation of roads and transport systems, among others, reconstruction of the bypass and access to the academic hospital at Borowska Street; on the other hand, these investments were planned many years earlier; thus they are an expression of conscious formation of public space. The consistent densification of the academic district and Biskupin with educational premises has raised the rank of the places, providing them with opportunities and potential for the emergence of, for example, the Grunwald Shopping Centre (Pasaż Grunwaldzki) and the intensive development of this space together with transport and transit needs of the city forced the reconstruction of the whole Grunwald Axis[34].

Some of the university premises in Wrocław are of particular importance for its urban landscape (especially these seen from within the river). The following undoubtedly belong to them: edifices of the University of Wrocław and the University of Technology located by the Odra river, buildings of the Pontifical Theological Faculty at the Ostrów Tumski (former Cathedral Island) together with a complex of buildings at F. Juliot-Curie Embankment, the GeoCentrum and Centre of Basic Education at the University of Technology.

The formed concept of undeveloped Grunwaldzki Square in the 50s by Marian Spychalski depicts these areas as the main academic centre located along the so-called Grunwald Axis. Currently the main campuses of the largest high schools in Wrocław such as the University of Technology, the University of Environmental and Life Sciences, the University of Wrocław and the Medical University named after the Silesian Piasts are situated there.

An increase in the number of students and the university development necessitated the construction of new facilities. They are mostly located in empty spaces within the existing campuses. The newly established premises of the University of Technology have been built in accordance with the concept on land management

[34] New conditions forced a change in the approach to the planning of the city, its infrastructure and image, compare E. Przesmycka, „Lublin 2020 - wizje rozwojowe", eds. M. Bałtowski, M. Bielecka-Hołda, Lublin 2009, pp. 96-98.

provided by prof. arch. Andrzej Frydecki in the 50s. Apart from the construction of new premises, also historical ones are modernised and refurbished, adapting them to the modern requirements and at the same time ensuring the quality of space. Nowadays Grunwaldzki Square has been the largest academic centre which plays an important role in urban planning and culture Wroclaw.

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