

# **Military hospitals through the prism of sociology of architecture**

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**Abstract.** Unlike a painting or a sculpture, architecture, cannot be hidden from the eye of the beholder. Architecture is steadfast and is rarely copied, therefore it truthfully bears information about the function for which it is designed and about the esthetics that are appropriate for the building. Despite closeness of the military system, the architecture of military hospitals reveals a lot about the value, past and present, of the soldier and the doctor, about the attitude towards efficiency and safety, discipline and the organization thereof, and the changes that have taken place in society through the previous 300 years of existence of the hospital system.

**Keywords.** Military hospital, evolution, technology, architecture.

## **1. Introduction, Filed of sociology of architecture, main ideas and conceptions**

The relationship between "architecture" and "society" is examined from different perspectives by architects and sociologists, and the field of sociology of architecture is very often described as being in its developmental phase (Vilkovskiy 2010: 17.) All the approaches in this field of research can be divided into three groups, whereby the first and most common one includes those who believe that society determines architecture (social determinism). In the second approach, representatives believe that architecture can determine society (architectural determinism). The third group, believes that there is no connection between society and architecture, and they are of the opinion that architecture is the result of individual artistic expression.

The issues in this field begin with the determination of what the subject and object of the sociology of architecture are, and how they should be interpreted. The positions taken by researchers on this issue are quite varied. Therefore, H. Delitz considers architecture to be a means of reflecting social processes. She considers it possible to demonstrate how society and social order are embodied in architecture, whilst at the same time, being justified by it (Delitz 2008). In his works, Krasheninnikov A.V., considers the social space of the city to be a real urban environment of localization of various life scenarios (Krasheninnikov 1988). Kiyanenko K.V. shares the "sociology of architecture" (the area of sociology that is devoted to architecture, developed by sociologists) and the "social theory of architecture" (the area of architectural theory, developed by architects), thus removing the question of knowledge about methods and differences (Kiyanenko 2012). The social analysis of the architecture of different types of buildings is presented in Michel Foucault's (prisons, hospitals and schools) (Foucault 2018) and Werner Gephart (places of justice) works (Gephart 2007), who tried to connect modern society with the forms and content of architecture, by using specific examples. Therefore, they used architecture to achieve better understanding of social changes, as an insignificant action of deeper transformations that have taken place in society.

In my research, I consider architecture not as an insignificant action but, rather, a vivid illustration of the social changes that have taken place. The changes in the architecture of military hospitals are demonstrated by changes in technologies (medical and military) and changes in the of ideology of war, (Borasi, Zardini :2012). I consider architecture to be indissolubly interrelated with social and cultural

determinants. In order to reflect on the complexity of all those changes that have affected and influenced the development of the architecture of military hospitals, I have chosen the largest wars in which Russia has participated, since the emergence of the hospital structure, as the main reference point. On the basis of the chronological sequence, I track the changes in attitude towards the soldier and the officer, pain and suffering, duty and honor, and how these concepts have been reflected in the architecture of hospitals.

## 2. History of development of Architecture of Military Hospital

The military hospital was the first state-run medical institution in Russia that set the development of the entire direction of medicine. Its military origins largely determined the status of civil medicine and the unquestioned authority of doctors. I define a military hospital as a closed, multi-stage, technologized logistics platform, used by a special community, in which the most effective medical care is provided to members of the community, for the execution of their duties.

Described only in architectural terms, the military hospital does not differ significantly from any other medical facility – both are designed according to the same rules. At the same time, sociology helps to reveal specific characteristics that define architecture, such as a special establishment for a closed community, with uneven loading, that is subject to a high threat of attack (Figure 1).

Architecture

MILITARY HOSPITAL = ANY OTHER  
MEDICAL FACILITY

Sociology

MILITARY HOSPITAL ≠ ANY OTHER  
MEDICAL FACILITY

- MEDICAL STRUCTURE FOR SPECIAL SOCIETY
- FENCE and armed CHECK POINT
- HIGH RISK OF ATTACK
- ASCETIC FACADE

Figure 1. Meaning of military hospital in architecture and sociology

The original goal of establishing a military hospital system, was the need to return wounded and injured combatants back into the system – due to the significant number casualties, this goal remained unchanged over the following years. The current purpose of the military hospital remains that of returning soldiers and officers to the front line, and treatment is a means of achieving this goal. One of the key indicators of the operation of a hospital is "irretrievable losses," which include not only those who are killed in action, or subsequently die in hospital, but also those who are unable to return to the system, due to serious injuries. They are irretrievably lost to the military system, even though they are still alive.

The modern hospital building is not just a system of departments, categorized by the type of organization and priority of function over form – rather, it is like a machine. Sorting becomes a permanent part of hospital life. The incoming flow, skillfully distributed among wards, departments and beds, may not stall at any stage. Even though the hospital is a permanent structure, it is a temporary place of residence, a logistics hub, which redistributes those who flow into it between new vectors. In this situation, the

projected capacity and the inflow may increase two to five-fold – this system cannot be inherently equal and identical to that of a civil hospital.

The creation of the first military hospital defines the beginning of a new stage in the difficult relationship between the state and the combatants. From the moment when military hospitals first emerged in 1707, until the present, the military hospital, as a special type of building, has spanned an evolutionary path of more than 300 years. This path can be divided into four stages (Figure 2):

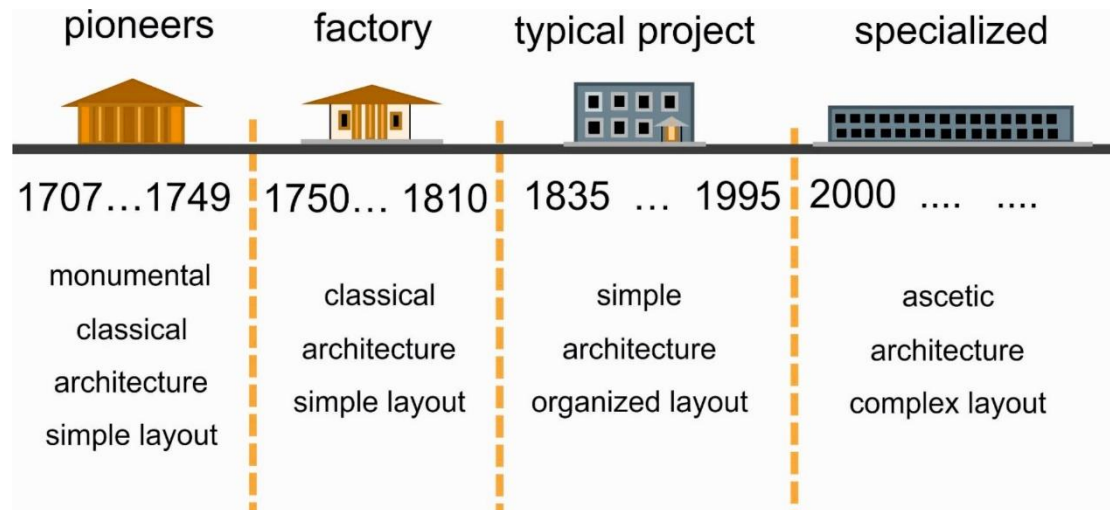


Figure 2. Development of Architecture of Military Hospitals

1)Pioneers: the first military hospitals, which emerged between 1707 and 1749. A large proportion of the first military hospitals still in operation today, without any changes to the functional purposes. They have become the largest centers and they represent massive complexes of buildings in classical style, representing more than 300-years of history of the development of medicine and technologies.

2) Factory Hospitals (1749 – 1810). For further development of a system of hospitals throughout Russia, Peter the Great issued decrees which provided for the continuation of the construction of medical institutions in the provinces. The factory hospital system was borrowed from the military sphere. The classic style of architecture prevailed.

3) Typical Project (1835 – 1995). The standard plan differed according to the capacity and the number of floors, lacked non-functional and decorative elements.

4) Specialized (2000 – to present). Present-day military hospital. The most complex technological content with the simplest façade.

### 3. Factors influencing architecture of military hospitals

According to the path of evolution presented by indicative examples, which create a certain image of changes in architecture, I seek to present a picture of the social, cultural and technological changes that occurred over this period of 300 years, to rethink the path that has been presented and to reveal the interrelations between architecture and society, based on the example of military hospitals. From the most important determinants defining changes in the architecture of military hospitals, I have chosen the following:

- Changes in ideology of war and the role of the soldier

- Changes in war technology
- Changes of ideas in terms of treatment and hygiene

#### **4. Methods of the research**

The theoretical part of the research consists of work with archive materials, the diaries and notes of military doctors, soldiers, historical information, orders and building codes, which enabled the recreation of:

- the image of military hospitals, changing with every new war
- the relationship to wounds and the quality of treatment in hospital
- medical technologies employed
- military technologies employed
- organization of life in the hospital
- the relationship to pain and the wounded

In the empirical section, I reveal the relationships of the of respondents to the changes that have occurred in the architecture of hospitals, and their opinion of the reasons why such changed were created and the effects thereof.

The analysis of the data collected from historical documents and expert interviews indicates that the military hospital and its path of evolution are an example of a high discrepancy between function and architecture. To demonstrate how allocated factors influenced on the architecture I subdivided changes in image of hospital and changes in planning decisions.

#### **5. Transformation of the image of hospital**

During the period over 300 years hospital has changed its image 4 times, every century brings new technologies and ideas and we could track the changes in attitude to hospitals depending on attitude to war.

In the 18th century when hospitals first emerged, firearms were already in active use, but the speed of a recharge was slow and the firing range was restricted. Most combatants did not die in battle, but rather from their wounds, and from the diseases they contracted while living in crowded conditions, with a high concentration of people; the army became a source of distribution of epidemics. Hospitals in which, at that time, there was not yet full separation of infectious and non-infectious patients, were the initial incubation point for dangerous diseases: "in former centuries, during wartime, the higher number of fatalities of soldiers and officers was attributed to diseases, rather than the weapons of the enemy" (Uralnis 1994: 45). The lack of effective anesthesia and hygiene constrained the development of surgery as a science; in hospital plans, the operating room was just one of the wards.

In the 19th century, the definition of war, in the view of medical officers, was formulated by N.I. Pirogov "war is a traumatic epidemic" (Pirogov 1865: 25), the mass character, spontaneity, unpredictability and the nature of the wounds of war is reflected in his words. In the middle of the century, a radical change took place in terms of the principles of medical assistance. Development of bacteriology and anesthesia allowed doctors to perform longer, more complex surgery; the hospital gradually transformed from the

place of invalidism and the percentage of fatalities from disease decreased. The development of epidemics was restrained by means of architecture too (isolation and competent zoning). But still, the number of fatalities remained high: “In the majority of wars during the 19th century, the number of fatalities from wounds equaled half and in some cases, even three quarters of the number of soldiers who died» (Urlanis 1994: 126).

Wars of the 20th century occupied such an extended period in history that in E. Sinyavskaya's formulation «war became a way of life» (Sinyavskaya 1999:41). Because of the progress of medicine, death from diseases in the war of 1914-1918 was not significant in terms of military losses. “Mass use of inoculations against typhus, cholera and tetanus, isolation of patients with infectious diseases, expansion of a large number of medical facilities and the introduction of sanitary and preventive actions – all of this resulted in rather insignificant numbers of fatalities from diseases, among the general losses” (Urlanis 1994: 296). According to available data, by the end of the Great Patriotic War, 72.3% of the wounded and 90.6% of the sick patients returned to service (Ivanov et al. 1985: 272). From a place where pain and the development and spreading of infections had reigned, the hospital transformed into a place of short-term rest, into a shelter.

In the definition of the wars of the 21st century, there is no standard formulation; regarding the main lines, the locality and the blurring of borders, limited and intermittent information is noted. The modern hospital can do everything to return the soldier to a system, and to help civilians who have been injured during the conduction of military operations. The soldiers who are in hospital do not bear a shoulder strap or stripes with a name, they do not speak about their traumatic circumstances. High walls, barbed wire and depersonalization – all these measures are directed towards the transformation of the hospital into a fortress. The modern hospital is the coordinated mechanism, the machine enclosed in armor in the form of a fence, which does not allow disruption of the principles and coordination of its work.

In summarizing basic data about wars, hospitals and losses in each of the past centuries, from the moment when the first hospitals emerged, until the present time, we can see the following picture (Figure 3).

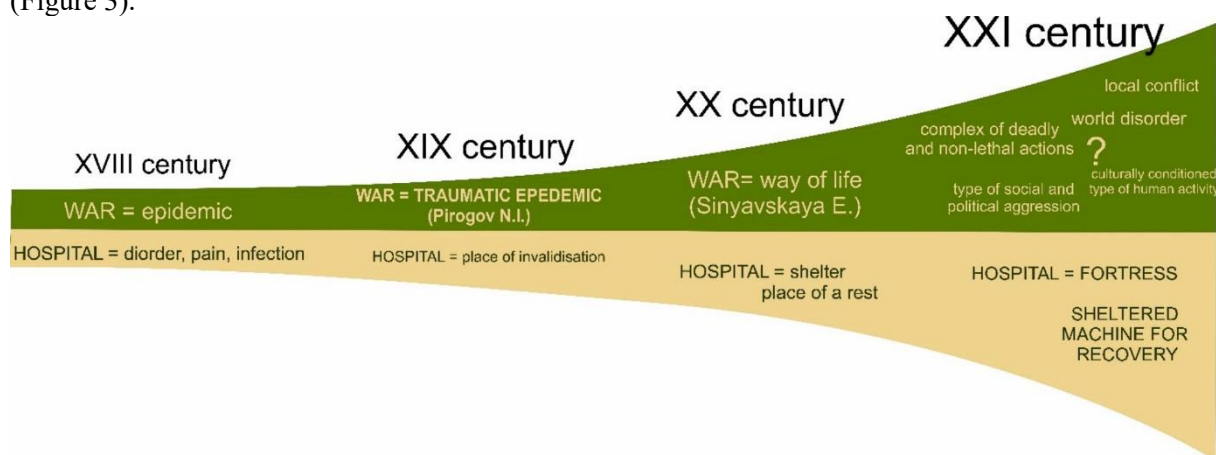
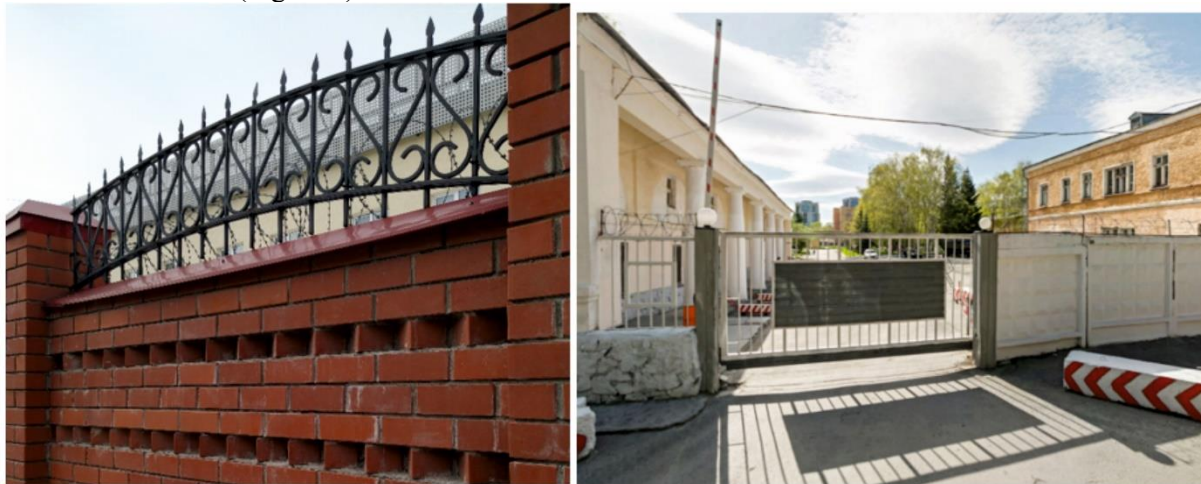


Figure3. Changing of the attitude to wars and hospitals through 3 centuries

Changes of ideology of war to hidden and poorly reported effects on image of military hospitals.

We can see a tendency towards limited information indicated on the facade and the increasing closed character and isolation of the system. The first military hospitals in Lefortovo St. Petersburg, in Kronstadt – in the architecture of this building we could sense the high esteem in which the doctor's work and the heroism of the combatants were held – the power of a government reflected in robust and secure forms, perfectly executed decorative elements (rustications, pediments, colonnade). Hospitals

that were constructed after the Great Patriotic War sometimes do not have any decorative elements at all. Today, the image of the hospital building is deprived of any individuality, as though it is hidden behind a blank wall (Figure 4).



Picture 4. Blind fence with barbed wire, 5th military clinical hospital of the national guard of the Russian Federation, Ekaterinburg (left) and 354 military clinical hospital (right)

## 6. Transformation of the plan of hospital

Changes in medical technologies transform planning solutions for hospitals, arranging plastic structures according to new needs and rules. Every year, the functional structure becomes more and more unlike any other non-medical building, and the use of non-medical buildings for the needs of a hospital becomes more difficult –their impracticality is highlighted. These changes are visible in the evolution of hospital plans. For example, the development of the understanding of what infectious disease is, is reflected in architecture, too (Figure 5). On the plans of the factory hospital in Nizhny Tagil from 1825, we can see a separate ward for infectious patients, but it is located near other wards, in the same building. In 1910, on the plan of the factory hospital in Satka, we can see the appearance of a separate block and in 1916, a separate medical building for infectious patients, subdivided according to diseases.

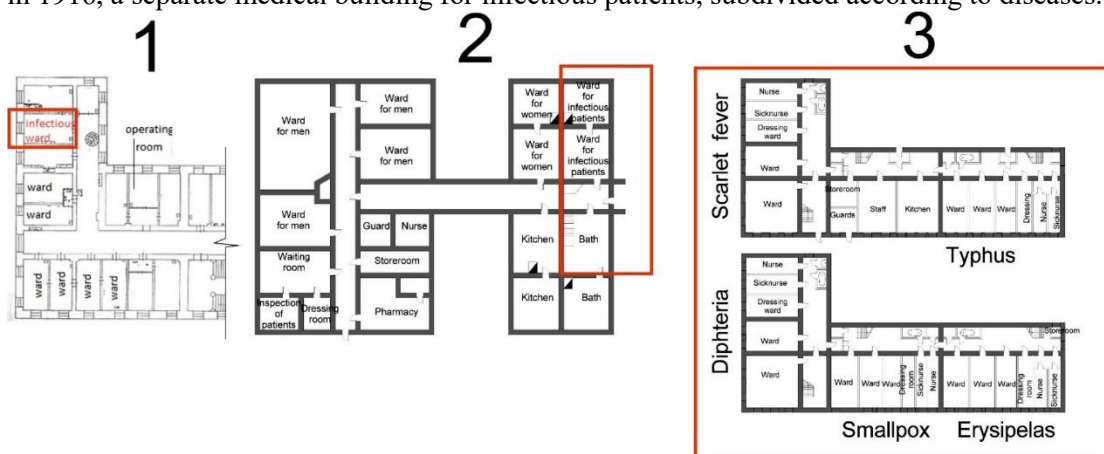


Figure 5. 1 ward for infectious patients in factory hospital in Nizhny Tagil, 1825,

Two major advances radically changed the planning of military hospitals. The first is anesthesia, which allowed doctors to perform operations without having to hurry and without being distracted by the screams of the patient. We were able to find a phrase among the recommendations before the Crimean war: "Operating rooms to be placed as far as it is possible from wards" (Alelkov 1907: 362). In

architecture, we have lifted the need for greater distance and the operating room has become a full component of a uniform complex and, with development of surgery, one room has become a block of functionally connected elements: pre-surgical room, surgical, sterile area(Figure 6).

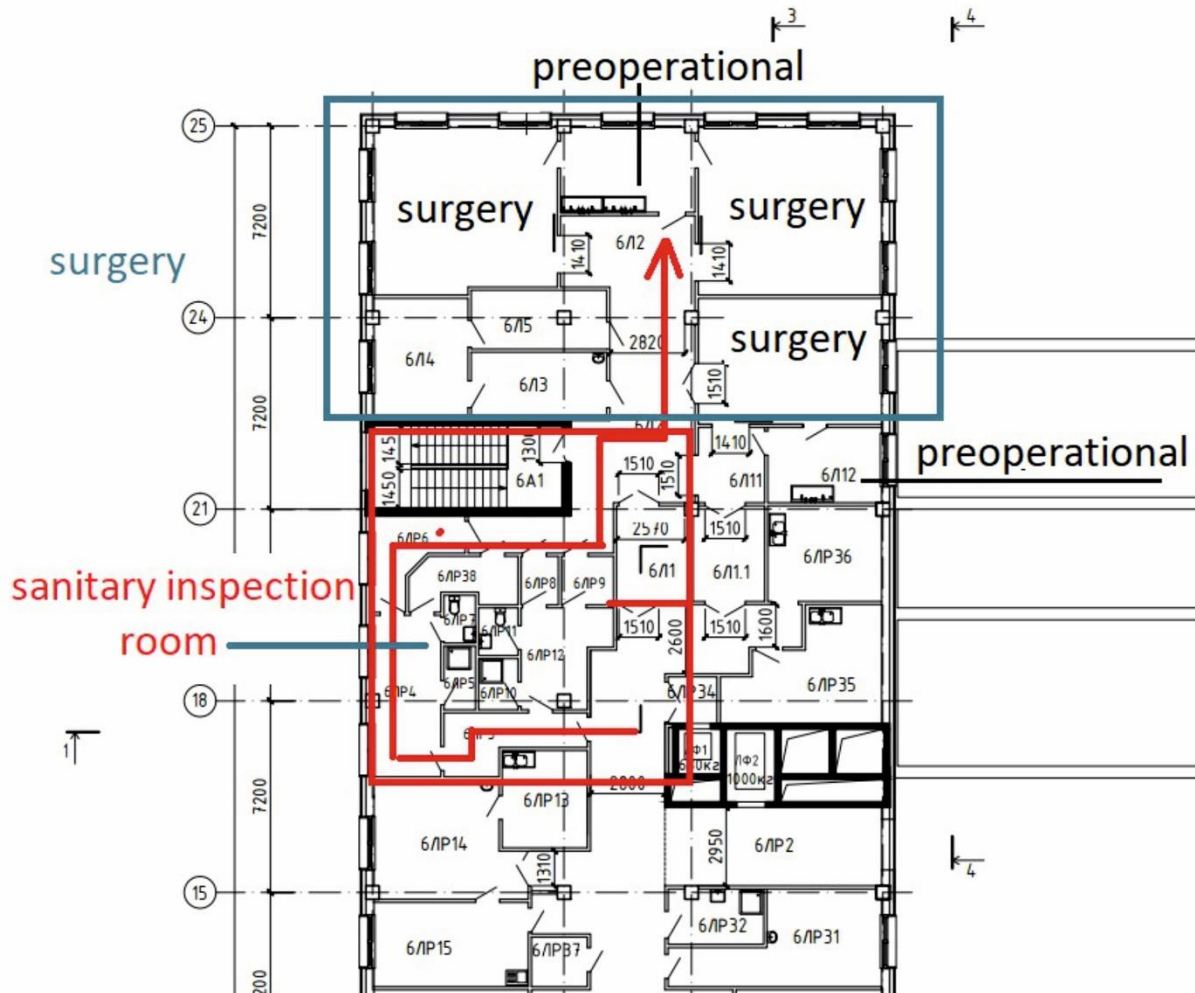


Figure 6. Blueprint of the operational block of military hospital, 2007

The second advance which has changed military hospitals and any other medical institutions forever, is the development of bacteriology. Hygiene improved and all premises of hospitals were divided into white and black, clean and dirty. In one building, a special, new, invisible protective area has emerged, which it is only possible to gain access to from special entry points. From that moment, to get to the operating theater, the physician must pass through a sanitary inspection room, and this area is inaccessible for other streams.

### 7. Conclusion

Because of its specificity, the military hospital has a number of characteristics peculiar only to it, which include the closeness of the system, the uneven nature of the incoming flow, a special community, the military hospital is primarily a machine for returning combatants to the system. The chronological framework of the study covers a period of 312 years and in this period, we could see that in architecture

reflects many ideas about the degree of significance and value of each functional element in the planning scheme. Through the change in the architecture of military hospitals one can see the development of medicine. All allocated factors have had a considerable impact on building projects, but architecture also reflects the attitude towards war and the wounded, towards courage and honor. Therefore, architecture could reveal much more about the people who have constructed and designed a building, about how people use it, about technologies and medicine, about combatants and non-combatants, about humanity and heroism.

## References

- [1] Aalto A 1978. *Arhitektura i gumanizam [Architecture and humanism]* M.: Progress
- [2] Agapov P.V. 2014. Vojna kak predmet izuchenija v istorii social'no-filosofskoj i social'no-politicheskoj mysli: opyt nauchnogo analiza Vestnik Moskovskogo universiteta. [War as a subject of study in the history of socio-philosophical and socio-political thought: the experience of scientific analysis ] Serija 18. *Sociologija i politologija, №1*
- [3] Aibar E., Bijker W.E.2017. Constructing a City: The Cerda Plan for the Extension of Barcelona. *Sociology of power*, 29 1: 233-257
- [4] Alelkov A. 1907. *Istorija Moskovskogo voennogo gospiatalja v svjazi s istoriej mediciny v Rossii k 200-letnemu ego jubileju 1707-1907 gg.[ History of Moscow military hospital in connection with the history of medicine in Russia to 200 years of his birthday 1707-1907]* M.: Shtaba Voen. Okr.
- [5] Broady, M. 1966. Social Theory in Architectural Design.' *Arena . the Architectural Association Journal*, 1: 149–154.
- [6] Chistovich Ja. 1870 *Oчерки из истории русских медицинских учреждений XVIII столетия [Essays on the history of Russian medical institutions of the 18th century]*, Sankt-Peterburg: Tip. Ja. Treja
- [7] Van Creveld M. 1991. *The Transformation of Warfare.* — N.Y.
- [8] Delanda M. 1991. *War in the age of Intelligent Machines* Urzone, Inc
- [9] Delitz H. 2008. Arhitektura v social'nom izmerenii [Architecture in the social dimension]. *Sociologicheskoe obozrenie* (10): 113-121
- [10] Foucault M.1977. *Discipline and Punish: The Birth of the Prison*, Pantheon Books..
- [11] Gephart V. 2007. Places of Justice: Judicial Architecture Between Sacred and Profane Buildings.*Sociological review*, 6(3)
- [12] Borasi G. Zardini M., Demedicalize Architecture, Places Journal, March 2012. Accessed 20 May 2020. <https://doi.org/10.22269/120306>
- [13] Gosudarstvennyj arhiv Sverdlovskoj oblasti.GASO. F24, 1T2, 2779. Delo ob aptekah i gospiataljah. Polozhenie o stroitel'stve voennyh gospiatalj [The case of pharmacies and hospitals. Regulations on the construction of military hospitals]
- [14] Ivanov N.G., Georgievskij A.S., Lobastov A.S. 1985. *Sovetskoe zdravoohranenie i voennaja medicina v Velikoj otechestvennoj vojne 1941-1945 [Soviet health care and military medicine in the great Patriotic war 1941-1945]* : Medicina : Leningr. otd-nie Institut obshhegumanitarnyh issledovanij
- [15] Kaldor M. 2016. *New and old wars. Organised Violence in a Global Era.* Polity Press Ltd., Cambridge
- [16] Kijanenko K. 2012. Sociologija i social'naja teorija arhitektury: problemy mezhdisciplinarnosti [Sociology and social theory of architecture: interdisciplinarity problems] . Oчерednoj IV Vserossijskij sociologicheskij kongress 2012. Sekcija 40. *Sociologija arhitektury. Rossijskogo obshhestva sociologov.*
- [17] Kolhaas R. Ajzenman P. 2017 *Superkritika [Supercritical]* – M.: Strelka Press
- [18] Krashennikov A.V. 1988 *Zhilye kvartaly [Residential areas]* .:M- Vyssh.shk.
- [19] Le Korbjuze 1970. *Arhitektura XX veka. [Architecture of the 20th century]* M.: Izdatel'stvo «Progress»

- [20] Marmot, A. 2002. Architectural determinism. Does design change behaviour?. The British journal of general practice: *the journal of the Royal College of General Practitioners*. 52.
- [21] Pirogov N.I. 1865. *Nachala obshhej voenno-polevoj hirurgii, vzjatye iz nabljudenij voenno-gospital'noj praktiki i vospominanij o Krymskoj vojne i Kavkazskoj jekspedicii [Beginning of the General military field surgery, taken from observations of military hospital practice and memories of the Crimean war and the Caucasian expedition]*. - Tipografija Blohmana i syna
- [22] Pirogov N.I. 1899. *Sevastopol'skie pis'ma N.I. Pirogova [N. I. Pirogov's Sevastopol letters]*. 1854-1855 Sankt-Peterburg: tip. M.M. Stasjulevicha
- [23] *Polnoe sobranie zakonov Rossijskoj Imperii. Vtoroe sobranie 1825 – 1881 [ Full collection of laws of the Russian Empire. Second part]*. 1882 Rezhim dostupa: [http://www.nlr.ru/e-res/law\\_r/search.php](http://www.nlr.ru/e-res/law_r/search.php).
- [24] *Polnoe sobranie zakonov Rossijskoj Imperii. Pervoe sobranie 1649 – 1825 [Full collection of laws of the Russian Empire. First part]*. 1830 Rezhim dostupa: [http://www.nlr.ru/e-res/law\\_r/search.php](http://www.nlr.ru/e-res/law_r/search.php)
- [25] Shvidkovskij D. 2018 *Ot megalita do megapolis. Ocherki istorii arhitektury [From the megalith to the metropolis. Essays about the history of architecture]* M.: «Kuchkovo pole» jepohu per. s angl. A. Appolonova, M. Dondukovskogo, M.: Instituta Gajdara
- [26] Sinjavskaja E. 1999. *Psihologija vojny v XX veke. Istoricheskij opyt Rossii [psychology of war in the 20th century. Historical experience of Russia]* M.: «Rossijskaja politicheskaja jenciklopedija» ROSSPJeN
- [27] SNiP II-69-78 *Lechebno-profilakticheskie uchrezhdenija [Medical facilities]* 1978 M.: Strojizdat ne dejstvuet
- [28] SP 158.13330.2014 2014 *Zdanija i pomeshhenija medicinskih organizacij. Pravila proektirovanija [Buildings and premises of medical institutions. Design rules]* M.: Minstroj
- [29] Titkov A.S. 2017. Sociology of Architecture: Bricks to Construct From. Review: Vilkovskij M.B. 2010 Sociologija arhitektury [Sociology of Architecture], M.: Fond «Russkij Avangard». *Sociology of power*, (29): 233-257
- [30] Urlanis B.C. 1994. *Istorija voennyh poter' [History of military losses]*, Poligon, Sankt-Peterburg.
- [31] Vil'kovskij M. 2010. *Sociologija arhitektury. [Sociology of architecture]* M.: Fond «Russkij avangard»
- [32] Yaneva A. Guy S. 2008. Understanding Architecture, Accounting Society. *Science and & Technology Studies*(21):3-7