

Some remarks on the birth of modern city planning in the Polish territories (1850 – 1914): the impact of the hygienic movement

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In the article the attention is paid to one of the scientific fields which contributed to the mature discipline of urban planning in the Polish territories. Theoreticians (and practitioners as well) of public hygiene were much aware of the urban problems, which were conspicuous especially in the cities of the so called Russian Poland, misruled in many respects by the Tsarist authorities. More and more detailed proposals and instructions how to improve the sanitary condition in e.g. Warsaw, Lviv, Cracow and Poznan, cities belonging to Russian, Austria-Hungary and Germany at that time, made by physicians and sanitary engineers, paved the way to a new scientific field in its own right. Some conclusions made in these public debates were later adopted by other professionals who dealt with the urban spatial development (like urban planners), what helped to establish the Polish school of urban planning after 1916.

Key words: Cities in the 19th century. Polish territories. Urban planning. Hygienic movement. Urban sanitation.

The aim of this article is to examine one of the scientific disciplines which contributed to the birth of mature urban planning in the Polish territories. Although it is widely thought that the real start of Polish urban planning began around 1916, or later, after Poland regained its independence in 1918, the fact is that it did not start from scratch. A few academic fields of study, most of which emerged during the nineteenth century, contributed to the creation of the discipline in question. It is also very interesting that each of these disciplines, among which we can enumerate public hygiene (as part of medicine), architecture, preservation of monuments, economy, law and sociology, looked at urban issues from different points of view and used different scientific tools and vocabulary. The results of this activity, and the conclusions presented in the books and papers of engineers and academics, proponents of the mentioned fields of study, were included in the mature discipline of urban planning, widening its scope of interest, as well as its demands and proposals. Furthermore, I argue that, as in many other fields, there was no clear moment of birth of the Polish urban planning discipline, but only an incremental path of evolution of the disciplines mentioned above. The relatively late consolidation of these fields into concrete Polish city planning, which took place somewhere around the beginning of the twentieth century, resulted in its modernity, owing to the fact that the academic branches which contributed to it were already well developed.¹

This is too huge an issue for one paper, so I will deal in detail here with only one of these disciplines, the hygienic movement. It was of particular importance in the Polish

¹ This situation was different from the German 'urban sciences', which reached a much higher level of complication and development already in the second half of the nineteenth century. The mature art of planning cities was perfected at that time by several schools, most notably by Reinhard Baumeister, by Joseph Stübgen, and by Camillo Sitte and their followers. These schools were concentrated on certain aspects of city planning, e.g. aesthetics, or urban communication and economics, and were therefore less universal in scope.

territories in the nineteenth century because of their political situation and division into three political organisms, Russia, Austria (later Austria-Hungary) and Germany.

The region that was the most developed economically and industrially, the so-called Polish Kingdom under Russian rule, was politically underdeveloped at that time because of the Tsarist unification policy, conducted after 1864 (partially as early as 1831). One of the tools used by that policy was the cancelling of Polish institutions of self-government and changing the schooling system, which resulted in a diminished role for public institutions in solving rising urban problems, and, as a consequence, in the need for public activity on the part of social activists outside the 'official' system. Nevertheless the industrial development of some regions (mainly the Dąbrowa coal basin and the Łódź textile basin) led to a swift rise in population of some cities. Warsaw, the main administrative, transport and industrial hub rose from ca. 200.000 in the early 1860s to as many as ca. 900.000 in 1914. Łódź reached about 500.000 starting from a small town in the 1820s. Sosnowice, later Sosnowiec, in the Dąbrowa basin, grew from a village to the level of 50.000 inhabitants at the beginning of the twentieth century and it was granted a formal urban status only in 1902.²

The hygienic movement in Galicia, the Austrian part of the dismantled Polish Commonwealth, was also crucial, as the sanitary condition of cities and towns there was pitiful. The region was underdeveloped economically, so the urban problems were a bit different in Galicia, given that there were no truly huge cities (or metropolises), with only Cracow and Lviv reaching a population greater than 100,000 inhabitants before 1914.³ That is why the hygienic movement there developed slightly later than in the Kingdom, and it was less dynamic. But the more favourable political climate in Galicia (the political autonomy and the existence of municipal self-government) contributed to its leading role as a place of inter-partition conventions and exhibitions, along with its role in developing and perfecting legislation concerning urban issues.

Finally, the German partition (formally called the Great Duchy of Posen, later the Province of Posen, with the city of Posen/Poznan as its capital) was in a different and difficult situation, in light of the fact that there were no universities in the region and officialdom was formed mainly by Germans. There was a grass roots movement in Polish society concerning, among other things, the development of science (with the help of the Poznań Society of Friends of Learning, established in 1857), but there was no noticeable contribution to the field of city planning in Poznan. All the urban spatial plans were prepared by German planners, as e.g. Joseph Stübben himself. Poznan (German Posen) reached a similar size as Cracow before 1914, i.e. more than 150.000. The second city, Bydgoszcz (German Bromberg) was considerably less populated (ca 57.000 in 1910).⁴

I have taken into account, as sources, mainly the professional technical press, which was made up mainly of journals put out by hygienic societies and institutions, such as *Przyjaciel Zdrowia* (Health's Friend) and *Zdrowie* (Health) in Warsaw; *Przegląd Higieniczny*

2 KOŁODZIEJCZYK, Ryszard. Procesy urbanizacyjne w Królestwie Polskim po 1864 roku. In: KOŁODZIEJCZYK, Ryszard. *Miasta, mieszczaństwo, burżuazja w Polsce w XIX w. Szkice i rozprawy historyczne*. Warszawa : Państwowe Wydawnictwo Naukowe, 1979, p. 74.

3 Regarding the industrial condition of Galician cities and their provincial character see: BRONSKI, Krzysztof. *Rozwój gospodarczy większych miast galicyjskich w okresie autonomii*. Kraków : Wydawn. Akademii Ekonomicznej w Krakowie, 2003, p. 100.

4 ŁUCZAK, Czesław. *Dzieje gospodarcze Wielkopolski w okresie zaborów (1815 – 1918)*. Poznań : PSO, 2001, p. 42.

(Hygienic Review) in Lviv; and *Przewodnik Higieniczny* (Hygienic Guide) in Cracow. An inquiry into the content of technical journals, where hygienists published many papers, was also fruitful. It encompassed mainly *Przegląd Techniczny* (Technical Review), *Inżynieria i Budownictwo* (Engineering and Building Craft) and *Gazeta Przemysłowo-Rzemieślnicza* (Industrial and Craftsmanship Journal) in Warsaw, along with *Czasopismo Techniczne* (Technical Journal) in Lviv. An important part of the sources were books written by theoreticians, as well as professional practitioners.

In this article I will focus on the hygienic way of perceiving the city and its problems, and looking for the solutions. I will not focus on the details of the actual hygienic condition of the cities in the Polish territories (described already in the literature), but rather on the discourse pertaining to it, though I realize of course, that the need for reform was one of the conclusions drawn from the observation of the cities themselves and from the analysis of the statistical data.

There is – of course – a large body of literature concerning public health movement in Europe and I will refer only to few examples. The problem in question was more or less dealt with in the majority of books about urban planning and urbanization. An exhaustive study of 'urban services', including hygienic facilities, as well as a thorough overview of the literature can be found in the book by Marjatta Hietala.⁵ Brian Ladd in his book on German urban planning mentions the problems of public health, especially the challenge that this issue presented to the urban authorities' autonomy, and the profitability of sanitary facilities.⁶ The activity of Edwin Chadwick in Britain was subject of scrutiny;⁷ the 'classic' positivistic view of his legacy was later challenged by the study of Christopher Hamlin, proposing new premises of Chadwick's way of thinking.⁸ Finally, an extensive review of different ways people in Europe and the U.S. viewed large cities (i.e. also their hygienic conditions) in the period in question was presented in the book of Andrew Lees.⁹

Let me now focus on the beginnings of the hygienic way of thinking. The hygienists (and also sanitary engineers, who appeared in the cities at that time), as other academics concerned with the issue of cities, had their own, specific point of view. They viewed some aspects related to cities as crucial, whereas others could be ignored. And whereas in the case of individual people the priority was to preserve health, in case of cities it was to cleanse public and private space and to get rid of all dangerous 'matter'. There were many examples of using medical vocabulary to describe cities in the past. Referring to Richard Dennis, the system of urban communication could be likened to

5 A book based on the German, and to a lesser extent Nordic, sources: HIETALA, Marjatta. *Services and Urbanization at the Turn of the Century. The Diffusion of Innovations*. Helsinki : Suomen historiallinen seura, 1987, pp. 188-220.

6 LADD, Brian. *Urban Planning and Civic Order in Germany, 1860 – 1914*. Cambridge, Ma.; London : Harvard University Press, 1990, pp. 36-76. The German hygienic movement was described in: ARTELT, Walter – HEISCHKEL, Edith – MANN, Gunter (Eds.). *Städte-, Wohnungs- und Kleidungshygiene des 19. Jahrhunderts in Deutschland*. Stuttgart : Ferdinand Enke Verlag, 1969, 134 p.

7 E.g. FINER, Samuel Edward. *The Life and Times of Sir Edwin Chadwick*. London : Methuen, 1952, 555 p.

8 HAMLIN, Christopher. *Public Health and Social Justice in the Age of Chadwick: Britain 1800 – 1854*. Cambridge; New York : Cambridge University Press, 1998, 380 p.

9 LEES, Andrew. *Cities Perceived : Urban Society in European and American Thought, 1820 – 1940*. New York : Manchester University Press, 1985, 360 p.

the circulation of blood, and the streets to veinlets.¹⁰ The need for untamed circulation applied to bodies, as well as to streets, but it could also pertain to the circulation of air. That is why the urge for wide, paved streets emerged already in the eighteenth century. But these simple dogmas gained new scientific explanation and argumentation in the following century.

Hygiene was a part of medicine, which developed nicely in the eighteenth and nineteenth centuries.¹¹ It was possible because the human body began to be considered not as an abstract part of the cosmos, but as a separate 'machine', whose functioning could be improved and defended against diseases by medical knowledge.¹² The steadily growing consciousness of the social grounds affecting the quality of public health gave way to demands for an active role of the state. Public hygiene was created¹³ and it 'grew' into a kind of philosophy, or a new way of thinking, about everyday life issues. It affected the way people viewed such issues as washing the body and keeping furniture clean, providing fresh and clean water, disposal of waste etc. These social tasks gained new meaning in the age of bacteriological 'revolution'. The role of physicians was deemed important for the society as a whole:

The physician is an adviser to the individual. But he may become, one day, quite an important leader of a society which reforms itself, because public health, broadly considered, encompasses almost every area of life.¹⁴

This aspect of hygiene was already present at the time of the Enlightenment, when a proposal for a hygienic police force was made by Johann Peter Frank in Austria, with coercion as a tool for forcing people to change some of their habits. The nineteenth century saw an evolution in the argumentation and scope of interest, which can be noticed, for instance, in hygienic periodicals. Incrementally, the focus on single diseases, which prevailed in such journals devoted to human health as *Dziennik Zdrowia dla Wszystkich Stanów* (Health Journal for All Estates, 1801–1802), developed into the scientific examination of whole populations, its death rates and diseases, which were considered social problems. As one of the editors clearly viewed it, hygiene taught people how to live and what to do or not to do, whereas social hygiene looked directly at the existing situation and advised how to deal with problems.¹⁵ The first can be described as personal hygiene and the latter – as the public health issue. Taking advantage of the progress in statistical sciences, municipal physicians began to collect data from cities, so that an overall diagnosis could be worked out. In the 1860s the discipline of public hygiene was already present; indeed it was the title of one of the sections in *Przyjaciel Zdrowia*. *Medycyna* had its own section on hygiene in general and on public medicine. Later on, in *Zdrowie*, we can already find sections devoted to the specific Hygiene of Cities and Flats Department within the Warsaw Hygienic Society.

10 DENNIS, Richard. *Cities in modernity: Representations and Productions of Metropolitan Space, 1840 – 1930*. Cambridge; New York: Cambridge University Press, 2008, p. 39.

11 In the Polish literature cf. SZUMOWSKI, Władysław. *Historia medycyny filozoficznie ujęta*. Warszawa: Wydawnictwo Marek Derewiecki, 1994, 680 p.; first published in 1935.

12 An outline of the changing human attitude towards health cf. VIGARELLO, Georges. *Histoire des pratiques de santé: le sain et le malsain depuis le Moyen Age*. Paris: Seuil, 1999, 390 p.

13 FLEMING, Dagmara. *Warszawianka w kąpeli: Problem higieny w warszawskiej prasie kobiecej lat 1860 – 1918*. Warszawa: Neriton, 2008, p. 16.

14 JAROSZYŃSKI, Tadeusz. Cel i zadania higieny społecznej. In: *Zdrowie*, 1909, no. 9, p. 573. All the translations from Polish are done by the author of this article.

15 JAROSZYŃSKI, T. *Cel i zadania higieny...*, p. 570.

Finally, after the 'liberal period' in the hygienist movement (which was characterised by a weakness of law enforcement methods pertaining to public hygiene), hygienists at the beginning of the twentieth century in the Polish territories began voicing anew the need for social coercion to reform the city, though this time they had at their disposal new systems of urban infrastructure which functioned partly independently from the human activity.

Before we can go on to describe the activity of hygienic reformers, we should delve into the urban reality of the Polish Kingdom of that time. Urban centres there were underdeveloped owing to their particular situation in the sixteenth-eighteenth centuries. The population of towns and cities was hindered economically by the triumphant Polish nobles (and especially the magnates), and the condition of cities, often thriving during the Middle Ages, deteriorated in subsequent centuries.¹⁶ The sanitary realities were so alarming (even for early modern eyes and noses), that some sort of solution had to be found. In the mid-eighteenth century so called 'Good Order' committees tried to pave and light the streets of larger urban centres, but it was still not sufficient. Cities were subject to reform and restructuring, starting from the partitions (after 1795). Prussians and Austrians began with introducing order into the urban space (dismantling of ruins, widening the streets, relocating cemeteries from the centre to the outskirts etc.). A new wave of regulations in the Polish Kingdom after the Vienna Congress of 1815 affected the appearance of the central parts of cities, but as late as the beginning of the twentieth century, secondary streets and districts surrounding urban cores still could be unhygienic by whatever standard we might apply.¹⁷ The main problem here was the poor hygienic consciousness and bad habits of the urban population, which could be viewed as a distant consequence of weak urban development in modern times. It was all the more striking when one looked at smaller towns in 1903, as a journalist from *Zdrowie* did, who:

...went in a carriage, bumping on the road like a dancer, [to the town of Belżyce], and had to halt breathing at the gates. Anyone here is astonished by figures of young men squatting by the fence; by a Jewish woman pouring out barrels, of different content, directly onto the street; by stinking puddles on unpaved streets, with no possibility of floating away, or seeping into the soil, and by wells and old cottages located in such an environment.¹⁸

A dirty stallholder and a Jewish butcher wearing a fat-filled coat, handling meat in an unhygienic manner, completed that picture. That was the reality of many towns in the Kingdom, and that was exactly what drove socially sensitive physicians to become activists.

This drive can be illustrated by the life of such members of the intelligentsia as Dr. Józef Polak. Having experienced life among poor inhabitants of a small town, bringing modern knowledge to a backward population and local physicians, and struggling for

16 JEWUŁA, Łukasz. *Galicyjskie miasta i miasteczka oraz ich mieszkańcy w latach 1772 – 1848*. Kraków : Historia Iagellonica, 2013, p. 13.

17 Like the streets inhabited by poorer populations in such a relatively large city as Radom, cf. PRZYCHODZKI, Jan. Uwagi o stanie sanitarnym m. Radomia i o potrzebie reorganizacji komisji sanitarno-wykonawczych w naszych miastach gubernialnych. In: *Zdrowie*, 1904, no. 9, p. 767.

18 KLARNER, Szymon. W sprawie najpilniejszych potrzeb mniejszych miast pod względem sanitarnym. In: *Zdrowie*, 1903, no. 6-7, p. 524.

a better paid job,¹⁹ he finally left for the capital, where – though experiencing relative impoverishment – he started an engaged and fruitful activity. This situation resembled the case of many physicians born around mid-century; luckily Polak avoided the fate of many, who either perished among the people of the province, or who succeeded in making a financial career, losing however social sensitivity and the sense of mission. A younger peer of Dr Polak, the Jewish physician Henryk Goldszmit, better known under the pseudonym Janusz Korczak, left his rich parental home to live among the poor and experience for himself how the living conditions of the wooden sheds in the courtyards of a peripheral Warsaw district affected the fate of workers, and especially their offspring.²⁰ This social type was mirrored in belle-lettres, in the works of e.g. Stefan Żeromski. This late-nineteenth-century writer created a famous character, Dr. Tomasz Judym, a physician-turned social reformer, whose reaction to the poor living conditions of the village and mining town residents was acute anger and decided objection.²¹

Returning to Dr. Polak: after publishing many scientific papers and making a few foreign trips, he became a social reformer and founder of the periodical *Zdrowie* (Health) in 1885. It was not the first attempt to popularize hygiene in the country, indeed it became a scientific journal appealing mainly to the intellectual elite, though it had a broad scope. With the decision to invite other professionals, such as technicians, engineers, statisticians and architects, to collaborate,²² the journal became also an organ of reforming cities and survived until 1939. Articles were published in the journal concerning not only individual hygiene, but also public hygiene. Many of them dealt with the hygiene of certain spaces, including flats, where the new bacteriological paradigm found its expression,²³ but also schools and other municipal buildings. Hygienic problems were also viewed on a macroscale, from the perspective of the whole city.

The world view of hygienists and their solutions proposed to improve the urban sanitation evolved throughout the period in question. One can get an indication of a shift in perspective by looking at the issue of urban filth. Until the second half of the century experts tended to regard everything that disturbed the senses as dangerous;²⁴ one might describe this as a naturalistic approach to public hygiene.²⁵ A new way of thinking and perceiving the environment began to take shape before 1850. That approach,

19 DEMEL, Maciej. *W służbie Hygei i Syreny: Życie i dzieło dr Józefa Polaka*. Warszawa: Państwowy Zakład Wydawnictw Lekarskich, 1970, pp. 24-29.

20 He later described his impressions in: KORCZAK, Janusz. *Dziecko salonu*. In: *Wybór pism*, 1957, vol. 1, p. 137.

21 Cf. ŻEROMSKI, Stefan. *Ludzie bezdomni*. Lublin: Wydawnictwo Lubelskie, 1980, p. 270. See also: JANASZEK-IVANIČKOVÁ, Halina. *Świat jako zadanie inteligencji: Studium o Stefanie Żeromskim*. Warszawa: Państwowy Instytut Wydawniczy, 1971, p. 111.

22 DEMEL, M. *W służbie Hygei i Syreny...*, p. 63.

23 Which is the topic of my article: ŁUPIENKO, Aleksander. *Przełom higieniczny w projektowaniu mieszkań w Warszawie w 2 poł. XIX wieku*. In: KORPALSKA, Walentyna – ŚLUSARCZYK, Wojciech (Eds.). *Czystość i brud. Higiena w XIX wieku. Wokół przełomu bakteriologicznego*. Bydgoszcz: Collegium Medicum im. Ludwika Rydygiera, 2016, pp. 81-94.

24 The entire evolution in tolerance towards smell was dealt with in the famous book of Alain Corbin: CORBIN, Alain. *Le miasme et la jonquille: L'odorat et l'imaginaire social XVIIIe-XIXe siècles*. Paris: Aubier Montaigne, 1982, 334 p. Cf. also: FLEMING, D. *Warszawianka...*, pp. 51-52.

25 An example of this attitude can still be found in the work of sanitary reformer Stanisław Ratyński, who proposed an early project for a sewer system for Warsaw in 1853, though such factors as economy and convenience also played a part in his book. RATYŃSKI, Stanisław. *O kanalizacji miast a w szczególności Warszawy*. In: *Biblioteka Warszawska*, 1853, vol. 3, pp. 124-148.

a scientific one, tended to evaluate the ground, the water and later the air, based on laboratory tests and chemical analysis. These two approaches overlapped in the mid-century, and later on the scientific approach became dominant. The latter approach itself evolved over time, as the so-called miasmatic theory of Max Pettenkofer²⁶ and others gave way to the bacteriological approach, created by Robert Koch, who based his approach on the hypotheses of Louis Pasteur. So naturalistic approach began to fade and the real cause of urban dangers turned out to be invisible to the human eye. Of course, this evolution was gradual, and people had already been aware before, to some extent, of the existence of certain 'organic embryos' in biological waste.²⁷

The theoretical work of Pettenkofer was crucial for the development of public cleanliness. In his view, the soil was deemed responsible for human diseases, as it absorbed urban pollution and 'transferred' harmful substances into the water and air. There was no means to defend against such a threat; these substances could pass through walls, pipes and water syphons. They had to be removed as soon as possible. This theory contributed to a larger change in the way urban activists conceived of the proper way the city should function. Cities were generally viewed positively by hygienists, as places where people could be educated more easily. They nevertheless posed a huge danger, if the urban 'system of circulation' was to be obstructed. If the filth, waste, or rubbish was to be stored for longer time 'inside' the system, that could result in polluting the soil and thus cause disaster. The discoveries of bacteria responsible for cholera and tuberculosis (1882–1884), made by Koch, further strengthened the contemporary fear of filth, which gained a more expressive form of a dangerous 'microbe'. The need for instant removal of all possibly polluted matter was now obvious.²⁸ That need affected the way urban problems were dealt with in Warsaw.

Warsaw was by far the largest city of the region at that time and the whole hygienic movement was the most dynamic there. It is instructive to turn back to the 1860s: in 1862 a significant book and a milestone in urban thought was published by Karol Gregorowicz: *Warsaw in its Topographical, Hygienic and Geological Respect* (Warszawa pod względem topograficznym, higienicznym i geologicznym).²⁹ This was a thoroughly conceived and vividly written elaboration about the actual situation in Warsaw, with maps indicating hygienic characteristics of all the urban plots. Attention was drawn to the quality of yards, wells and waste storage (measured on a three-level scale) in each urban parcel. This book helped intellectual elites realize the catastrophic hygienic situation of the city, with many centrally located parcels hardly able to sustain inhabitants. It was especially striking, given that the former 'hygienic' description of Warsaw (1830), written by the physician Dr. August Wolff, considered Warsaw generally a healthy city (which could be ascribed to the activity of the local government after 1815).³⁰ The hygienic aspect of the analysis was coupled with its geological context,

26 Cf. RATH, Gernot. Die Hygiene der Stadt im 19. Jahrhundert. In: *Städte-, Wohnungs- und Kleidungshygiene des 19. Jahrhunderts in Deutschland*. Stuttgart: Ferdinand Enke Verlag, 1969, p. 77.

27 Cf.: Dezynfekcja. In: *Gazeta Przemysłowo-Rzemieślnicza*, 1875 (February 8th (20th)), no. 8, p. 61.

28 *Medycyna*, 1883 (August 13rd (25th)), vol. 11, no. 34, p. 568.

29 GREGOROWICZ, Karol. *Warszawa pod względem topograficznym, higienicznym i geologicznym*. Warsaw: Karol Gregorowicz, 1862, 82 p.

30 WOLFF, August. Rys topografii medycznej miasta Warszawy. In: *Roczniki Towarzystwa Warszawskiego Przyjaciół Nauk*, 1830, vol. 21, pp. 268-296; particularly 271-272 and 288.

as the author followed the theories of Max Pettenkofer relating to the crucial role of soil quality under the habitable urban plots.

With the rise of the city on an unprecedented scale, and the chaos in urban planning (which was due to the fact that the important institutions controlling that matter were abolished after the defeated national uprising against Russia in 1863–1864), Warsaw began to raise concerns in the eyes of some social reformers. The sheer size of the city made it necessary to solve the problem of urban water, waste and rubbish. The water problem was the most obvious, as its quality raised concerns well before the nineteenth century. Primitive aqueducts could be replaced by modern waterworks after the steam engine was introduced. A plan from 1836 of Peter (Piotr) Steinkeller, a businessman, to build such a system in Warsaw³¹ preceded by almost 20 years the first actually executed plan. The same pertained to Cracow and Lviv, where debates on these issues and demands to import clean water into the city were published in the early 1880s,³² i.e. two decades before modern waterworks were created. Meanwhile new discoveries in bacteriology made the issue all the more crucial, as unhealthy water turned out to be the main reason of cholera epidemics, though that truth was long denied by the proponents of miasmatic theory, like Pettenkofer himself.³³ Water proposed for any city was subject to laboratory research conducted by hydrologists (like the famous Odo Bujwid³⁴ in Cracow). The most important factors in the decision-making process was the efficiency of the springs and the chemical content of the water. In Warsaw the system had to be based on filtering the river water, while in Cracow and Lviv it was possible to introduce water from springs located not so far from the city (though in Cracow the more ambitious plan³⁵ was finally replaced by an idea to draw deep water from a spot close to the centre). In Poznan old waterworks drawing water from the river were replaced by a line bringing water from springs, as the river water was deemed responsible for recent development of cholera disease.³⁶ Particular solutions were presented at hygienic and building exhibitions.

Another issue, urban toilets on cesspits, located in courtyards, began to raise concerns of hygienists in the 1860s. Gregorowicz wrote about their poor condition and stench in Warsaw, citing statistical data.³⁷ More data was introduced by *Zdrowie* in

31 GROTOWSKI, Alfons. Zarys historyczny wodociągów m. Warszawy. In: GROTOWSKI, Alfons et al. *Kanalizacja, wodociągi i pomiary miasta Warszawy*. Warszawa : Nakt. Edwarda Szenfelda, 1911, p. 7.

32 For Cracow: MORACZEWSKI, Maciej. Wodociągi w Krakowie. Kilka uwag gospodarskich. In: *Czasopismo Techniczne*, 1880 (July 1st), no. 7, pp. 75-77; (continued in nos. 8 and 9). For Lviv: Kilka słów w sprawie poszukiwań źródeł dla zaopatrzenia miasta Lwowa w wodę. In: *Czasopismo Techniczne*, 1885 (June 20th), no. 6, pp. 70-72; and TUSZYŃSKI, Józef. Kilka uwag technicznych w sprawie nowo założonego wodociągu wuleckiego. In: *Czasopismo Techniczne*, 1886 (January 20th), no. 1, pp. 3-6.

33 ZAŁOZIECKI, Roman. Zaopatrywanie miast w wodę. In: *Czasopismo Techniczne*, 1892 (August 10th), no. 15, p. 119; continued in: *Czasopismo Techniczne*, 1892 (August 25th), no. 16, p. 128.

34 FLEMING, D. *Warszawianka...*, p. 54.

35 The main proponents of the entire undertaking were Józef Tuszyński, Roman Ingarden and Marcin Maślanka. The plan was initially to draw spring water from the village of Regulice, 35 km from the city, but the final version was to draw deep water from the westernmost district, including for military reasons (Cracow was a fortress and the water duct could be destroyed during a war), cf. Wystawa przemysłu budowlanego we Lwowie. Budowle w kierunku uzdrowotnienia miast. In: *Czasopismo Techniczne*, 1892 (December 10th), no. 23, p. 186.

36 Z życia technicznego w W. Księstwie Poznańskim. In: *Czasopismo Techniczne*, 1896 (October 10th), no. 19, pp. 203-204.

37 GREGOROWICZ, K. *Warszawa...*, pp. 50-54. One of the reasons for these problems involved bad habits of the urban population, which originated in large numbers from rural lands. Their habit of squatting while defecating

1888.³⁸ A sewer system was proposed as early as the 1840s. A design for that system was published in 1853 by Stanisław Ratyński, and in 1862 Karol Gregorowicz expressed his interest in it.³⁹ Later on, the idea was supported by Stanisław Markiewicz, physician and hygienist, who published his book in 1869.⁴⁰ The sewer system could have three main functions: removing rain water and mud from the streets, removing factory waste, and removing faeces from toilets. The first function was most obvious; in fact a primitive system of ditches had long existed already. Cleaning up the streets was the most urgent need for both authorities and the population, as the sewers would allow getting rid of the open ditches and footbridges serving particular houses, thus improving urban communication.⁴¹ Which is why each solution had to rely on some sort of sewer system, albeit only for the sake of removing street filth.

For hygienists the main advantage of the sewer system was of course the sanitation of the city. The above-mentioned theoretician S. Markiewicz, as well as engineer Karol Fritsche, were alarmed by the existence of the huge number of cesspools in the city and advocated the idea of full system of sewers and removal of waste with the help of water. And although both of them proposed some dry systems of waste disinfection or burning (for more on this: see below), they treated it only as a tolerable makeshift solution.⁴² A huge debate took place in the late 1870s, when the then-president Socrates Starynkevych undertook strenuous efforts to provide Warsaw with a modern sewer system and waterworks. He wanted to properly serve the city he was asked to care for, but the aim was also to avoid possible outbreaks of epidemics in such an important Russian garrison-city. This is why he chose to fight against fierce opposition on the part of the central authorities in St. Petersburg (always jealous of Warsaw) and the local community. The latter was concerned with the cost of the undertaking and the possible tax burden levied on building owners. President Starynkevych himself published answers to the objections raised in the press, defending the financial plan of the system, and the decision to hire an English (not local) designer, Mr Lindley.⁴³

Meanwhile hygienists gained new tools for their activity. In the late 1880s attempts to found their special society were made with no success. It was much easier in Galicia from the legal point of view. In 1889 the Towarzystwo Opieki Zdrowia in Cracow (Society for Health Care) was created. The next year a similar organization came into being in Lviv, the Towarzystwo Przyjaciół Zdrowia (Society of Friends of Health). The Warsaw Hygienic Society was established only after more than 10 years of attempts⁴⁴ in 1898, although the activists that later made up the society were active before that

was brought along into cities, where they squatted over toilet seats, thus making them dirty.

38 Ustępy w Warszawie. In: *Zdrowie*, 1888, no. 12, p. 422.

39 RATYŃSKI, S. *O kanalizacji miast...*, pp. 124-148; GREGOROWICZ, K. *Warszawa...*, pp. 39, 41-43; GROTOWSKI, A. *Zarys historyczny...*, p. 14.

40 MARKIEWICZ, Stanisław. *Kwestia kanalizacji miast*. Warszawa, 1869.

41 SŁONIOWA, Anna. *Początki nowoczesnej infrastruktury Warszawy*. Warszawa: Państwowe Wydawn. Naukowe, 1978, pp. 87-88.

42 FRITSCHÉ, Karol. *O naglącej potrzebie poprawy stanu sanitarnego miasta Warszawy*. Warszawa: J. Noskowski, 1878, p. 84. MARKIEWICZ, Stanisław. *Assenizacja miast. Tymczasowe środki assenizacji miast naszych*. Warszawa: druk. M. Ziemkiewicza i W. Noakowskiego, 1878, 79 p.

43 SŁONIOWA, A. *Początki...*, pp. 145-146.

44 POLAK, Józef. *O Warszawskim Towarzystwie Hygienicznym*. In: *Zdrowie*, 1900, no. 5, p. 168. Cf also DEMEL, Maciej. *Pedagogiczne aspekty warszawskiego ruchu higienicznego (1864 – 1914)*. Wrocław; Warszawa; Kraków: Związek Narodowy im Ossolińskich, 1964, 220 p.

date. *Zdrowie* published reports by Dr. Polak about the sanitary status of the city, which was an important factor in developing urban knowledge. The Society organized exhibitions with an ambitious (at that time) aim of educating the population. The first such exhibition in Warsaw took place in 1887, and the public was gathered for a second time in 1896. Similarly, a large body of data was gathered by means of public hygienic conventions, surveys sent to municipal officials, and the society's own research, and conclusions concerning smaller cities were published in *Zdrowie* in 1908.⁴⁵

Returning to the issue of sewers; the opposition against them came not only from academics and house owners, but also from the urban population as a whole. People were not prepared for it, which was explained in the literature by poor hygienic consciousness,⁴⁶ but it resulted from a natural fear of stench, known all too much from the cesspools in the yards; letting toilets be located in the flats could mean also letting the stench inside with them. The idea of flushing all the waste down to the river, which prevailed at the beginning, also served as a counter-argument against the sewer system, as rivers became polluted too easily. Such facts were exploited by businessmen engaged in producing disinfecting powders, proponents of the idea of storing the waste at the yards, as one Mozelman, who proposed such a practice as early as the 1850s.⁴⁷ A later book by Jan Jeger from 1890 can serve as a case in point. Water used for flushing the sewers was described as a danger, because it didn't allow the waste, which was left on the sewer walls, to putrefy properly, limiting the access of oxygen. Water, which was the means of transporting the faeces, could also be responsible for leaks in the system. The irregularity of flow and water level (e.g. during downpours or night 'standstills') resulted in the expulsion of harmful gases into house pipes and toilets, or the streets. These gases, penetrating into the syphon water and then into the air of heated rooms inside buildings, could – according to popular argumentation – carry typhoid.⁴⁸ This leakiness pertained also to the sewer walls, which were defenceless against waste residue, enabling that dangerous content to permeate into the soil.⁴⁹ For all these reasons, dry disinfection of the biological waste was proposed in Jeger's book. This type of thinking paved the way for other solutions, e.g. burning of waste. Juliusz Świecianowski, an architect, proposed special devices to allow efficient burning with the combined use of fuels (like coke) and hot air.⁵⁰ The same pertained to smaller cities with no chance of introducing a comprehensive sewer system. There were 'inventions' which could help get rid of traditional cesspools in such cities, such as an 'overflow system' of Józef Tchórznicki, a hygienist concerned mainly with the health of the rural

45 Cf. KLARNER, Szymon. W sprawie higieny naszych osad. In: *Zdrowie*, 1908, no. 11, pp. 631-635. MICHAŁOWSKI, Antoni. Przyczyny złego stanu naszych miasteczek i osad. In: *Zdrowie*, 1908, no. 11, pp. 636-647.

46 Cf. a book treating this issue in an anthropological way: PESSEL, Włodzimierz K. *Antropologia nieczystości: studia z kultury sanitarnej Warszawy*. Warszawa: Trio, 2010, 488 p.

47 GROTOWSKI, A. *Zarys historyczny...*, p. 14.

48 This is why another form of link was later proposed in Warsaw, with ventilated pipes: SOKAL, Emil. W sprawie domowej kanalizacji. In: *Czasopismo Techniczne*, 1895 (January 25th), no. 2, pp. 11-13. KALICIŃSKI, L. J. Clarke, O wentylacji kanałów i przykanalików. In: *Zdrowie*, 1904, no. 12, pp. 1003-1004.

49 Cf. JEGER, Jan. *Racjonalny system asenizacji. Szkodliwość i niebezpieczeństwo usuwania fekalij za pomocą kanalizacji*. Warszawa: Gebethner i Wolff, druk. W. Ratyńskiego, 1890, pp. 22-46. In 1903 *Zdrowie* published a similar proposition of Mr Rymkiewicz, cf.: RYMKIEWICZ, Feliks. System humifikacyjny asenizacji. In: *Zdrowie*, 1903, no. 6-7, p. 906.

50 ŚWIECIANOWSKI, Juliusz. *Aparaty suszarniane dla obsługi ustępów i kanałów ściekowych*. Warszawa: J.Świecianowski, 1883.

folk; his system involved two separate containers serving as intermediate parts of sewers between houses and the gutter.⁵¹ These examples explain the fact that the system of universal sewerage and waterworks, costly and not fully predictable as it was, was not the only proposal at that time.

One more important factor in the discussion was the economy and agriculture. Biological wastes were used for centuries to fertilize the soil. Earlier in the period in question the practice of letting the waste into rivers was criticized from the agricultural point of view. Justus von Liebig, a famous German chemist, strongly supported the idea of using waste from sewers in fertilization, with a convincing theory. He presented the historical process of weakening of civilizations as being tied to the issue of impoverishing fields. Only nations sensitive to the issue of fertilizing could survive for longer. His theory was finally rejected towards the end of the century, but in the late 1870s the need to reharass the fertilizing power of waste was still pressing.⁵²

These counter-arguments were fought by the professionals engaged in introducing sewers, such as Alfons Grotowski, Emil Sokal and others, who tried to persuade the public that the speed with which the water was supposed to flow in the sewers prevented the waste from penetrating the walls, and that objections were made for selfish reasons by house owners and farmers.⁵³ Also, the idea of artificial filtering fields located on the outskirts of the cities, where wastes could be disposed, or the idea of disinfecting faeces before floating it into the rivers, were finally explained to society and could be utilized in an unhindered way.

Also in Lviv, the City Council began striving for a comprehensive city sewer system in the mid-1880s, shortly after work began in Warsaw (1883), but the final design was prepared only in 1911 (with the help of Mr Lindley).⁵⁴ There was in fact no new system for the entire city before 1914, only a hotchpotch of different sewers of various quality. Moreover, in Lviv the aim was twofold: besides the sewers it was important to lower the level of ground water around the city. Cracow had to rely on 'temporary solutions' (sewers mixed with tight cesspools) until the beginning of the twentieth century, although demands for a full system were formulated already in 1879.⁵⁵ It must also be mentioned that the tightness of the system had to be assured by the control of the links to houses. Special decrees were issued to clarify and determine the details.⁵⁶

Regarding the rubbish stored in the yards of each premises, its disastrous impact was also noticed. Rubbish disposal outside the city was managed by the parcel owners

51 TCHÓRZNICKI, Józef. *System przelewny oczyszczania miejsc ustępowych*. Warszawa : M. A. Wizbek, 1897, 23 p.

52 Cf. an early article: O odchodach ludzkich, oczyszczaniu ich i zużytkowaniu. In: *Przyjaciel Zdrowia*, 1861 (2nd (14th) December), no. 6, pp. 13-16. W.D. Uwagi nad kwestyą oczyszczenia miast, ze względu ekonomicznego i sanitarnego. In: *Przegląd Techniczny*, 1866, pp. 138-151, 289-312. And a later one: Nieczystości miejskie a rolnictwo. In: *Czasopismo Techniczne*, 1906 (October 10th), no. 19, p. 346. S.O. O dezynfekcyi miast oraz pojedynczych domów. In: *Inżynieria i Budownictwo*, 1879, no. 3, pp. 21-23.

53 SORTAN, Wiktor. Kanalizacja i zaopatrzenie w wodę miasta Warszawy. Studium nad projektem inżyniera W. Lindley'a. In: *Ateneum*, 1879, vol. 3, no. 9, p. 568. MARKIEWICZ, S. *Assenizacja...*, 79 p.

54 *Czasopismo Techniczne*, 1885 (May 20th), no. 5, p. 68; and POMIANOWSKI, Karol. Sprawozdanie o wykonaniu projektu kanalizacji Lwowa i jego kosztach. In: *Czasopismo Techniczne*, 1912 (February 25th), no. 5, pp. 63-64.

55 ZARZYCKI, Józef. W sprawie uzdrowotnienia miasta Krakowa. Przedwstępny szkic kanalizacji i wodociągów miejskich. In: *Czasopismo Techniczne*, 1886 (August 20th), no. 8, p. 138. S.D. Nowy wodociąg krakowski. In: *Zdrowie*, 1901, no. 5, pp. 245-249.

56 Cf. for Cracow: MEUS, Raymund. Odwodnianie budynków. In: *Czasopismo Techniczne*, 1887 (January 20th), no. 1, pp. 1-2; (continued in nos. 2 and 3).

themselves, and was regular, though sporadic; only the streets and squares were swept by the municipality. The efficiency of this decentralized system was controlled by each police intendent (*oberpolicmajster*);⁵⁷ his decrees were aimed at improving the sanitary condition of the city by keeping the 'circular' system safe from obstructions. The main whistle-blower in this regard, Dr. Stanisław Markiewicz, began publishing articles about the poor state of affairs at the start of the 1880s. In 1883, in the hygienic section of *Medycyna*, edited by Markiewicz, a proposal to get rid of the rubbish altogether (by means of an everyday disposal) was published.⁵⁸ That changed nothing, but the new police intendent, Nikolai Kleigels (1888), undertook stricter control over the cleanliness of the city. Later, at the beginning of the next century, a system of burning rubbish was propagated by Władysław Dobrzyński, who later became the main proponent of the garden-cities movement in Warsaw.⁵⁹

The pavements of streets was also a subject of improvement proposals. The field stone used for paving was replaced in the nineteenth century by more regular cobbles made of solid stones, as e.g. granite, which enabled more comfortable transportation. For hygienists that solution was deemed improper, given that the surface was too permeable. Street waste and rainwater, as well as dust, contained bacteria and had to be removed with the help of water, poured onto the streets, which is why cobbles had to be laid not on a sand layer, but on concrete, and the welds had to be tightened by cement or asphalt.⁶⁰ Good results in terms of practicality were combined with wooden pavements, used widely in England, but scientific research in the early 1880s dismissed their use as unhygienic.⁶¹ Asphalt pavements were deemed proper, though they adapted poorly to horse-driven transportation (such streets were too slippery for horses), so cobblestone made of a soft sort of stone was recommended, because it could rub off evenly.⁶² Generally speaking, the aim was to introduce pavements with as few crevices as possible (they sheltered bacteria), and to pour water over streets regularly.⁶³

Bacteriology helped also to understand the importance of sun beams. Sunny interiors had of course been attractive in northern Europe for centuries, but hygienists urged a direct exposure to sun not only of flats, but also of streets and squares, for scientific reasons. When it was proven that sun beams could get rid of bacteria in a more efficient way than mechanical cleaning, new arguments were voiced in favour of wide streets. In this respect even urban planted areas along city streets themselves were considered ambiguous, because they obstructed the sun exposure.⁶⁴ Wide streets

57 SŁONIOWA, A. *Początki...*, pp. 93-94.

58 *Medycyna*, 1883 (July 16th (28th)), vol. 11, no. 30, pp. 503-504.

59 Cf. e.g. DOBRZYŃSKI, Władysław. O paleniu odpadków m. Warszawy. In: *Zdrowie*, 1904, no. 11, pp. 913-916.

60 Cf. DĄBROWSKI, M. O drogach i brukach pod względem ekonomiczno-technicznym. In: *Czasopismo Techniczne*, 1883 (March 20th), no. 3, pp. 22-24. cf also: LIPCZYŃSKI, Józef. Asanacja miast w Galicji ze względów technicznych i ekonomicznych. In: *Czasopismo Techniczne*, 1896 (June 10th), no. 11, pp. 128-129.

61 *Czasopismo Techniczne*, 1884 (July 20th), no. 7, p. 90.

62 KALICIŃSKI, L. – GENZMER, E. – WEYL, Th. O urządzeniu bruków ulicznych, o różnych gatunkach bruków, znaczenie higieniczne bruków. In: *Zdrowie*, 1902, no. 10, pp. 798-801.

63 JAROSZYŃSKI, Tadeusz. Z higieny bruku miejskiego. In: *Zdrowie*, 1907, no. 6, pp. 391-392.

64 Cf. e.g. LIPCZYŃSKI, Józef. Asanacja miast w Galicji ze względów technicznych i ekonomicznych. In: *Czasopismo Techniczne*, 1896 (10th March), no. 5, pp. 63-64. Wł.Wr. Kwestya światła w wielkich miastach. In: *Przegląd Techniczny*, 1914 (19th August), no. 32, pp. 427-428.

were also regarded as important for the ventilation of the entire city,⁶⁵ as the attention of hygienists turned to the air in the late nineteenth century. Experiments proved that air contained dust, so it was also considered potentially unhealthy. Dust was produced by households, leaked from dust bins, and appeared on the street surface after vaporization of rainwater. It was all the more obvious when one looked at smoke produced by factories.

What was new in this period was the scientific approach, which allowed research into the chemical composition of dust, waste and smoke. Experiments also proved the direct impact of dust and smoke on the health of animals.⁶⁶ Another strong argument was characteristic for the bacteriological age, namely that dust and waste contained bacteria, which could spread diseases. All this pollution had to be removed from the private space, as well as from city streets. New devices were being invented to gauge the level of street dust,⁶⁷ and new measures were planned to avoid it or remove it altogether.⁶⁸

The eye of a hygienist was sensitive in other respects as well. The need for wide, open green areas in city centres was also expressed. The need for contact with the greenery was the key argument for proponents of public health like Henryk Jordan in Cracow and Franciszek Szaniar in Warsaw. It was also connected to the spreading idea of garden-cities, but this issue is beyond the scope of this paper. Other aspects of hygienic movement in the city (as e.g. building new public bathhouses, improving slaughterhouses and schools) can only be mentioned here.

What is also important, a kind of a hygienic 'encyclopaedia' saw the daylight before 1914. Józef Polak, whom we already know, published his *opus magnum Wykład higieny miast* in 1908.⁶⁹ The book served as a manual for urban engineers and it described the issues of providing cities with clean water and municipal infrastructure, along with removing the wastes and faeces, but it also contained a chapter devoted to building cities. The latter makes this book the first work on urban planning in the Polish territories, predating the manuals of Ignacy Drexler and Roman Feliński by almost a decade. This fact highlights the specific situation of the Polish territories in this respect, and shows clearly how important this field of study actually was.

Finally, there is a political aspect of the described urban activity. Hygienists had to rely on legal solutions, as the only efficient tool, besides the efficiency of the infrastructure itself. All proposals based on the control of 'normal' people (housekeepers, private servants and the like, controlling the use of cesspools, the type of waste thrown out in yards etc.) were doomed to failure. The need for sanitary control, which was becoming obvious during epidemics, was hard to impose otherwise, especially in the Kingdom. So hygienists here were conscious of the necessity of self-

65 BARCZEWSKI, W. Znaczenie zdrowotne regulacji miast. In: *Przegląd Higieniczny*, 1905 (December), vol. 4, no. 12, pp. 273-283.

66 RZEPKO, Jan. M. Hahn, Sadza i dym w powietrzu wielkich miast. In: *Zdrowie*, 1911, no. 5, pp. 390-392.

67 SIKORSKI, Stanisław. Zwalczenie plagi dymu i kurzu w miastach. In: *Zdrowie*, 1913, no. 4, p. 233.

68 See e.g. a paper presented at the First Convent of the Polish Hygienists: KÚHNEL, Antoni. Zwalczenie kurzu. In: *Pierwszy zjazd higienistów polskich we Lwowie w dniach 19 do 22 lipca 1914 roku*. Lwów : nakł. Komitetu Gospodarczego Zjazdu, 1914, p. 3.

69 POLAK, Józef. *Wykład higieny miast z uwzględnieniem stanu sanitarnego i potrzeb miast polskich*. Warszawa : Wydział Urzędzeń Zdrowotnych Użyteczności Publicznej przy Stowarzyszeniu Techników w Warszawie, 1908, 554 p.

government in the cities,⁷⁰ and by-laws concerning the mentioned sanitary control. The latter was extremely urgent when a city like Warsaw reached high number of inhabitants, which meant the return of an old idea of sanitation through coercion, born already in the Enlightenment.

It was only after the Russians were driven from Warsaw (1915), and after Poland regained its independence in 1918, that hygienists and social reformers could become politicians *sensu stricto* in the new state. The careers of such persons as Stanisław Chetchowski and Józef Polak, serve to prove this point.

Conclusions

What made hygienists become amateur urban planners? First of all, physicians found themselves in a privileged, but at the same time responsible position in society, especially a society which did not form a self-ruling nation-state (which was less of a problem in Galicia than in other parts of Poland). They felt vital for society in terms of economics, given that they helped avoid premature deaths and improve the health of the workforce;⁷¹ they could also help solve one of the trickiest problems of modernity: managing a large city. They had to, and could, 'look through' physical barriers in the city. They delved into the living conditions of the poor, the quality of the infrastructure located in private courtyards, and the permeability of the pavements. Such work was all the more crucial because the main task of the state and municipal authorities at that time apparently was merely to maintain the decent appearance of outer spaces, in order to ensure the regime's political security.⁷²

These hygienists had to be open-minded. They regarded the city as an entity that works as a whole. Their early 'geological' approach made such theoreticians as Karol Gregorowicz aware of the natural relief of the terrain under the city, and especially the quality of the soil. They perceived the urban space in layers; the underground layer as a potential space to introduce sewers; the layer of streets with their pavements; the upper floors of buildings carrying up clean (or polluted) air; and the space of rooms which they measured in cubic units and where the level of oxygen had to be gauged. They divided the city itself into parts; an inner one, which was the most crowded and dangerous, producing filth and waste; less harmful outer districts, which however lacked proper infrastructure; and peripheries as the place where waste could be left or reused.

Hygienists viewed the city as a dynamic organism, with many kinds of arteries going from the centre to the outskirts. All dangerous matter, such as faeces and waste, rainwater and mud, the meat produced from cattle, the water in the river, had to move without stop, and the task of the controlling institutions was to avoid any sort of obstructions in the system. Any barrier in the sewers, traditional attitudes towards cesspools and rubbish disposal, unventilated interiors and space – had to be gotten rid of. Such a task was all the more important when one takes into account that the system

70 This need resulted also from other factors. The fiscal character of the Russian rule in Warsaw was oppressive in the way the tax burden was allocated (more money was drawn from the city than from larger St. Petersburg and Moscow) and the way fiscal decisions were made (the municipality could spend up to only 300 roubles without any higher permission, up to 1000 roubles with the acceptance of the governor; more could only be spent with the approval of the central Russian authority). This had to be changed in the opinion of urban reformers; SŁONIOWA, A. *Początki...*, pp. 56-61.

71 POLAK, Józef. O znaczeniu sztuki lekarskiej i o stanowisku lekarzy. Warszawa : Drukiem M. Ziemiakiewicza i W. Noakowskiego, 1883, pp. 29-30.

72 SŁONIOWA, A. *Początki...*, p. 61.

was usually conceived as an entity, e.g. waterworks had to be combined with sewers, had to have enough water to serve the 'arteries' in an unobstructed way, also for the future growth of the city. The eye of a hygienist looked also at places in the city which had previously not been an important subject of scrutiny. The hygiene of bakeries, slaughterhouses and cemeteries became crucial for reasons which are obvious today. Also, public spaces where people gathered came under examination, even those as untouchable as churches: Dr. Józef Tchórznicki wrote carefully about 'the hygiene of temples' as places of public gathering.⁷³ In clear contrast there were aesthetic issues like the composition of facades, or the forms of streets and squares – these were invisible for hygienists. What is more, these facades were even viewed as problem, an obstruction for sun beams, which were supposed to permeate habitable spaces.

Hygienists broadened the scope of interest in urban issues, which had been limited to the cities' fiscal possibilities, to their outer appearance, and to the efficiency of communication and transportation. They brought new meaning to public greeneries, and stressed their importance. Moreover, the new urban infrastructure itself affected the way the city was perceived. Better smelling yards and streets raised the quality of everyday life and encouraged people to experience the city as something beautiful in its entirety, not as fragments (though the problem of slums of course remained). At the same time the urban periphery changed its appearance, as many municipalities decided to buy land there and locate the technical buildings and reservoirs for sewer systems and waterworks.

In some respects, the situation of urban reformers in the Polish territories was easier than in the West (although the political climate here was more difficult): they could rely on the experience of western cities (in Germany or England), and avoid their mistakes, thus saving time and money. Thanks to the efforts of hygienists (and other municipal officials) Warsaw saw huge progress in its sanitary condition at the end of the nineteenth century, which, however, stood in clear contrast to the situation in other cities.⁷⁴ Lviv and Cracow also became modern, increasingly green cities. But the heritage of the hygienic movement was not limited only to such changes. It consisted (and still consists) of a large body of scientific literature, which contributed to the field of urban planning.

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73 TCHÓRZNICKI, Józef. *Pilne sprawy higieniczne*. Warszawa : skt. gł. w księgarni Edwarda Kolińskiego, 1896, pp. 7-22.

74 DEMEL, M. *W służbie Hygei i Syreny...*, p. 9.

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