

Town-planning Organization of the Baku Industrial Region: 19th – 20th Centuries

Organizacja urbanistyczna regionu przemysłowego Baku: XIX – XX w.

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Abstract

The article considers the emergence in the modern town-planning practice of Azerbaijan complex planning systems require comprehends to historical experience, especially the end of the nineteenth beginning of the twentieth centuries.

The industrial revolution started in the middle of the 19th century in connection with the development of the oil industry accelerated the process of urbanization in Absheron also in Baku the centre of population concentration and various types of labour activity. The purpose of the study is to present Baku oil district at the turn of the 19th-20th centuries to reveal communications and interactions between social, demographic and other processes as a complex organism with all contradictions inherent in the epoch of rapid development of capitalism which has received the material expression in the form of the newly developed planning system.

Key words: industrial region, socio-economic factors, architectural appearance, locality, Baku, planning structure, transport, settlement system

Streszczenie

W artykule przedstawia się stanowisko, według którego pojawienie się nowoczesnej praktyki planowania urbanistycznego w złożonych systemach planowania Azerbejdżanu wymaga zrozumienia doświadczeń historycznych, zwłaszcza końca XIX i XX w.

Rewolucja przemysłowa rozpoczęła się w połowie XIX w. w związku z rozwojem przemysłu naftowego, przyspieszając proces urbanizacji w Absheron, a także w Baku, centrum koncentracji ludności i różnego rodzaju aktywności zawodowej. Celem badań jest przedstawienie dzielnicy naftowej Baku na przełomie XIX i XX w. w celu ujawnienia komunikacji i interakcji między procesami społecznymi, demograficznymi i innymi, traktowanych jako złożony organizm, charakteryzujący się występowaniem licznych sprzeczności, wynikające z epoki szybkiego rozwoju kapitalizmu, którego materialnym wyrazem jest nowo opracowanego systemu planowania.

Słowa kluczowe: region przemysłowy, czynniki społeczno-ekonomiczne, wygląd architektoniczny, Baku, struktura planowania, transport, system osiedleńczy

1. Introduction

Tasks for protecting the historic and cultural monuments of the Republic of Azerbaijan is the preservation of the historical and cultural heritage and associated with the development of industry, science and technology founded in the middle of the 19th and beginning of the 20th centuries. The period of formation of the industrial architecture of the Baku oil region covers the time interval, starting from the second half of the 19th century to 1920s. The heritage of this era is still poorly studied, whereas it has reflected the great scientific and technical ideas of modern times which are embodied in a brilliant art form.

The considered industrial region of the studied period entered limits of historically developed planning kernel of Baku and along with the urban development for many years defined its architectural appearance. In modern conditions of conversions of the central regions of the city, the identification of the historical role of the developed planning structure will help to make recommendations for improvement and preservation of integrity and expressiveness of the urban environment.

2. Methodology

The methodological approach applied in this article based on the theoretical researchers used in modern town-planning science. The main conclusions testify how specific historical, political, economic and social changes can influence on assessment of an urban situation on the example of the Baku oil region (Barles, 2015).

In this research, the source database was used, which was composed of both unpublished and published materials and documents extracted from the funds of the National Archive Department of Azerbaijan Republic, as well as data contained in the studies conducted in the 1920, the manuscripts of which are stored in the scientific archive of the Institute of History of the Azerbaijan National Academy of Sciences. An important historical source was the periodicals related to the considered period.

The article is the revised and supplemented version of one of the chapters of the author's dissertation for the degree of Doctor of Philosophy in architecture.

3. Socio-economic factors of influence on the spatial transformation of the industrial region

Emergence in the modern town-planning practice of Azerbaijan of various planning systems leads to the necessity of comprehending of historical experience, especially the end of the 19th the beginning of the 20th century.

The industrial revolution that began in the middle of the 19th century has accelerated the process of urbanization in Absheron as well as in Baku the population centre concentration and various types of labor activity. The rapid growth of the city brought a set of the problems which are going beyond traditional methods of the architecture of the feudal Muslim

city. Expansion of oil industry required the development of the extensive territories including a rural environment along with the city. Therefore, it becomes necessary to present the Baku oil region generally, to reveal communications and interactions between its separate elements, to consider as a complex organism with all contradictions inherent in the era of rapid development of capitalism which has received the material expression in the form of the newly established planning system.

In the territory of Azerbaijan of that period the location of an industry was marked by extreme unevenness. Industrial enterprises were concentrated in several places, most regions of the country remained agrarian and there was a sharp distinction in their development.

By the end of the 19th century, Baku industrial region was one of the largest producing regions not only in Azerbaijan but also in all Russian Empire in general. There were no analogues like this area, both in the pace of development and in the form of the architectural and planning bodies, at that time. Although oil began to be extracted in various parts of the empire near such cities as Grozny, Mozdok, Ukhta and in the Crimea and these developments had private character and couldn't give an impulse for the creation of planning system, like the Baku oil district.

Besides, the development of oil-producing territories needs of creation of industrial centres for oil refining in the early 1970s of the 20th-century worried best minds of Russia. So, in the article *Where to build the oil plants?* Mendeleyev, D. pointed to the creation of the main two processing centres in Nizhny Novgorod and the Black Sea coast closer to the national consumer where production of the reprocessing plants could successfully compete with *the American kerosene* in the world market and that would be much more expedient, than their concentration in one place. The similar picture was observed in the USA where in the 1990s of the 19th century oils was extracted in the huge territory of 15 states and its processing located in the 3rd of them (SAIH, 1935). Although Mendeleyev, D. and other scientists repeatedly proposed to disperse oil processing, but this did not work by a number of reasons – absence of perfect means of transportation, and the most important – unwillingness of businessmen who wanted to keep Baku as the main centre where by means of concentration of industrial production in one place they achieved the maximum profits in domestic markets of the country.

Almost along with the development of oil industry of Russian Empire, there was an intensive development in USA and analogy can be seen at the rate and scale of the work being developed. But the functional and spatial organization of the developed territories was different decided. Thus, in the USA at the regions where the oil industry was developing, *telegraph and telephone, without being state regalia follow the entrepreneur almost everywhere and facilitate his work. Similarly, the railway in case of success quickly goes to him* (Savitsky, 1973). Thereby, around good crafts settlements were

quickly formed, before in tents and hastily assembled wooden houses, then very quickly built up stone houses with accurate zoning with the allocation of administrative centre as well as local government and economy. The first institutions in such a new geographical unit were the post office, bank, media, the trading facilities (Chamber of Commerce or Board of Trade) and it immediately liaises with all relevant institutions in other parts of the country. The disappearance of individual settlements in case of the loss of oil-bearing lands is also easy. In the areas of the oil production, the absolute spontaneity and lack of planning were observed. In 1865s, on the place of the Goldman's farm, the town of Pitol arose, in which by the end of the same year there were 15,000 inhabitants during a year this settlement ceased to exist. After its decline, the oil boom moved to the region of Tidiout and Trayemph Hil where inhabitants before were engaged in logging. For 1860-1873s 76 wells were drilled here. But they soon suffered the same fate (Romanovski, 1869). In the Russian Empire throughout more than half a century the centre remained in Transcaucasia, in particular, in the city of Baku. Geography, compactness of the territory of the Baku oil region, as well as the time of exploitation, the full cycle of industrial oil production has made it possible to develop strong urban links characterizing the region as a unit.

At the end of 19th the beginning of the 20th century urban planning of several European cities has changed significantly. Appearance and promotion of innovative industrial enterprises have caused the evolution of the previous socio-economic structure caused by the agricultural economy. For several years, the plants, housing for workers, numerous public and private buildings for new society were built. For the first time, evolution and expansion of the city have been planned on paper before realization. The projects drafted by schedulers didn't concern individual construction sites and covered the parts of the city and the adjacent areas. A new road network is laid along which new building and constructions are being built destroying parts of the historic city. During this period a series of analytical, design and regulatory documents were developed, which allow following the transformation of an intensively developing historical town and the surrounding areas where in 50 years inflow of numerous of a population and the introduction of industrial activities generated a modern rational urban agglomeration.

Establishment of new production relations has defined the town-planning principles of the organization of development of Baku and the adjacent oilfield territories. Complex economic changes required planning identification and the spatial solution. In the former system, the attempt to differentiate public processes on production and non-production is observed. Development and formation of the city begin; allocation of the industry in a separate zone is planned. The city ceases to exist as an autonomous entity and gives way to the integrated system of settlements which later became known as Baku industrial district (Abramov, 1971). There comes that

turning point when not separately taken city or the settlement, but a system of the settlements connected among themselves by diverse forms of communications can be an object of research. The most important town-planning problems of this period are a concentration of the population, changes of the environment and traditional way of life, the functional organization of territories, the combination of new social and technological changes.

4. The concentration of population

Such phenomena as urban concentrations, the continuous increase in urban population, the development of industry and transport, the destruction of old towns and the rise of unsanitary conditions on the urban outskirts have been observed everywhere wherein the 19th century accustomed new industrial territories. Thus, in the 1850s with the population over 10.000 inhabitants lived in the cities of the world, twice more people than in the 1800 (Bunin and Savarenskaya, 1979). In Baku, population growth has been closely linked with exploration and development of the oil-extracting industry, expansion of its borders and rapid growth of production. Family lists, police data, address table information, censuses 1897, 1903 and 1913 statistical data of the oil industry – all this gives an opportunity to fully restore the picture of the rapid population growth in the city and the fields.

If we take period between 1903 and 1913 and compare the speed of a gain of the Baku population to growth of the population for the same term of such big cities as St.Petersburg, Moscow, London, Berlin, Paris, Vienna and New York, then we will see that Baku occupies first place in this issue of the largest cities (Alishevki, 1950). The great demand for the workforce for providing and development of the industry has caused the powerful influx of the population to the city. Certainly, that at escalating oil production, with the expansion of oil processing and an increase of export, the population of the city should grow serving both the oil industry and other types of the growing industry and trade. But the dependence of population growth on the increase of industry in comparison of data on oil production with the number of workers employed only in the oil industry is particularly vividly expressed (Table 1).

Table 1. The growth in the number of oil workers and oil production (in tons)

Year	Number of workers	Oil production
1898	20500	8103
1899	25500	8753
1900	32000	10006
1901	37000	11191
1902	31500	10606
1903	27700	9955
1904	31800	10263
1905	33500	6845
1906	42500	7480
1907	48726	8018

This table is the schedule of the fluctuations in the number of oil workers per year depending on the state of the oil industry (Ivanitsky, 1930). Hence, that crisis of 1901 didn't slow to affect the number of workers in 1902-1903 and on overcoming this crisis in 1904 the number of workers immediately rises. These data once again confirm the fact that concerning of the population growth the Baku oil region entirely submitted to laws of capitalist development. Located near the city, industrial settlements: Sabunchi, Surakhani, Binagadi, Bibi-Heybat etc. were replenished, generally due to the alien population. It occurred firstly because the inflow of the alien population was faster than the growth of local population, secondly, as these settlements turned into the centres of trade lands there was a great opportunity for employment.

In order to have an idea of the socio-urban structure of the Baku Oil region, data on the number of working personnel and density of their distribution can be used.

By the end of the 19th century, the territory of the Baku oil region was subdivided into four zones: city, suburbs, trade settlements and trade. For example, if to consider the number of the working population on specific weight in each area, then the following tendency is absolutely defined the farther district from the city centre, the greater proportion of the working population table 2 where resettlement of the working population around the city is shown by suburbs, trade settlements and crafts, made on a census of 1903 can serve as the proof (Table 2).

Table 2. The settlement of the working population in the territory of the Baku oil region according to the census of 1903

District	Number of workers in %	
	Total	Including the oilman
1. In total around the city	18,0	0,9
2. In total on suburbs	33,2	5,5
3. In total on trade settlements	33,5	11,9
4. In total on crafts	62,9	39,1

The table shows how the percentage of the population of the trade area was rapidly different from the urban one and the difference existed in the rates of population growth in the crafts. And already according to a census of 1913 the percentage ratio of industrial workers who lived directly on crafts in trade settlements and in suburbs made: on crafts – 25,1%, in trade settlements – 61,7% and in suburbs – 13,2% (Baku at the Census 1903).

In the trade and factory area, the population arrived nearly 5 times quicker, than in the city and housing stock was immeasurably smaller. There was a problem of placement of large working masses near the place of employment. Therefore, this has influenced the emergence of new differentiation of distribution of labour according to professional characteristics. Thus, the largest number of industrial workers was concentrated on the factory and trade territories. Therefore, speaking about the formation of a town-

planning situation of this area, it is necessary to track as well as where the person making the main frame of the population growth was concentrated.

Apparently, from given to a census of 1913, the main part of workers lived in trade settlements, i.e. in those villages existed on Absheron before the development of oil industry there. These settlements were also the first base where the alien working population accommodated.

By his order in 1882 and 1890, the tsarist government sanctioned the seizure of 5325 tithes (≈ 5804 hectare) of land in the eleven villages of Absheron (NA). The growth of the territory of a city spot occurred due to inclusion in city line of many villages which are in a zone of influence of the city. In 1902, the Baku governor has raised before the commander-in-chief of the civilian part in the Caucasus the issue of including the square of the village of Kishly and part of the villages of Ahmedli and Zikh into the outskirts of Baku. The residents of the village of Kishly were attached to the residents of Baku. A year later, the governor announced a second decree on the abolition of the settlements of Balakhani, Sabunchi, Romana and Zabrak and on the seizure of their allotment lands, including those in the oil area and with the residents attributing for the account in the city of Baku (Figure 1).

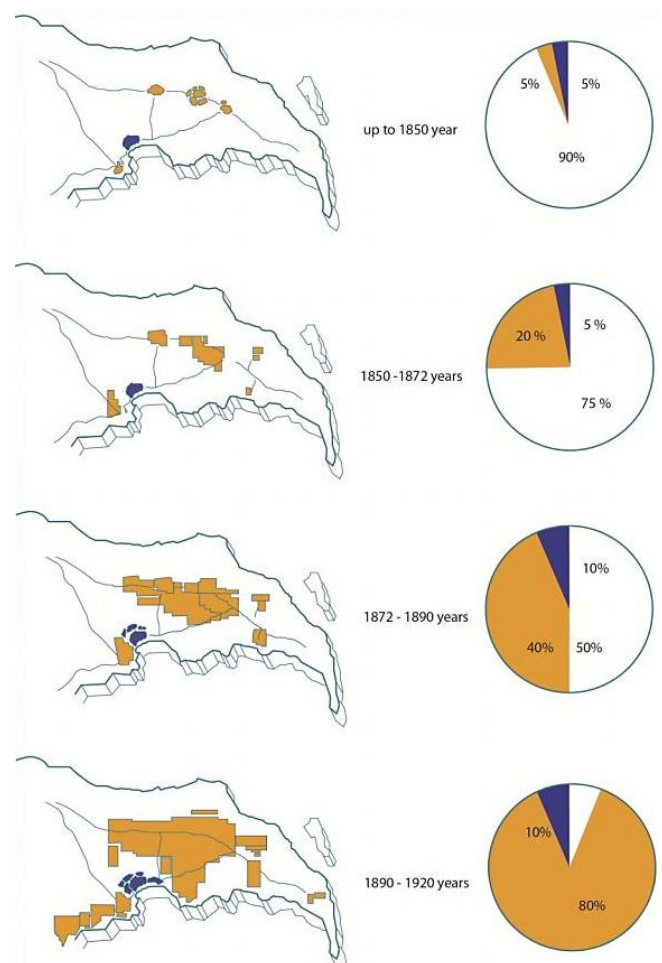


Figure 1. Dynamics of development of oil-bearing lands of Absheron peninsula

Essentially, the petition of the governor was already overdue. By this time the villages of Balakhany, Sabunchi and Zabrat were not peasant settlements anymore. According to the same governor: *the former Tatar villages of Sabunchi, Balakhany, Romana and Zabrat which were once remote from each other by fields in places with vineyards and now merged to the continuous square with the most intensive industrial life* (SAIH).

In 1903 in Sabunchi, Romana and Balakhany villages lodged up to 10000 people of the alien population whereas the indigenous population of all three settlements was estimated in 5000 people. At the same time in trade settlements, housing stock growth was extremely slow, moreover, the territory of the number of trade settlements was reduced in connection with the expansion of the oil-bearing areas from year to year.

Increase in population and territorial growth of the city has led to the essential complication of all functional and spatial organization of the area. Misunderstanding by the city authorities of the ongoing processes and insufficiently detailed accounting of the area population has led to serious disproportions in development of planning structure of the city and the industrial region gravitating to it.

5. Change of the environment

Depending on the location of natural oil deposits on the Absheron peninsula the drawing of the industrial region is defined. Along with the development of oil-field technologies, the tendency of adaptation of the planning structure to the landscape forms is replaced by an active transformation of the relief. Using salt lakes for waste industrial waters and formation of new reservoirs for this purpose violated the groundwater regime, which contributed to a change in the surrounding flora and fauna.

The labor congestion in the limited territory of the city and in small settlements was also defined by dependence on natural resources. Thus, the settlements which have entered a trade semicircle of the city and testing strong economic inclination to it began to differ markedly from the settlements located out of this semicircle which kept their traditional isolation, the primitive nature, life, an agricultural form of labour and the planning organization. Not only life of villagers, the traditional form of labour, territorial boundaries of allotments have changed here as well as the habitat and a landscape.

Considering international practice that the scale of urban land has been expanding because the speed of urban development has increased due to population growth that contributes to the improvement of planning in the construction of new urban areas. The development of industrial resource cities in the transformation stage based on the circular economy was considered as the breakthrough point.

The system of resettlement within the Baku industrial region formed interlinked groups of settlements centred on the city itself; in the south-east the Balakhany-Sabunchi trade territory, in the west of Bibi-Heybat fishery. For industrial settlements of the re-

gion, the solution of communications is on the forefront, their role and active participation in the organization of production of the area increases.

Till the 90s of the 19th century development of trade territories spontaneously occurred without consideration of technological and functional requirements of oil production. Spontaneously there were also spatial outlines of the inhabited places. The location of the expanding production territories and settlements depended on and submitted to the developed structure of private land holdings, coincidences of land speculation, and the main requirement was the convenience of placement plots in relation to the existing transport routes. The Baku oil region in this period represented a group of close located inhabited places of various sizes with high population density. But their growth remained uncontrollable and communications didn't add up to a rational system. The absence of clear zoning and dispersal of housing stock caused a set of inconveniences for further development of the Baku oil region. All this forced the district engineer of the Caucasus mountain region Gavrilov to send in August 1899 the report to the Caucasian Mining Department, to which a consolidated plan of oil-suitable sites was attached, compiled on the basis of information on state-known oil-bearing lands of the Absheron peninsula, to which it was considered an additional 1628 tither 499 square kilometres (approximately 1,900 hectares) of state oil-bearing lands. This quantity did not exhaust the entire stock of state oil-bearing lands on the Absheron peninsula and it represented only the lands of 4 villages – Balakhany, Sabunchi, Romana, Bibi-Heybat that seized in the treasury for the needs of oil production (SAIH). (Figure 2, 3).

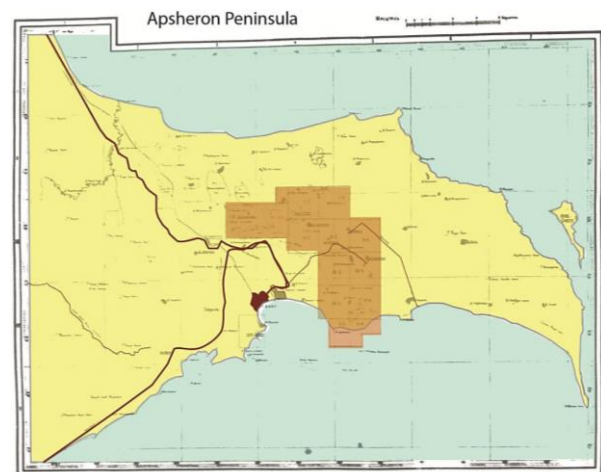


Figure 2. Consolidated plan for oil fields of Absheron in 1899 available for oil development

The purpose of drawing up such plan is to give, firstly, the number of lands that the state treasury has on the trade areas of the Baku oil region, and secondly, which of the same lands are located near the currently existing fields, are gradually depleted.

In developing the plan for the Absheron oil-bearing lands of 1899 several tasks were also aimed at resolving the current planning situation. One of the main objectives was cutting of sites which about 3-4

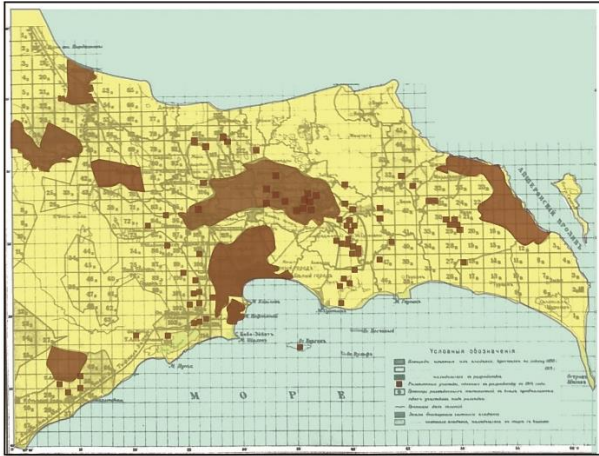


Figure 3. The map of the oil-bearing lands of Absheron peninsula in 1911

tithes (4 hectares) on average were supposed to reduce. Also, the attempt considering climatic and topographical characteristics of the area to organize the territory of crafts has been made, applying the advanced technology of production and storage and transportation of oil (NA). On this plan, according to the numbering of each fishery, all boreholes which for 1st January 1895 were in operation, drilling or paving and almost all oil wells inactive and finally abandoned have been shown. The plan showed not only the state of crafts at that time as well as indicated to the possibility of developing operational works on them.

The outline of the main territorial distribution schemes on its effective use and creation of the program of more detailed inspections was one of the important results of this work. It was expected to build the village, development of communication routes, the existence of the complex network of water and gas pipelines and power lines connecting the city with fishing areas with a dense network of engineering structures, sometimes extremely disadvantageous position for the city. But the lack of detailed geological researchers, the absence of an opportunity to plan development of the area, made the work schematic and unconvincing. There weren't more attempts to consider the Baku oil region as the coherent whole. And only in 1911 the geological map of the Absheron peninsula at the request of *Nobel brothers Partnership* has been made by Dr. Anderson who carried out surveying works on the investigation of oil-bearing lands.

6. Functional organization of the territory

The emergence in the second half of the 19th century of mechanical means has facilitated and accelerated mass movements of people and cargo have made possible the growth and use of remote oil-bearing lands. Technological requirements associated with the operation of new mechanical means have generated the serious difficulties connected with the discrepancy of the roads which have developed counting on pedestrian and the cartage. The decisive indicator of each site is the time spent on regular trips

from home to the place of employment. The developing town-planning system was oriented not by the geometry of space and for the time necessary for overcoming these spaces on the available vehicles. The indicator of overcoming long distances is not only the effective use of mechanical transport as well as the information link allowing to significantly increase the radius of possible contacts within the industrial area. Means of mass communications such as phone, radio, telegraph enabled contact between the trade territories and the city located at considerable distance from each other. Therefore, permission of City Duma which has followed in 1886 for the unhindered construction of a telephone network and the location of the main facilities in the factory area of *Black city* in the villages of Bailov, Bibi-Heybat, Kishla and Balakhany supplemented the system of multistage engineering communications forming the oil region with a centre in Baku as a whole.

In 1895 the engineer Lindley proposed the water supply project of extensive territory of the central and north-west part of the Absheron peninsula that covered the area about 500 sq.km. The project assumed the use of the equipment latest for its time, materials and structures. The well-organized system of underground galleries, reservoirs, pipelines, water intake and distribution constructions, pumping stations could be relatively easy to master as the areas grew. In 1925 professor Ivanitsky wrote that the Baku shollar water supply system is an example of the big engineering network project which is gradually constructed for the city but was the system of the water supply of the whole area.

The water intake for the city and the industry was carried out in 186 km from Baku near the settlement of Shollar and was led along concrete water pipes by the section of 1200×1700 mm to the station Sumgait where by means of pumps began to rise to the city reservoirs. The trade areas of Balakhany, Sabunchi, Romana, Surakhani were fed up through the Balakhani water-supply net with a length of 14 km and diameter of 500 mm ending directly to the east from city reservoirs. 2 other powerful lines with a diameter of 500-700 mm from the same reservoirs were used by a factory district and Bibi-Heybat (Abdulrahimov and Abdullayeva, 2013). The solution of shollar water supply system as water grid for the whole area proves that the Baku oil region at the end of 19th and beginning of the 20th centuries was considered and planned as the uniform town-planning system.

7. Urban development of Baku as the center of the industrial region

The peculiarity of the Baku oil region is the powerful and branched industrial complex concentrated in Baku that becomes its core. This contributed creating the central planning system transforming a shape of the city itself in space.

The central historical part located behind a fortification as well as the feudal city in the fortress



Figure 4. Dynamics of functional development of urban lands

ceases to play a role of the main business centre, turning into an element of urban development. In two kilometres to the east from which a new factory zone is being laid, which turns into the centre of extensive and very active industrial hub.

At the end of the 19th century in the city layout the tendency leading to attempt of zoning urban areas on the one hand which goes from stratification, the complication of city life, and with another from the merge of the newly built-up areas and their joining to urban areas is traced.

These processes lead to noticeable changes in the architectural and planning organization of the city and the industrial region.

Thus, the spontaneous development of urban areas for industrial purposes led to deformation of the gen-

eral layout of the city and distortion of functional ties between the factory and other urban areas.

The consecutive analysis of the plans of Baku made in the second half of the 19th century gives an idea of the stage-by-stage partition of the territory. In the initial development of urban areas of this period, the extreme fragmentation and sharing on a part are observed. The historical city ceases to be a metropolis, it's planning structure remains static and closed, preservation of traditional tenor of life is characteristic of this part of the city (Figure 4).

Outside the walls, there is an increasing growth of the city, although there is unplanned development and attempts to create sustainable links between the individual parts of the building. Several areas of the

new building which have appeared on plans except for central administrative, trade, factory and Sea department on the Bailov cape were or designed residential. In the projects of the city at the end of the 19th century two planning poles of gravity appeared, a rapidly developing large industrial in the east and naval in the west, that had to take some functions that overloaded the central district. But the settlement of the admiralty naval port on the Caspian Sea developed independently and didn't depend on the city both in economic, political, administrative and planning terms. This was due to the geography of the territory occupied by it, located in the southernmost tip of the Baku bay and directly bordering in the southwest on Bibi-Eybat crafts, it had no stable connection with urban development that in turn interfered with the development of the city in the western direction.

At that time the central historical district could no longer focus on the functions inherent in the rapidly developing industrial city. Through the streets connecting the downtown with the Bazar Square in this area, a brisk trade was developed as well as in the south-eastern direction adjoining to Torgovaya Street. Another part of the area mainly was residential.

Appropriate for the functions of citywide importance was factory area the so-called *Black town*. The whole business life of the city was concentrated here, the factory district, in general, became the main transport hub of the city and agglomeration. The functions of the city centre, first, assuming the organization of service get on the territory of the industrial zone and actively extend across all territory of transport and communication system of the area.

8. Factory area

The prerequisites of the development of this region belong to the second half of the 19th century mainly as a warehouse area with a lot of piers and barracks. The impetus for the creation of a factory area was the publication on 17 February 1872, of a law on the abolition of the pay-off system in the exploitation of oil sources. The numerous small plants emerged in the 60s of the 19th century was located and built chaotically on sites of residential quarters of the city. In the early 70s, they irregularly occupied large areas of urban land. This neighborhood with housing estate did not contribute to its growth, or to favourable living conditions. The matter is, that factory constructions occupied considerable areas and represented through the organized but generally uncomfortable territory along these directions with capital building and the factory pipes which are constantly letting out soot and smoke (Fatullayev-Figarov, 1986).

The connection between the oil fields and the city was mainly eastward along the routes of 3 parallel tracks of Balakhani, Surakhani and Telefon (nowadays streets: Fizuli, D.Aliyeva and May 28). In 1870 the administration of the Baku province has raised the issue of diverting sites for the construction of

plants in the urban forcible land. For this purpose, in the urban forcible land in 2 miles from the city plots of 2000-2500 sq. (approximately 4300-5000 sq.m.) with wide streets between them are given to manufacturers for the construction of plants. Transfer of the plants was made in the spring of 1876 (Abdullayeva, 2004). This area is very quickly built up and settled has formed the factory area which has been named *the Black city*. One of its major advantages was the location: direct proximity to the sea coast, to the port, railway junction, as well as to the central position in the general scheme of the Baku oil region, played an important role in the future development of the city and its agglomeration (Figure 5).

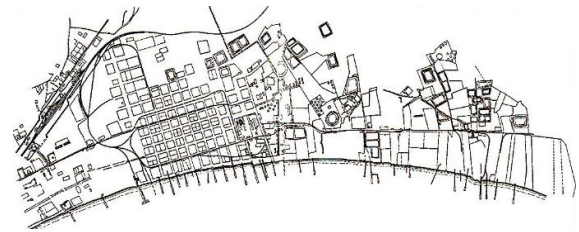


Figure 5. Plan of a production zone

Architectural and planning decision of the regular planning of the factory area was the first experience in the town-planning practice of Russia. On the plan of Baku of 1878, we can clearly see how on a flat relief the dense grid of streets with a width of 12-20 seedlings is designated. The area of all the streets was about 58% of the total territory of the site and quarters. During the reconstruction of Baku in the 1920s of the 20th century professor A.P.Ivanitsky wrote that this plan isn't rational and causes considerable over-expenditure on amenities, that it could be justified only in the central business-trade and administrative part of the city where various forms of traffic of the transport movement are concentrated (Ivanitsky, 1930). But the uniqueness of this area, its exclusiveness was that during the considered period it concentrated the highest for the industrial city objectives in various areas which were achieved due to spatial concentration of urban functions. Thus, the specifics of this city centre not consisted in what functions were its part, and not in the frequency of visits of its objects as well as in the maximum placement in its territory of the functions dominating in development of the industrial city.

It should also be noted that benefit from the experience when planning the factory area was directly adopted already from a ready standard of the American industrial cities. In 1923 in the *Kommunalnaya zhizn* magazine wrote: Baku is considered to be the city of the American fold where the large percentage of streets from the total building area follows from conditions of traffic meaning this part of the city (Smirnoff, 1923).

At the end of the 19th-century throughout Russian Empire, there was a fast process of concentration of production, monopolistic associations were created. The oil industry was one of the most monopolized branches of the heavy industry. Oil production, processing of its vehicles and the oil market

gradually concentrated in hands of a few the largest monopolistic associations. The large capitalist enterprises were established in the form of joint-stock companies. They have received in the 80s and especially 1990s development and to the end of the century represented the main form of the enterprises. There were necessary new lands convenient for exploitation. The closest to *Black city* were the lands of the settlement of Kishla where another industrial town soon arose. The development of the industrial zone in the east was very favourable both to the city authorities and entrepreneurs; close location to the resource base, it wasn't necessary to allocate large sums for the organization and development of new territories to lay communications. A favourable ecological factor was also taken into account, the direction of the dominating winds was considered indicates the advantage for the city of the concentration of the industrial enterprises here.

White City is so called the new part of the factory area was built unplanned in official documents of 1908-1909 it was indicated that in recent years there has been a rapid growth of the *White City*, in which new plants are being built, whereas: *the lack of bridge, squares, narrow streets, etc., causes significant inconveniences for industry and harm business.* The development of new lands for the factory area went eastward along the seashore and was completed by the construction of a weaving factory of the millionaire Taghiyev with a small settlement for employees. This position of the borders and planning of the factory area was maintained until the 50s of the 20th century (Abdullayeva, 2004).

If at the first stages of the development the factory area had regular planning and has been located at a distance approximately on 2 km from the city then over time it grew into urban development. Due to the chaotic process of the formation of the area insufficient consideration of the diverse social and economic interests of the city, there were complex contradictions arose in the construction of industrial and residential areas. Until the reconstruction of the master plan of the city intended for 2005, this area located in the railway and water transport hub with a central position regarding the plan of Baku remained as industrial. And in one of the subsequent master plans of the city till the 1980s the problem of reconstruction of the factory area wasn't raised.

The planning structure of the city was constantly adapting to the changing conditions of development of the production, the city borders were rapidly expanding, construction of railway tracks, numerous quays, the laying of new streets and roads adapted for mechanized modes of transport. All this has activated the town-planning role of Baku as the centre of the industrial region. And if on the plans developed till 1900, it is possible to observe aspiration in a certain order but in subsequent years the principle of the seizure of free lands becomes dominant.

9. Production urban areas

Besides the factory area, other urban areas are included in the system of industrial territories. The coastal strip representing the most valuable territory for the city is captured by numerous piers encumbering it along the Baku bay from the Shikhov cape in the West to *White city* in the east. If in the initial stage of development of the city growth tendencies aside from the sea than on the plan of 1878 along with the very considerable advancement of building towards land are shown (from the sea), growth tendency along the sea on the separated pieces of the coastal territory of the city is shown.

On 23 August 1901, by a special meeting of the City Duma it was decided that the boundaries of the territory of the Baku trade port should be the coastline from cape Shikhovo through the Bibi-Heybat oil-field; the centre of Baku; the factory area to the cape of Sultan or Zikh and from there through Peschany Island, Wulf, Nargen to Shikhov cape (NA). There was an external pipeline passed from there, connecting the Bibi-Heybat trade area with the factory area. Also, burdensome for the city there was a passing across the coastline of railway access roads to port with only one passage under them for communication of all urban areas and the centre with the factory area. None of the plans starting from 1878 to 1918 despite the outlined expansion and improvement of the coastline did contain instructions on the need to localize the port in a certain place.

The system of industrial territories of the city included a large part of the Zavokzalny district. The deadlock branch of the Transcaucasian railway which has formed the railway hub in the centre of Baku with the switchyard located near the settlement of Baladzhar, passenger and commodity stations as well as with the available branches to industrial institutions of the factory area and the port was an incitement for creation in this urban area of a number of the constructions serving railway transport: depot, mechanical workshops, warehouses of the equipment and oil products.

As the main means of freight transportation, the railway from the beginning has rigidly caused placement of the urban industry. Having set the directions of the main labour gravitation, it influenced not only the external outlines but also the internal organization of the city plan. With the advent of the railroad, suitable construction has appeared. A number of projects were designed to resolve the newly formed districts – Zavokzalny (architect Fon der Nonne), Veer (architect M.G.Gadzhinsky) etc. (Lifshits, 1925).

The revealed scheme of distribution of industrial constructions on urban lands gives a figurative representation of planning structure of the city where the coastline and a branch of railway tracks act as core elements. And if the sea predetermined the structure of the primary plan of the historic city, the railway became that spatial factor that predestined further dynamics of the formation of the capitalist Baku plan (Figure 6).

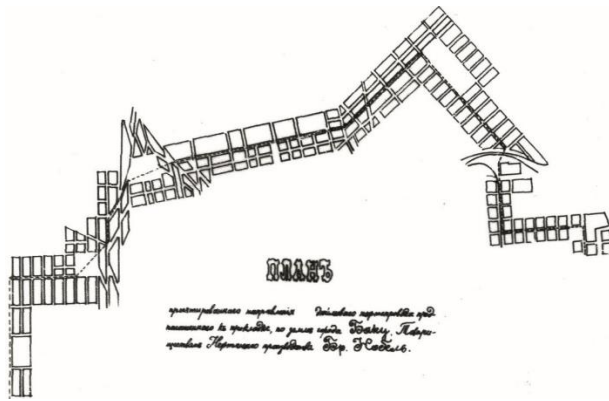


Figure 6. Designing the direction of the oil pipeline projected for laying on the ground in Baku, the brothers Nobel oil production company in 1897

10. Transport system

Transport becomes an urgent necessity-without it can't be realized the most important functional connections within the overgrown city.

Baku had to get a new form, to find an organic compliance to its changed content. The unplanned expansion of the urban area contributed to the emergence of long distances which had to be overcome daily by the population. There was a need for extensive use of intraurban mechanized vehicles. Transport problems of the city are put on the first place; they are given an urban forming character.

In 1873 the company Absheron Railway was organized in Baku to build a gauge road with a length of about 48 kilometres to connect the city with fishing. And on 16 July, the project of building the so-called *oil site* of the Transcaucasia railway was approved. It was put into operation on 20 January 1880, and connected Baku to Balakhani-Sabunchi and Surakhani trade areas.

The longest was the factory line connecting the city with crafts. The railroad track laid outside the city line already then accumulated the basic prerequisites for the formation of Big Baku. Its stations and transfer knots become the centres of social activity. The railway line along with the industrial territories and coastline formed a clear pattern, in which a new planning axis is clearly visible, which divides the *bowl* of the amphitheatre into two almost equal parts. On plans of 1898-1918s, it is visible as the projected new rigid grid of street networks is badly adapted for a relief in mountain places (Figure 7).

All city roads of this period can be divided into 2 systems: the old system of streets of the 60-70s of the 19th century, representing extremely dense and narrow passages of the feudal city through which the neighbouring are connected by traditional quarters (*mahalle*) with private dead-end branches (*dalanas*), carrying function of distributors. Of course, such system of urban roads could not satisfy the traffic of the rapidly developing capitalist city. This system couldn't provide suburban communication and traffic with trade areas. The new system of streets which has developed by 90s formed a one-dimensional grid of wide transit. Two of these systems both had the

sharply expressed characteristic planning tracing combined with each other, represented the transport scheme inconvenient for the city.

So, Telefonnaya Street (nowadays 28 May) having good capacity the main road convenient on the arrangement, directed parallel to the seashore, having main industrial function, supplied with drives and access roads of the Transcaucasian railroad connected the central regions of the city with the station and the factory area in an old part of the city, rested against narrow Karantinnaya Street (nowadays A.Aslanova) which serves as its continuation and couldn't accept also quarter of its traffic. Balakhanskaya Street in the Zavokzal area was about 15 meters wide, within the Central district lost its importance where it narrowed to 4-4.5 meters (Ivanitsky, 1930).

In this regard, it is necessary to highlight those aspects of the formation of the planning system of the city which are associated with its industrial development. The emergence of mechanical transport and a new system of street networks influenced the development vectors of urban areas. So, the automobile and railway movement were sharply oriented towards the crafts and the factory area (Balakhani main road, Belgorod main road, Bailov-Bibi-Heybat main road). The considerable degree of tension is obtained by city streets running parallel to the main transport links between crafts, the port and the factory area. Forming external main road, they were equipped with the mechanized means of transport and provided suburban communication between the outermost sites of the Baku oil region. Outside the town, they were laid along new routes with good throughput and the possibility of using mechanical means of transportation, but the existing network of streets was more often used for building inner-city streets. These included all the main roads connecting the Bibi-Heybat trade with the factory area passing through the central part of the city.

Movement, directed perpendicularly to the sea, was given less importance. Radial streets generally had intracity character, except for Stanislavskaya (nowadays Azadlyg Avenue) and Balakhansky (nowadays Fizuli St.) that have access to Balakhansky main road connecting the city with crafts of Balakhansky and Surakhansky group and Shemakhinskaya street (nowadays Moskow avenue) going from Lower boulevard through Surakhansky main road connecting the city to Binagadinsky crafts.

The necessity of establishment of the more convenient link between industrial regions, the railway and port has led to the streets which are main roads improved and put in order in the first place, regardless of whether they passed through the central areas or on the urban outskirts. Thus, in the remote areas among full off-road terrain, there was a new type of the paved street with the sidewalk.

With the increased mobility of the population on a regional scale, the transfer of passengers from the residential part to the industrial one has turned an extremely acute and urgent issue.

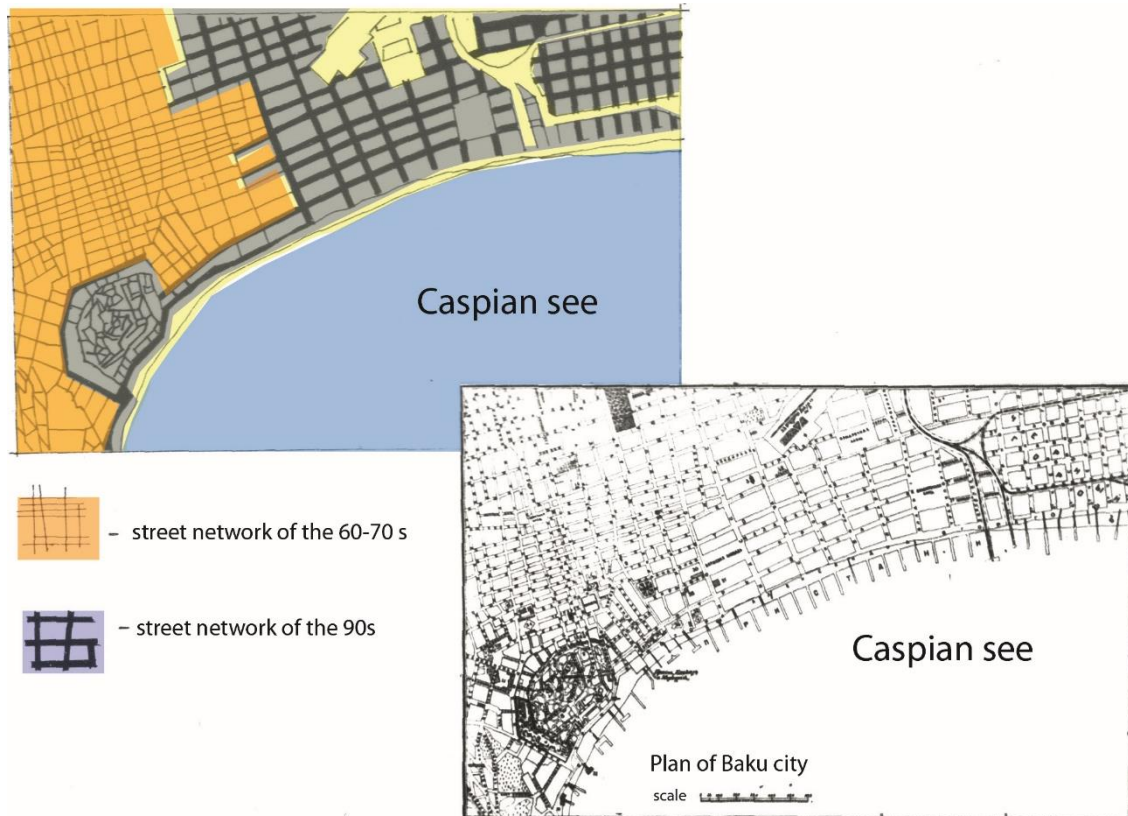


Figure 7. Conflict of the transport network. The appendix to the guidebook of the city of Moscow in 1913

It became aggravated by the fact that the railway had not enough links due to the transit passenger and commodity streams have laid down the additional load of the outdated street network. The increase in distances that needed to be overcome to get from a residential part of the city to an industrial zone could be overcome only by the emergence of a new type of transport on streets.

In 1889 the horse-drawn tram belonging to Joint-stock company of the horse railroads which purpose was the connection of remote industrial parts of the city has begun to work. The horse tram had four lines. On the scheme made based on data of the Baku background calendar for 1897 (Baku Reference Calendar, 1986) from four lines of the horse tram – three starting point had Privokzalnaya square which represented a knot of heavy traffic. The station has turned into the main transport hub, the active movement of both horse-drawn and mechanical transport depending on the type and the characteristic was observed here as well as the time spent to the destination depended on planning development of the city. The location of the station on the deep input of ways of the main line of the Transcaucasia railroad within the central building at this historical stage was very beneficial to planning development of the city.

Works on planning and settlement of the urban area done during 1880-1920s unite identical approach to design of the urban plan where the main problem of transport communications that is typical for all developing industrial cities of that period as the crucial importance was gained by streets, but not quarters

and residential areas with their domestic, public and cultural ties (Bunin and Savarenskaya, 1979). For example – planning of new trade settlements the factory area as well as the new urban areas created generally for the alien population represented the scheme of street networks.

11. Conclusion

The turn of the 19th and 20th centuries is a time of great changes formation of new town-planning trends. During this period in the territory of modern Azerbaijan, the processes which considerably changed the image of the feudal cities and settlements began to gain strength.

The solution of town-planning problems during the considered period is defined by the influence of socio-economic factors, the concentration of the population, interrelation of the natural artificial environment, the functional organization of the territory. The sharp increase of the population has led to an essential complication of all spatial organization of the Baku oil region. Misunderstanding by the city authorities of the happening processes and insufficiently detailed accounting of demography of the area have led to serious disproportions in development of the city and the areas traversed to it. Along with the development of technology, the adaptation of the forms of settlements to landscape is replaced by an active transformation of the relief. The trade semi-circle of the city had included 11 settlements testing strong economic inclination to it which

sharply distinguish from the settlements located out of this semi-circle which preserve the traditional isolation, the pure nature, life, an agricultural form of labour.

The emergence in the second half of the 19th century of new means of transport has facilitated and accelerated the mass movement of people and freight, made possible growth and use of remote oil-bearing lands. A number of the projects carried out at the turn of the 19th-20th centuries, such as consolidating plan of sites suitable for developments of oil, the project of tram network the city-settlements-trade, the project of water supply of the central and north-west part of the Absheron peninsula prove that the Baku oil region was considered and planned as unified town-planning system.

The establishment of capitalist relations of production determined new town-planning principles for the organization of Baku and the adjacent territory. The city has ceased to exist as autonomous entity and gave way to the integrated system of settlements. In the formed system the attempt to differentiate social processes on production and non-production is observed in the article.

The types of industrial settlements and their classification based on the nature of planning interconnections of the main functional zones (city, suburbs, fishing settlements and fisheries) are identified.

The paper examines the question of the main planning and volume-spatial characteristics of the functional zones making the structure of trade settlements.

A detailed presentation of the principles of the functional and spatial organization of these types of settlements, the peculiar features of planning structures of industrial settlements associated with the feudal remnants existing in the social structure of Azerbaijan of that time are shown.

The peculiarity of distinguishing design and planning development of 1890-1918s despite their sketchiness, separation consists in an attempt of the solution of problems of regional importance, the creation of new town-planning relations in the form of the system of industrial settlements.

Rapid growth and the formation of a city and an industrial region are defined as socio-economic factors from which the following contradictory directions are distinguished: expansion of the urban area due to accession near the lying agricultural settlements and the creation of new urban areas, change of a landscape and environment, increase the production area followed by a decrease in the area of historical settlements on the one hand and increase in population density on the other.

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