Cadastral land surveying as a tool to study and develop Russian lands of the 16th – 17th centuries

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Abstract. The article reveals the role of cadastres surveyings, as the most important land arrangement and planning activities in the framework of the study and economic development of the Russian territory during the final stage of collecting lands around Moscow and the formation of a estate-representative monarchy in Russia.

1. Introduction
Land planning (land surveying) arose long before the formation of the Old Russian State. Its appearance was associated with the development of social approach to production in general, the emergence of statehood and economic laws in the field of land planning, which began to manifest themselves in the early stages of social organization [1]. Since the Russian Empire had been manifested, the land surveying activities were carried out to study and develop the lands, establish the order in lands’ using, set the boundaries and areas of land tenure, the rational use of lands. Among these activities can be identified cadastral surveying.

2. Methods
The work was prepared on the basis of the narrative, historical-genetic, comparative methods of scientific research, including the principles of historicism and objectivity.

3. Study of cadastral surveying of the 16th – 17th centuries
The period of the 16th – 17th centuries is characterized by the rapid growth of the territory in the Russian State. The total area of the country in the middle of the 16th century reached 2.8 million km, and by the end of the century – 5.4 million km [2]. By conquest, on the basis of vassal relations, Bryansk lands, Ugra land, Pskov Republic, Volotsk, Ryazan and Smolensk Knyadzestvo (principalities), lands of Kazan, Astrakhan Khanates, Great Nogai Horde, Siberian Khanate, Kodsk Knyadzestvo, Apostolic lands, Izhora and Pegaya Hordes were annexed voluntarily to Moscow. [3].

In the next century, the expansion of the Russian State borders continued. It included the Lands of the Don Cossacks, Left-Bank Ukraine, Zaporozhye, Southern Urals, Ishim, Yakutia, the Okhotsk Sea, Kolyma, Anadyr, Pribaikalye and Trans-Baikalia, Priamurye, Ingermanlandia, Livonia and Estland and a number of other territories. Thus, by the beginning of the 18th century (1708), the Russian State occupied the territory of 15.02 million square km. [4]. This means that during this period, the territory of Russia increased more than five times.
The annexation of new lands was accompanied by the large-scale reforms in military affairs, the fiscal system, state administration and legislation, which aims at building a State on the principles of estate representation.

An important tool in studying and economic development of new lands became cadastral land surveyings, which were massive documentary descriptions of lands and their possibilities in terms of organization of a local management system, taxation system, and economic development of individual territories.

The first Tsar of All Russia, Ivan IV, with the adoption of the Code about the service including the period of 1555-1556, marked the beginning of the mass documentary descriptions of lands. At the same time, the Book of Sokha Letter was published, in which the calculations towards lands planning with applications of the geometric drawings were indicated (instructions on how to organize land planning works).

Tsar Ivan the Terrible, in his message to the Stoglav Cathedral, "ordered to send seven 'notariats' (scribes) to describe all their land ...". And later, by the Decree dated on September 20, 1556, he ordered: "who among the nobles and the boyars' children took possession of many lands, and are scanty in state servicing ... on estates with surveying, comprehend and establish what they deserve, and divide the non-deserved lands among the poor" [5].

Land surveying works were carried out in accordance with some special documents describing a procedure, which were called 'scribes' (prescriptions). In the course of these works, the notariats made records about local and patrimonial lands, some lands belonging to villages and small villages in conformity with their landholding, described the population and its occupations, checked the availability of lands according to previously issued documents of ownership (state certificates, records from land surveying books, bill of sale and etc.) with the actual use of lands based on the descriptions and measurements data, the testimony of witnesses from local people; established the legality of land tenure and seized hidden or illegally used lands in favor of the Sovereign with subsequent distribution; described lands according to landholding types, qualitative and cultural-technological state, including the types of agricultural use; solved land conflicts.

One of the main tasks of cadastrel surveying was to establish the boundaries between landowners. In one of the mandates to the notariats, referring to the middle of the 17th century, there was said: "woodland, and villages, and floodland, and lands inhabited and used as means to living which have become the landlords lands with plowed lands and mowings and with any other land, although they are not the subject of a conflict.... those woodlands are needed to divide (make boundaries between them) and in the book these boundaries are to be fixed in order to avoid further land-related conflicts" (art. 29 Cadastres order 1622) [6].

During the entire reign of Ivan IV, the lands of more than 22 cities in the central regions of the country were described and cadastred - the Dvina region (lands lying on the western coast of the White Sea), Novgorod, Pskov, Polotsk, and Livonia.

In the Order of 1622, a number of articles were addressed the border relations and land surveying, and it was emphasized that cadastral descriptions – the important governmental task, which the State takes as its own responsibility, was fixed in the Local Order by the notariats of the department.

Cadastral land surveyings were supplemented with some graphic images of a locality, made extremely schematically, due to the lack of the geodetic instruments in that time. An example of such drawings is shown in Figure 1.

In the first half of the 16th century, the first cartographic works were carried out in Russia. The main instrument for measuring land plots was a measuring rope with the length of 80 sazhens, and the width – 30 sazhens. I. Ye. Herman gives the citation from the document: "It is fitted that the leader in the Moscow State is given to notariats the measuring rope with the length of 80 sazhens, and the width - 30 sazhens. And in those two measuring ropes, there are 2400 quadrangular sazhens" [1].

\[1\] We are talking about the State tithes in 2400 square sazhens, which served as the main measure of land in Russia until 1917.
Figure 1. Drawing of lands in the Bezhetsk district, in Gorodetsky and Meshchersky camps, taken from a conflict case between I. I. Buturlin and I. I. Monomakhov. The conflict theme was about the search for the floodlands of Yastrebuhi and Strebuha in Meschere and in camps.

According to the results of the first cartographic works, a map depicting Muscovy (Moscow Land), as well as a map of the Moscow State with a part of Siberia and Tataria was compiled [7]. The map is presented in Figure 2.

Figure 2. Map of Muscovy by G. Bessel (Dutch geographer and cartographer)

In 1697, the book “Geometry, or land surveying by radix and compass, deeply wise, giving an easy way to measure the most inaccessible places, lands and forests,” compiled by hand, was published. In the book, the considerable attention was paid to the measurement of land and issues which the notariats and city builders were facing.
At the beginning of the 17th century, during the Time of Troubles, there were large changes in land use related to the illegal occupation and land embezzling. During the numerous fires of the Moscow Kremlin, the documentation of the National Order also suffered significantly. Addressing issues related to the ordering in land laws, became one of the priorities of the Government of Mikhail Fedorovich Romanov (22.07.1596 – 23.07.1645).

After Mikhail Fedorovich ascended to the throne, the sentinel guards were sent to the western and northern regions of Russia to describe the country's regions devastated by the Polish. However, these works were practically not started. Then in 1619, the Order was issued, according to which "it was again determined to send the notarints to cities, which were not ravaged or under ravage from the part of the Lithuanians and Cossacks; to send good patrolmen, providing them both with full instructions, so that they describe and dismantle all cities by the truth, without bribes" [8].

The Decree dated on October 16, 1629 "On land surveying in the Moscow district", and then in Art. 50-53 ch. 17 of the Cathedral Code of 1649 there were legally enshrined rules and procedures for land surveying.

First of all, the order of carrying out surveying works on private requests of land owners was determined, the procedure for handling conflicts about land division was regulated, the procedure for resuming overgrown lands was established. Also, the Legislation defined severe punishment for the law violation:

a) “who breaks the land surveying, no matter state or private land, particularly who: throws out border-pillars, level pits, or plow up the land, and be found guilty, he will be punished at a place mercilessly by whipping and thrown into a prison for a week; in favor of a claimant, it is charged 5 rubles for each land line, and boundaries, lines and pits are renewed as before. Whenever the peasants in the same village did this, they are punished with a whip, and the boundaries and land lines are renewed as before”;

b) “who forcibly takes away the land or redoes the boundaries and lines and will be found or caught in doing it, he will be taken away this land and this land will be given to someone who has been taken it away; additionally, the land property of a person, who is guilty, is reviewed in line with the Decree of the Sovereign, and for violence that he has done, he is given the punishment, what the Sovereign will assign” [9].

In the reign of Alexei Mikhailovich Romanov (March 19, 1629 - January 29, 1676) the land surveying continued in various regions of the country in accordance with the above legislation. In 1673-1674, in the Zaoksky region, the notarints carried out extensive work related to the decision of the State to colonize these lands.

Forty years later, after the adoption of the Cathedral Code, the serious difficulties again arose in the land system of Russia. To a large extent, this was related to the legislation of that time about so-called “overgrown lands”. According to the Cathedral Code, adopted in 1649, it was allowed to request ownership of floodlands and “overgrown lands” that were within the estate or beyond their borders in order to expand the tribute collection, but the lack of descriptions of this category of lands led to misunderstandings [10]. There were precedents when several owners claimed the same piece of land. These pieces of land that already had their actual owners, whose rights were not documented, fell into the category of floodlands. The same lands had different names in the cadastral books and was recorded as lands of different owners, etc. The archive of the National Order has preserved many documents relating to some conflict cases, concerning the consolidation of tenure rights in respect of vacant land, suitable for agriculture. The sample material of such cases is presented in Figure 3 [11]. Due to the situation relating increasing confusion in ownership rights to the “overgrown lands” by the Decree of 1679, the transfer of floodlands into ownership was suspended until the end of their surveying. However, having begun land surveying in relation to “overgrown lands”, the State was confronted with the necessity of gross land surveying of local and patrimonial lands [1].

In 1680, the gross notarints began to conduct the descriptions of land, whose works continued until 1686 and were discontinued due to the outbreak of the Russian-Turkish war. During this period, Voevods were engaged in surveying (fixing boundaries) of the local lands.
Figure 3. A drawing of the lands of Filippovskiy village in Pereyaslavsko-Zalessky district from the conflict case between G. A. Bashmakov and the head of the Moscow Strelci (soldiers) R. S. Efimiev about the floodlands of Kuznetsovka and Kharyovka in Serrebozhsky camp.

Land surveys in the course of the gross description of lands were regulated by legislative acts, instructions and pattern-based documents, including the notariants Orders issued in August 1681 and April 1684, as well as with the additional articles that were published in March 1685 and in March 1686, given to the notariants for land surveying towards Mordovian, Cheremis and Chuvash lands, as well as the cities subordinated to the Order of The Treasury [6].

The notariants (or land gatherers) or patrolmen were engaged in checking, correcting and updating the descriptions made earlier. In cases where detailed descriptions and measurements of a land were made, these people were called 'Big'. They were notable, endowed with substantial powers.

The main purpose of these written descriptions was documentary fixation, identification of owners of lands and other real estate, the layout of taxes to the Treasury.

The notariants determined the boundaries of land plots, the categories of land use (the number of arable land, fallow lands, meadows, forests), the quantity and quality of arable land (good, average, thin), calculated taxes for land use, resolved land conflicts and issued property titles [12].

Also, they resolved arguments about the possible leasing of state-owned industrial and other institutions, among which salt manufacturie facilities and mills, etc. can be noted.

For the designation of the lines in the land surveying documents, there were used different symbols. Among them: natural - rivers, streams, lakes, swamps, ravines, trees, roads, mounds, fences, hedges, neighboring lands, yards, etc., as well as man-made marks cut into trees and pillars, holes filled with stones, coal, ash of industrial type.

In the forest area, the marks were carved on separate trees. Other trees that separated the survey, were hewn. On arable and hay lands, the survey was a line of land that was not cultivated [1].

Borders of districts, volosts, camps, and pyatin were also separated by land surveying marks.
The acts that recorded the information about land holdings were very diverse. All data on land ownership were recorded in books including the cases of refuses, separation, and gifting.

Executive decisions of the Sovereign or the Local Order to voivods, town majors, other governors about rejection towards property rights on land ownership were entered/recorded in special books (refusal one).

The decisions relating to transferring the property rights to another person within the same district were recorded in the other special books (separations and gifting).

In books containing the data about summer houses the information indicated: to whom, of what kind, in what quantity, in what locality the land was allotted for the patrimonial or local ownership by Order of the Government.

A general and complete picture of the organization of surveying works can be imagined on the basis of one of the notariants' order dated by the end of the 17th century, for example, the Order of 1684.

In accordance with the Order of 1684, the land surveying was carried out by a Local Order.

Surveying took place with the obligatory participation of owners, the old-timers, local and neighbour-living people. By the beginning of the land survey procedure, land owners had to provide property titles – “fortresses”.

The scribes/notariants had with them the following set of documents: the scribal order as a legislative document, the former scribal, surveying books, a three-plane sazhen, a rope for measuring a land.

A scribe/notariant who arrived to do the land surveying read out the Order to the patrimonial landowners, explaining a land surveying procedure.

In case of any misunderstandings, a scribe could have filed a complaint within the Order under which he was working. To clarify the circumstances, the high-level officials were sent to places and they were called “detectives”. Their duties included conducting an investigation regarding this or that case.

In 1686, additional articles for the Land Surveying (in 1684) were legislatively approved – recommendations for controversial cases.

Summing up, it is necessary to dwell on the general features of land surveying of the end of the 17th century. The survey in that time was already separated from the description of the land, the layouts of the population according to the sokhas and other functions which were characteristic of the surveying of the beginning of the century. From now on, the scribes/notariants only checked and supplemented the information obtained earlier.

4. Conclusion
Written land surveys carried out during the 16th – 17th centuries allowed to study the territories newly attached to the Russian State from the point of their economic opportunities dealing with spreading the local, fiscal and military systems [13].

The results of written land surveys of the 16th – 17th centuries formed the basis of the General Land Survey in the Russian Empire, which began in the reign of Catherine II and lasted more than a hundred years. Notariants' surveying, sentinel books compiled during the surveying work of this period are the most important mass historical source allowing to study the various aspects of state and public life during the time under consideration [14].

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