AL-FARABI KAZAKH NATIONAL UNIVERSITY

UDK 94 (574) “1868/1917” As the manuscript

DUISEBAYEVA AIBUBI IMANALIEVNA

The animal face of imperial power: Kazakh animal husbandry and tsarist veterinary services, 1868-1917

8D02206 – History

Dissertation for Doctor of Philosophy (PhD) degree

Domestic scientific supervisor:
Doctor of Historical Sciences,
Professor Zh.B. Kundakbayeva

Foreign scientific consultant:
PhD, assoc. Professor Ian W. Campbell
University of California-Davis
(USA)

The Republic of Kazakhstan
Almaty, 2023

TABLE OF CONTENTS

INTRODUCTION

Relevance of the research. The dissertation research is devoted to the problem of the introduction of imperial veterinary practices in the Kazakh steppe at the end of the colonial period. In this process, the Russian Empire, hiding behind the rhetoric of care and technological progress through the introduction of the veterinary service into the practice of Kazakh animal husbandry, in fact strengthened its power, made its presence visible, and changed the internal structure and functions of the Kazakh economy. This indicates that veterinary medicine became part of the colonial governance of the steppe – it led to the creation of new forms of life and the transformation environment.

The study is relevant because, first of all, in Kazakhstani historiography there are stsick not enough studies written on the basis of the latest research strategies of world historical science. The features of modern historiography are inter-disciplinarity, the use of methods from other social sciences, interest in micro-level studies, introducing new kinds of primary sources to solve historical problems, as well as the emergence of new historical sub-disciplines that draw attention to new aspects of human life. One of them is environmental history. As a historiographical area of focus, environmental history has expanded and added a global perspective to colonial history, exploring the destructive forces that European colonialism and exploitation wrought on a global scale, as well as patterns of interaction between European and local uses of the environment. The concept of a colonial context in the history of the environment can be traced in the works of British scientists, where such theoretical frameworks as coloniality and the qualitative change in internal regimes were defined. The starting point of this approach was the perception of the periphery as part of the wild, natural world, while the colonizing regions of Europe portrayed themselves as carriers of civilization and cultural development [1]. This position allowed the authors to formulate a theoretical scheme – the center sought to promote and legitimize its rule by transforming the environment, demonstrating "mastery" over nature [2, p. 175].

At the same time, historical science has experienced the integration of the historical connection between people and the natural world. This integration is based on criticism of "anthropocentrism", defined as "viewing the world from the point of view of human values and experience" [3] – in other words, privileging humans and their relationship to the natural environment above all else. This shift of the ecological paradigm has made it possible to develop other "relationships" like "human-animal interactions".

The developed historical literature about animals and human relations with them became a part of so-called "animal turn" in the humanities, exploring the change of human relationships with animals, and gave a new answer to the "challenge" in the formulation of a new sub-discipline of historical science, "animal history" [4, p. 123]. Of course, this does not change the fact that animals have always been present in historical writing in any other historical sub-discipline, but a change has occurred in research approaches and perspectives on the problem. After the changes from the turn to animals in the humanities, in particular, in historical science, it is time to develop a special kind of interdisciplinarity, a wsickingness to draw principles or theories from

different fields of science, from philosophy to veterinary medicine, with the help of which historical sources can be interpreted. At the same time, researchers in this subfield believed that historical science "triumphed" after this latest "turn" in the humanities, thereby increasing the objects of their research [5].

By studying the introduction of new veterinary practices, we can determine whether their introduction was a manifestation of flexibility and pragmatism [6, p. 6; 7], or a mechanism for intervening in social practices [8, p. 263]. Studying changes in established practices, the introduction of new methods and mechanisms of treatment, and the emergence of new approaches and attitudes towards animals themselves, in turn, helped to formulate two fundamental questions: how did animal health become an object of government attention? And how is it that veterinary expertise became central in the governance of animal health?

This combination of social, political, economic and "ecological" history, taken together with a new trend in the study of the history of animals and imperialism, makes it possible to reveal new dimensions of colonialism in the steppe. In this case, it is important to consider not only the relationship of the natural world with the new system, but also connections with equally important actors – animals.

In this regard, Kazakhstani historical science should develop in line with new trends, and contribute to the development of Kazakhstani science in the direction of the latest methodological tools, making it possible to introduce post-structuralist methodology. On the other hand, Kazakhstani historians should take part in the international discussion about the nature of the transformation of imperial power in the colonial borderlands.

Extent of study the research topic. The study of the steppe space, historiographically, was conditioned by the emergence of scientific ideas about the nomadic peoples of the borderlands of the Russian Empire. These studies were written from the viewpoint of state interests, and the opinions of the experts who wrote them were highly adapted to the political contexts in which they served. These conditions stimulated the study of the geographical and cultural landscape of the new territories, as well as the economic life, the history of the Kazakh people, and its current position in the steppe. All of this information was meant to familiarize the Russian authorities with the Kazakh steppe and provide rationalization for Russia's civilizing mission.

In the first works of steppe researchers, members of academic expeditions, and independent traveler-scientists on the lands of the Kazakhs in the Orenburg region, the Urals, and the south of Western Siberia, a large amount of information about Kazakh ethnography, lifeways, and economic conditions was collected and described. Since Kazakhs survived exclusively by means of animal husbandry, it was well described in all the works of authors that showed significant interest in the steppe [9, p. 282-293; 10, p. 65-74; 11, p. 197-198; 12, p. 305-306; 13, p. 169-171; 14, p. 81-82; 15, p. 26-33; 16, p. 133-170; 17, p. 473-479; 18, p. 443-451; 19, p. 215-276]. Describing the way of life of the Kazakhs, Y. Gaverdovsky noted that "The main welfare of this people depends only on the number of livestock".

Descriptions of medical activities, diseases, methods of breeding and keeping various types of livestock were gathered because of imperial scholars' interest in both Kazakh livestock and animal husbandry as an economic structure. However, this period

of study was characterized by fragmentary research, and the general opinion that Kazakh care for animals was irrational and "insignificant" [13, p. 170]. Despite the possible inaccuracy and incompleteness of any particular piece of information, these studies were important for determining the epizootic situation in the steppe.

One of the first scholarly encyclopedists, P.S. Pallas, describing the economic activity of the Kazakhs, mentioned the course of one disease of small cattle in the steppe [20, p. 584]. This was a description of a common but not fatal disease among Kazakh steep. In his opinion, they fell sick because of a piece of wool that got into the stomach of a sheep, or chewed grass particles, huddled into pellets, covered with black lacquer, and petrified bark. If any livestock were sick, they were killed on the spot [20, p. 584]. Pallas' contemporary, N.P. Rychkov, known primarily as a scientist who studied the history, ethnography, and economy of the Orenburg region, as the author of the famous "History of the Orenburg Region" and "Topography of the Orenburg Province" noted the peculiarities of keeping nomadic livestock. He remarked that the Kazakhs had a certain order in the maintenance and reproduction of the herd. For example, he noted the seasonality and timing of the mating of small cattle, when the rams were allowed to mate at a time when the sheep would lamb on the first grass [9, p. 4]. Similarly, I.S. Ivanov, a member of the Petrovsky Society of Researchers, provided information, if categorical, which may indicate a different understanding of "insignificant care for animals [13, p. 170].

The historiography of the second half of the 19th century is characterized by the appearance of a special category of research – the works of veterinarians and medical workers sent on research expeditions. E. Ostrovsky was one of the first who made a trip with a veterinary purpose to the Kazakh steppes. In 1855, this professor at the Kharkov Veterinary Institute investigated the maintenance and care of animals, "rude" and "superstitious" horse doctors, and epizootic diseases of animals in the Bukey Horde [21, p. 48]. One of the important goals of his trip to the Kazakh steppes was to experiment with the inoculation of local cattle against the plague [21, p. 48].

In 1872, the Ministry of Internal Affairs and the Veterinary Committee sent an expeditionary group led by the Professor of Kazan University, State Councilor A.I. Jacobi. This group of veterinarians was instructed first to investigate the causes of the appearance and spread epizootic diseases in the Kazakh steppes of Western Siberia, and, upon completion, go to the Orenburg Territory. For further research on the border areas, they were to find out whether the steppes are the cause of the spread of the animals' plague. The results of these studies were presented and published in the reports of the veterinarians G. Kravtsov [22], A.V. Kadomtsev [23] and A.I. Jacobi [24].

Later, by decision of the Government Commission on measures to prevent and combat plague in Russia, in January 1901, the largest expedition yet was organized to study the causes of epidemic outbreaks of plague in the Astrakhan region and the Bukey Horde. To solve this problem, an unprecedented study was carried out – a universal medical inspection of the entire population of the Bukey Horde and territories to it. One hundred and fourty doctors and nurses participated in the research [25]. One of them, Doctor of Medicine A. Polenov, made an attempt to establish the causes of the occurrence and course of plague on the border of the Kazakh steppe and the

Astrakhan region [26, p. 237-242]. He considered it possible that infectious diseases could arise in connection with trade routes.

After the official organization of the veterinary service in the steppe in connection with the Steppe Statute of 1891, numerous appointments of veterinary personnel took place in the Steppe regions. The scientific activity of veterinarians was in part an indicator of the condition of the veterinary service. Together with this, the veterinarians assessed Kazakh nomadic pastoralism, its economic potential, the flaws and peculiarities of its development in the steppe. A.I. Dobrosmyslov [27, 28, 29, 30, 31], V.Ya. Benkevich [32], Ya.Ya. Polferov [33] extensively studied the veterinary and sanitary condition of the Turgai region.

Along with veterinarians, the Kazakh intelligentsia began to take an active part in the study of livestock and animal husbandry industries. In this matter, the works of A. Bokeikhanov (1904) [34], as the author of the first monograph on sheep-keeping in the Kazakh steppe, are important, as well as the publications of M.S. Babadzhanov [35] and S. Dzhantyurin [36, 37] about steppe horse breeding. Horse sickness and care were described by A. Seydalin [38]. The treatment of animal diseases by religious and mythological rites was described by a public figure, the folklorist, O. Alzhanov (1895) [39].

In the Soviet period, the issue of the development of the veterinary service was considered as the basis of progressive science, which continued the tradition of the development during the pre-revolutionary period, in the light of the interests of the new epoch. The history of veterinary medicine and its subjects in Russia have been studied quite deeply in the Russian press, focusing on the issues of prevention and elimination of contagious animal diseases [40, 41], veterinary education [42], and the organization of veterinary affairs in certain regions [43, 44]. The latter was most often seen as a manifestation of the positive consequences of the annexation of regions to Russia.

In Kazakhstani historiography, a special place is occupied by the study of the Soviet veterinarian, S.K. Kozhakin [45], director of the Kazakh Research Veterinary Institute from 1939 to 1954. The importance of this work lies in that it was the first attempt to comprehensively study the history of the emergence and development of veterinary medicine in Kazakhstan. He emphasized that the achievement of pre-revolutionary veterinary medicine was laying the foundation for the creation of scientific veterinary institutions on the territory of Kazakhstan, organizing the Ural scientific and practical laboratory and scientific veterinary societies in all areas of pre-revolutionary Kazakhstan. On the basis of these institutions, according to S.K. Kozhakin, the veterinary organization developed fruitful activities in the field of studying various infectious diseases.

Before long, Kazakh historiography in the 1960s was replenished with a number of studies investigating Russian-Kazakh relations within the general framework of the progressive significance of joining Russia [46]. Among them were historical and ethnographic studies about the practices of animal husbandry, care, maintenance and treatment – practices that were acquired, owed their existence to, or were confirmed by veterinary science. The ethnographer Kh.A. Argynbaev was the first who gave a brief ethnographic description of Kazakh folk veterinary medicine and separately classified animal diseases [47]. The importance of this work, of course, is in the authors'

presentation of material collected over the course of decades during ethnographic expeditions to the animal husbandry regions of Kazakhstan.

However, the question of the close relationship between veterinary medicine and the colonial policy of the state stsick remained open. But despite this, historical science was replenished with the fundamental work of N.E. Masanov, with an ecological view on nomadism, on the ecological aspects and cultural characteristics of the steppe nomads [48]. The work of S.E. Tolybekov, which includes the forms of nomadic pastoralism, the nature of nomadic livestock, the features of foraging and feeding animals, as well as understanding the fine details of care, breeding and understanding the nature of animal behavior, is also of great importance [49].

At the same time, in modern Russian historiography, the role of the veterinary service is overestimated, and its work is directly connected with the functioning of the *zemstvo* [organs of local self-governance] [50, 51, 52]. V.P. Korsun [53] and A.S. Tretyak [54] were the first who to study zemstvo medicine and veterinary medicine in depth. They concluded that the zemstvos had a significant impact on the development of public health and veterinary medicine. However, there are no such studies in modern Kazakh historiography. The lone exception is the study of the main directions in the functioning of traditional veterinary knowledge and technology for the treatment of animal diseases, considered in the work of B. Hinayat [55]. Being a representative of the modern Kazakh historical science, the author in their research studies the structures and functions of veterinary knowledge in a nomadic environment. In this new historiographical field, studies of individual species of animals have a significant place, as well as studies of the importance of the horse in Kazakh culture [56]; its diseases and treatment [57, 58, 59]; studies about traditional beliefs [57, p. 4-77]; and the participation of animals in ritual and ceremonial practices of treatment [60]. Also, special studies of natural remedies are no less important, especially medical plants, for the prevention and treatment of insect bites, poisoning, and methods of making and using medicines for animals [61]. But at the same time, in Kazakhstani historical science there are no studies on the statistical accounting of diseases, death and recovery of animals, as an object of colonial research.

In this matter, the Western intellectual environment has a certain experience and a set of helpful studies, since veterinary science has become one of the prisms with the help of which historians can examine changes and observe the changing relationship between rulers and ruled, between colonizers and colonized [62, 63, 64, 65]. In Western historiography, the research problem is considered as an object of colonial studies, about the role of veterinary medicine in imperial state building and colonial administration, invariably referring to animals as key vectors of change in human society [66, 67].

If we talk exclusively about the relationship between Western-style veterinary medicine and its colony, then the work of the British historian S. Mishra is an excellent example. The author, who studies the history of colonial medicine in India from a veterinary point of view, argues that the problems associated with animal husbandry and veterinary medicine form a junction point between social, colonial and medical histories [68]. In turn, B. Direito, a researcher at the University of Lisbon, based on the example of southern Mozambique, offers a study of veterinary practices in colonial

conditions and their impact on livestock. In particular, the author analyzes the fight against protozooan fever of cattle on the East Coast in the first decades of the twentieth century. The author highlights the repressive nature of the sanitary police measures introduced by the Portuguese authorities, and how these measures were both challenged and opened the way for the introduction of new methods of population and spatial control [69]. This idea is supported by African researchers, W. Mwatra and S. Swart, who argue that the control of livestock diseases in Southern Rhodesia provided an opportunity for social control and the realization of the "superiority of the settler state" [64, p. 114].

The study of such a little-known aspect of the "Russian colonization of Central Asia", using the example of the possible use of Kazakh horses in the imperial army, was first presented by the French researcher, C. Ferret, in her article "Horses for the Empire" [70]. This interest was expressed in value judgments about the quality of local breeds, the possibility of improving them, and also about the peculiarities of local riding, and it contributed to the opening of stables for state horse breeding in the Turgai region. According to the author, the horse became both a tool and a goal of colonial conquest. At the same time, the exchange of animals, the borrowing of breeding methods and riding techniques occurred in both directions, sometimes causing a revolution in the relationship between the rulers and the ruled, showing the complexity of the relationship between the colonists and the colonized.

At the same time, the development of Western science about the ecological history of the territories of the former Russian Empire and the Soviet Union, represented by D. Weiner [71, 72], P. Josephson [73], A. Bruno [74, 75, 76], S. Brain [77], D. Moon [78], gave rise to a new generation of researchers, S. Cameron [79], I. Campbell [80] and M. Peterson [81], who focused on Kazakhstan and Central Asia. It stimulated researchers to continue developing the question of the transformation of nomadic society, in a region new to environmental history [82, 83]. Somewhat earlier, a collection entitled "The Eurasian Environment" was published under the editorship of N. Breyfogle. In this collection, the authors offer an in-depth overview of the relationship between man and nature in the history of the Russian Empire and Soviet Union [84]. In this volume, S. Cameron, I. Campbell, M. Ely and D. Moon [84, p. 23-96] emphasize how the history of tsarist and Soviet agriculture sheds light on the socio-ecological changes associated with the (often forced) shift in land use patterns and social systems from pastoral nomadism to sedentary life and grain cultivation.

Thus, the analysis of existing historiography showed that the problems of introducing new forms of disciplinary power; the relationship of veterinary regulation to the process of colonial administration in the steppe; and the relationship of veterinary services to the transformation of nomadic lifeways and the steppe environment remain unexplored.

Chronological framework. The chronological framework of the study is determined in accordance with the administrative reforms of the 60s of the XIX century, the first moment at which these reforms covered almost the whole of Kazakhstan. These reforms emphasized the completion of the process of joining Kazakhstan to Russia and strengthened the political position of the imperial Russian government in the steppe. In particular, according to the Provisional Statute on

administration in the steppe regions of 1868, a significant place was given to the issue of the industrial animal husbandry, caravan routes, fairs, which had not previously been mentioned. As a result, veterinary medicine protected only livestock-industrial capital, without showing the necessary concern for the protection of Kazakh animal husbandry. Subsequently, veterinary medicine began to serve to block the penetration of epizootics from the Kazakh steppes into Russia, by strengthening the border stations of the veterinary service, and to ensure the security of the interests of cattle merchants. Finally, the mass resettlement of peasants to the territory of Kazakhstan began in the second half of the nineteenth century, after the abolition of serfdom in 1861. The main motive for resettlement was lack of land in the central and southern regions of Russia. The choice of the upper limit of the chronological framework, 1917, is due to the collapse of the empire – the extinction of the Russian Empire.

Territorial framework of the research. In this study, the research problem is studied within the framework of a case study, where the boundaries of the Turgai region are defined as the territorial boundaries of the study. This choice was due to several reasons. First of all, the Turgai region was a zone of contact between the steppe and the Russian Empire. This region occupied a special place as a border area near Orenburg province. Secondly, after the abolition of serfdom in Russia, the flow of resettlement movement intensified precisely on the territory of the Turgai region, and subsequently the region became a zone of contact between the settlers and the Kazakh society. After the abolition of the Orenburg Governor-Generalship, the region acquired great economic importance, and became a zone of contact for new relations between Central Asia and the inner provinces of Russia. The region's economic potential was complemented by its role as a transit zone, as the Turgai region was at the intersection of profitable trade routes passing from Russia to Central Asia. This position contributed to the construction of railways through the territory of the region (Orenburg-Tashkent railway).

The object of the research is imperial veterinary practices in the late imperial period.

The subject of the research is the policy of regulation of veterinary practices among the Kazakh people in the late imperial period, aimed at qualitative changes in the internal regimes of Kazakh society.

The purpose of the dissertation research is to analyze the inclusion of Kazakh lands in the system of the imperial veterinary service and show how the practices of Kazakh animal husbandry changed in the years 1868-1917.

To achieve the goal, the following specific **tasks** were identified:

1. To identify the main directions and concepts in studying the problem of implementing new regulatory methods;
2. To classify and analyze the main complex of sources needed to study the issue of the formation and development of the veterinary service system in the Turgai region as a colonial project;
3. To determine the features of the organization and implementation of the imperial veterinary service in the Kazakh steppe, using the Turgai region as a case study;

4. To show the epizootic situation in the region and the isolation of the veterinary service on livestock-driving routes and stations;
5. To identify common problems hindering the further development of veterinary practice in the region, and identify the role of veterinarians in the project of "correct colonization";
6. To show new forms, methods and mechanisms for regulating veterinary practices;
7. To determine the qualitative changes in the internal mechanisms of Kazakh animal husbandry.

Methodological basis of the research. On the basis of new methodological approaches, this research presents the concept of "rational governance" – governmentality, as colonial state rhetoric, which is based on governmental interest. The imperial colonial administration sought to minimize risks and increase the well-being of the people for the sake of its own interests, and intervened in all spheres of life of the people, both public and private.

Source base of the research. An extensive body of sources was collected on the basis of the theoretical and methodological basis of the study, post-structuralism – the identification of different meanings and understandings of the essence of phenomena. Therefore, the sources were divided into two groups. The first originating from the Russian Empire, the second from the Kazakhs themselves. The division into two groups is conditionally dictated by the need to see the difference between what livestock represented for the Kazakhs and for the Russian Empire – to see how Russian intervention in the relationship between man and the natural environment differed from Kazakh understandings. Thus, the source base of the study is a set of administrative documents (workflow documentation), the research materials of statistical and research expeditions of the second half of the 19th century, a number of scientific and journalistic works, and scientific works of representatives colonial government representatives that were created and used for official purposes, as well as folkloric and ethnographic sources, which are conditionally classified and divided into several groups. The systematization and classification of these types were supplemented by an analysis of semantic meanings, and of the genre specifics of sources, studying causes, patterns, and changes.

The scientific novelty of the research lies in the novelty of the formulation of a scientific problem in Kazakhstani historiography, where topics related to veterinary medicine, veterinary practices, and animals have remained outside the objectives of colonial research. In this research, for the first time, at the junction of three paradigms – environmental history, the animal turn, and the post-structuralist methodology of M. Foucault, a work methodology has been formulated to determine the degree of intrusion of new forms of colonial governance. The novelty of the research is also determined by the nature of the source base. For the first time in the historiography, folklore and ethnographic sources are analyzed alongside administrative documents, research materials of statistical and research expeditions of the second half of the 19th century, a number of scientific and publicist works, and scientific works of the conductors of imperial policy, which makes it possible to show everyday practices related to the animal husbandry and inner worldview of the Kazakh people.

Scientific and practical significance. The practical significance of the study lies in the fact that it offers conceptual approaches that can be used in research, the preparation of academic courses and programs, and in writing textbooks and teaching aids. The theoretical and methodological approaches used in this research can be applied in the study of other regions, not only with a predominantly nomadic people since the history of the environment has several areas of interest, one of them with a focus on the material world, another on cultural and intellectual matters, and a third focused on political aspects, which can expand and manifest these relationships in all spheres of life.

The main arguments for defense:

1. The foundation and development of the veterinary service in the Kazakh steppe were facilitated by epizootic outbreaks, which increasingly began to disturb both the nomadic and sedentary population of the steppe.

2. The isolation of the veterinary service on stations of livestock-driving routes and its concentration at certain stations was reflected in the limitation of the work of the veterinary service in relation to the local nomadic livestock.

3. The late formation of a civil veterinary network, concentration on rinderpest, and activities aimed at protecting the interests of the commercial and industrial sector established the colonial structure of the veterinary service in the Kazakh steppe.

4. The fight against infectious diseases limited the movement and lifestyle of the local nomadic people. The Kazakhs began to face more and more often the state administration, veterinarians, paramedics, new laws, regulations, and prohibitions.

5. The activities of veterinarians are seen as part of the "correct" colonization project, as a "tool of the empire."

6. Animal vaccinations became a practice of continuous control and interference in the public and private spaces of the Kazakh people.

7. Imperial rule viewed the Kazakh steppe as a potentially limitless source of horses for their military, agricultural and industrial sectors.

8. Loss of habitat and reduction of migration routes for Kazakhs, together with an increase in demand for livestock and livestock products, threatened the degradation of Kazakh sheep-keeping and the loss of a key element of culture.

9. Cattle has become the main subject of rapid and radical change in Kazakh animal husbandry, an important element in the qualitative change in herd composition, and a symbol of the decline of the pastoral economy and its well-being.

10. The process of qualitative change in the herd composition changed the traditional way of life of Kazakh livestock herders. Keeping livestock in stables, and new practices of land use, contributed to the development haymaking. The latter had a large influence not only on the deviation from the usual forms of the “pastoral” economy of the Kazakh people but also on the natural environment of the steppe, as well as on a decrease in the fertility of the soil cover. This different way of life had a different impact on the environment, changing the environment and itself in different ways, introducing changes into the stable triad of nature-man-animal in the space of the steppe.

Approbation of the research results. The dissertation was prepared, discussed and recommended for defense at the Department of History of Kazakhstan at Al-Farabi

Kazakh National University. The scientific results obtained in the course of the research were published in 7 articles in domestic and foreign publications in accordance with the topics that systematically reveal the content of the dissertation: including in publications recommended by the Committee for Quality Assurance in Education and Science – 3; in the collections of domestic and international scientific conferences – 3; in a journal with a non-zero impact factor indexed in the Web of Science database – 1.

The structure of the thesis research consists of an introduction, four chapters and a list of references.

1 METHODOLOGICAL FRAMEWORK AND SOURCES OF RESEARCH PROBLEM

1.1 Theoretical framework of research problem

In studying the question of what "environmental history" is, it is clear that more than one generation of researchers asked this question. In search of an answer to this question or the designation of the term "environmental history", it is natural to turn to the definition dictionary. However, it is worth noting that not all dictionaries and encyclopedias can find the appropriate answer. If we open the Webster's dictionary – "American Dictionary of English language", created in the first half of the 19th century [85], we maybe still not find the corresponding designation of "environmental history", just as we cannot find the term in the modern Webster dictionary [86] even now. "The Encyclopedia Britannica" or "Britannica", published from 1768 to 1968, also has no designations. However, in the 1974 edition, can be seen the place for a new term, "environmentalism", which meant "theories in the social sciences concerning the role of environmental factors in the development of culture and society" [87]. Initially, environmentalism was a natural-scientific concept that stated the important role of the environment in the formation of species and the cultural and economic development of ethnic groups. However, as happened with many other terms, environmentalism began to mean completely different things. Including social movements with protests, which eventually gave a new start to the "history of the environment."

As a concept or term, "environmental history" stems from the American past, characterized by protest movements and massive social changes in the 1960s and 1970s, as people began to realize that they were living in an age when nature was truly important and valuable, as it was and is under the threat of destruction on a large scale. Moreover, it was historical science that, through its critical understanding of the past, drew attention to the problems that concern society [2, p. 2]. This new society provided an intellectual and institutional home for a group of scientists bound by a common desire to explore the historical connections between humans and the natural world, which later determined this relationship's complexity. Nature itself began to be perceived in a completely different way and was able to provide researchers with "key ideas about the structure and dynamics of the past, as well as technical information for analysis" [2, p. 2]. From a small group of scientists numbering in the dozens in the late 1970s, the field expanded across the country and worldwide, embracing a large and diverse community.

The Anglo-American researchers played a significant role in the development of a new historical field, the genesis of which arose, according to R. White, from political and intellectual history, who was also one of the first to write his historiographic review of the condition of American environmental history at the end of the 20th century [88, p. 298]. But as known, the popular environmental movement also caused the formation of environmental history as a separate field of science in Europe [89, p. 19-21], India [89, p. 21-22], Africa [89, p. 25-28], and Latin America [89, p. 23-25], where also with a huge and rapid growth of volume of published works contained in books and articles in a diverse number, showed rapid growth in that direction. In such a short time, a

sufficient number of works have come to light, making it possible to conclude that environmental history has successfully established a "rightful place in historical science" [89, p. 1].

Environmental history – is the history of the relationship between humanity and the natural world. Also, according to J. McNeil, environmental history has several areas of interest, one of which focuses on the material, the next is cultural/intellectual, and the last, the center of which is the political aspect [89, p. 6]. If the point of the material part of the history of the environment is related to changes in the biological and physical environment and how these changes affect human society through the economic and technological aspects of human affairs, then the cultural/intellectual, on the contrary, emphasizes the representations and images of nature in art and letters, how they have changed and what they reveal about the people and societies that created them. In turn, the political history of the environment considers the law and public policy in relation to the natural world. Law and the state are always directly related to power; thus, J. Radkau, in his research of the same title, "Nature and Power", notes that human relations with the environment are always mediated by relations of power [90].

The mechanisms of influence may vary in certain cases, for example, if it comes from the concepts that we have defined as "law" and "public policy", D. Davies, studying French colonial expansion in North Africa in the context of environmental history, concludes that environmental and related laws and a "decadent" narrative about the nature of the environment were used to facilitate the appropriation of land and resources; social control; and to transform natural production [91, p. 166]. The colonial context in the history of the environment is a rather frequent phenomenon that develops along with the history of European powers, which were also in the process of rapid colonial expansion.

Colonial history has expanded and added a global perspective to environmental history, thereby exploring the destructive forces that European colonialism and exploitation have gained on a global scale, as well as interactions with local environmental regimes. At once, two classic works on this context, coloniality and the qualitative change of internal regimes, make us understand that the peripheries were often perceived as part of the wild, natural world, while the central, western regions portrayed themselves as carriers of civilization and cultural development [1, 2]. Thus, the center sought to promote and legitimize its rule through the transformation of the environment, solving specific problems using the example of the transformation of island territories, the creation of botanical forests or attempts to reorganize the irrigation system [1, p. 177] , introducing new technologies [1, p. 179] , and thereby demonstrate mastery over the nature [2, p. 175]. Therefore, it is appropriate that some environmental history researchers have dedicated themselves to analyzing the environmental impact of colonialism on peripheral societies. Later, A. Crosby, the author of the term "ecological imperialism", in an attempt to study the influence of bio-ecological factors in European colonization, presented an example of the result of a complex relationship of social and environmental factors, which ultimately, according to the author, served to change and create new forms of life and landscapes in the new lands of the empire [92] .

In the attempt to reveal the aspects of colonial conquest and to rediscover nature as an active agent in the creation of part of the imperial entity, it was naturally perceived as an "unexplored aspect of colonialism" [93, p. 1]. In this regard, according to T. Griffith, A. Crosby's "ecological imperialism" in many ways enabled the emergence of an entirely new concept and approach in the study of both imperialism and environmental history, of course, "unintentional, but sometimes the result of deliberate policies that may be associated with the purposeful introduction of new economic, political, and social mechanisms of empire" [93, p. 169] .

To set these mechanisms, the administration had to work hard and, above all, prove to itself the importance of the newly acquired possessions, the methods of work, and the confidence in the technological progress emanating from the center as a metropolis. In turn, this stimulated the exploration of the geographical and cultural landscape of the new territories. As D. Kumar states, "colonialism means first and foremost exploration and exploitation" [94, p. 51]. The centre's support for colonial science contributed to its development and close association with the needs of the empire and sometimes with the industry, it particularly needed. Expert opinions were highly attuned to the political contexts they served. The organization of the expedition, the development of geographical societies, and the role of research institutions together made it possible to view the history of modern imperialism not only through diplomats and military officers but the researcher himself, moving to the center of attention and influence [95, p. 90]. In this vein, D. Kumar and R. Stafford present the importance of colonial science and the scientific community in the British colonies through geological research in the search for minerals to exploit natural capital for economic interests [94, 96]. The growth of geographical societies in the French colonies in the 19th century led to a new wave of commercial projects that could combine scientific curiosity and economic benefit [95] .

On the example of the Russian Empire, I. Campbell shows that the produced knowledge served as an administrative tool that would help to formulate and apply them in politics, not excluding the particular importance of indigenous mediators, thereby indicating that "these relations had long-term social and political effects" [80]. Because such relationships are not changeable or subject to only one side, they also deal with the knowledge produced and the difference between an expert from the industry and from outside, as J. Mackenzie shows, using the example of the problem of the spread of epidemics and diseases in Africa. Thus, it created problems in medical, veterinary, demographic, and zoological directions, and its solution required ecological, entomological, parasitological, and protozoological expertise from several different disciplines of the colonial administration [98, p. 188]. However, the author also claims that the indigenous people had specific knowledge and practices, thus representing experts from the habitat itself. It turns out that the environment is not only a location but also an arena where ideologies and cultures conflict [2, p. 3]. The way colonizers see the problem, politicizing environmental issues, and how the area's indigenous inhabitants react to this form the "ecological history" of colonization.

Careful attention paid to environmental or epidemiological problems pushes the governance in these areas to specific measures, which, according to M. Foucault, are one of the mechanisms for the security of governance, a guarantee that they are

protected from internal adverse factors, such as diseases, and damage from that. The need for a clear separation of the regions and places affected by the epidemic, the establishment of temporal and behavioral restrictions that indicate a system of a disciplinary nature, these practices are used as a movement within which legal structures are added to their protective mechanisms, taking the example of compulsory vaccination [99, p. 23]. Vaccination found a place for itself in the actual practice of managing society and began to have a tangible impact on the life pattern of people [99, p. 91]. Security and discipline have become identical concepts; punishment for violation or disobedience, in the form of prosecution, as a disciplinary technique, in the name of maintaining security, can also be considered as one of the primary schemes of the new governance. The issue of security arises from the problem of governance itself, since after the era of enlightenment, as M. Foucault also notes, the traditional type of governance is replaced by a new "rational" one, in which it goes from strengthening the power of the sovereign into the form of strengthening the power of the state. Earlier, one of the first traditional types of government was based on the Christian-religious idea of pastorship, where the main idea of government was on the path of mentorship, a fundamental relationship between God and people [99, p. 182]. The shepherd's power is not related to the territory but to the moving majority, in which any political ideas have been excluded [99, p. 183] .

Through the reflection on the philosophy of Machiavelli, one can comprehend the emergence and formation of the ruler's power. The sovereign has other tasks than the pastor, the transformation of domination concerning the lieges to a particular type of governance, or the art of governing [99, p. 312-313]. Changing paradigms based on proper management, which is expressed through the "state interest", M. Foucault explains this by the statement of J. Botero that the state is domination over people or population, it should have far from territorial significance, as state interest, in turn, it is a set of methods and means of maintaining this dominance [99, p. 314]. A change in governance practices, the rationality of which contributed to the acquisition of its principles and approaches, as well as the characteristics of governance itself. The primary importance is strengthening the power of the state itself, not the power of the sovereign, and being able to study the science of the state – statistics, accurate knowledge of the capabilities of one's state and not only [99, p. 410]. Understanding one's place in a limited space, about the territory of locations and the invariable task of the state, is not the traditional approach of conservation but the strengthening and possible development of the state on new principles of security guarantees [99, p. 455]. To ensure security, the state uses laws and prohibitions, continuous control and interference in the public and private space of the population, hiding behind care and tolerance. Regulation of the life processes of the people, knowledge of disciplinarity through the introduction of norms and normalization, from which comes a subdivision of the norm and deviation from the norm of the general behavior of people [99, p. 97]. This distribution of state power over the physical and political power of the population is the last type of power in M. Foucault's empirical analysis as biopower [99, p. 13]. This stage of various practices, techniques, and management technologies allows guiding the behavior within the state itself or various types of institutions and societies

to achieve the welfare of the latter. It becomes controlled by these practices, which is understood by the concept of "governmentality".

The development of new technologies of nature management can be considered using the example of A. Agrawal's study, where the author tries to show how the government, combined with expert knowledge, gave rise to new forms of colonial governance in northern India [100]. One of these technologies, along with colonial knowledge, such as statistics and numbers, was the people themselves, who began to act, to think in a new way, regarding the use of forests. Thus, they made it possible to build a hierarchical governance classification from scratch. Then, the colonial administration had three essential goals: improvement, conservation, and deriving income [100, p. 39]. It led to the creation of a number of official procedures and then their inclusion in state practice. In turn, the state restricted the use of a certain number of forests, starting the process of forming conservations after following the reconfiguration of governance technology. As a result, the local population began to be considered a partner in regulation – the division and classification of forests. The most important tool that the colonial administration used to shape the relationship between the area's inhabitants was the forest council's rules. In turn, this set of rules gave an important advisory and oversight role to the staff of the new forest department [100, p. 103]. All this led to spatial restrictions. Residents could only collect food from the forest in certain permitted areas. The state criminalized the usual practices of everyday forest use practices [100, p. 9]. In general, the mentioned public administration technologies are based on some combination of knowledge and regulations based on the same knowledge and practices that regulatory acts sought to regulate [100, p. 220]. For a general assessment of the regulatory process in a given area, the author applies the concept of "environmentality". The term in this context refers to the knowledge, politics, institutions, and subjectivity "that become associated with the emergence of the environment as a field that requires regulation and protection" [100, p. 226]. In turn, the concept of "environmentality" or "ecogovernmentality" itself is an application of the concepts of "biopower" and "governmentality" to the analysis of the regulation of social relationships with the environment. In this sense, "governmentality" is undoubtedly a valuable theoretical framework applied to understanding power and regulation in various fields of science.

M. Hannah's study is one of the few works that develop the theory of governmentality in historical geography, revealing the US government's attempts to establish social control over the Lakota people at the end of the 19th century. Aimed at studying the principles of spatial conditions, the administrative opinion was that the semi-nomadic population did not exhibit any spatial premises of disciplinary power. In turn, government agents carried out this missing "spatial fixation" [101, p. 7]. The instrument of social control was the population census, demographic, economic, and social data of the population, reproduced by the administrative needs of the state. Continuing the issue of social transformation, J. Vernon, in an attempt to generalize and present the modern history of famine as a systematic social problem that the state, using the example of the British Empire, tried to solve and considered a pure state problem – then considered by various attempts to use the technologies and bureaucratic structures of modernity. One such element of regulation was the issue of nutrition, and

after that, the tool of the social transformation itself was the science of nutrition [102, p. 134].

The issue of support and regulation of the state and the general welfare of society finds its place in the work of I. Hacking. The author wonders whether birth, disease, and epidemics, whether these phenomena are connected with accidentality or have some consistency. For I. Hacking, randomness is the result of the intersection of causal lines [103, p. 12] , which means that causes can be identified; namely, the calculation of known causes can show the regularity of these exact causes, and randomness or chance wsick be calculated in this way. The most important aspect of this mechanism, of course, is statistics, as a measure of understanding one's power, and the accurate measurement of the state's power is its population, for which it is essential to have statistical calculations [103, p. 18]. With the help of statistics, the state could predict what regularities might be, thereby understanding the pattern of randomness and rare events previously not subject to control. Moreover, modern statistics made it possible to take control and tame "unfavorable" accidents by creating norms and laws, and now the state could influence people's life. After all, only the law can limit the freedom of the person [103, p. 128].

The borderland of politics and technology, in a general sense, is also essential in the development of new ways of governance, but not in the category of regulation of power, but as the practice of designing and implementing technology, "technopolitics", "the strategic practice of developing or using technology to achieve and implementation of political goals" [104, p. 43]. T. Mitchell, raising the issue of the development of the agricultural estate that transformed the Nile Valley in the nineteenth century, argues that land ownership – the estate, is not just a fact of "the appearance of private property", but the development of new ways of governance those who worked and possessed these land, through new transfer technologies or in case of violation, imprisonment. The estate is not the culmination of the development of private rights against the excessive power of the state. On the contrary, it is an arrangement created by the state to bring discipline to the institution of land property and increase control over society [105, p. 67]. Thus, it is essential to consider the development and implementation of new technologies for any sphere of life, which are often mediated by power relations.

The choice of M. Foucault's political typology as a methodological basis allows us to "afford theoretical flexibility" [106, p. 112] concerning possible objects of study, classically non-political phenomena, such as water, animals, plants, and the environment, as all these objects are influenced by one structure of power.

At a time when historical science was experiencing an integration of the historical connection between people and the natural world, based on the criticism of "anthropocentrism" against "viewing the world in terms of human values and experience" [3] , in other words, the exclusivity of human positions concerning the natural environment, this shift of the ecological paradigm allowed the development of other "relationships", such as "human-animal interactions". The developed historical literature about animals and human relations with them became a part of the so-called "animal turn" in humanities; changing relations with animals also gave a new answer to the "challenge" in the formulation of a new sub-discipline of historical science,

"animal history" [4, p. 123]. Of course, this does not change the fact that animals have always been present in historical writing in any other historical sub-discipline. However, a change has occurred in research approaches and perspectives on the problem [107] .

After the changes from the turn to animals in the humanities, in particular, in historical science, it is time to develop a special kind of interdisciplinarity, a wsickingness to draw principles or theories from different fields of science, from philosophy to veterinary medicine, with the help of which historical sources can be interpreted. At the same time, researchers like J. Specht believe that historical science "triumphed" after the next humanitarian "turn", thereby increasing the objects of their research [5]. And now, historical science is considering the problem not only of direct relationships between humans and animals, for example, as H. Ritvo noted, through numerous separate discourses related to the animals of England in the 19th century, which constituted one large unit and identified the central theme of domination and exploitation. Animals were a uniquely suited subject for rhetoric that famed human strength and expanded its influence, mainly because it covered and expressed the subject simultaneously [108, p. 6]. However, it also includes studies of the consequences for nations and empires, describing animals as actors, and proposing the concept of "animal lens" [5, p. 326] or "agents" of historical change [5, p. 326]. Thus, it assigned livestock an instrumental role in helping Europeans establish colonies in other parts of the world [2, p. 4]. J. Specht also claims that the "lens" is especially suitable for studying the processes of colonization and imperialism [5, 92, 109, 110] .

For example, A. Crosby claims that Europeans managed to colonize the local inhabitants by transplanting crops and animals that the indigenous population depended on. In turn, J.R. McNeil demonstrates imperialism in America through the fate of mosquitoes, revealing how mosquito-borne diseases determined imperial political projects, or in other words, how mosquitoes were able to create political history [66, p. 2]. Or the work of V. Anderson, how livestock contributed to the displacement of the Indians from their lands in the 17th century [67, p. 10]. According to the author, livestock, in a real sense, even more than the colonists who brought them, won the race to claim the lands of America as their own [67, p. 11]. Although livestock can hardly be blamed for what happened in early America, but it helped shape the sequence of events necessary for the colonialists. Thus, livestock allowed the British to expand their dominance over the New World with fantastic speed and thoroughness [67, p. 11]. The new discourse of the animal world makes it possible to view colonial policy through the "prism" or "lens" where livestock, as the "agent" [111, 112] of the colony, undertakes an important mission and is part of the colonial policy. "The Indians found a place in their world for livestock, but the colonists and their heirs could not find a place for the Indians" [67, p. 246] .

However, the situation in the regions of the Russian Empire remains paradoxical, which paid little attention when only by the size of its territory and the wealth of living creatures are of global importance in the environmental and "animal history". This connection of social, political, economic, and "ecological" history, together with the new trend in the study of the history of animals and imperialism, provides an opportunity to raise and open the issue of colonialism in the steppe in a new direction

and dimension. In this case, it is important to consider the relationship of nature/environment with the new system and the relationship with equally important actors – animals.

Thus, concepts and theories from three paradigms became the theoretical and methodological basis of the work: such direction as the environmental history, which defined the theoretical framework as coloniality and a qualitative change in internal regimes with the central concept of "ecological imperialism". This term allowed us to consider the relationship between the imperial center and the colonial outskirts as a complex interaction of social and environmental factors. The result was the change and creation of new forms of life and landscapes in the Kazakh steppes. The second paradigm, as the methodological basis of the work, was the "animal turn" – a new discourse of the animal world, which makes it possible to view colonial policy through a "prism", where livestock, as the "agent" of the colony, performs an important mission and is part of the colonial policy. Finally, the central place in the methodological basis of the work is occupied by the concept of M. Foucault's "reasonable management, which was based on the state interest". His goal was to manage with the help of different methods and techniques, maintaining control over them, changing small structures, and eventually getting a change in the entire existing system. For example, during epidemics or epizootics, the state took on the role of a savior, managing treatment, prevention, and countermeasures, adopting laws to regulate these measures and their implementation. From this, it is possible to see how the methodological structure of the study was formulated in the combination of three paradigms: environmental history, the animal turn, and the post-structuralist methodology of M. Foucault.

1.2 Sources of the study: analysis and main characteristics

The whole corpus of sources was formed in an attempt to study the formation of the veterinary service system in the Kazakh steppe, in particular in the Turgai region, as a way to achieve pragmatic goals. On the one hand, to ensure the security of using the Kazakh steppe as a source of raw materials for the developing industry of Central Russia, and on the other, to gradually prepare the Kazakhs to the transition to a settled way of life [113]. Based on this, the main task of the study is not only to characterize veterinary practices but to point out the changes that they brought to the steppe and the attitude of the Kazakh society to these changes. Thus, the complex of sources is conditionally presented in two opposing views – Kazakh and Russian as imperial. These changes were influenced by the general imperial policy and the different value orientations of the two clashing societies. Of course, the first group is few in quantitative terms. However, by applying qualitative analysis methods, it is possible to reveal the cultural characteristics of the Kazakhs.

The first group of sources, from the Russian point of view, is represented by workflow documents, considered from the angle of the rhetoric of care, formed during the functioning of the local administrative unit – the Turgai regional government. This set of documents is currently stored in the Central State Archive of the Republic of

Kazakhstan (from now on CSA RK/TsGA RK), which is F.25. (Turgai regional government). This fund has more than 6500 items, which cover the period from 1866 to 1917, where about 300 units are in veterinary medicine.

The difficulty in working with workflow documents is that the bureaucratic turnover became immobile over time, and a large amount of documentation accumulated in the form of orders, rules, commands, and reports. Nevertheless, it is possible to trace the entire mechanism of the work of the administrative apparatus and the formation and development of technocratic practices over the years. Workflow documentation that arose as a result of a purposeful and meaningful creation of documents can show how the veterinary service worked not intending to protect the steppe areas and livestock of Kazakhs, but so that sick livestock in the steppe could not infect resettlement livestock, as well as the safety of transit and livestock-driving routes [*skotoprogonniy trakt*], livestock and animal products transported to the interior provinces of Russia.

Working with workflow documents required general principles of work, and depending on the intended purpose, they were divided into the following types of documents: reporting documentations – reports [*otchety*], records [*vedomosti*], statements [*raporty*]; administrative documents – circulars [*tsirkuliary*], orders [*rasporiazheniia*]; protocol documentation that fixes the course of discussion of cases being resolved – acts, protocols and journals of meetings; current internal correspondence – attitudes [*otnosheniia*], issues [*otpuski*]; and personnel documents.

In order to optimize the work with a large number of documents, the following working principles were chosen: the first principle of working with documents was a comprehensive review of all documents [6, p. 114-115]. The fact is that most workflow materials are characterized by fragmentation since record-keeping work is never completely preserved. Each document is only one unit, it usually exists in several copies and variants, and there is a constant flow of information from one document to another. Therefore, in concrete historical research, it is necessary to include the entire set of interrelated workflow materials. The second is to pay attention to the administrative documents and how they are reflected in the reporting documentation. In most cases, the categorized documents, such as reports and statements, were submitted by the first people on the front lines of animal disease control and those responsible for monitoring the veterinary and sanitary conditions of the entrusted areas.

First of all, it is important to note the prevailing number of cases on the issue of First of all, it is essential to note the predominant number of cases on the subject of individual diseases, as well as general reports on the course of animal diseases in the region. The first mention of animal diseases "in some areas of the Empire" dates from 1869-1874, and the documents containing data on these animal diseases in specific areas of the region and on the duties of veterinarians, on which the latter reported to the Regional Board and the Veterinary Committee, constitute the all reporting documentation.

Primarily, the reports of veterinarians are undoubtedly one of the most important informative documents. For example, on August 16, 1893, veterinarian D. Lerman reported on Mrs. Shcherbakova's dead cow in Irgiz, which had contracted anthrax, and on the measures taken to prevent the further spread of the disease. "The dead cow was

disinfected with a 1:1000 sublimate solution and buried at a depth of 3 arshins in the yard of the livestock cemetery outside the city of Irgiz. The yard of Mrs. Shcherbakova, where the cow died, and the cart on which the dead cow was brought out were disinfected with a 1:1000 sublimate solution" [114]. It was suggested that healthy cattle should not be allowed into the barn where the dead cow was for up to 3 weeks. In addition, the livestock of the residents of Irgiz city should be checked daily before going out to the pasture [115]. This case can observe the measures taken by the state veterinarian in case of anthrax to prevent its spread to other animals, as well as the fact that the cattle belonged to a representative of the Russian peasantry who had a farm in the urban settlement of the Irgiz district [*uezd*]. However, although the statements, unlike the reports, could be delivered more frequently, the latter were characterized by formality, brevity, and limited informative data.

In this sense, the reports had a broader scope of information, not only about the epizootic situation in the region but also to determine the nature of veterinary control [*veterinarnyi nadzor*] of the steppe. Every year, veterinarians prepared annual veterinary and sanitary reports on work at the veterinary district [*veterinarnyi uchastok*], based on the obligation of the Circular of the Medical Department dated January 9, 1870, No. 214 and the Circular of the Military Governor of the Turgai Region, No. 13958, on reporting on the progress of epizootics. The reports were comprised of two copies and had to be submitted to the Regional Board. One was sent to the Chairman of the Veterinary Committee for review [116]. The general plan of the veterinary report in 1892 consisted of several items, such as a) epizootic; b) driving herd; c) driving animal products [117]. In the future, as the veterinary service is developed, the obligations of veterinarians are also increased. In 1894, the report consisted of the following items: a) Activity on the district; b) Control of slaughterhouses and trade in meat products; c) Control of bazaars, trade in livestock, livestock products; d) Control of the veterinary and sanitary condition of the district [118] .

Structurally, the reports could be the same each year, differing only in numerical data. Nevertheless, the principles and considerations of veterinarians can be traced in these district reports. How did they see themselves in this activity, or were they involuntarily forced to fulfsick their "duty". In one of these reports, the veterinarian of the third veterinary district, which included only the Tuz-Tyube *volost* [administrative subdivision of district] of the Aktobe district, V.N. Kokhman, wrote the following: "When I first arrived at the veterinary district in 1891, I found here six bad dugouts scattered in complete disarray. At present, eight spacious rooms of cultured brick have been newly erected in front of the marketplace. In my opinion, this should be considered as a means of Russification of the area. I firmly believe that the time is not far when a lively trade wsick replace the Kirghiz *auyl* [vsickage] in the Tomar-Utkul tract with the Russian people. Such results are related to the presence in this steppe valley of a veterinarian who is the sole representative of Russian intelligence and power" [119]. Thus, he seems to define the many functions he believed he had to fulfsick not only as a veterinarian but also as a representative of a progressive culture.

In addition to the reporting documentation, records of "epizootic diseases" played an equally important role for the tsarist government in the form of an attempt to regulate

and control diseases, study their regularity and extent, the foci of diseases, and find out the possible causes that were behind it.

As mentioned above, administrative documents were important not in the sense that they were issued or reached the destination in the provinces or regions but specifically in the way they were reflected in the reporting documentation, i.e., whether they were executed and what exactly was to be done by a certain date. In fact, they served as an additional source for the construction of cases. For example, a circular from the Chairman of the Veterinary Committee, dated January 11, 1897, requested that additional data be included in the annual reports of the heads of the Veterinary Department [120]. Thus, in 1898, A.I. Dobrosmyslov, the head of the veterinary department of the Turgai region, sent an annual report with fifteen additional data records: information on the number of examined animals sent from the Turgai region to different places; information on livestock products sent to different places and so on. It meant additional work for the veterinarian and the possibility of investigating to which areas and places outside the region livestock and livestock products were sent.

Beginning in 1883, the regional administration initiated numerous cases concerning various animal diseases in the region. This issue was taken up in each reporting year, resulting in frequent correspondence between the Ministry, the Veterinary Committee, and the veterinarians of the region, indicating the constant anxiety for the control of infectious diseases. Therefore, the current internal correspondence documentation played an equally important and informative role as the report documentation. For example, Orsk district veterinarian I. Skorobogatko reported to the Turgai Regional Board on the problem of releasing livestock from an area unfavorable for anthrax. "I have difficulties with the constant requests of residents to bring their driven herds [*gurtovoe stado*] either to Aktyubinsk or to other places. I do not know whether I can allow the release of livestock with anthrax present here. Unfortunately, there is no precise indication of an absolute ban on the removal of livestock from areas unfavorable to anthrax. Also, the expiration dates by which the said animal disease is considered to have ended are not indicated" [121]. The regional administration "released" the issue of anthrax in a domestic animal from Ilyinskaya in accordance with the circular of the Minister of Internal Affairs of April 12, 1885, No. 492, so that after a thorough inspection of the livestock, the exit of livestock from the said place and other places of the Turgai region may be allowed [122] .

At the same time, studying the protocol documentation was essential to define and specify the work of veterinarians. Acts in the hands of veterinarians served to record directly the process of the autopsy of dead, diseased animals. First, the residence of the owner of the diseased animal and the owner's data were obtained. Then, the information obtained from the animal owner about the signs of the disease and the possible causes of the onset of the disease were described. However, it was difficult to obtain from the owner the reason for the death of the animal [123]. Finally, the autopsy protocol was provided on a special form that recorded the lear, breed, age of the animal, and time of autopsy. Any special characteristics noted during the autopsy were also described. The protocol was signed by witnesses, usually a veterinarian, a police officer, and an animal owner [124] .

The Journal of meeting, as a form of fixing discussion and decisions, was common in the 19th century. It stated the issue under discussion, recorded majority and minority opinions, as well as dissenting opinions, and indicated which opinion was adopted as a decision. One example is the Journal of the presence of the Turgai Regional Board, in which, on March 21, 1909, presented the report of the Turgai Regional Veterinary Inspector V.Ya. Benkevich. They discussed the project of a veterinary organization and veterinary staff in the Turgai region. When discussing the difficult epizootic situation in the region and insufficient veterinary personnel, V.Ya. Benkevich also notes the importance of animal husbandry and the amount of income it brings to the Turgai region. At the same time, arguing that "the Turgai region should protect neighboring provinces from the invasion of epizootics", the sooner new states are introduced, the fewer expenses wsick be required for animal disease control and fewer losses for the people. The Regional Board was in complete agreement with this, and it asked to support the project of new states and the speedy implementation of the plans in the interests of the region's economic development [125] .

Finally, documents from the personnel, on the example of A.I. Dobrosmyslov, can show the role played by veterinarians in the implementation of imperial policy. He devoted more than ten years to his work in the Turgai region, which is associated with an important period in the development of state veterinary affairs in the steppe. He not only engaged in government work but also devoted much time and effort to social activities in different years of his life. On behalf of the Regional Statistical Committee, he compiled brochures and wrote several fundamental works on various topics of veterinary medicine. One of these important scientific works, "Animal Husbandry in the Turgai region," was prepared and published in 1895. Most of the cost of the book, about 856 rubles and 72 kopecks, was paid by Dobrosmyslov himself [126]. As once, he first assumed the obligations of the head of plague control activities in this region and then the head of the veterinary department, a region with an acute epizootic situation, a vast territory, and extremely difficult financing of veterinary activities and maintenance of veterinary personnel.

Thus, the application of the previously selected principles of work with workflow documents wsick allow tracing of the process of formation and development of veterinary service in the Turgai region in the second half of the 19th century as a system of new regulation in the steppe. This is possible because the workflow documents of the Regional Board in the field of veterinary medicine cover the whole period of its establishment from 1869 [127]. However, the completeness of the picture also depends on the "Measures for the Prevention of Rinderpest" [128, 129, 130, 131, 132] , before examining the question of the condition of individual animal species in the region [133, 134, 135, 136, 137, 138, 139, 140, 141]. And only an integrated view of all the individual file units can reveal the coherence of the veterinary service, which was not only concerned with the inspection and ambulatory treatment of animals, but at the same time controlled the slaughter and trade of livestock, controlled bazaars and fairs, and controlled the trade in livestock products [141] .

The documentary data were supplemented and specified by information from the following group of sources: research materials of statistical and research expeditions of the second half of the 19th century, as well as a number of scientific and journalistic

works, and scientific works of officials, leaders of imperial policy, prepared and used in need of service. One of the most important written sources is the "Materials on Kirghiz (Kazakh) Land Use" (hereinafter referred to as "Materials"), which represent studies of statistical and research expeditions conducted under the leadership of F.A. Shcherbina from 1896 to 1903. The research was carried out in the Akmola, Semipalatinsk, and Turgai regions, after that 13 volumes of the work were published. Important for us are volumes 5 and 7, in which research was carried out in Kustanai [143] and Aktobe [144] districts, respectively.

The expedition's "Materials" are primarily a written source that provides valuable information about the geographic location, economy, and socioeconomic situation of the Kazakhs, even though the expedition's task was to reliably determine how much land was needed to feed the nomads and how much could be set aside for use by the newly arrived settlers. According to I. Campbell, this was the basis for a mathematically perfect agricultural colonization of the steppe [145, p. 423]. It is with which one can agree. However, they allow the researcher to extract valuable information from the relevant data, depending on his chosen analysis.

In the course of elaborating on the program and organizing the work, the Expedition Commission determined the methods and technologies for conducting the study. In some cases a continuous, mass representation was required, in others, there were only purely monographic works. According to the programs worked out, the general plan of work was, on the one hand, to make a mass survey of the economy, population, and livestock in individual "economic auyls", and on the other hand, by grouping these auyls into communities, to determine the areas of the various types of pasture and the duration of their use. The definition of the economic composition, food, and other needs of the family and the means of meeting their needs had to be done through household accounts, a general description of the economic conditions – "by volost" descriptions, and a general description of the "natural-historical" signs – records of the "communal" forms [146, p. 22] .

In order to take into account the economy, the population, the livestock, the size of the field, and the amount of hay, a special map was made with all the information that corresponded to the owners' data. To obtain the most reliable information about the livestock, the complete accounting was supplemented by control methods in the form of clarifying questions: 41 questions about the different types of livestock, questions about the age of the livestock, and 3 questions about the ownership of the herd and the number of herders [146, p. 15-16] .

Determination of the composition of the Kazakh economy, its property, and annual turnover, was made based on budget records. Issues of permanent property in the economy, namely: buildings, livestock, work equipment, tools, clothing, and others, were included in the budget forms. For implements and tools, the form asked for the number of wooden and iron plows, and iron and wooden harrows; in total, the form contained 185 questions. The structure of this form is based on the same outline and division as used for recording livestock on record cards, but here this technique is extended to the entire household and carried out in minute detail. The livestock was recorded according to 41 questions [146, p. 17] , as on the record card. Therefore, for the selection of data describing the quantitative composition of the livestock in the

districts and the comparative number of hay preparations and equipment in the districts, they were taken from the "Regional Table of Statistical Information with a Grouping of Farms by Number of Horses" [143, p. 1-96; 144, p. 1-73] .

Finally, to describe the general conditions of the Kazakh economy, a special Volost program was created. This program included sections on the tribal principle as it influenced the emergence of existing land uses, land use patterns, livestock, agriculture, the "natural" conditions of the territory within the Volost, and so on. Each section was divided into a group of questions. Thus, for the description of Kazakh animal husbandry, the questions were divided into 18 sections; the methods of using different pastures depending on the types of livestock, the composition of the herd, the wintering of livestock, the techniques of livestock breeding, and the general characteristics of their productivity. The "natural" conditions section included questions on changes in land cover, vegetation, water sources, etc. Climatic characteristics included – the average duration of winter, the timing of river breakup and freeze-up, snow cover, snowstorms, and black ice. Completion of the volost form was to be done in a single file for each volost and several steps due to the complexity of the program [146, p. 22]]. These questions made it possible not only to present the status of animal husbandry in Kazakh society but also to consider the process of a qualitative change in the composition of the livestock of Kazakhs. In turn, the natural-climatic and geographical information pointed to the factors of the decline of the nomadic economy due to the interference of the immigrant population. The information from the program was described in "Essays on the economic life of the Kirghiz" [143, p. 1-154] .

However, later, the norms determined by the expedition of F. Shcherbina's research group were found to be overestimated, and it was decided that it was necessary to conduct a second study. New research expeditions were sent to the districts under the leadership of V. Kuznetsov, A. Perepletchikov, and P.A. Khvorostansky. According to N.A. Tasilova, this was also because, on June 6, 1904, the Russian government adopted the provision on the "free" resettlement of peasants on state land [147, p. 78]. In the same year, the Main Directorate for Resettlement and Land Management was established in St. Petersburg. In 1904-1905, the tsarist government divided the territory of Kazakhstan into 5 resettlement areas: Ural-Turgai, Akmola, Semipalatinsk, Syrdarya, and Zhetysu.

The head of the statistical department, P.A. Khvorostansky, led the work of organizing the collection and processing of data from a statistical study in the Ural-Turgai region. The expedition worked for 8 years from 1904 to 1912. P.A. Khvorostansky had a great working experience; he took part in the expedition of F. Shcherbina. By a decision of the Ministry of State Lands and Property, they were also obliged to apply the standards set by F. Shcherbina in the Ural district in the study of the Aktobe district: a mass study of the Kazakh people, determination of the state of animal husbandry and agriculture; budget research; planned accounting of the used lands [147, p. 82] .

Thus, it became possible to comparatively study the dynamics of growth or decline in numerical terms by districts, since the accounting tables remained relatively

unchanged [148, 149]. Moreover, the research of P.A. Khvorostansky covered the previously unexplored Turgai [150] and Irgiz districts [151] .

Thus, it became possible to examine comparatively the dynamics of growth or decline in figures by the district since the accounting tables remained relatively unchanged. In addition, P.A. Khvorostansky's research covered the previously unexplored districts of Turgai and Irgiz.

This category also includes the Reviews of the provinces and regions of the Russian Empire (appendices to the most loyal reports of governors), a comprehensive source on the history of the region. The emergence of this type of source is related to the process of reforming the state apparatus and the system of administrative reporting. On 19 June 1870, Emperor Alexander II approved new "forms or programs for the preparation of governors' reports". The previous form of the reports, which had been introduced in 1853, was recognized as "neither corresponding to modern circumstances nor modern requirements" [152, p. 38]. Under the new provision, the governor's report was divided into two separate parts: "the most loyal report, containing in brief and concise form only that which deserves the highest attention" and "an appendix to the most loyal report, or an overview of the state of the province or region, containing all the statistical reference information and data which serve to confirm and support the conclusions and assumptions contained in the report and which are necessary for the development of various types of government considerations and actions" [152, p. 39]. The first reported on the political situation in the region, the second on economic issues and all other areas of the region. In the future, from 1897 onwards, the "Reviews" were separated from the reports and no longer had to be submitted to the Emperor in the form of annexes for personal inspection, but directly to the ministries.

The information for the reports was collected throughout the region and in all departments. Almost the entire provincial and district administration was involved in the preparation of these documents. The final drafting of the texts of the report documents, based on the data processed by the statistical committees, and the elaboration of the main conclusions and generalizations contained therein, usually took place in the Governor's office.

At that time, the Committee of Ministers made some critical remarks about the structure and content of these documents. The criticism was directed at the fact that the reports were based on information "collected hastily and under different programs and are therefore not sufficiently reliable and hardly comparable with each other" [152, p. 44] .

This has been repeatedly stated by modern researchers. N.P. Dyatlova considered that the main drawback of the most loyal reports was the inaccuracy of statistical information [153, p. 241] , just as M.V. Rygalova considered the inaccuracy of statistical information, the absence or fragmentation of information for certain periods [154, p. 69] as an important drawback of the reviews. However, according to A.S. Minakov, this was not an original feature of these documents, but a characteristic of all administrative statistics of the Russian Empire [155] .

In the search for information about the veterinary service in the Turgai region, the "Reviews" were one of the few sources in which the stages of the formation of the veterinary service in the region were presented in a structured way. First of all, it should

be noted that the information from the "Reviews" overlaps with the archival documents of the regional administration of the Turgai region in the field of veterinary medicine. This may be because the reporting documents of the departments of the region, especially the reports of the regional veterinarians, were often used in the preparation of the appendices. It is clear that there are some omissions in the "Reviews", and there is no detailed listing of incidents. However, it is this structure that makes it possible to draw an overall picture of the development of the veterinary service in the region. Archival documents, as mentioned above, are characterized by fragmentation and the constant flow of information from one document to another, and it is very tedious to compile a series of events. Based on this structure and regularity of reports, it is also possible to observe the evolution of the veterinary system in the course of its changes concerning the information known to it.

A special category of sources published by officiating veterinarians of the Turgai region is a number of scientific and journalistic works [28, 156, 157, 158] , as well as scientific works by officials. Undoubtedly, the place of A.I. Dobrosmyslov, head of the veterinary department of the Turgai region from 1891 to 1901, was a key figure in the organization and creation of the veterinary service in the Turgai region. His high professionalism and progressive views enabled him to objectively study the state of veterinary affairs in the steppe, while recognizing the value of local animal husbandry, trying to balance its relations with the whole system of management and protection of the economy [30, p. 278-288]. He wrote and published many fundamental works that were read and used by researchers, as well as by regional and district officials [27, 29, 31]. One of these important scientific works "Animal Husbandry in Turgai Region" was commissioned by Turgai Regional Statistical Committee [30]. The growth of joint two-year work of veterinarians of Turgai region V.N. Kokhman, V.V. Lavrov, A. Turtsevich [30, p. 8] , V.I. Rozhkov, S.I. Korobov, D.P. Lerman, P.V. Trinitatov [30, p. 84] , M.I. Preobrazhenskiy [30, p. 85] , M.R. Dulskiy [30, p. 178] , Ya.Ya. Polferov, I.I. Skorobogatko, V.A. Vasilyev, V.D. Scriabin, A.I. Klerikov, N.D. Shtange [30, p. 224] , A.V. Kazmin [30, p. 270] , and A.I. Dobrosmyslov have lost none of their relevance to this day.

This work contains a good collection of information on the animal husbandry of the Kazakhs in the Turgai region, looking separately at each farm in the following areas: sheep keeping, horse breeding, camel breeding, cattle breeding, and goat breeding. In each of the directions, there are sections such as appearance, number, and distribution by district, summering and wintering, breeding period and selection of producers, castration, shearing, marking, milking operation and milking capacity, trade, breed improvement, diseases. A tremendous amount of work was done. His work was highly appreciated by his contemporaries and served to describe animal husbandry not only in the Turgai region. A. Bokeikhanov, in studying sheep-keeping in the steppe, relied in part on the work of A.I. Dobrosmyslov, noting that "a comprehensive and detailed study of *Kirghiz* [Kazakh] sheep was made only in the Turgai region in Mr. Dobrosmyslov's book" [34, p. 72]. The expedition team led by F. Shcherbina had to get acquainted with various literature and the widely used works of A. Levshin, L. Meyer and A.I. Dobrosmyslov [147, 76] as well.

Undoubtedly, this work is of particular importance in describing the characteristics of Kazakh livestock, its capabilities, and its limitations. No less important are the characteristics of the disease, methods of treatment, and livestock management. His notes on the natural-climatic, geographical, and agricultural conditions of the region are also important. In addition, this work contains sections such as "products made from milk ... for consumption" of this category of livestock, "... as an animal for slaughter and slaughter products", "Trade in livestock and animal products", "Average annual income of Kirghiz from ..." of this category of livestock.

The above paragraphs contain a complete description of what and in what quantities each owner received in total for a piece of certain animals. They included not only meat and milk and products derived from them but also units such as wool or *kizyak* [dried or processed dung], which the Kazakhs used for fuel. "If all the listed income of the Kirghiz from sheep-keeping is added together, one obtains 5,813,272 rubles, of which 1.7 rubles 66 kopecks are allocated to each inhabitant" [30, p. 70] .

Thus, A.I. Dobrosmyslov not only presents the state of animal husbandry in the region but also shows the economic opportunities of steppe husbandry. He firmly believed that "we should not worry about planting an agricultural culture in the Kirghiz steppe, but take all measures and make every effort to ensure that the Kirghiz steppe remains the ancient land of animal husbandry and that does not perish but develops quantitatively and qualitatively. In view of the decline of animal husbandry in European Russia and the rapidly increasing demand for meat food, our vast Kirghiz steppes must be fully preserved as places exclusively for animal husbandry" [30, p. 288] .

He also addressed the issue of "improving" the breed in the sense that "with the proper formulation of Kirghiz steppe sheep-keeping, the local sheep could bring even greater benefits", noting that "the local sheep fully satisfy the most diverse needs of the Kirghiz" [30, p. 71]. And also that "the complete unfamiliarity of the Kirghiz people with the correct methods of sheep-keeping and the impossibility of a direct transition from quantitative to qualitative sheep-keeping indicate that the improvement of the local Kirghiz sheep breed should take place in itself" [30, p. 71] , by which he suggested a change in the extensive mode of production that was integrated into steppe animal husbandry. He saw an improvement in quality, for example, in obtaining more usable wool: "in the quality and color of the wool of female and male breeding animals, one should try to give preference to those animals whose hair is longer and thicker, and as for the color of the hair, white should have been preferred, since this color of wool was valued above all others, because white wool, when dyed, can more uniformly take on all colors" [30, p. 72] .

He also published the "transit Movements" of commercial animal and animal products, describing all the livestock-driving routes existing at the time of the study, their routes, and the process of transporting animal products. In particular, he points out the conflict between veterinary control and the cattle merchants [*skotopromyshlenniki*] (burghers [*meshchanin*] and traders), in which the latter complained about the restriction of the established routes for commercial livestock within the Turgai region [159, p. 13]. However, Dobrosmyslov complains that the authors of the records "do not understand that no common good, in this case, protection

from the plague in European Russia, can be achieved without private donations, which they oppose by condemning the actions of the Turgai administration" [159, p. 14] .

Thus, the work of A.I. Dobrosmyslov had many implications for the study of veterinary medicine in the steppe, just as his rhetoric of care had many hidden objectives.

The author of the work "Animal husbandry in the Turgai region and its economic importance for the people" [32] , V.Ya. Benkevich was the next important figure in the Turgai region. He held the post of veterinary inspector of the region from 1903 to 1917. He was very productive. The list of his works was really impressive; it was fully included in the doctoral thesis of veterinarian S.K. Kozhakin [45, p. 521-528]. According to S.K. Kozhakin, there is not a single subject that has not been thoroughly studied and developed [45, p. 23]. Unfortunately, only one work of a veterinary inspector is available, so many of the arguments of the veterinarian were taken into account by the work of S.K. Kozhakin. First of all, S.K. Kozhakin notes that the veterinary inspector was one of the first zealous fighters for the development and strengthening of the veterinary system and the regulation of the issue of the life of veterinary personnel, both at lower and higher levels. At the general meetings of veterinarians in 1912, V. Benkevich [160] gave an assessment of veterinary affairs in the steppe, "how veterinary medicine, created when the entire steppe was used only by Kazakh herders, has remained unchanged" [45, p. 242]. The epizootic situation also worried the veterinarian because the opening of a veterinary research station in the steppe has not yet been discussed [45, p. 283]. "We are groping in the dark and just worry only the accomplished fact" [161]. Also, "the control measures are based mainly on empiricism, without a strictly scientific justification" [162]. As S.K.Kozhakin agrees [45, p. 317] in that, "raising funds for the needs of state veterinary medicine and, in particular, for the control of animal diseases, should be the responsibility of the state, not local institutions. This can in no way be considered normal" [163] .

The position of V. Benkevich was quite clear, and indeed, he is one of the few who dared to speak about it so often and so openly. He was also one of those who advocated the preservation of animal husbandry in the steppe, especially following the example of the Turgai region. He believed that "the Kirghiz steppe is an area that for a long time wsick be the largest and relatively cheap supplier of livestock and its products, and it must be used in this direction, all conditions must be created for the rational development of the animal" [32, p. 13]. He was also the first to use the digital data of the "Materials" of the expedition to analyze changes in nutrition and feed procurement [32, p. 122-132] .

A.N. Bokeikhanov wrote a fundamental and systematic scientific work, perhaps one of the first monographs on Kazakh sheep-keeping in the Kazakh steppe. "Materials for the economic study of the regions along the Siberian railway. Livestock. Sheep-keeping in the Area of the Western Section of the Siberian Railway" [34] was published in 1904. At that time, he was a statistician on an expedition to conduct an economic survey of the regions of the Siberian Railway. The Committee of the Siberian Railway was not only engaged in the construction of railways but in 1892-1905 was also given the authority to deal with resettlement issues. For this task, the committee organized special temporary expeditions to explore land under the control of the

Ministry of Agriculture and State Property. The group's main task was to identify surplus land along the railway line [147, p. 72].

The participation of A. Bokeikhanov in this expedition could be due to the same reason why he participated in the expedition of F. Shcherbina. According to I. Campbell, the Shcherbina land norm was for A. Bokeikhanov both a minimum guarantee of a secure existence for the Kazakhs and the best rhetorical means against uncontrolled resettlement colonization [145, p. 431]. And sheep-keeping, as well as Kazakh sheep, were studied from all possible angles, as the "foundation of nomadic life" in the traditional economy of the Kazakhs. But it was more important to prove that the Kazakh sheep, which is extremely undemanding, needs almost no care in the south and provides a variety of products necessary in nomadic life, is the most useful animal in the economy. The sense that the southern desert steppes can not be empty if the people is engaged in profitable sheep farming. The latter can "develop a new type that is even more productive with the conscious selection of Kazakh sheep." He offers possible development paths for this industry, which has a great future, as well as rescue from the "identification of surplus land".

This essay is the basis for the part about Kazakh sheep-keeping, where the information from all 64 thematic sections of labor was used. Particularly, the author's information and observations about the relationship of the sheep with the environment are important. "Like a Kazakh auyl, its flock of sheep sinks into the gray tone of the steppe, making up its part. This commonality of the color of the Kirghiz sheep with the color of its homeland incited the Kazakhs to give the mountains the name *koitas*, a sheep-stone. Indeed, stones scattered on the *koitas* singly and in groups from a certain distance seem to be a flock of sheep grazing on the slopes of the mountains. This is facilitated by the fact that the color of *boz* [light gray], and especially *kongr* [brown], is close to the color of the granite and fades with it. In this harmony of the suit of the Kirghiz sheep with the environment, one cannot fail to see the sign of the sheep's adaptation to environmental conditions" [34, p. 75] .

Folk knowledge and concepts, the traditional system of animal husbandry, attitude towards livestock and the environment are based on folklore and ethnographic sources, and represent an internal – Kazakh view.

The staff of the Institute of Literature and Art named after M.O. Auezov, in the course of scientific development of a hundred-volume edition of the series "*Babalar sozi*" [The word of the ancestors], published within the framework of the state program "Cultural Heritage", worked for more than 7 years, from 2003 to 2010, on the creation of a general edition of Kazakh proverbs and sayings. In the course of the work, materials from published collections of proverbs held in the Rare Book Fund of the Central Scientific Library and in the manuscript fund of the Institute of Literature and Art named after M.O. Auezov, collected and included from the "Kirghiz Steppe Newspaper" and from published collections of modern times. The director of the Institute of Literature and Art named after M.O. Auezov, literary critic, folklorist, and Doctor of Philology S.A. Kaskabasov was appointed as the leading and responsible editor of the editions [164, 165, 166] .

The main part of the collected materials consisted of works published and printed in the second half of the 19th century, with most of the original texts translated into

Russian and presented in both languages. In the volume's preface, some clarifications are given about the published materials [164, p. 441-457]. For example, what compositions were used in compiling the volumes. One of them is "Kirghiz Proverbs and Riddles" by Turkologist and scientist P.M. Melioransky, in which 91 folk works were grouped and explained [167]. Or the "Collection of Kirghiz Proverbs" by V.V. Katarinsky with 1606 proverbs printed in Cyrsickic script, with a translation into Russian also made [168]. In his short article written as a preface to the book, V.V. Katarinsky expressed his deep gratitude for the great help to rural teachers Bakhtygereev, Zhuldyzov, and Zhumaliev in collecting the materials included in the publication.

The chapter "Kirghiz proverbs" from the work of V. Von-Gren "From the notes" was published in the collection "Memorable book of the Semipalatinsk region" in 1898. Detailed explanations were given for 23 proverbs included in his edition, and a Russian translation was also attached [169]. In the section "Proverbs" of the work of I. Laptev, which refers to the Kazakh language, 27 folk songs were published in two languages [170]. Later, A. Vasiliev published a separate collection of proverbs, published in 33-34 issues of the newspaper "Turgaiskie Vedomosti" in 1892, in which 112 proverbs were systematized in two languages [171]. A well-known folklorist A. Divaev made a significant contribution to the collection and publication of Kazakh proverbs. In 1900, he managed to create a personal collection based on materials that he had collected over many years [172] .

Since the second half of the 19th century, the Kazakh intelligentsia, together with Russian folklorists, began to actively participate in the collection, systematization and publication of Kazakh proverbs. M. Babazhanov, one of the first Kazakh ethnographers, frequently used proverbs in his articles [173]. One of the most significant works from this period is "Kazakh Chrestomathy" by Y. Altynsarin. This is not only an invaluable textbook, but also the first collection written by the hand of the original author in pure Kazakh. The fourth chapter of this textbook is devoted to folk proverbs. A special contribution to the collection and publication of this genre was made by a member of the Orenburg Branch of the Russian Geographical Society, the recipient of the silver medal of this organization, B. Daulbaev. The themes of his folk works, published in the "Kirghiz Steppe Newspaper", were varied: art and education, the abolition of bad habits, honesty, and respect for elders, and adaptation to a new era [174] .

Quite a large amount of proverbs and sayings were systematized in terms of their ideological content and subject. Thus, the Ukrainian researcher M. Pizyak proposed to systematize them not on the structural, but on the thematic principle of "supporting keywords" [175, p. 23]. For example, proverbs and sayings whose keywords are connected with the concept of "animal husbandry", such as livestock, land, sheep, cow, horse, camel, and pasture, were grouped together in one series. Moreover, the semantic meanings, genre specificity, investigation of causes, patterns, and their changes were revealed.

A. Dundis proposed three types of relations that can also describe Kazakh proverbs and sayings. They are proverbs based on antithetical, privative and causative relations [175, p. 17]. The antithetic connection type expresses contradictions, the

mutually exclusive nature of conclusions, e.g. "*Koiyn bolmasa, bailykta oiyn bolmasyn*" – Do not even think of wealth without a sheep; privative type, the presence of a comparative series: "*Esekke zhuk artkanmen, tuie bolmas. Siyrdy zhii sauganmen, bie bolmas*" – No matter how much you load the donkey, it wsick not be a camel/ Whatever a source of income is, it cannot become a mare; and the last type of causal relationship is that there is a cause and an effect of the event: "*Koiyn myngga zhetse, kolyn shynga zheter*" – If you have a thousand sheep, you wsick reach the top.

The next unit of the folklore source that found a place in the study was an example from Kazakh folk literature – prayer well-wishes – "*Bata soz*", when one asks for God to show mercy to someone else, out of a feeling of personal gratitude for him [176]. On the basis of textual analysis, a relative group of "Prayer well-wishes related to economic activity, everyday life, the daily routine of a person" was filtered out [177, p. 84]. One of such examples was recorded by a well-known collector of samples of Kazakh "folk literature", the adviser to the Turgai Regional Board A. Vasilev. In the Baksai volost of the Irghiz district, Vasilev recorded the blessings of a 100-year old man named Shokaman Isin, which begins with the words: "Kudaidyn ozi suiip ondasyn! Without zhuz saulyk kozdasyn..." – "May God bless you! Let five hundred sheep lamb..." [176, p. 4] or "Aktyly koi, saryly tuiege koran tolgai" – "Let your stables be fsicked with white rams and yellow camels" [176, p. 17] .

Phraseological units have also become the object of analysis. Language categories and expressions in them are stable concepts reflecting the linguistic consciousness of Kazakhs. The frequent use of zoomorphic metaphors also reflects the valuable role of livestock in their lives; animal husbandry has become a national-cultural phenomenon, a kind of "ethnocultural marker" [178]. Moreover, individual phrases stand for certain aspects of the people's historical development, spiritual culture and life, and express stable concepts. In this context, it is significant that in the Kazakh language, there are frequent metaphors and phrases associated with livestock, while the images of animals in the Kazakh language and folklore always have a positive connotation.

The main source for the emergence of phraseological units is oral folk art, so it was important to consider the collected and systematized monolingual phraseological dictionary of the Kazakh language [179] , as well as the Kazakh-Russian phraseological dictionary [180] for the selection of phraseological units by keywords. At the same time, the authors highlight individual works used in compiling the dictionary. For example, H.K. Kozhakhmetova highlights such works as "Batyrlar Zhyry", "Er Targyn", "Kambar Batyr", "Kyz Zhibek", "Kozy Korpesh – Bayan Sulu", "Sheshendyk Sozder" [180, p. 8] .

A different understanding and attitude towards the culture of animal husbandry and its main attribute, livestock, represents the main difference between the worldviews of the two societies. Depending on the structure of the adjunct, there are three main types of phraseological units classified by V.V. Vinogradov [181]. According to this classification, there are phraseological fusions, units, and combinations. Phraseological mergers, an indivisible phrase that is not derivable from the meaning and separate from phrases, is not possible to use in the same sense, for example, in the definition of meek, shy, the phrase "*koidai konyr*" is more commonly used – "humble as a sheep". Phraseological units also represent a turnover, where you

can replace and have individual components, but as a whole, they have one meaning: "*tana koz*" – in the sense of big, beautiful, shining eyes (literally: eyes of a calf), "*bota koz*" in the sense of big, beautiful eyes (literally: eyes of a camel). The last phraseological combination, gathering in itself a complex of expressions with a free meaning: "*at kulagynda oinau*" – "*being able to ride a horse well*" (literally: playing on the ears of a horse) or using the word "dombra" instead of a horse – "*dombyranyn kulagynda oinau*" – "being able to play the dombra well" (literally: playing on the ears of the dombra).

The last group of sources is folk beliefs (faith) and superstitious beliefs (omens) that exist as part of customs and traditions. A superstitious belief is a kind of premonition of something – good or bad, it is a sign, a warning for a person. It was built over a long period of time, is constantly related to the phenomena and events of human life, reflects the life of the people, and is of great ethnographic value. Livestock was a frequent "theme" around which omens and beliefs were formed and reflected. Negative symbolism related to livestock was encountered in cases that referred to cattle having an unreliable quality: "Siyr uige suiense zhaman yrym" – "It is a bad omen if a cow rubs against a house" or "Siyrlar zhinalyp okirse malga indet keledi" – "If several cows roar at the same time, the plague may come upon the livestock" [182]. According to the Kazakh ethnographer A. Toktabai, this could be due, on the one hand, to small-scale breeding and the fact that cattle play an insignificant role in the composition of the Kazakh nomadic herd, and on the other hand, to the fact that cattle, like goats, have long been a symbol of sinister power in the minds of the Kazakhs [182, p. 29]. However, positive belief in sheep is also widespread among Kazakhs: "Where the bones of a ram or its horns lie, there are no evil spirits; it is the purest animal that appeared before man. It carries a certain vitality, happiness, and contentment" [183] .

The positive symbolism of mythology is also found in the belief in women in childbirth: "For a woman who has been freed from her burden and has given birth, the family slaughters a white sheep and presents her *kalzha* [lamb broth] with good wishes. This is because it is necessary to expel the sweat of childbirth from the puerperium without a trace, otherwise, the mother and child wsick get into forty troubles, and the child of a woman who has not eaten kalzha wsick become frail and weepy" [184, p. 105]. The following sounds as follows: "The cooked spinal cord of a sheep slaughtered for kalzha is picked and strung on a branch through the spinal canal and hung above the house entrance – so that the newborn's neck wsick grow stronger faster and the child wsick hold its head" [184, p. 106]. Thus, on the basis of the beliefs and omens, it is possible to trace the features of the value meanings and rules of life, which Kazakh society could not ignore.

Proverbs, sayings, and prayer well-wishes show what were, for the Kazakhs, different kinds of livestock. The discursive forms in this category of folk sources make it possible to paint a picture of the world of the Kazakhs, in which livestock was not only of economic importance, as all life lessons, knowledge, sksicks, and indestructible connection with the environment were connected with it, and it was an integral part of the culture of Kazakh society. While the steppe herd was important for the tsarist administration primarily as a commodity and was subject to the spread of infectious diseases that prevented commodity-oriented trade through the steppes. Cultural

awareness tells us nothing about the number of animals that died about the methods of traditional treatment of livestock and about how limited Russian knowledge of the steppe was. These results can be traced from workflow, administrative, and reporting documents. But the problem was related to the formal relations of the tsarist administration when it came to solving the issue of animal husbandry in the Kazakh steppe. Making senseless cultural, social, climatic, and geographical factors of nomadic life, as well as the formation of state veterinary control in the steppe as a form of disciplinary power began to have a colonial character of all-imperial policy.

1.3 Turgai region as a case study

The choice of the Turgai region as a region for studying the transformation of the Kazakh society, economy, and landscape in the late imperial era was due to its specific regional position. And even after the establishment of the Turkestan Governor-Generalship in 1867, and the loss of the border character and any external political significance of the Orenburg Governor-Generalship, which included the Turgai region, this region did not lose the importance of the contact zone between the steppe and the Russian Empire. Since, according to K. Matsuzato, from 1867 and 1886 the role of an intermediary between St. Petersburg and the Central Asian khanates was played by the Turkestan Governor-Generalship [185, p. 443] .

After the abolition of the Orenburg Governor-Generalship in 1881, the region gained great economic importance. To the economic potential of the region was added the new task of transit routes, because the Turgai region was located at the crossroads of trade routes leading from Russia to Central Asia. This contributed to the construction of railways throughout the region. After that, the Turgai region has become a contact zone for new relations between Central Asia and the inner provinces of Russia.

It also became a zone of contact between settlers and Kazakh society. The formation of the Turgai region and the adoption of the "Provisional Regulations" in 1868 also coincided with the abolition of serfdom in Russia, which intensified the resettlement movement. And although, as W. Sunderland argues, the society of Russian "peasant colonists" did not consider itself the builder of the empire and colonial expansion and did not consciously do so [186, p. 471] , it was invading and transformative.

Officially, the region was established on October 21, 1868, on the basis of the Provisional Regulations on the Administration of the Steppe Territories on the lands of the eastern and central parts of the former region of the Orenburg Kazakhs. As a result of the said law, the Turgai region was administratively divided into four districts: Iletsk, Nikolaev, Irgiz and Turgai. Behind it was the renaming of the Ural fortress (founded in 1845) into the city of Irgiz and of Orenburg (also founded in 1845) into the city of Turgai. The districts were divided in 1869 into volosts and the latter into auyls [30, p. 318]. Later, on March 25, 1891, new Regulations on the administration of the steppe regions were adopted. The former Ak-Tube fortress (founded in 1870) was also renamed the city of Aktyubinsk, and the settlement of Kustanai (founded in 1880) was renamed the city of Nikolaevsk [30, p. 321]. The district administrations were

located in the same cities, and the seat of the military governor and the regional government remained in the city of Orenburg. The last change was the assignment of the former name Kustanai to the city of Nikolaevsk and to the Nikolaevsky district, which took place on February 8, 1895.

The Turgai region, located between 45-55 degrees north latitude and 72-85 degrees east longitude, occupied an area of 400,830 square kilometers versts, and 17,308 square kilometers verst in the so-called "Novolineinyi" region of Orenburg province, amidst the lands of the Orenburg Cossack Army [30, p. 295] .

With a detailed study of the Turgai region in terms of its geographical, natural, and climatic situation, it became clear that the region had been sufficiently extensively explored. A solid number of works were written both by individual researchers [30, 187, 188, 189, 190, 191] and on behalf of the state [143, 144, 192, 193, 194]. But due to the fact that most of the works were similar because the same literature, reports, and reviews were used in the field, the main focus was put on the role and presence of the author in the field itself. In this context, it is important to highlight three works on which this paragraph wsick build, because they are characterized by particular and detailed information [30, 143, 195] .

First, it is necessary to determine the boundaries of the region. Turgai region was surrounded by Orenburg province in the northwest, the Ural region in the west, the Aral Sea and Syr-Darya region in the south, and the Akmola region in the east.

The northwestern boundary of the Turgai region, bordering Orenburg province, began at the confluence of the Kara-Khobda River with the Ilek River. Continuing east along the Ilek River to the mouth of the Kuraily River. From there it went north along the Kuraily and Berdyanka rivers to a tributary of the Ural River. Then it extended east again along the Ural River to the Or River, where the city of Orsk was located. Here the border ran in the northeastern direction to the Ui River. Continuing along the Ui and Tobol rivers, it reached the Akmola region.

The eastern border of Turgai region in its entire length bordered two districts of Akmola region – Petropavlovsk and Atbasar. This border was the longest in comparison with the other borders of the region. It ran from the upper reaches of the Ubagan River in the southeastern direction to the heights of Ulytau. It meandered along the western slopes of these mountains and continued south to the Sary-su River. This river formed the conclusion of the eastern border.

In the south, the Turgai region bordered two districts of the Syr-Darya region – Perovsky and Kazalinsky – and the Aral Sea. From the Sary-su River, the border ran in a northwestern direction past Lake Arys-Kul, then along the sands of Arys-Kum, Moiyn-Kum, and Karakum. Without reaching Melde-Kul Lake (Irgiz district), the border turned south and reached Perovski Bay on the northern shore of the Aral Sea [195, p. 1] .

The Temir and Ural districts of the Ural region border the western boundary of the Turgai region. From the Aral Sea, this border ran northwest along the hsicks of the Northern Chink. After reaching the Mugodzhar Mountains, it turned north along its western slopes to Mount Karatau, from where it extended in curves to the mouth of the Sary-Khobda River into the Kara-Khobda and further along the Kara-Khobda to the Ilek River. Here ended the western border of the region [195, p. 2] .

Since the Turgai region was located in the northeastern part of the Aral-Caspian Plain, the space occupied by the region was plain (*dala*) with small elevations to the west (Guberlinsky and Mugodzharsky Mountains) and east (foothsicks of the Ulutau Ridge)[30, p. 296]. The Guberlin and Mugodzhar mountains do not reach a significant height above sea level. On their slopes, the soil was more or less fertile and in the valleys, there were forest stands. These mountains were the beginning of many rivers and determined the direction of their flow to the north and south [30, p. 297]. The Mugodzhar Mountains were the southern continuation of the Ural Mountains and ran from north to south, along the border with the Ural region. The northern terminus was Mount Karatau on the border between the Ural region, Aktobe, and Irgiz districts. The northern foothsicks of the Ulutau Mountains occupied almost the entire eastern part of the Turgai district. In these mountains, many rivers flowed to the southwest and south [30, p. 297] , and it was a place with pure spring water and excellent pastures for livestock.

A plain stretching between small hsicks from Orenburg province to the south of the Syr-Darya River looked monotonous, according to A.I. Dobrosmyslov, but was highly original. "It makes a monotonous impression because the same images are repeated on it thousands of times, and at first glance, it may seem beautiful and attractive, because the endless repetition tires the eye. The hsicks and mounds stretching in the distance seem to be high mountains because the eye loses all scale in the vast spaces" [30, p. 297]. This diversity was evident in the way the terrain changed in terms of topography, land cover, availability of water resources, and vegetation, with some boundaries overshadowing others and creating a completely different natural environment. And each region of the natural environment represented an integral part of the external appearance of the region's natural environment.

The orographic features of the region undoubtedly have a connection with the soil conditions, so we wsick first give a brief overview of the soils and then consider the area of the region according to its physical characteristics. The first clayey-sandy soil, more or less covered with chernozem, had good vegetation and was suitable for agriculture. The solonetzic-clayey soil was characterized by the fact that it was so saturated with salts that only wormwood and plants from the family of salt plants could grow on it. Solonetzes – refers to clay soil so saturated with salt that it could no longer produce vegetation, except for almost a single thorn, which was often found on solonetzes. And sands – consisting of hard sand or loose mounds, often carried by the wind from one place to another [30, p. 238] .

The Turgai plain, conditionally divided by the fiftieth parallel [30, p. 299; 196, p. 1] , can be considered as two characteristic types of "Central Asian steppes": feather grass steppes (chernozem, clayey-sand or loamy) and deserts (solonetzic-clayey, sandy) [195, p. 3]. Or spatially divided into two major regions: the northern and southern [30, p. 298]. The first and most extensive region occupied the entire territory of the Kustanai and Aktobe districts and conquered the northern parts of Turgai and Irgiz. It is difficult to determine the exact border between the northern and southern regions, with which Dobrosmyslov himself agrees. He suggests, "It passes through the Turme Mountains, goes around the Zhilanchik River, then a little north of the city of

Irgiz and on the western border of the region passes through Mount Airyuk, and in the west, this border is shifted more to the south than in the east".

In this part of the region, the predominant soil was clayey-sandy and crusted with chernozem, the largest layer of which is located in the northern parts of this region, in the border areas with Orenburg province. Towards the south, its thickness gradually decreased. The whole territory of this region was suitable for agriculture and had good pastures known as feather grass steppes [30, p. 299]. Feather grass, in turn, served as the best pasture for steppe domestic animals, especially horses, both in summer and winter [197, p. 94]. Therefore, the northern districts were considered horse breeding areas in economic terms. Comparing the collected expedition material with similar data for Akmola and Semipalatinsk regions, F. Shcherbin came to the conclusion that the northern part of the Kustanai district should be classified as one of the best steppe areas. Nowhere else did the expedition encounter such a favorable combination of high-quality and deep soils and such rich and diverse forage vegetation [197, p. 37]. The entire northern part of the Turgai steppe was irrigated by numerous rivers and had many lakes [30, p. 299; 195, p. 5-9] .

The southern region occupied the rest of the districts of Turgai and Irgiz. The territory of this region was part of the vast plain called the Aral-Caspian lowlands; it had solonetzic that often changed into completely barren solonetz soils. Scattered among the solonetz were vast areas covered with sand. The main hsicky sands [*barkans*], located in the southeastern part of the region, were called the Karakum and merged with the Syr-Darya sands to the south. To the west of the Karakum, there were also hsicky sands of the Great and Little Barsuki deserts. In addition, there were a considerable number of smaller sands in the Turgai and Irgiz districts, such as Ak-kum, Sary-kum, Kuyan-chagyl, Air-kyzyl [30, p. 299]. There were comparatively few rivers in this region; the water mostly had a bitter-salty taste.

The vegetation in this part of the region was rare and poor. Suitable animal herbs existed only in the basins where spring water was collected and on the banks of rivers and lakes. In other areas, the steppe was either completely bare or covered with rare wormwood and thorns [30, p. 300]. At the same time, sheep preferred to graze on the salty ground covered with wormwood [30, p. 42]. The camels, on the other hand, ate all the leaves and young branches of the thorns, leaving the main trunk with its thicker branchings intact [30, p. 315]. Therefore, most sheep were kept in the southern "desert" districts, and the largest number of camels was also concentrated in the southwestern part of the region. The undulating nature of the sands caused the snowpack to fall later in the first half of winter and the snow to melt earlier in the spring. Due to these circumstances, the southern sands were used for winter storage [151, p. V]. But at the same time, in summer when the heat reached 40 degrees centigrade, the tops of the sand hsicks were blown away by the wind, the clay soil cracked, turned into dust, and the water became almost unusable [30, p. 300] .

Due to the inland location of the entire Kazakh steppe, the same strongly continental climatic conditions prevailed in the Turgai region, which was characterized by strong daily, seasonal, and annual fluctuations in air temperature. It was also characterized by hot summers and cold winters. The absence of high mountains in the area contributed to the almost constant presence of winds, which naturally had a great

influence on temperature and other climatic conditions. Another feature of the steppe climate, due to its remoteness from large sources of moisture, was a pronounced aridity, which manifested itself most clearly in its flat part of the steppe, which is the least supplied with precipitation. The characteristic climatic features of the Turgai steppe were dry air, sharp transitions from heat to cold, the insignificance of water, precipitation, and an excessive distance from extreme degrees of heat and cold. The maximum temperature observed in the area reached 52 degrees Celsius and the minimum temperature dropped to 40 degrees Celsius [30, p. 309] .

Due to the large extent of the Turgai region in the meridian direction, the climate in the northwestern half of the region differs significantly from the climate in the southern part. Winters in the south were milder and summers were somewhat longer, but rainfall was much less than in the northern parts of the region. In the sandy deserts in the extreme south of the region, there was a very rare atmospheric phenomenon – dry rain. When the ground heats up so much in the unbearable summer heat that falling raindrops evaporate on the surface of the ground and do not reach it [105, p. 9]. Droughts were observed relatively often, sometimes in the whole region, sometimes in its parts, about every 2-3 years [32, p. 3] .

At the beginning of summer, the steppe stsick had the possibility of greening, but the luxury of vegetation did not last long. Some plants that had just reached full bloom began to wither in the first days of heat, and the colorful spring carpet soon took on a grayish-yellow hue. Even before summer was over, the steppe, already clothed in an autumn cover, took on a grayish-yellow color, devoid of variety and charm [30, p. 310]. Autumn and spring were not long, in autumn, there were early frosts, and in spring, the frosts were late [32, p. 3] .

In the northern part of the region, winter came more quickly and lasted about six months, while the rivers and lakes began to freeze as early as the end of October or the beginning of November. In the southern part, however, they froze over in late November and opened in early March. The first frost at night covered all waters with a thin layer of ice; several cold days fettered lakes and puddles [30, p. 310]. In November, after the first snowfall, it sometimes rained. As a result, the thaw was replaced by frost, and the snow melted by the rain turned into snow and the ground was covered with a crust of ice, which remained under the snow throughout the winter. This phenomenon was called glaciation or "black ice" [30, p. 309; 195, p. 10]. The winter was accompanied by frequent winds known as snowstorms. For two or three days, the storm could rage without interruption with the same force, chaining both man and animal to the place. A traveler, caught in a snowstorm in the steppe, was dying. Both snowstorms and black ice were the greatest evil for steppe animal husbandry. And it was only with the onset of February that man and beast could breathe more freely, although winter stsick weighed on the steppe. With the late winter sun appeared the first thawed patches, which each time expanded more and preceded the spring [30, p. 311] .

But the snow did not begin to melt completely until March and April when a warm southerly wind came with the sun's rays. After that, even before the snow had disappeared, the ice floes on the lakes loosened, and leaves and flowers bloomed near the perennial vegetation. Among the yellowed grasses, among the dry stalks that had

not been destroyed by the autumn storms, the first spring grasses broke through, adding new shades to the old grasses every day. In a few weeks, the whole earth was covered with a colorful carpet, in which all colors from dark green to bright yellow-green could be found [30, p. 312] .

The spring vegetation of the sandy expanses was the most interesting of all, rich in rare and original forms. In spring, in April and May, the hsicky sandy expanses turned into a green garden. A.I. Dobrosmyslov could see this for himself during a personal trip to the Karakum in 1893. The hsicks were densely covered with spherical, bright green bushes of various species of *zhuzgun* [Calligonum], thorns, combs, and saxaul, somewhat resembling pines; in some places, there were small groves of *zhide* [Elaeagnus]; but the beauty of the loose sand clothed in green was only an sickusion.

The flowers bloomed and withered within a few days. The vegetation was usually bitter, unsuitable grass covered with a special kind of flowers that fell off at the slightest touch [30, p. 312]. And the hot summer came again.

The most important thing in this matter is that it is impossible to cancel the dependence of economic characteristics on the geographical, physical, natural, and climatic conditions of the environment. In fact, only depending on certain climatic and seasonal conditions there was a possibility of animal husbandry and nomadism. For example, in autumn, when grass growth stops in the north, water sources become scarce, the temperature drops, and herds move south. At the same time, when food is abundant the main trigger for the migration of the herds was the state of the weather. A more or less sharp drop in temperature forces them to quickly leave the pasture and move further south.

In any ecosystem, the geographic environment affects the basic parameters of society's life, and the system of material production in turn affects and changes the environment. This is particularly expressed in the ecosystem of the steppe, where the "amplitude of fluctuations in the absolute values" [198, p. 80] of environmental factors is very high. An example of this is the "climatic imbalance" of the steppe, which provides high (up to +45 degrees Celsius) summer and very low (up to –48 degrees Celsius) winter temperatures. Therefore, it is very important to obtain exactly the interactions between ecological and socio-economic factors that complement each other. In this regard, V.G. Mordakovich, who studies steppe ecosystems, states that grazing is the most environmentally friendly way of using the steppe ecosystem [198, p. 153]. This opinion is also supported by N.E. Masanov, who considers nomadic grazing as a necessary link in the life of steppe, semi-desert, and desert landscapes, which determines the dynamics of grass growth [199, p. 89]. Thus, it can be assumed that nomadic pastoralism, ecologically dependent, was nevertheless an organically inscribed phenomenon in the natural environment. Therefore, in the study of pastoralism, it is very important to give importance to the natural factors surrounding it.

2 VETERINARY MEDICINE IN THE SERVICE OF THE INTERESTS OF THE IMPERIAL STATE

2.1 Development of veterinary medicine in Russia and features of its organizational structure in Kazakhstan

This paragraph considers the system of veterinary service in Central Russia and shows the structure and features of its implementation in the Kazakh steppe. The introduction of the veterinary service is presented as an element of colonial governance.

The veterinary activity of the Russian Empire over a long period in the process of formation and determination of the importance for humans and society as a whole has identified for itself the following tasks. This is the protection of the economic and social interests of society, which in turn was the direct responsibility of the state authority for the welfare of the community. The importance of this issue and the organization of the veterinary system in the Russian Empire and the Kazakh steppe was particularly acute because of the specific features of the economic structure: animal husbandry and methods of production of animal products, as well as the further development of industrial animal husbandry in these areas – met the requirements of the main tasks of veterinary science.

So far, the evaluation of colonial medicine in Kazakhstan has exceptionally focused on human health issues. The first attempts to study colonial medicine in Kazakhstan were devoted to the analysis of the history of medicine as an instrument of imperial rule. According to P. Michaels, medical discourse and politics became the main instrument that regulated these colonial images and shaped new forms of disciplinary power [200] .

However, the history of colonial policies toward animals has been extensively studied by Western historians [66, 67, 204] , African historians [64] , and scholars of the Middle East [202, 203]. In the process, animals have always been treated as important vectors of change in human society. When it comes exclusively to the relationship between veterinary medicine and the Western example and its colony, the work of S. Mishra is a good example [68]. The author, who explores the history of colonial medicine in India from the perspective of veterinary medicine, proves that problems related to animal husbandry and veterinary medicine form an intersection between social, colonial, and medical history. And they can be used to revisit and rethink many historical arguments. He contends that the colonial veterinarian in India was concerned exclusively with the breeding and treatment of horses and other animals for the military. It was not until the 1910s that more attention was paid to animal diseases of cattle. Even then, colonial institutions were underfunded and unreservedly followed capital research initiatives that were not necessarily relevant in the colonial context [68, p. 61]. This allows us to look at the history of veterinary medicine from a very different perspective, as it might be related to colonialism, agrarian relations, and the history of veterinary medicine.

In Russian historiography, medical care in the Kazakh steppe [204, 205, 206, 207] is also supported by the idea of medical care for the people as an ideological means of imperial construction [208, p. 150]. But it is impossible to note veterinary research in

a colonial context, only as an object of science, or its history of origin [209, 210, 211] .

In Kazakhstani historiography, the question of the close relationship between veterinary science and colonial state policy remains open [212]. Nevertheless, several studies could form the basis for further research. In 1963, Kh. Argynbaev published work with a brief ethnographic description of Kazakh veterinary folk medicine [47]. The author for the first time in ethnographic science systematically and objectively studied the traditional veterinary medicine of the Kazakh people, to deepen the existing representations about it, and to show the methods of treatment of animal diseases developed in the traditional Kazakh economy. In the same direction, B. Hinayat, as a representative of already modern historical science, has devoted his research to the consideration of the basic structures and functions of veterinary knowledge in the nomadic environment [55]. The author has deepened and supplemented the traditional veterinary knowledge and evaluated field sources.

It should be mentioned that the only author of the monograph devoted to the foundation and history of veterinary medicine in Kazakhstan is S.K. Kozhakin. The work of Kozhakin was written in 1949 but has not lost its value to this day. The reason why it is so important to mention the work of the veterinarian is the thorough evaluation of the pre-revolutionary veterinary system in the Kazakh steppe. Kozhakin's main thesis is how "by pumping out enormous material assets from the steppe region, the tsarist government failed to find the means to adequately organize veterinary services for Kazakh animal husbandry" [45, p. 516]. The author argues that the "tsarist" government with its colonial policy towards the remote areas hindered the successful and comprehensive development of the veterinary system in Kazakh steppes. According to S.K. Kozhakin, the established trade system, the lack of quantitative and qualitative veterinary control, the absence of legal veterinary norms, and the violation of traditional methods of animal husbandry created an even greater condition for the development and spread of contagious animal diseases. The struggle for liquidation lasted for many years.

As for the history of veterinary medicine in Russia, one can refer primarily to the fundamental work of I.N. Nikitin and V.I. Kalugin [209]. According to the authors, the formation of veterinary medicine as a service in Russia dates back to the first half of the XVIII century from the epoch of Peter I and developed on a large scale on the ground of state horse-breeding [209, p. 29]. Conditionally presented by I.N. Nikitin, as a period of "accumulation of experience of the organization of veterinary activity in the tsarist army and civil departments" [210, p. 4] .

The first "sovereign" stable in Russia was built in the second half of the 15th century during the reign of Knyaz Ivan III in the vsickage of Khoroshevo near Moscow. It was the beginning of horse breeding in Russia. At the beginning of the 17th century, there were 13 state stud farms, and in 1680 there were 16 stud farms [209, p. 18]. In 1496, the Stable Order [*Konyushenniy prikaz*] was established at the tsar's court in Moscow, which was initially responsible for supplying the royal court economy. Later, as the country's economy and military business developed, the prikaz's tasks expanded: It took care of supplying the Russian army with horses of various breeds and purposes (riding horses, artsickery horses, forage horses, etc.).

The tsarist government gave special importance to the Stable Order as an organization that dealt with the breeding and keeping of state horses and protected them from various infectious and non-infectious diseases [209, p. 18]. In the 17th century, the Stable Order was a complex organization. It had a large operational staff. In addition to the leading staff (boyar-equestrian, civil servant, and clerk), it included stablemen (stirrups), horse farries, and saddlers. The staff of this Order also included horse masters [*konovaly*] and apprentices. The duties of the horse masters included "lay down stallions", i.e. castration, and the diagnosis of various diseases and their treatment [209, p. 19] .

Under stable in the first half of the 17th century were established special medical stables, to which were connected "horse pharmacies". Sick horses with various diseases of infectious and non-infectious nature were kept and treated in the isolation pens of the stables.

I.N. Nikitin noted that research into the modes of transmission and spread of epidemics and epizootics on the territory of Russia in the 14th-17th centuries showed that various infectious diseases, both in humans and animals, were frequently introduced from the western states of Europe and manifested themselves most frequently in the years of crop failures, starvation, and wars. Therefore, border posts and roadblocks were established along state borders where special medical inspections and inspections of humans and veterinary inspections of livestock were conducted. In disadvantaged areas (towns and vsickages), these activities were carried out by the council members of the Stable Order [209, p. 22] .

Among the first detailed government decrees outlining preventive, anti-epizootic, and anti-epidemic measures in Russia was a decree "On Precautions Against the Dying of Livestock and the Protection of People from Anthrax", dated August 5, 1640. The decree prohibited the removal of hides from the carcasses of dead animals in anthrax-prone settlements, the sale and purchase of diseased animals, and their slaughter for meat. The decree proposed burying the carcasses of the animals in the ground far away from the settlements in specially designated places. The conclusion of this decree stated that in case of violation of the decree, the offenders would be "beaten with a whip without mercy" [209, p. 23]. Mechanical cleaning and disinfection with hot ash alkali and fumigation of premises with juniper or sulfur [209, p. 24] were used to decontaminate animal buildings during epizootics. Forty-three decrees on veterinary medicine were issued during the period from 1631 to 1700, including thirty-seven on animal epidemics and six on general veterinary and sanitary matters [209, p. 24] .

The further development of veterinary science was linked to the needs of developing industry and trade. An important role was played by the governmental reforms of Peter I in the fields of industry, agriculture, military, trade, science, and culture. The industry for processing products and raw materials of animal origin (meat, tallow-melting, leather, and wool processing) was widely developed. With the development of industry and trade in Russia, the number of cities almost doubled: from 336 in 1725 to 634 in 1801 [209, p. 28] .

In 1705, by the order of Peter I, the Stable Order was transformed into the Chancellery of the Main Palace Stable. Peter I paid great attention to the development

of veterinary medicine, as well as farrier craft, and in particular «forging art» (forging horses).

In 1735, a general education stable school was established at the Khoroshevsky Stud Farm near Moscow. In this school, boys learned general education subjects for five years: reading and writing in Russian, arithmetic, and after they were "sufficiently educated" they were given to state stud masters for training in various specialties: farriers, locksmiths, leather. The best students were selected among the graduates of the Khoroshevsky Stable School to study equine science. Further education took place at the Spassky Monastery School in Moscow, where they studied Latin and herbs. Finally, they were distributed to stud farms, where they spent three years learning the theoretical and practical basics of veterinary science and farrier craft under the guidance of horse masters. After this long training, the stud students were subjected to an inspection conducted by a special inspection board appointed by the Chancellery of the Main Palace Stables. Depending on the results of the inspection, the students were certified as "horse master" or "horse master-apprentice" [209, p. 29] .

In February 1737, a government decree established horse hospitals for "sick" horses at all state studs: for every 100 healthy horses, there were 10 compartments (stalls) for the sick horses. I.N. Nikitin noted that the study of literature on the history of veterinary medicine in Russia in the second half of the 18th century shows that at that time the state studs paid special attention to veterinary and sanitary requirements for stables, isolation of sick horses from healthy ones and introduction of quarantine. They were primarily concerned with hippology – the study of the anatomy and physiology of the horse – as well as research into its diseases and their treatment. Diseases of livestock of other species received little attention [209, p. 29-32] .

The wide spread of infectious diseases among farm animals was the main reason for the detailed study of "livestock deaths" (epizootic diseases). All activities for the prevention and control of infectious diseases among farm animals were carried out initially by the Pharmacy Chancellery and later by the Medical Board. These medical organizations were under the general direction and control of the Government Senate since 1711. It issued decrees and orders. However, the prevention and treatment of horses from infectious and non-infectious diseases was carried out under the control of the Chancellery of the Main Palace Stables and on-site in the state stud factories by managers and horse masters. The importance of a healthy horse population stemmed from the need for a continuous supply of horses. Dragoon and infantry regiments were established on the initiative of Peter I. In each dragoon regiment, there were 1,000 service horses and 300 draft horses. In 1725, the regular Russian army had up to 43,000 horses in the dragoon regiments. In 1712, to ensure the care of cavalry horses, each cavalry regiment was assigned a staff of 10 horse masters and an artsickery regiment was assigned 1 horse master and 3 apprentices, as well as 10 horse farriers. In the garrison regiment with 240 horses, there were only farriers. Each dragoon regiment had a convoy pharmacy. As a result, a separate branch of veterinary medicine was created – military medicine.

Among the first historical documents in the field of prevention and control of rinderpest is the decree of the Senate of July 28, 1730 "On precautions against cattle death". It called for the following measures to be taken in a place at risk: 1) to

quarantine the place; 2) to notify the vsickagers of this; 3) to post guards on the roads leading to this endangered place; 4) to immediately bury the corpses of dead animals with the skin in the ground; 5) to isolate and treat sick animals; 6) to disinfect the premises. The decree prohibited horses and oxen from entering, leaving, trading, and transporting livestock [209, p. 33] .

At the same time, work was being done to study the etiology and clinical features of rinderpest and anthrax [209, p. 33]. Meanwhile, 86 decrees were issued in Russia from 1713 to 1800 on the prevention of infectious diseases in livestock and the control of animal diseases, as well as on veterinary and sanitary issues. In 1763 was published "A collection of various best instructions and precautions against animal death, published for the benefit of vsickagers" and in 1764 "On the rules of treatment of sick livestock and police measures in this case" [209, p. 34-35] .

The beginning of the 19th century was characterized by mass death [*padezh*] of farm animals from infectious and non-infectious diseases, weak control of these diseases, and a very small number of veterinarians. The fight against animal diseases was a decisive impetus for the establishment of veterinary schools and colleges and for the training of veterinary personnel. This was a new stage in the development of veterinary science in Russia.

Over time in Russia were opened universities for the training of domestic specialists in various fields of knowledge: Kazan (1804), Kharkiv (1805), St. Petersburg (1819), Kyiv (1833), and among them were established departments of Animal Medicine [*Skotolechenie*], later – veterinary schools and colleges. In the course of creating and updating curricula, publishing manuals, and textbooks, the new terms "veterinary", "veterinary medicine", "veterinary art" and "veterinarian" prevailed instead of the old terms "horse science", "horse training art", "animal medicine" and "horse master" [209, p. 44]. The scientific ideas of professors of educational institutions were used in the development and implementation of measures for the prevention, treatment, and control of infectious diseases. Thus, in 1847, V.I. Vsevolodov, a Doctor of Medicine, Honorary Professor, and Academician of the St. Petersburg Medical and Surgical Academy, proposed a method of combating rinderpest that included "the compulsory ksicking of infected cattle to prevent the spread of plague infection" and the introduction of strict quarantine. However, this method of controlling rinderpest was not used until 1879. Veterinarian, Doctor of Medicine, and Professor of the St. Petersburg Medical and Surgical Academy P.I. Lukin was the first who introduce new, scientifically based terms: "epizootic", "enzootic", and "sporadic".

Scientific and practical works by scientists, civilian and military veterinarians on veterinary medicine and animal husbandry were published in the "Works of the Free Economic Society," the "General Journal of Medical Sciences" (1811-1816), the "Agricultural Journal" (1821-1860), the "Military Medical Journal" (1823-1860), the "Journal of the Ministry of the Internal Affairs" (1828-1861), and the "Magazine for Sheep Breeders" (1833-1840). Beginning in the 1940s, veterinarians began publishing special veterinary journals, "Journal of Veterinary Medicine" (1840-1850), "Notes of Veterinary Medicine and Animal husbandry" (1840-1848), and "Notes of Veterinary Medicine" (1853-1868) [209, p. 63] .

By the end of the second half of the XIX century, the third stage of the formation of the veterinary service in Russia was conditionally completed. All veterinary tasks, including the control of animal diseases, fell mainly under the jurisdiction of the Medical Board of the Ministry of Police, and since 1811 under the jurisdiction of the Medical Department of the Ministry of Internal Affairs. In the governorates and regions of the country, veterinarians were subordinate to provincial and regional administrations, especially to the medical inspector of the province or region. Since in some provinces and districts of Russia, especially in the peripheral areas of the country, there were no veterinarians at all, the measures of prevention and control of animal diseases were carried out by medical officers [209, p. 58] .

At the same time, the Military Minister established permanent posts for military veterinarians in the cavalry in 1817 and in the artsickery in 1834. In 1819, military uniforms [*mundir*] were introduced for 64 veterinarians, their assistants, and councilors. Depending on their military rank, they received monthly salaries and other allowances. In 1820, the veterinarians, their assistants and advisors, and the farriers of the military studs were included in the Military Department. During this period, special attention was paid to the hygiene and forging of horses [209, p. 65] .

As a result of the reforms of the public administration system in the second half of the 19th century, in the Russian Empire also occurred radical innovations in the development of veterinary medicine and the improvement of veterinary animal disease control. First, in 1868, in the Ministry of Internal Affairs established the Veterinary Committee, an advisory body for solving scientific and scientific-practical issues. Then established The Veterinary Division, an administrative body reporting to the Director of the Medical Department. Its mission was to regulate the veterinary control of industrial livestock, to raise funds for the maintenance of the State/Civil Veterinary Service, and to draft legislation to combat rinderpest [209, p. 6-68]. In 1889, the Veterinary Division was separated from the Medical Department and placed under the direction of the Chairman of the Veterinary Committee. The two institutions were merged to form the Veterinary Department, but this was not legislated until 1901. The administration of the Civil Veterinary Service was concentrated in the Veterinary Department and the Veterinary Committee of the Ministry of Internal Affairs. The veterinarians who served the provincial and regional departments of the Ministry of Internal Affairs, the bacteriological laboratories, the rinderpest control stations, and the security and quarantine stations of the border regions formed the State Veterinary Service [209, p. 68]. The scope of the State Veterinary Service included inspection activities in the provinces, regions, and areas of activity of the veterinary institutes. It exercised veterinary control over the livestock, transportation of raw animal products and their processing, levied a percentage fee on herd cattle, and had to supervise the implementation of veterinary and sanitary regulations [209, p. 69] .

At the same time, Emperor Alexander II issued the "Regulations on Local Governance Institutions of Provinces and Districts," which laid down the foundations of local self-government [*zemstvo*]. According to these regulations, in the provinces with district zemstvo, medicine, education, veterinary medicine, and other structures were transferred to the responsibility of the zemstva. The first attempts to create permanently functioning veterinary services were made in the late 1960s in the district

zemstvas of the Kherson, Vyatka, and Kostroma provinces. These attempts were temporary: in case of animal disease, the district assemblies decided to call in a veterinary assistant or a veterinarian, but after the elimination of livestock mortality, these posts were abolished [213, p. 87]. For this purpose, in the Moscow provincial zemstvo was created a special Veterinary Bureau in 1888.

The self-governance veterinary [*zemskaya veterinariya*] had three organizational forms: Provincial, District, and Mixed. In some provinces, there was only a provincial organization, in others only a district organization, and in third ones both a provincial and a district organization. The Veterinary Bureau, which was under the provincial zemstvo council, was to concentrate the activities of the provincial veterinary staff. The duties of the Veterinary Bureau included collecting information on the status of animal husbandry, animal diseases, ambulatory veterinary activities, the status of livestock insurance, and annual reports from veterinarians; preparing reports on the veterinary part of the provincial zemstvo council; preparing budgets; and reviewing laws on the disposal of sick animals [209, p. 70]. In the course of its work, the zemstvo veterinary made an important contribution to the control of infectious diseases, especially rinderpest. In addition to the full-time veterinarians, a number of posts were established to combat the rinderpest – assistants, overseers, and guards. They assumed veterinary and sanitary control over the slaughter of livestock and the movement of herds.

Protective vaccination of livestock against anthrax with vaccines of L.S. Tsenkovsky was first held in 1884 in the Kherson district. Mass vaccination of pigs against erysipelas with vaccines of D.F. Konev (1900) was held for the first time in Voronezh and Orlov provinces. The zemstvo doctors were the initiators of the introduction of diagnostic agents into veterinary practice: mallein and tuberculin. Mass vaccination of animals increased the need for biological preparations, so veterinary and bacteriological laboratories and stations were established in individual zemstvo districts. From 1890, the districts contributed greatly to the free treatment of sick animals. The district zemstvo veterinary organization of Saratov province was exemplary, which carried out a lot of anti-epizootic, medical work, took care of the inspection of animals, and organized places for artificial insemination of animals [209, p. 72]. Thus, the zemstvo veterinary was involved in all these issues and became the second most important after state veterinary medicine, and according to S.A. Lukyanov, in a number of fields of activity, it became the first subject of the improvement of veterinary affairs and veterinary animal disease survesickance in the Russian Empire [213, p. 90] .

In addition to zemstvo veterinary medicine, military veterinary medicine continued to develop. In 1864, military districts were established, and in each was created a military medical department, which provided for the post of a district veterinarian. The district veterinarian was charged with protecting the state's horses and cattle from contagious diseases and, if they occurred, stopping and responding appropriately to those diseases. Beginning in 1868, veterinary clinics began training veterinary paramedics after a 2-3 year training program. Courses trained 10-15 people at a time. Between 1868 and 1917, more than 40,000 veterinary paramedics were trained in such courses. In 1871, veterinarians were entrusted with the management of training and forging works in the army. During the period from 1871 to 1917, more

than 100,000 farriers were trained directly in the Army. In 1882, a special provision established the rights and duties of the regimental veterinarian and introduced mutual information between military and civilian departments on infectious diseases. In 1896, a central apparatus for the administration of military veterinary affairs was created – the Veterinary Division under the Main Military Medical Department with a staff of 7 persons (chief, two veterinary assistants, and four administrative staff). In 1910, the Veterinary Department of the Army was created, which was directly subordinate to the Minister. The veterinary system in the army developed during the wars. During the Russo-Turkish War (1877-1878), advanced veterinary stations were established, as well as veterinary hospitals for brigade, regimental, divisional, and troop units. For the first time in the history of military veterinary medicine, a full-time veterinary hospital was established for the Army Artsickery. The gradual evacuation of sick and wounded horses was legalized. The same system functioned in the Russian Army during the Russo-Japanese War (1904-1905) and during World War I (1914-1918).

Urban veterinary medicine united city veterinarians. At the beginning of the twentieth century, 372 veterinarians worked in the city veterinary institutes. 3.1 million rubles per year were allocated for the veterinary needs of the city. The small city veterinary service with poorly equipped medicines, tools, and other resources could not adequately provide veterinary and sanitary control and medical activity in the cities of Russia.

In 1904-1912, the veterinary service of the state studs numbered no more than 60 veterinarians, who, in addition to providing veterinary care to the studs, were also engaged in improving the breed composition of Russian horses and in breeding issues.

Despite the development of individual departments, there was no unified veterinary service in the country. A small number of veterinarians and paramedics were located in different departments. There was no unified veterinary authority in the country. According to N.I. Nikitin, the unification of the efforts of the veterinary services of the government, districts, military, cities, and horse breeding through the establishment of veterinary societies, the holding of all-Russian, provincial, and regional congresses of veterinarians to combat particularly dangerous animal diseases, and the provision of veterinary services for farm animals became the achievement of the state veterinary service in the pre-revolutionary period [210, p. 6]. However, O.A. Kolganov disagrees. He attributes this to the fact that the veterinary situation in the country deteriorated during World War I because the work to improve the veterinary situation was completely inconsistent between the state, districts, military, and urban veterinary services. He claims that army doctors were excluded from participating in animal disease control and that civilian veterinary medicine was not informed of the occurrence of diseases in the military department's livestock [214, p. 73] .

In this complex system, the process of building a veterinary service in the steppe ran in parallel. The organization of the veterinary service in the provinces of European Russia was largely uniform, there was a territorial division of districts into subdivisions, the forms of assistance were found in an outpatient and inpatient network [50, 53, 54] , and yet they resembled a lesser extent the experience in the steppe. This difference was geographical, given the territorial space and climatic conditions of the steppe, socioeconomic, in the field of nomadic economy, and the colonial position

assigned to the resettlement movement, as a result, embodied its own characteristics and limitations.

As mentioned in the previous chapter, the region of Turgai occupied a vast area. The space that the region occupied was an irregular quadrilateral that measured up to 1000 miles from north to south and up to 800 miles from east to west. In describing the spatial features of the region, N. Khokhlov noted, "This vast area corresponds to the entire Caucasus region and surpasses every province of European Russia" [314, p. 5]. According to the 1868 law, the region was divided into four administrative units, with the largest of these districts arranged in the following order: Turgai – 147,500 square meters, Irgiz – 127,300 square meters, Kustanai – 93,838 square meters and Aktobe – 49,500 square meters [195, p. 2]. For example, in Vladimir province, on the contrary, there were 41,638 square meters [216, p. V] .

In natural and climatic terms, the ground was replaced from north to south by four natural zones: Forest-steppe, Steppe, Semi-desert, and Desert. All four natural zones also determined the way of economic development of the different districts of the region. Animal husbandry and nomadic life became an adaptation to the characteristics of the steppe. The northern districts of the steppe zone became the most horse breeders, while the southwestern, southern, and southeastern "desert" districts focused on sheep-keeping. They were characterized by a high degree of adaptability to food and water scarcity, climate fluctuations, and the "rhythm-regime characteristics" [199, p. 88] of the nomadic system.

The steppe roads, in turn, had no milestones or road signs; there was no basis for transportation infrastructure. The roads leading to the summer camps of auyls were busy in summer and deserted and uninhabited in winter. A.I. Dobrosmyslov, in his studies on the transit of industrial animals, examined some of the routes and roads in the region. He notes that in the northern districts of the region – Aktobe and Kustanai – there are so many roads in the summer, so twisted, crossed, and tangled, that it is almost impossible to get to the desired point on them without having thoroughly studied the entire network and without visiting the same place several times at different times of the year. Most of the roads, overgrown with barely trampled grass, are barely visible in summer, and in winter, when they are covered with snow, they were difficult to see even during the day [159, p. 2] .

However, understanding the economic potential of the region, as well as the transit role of the Kazakh steppe for Russian merchants to develop and control trade with China and Central Asian peoples [217, p. 257] became a more important reason to pay special attention to the internal mechanisms of the region. Since the exchange of a large number of different livestock species and raw animal products, progressive livestock diseases began to increasingly disrupt this process.

It seems that the veterinary system should have developed in the Kazakh steppe, but it was established much later. Due to the lack of legal provisions defining the veterinary network and its legal status in the steppe. A.I. Dobrosmyslov, the first head of the veterinary department of the Turgai region, noted that there was no veterinary control in the Turgai region until 1868 [31, p. 46]. Although the region itself was of particular importance, as a border area near Orenburg province, which was a large

economic region and lay at the intersection of profitable trade routes and later railway lines leading from Russia to Central Asia and in the exact opposite direction.

The first information about livestock deaths in the Turgai region dates back to 1838 when a "contagious" disease occurred in cattle in the central part of the Orenburg-Kirghizes [31, p. 4]. Rinderpest also occurred in 1840, 1843 [31, p. 4] , and 1844 [31, p. 5]. In 1851, 11,380 camels died of epidemic disease in the eastern part of the Orenburg-Kirghiz region [31, p. 12] ; in June and July 1855, there was murrain disease in cattle and camels everywhere in the central part of the Orda [31, p. 35] ; in 1860, there were cattle deaths in auyls near the vsickage of Mikhailovskaya [31, p. 41]. The epizootic situation in the steppe was extremely unstable.

According to the "Regulations" on the Administration of the Orenburg Kirghiz of 1844, veterinary medicine was granted the right to exist under the aspect of general imperial law, including a veterinarian and a veterinary assistant in the administration, "in order for the exclusive occupation of the Kirghiz with animal husbandry ... to be sent to the steppe" [31, p. 6] , this right was already crossed out in the "Provisional Decree" of October 21, 1868, and veterinary medicine in the Kazakh steppe remained sickegal and outside the state for a long time [45, p. 103]. An important place was occupied by the establishment of steppe markets, the industrial animal husbandry, and caravan trade, where "livestock traders had the right to drive their herds across the steppe free of charge" [218, p. 30]. With such an attitude, it is clear that the strengthening of veterinary medicine could hinder the livestock trade.

At the end of 1868, one of the most important events for the veterinary system in Russia took place. At that time, the stations of livestock-driving routes were established and stationary veterinarians [*punktoviy veterinar*] and paramedics were appointed. But, first, there were no livestock-driving routes in the Turgai region, so it was impossible to apply the measures provided for in the Decree of December 2, 1868, concerning driven herds and the appointment of responsible persons to supervise these routes [31, p. 40]. Secondly, the same decree for the steppe regions did not specify the veterinary service personnel, and the Ministry of Internal Affairs did not consider it necessary to appoint supernumerary veterinarians in the steppe regions [45, p. 120] .

On May 30, 1876, an addition and amendment to the Regulations on livestock-driving routes of 1868, was introduced a mandatory veterinary inspection of all herds, with the right to slaughter all plague-stricken animals. A reward was paid for the killed animal [219]. Obviously sick animals with a temperature of 40 degrees were subject to mandatory slaughter on the spot. The rest of the animals of this herd went to their destination, where they were subject to immediate slaughter. This statute laid the foundation for the collection of a percentage fee from herds of cattle, according to its normal value.

The percentage fee was used to pay owners for the slaughtered animals, for the maintenance of veterinarians, and for other expenses [45, p. 161]. Later, on June 3, 1879, a law was passed "about the slaughter of plague-stricken animals from local cattle". However, the June 3 law was not introduced simultaneously throughout the empire, but as needed, taking into account the circumstances of a particular locality, in consultation with the Ministers of Internal Affairs and State Property. The impact of

the law on the territory of the Kazakh steppe was applied only after some time and only temporarily from 1888 [31, p. 108] .

Thus, the establishment of general patterns for the development of veterinary medicine and the definition of the role of state, zemstvo, urban, stud farms, and military veterinary services was not long in coming. Veterinary medicine in the steppe was waiting for a significant change in its development, and there were good reasons for it: the growth of animal trade and animal diseases.

The epizootic situation in the region worsened year by year, facilitated by a sharp decline in pastures and changing conditions in animal husbandry. In turn, the cattle merchants, penetrating deep into the Kazakh steppes, created a huge network of driven herd routes and practiced the exchange of a large number of animals along the path of rutting. Since then, it had caused great damage to animal husbandry in the Turgai region. Of all known animal diseases, rinderpest was the most widespread and devastating over several years. The government believed that the disease was introduced to the livestock from the Kazakh steppe, and it was necessary to organize the required measures.

The Ministry of Internal Affairs proposed to the Veterinary Committee to send a veterinary expedition to study in detail the question of the occurrence of animal diseases and their characteristics in the steppe regions [45, p. 146]. The first expeditions were sent to Orenburg province and Akmola region in 1870-1871, followed by the establishment and sending of the next expedition to Akmola and Turgai regions in 1872. However, despite the identified problems and additional information on various disease foci in the steppe, the veterinary and sanitary section of the Turgai region had only three supernumerary veterinarians for the entire region. To replace the fourth veterinarian, it was decided to support him at the expense of the percentage fee on herd cattle [31, p. 92] , which was not collected in the region until a certain date.

Since the steppe regions could not cope with the task of eradicating emerging animal diseases, the Ministry decided to send another expedition in 1888. But this time, the expedition's task was not only "to eliminate contagion in the epidemic areas known to the administration." What was also special about this expedition were its participants, who were later appointed permanent leaders, and employees for veterinary, and sanitary work in the steppe. It was important for the administration to understand where the real problem came from, that is, the source of the epizootics themselves. Of course, this problem had worried them before, but it was important that the industrial animal husbandry was in doubt: the exchange and trade of animals; the routes of driven herds and the conditions of transfer of local and driven herds; the conditions of trade and the methods of transfer of raw animal products, lard, meat, wool, leather [31, p. 104] .

All the attention of the remaining supernumerary and seconded veterinarians was devoted to one problem, the "course of the animal plague – rinderpest" [220]. In 1890, A.I. Dobrosmyslov, as the head of the region's plague control, presented the "Report on the veterinary part in the Turgai region for 1889". He argued that the plague occurs exclusively in two districts of the region, namely Nikolaev (Kustanai) and Iletsk (Aktobe), bordering on Orenburg province. The reason for this was, on the one hand, the breeding of cattle in considerable numbers, 10 head per *kibitka* [nomadic yurt] in

the two districts mentioned. In contrast, in Turgai and Irgiz districts there were only three cattle per dwelling. The next reason was the presence of rich pastures and a considerable number of rivers and lakes, which served as migration places for the kazakhs of Turgai and Irgiz districts, all districts of the Ural region, and 2 districts of Syrdarya region in summer. Besides, Nikolaev (Kustanai) and Iletsk (Aktobe) districts served as transit stations for driven herds from Akmola, Semipalatinsk, and other Central Asian regions [221] .

The Regional Board initiated a large number of "rinderpest" cases. The first mention dates back to 1883 [222, p. 3] and was considered every year [223]. By 1883, 2,105 cattle and 2,041 small ruminants had died of rinderpest in the Irgiz district; 533 cattle fell in the Turgai district; 1448 cattle fell in the Iletsk (Aktobe) district. In comparison, "*katpa*" [trypanosomosis] that was detected in camels in the same reporting year, and fell 349 animals [222, p. 3] .

This circumstance forces the Ministry of Internal Affairs to initiate veterinary and police measures, not only to destroy the source of infection in the area and stop the epizootics but also to try to protect the area from future drifts, increase the staff of veterinarians and approve the necessary rules and instructions. At the same time, on March 25, 1891, the "Steppe Regulation" was issued, which also provided for veterinary personnel. Article 48 stated, "For the administration of the veterinary part, it is necessary that each district have a district veterinarian under the direct control of the regional medical inspector" [224, p. 55]. The law of April 15, 1891 "On Measures gainst the Mass Death of Livestock on the Kirghiz Steppe" followed the March Regulation in its development for the Turgai region, was a crucial issue. The posts of the head of the veterinary department, stationary veterinarians, paramedics, and guards were created. After that, on May 24, 1891, veterinary control was formed to adopt established laws in the steppe regions, and measures to ksick plagued animals from local cattle [225]. In turn, the Podolsk chief provincial veterinarian, A.I. Dobrosmyslov, who had been seconded on October 14, 1888, was appointed head of the veterinary department of the region by the decree of the Ministry of Internal Affairs of November 29, 1891, No. 32 [226] .

Thus, rinderpest served as a kind of the impetus for the creation of an official, full-time veterinary organization in the steppe. Fear of disease led Britain to continental biopolitics [227] and the Russian Empire to the creation of colonial veterinary medicine in the Kazakh steppe.

After the confirmation of the position of the head of the veterinary department, on July 16, 1891, A.I. Dobrosmyslov proposed to divide the Turgai region into 13 veterinary districts [228]. In some of the districts, there were special stations through which the herds, whether driven or industrial, had to pass, so-called livestock-driving routes.

The reasons for the division of the veterinary districts were explained as follows: the northern districts of the Turgai region had 11 veterinary districts because a considerable number of cattle were kept in the Kustanai and Aktobe districts; a largely sedentary population was concentrated in northern districts; and Kazakhs from the Irgiz and Turgai districts, the Ural and Syrdarya regions had to move to the same northern districts in the summer; frequent transportation of livestock and animal products to the

markets of Orenburg, Troitsk, and Orsk provinces; and, above all, in the sum of all causes, a high risk of animal disease outbreaks in this part of the region. In the southern districts, Turgai and Irgiz, there were 2.5 times fewer cattle, and in the summer, they moved to the districts of Kustanai and Aktobe. In the areas where there was no veterinarian, veterinary and sanitary control was transferred to the cities, where the movements of driven/industrial herds were concentrated [229]. Below is a list of veterinary districts [31, p. 139-141; 230] .

No	Veterinary district	District	Volost	Livestock-driving station	Place of residence of the veterinarian
1	1st Veterinary district	Aktobe	Burtinskaya	through the river Berdyansk	In winter – in settl. Blagoslovensky, Orenburg region. In summer – in a dwelling on the river Berdyansk.
2	2nd Veterinary district	Aktobe	Burlinskaya, Tereklinskaya, Aral- Tyubinskaya		In the vsickage of Ilyinskaya, Orsk district
3	3rd Veterinary district	Aktobe	Tuz- Tyubinskaya	Tomar-Utkul tract	In winter – the city of Iletsk protection. In summer – at the Tomar-Utkul tract.
4	4th Veterinary district	Aktobe	Karatugaiskaya, Ilekskaya, Khobdinskaya, Kara-Khobdinskaya		Aktyubinsk (c.)
5	5th Veterinary district	Aktobe	Aktyubinsk (c.), Aktyubinskaya, Bistamakskaya volost	Aktyubinsk (c.)	Aktyubinsk (c.)
6	6th Veterinary district	Aktobe	Uysyl-Karinskaya	Karabutak settl.	Karabutak settl.
			Baksaiskaya, Taldykskaya, No. 1,2,3 auyls of Temir-Astau volost		
7	7th Veterinary district	Irgiz	Irgiz (c.), all other 11 volosts, №№ auyls of Temir-Astau volost	Irgiz (c.)	Irgiz (c.)
8	8th Veterinary district	Turgai	Turgai (c.)	Turgai (c.)	Turgai (c.)

9	9th Veterinary district	Kustanai	Ubaganskaya, Mindygarinskaya, Aman-Karagaiskaya, Borovskaya		Borovoi settl.
10	10th Veterinary district	Kustanai	Kustanai (c.), Zatobolskaya, Arakaragaiskaya, Alexandrovskaya	Kustanai (c.)	Kustanai (c.)
11	11th Veterinary district	Kustanai	Kin-Aralskaya, Dambarskaya, Karabalykskaya, Bistyubinskaya		Kustanai (c.)
12	12th Veterinary district	Kustanai	Saroiskaya, Suundukskaya, Dzhilkuarskaya, Chubarskaya		In the Nikolaevsky settl., Verkhneuralsk district, Orenburg province
13	13th Veterinary district	Kustanai	Kumakskaya, Dzhitygarinskaya		In the Novo-Orsk settl., Orsk district, Orenburg province

Table 1. List of veterinary districts of the Turgai region.

It is appropriate to imagine the scope of work of a veterinarian responsible for an area of about 30,000 miles and for the areas where there were livestock-driving stations. For comparison, in Kostroma Province in 1899 the district veterinary staff consisted of the chief, 12 district veterinarians with 12 paramedics, and 6 district veterinary paramedics [231, p. 31]. The number of veterinarians in relation to the area and the number of livestock per district in the Turgai region far exceeded the norm of internal provinces [232, p. 2, 22] .

Provinces/Regions	Period	Number of veterinarians	Number of paramedics	Each veterinarian had:	
				sq. miles	head of livestock
Kostroma province	1899	12	12	6 500	100 690
Tombov province	1899	13		4 500	214 056
Turgai region	1899	13	four	32 164	161 873

Table 2. Distribution of veterinary personnel by provinces/regions.

From the reports of the veterinarians of all districts of the Turgai region, it is clear how the work was carried out and how significant the work was exactly at the livestock-driving stations. This is particularly clear in the designation of the specific official tasks. The official activities under this point were as follows: Control of transported animal products; Control of driven herd; Control of slaughter of livestock and trade in

meat products; Control of bazaars, trade in livestock and animal products; Control of fairs; Control of a veterinary and sanitary condition of the district [233] .

The entire activity of the station was devoted to a single, strictly limited task – ensuring veterinary and police control of commercial and industrial livestock and animal products on livestock-driving routes. The collection of a percentage fee in these stations served as the basis for raising funds to support the entire state veterinary, including the central veterinary administration of the Department of Internal Affairs. Consequently, the most massive veterinary organization in the steppe, especially in the Turgai region, was the state stationary veterinary service, while in the provinces of European Russia, the district zemstvo veterinary network developed more rapidly.

According to the veterinarian of the 1st veterinary district, Vasiliev, the bureaucratic tasks for percentage fee collection greatly complicated the work and left no time for other tasks. "I often had to issue 20 or more receipts in a hurry, and collect a fee from 20-30 people at once, while trying not to stop other animals. In the meantime, there was also the risk of making a mistake, and accepting the wrong amount" [234] .

"Control of commercial and industrial livestock and raw animal products is satisfactorily established, and better than other aspects of the veterinary system" [235, p. 83] , this is how regional veterinary inspector V.Ya. Benkevich summarized the results for 1910. Whether he really agreed with this controversial opinion because he was pursuing a specific goal as a state official, or whether he saw cooperation with the state, as a suitable lever to achieve his own (political or personal) goals, remains interesting. However, this statement raised an important question. To what extent could veterinary medicine help the local nomadic population, since veterinary medicine was referred to as "Animal Medicine Science" [236, p. 386] .

Meanwhile, the treatment of pets on the site begins only in the second half of 1894. In a short time, this activity could not be developed, the Kazakh population had to be convinced of the benefits of veterinary medical care. “Until now, only the urban population used my help,” says Shtange N., veterinarian of the 8th precinct. At the same time, one should not lose sight of the fact that all the expenses calculated in the new draft of the states for the maintenance of veterinarians were expressed about the desire to transfer them to district funds, from which the Kazakhs were forced to pay more than the Russian population. According to the current district estimate for 1908-1909 only 241,001 rubles should be received.

Meanwhile, the treatment of domestic animals in the veterinary district begins only in the second half of 1894. In a short time, this activity could not be developed, the Kazakh population had to be convinced of the benefits of veterinary care. "So far, only the urban population has used my help", says N. Shtange, veterinarian of the 8th veterinary district [237]. One should not lose sight of the fact that all the expenses calculated in the new draft of the states for the maintenance of veterinarians expressed the desire to transfer those expenses to the zemstvo funds [238] , from which the Kazakhs had to pay more than the Russian people did. According to the current estimate of the districts for 1908-1909, only 241,001 rubles should be collected. The main source of revenue is the property tax [*kibitochniy sbor*] of the nomadic population, i.e. Kazakhs, amounting to 195,728 rubles (84,083 kibitkas are taxed at 2

rubles 40 'kopecks' each). The second part consisted of a land tax of 16,858 rubles per year. This was despite the fact that there were 20,997 displaced peasant families, totaling 134,239 souls. The reason for such a low fee is that the peasants could not pay the fee in the first five years, and then in the next five years only half of the local tax [*zemskii sbor*] from the land, which is 30% of the wages of the state tax in the amount of 15 kopeks per *desiatina* [old Russian unit of area] [238, l. 54ob.]. Moreover, the latter needed more expenses and veterinary work for the prevention and control of animal diseases than the "local" inhabitants did. Suffice it to say that the vast majority of slaughters with the issuance of remuneration (as compensation) for horse glanders were done by peasants, and also more sought medical help for animals than the Kazakhs themselves [238, l. 55] .

The veterinary network in the Turgai region was organized around livestock-driving stations and stationary veterinarians because animal transportation and the transport of animal products played a rather important role in the spread of epidemically contagious diseases. But the local nomadic livestock in the region remained isolated. The regional and central governments protected only livestock-industrial capital, without showing the need to care about the protection of all animal husbandry in the Kazakh steppe. It can be assumed that the lack of attention on the part of veterinary control was due to the nature of agriculture in the interior provinces, where field cultivation played the main role and animal husbandry took on an auxiliary character to agriculture [239]. However, there is also an opinion that therapeutic work did not play a role in Russia because of the low price of the Russian animal. Those who believe that it is possible to treat an animal when its cost is higher than the funds spent on the purchase of medicines [50, p. 48] , as well as the importance of the species [240, p. 46]. The phenomenon of opposed perceptions of Russian and Kazakh society.

The late formation of a state veterinary network focused on rinderpest and activities to protect the interests of the commercial and industrial sectors established the colonial structure of the veterinary service in the Kazakh steppe. However, despite government attempts to create institutions and define the "state" veterinary service as a representative, it was effectively ineffective.

This was reflected in the fact that animal diseases were not eradicated, but penetrated deep into the steppes and captured more farms that were nomadic. In addition to rinderpest, which according to veterinarians had not been observed in the region since 1893 [241, p. 139] , there were many other epidemically contagious diseases in the region in each reporting year. The eradication of the rinderpest did not prevent the spread of diseases such as anthrax, foot-and-mouth, glanders, and smallpox. Anthrax, for example, occurred throughout the region and throughout the year. If in 1889 there were 36 diseased animals in the region [242, p. 21] , by 1899 there were 1374 diseased animals [232, p. 22]. Anthrax control since 1904 was mainly by vaccination with the consent of livestock owners, promoted by veterinarians and in recent years by the distribution of leaflets in Russian and "Kirghiz" languages . Nevertheless, by 1914 the number of animals infected with anthrax had increased to 2273 [243, p. 97]. Moreover, the figures given cannot accurately determine the actual spread and losses due to the disease. Especially in relation to the Irgiz and Turgai districts, where anthrax was actually widespread and where there were a large number

of nomads. And in which in 1913 there were only 3 veterinarians in an area of about 300,000 square meters [244, p. 106] .

Moreover, the organization of the veterinary research network did not bring the expected results, not a single bacteriological veterinary station was opened in the region, and not a single bacteriological laboratory was working [241, p. 157]. At the same time, it was planned to conduct not only veterinary but also biomedical research. Considering the fact that a veterinary and bacteriological laboratory was to be established in the Turgai region, letters were sent as early as 1896 to the Epizootic Department of the Institute of Experimental Medicine, St. Petersburg Apothecary Health Institute of Experimental Medicine [245] , Yuryev Veterinary Institute [246] , and Kazan Veterinary Institute [247]. The veterinary department asked for the possibility to prescribe ready microscopic preparations, such as preparations of various pathogenic and non-pathogenic microbes, and pure cultures of various microorganisms [248]. But in the next year, in the annual report of the head of the veterinary department, the activities of the laboratory were not mentioned [249] .

By 1901, in the Reviews published as appendices to the governors' reports mention three veterinary and bacteriological stations – in the city of Kustanai, in Turgai, and in the summer station of Berdyansk. The stations were headed by veterinarians of the 11th, 8th, and 1st veterinary districts. They were equipped with the necessary equipment and tools [250, p. 20]. But already in 1902, it was mentioned that there was no bacteriological station, but only the possibility of establishing a central bacteriological veterinary station in Orenburg. Moreover, the above-mentioned stations in the city of Kustanai and in the Berdyansk station were later called bacteriological cabinets [251, p. 27]. Possibly, there was confusion in terminology. The following year, 1903, mentions the establishment of a bacteriological cabinet in the Berdyansk summer station, which was subordinated to the veterinarian of the 1st veterinary district [252, p. 24]. Of these, 7,000 anthrax vaccines and 28 malleins were injected in 1904 [253, p. 19] , and even more anthrax vaccines amounting to 19,800 and 28 malleins were injected in 1905 [254, p. 19]. However, it is also worth noting that no other activities of this cabinet were mentioned in any of the subsequent reporting years. It is only since 1912 that there is evidence that there were no laboratories or offices in the area due to the limited resources of the district [255, p. 174]. All the material needed for vaccination against anthrax and general pneumonia was ordered free of charge from the Laboratory of the Veterinary Department; sera against erysipelas – were purchased from the laboratories in Kharkiv or Kursk; mallein – from the Institute of Empirical Medicine [255, p. 174] .

In addition, the steppe population increasingly began to disregard the rules approved by the veterinary administration, despite the imposition of administrative offenses. This issue was proposed by the regional administration in 1889, after reviewing the rules developed under the leadership of A.I. Dobrosmyslov, who at that time held the post of "Head of Plague Control Activities in the Region" [256] : "On Prevention and Termination of Plague Epidemics in Local Livestock in the Turgai Region on the Basis of the Law of June 3, 1879"; "On the Procedure and Conditions for the Transition of Livestock within the Region" and "On the Procedure and Conditions for the Approval and Transportation of Animal Products" [257]. As a result,

in consultation with the Ministry of Internal Affairs and Justice, it was proposed to extend responsibility for violations of veterinary and sanitary regulations to the steppe population within the framework of fines and penalties imposed by justices of the peace [31, p. 116-117.]. The fines imposed were up to 50-60 rubles [258] .

The first data were extracted from the reports of veterinarians of the 5th veterinary district of Aktobe district. In 1892, 76 cases were opened, and 106 people were brought to trial for failure to maintain cleanliness and order in the sale of meat products; failure to use seals in the transportation of animal products, and for bypassing the Aktobe livestock-driving station; for bypassing the Irgiz and Karabutak livestock-driving stations and for failure to comply with regulations on the storage of animal products in unauthorized places [259]. In the 8th veterinary district of Turgai district, the following cases were prosecuted: Failure to timely report the occurrence of rinderpest – 4 persons (4 acts); Resistance and gross insult during veterinary and sanitary inspection of the plague area – 3 persons (1 act); Failure to comply with the order requiring livestock driven from the steppe to the city to undergo veterinary and sanitary inspection – 3 persons (1 act); failure to comply with the order on compulsory veterinary and sanitary inspection of livestock delivered for slaughter for meat – 1 person (1 act) [260]. By 1893, in the 6th veterinary district of Aktobe district, 9 acts were detected, and 12 persons were identified. The reason was a failure to deliver animal products for the veterinary and police inspection [261]. In the 7th veterinary district of Irgiz district, the following violations were detected by 1897: Driving livestock on unidentified routes – 2 acts (3 persons were attracted); driving livestock without a certificate of the welfare of the starting points – 4 acts (4 persons were attracted) [262]. The point was not to trace the quantitative increase in violations, but the reasons for these prosecutions. Thus, until 1893, the annual value of the violations was given as 174 acts, in which 290 people were accused [263]. And after some time, in 1901, the number dropped to 56 offenses involving 89 people [250, p. 26]. It would be natural to consider this, as Lavrov, the veterinarian of the 5th veterinary district, noted, as an "adjustment to veterinary practices" and assume that soon there would be no offenses at all [264]. However, this did not change the fact that violations and their variety stsick existed and were regulated by law.

It can be concluded that the establishment and development of the veterinary service in the Kazakh steppe were favored by outbreaks of animal diseases that increasingly worried both the steppe and the sedentary population of the steppe. Moreover, a vision was developing that animal diseases were a national problem that required government intervention, as they were an integral part of the government's growing responsibility for agriculture and food production. In addition, veterinary medicine played an important role in establishing the colonial order by enabling the state to be responsible for controlling livestock diseases, regulating the activities of pastoralists and food producers, and controlling border checkpoints. The isolation of the veterinary service only on livestock-driving routes in turn limited the development of other veterinary functions. The result had been an overall inefficiency of the veterinary service in relation to local livestock. The county's hopes for maintaining a veterinary network on zemstvo was extremely doubtful, a situation exacerbated by the disunity of interests among the population – Cossacks, resettlers, and Kazakhs. It was

all the less to be expected that the district veterinary network would be taken over by the state. After all, the stationary veterinary service served as the main basis for raising funds to support the state veterinary service in the Turgai region, which functioned only in its own interest. While the duties of the zemstvo were entrusted with the management of "local needs and benefits".

2.2 Animal disease control in Kazakhstan as a protection of the interests of the imperial commercial industry

As noted in the previous paragraph, only one of the branches of veterinary service received the greatest development in the Turgai steppe. This paragraph shows its goals and practical implementation and evaluates the effectiveness in terms of the purpose and objectives of veterinary medicine. The main goals have been identified to maintain and increase the number of animals, reduce losses from diseases, increase productivity, and ensure the production and release of high-quality products for food and industrial purposes.

It should be noted that in Kazakhstani historiography, the issue of the animal disease situation in the Kazakh steppe in this period was studied as a historical and ethnographic study. The first to give a brief ethnographic description of Kazakh folk veterinary medicine and separately classify animal diseases was the ethnographer Kh.A. Argynbaev [47]. The importance of this work lies in the presentation of the material collected by the author over the decades during ethnographic expeditions in the pastoral regions of Kazakhstan. They were formed from conversations with "aksakals" who knew the life of the people and experienced physicians, from their own observations of the treatment of animals. The second author, who considered the main backbone directions for the functioning of traditional veterinary knowledge and technology for the treatment of animal diseases, was B. Hinayat [55, 58]. In this new historiographical field, studies on individual animal species also have a significant place, both on the importance of the role of the horse in Kazakh culture] [56] , on its diseases and treatment [57, p. 93-110; 58, 59] , and studies on traditional beliefs and the involvement of animals in ritual and ceremonial treatment practices [60]. Also worth mentioning are special studies on natural remedies, especially medicinal plants, for the prevention and treatment of insect bites and poisonings, as well as on methods for the preparation and use of veterinary medicines [61]. At the same time, there are no studies on the statistical recording of diseases, death, and animal treatment as a subject of colonial research.

In Russian historiography, in works devoted to the colonial outskirts, the functioning of the district zemstvo veterinary service is reassessed and is considered in the characteristics and activities of district zemstvo. V.P. Korsun [53] and A.S. Tretyak [54] were the first who study zemstvo medicine and veterinary in a comprehensive manner. They concluded that the zemstvo had a significant impact on the development of public health and veterinary medicine. E.V. Shulyak, the object of the research that was zemstvo medicine and veterinary in Ufa province in 1875-1914, agrees this statement. Her work shows the possibility to trace the organization and development

of the system of medical care of the population and veterinary service of animals of Bashkirs in the Ufa province. The author argues that through their activities zemstvo and its veterinary staff had made a significant contribution to the improvement of animal husbandry and its people, the improvement of the economic well-being of rural owners, and the province as a whole [265] .

In modern Western historiography, the study of animal diseases is considered in a colonial context. Despite a certain historical privilege in the study of the subject of rinderpest, there is an attempt to transcend the boundaries of local historiography [266]. The study of animal disease control in the Philippines, for example, is an important colonial policy of American officials. Solutions included the establishment of the Bureau of Agriculture and the Bureau of Animal Husbandry, the College of Veterinary Sciences at the University of the Philippines, animal quarantine, and vaccination against rinderpest [267, p. 145]. The studies laid the foundation for the study of social factors in the history of animal diseases – imperial expansion, long-distance trade, and war [268]. The study of animal diseases in colonial Bengal, particularly rinderpest, became the site of controversies over relevant medical knowledge, human health, public hygiene, and science [269]. Similarly, the success of the rinderpest campaign was a strong incentive for the consolidation of veterinary services. This, in turn, led to the further expansion of government veterinary services in the Cape and the introduction of an experimental approach to livestock disease control [270, p. 153] .

In this context, it is very important to consider the experience of the Russian Empire in relation to animal diseases and state measures to combat their spread in the Kazakh steppe, using the example of the Turgai region. How the animal disease control and the unwsickingness of the colonial authorities to take into account the peculiarities of the cultural practices of local communities led to a change in the order of life of the local society.

The first information about livestock deaths in the Turgai region dates back to 1838 when rinderpest occurred in the central part of the former region of the Orenburg Kazakhs [31, p. 4]. Of all known infectious diseases, rinderpest had been the most common and destructive for years. In 1851, 11,380 camels [31, p. 12] died in the eastern part of the Orenburg region; in June and July 1855, foot-and-mouth disease occurred in cattle and camels in the central part of the horde [30, p. 35].

Taking into account the clinical picture, i.e. etiology, course, and treatment, Kh. Argynbaev proposed to divide animal diseases into two main groups: epidemic infectious diseases [47, p. 6] (infectious diseases, skin diseases, lung diseases), i.e. epizootics characterized by the wide spread of an epidemic infectious disease among one or more animal species over a large area [271]. The second group consists of non-infectious diseases (intestinal diseases, diseases of the head, eyes, limbs, external injuries, bone fractures, and congenital diseases – diseases of the offspring).

Rinderpest, commonly considered an epizootic animal disease, occurred in the region in 1840, 1843 [31, p. 4] , and 1844 [31, p. 5]. In 1860 there was a cattle death near the vsickage of Mikhailovskaya [31, p. 41]. No one officially reported on animal diseases, mostly it was found indirectly from reports, for example, by Yesaul [Cossack officer rank] Krutorozhin about the destruction of skins of dead animals found on the steppe beyond the Ural River [31, p. 4]. And the whole thing amounted to

correspondence with local chiefs, sultan governors, border customs department, and military governor [31, p. 5] .

The government believed that the plague infection was introduced into the livestock from the Kazakh steppe, and it was necessary to organize measures to prevent the introduction of the "infection" into the inner lines of the provinces [272]. After all, it is "always convenient" to explain the origin of the disease from the most remote and almost unknown place [268, p. 104]. The Ministry of Internal Affairs proposed to the Veterinary Committee to send a veterinary expedition to investigate the question of the occurrence of epizootics and their characteristics in the steppe regions [45, p. 146]. The first expeditions were sent to Orenburg Province and Akmola Region in 1870-1871, followed by were sent expeditions to Akmola and Turgai Regions in 1872.

The purpose of the trip of the former Professor of the Kazan University Jacobi in 1872 and veterinarians Kadomtsev and Kravtsov to the Kazakh steppe was to investigate the causes of the appearance of plague and the methods of its spread both in the steppe and in the adjacent areas. All the research and observations had to be aimed at answering the question: does rinderpest occur by itself in these areas, and if so, under what conditions [31, p. 63] .

Thus, in the reports presented by Jacobi and later Kravtsov, it was agreed that rinderpest in the steppe was a foreign infection. Jacobi also added the information that in the Akmola steppe the plague infection was introduced since the beginning of industrial animal husbandry and from the driven herds. Cities, in turn, were a nest of plague infection due to the accumulation of various animal products and livestock [45, p. 150]. As Kravtsov's information confirms, the plague was most often introduced to the Kazakh steppes from the Russian settlements, and not vice versa [45, p. 151] .

The Kazakhs themselves tried not to pronounce the real name of the plague – "*malik*" [273, p. 202] , and sometimes called it allegorically "*kyz*", "*kempir*", "*ak-baipak*". The latter because the disease crept up imperceptibly, "like a person in socks/stockings, whose footsteps were barely audible" [47, p. 12]. They also slaughtered sick animals and buried the waste, not knowing the causes and treatments, but aware of the danger. In case of the disease in the summer, they moved to another place, which was the most effective measure against the plague [47, p. 13] .

In 1883, concern for the timely receipt of the information on the course of animal diseases prompted the regional administration to issue the first circular of the veterinary section on "Measures against Rinderpest". In addition to general instructions, it required that "any emergency in the volost must be reported immediately to the district administration" [31, p. 74].

In 1883, the regional administration officially registered a large number of livestock losses. The epizootic continued throughout the year, then appeared and then ceased, both in the herds of the settlements and in the herds of the Kazakh population. If in 1877 due to rinderpest in the city of Irgiz, 54 animals fell [274, p. 15] , then in 1883 in Irgiz district a total of 4146 cattle fell from rinderpest [222, p. 15] .

The entire fight against the animal disease was limited to the inspection of driven herds, the establishment of temporary quarantines for cattle suffering from rinderpest [186, p. 25] , and the formation of an intermediate belt along the "Asian" border to control herds and flocks that entered the southeastern and eastern provinces of

European Russia [31, p. 96]. And all this with only 3-4 supernumerary veterinarians in an area of 400,000 square meters. However, in the last reports submitted annually by the governors of the region, there appeared a separate part describing the disease situation in the region. It said, "Epidemic diseases in domestic animals pose a threat not only to agriculture but also to the health of people who consume animal products" [196, p. 24] .

The regulation drafts prepared by A.I. Dobrosmyslov in 1889 were revised and approved again on August 5, 1891 [31, p. 142] , and March 13, 1892 [31, p. 155]. The measure of slaughter and issuance remuneration, the burial of corpses of fallen and killed animals, cleaning of corpses and disinfection, proof of welfare of the area from which animal products are exported, export of animal products from the region only at certain points, import and transport of meat only in frozen and salted form, covering of products with canvas, mats or sealed in boxes and barrels, and violation of these rules – wsick be held accountable. Thank you for these measures, according to the data by A.I. Dobrosmyslov [31, p. 168] , rinderpest control finally ended on February 22, 1893. As in the 1915 report, according to veterinarians of the region, rinderpest has not been seen since 1893 [241, p. 139] .

As early as 1887, of the contagious epidemic diseases in domestic animals in the Turgai region, only rinderpest was constant [196, p. 25]. However, in the following years, diseases such as foot-and-mouth disease and sporadic anthrax appeared [275, p. 24]. Eradication of the rinderpest did not prevent the spread of other diseases, and by 1896 veterinary personnel in the steppe were dealing with strangles, scabies, epidemic pneumonia, emphysematous carbuncle, rabies, and actinomycosis [276, p. 44] .

According to the regional board, there were several reasons why it was difficult to steer the fight against contagious diseases in the right direction. One of them is the vastness of the territory of the Turgai region, where the living conditions of the population with their nomadic lifestyle resemble the rhythm of life of others. However, the lack of means of communication and transportation with in a wide radius of 400,000 square kilometers on average did not accommodate the veterinarian [251, p. 32]. In addition, reports of disease occurrence had to pass through several instances before reaching the veterinarian, at a long distance – 10 days. Moreover, the way of moving in the steppe – on zemstvo horses, which were available in the Turgai region for the whole district and for all officials – 18 heads, did not allow more than 50 miles per day [277] .

The personnel, both temporary and seconded, were stsick totally inadequate to care for the region, which covered 418,000 square kilometers and had a livestock population of more than 3 million animals, characterized by an abundance of animal diseases and a developed industrial animal husbandry [255, p. 150]. The distribution of veterinary personnel in 1912 by the district was as follows :

District	Number of veterinarians	Number paramedics	Each veterinarian had:				
			sq. miles	head of livestock	settlement	saddle household	nomad household
Aktobe (49,500 sq. m.)	11	4	4 500	31 817	13	1148.5	2244.4
Irgiz (127,300 sq. m)	2	1	63 650	319 642	1.5	344	10 406

Table 3. Distribution of veterinary personnel by districts.

TThe reasons for concentrating the few veterinary districts and veterinary personnel in the southern part of the region were the need to concentrate not only on the interest of the region but also on the state interest. Also, the fact that there were stsick relatively few epizootics in the livestock of the nomadic population. In addition, the movement of the driven herd was less developed in the south [255, p. 152]. Therefore, the diseases of the northern districts mostly dominated the quantitative issue. However, it cannot be denied that scabies, foot and mouth disease, sheep pox, rarely glanders, and general pneumonia were observed to a limited extent in the southern steppe areas, too.

Finally, the resettlement process greatly increased the frequent local exchange and movement of livestock, which in turn contributed to the development of animal diseases in the vsickages, as settlers tried to buy livestock at low prices, while sellers threw unfit and suspect livestock on the market [235, p. 79]. Sedentarism, in turn, contributed greatly to the stationary existence of animal diseases such as glanders, epidemic pneumonia, anthrax, and scabies, which claimed more victims than in the nomadic economy [255, p. 149]. However, after some time it can observe how animal diseases became part of the southern districts.

Anthrax, for example, had been observed in cattle and horses for many years. If in 1889 there were 36 sick animals in the region , by 1899 there were 1374 sick animals [250, p. 22]. There were no mandatory regulations to control anthrax. The veterinarian of the 8th veterinary district of the region, N. Shtange for 1895, claims that the circular of the Minister of April 12, 1885, No. 492, helped to guide in taking measures against this disease. In addition, he notes that some of the requirements of this circular could not be met. For example, there is no liquid-tight wagon for transporting the corpses of dead animals, so transporting corpses on ordinary wagons always carries the possibility of re-contamination of the soil; also, there is no separate room for quarantine and isolation of the infected animal [278]. However, starting in 1904, with the consent of livestock owners, protective vaccinations were carried out and promoted by veterinarians. In addition, a brochure in Russian and Kirghiz (Kazakh) had been published in recent years [243, p. 104] .

Nevertheless, by 1914 the number of animals infected with anthrax had increased to 2273 [241, p. 97]. Moreover, the figures given cannot accurately determine the actual spread and losses due to the disease. This is because the administration assumed

that the increase in registered animals was not due to any particular development of the disease, but to a better awareness of veterinary control in connection with the development of vaccination [243, p. 97]. This was especially true in the Irgiz and Turgai districts, where anthrax disease occurred in 80 locations and where a large number of nomads lived. In addition, there were only three veterinarians in an area of about 300,000 square meters [255, p. 106] .

From the report of the veterinarian of the 7th veterinary district for the year 1893, which included the city of Irgiz and almost the entire district of Irgiz, except for 2 volosts – Baksaiskaya and Taldykskaya, which belonged to the 6th veterinary district. "Nowhere is the hopelessness of veterinary medicine felt as much as in the city of Irgiz, where there are no medicines during treatment, where the pharmacies in the emergency room, the military hospital, the supply of funds is limited. No medicines are dispensed on veterinary prescription, even for a fee, and all veterinary care consists more of advice and comfort than treatment [279] .

According to veterinarians, there were areas in these districts that were so heavily infected that the local population avoided stopping in these areas during their migrations. In addition, anthrax did not pose a threat to livestock in the past because nomadic populations avoided contaminated pastures and waters and moved on quickly when they became sick. Often in the steppe, there were names of areas such as "*Topalan oi*" – "Anthrax notch", "*Eshki kyrylgan*" – "The area of fallen goats" [47, p. 10] , which they tried to avoid.

The Kazakhs called anthrax differently in different types of domestic animals, depending on how the character of the disease manifested itself in different animals. Also in appearance, the behavior of animals, and other signs. In horses – zhamandat, isik, tegene; in camels – kara bez, ak shelek; in cattle – kara talaq, ylan, oshak; in sheep – topalan, ushpa, sekirtpe, in goats – shek-shek [273, p. 201]. As A. Toktabay notes, when the Kazakhs were angry with an unruly horse, they said to it "zhamandatkyr", i.e. "let anthrax hit you" [57, p. 93]. According to him, the folk treatment starts from the point when "otashi" – horse master defines two types of anthrax: the internal and external forms. The internal form was considered incurable. Signs of external anthrax: swelling-neck, lower chest ribs, and abdomen. If stroked by hand over the swollen place, it feels that these areas are hotter than the healthy parts of the body. After the so-called mild form of anthrax – "tegene" was recognized, the horse was not allowed to go out to pasture in the vsickage, but was separated from the others and kept on a leash under control. Immediately after the discovery of a tumor, a common treatment method was cauterization with red-hot iron. First, the area around the tumor was burned, which was considered a treatment to ksick the "worms" in the tumor itself. A red-hot iron basin or cauldron was placed on the tumor in the abdomen, and then these areas were covered with a felt that was tied to the horse's croup with a rope. The felt maintained the heat for a long time. This trick was repeated three times [57, p. 93] .

In the new situation, the nomadic population often did not have the opportunity to avoid the infected areas, at a time when the Russian population did not know the infected areas and could be the cause of new infections. Moreover, the settlements favored the stationary existence of glanders epizootics. According to statistical data, this disease was apparently less prevalent in nomadic Kazakh economies , where

housing and feeding conditions were less favorable for infection, and "natural cleaning" [241, p. 144] occurred: hunger and cold in winter each year drove away many weak and sick horses that grazed year-round and were hardly exhausted from work. To a much lesser extent than in sedentary farms, where horses were kept tightly packed in stalls, exhausted from work, and where constant feeding in winter supported the sick animals [280, p. 106] .

In the report of the governor of the region, the data on glanders was officially presented in 1889 as a disease that occurred in the Iletsk (Aktobe) district at the Mikhailovsky stud farm, the former Knyaz Dolgoruky, and from which two horses fell sick and died [242, p. 21]. The records of the regional administration show that the number of cases of glanders registered by veterinarians is very small, and only in the Iletsk (Aktobe) district. When glanders was diagnosed in the Ak-Tube fortress in April of the following year, one horse was killed immediately without remuneration. As for the measures taken against the spread of glanders on site and in the surroundings of Ak-Tube, the corpses were immediately cleaned and the surroundings disinfected, and all horses belonging to Ak-Tube residents were inspected [281]. Despite the fact that these only recorded cases of glanders cannot be used to assess the extent of the spread of the disease in the region, especially among the nomadic Kazakh population, veterinarians note that this disease was known as "*manka*" [snot] among the nomadic population [282]. However, the study of this disease by veterinarians, who at that time dealt with rinderpest and foot-and-mouth disease, had not begun systematically.

As a result, the Minister of Internal Affairs instructed to development of a project to prevent and stop the so-called epizootic in the region "to avoid possible mistakes" [283]. In 1891, a draft of indicative rules for the prevention and suppression of the glanders epizootic in the Turgai region was submitted to the Veterinary Committee and prepared for a correction [284]. Paragraph 4 proposed: To ksick animals with glanders and bury them with slit skins in pits up to three *arshins* depths [285] , to pay remuneration to owners of killed glanders animals not exceeding 30 rubles per killed animal, to pay fees to Kazakhs from the remaining funds of the zemstvo and to city residents from the remaining funds of the city. Persons who conceal glanders shall be excluded from remuneration and held accountable [286] .

Only by 1896, when the number of diseased exceeded 11 heads and glanders were found in five places in three districts, undoubtedly exceeding the annual number of diseased, the military governor asked the Ministry of Internal Affairs and Finance for permission to make an expenditure from the remaining zemstvo funds for the remuneration of killed animals from glanders. They belonged to local horse owners; as a result, reports of the occurrence of glanders epidemics in one area or another became more frequent [276, p. 44]. That same year, the mallein vaccine was first used to diagnose the disease. A tumor forms at the injection site and all signs of glanders increase, after which the animal is killed [287]. In the latter case, in the city of Kustanai, the horse of meshchanin Kornikov fell.

After a decade of disease control, it was stsick difficult to control it, because owners received little money for the slaughtered animals. In 1908, only 3,000 rubles were allocated for an area of half a million square meters [288, p. 17]. The increase in the glanders epizootic can be judged by the following data:

	The number of killed horses	Paid
1906	71	1325 rub
1907	102	1907 rub
1908	131	2771 rub
1909	225	3908 rub
1910 [235, p. 82]	165	3729 rub
1912 [255, p. 162]	346	7145 rub

Table 4. Amounts paid for killed horses from glanders.

According to zemstvo estimate for the three years 1910-1912, only 7,700 rubles per year were allocated for animal disease control measures and medical work. In contrast, in 1911-1912, 12,802 rubles were spent only on remuneration for killed animals because of glanders, so the cost of other animal diseases and medical work had to be drastically reduced [255, p. 162] .

It is also worth noting that glanders was observed in most cases in horses of the Russian people in the Kustanai and Aktobe districts, and only in isolated cases in horses of the nomadic population. Thus, in 1910, 118 horses were found and killed in Kustanai and 335 in Aktobe, while there were 8 and 4 dead horses in Irgiz and Turgai districts, respectively [235, p. 142]. This is related to the fact that in 1910 there were 2 Russian vsickages and 125 Kazakh vsickages in Igiz, only 1 Russian vsickage and 96 Kazakh vsickages in Turgai, while in Aktobe there were only 14 Kazakh vsickages to 25 Russian vsickages and 16 vsickages to 32 settlements in Kustanai district [235, p. 12]. From the slaughtered horses, the sedentary population accounted for 93% on average and the nomads for 7%, while the number of Kazakh killed horses decreased steadily and in 1912 accounted for only 1.01% of all horses. That is, of the 346 killed horses, 342 belonged to the sedentary population and only 4 were nomads [255, p. 162] .

According to veterinarians, the number of killed horses had decreased by 1910 because peasants considered it advantageous to report their sick horses before the beginning of winter; otherwise, they risked losing them because there was no feed in winter [255, p. 162]. On the other hand, when the disease process was far advanced and the horse became unable to work. In addition, when the value of the sick horse was marginal from the owner's point of view. Typically, the number of killed animals increased in early summer and late fall after fieldwork was completed [241, p. 44]. Late reports were undoubtedly undesirable, but this had to be accepted because the veterinarians themselves could rarely detect disease. If they were not paid for late reports, peasants would be sold sick horses to the Kazakhs, as usual. While the Kazakhs either cut up these animals or processed them into meat, and sold them back to the peasants [255, p. 160] .

The Kazakhs themselves could accurately diagnose the clinical signs of glanders and immediately isolate the sick animals. They believed that glanders occurred in horses that were exhausted from work or riding. The Kazakhs distinguished several types of the disease, a severe form of glanders that occurs in the lungs was called

kokirek manka [lung glanders], a mild form – *boz manka*, *tanau manka* [nose glanders], and glanders that damages the skin [47, p. 15]. As Kh. Argynbaev notes, experienced pastoralists, who know the nature of the disease well sometimes notice it before a set of symptoms appears. After discovering the disease, the sick horse was separated from the herd and, if possible, salt and a copper sulfate solution were blown into each nostril with two hooks, whereupon the horse gasped and snorted, with all the pus coming out of the nostrils. Instead of the above solutions, they used a tincture of elecampane [*karandyz*], which they poured into the nose. They believed that the disease would pass in 10-15 days [47, p. 16]. A. Toktabay also points to a similar treatment for glanders in his studies. According to the ethnographer, glanders was treated as follows: A live frog was tied to the bangs of the horse, and at its smell and sight, the horse began to sneeze incessantly and pus flowed from its nose [57, p. 95] .

Despite all attempts to prevent this disease, the horse had the highest mortality and morbidity rate in glanders. Veterinarians could only ksick sick horses under mandatory regulations with remuneration from regional zemstvo funds. In May 1914, the maximum amount for ksicking glanders was raised to 40 rubles, but the rapidly rising market price for a horse and limited district funds did not allow the grant amount to be increased quickly enough [243, p. 98]. In addition, after a significant increase in the market price of the horse, the price initially set very soon proved to be too low. The lower the threshold, the fewer glanders applications were received, and the more often those applications were late. Moreover, as the regional authority states, it is not possible to control this phenomenon with the limited veterinary staff [241, p. 145] .

The veterinarians in the region also failed to eradicate foot-and-mouth disease, although as veterinarians they were active first in research and later in the prevention of both rinderpest and foot-and-mouth disease [289]. Foot and mouth disease in cattle – *ausyl*, in camels – *tilbas*, in sheep and goats – *saryp* [273, p. 203] , was one of the most common epizootics, one could say even stationary. Moreover, the control of foot and mouth disease in the steppe was not possible in the given conditions, as reported by the regional authority in its report for 1915 [241, p. 146]. Every year, the disease captured more and more places and spread rapidly across the steppe.

The folk healers, recognizing the sick condition of the animal in connection with the foot-and-mouth disease, did not let it graze, kept it in the shade if possible, and fed it with soft grass and salt [47, p. 14]. They could also treat the tongue and oral cavity by rubbing it with calcined salt powder and blue vitriol, tar, and soot. If the treatment was too late, the disease was aggravated by passing to the hooves. Moreover, to protect sick animals from complications, they were often kept on their legs in cool rivers or salt lakes. In the absence of such an opportunity, the gap between the hooves was washed with salt water and coated with tar; sometimes the entire hoof was wrapped in felt and doused with cold water [273, p. 203]. Often experienced healers practiced artificial reinfection of all healthy animals by infecting healthy animals with the saliva of the first sick animal [47, p. 14]. The sense that artificially infected animals usually survived the disease more easily than naturally infected animals and the foot-and-mouth epizootic stopped in a short time [273, p. 204] .

The veterinarians of the region agreed on this, and the whole struggle with local cattle was reduced only to medical assistance and advice to immediately infect all

available cattle, which was carried out as far as possible [244, p. 109]. Since livestock that had been sick with foot and mouth, disease in the fall could hardly endure the winter, and veterinarians concluded, "It would be desirable for livestock to endure foot and mouth disease in spring and summer, which would give them the opportunity to work up before winter" [255, p. 163]. When foot-and-mouth disease was detected, first, veterinary and police measures were applied: isolation and quarantine. All sick animals were isolated and kept separately, not driven anywhere from the place where they were first examined, and not allowed to other livestock. Milk from sick cows was not allowed to be consumed [290] .

It is also worth noting that cattle from the northern districts frequently contracted the foot-and-mouth disease and were usually found in driven herds. In 1890, the foot-and-mouth disease was found in 14 points of the Kustanai district and in 41 points of the Aktobe district [291]. In 1895, the foot-and-mouth disease was detected in all volosts of the Aktobe district, in 3 volosts of the Kustanai district and only in 2 points of the Irgiz district, while the Turgai district was free from the disease [292]. Since 1903, foot-and-mouth disease had occurred only in driven cattle but not in local cattle [252, p. 25]. However, by 1908, 150 cattle and 6 horses in the Turgai district and 160 cattle in the Aktobe district had been infected with the foot-and-mouth disease as local animals [288, p. 92-93]. Disease control was carried out mainly on driven herds, which were held back until they recovered [195, p. 87]. This was an important task for veterinary personnel in the region "to prevent the spread of the disease to neighboring provinces and regions" [241, p. 146] .

In 1912, the disease was widespread, when 92,469 sick cattle were registered in 75 points of the region, while there were 870 sick sheep and pigs . Besides, foot-and-mouth disease in cattle had already appeared in 1891 in 38 localities of Nikolaevsky (Kustanai) district and in 2 points of Turgai, where 1436 animals fell sick [293]. Besides, in 1901 foot-and-mouth disease in cattle, sheep, and pigs was observed in 48 points of all districts of the region in the order of 11,026 animals – there were 769 sheep and 244 pigs [250, p. 19] .

Foot-and-mouth disease, on the other hand, was relatively harmless, and in 90% of cases, the livestock recovered. For example, out of 8681 cattle that had contracted foot-and-mouth disease by 1915, only 36 animals died [241, p. 146]. Nevertheless, under the conditions of the existing veterinary organization, it was not possible to control foot-and-mouth disease in the steppe. Moreover, according to veterinarians, it was much more profitable not to prevent the disease in cattle earlier in the spring and summer, so that cattle had a chance to recover and rest before the severe winter and possible starvation [241, p. 146] .

The year 1894 was marked by the disappearance of rinderpest, but the skin disease scabies also spread rapidly. This disease, less dangerous to the economy, also required much intensive work from the veterinarians of the Turgai region because of the low mortality rate. However, it was also one of the most gratifying moments in the life of Turgai veterinary medicine and an example of what a veterinarian can do without other tasks besides monitoring the health of local livestock. Moreover, perhaps the only example of its kind.

However, scabies affected all types of livestock in large numbers and was common in all districts [232, p. 22]. According to the veterinarians of the region, mass disease is observed both in Russian and nomadic Kazakh economies. In the former, the painful process is intense due to keeping cattle in "too" warm stables in winter, which experienced Kazakhs have always avoided [255, p. 164]. Apart from this statement, veterinarians of the region increasingly began to testify about how Kazakhs began to seek cures for skin diseases. Although the Russian population also wsickingly treated animals and sometimes even demanded treatment [288, p. 17] .

It is interesting to note that Kazakhs came for "lousy ointment" [*parshivaya maz`*] (a combination of turpentine, tar, and sublimate) from places 100 or more miles away from the veterinarian. And since the regional zemstvo funds provided little money, the Kazakhs of the Turgai district had to collect 1.5 kopecks from each kibitka to buy these medicines [288, p. 17]. The nomadic population, who often dispensed with their, as veterinarians considered, "home-grown healers" [294] , increasingly turned to the treatment points for help against scabies. This was probably because the number of cases of this animal disease exceeded tens of thousands of sufferers. Moreover, it was advantageous for the Kazakhs to seek this help.

	Animals affected by scabies (by heads)	Number of disadvantaged areas	Issued anti - scabies liniment (doses)
1909	55 706	412 [195, p. 150]	44 159 (only sheep) [195, p. 87]
1910	35 153	335	37 897 [235, p. 82]
1911	75 465	584 [280, p. 162]	-
1912	93 403	4012	82 346 [255, p.164]
1914	190 234	3568 [243, p. 100]	-

Table 5. The number of issued anti-scabies liniment

Skin diseases grouped by veterinarians under the term scabies, and the registration of several different skin diseases, starting with true scabies or somewhat resembling ringworm or indeterminate forms of eczema [255, p. 164] , had special names among the Kazakhs [55, p. 62]. The locals understood the nature of the diseases in their way and had different names for each type: for sheep – *kotyr*, *kontek, kon kotyr*; horses – *kyrshanky, kum sirke*, *bogen*; cattle and camels – *kotyr* [273, p. 205]. All these names are synonyms for the collective term scabies. Treatment was carried out in the same way for all animal species: The affected areas were smeared with *ki mai* (literally fecal oil – by burning sheep dung) or *suyek mai* (literally bone oil – by distsicking the bones of horses and cows slaughtered for the winter) [273, p. 205]. Sometimes with decoction from the roots of poisonous plants such as *usoiky* – aconite [47, p. 20] ; *itsigek* –

anabasis, afsicka; *karandyz* – elecampane, *kylsha* – ephedra was used for treatment and the infected area was repeatedly washed [273, p. 205]. In the absence of such means, homemade soap – *kara sabyn*, or hot broth – *sorpa*; hot lye – *kolamta* was used [273, p. 205]. The treatment was given for three days and then repeated until there was an improvement [47, p. 20].

In 1913, and then on a larger scale in 1914, attempts were made to identify the causative agent of this disease. To this end, veterinarians in various areas of the region collected pathological material from sick animals and sent it to the Veterinary Department laboratory for identification [243, p. 100]. At that time, however, no new treatments or drugs were available to veterinarians. The disease was widespread in all districts, and although steppe livestock survived the disease easily, emaciated animals were in great danger when wool loss reached a significant level. Without treatment, the probability of mortality was as high as 5% [241, p. 146] , which could be very dangerous for pastoralists given the enormous prevalence of the disease in the region.

It seems that the data and reports provided by the veterinarians give a general picture of the disease situation in the Turgai region. However, there is a problem with the reliability of this information and the problem of monitoring disadvantaged points. As can be seen from the data presented, veterinary control served mainly the Aktobe and Kustanai districts affected by resettlement, protecting mainly the interests of the newly arrived population and almost falling by the wayside in taking care of the Kazakh national economies. This was also favored by the fact that the Russian settlements were a constant breeding ground for some animal diseases [235, p. 77] that could not gain a foothold in the nomadic Kazakh economy, and veterinary control did not recognize these animal diseases among the local population, which did not expect radical help. Veterinary control was only able to detect the disease itself in a few cases, and then it may not have been able to constantly monitor the unfavorable points. Since veterinary control of commercial and industrial livestock took, a lot of time and its activities were not only local but also state in nature, as livestock and animal products fell in considerable quantities on the markets of European Russia. An activity in which it was necessary to constantly monitor and inspect all the livestock that passed through the livestock-driving routes, as well as the general control of livestock at fairs and bazaars.

The control of bazaars and trade in livestock products, which often revealed inaccuracies in the verification of certificates [*kagas*] issued by Kazakh authorities: The number of animals did not match the imported cattle; the exact number is not specified, only some heads [in Kazakh "*kura*"]. In all such cases, the livestock was not left and returned back to the place of their exit [295]. Sometimes it happened that the Kazakhs kept this certificate until the last head of an animal or sold other herds on it, resold it to another Kazakh, or did not give it to buyers at all. It can be concluded that the Kazakhs considered the certificate as a piece of paper that "says nothing" [296]. Considering that obtaining a certificate takes time to get to the district or auyl administrators it is clear that there is a desire to circumvent this.

It has also happened that a drover of the herd and animal products encounters obstacles to onward travel en route, such as a quarantine. To get around this, a Kazakh hands over his herd to a Russian merchant, who helps him and calmly drives the herd

to the desired destination, accompanied by a Kazakh. Alternatively, Russian merchants provided certificates from their authorities and brought their herds to the Kazakh side for commercial reasons, where some of them are sold, and when they move from one region to the next, new ones selected according to the certificate replace these herds. After that, he gets to the point where he submits them to the veterinary and health inspection, where he receives a certificate from the veterinarian for further tracking. In this way, the merchants proceed several times [297]. Although the livestock-driving routes and animal products transportation play a solid role in the spread of epidemic infectious diseases in livestock.

Even as an initiator and active participant in the dissemination of scientific knowledge, the veterinary authorities have not managed to fully win the support of the nomadic population in solving the animal disease problem because they have not taken into account the existing "cultural dimension of their scientific policy" [267, p. 172]. And it seems that although the veterinary administration achieved its goal of stopping the spread of rinderpest in the Turgai region and considers this an important step, the disease control measures restricted the movement and living conditions of the local nomadic population [298]. Kazakhs were increasingly confronted with the state administration, veterinarians, paramedics, new laws, regulations, and prohibitions. In turn, the regulation of animal disease statistics became political knowledge that brought not only the Kazakhs but also their livestock under control.

2.3 Veterinary personnel as representatives of the project of "correct colonization" of the Kazakh steppe

This paragraph discusses the activities of veterinary personnel and specialists in the Kazakh steppe. As mentioned in the work of D. Davis, one should not assume that the influence and legacy of a particular "profession" are the same everywhere in the world. In a comparative analysis of colonial veterinary science in the French and British Empires, D. Davis convincingly demonstrates how radically different the roles of these veterinarians could be in implementing imperial policies [299, p. 266]. For example, in her opinioin, veterinarians in the French colonies of Algeria, Tunisia, and Morocco played a stable, significant, and long-term role in the development and implementation of environmental policy. French colonial veterinarians in the Maghreb not only controlled contagious animal diseases, but also played an important role in developing pasture management strategies and developing livestock populations by improving their diets and thus pastures, and also provided important information to french intelligence agencies. In British India, on the other hand, the main role of veterinarians was limited to breeding the best army horses, researching infectious diseases in horses and cattle, and combating the spread of these diseases. These significant differences between the colonial services were influenced by three main factors: differences in disease ecology between the two colonies, i.e., climatic differences that also influenced the nature of the diseases, also differences in French and British veterinary training and significant differences in the colonial administration

[299, p. 266]. Based on this approach of D. Davis, an attempt was made to show the role of Russian colonial veterinarians in the Kazakh steppe.

The veterinarians themselves, who worked in the Kazakh steppe, considered that "until now no one has done so much useful for the Kirghiz (Kazakh) steppe as the veterinarians" [45, p. 125]. This was due to the difficult conditions of staying in the steppe. First, these are the tasks of veterinarians and solving the problems arising from the acute epidemic situation in the steppe. Secondly, the vastness of the territory entrusted to them for veterinary control, which in turn includes four different districts, depending on the physical characteristics of the surface, climate, and flora. Thirdly, the extremely difficult financing of veterinary activities and the maintenance of veterinary personnel led to a difficult financial situation for veterinarians. But at the same time, for part of the veterinary service in the steppe, it was a special goal to "take all measures and make all efforts" to preserve the steppe livestock, given the decline of animal husbandry in European Russia and the rapidly increasing demand for meat food. For others, it was a kind of "mission of intelligentsia" in civilizing, Russifying, and establishing a settled way of life [300] , which required a lot of energy for constant work with the local population [300, l. 83ob]. In this sense, the organization and creation of a veterinary system in the steppe, especially in the Turgai region was part of the project of "correct colonization" [145, p. 423; 301, 179-180]. The creation of the imperial veterinary service is considered part of the transformation project necessary for the empire, as an "instrument of the empire" [302] .

According to the research of S. Kozhakin, in the 75 years from 1731 to 1806, there were no veterinarians in the steppe, as far as the archival sources prove. In the following period, from 1806 to 1860, they did not exist for more than 25 years [45, p. 109]. As A.I. Dobrosmyslov noted – before infectious diseases hit the steppe, the Boundary Commission on June 14, 1844, did not consider it necessary to legally appoint a veterinarian or his assistant. Only in 1853, on the proposal of Governor General V.A. Perovsky, due to a contagious camel disease A.A. Khavsky was appointed a veterinarian [31, p. 13]. Khavsky, after completing his training, was employed as a scientific farrier at the Veterinary Institute of Kharkiv College on September 23, 1843, and was dismissed from the service on November 22, 1851, upon application. On November 14, 1852, the Council of the Kharkiv Veterinary College awarded him the title of a veterinarian [31, p. 13]. Khavsky's activity as a veterinarian of the region was limited by two official trips to inspect livestock beyond the Novo-Iletsk line and at Fort Karabutak [31, p. 27]. In addition, according to the civil department, on August 17, 1855, the titular adviser A.I. Kalibertsev was appointed veterinarian of the boundary commission. In this position, which he held by order of the governor-general until November 24, 1866 [31, p. 35] , he was responsible for the inspection of livestock and animal products at the Orenburg exchange yard [*menoviy dvor*], but what exactly his activities expressed was not recorded, as he did not write reports on his official activities [31, p. 36] .

Persistent epidemic livestock diseases that did not stop and occurred in different parts of the region can give a general picture that the people who held veterinary offices in the Boundary Commission did not bring the benefits that were expected of them. Admittedly, it is difficult to imagine what a single person could do about animal

diseases in an area of 800,000 square meters then occupied by the Orenburg General-Governmenttship.

For a long time, before the appointment of supernumerary veterinarians, seconded veterinarians worked in the region. In 1883, the Ministry found it necessary to appoint, for a more detailed acquaintance and taking measures against epizootic diseases that appear on animals in the Turgai region, on the rights of supernumerary veterinarians N.G. Popov, B.O. Dmokhovsky, A.L. Tabunshchikov, and M. Aktanov [31, p. 77]. Soon after, N.G. Popov was transferred to Kharkiv province and in his place, the Ministry appointed veterinarian V.V. Lavrov [31, p. 78]. In 1885, after A.L. Tabunschchikov's retirement, there were only three veterinarians left in the region [31, p. 85]. It is difficult to imagine 3-4 veterinarians working in an area of 400,000 square meters with 2-3 million heads of livestock without official position and support. The important and, according to A.I. Dobrosmyslov, "the only" merit of these supernumerary veterinarians was that they established the constant existence of animal diseases in the Turgai region and helped to clarify the reasons for their occurrence [31, p. 93-94] .

Limited reports and the unsystematic measures to control the plague, which lasted until the end of the 80s of the XIX century, were the reason for the decision of the Ministry of Interior to send another veterinary expedition in 1888, covering even more steppe areas. The participants of the third veterinary expedition were sent to Akmola, Ural, and Turgai regions and the Bukey horde, respectively. Junior provincial veterinarian A.A. Andreyev from Tver, junior provincial veterinarian I.I. Okhotin from Yaroslavl, and a graduate of the Derpt Veterinary Institute M.M. Afromovich were sent to the region [31, p. 105]. This group of leading veterinarians undertook most of the work to contain rinderpest and build a veterinary organization in the region.

At the same time, they had the task of providing detailed and accurate data on the occurrence of animal diseases in recent years; the reasons for its development; the disease control measures; the number of Kazakhs livestock and its breeds; about the steppe fairs and other places for the purchase of livestock; about the methods of exchange and trade in animals; about the livestock-driving routes and the conditions for the movement of local and driven herds; about the conditions of trade in raw animal products, lard, meat, wool, skins, horns, etc.; about the cost of livestock in the steppe; and about the attitude of the Kazakhs to mandatory slaughter and other veterinary-police measures [31, p. 108] .

During the expedition, the rinderpest was completely contained in less than a year and a half, with about 20,000 rubles spent on issuing rewards for killed animals, purchasing disinfectants, and other expenses [31, p. 123]. Despite the presence of veterinary personnel in the form of 3 supernumerary veterinarians and annually seconded by the Ministry in 1889 additional 4 veterinarians and 15 veterinarians seconded during 1890 [31, p. 121]. In this, A.I. Dobrosmyslov had several important and difficult tasks.

In view of the various forms of veterinary administration prescribed by the Acts of March 25 and April 15, 1891, the Minister of Internal Affairs, on June 27, 1891, approved Journal no. 38 of the Veterinary Committee "On the Concentration of the Administration of the Veterinary Department in the Hands of the Head of Veterinary

Department". It contained instructions on the duties of the Head of Veterinary Department: directing the workflow documentation for the region's veterinary department; preparing draft ordinances for the veterinary and sanitary departments and annual reports for the same departments; attending meetings of the regional board with issues related to the region's veterinary department; controlling the veterinary and police measures of the region; directing the members of veterinary control in the region: veterinarians, paramedics, guards who monitor slaughterhouses, fairs, bazaars, and other places where livestock or animal products are located in the region; make periodic and urgent visits to the region to review the activities of veterinary personnel in the region; report to the Governor on the condition of the veterinary department in the region, and activities of the veterinary and police inspectors, and compliance with laws and regulations governing the veterinary department; and propose to the Governor candidates to fsick the positions of veterinary paramedics, guards, and interpreters [31, p 135-137]. A.I. Dobrosmyslov was extremely dissatisfied and wanted to draw attention to "the abnormal position of the head of the veterinary department, who not only does not occupy the position assigned to other heads of departments of the regional government but is, also forced to perform office work with extremely meager office equipment" [31, p. 210] .

When the head of the veterinary department, A.I. Dobrosmyslov, took up his new post, he was confronted with many difficulties facing veterinarians in the steppe. When elaborating the tasks of the head of the veterinary department of the region, the Veterinary Committee particularly pointed out the importance of the "personal views of a professional", as the success of the implementation of the intentions of the Ministry of Interior directly depended on the leadership of the veterinary department and even on the attitude towards them from the outside [31, p. 136]. In his opinion, the complexity of the veterinary organization "depended not on the incompetence or ignorance of the Kirghiz, but on the lack of understanding of the district authorities of the importance of veterinary and police measures and their indifferent attitude to public welfare issues, which was firmly rooted in them" [31, p. 80]. For more than 20 years, A.I. Dobrosmyslov worked tirelessly for himself, his profession, and the region to which he devoted his activities [303] .

Born in the family of a representative of the white clergy – an archpriest, who had no personal and family property, A.I. Dobrosmyslov received education and completed full scientific studies at the Kazan Veterinary Institute in 1879, where he received the title of a veterinarian. He began his career in 1879 and worked at the school of veterinary paramedics in the Perm provincial district until May 1880, without having the right to public service. Then in 1880 he was appointed supernumerary veterinarian of the Medical Department and was seconded to the Minsk province for animal disease control. The following year he was appointed supernumerary veterinarian of the Minsk Province, and in 1885, by a decree of the Government Council, he was elevated for the first time to the rank of Collegiate Secretary of the tenth class [304]. In addition, a year later, in 1886, he was elevated to the rank of Titular Councilor on the basis of his many years of service. in 1887 he was transferred to Voronezh Province, and in 1888 was appointed chief provincial veterinarian of Podolsk. In September of the same year, by a decree of the Government Senate, he was promoted to the rank of Senior Assessor

on account of his many years of service, and in October he was sent to the Turgai region for animal disease control [304, l. 2ob] .

For the performance of his duties, he was honored to be recognized not only for his long service but also for the excellent performance of the tasks assigned to him. One such example is the attitude of the Chairman of the Veterinary Commission, "due to the special work in the field of veterinary medicine of the head of this department in the Turgai region, veterinarian A.I. Dobrosmyslov, as well as the commendable activity of this official, who assisted in the purchase of Kirghiz livestock for feeding the troops of the St. Petersburg garrison, to give him a monetary reward in the amount of 500 rubles [305]. And also the Order of the Governor General of the Steppe, General of Cavalry Baron Dove dated April 12, 1896, expressing "sincere gratitude for the excellent performance of the various tasks assigned to him" [306] , and participation in the work of the commission to determine the causes of the occurrence and animal diseases control [307] .

In the various years of his life, he devoted much time and effort to social activities; from 1885 he was a member of the Orenburg brunch of the Russian Geographical Society; from 1895 he was a full member of the Orenburg Scientific Archives Commission; in the same year he became a full member of the Turgai Region Statistical Committee; in 1897 he was elected a corresponding member of the Kazan Veterinary Institute; and from 1898 to 1899 he was editor of the regional newspaper "Turgaiskie oblastniye Vedomosti". He collaborated with local journals and actively published his collected works [308] .

He wrote and published many fundamental works that were read and used by both researchers and leaders of regions and districts. Such an important scientific work as "Animal husbandry" in the Turgai Region was commissioned by the Turgai Regional Statistical Committee and published in 1895. A.I. Dobrosmyslov covered most of the cost of the book, about 856 rubles and 72 kopecks [309]. Subsequently, there were more and more such commissions and orders. In 1898, also on behalf of the Regional Statistical Committee, he prepared such booklets as "Kirgiz Wool and Hair Products," "Measures to Improve horse breeding in the Turgai Region to 1886," "Trade in the Turgai Region," "Keeping and Breeding Kirghiz Dogs and Cats and Poultry." In the same year, on behalf of the military governor of the Turgai region, he prepared the booklets "Postal and zemstvo tracts in the Turgai region", and "Fauna in the Turgai region". At the end of his career in the region, on behalf of the Orenburg Branch of the Russian Geographical Society, he prepared the publication of a series of books: "The Turgai region: a historical essay" [308] .

Dobrosmyslov became a key figure in organizing and creating a veterinary service in the Kazakh steppe, especially in the Turgai region. All his work in the region was devoted to the creation of a holistic system of veterinary service in the Turgai region. He practically succeeded in this, but the veterinary organization in the region changed its conditions every time, and its activity was hindered by certain reasons.

One of the most important problems of veterinary control in the region was the question of the minimum number of veterinary personnel for 2-3 million head of animals scattered over an area of more than 400,000 square meters. According to the personnel table of 1891, there should be 4 district veterinarians in the region. And

according to the state administration in the steppe regions, the position of a district veterinarian was classified by the position and sewing on a uniform of the class VIII and by the pension according to the medical status; the maintenance was to be 800 rubles per year (of which two-thirds were in the form of salaries and the remaining third in the form of rations) and 300 rubles were to be provided for travel [31, p. 129]. At the same time, selected stationary veterinarians and lower division veterinary workers were appointed: Veterinary paramedics and guard-translators [31, p. 131] , people who knew Russian and Kazakh, and, if possible, Russian and Kazakh letters. Most of the posts for veterinary translators were fsicked by young Kazakhs who had completed courses at Russian-Kazakh schools in the region [31, p. 134] .

Even after some time, the distribution of veterinary personnel among districts was uneven. Below is the data for 1912 [255, p. 152] .

District	Number of veterinarians	Number of paramedics	Each veterinarian had:				
			Sq. miles	Head of livestock	Settlement	Saddle household	Nomad household
Aktobe (49,500 sq. m.)	11	4	4 500	31 817	13	1148.5	2244.4
Kustanai (93,838 sq. m.)	8	2	13 417	110 583	27.2	3273	3752.5
Irgiz (127,300 sq. m.)	2	1	63 650	319 642	1.5	344	10 406
Turgai (147,500 sq. m.)	1	-	147 500	596 869	3	180	17 932

Table 6. Distribution of veterinary personnel by districts.

The problem of lack of veterinary personnel in that territory which occupied the region, and for the number of animals in the region, was first expressed and transmitted in 1897 in the form of a "Project on new veterinary personnel in the Turgai region" [310]. The study of the conditions of Kazakh animal husbandry and industrial animal husbandry with the participation of all veterinarians found expression in the publication of the famous book "Animal Husbandry in the Turgai Region". As A.I. Dobrosmyslov notes, based on the list according to which the region was studied in veterinary terms, it became clear that the veterinary staff in the region has "too much" work [310, l. 3ob.]. Originally, the organization of the veterinary staff, activities was aimed exclusively at stopping the plague epidemic. Once this goal was achieved, the main focus was placed on the organization of permanent measures to prevent the occurrence of this animal disease. To this end, the first step was to study local animal husbandry and industrial animal husbandry and to establish permanent control of both local livestock and the movement of animal products.

At the first time, when the "Project" was sent for approval, by 1897, out of 13 veterinary sites, five were exclusively engaged in work – to inspect driven herd and animal products transportation [311]. In the areas of these sites there were important and large cattle passing points that even five veterinarians were not enough for this

work. The need was especially felt for the appointment of a second veterinarian in the first veterinary station, which included the Berdyansk point, one of the largest in Russia [312]. From the reported information, one of the veterinarians of the 3rd veterinary district, V.N. Kokhman, it is possible to imagine one of the episodes of driven herd control. The site represented one volost of the Aktobe district, consisting of 7 auyls of the Tuz- Tyubinskaya volost [313] , and having a livestock-driving route in the Tomar-Utkul tract [313, l. 81ob]. "As soon as the herd is driven to the point, the owner must show a certificate from the veterinary, then a general inspection of the livestock is carried out and the number of livestock is matched. The document is stamped with the time of arrival and is handed over to the owner before the end of quarantine in 14 days [313, l. 86ob.]. After quarantine, all animals undergo a temperature [313, l. 87] check, a quantity check, and then a certificate is issued again [313, l. 88] .

To take measures against epizootics, in each of the four districts, A.I. Dobrosmyslov was asked to have at least three veterinarians per district, and the same number of interpreters with them. Also, have one veterinarian for trips, who could also manage the bacterial laboratory [314]. However, the submitted "Project of the Personnel" did not receive approval, just as it did not receive it again in 1909. The number of permanent senior and junior veterinary personnel for more than 12 years did not meet the needs of the vast animal husbandry area. Only by increasing the appropriation according to the district estimate for 1910-1912, from 5580 to 7700 rubles for measures to prevent livestock deaths, and for equipping old points and opening new ones, in the vsickages of Aleksandrovsky, Denisovsky and Fedorovsky of the Kustanai district, and Kherson and Ak-Bulak of Aktobe district [244, p. 92]. Despite the petitions of the regional administration, the project initiated in 1897 did not receive approval in 1913 either. District budget estimates for 1913-1915 were approved and introduced, according to which 14,650 rubles a year were allocated to prevent the loss of livestock, instead of 7,700 rubles in the past three years [315]. The "Project", or by 1913 already passed into the form of "Projects" of the personnel, were developed, reached the center, were transferred for legislative registration and conclusion to the Ministry of Finance and State Control [315]. Moreover, by 1916 they were asked to put on the "respect" of the State Duma during the upcoming session [316] , but never received final approval. One way or another, the imperfection of the veterinary organization and the lack of staff were felt more and more sharply every year, as the number of settlers and settlement increased. With the presence of 358 settlements, which are favorable ground for the development of many epizootic diseases, created in 1891-1893 the staff of veterinarians, during the existence of an exclusively nomadic population, couldn’t cope with new requests.

It is also known that veterinarians took part in the general national census of 1896, so it was necessary for them to repeatedly leave the stations in charge to travel around the census tracts [317]. After the Veterinary Department proposed to check the total hay stocks in order to find out the question of how much hay was collected in general for warehouses [318]. It was also possible to find a combination of veterinary positions for a fee, which was expressed in the fact that veterinarians managed, in addition to their sites, two more vacant sites in cities, and behind slaughterhouses [235, p. 80]. Such practices of managing slaughterhouses and the sanitary part of towns and cities

were practiced in view of the lack of funds to invite special personnel, but this, to a certain extent, distracted veterinarians from their direct obligations.

According to A.I. Dobrosmyslov, the official position and remuneration received by veterinarians could also not be considered satisfactory. In view of the difficult conditions of service in the Kazakh steppes, "it would be desirable to increase the content of veterinarians to 1200 rubles, not including travel money" [31, p. 20]. Although Dobrosmyslov himself, being appointed head of the veterinary department, received a salary of 1,500 rubles a year, the stationary veterinarian received a maintenance in the amount of 1,000 rubles, and, in addition, 200 rubles per year for traveling, acquiring tents and other travel expenses, for stationery up to 400 rubles per year, 300 rubles per year were released for the maintenance of veterinary paramedics and guards [31 p. 131]. A.I. Dobrosmyslov received 122 rubles 50 kopecks a month [319] of which 76 rubles 57 kopecks received for a salary [320] , and 45 rubles 93 kopecks for provision for each month [321] .

As K. Vrublevsky, who wrote "Notes on the Needs of Veterinary Medicine" in 1905, notes: "veterinary medicine is a vale of tears and sadness, veterinary medicine is life from hand to mouth" [50, p. 69]. And even in the inner provinces, like Samara, despite the increase in the cost of veterinary medicine, the salary of a veterinarian in the district was extremely low for a long time, by 1898 it averaged 800 rubles a year, but by 1903 the provincial district increased the salary of veterinarians to 1000-1300 rubles, introduces salary increases of up to 300 rubles for 10 years of service, appoints pensions [50, p. 69]. As S. Kozhakin notes, the extremely difficult financial situation of veterinary specialists can be cited many examples and one of them is the fate of the veterinarian M. Aktanov, appointed in 1882 to the Turgai region as a supernumerary veterinarian. After working as a veterinarian in several regions and provinces, in 1899 he dies and leaves his family without a livelihood. By 1890, the veterinarian Golikov sent a letter to the editors of the journal "Bulletin of Public Veterinary Medicine" with a request to open a subscription to raise funds in favor of the Aktanov family, since the widow herself is sick and has three small children, is in distress [45, p. 218] .

Indeed, M. Aktanov veterinary activities, according to the information given by A.I. Dobrosmyslov is highly controversial. In the sense that, making a review of the first year of the activities of supernumerary veterinarians in the Turgai region, he mentions, “he cannot pass over this circumstance in silence” [31, p. 83]. M. Aktanov himself was the first Kazakh graduate awarded the degree of veterinarian in 1882 [322, p. 141]. Which was immediately sent to the Turgai to fight against camel disease, and to find out the causes of this disease [31, p. 71]. Soon he was appointed a supernumerary veterinarian in the Turgai region. The regional board was instructed to manage the veterinary department of the Irgiz and Turgai with residence in the city of Irgiz. A year later, in 1884, he was transferred to the city of Turgai, and only one Turgai district was left behind him, after a fairly long service in the region, he was dismissed in 1890 [31, p. 78] .

Just in time for 1884, the newspaper "Luch" published correspondence from the city of Irgiz, in which it was reported that "a veterinarian who arrived from the Kirghiz ... appeared like a second plague. There were few merchants left with which he would not have taken bribes (payment), even the poorest Kirghiz and then does not give

mercy. One Kirghiz had a sick cow, but not a plague, the cow was the only one from which the poor Kirghiz, without long-distance conversations, ordered to kill and remove the skin from it, and then sold the last one, and took the money for himself [31, p. 84]. In addition, after checking, on the consideration of the military governor, he was transferred, to the Turgai district. However, A.I. Dobrosmyslov quickly reacts to this information, stipulating that "he has not the slightest desire to denigrate his personality or damage his career", but also notes, "for non-Kirghiz foreigners, one school education, even if it is a higher specialized one, is not enough" [31, p. 84]. Arguing that "it would be more useful to first practice outside the environment in which he was born and grew up in order to see the advantages of a higher culture compared to the environment from which he came out".

In the same issue, in the study of G.S. Sultangaliyeva about Kazakhs studying in higher educational institutions, there is information about Kazakh veterinarians who worked in Kazakh auyls, who received wages that did not meet the conditions of service. For example, I. Kulpeisov, having worked since 1900 as a veterinarian in the 2nd and 30th veterinary districts of the Troitsk district, then the 5th veterinary district of the Orenburg district, after his resignation he received a pension of 77 rubles, which was only 1/3 of the annual salary. As well as the payment of benefits after the death of the veterinarian S. Ibragimov, whose family was assigned 6 rubles 75 kopecks amounting the 0.5% of his annual salary [322, p. 142]. In comparison, in 1901, half of the annual salary was assigned the veterinarian M.I. Preobrazhensky for 20 years of service, namely 312 rubles 50 kopecks per year [323] .

Of course, neither Dobrosmyslov, nor others cannot be so categorical about Kazakh veterinarians. D. Jasmagambetov also worked in the Turgai region, who, moreover, was engaged in bacteriological research in the region; in 1899, he completed a three-month internship at the bacteriological station of the Kazan Veterinary Institute [322, p. 142] .He was the first who introduced the practice of inoculation with the second vaccine in the organization of the fight against anthrax [45, p. 297-298] .Until 1915, he worked as a stationary veterinarian in the Kustanai district [255, p. 170]. Repeatedly improved his skills in the laboratory of the Kazan Veterinary Institute K. Sermukhamedov [322, p. 142] , who also worked in the region until 1915, as a veterinarian in the Irgiz district [255, p. 170]. In addition, he opened an outpatient clinic, and was engaged in medical activities [322, p. 142] .

Despite the occasional comments that go in the direction of the darkness of the life of the Kazakhs, it must be taken into account that the speakers were representatives of their era and perceived what they saw from the position of their official position, their cultural environment, which did not exclude the attitude established at that time towards the Kazakhs.

Since, when various kinds of information were received that veterinarians exceeded their authority and Kazakh veterinarians did not always appear in them. The first veterinarian appointed in 1844 at the border commission O.A. Lenkevich, was dismissed from service on June 12, 1845, who were arrested in the form of a disciplinary sanction, for "drunk noise with guards on the street, against Colonel Roop’s apartment" [31, p.7]. Another example is an anonymous letter received by the office of the Ministry of the Internal Affairs. Statements that veterinarians sent to the

Turgai, Ural regions, and to the villages of peasants and Cossacks of the Orenburg province, without any mercy, they kill quite healthy cattle under the guise of a plague. Animals purchased at fairs by cattle merchants were arbitrarily kept in quarantine for a very long time, cattle were released, so the owners agreed to pay a large amount money like of 500, 1000 rubles [324]. In addition, it also came to the attention that some veterinarians, under various pretexts, were absent from the areas on private trips, at public expense. Moreover, they used veterinary paramedics and guards as domestic servants [324, l. 9 ob.]. The Kazakhs reported the same violation to the Regional Governor, those officials when issuing documents on the welfare of places of exit and export of animal products and at the run-through often charge a fee for this in their favor [325]. Naturally, neither the first nor the second case was recognized, since the veterinarians considered all the accusations unfounded.

But one thing was clear, the importance of the issue of establishing a veterinary service in the Kazakh steppe, due to the increase in the number of resettlement livestock, the appearance of exchange yards in limited areas, the expansion of the network of bazaars and fairs, cutting the livestock rut tracts belonging to cattle merchants, thereby in an attempt to protect and ensure well-being its transportation and the safety of the steppe lands from problems with epidemic diseases, all this was associated with the activities of veterinarians.

The responsibility of the imposed duties of the city authorities directly fell on A.I. Dobrosmyslov, who at the same time had his own healthy interest, manifested in serious concern, caution and attentiveness both in his work and in the activities of other veterinary workers. He repeatedly mentioned how, as a result of unfamiliarity or ignorance with the local conditions of animal husbandry and the cattle industry, they hinder the further development of the veterinary affair. For example, excessive correspondence on the case of stopping the plague epizootic that arose in August 1889, when the Orenburg governor, on the basis of a report from one of the seconded veterinarians, informed the military governor that "the reason for the existence of the plague epizootics in the Troitsk district is the beginning migration of the Kirghiz, when in fact, the Kirghiz living in the Troitsk district and in its vicinity do not have the opportunity to migrate, and on the other hand, migrations in these places in August do not begin, but end" [31, p. 113]. Or the following example, where, in view of the fact that “the veterinary station of the Orenburg province, closest to the city of Orenburg, Blagovolensky was actually located within the Turgai region, the veterinarian in charge of this point, due to unfamiliarity with the local conditions of animal husbandry and cattle industry, with the people and governance procedures, excited a lot of completely unnecessary correspondence, because of which endless altercations between neighboring administrations came out [31, p. 124].

His position was also clear regarding the importance of preserving precisely the traditional pastoral economy, due to natural, geographical features. For example, he writes, "many have thought and are thinking of converting the Kirghiz from pastoralists into farmers and, all the more so, reliably providing them with food and, in general, their financial situation. However, it seems to me that this system, apart from ruin, does not give anything, since the Kirghiz steppe of the Turgai region by nature itself, one might say, is adapted for animal husbandry and not for agriculture at all" [30, p. 287].

And the following: "Thus, we must not take care of planting agricultural culture in the steppes, but take all measures and exert all efforts so that the Kirghiz steppe remains the old livestock-breeding country, and so that animal husbandry not only does not fall, but, on the contrary, develops, as quantitatively as well as qualitatively" [30, p. 288] .

Of course, we must also understand that this certainly has its own task, which must be solved by the veterinarian, as well as by the executor of the imperial economic interest. This becomes clearer when he says that, "with the decline of pastoralism in European Russia and the rapidly increasing demand for meat food, our vast Kirghiz steppes must be wholly preserved as places exclusively reserved for pastoral culture. If now the Kirghiz steppes, under all unfavorable conditions, deliver to our markets a very large amount of livestock and animal products, then if animals are provided with food in winter, their maintenance is improved and their more or less rational breeding, the release of this product from the steppes could increase by several times" [30, p. 288]. V.Ya. Benkevich also agrees with this. He was sure that "the Kirghiz steppe, the territory, which for a long time will be the largest and relatively cheap supplier of livestock and its products. In addition, it must be used in the same direction, creating all the conditions for rational animal husbandry [32, p. 13].

Even in resolving the issue of mass losses of animals during various adverse conditions, kindness noted the importance of understanding the internal mechanism of animal husbandry, which would make it possible not only to know and describe them in his works, but also to try to apply them in reality as various soil conditions of the north and the southern regions, under more or less equal conditions for keeping and breeding animals, are equally "do not ensure the integrity of Kirghiz animal husbandry not only due to crop failure, but also of other unfavorable conditions" [27, p. 22]. Thus, offering an alternative path, not to abandon the old norms, but also to not lag behind any new knowledge that Kazakhs could familiarize themselves in schools with the information on animal husbandry, which could have a direct application to their life situation, which surrounds Kazakh from his early childhood to old age [27, p. 25]. The question of improving livestock, in particular horses, according to A.I. Dobrosmyslov cannot be applied where drought, black ice and snowstorms can demolish not only zootechnical improvements, but also threaten the existence of animal husbandry itself. And in view of the foregoing, there could be no question of improving Kazakh horse breeding until measures are found to put this horse breeding firmly, regarding its well-being, so that adverse atmospheric, climatic and soil conditions may have the least disastrous effect on the structure of this branch of Kazakh animal husbandry since those improved livestock had little chance of adapting to the new emergency conditions in the steppe [30, p. 158]. And there are enough of such examples to understand whether it is an honest review of the correctness of keeping or criticism of the backwardness of the measures for the treatment of epidemic diseases. In the process of performing veterinary control over the region, A.I. Dobrosmyslov did not lose sight of the need for caution in the appropriate choice of actions, since he understood that any intervention would lead to an irreversible change in the existing mechanisms.

The same example is the "excitement" of the veterinarian of the 3rd veterinary district V.V. Lavrov, on the lease of land to Russian peasants, the control of which includes the Tuz-Tubinskaya volost of the Aktobe district. His fears were related to the

fact that the Kazakhs would soon not only not have their own land for crops, but also grazing places for livestock. All the land will be plowed up, exhausted, and where the fields are still intact and there is a feather grass steppe with good pastures, it will turn out to be "furrowed, half-naked", or a huge area overgrown with weeds [326]. It is interesting that he speaks furiously about the relations between the Russian population and the Kazakhs, in which the former pursue an exclusively "exploitative, purely predatory goal" – robbing the Kazakhs – only making money at their expense. In view of such considerations, the control of the Kazakhs in such important things as leasing their lands for use by the Russians should be strengthened to the extreme limits, in the prescribed manner and uniformly, so that there are no cases of giving away land by the poor Kazakhs of the volost, for plowing more than one, two, three dozen acres of land annually, almost for nothing [326]. That is, bare spaces covered with sands will not allow the most productive use of all the riches of the region with which nature has endowed it, and for this, first, it is necessary to give the correct organization of space.

Thus, the great responsibility of the agents of the empire fell on the veterinarians, in the production and fulfillment of their main role, the control of infectious diseases in the area. Only after that, treatment, inspection of markets, and work on improving animal husbandry. The organization of veterinary business in the steppe was close to both the British and French models, but also included a responsibility per execution imperial economic interest. This important period in the development of the state veterinary in the steppe was directly related to the official activities of A.I. Dobrosmyslov. However, his activity was often aimed at a critical attitude towards the conditions for fulfilling the tasks set by the administration and his veterinary service, which is no less important, implied a desire to change these conditions and offer alternative ideas for improving this or that issue. Due to the fact that in the second half of the 19th century, the activity of commoners began to increase, which included mainly educated people of non-noble origin, professionally engaged in intellectual activity, and gradually this concept narrowed down to designating people from this environment, liberal, democratic or revolutionary-minded individuals. They were perceived as carriers of a new ideology, liberal, democratic and progressive ideas. Attribution of A.I. Dobrosmyslov to commoners is important not to enroll him in social radicals or political oppositionists, but to an educated person, who could still have a social conscience, take an active interest in government reform and the welfare of the people of the empire. On the other hand, being a representative of the state veterinary intelligentsia, he and representatives of the veterinary organization of the region undoubtedly tried to embody the idea of "correct colonialism", based on their concern, caution and attentiveness to their work, as a result of the unfamiliarity or ignorance of interested parties with local livestock conditions and industrial animal husbandry, which, in their opinion, hinders the further development of veterinary science.

3 VETERINARY MEDICINE AS THE STATE RHETORIC OF

"CARE"

3.1 Mandatory animal vaccination as a means of human control

This paragraph focuses on the measures of the state to prevent livestock diseases.

In post-reform Russia, veterinary science was marked by new discoveries in this area. With the emergence of new animal diseases, scientists, represented by professors of veterinary institutes, worked to put forward new ways to control diseases. Schools of researchers were formed that tried to be acquainted with viruses, obtain antigenic raw materials or vaccines. The latter was considered as an achievement of science, positively influencing the development of veterinary medicine, and was supported in every possible way by the state, as well as by veterinarians. V.Ya. Benkevich, in 1908, at the Orenburg-Turgai meeting of veterinarians, raised the question of the use of vaccinations in the animal diseases control. In his report, he mentioned that vaccinations bring the people closer to the veterinary staff. They saw this as the "best measure" in the animal diseases control [327, p. 186] .

For the first time in 1852, Professor of the Derpt Veterinary School P.P. Jessen, an opponent of the slaughter of sick cattle with plague, put forward his own method of control – plague inoculation (artificial plague inoculation) [328, p. 94]. L.S. Tsenkovsky with his students I.M. Sadovsky, A.P. Shalashnikov prepared their own anti-anthrax vaccine in 1883 [329]. In 1891, mass experiments on the vaccination of animals against anthrax were carried out in the Kazan province by I. N. Lange [330, 331]. Two years later, in 1893, the positive quality of the Tsenkovsky and Lange vaccines was officially recognized, which were subsequently successfully used in many provinces of Russia [332]. Russian veterinarians Kh.I. Gelman and O.I. Kvilning, each independently, in 1890-1891 produced mallein – an effective diagnostic tool for subcutaneous injection, to identify horses with glanders [333]. Mass immunization of animals increased the need for biological preparations, so veterinary and bacteriological laboratories and stations [334] were created in individual zemstvos. In 1883, there was only one laboratory in Russia, in 1905 – 21, in 1912 – 30. The largest were Kursk, Yekaterinoslav, Saratov, Kherson veterinary laboratories [209, p. 71].

In the historiography of the Soviet period, despite criticism of the veterinary expansion as the cattle industry developed and the Kazakh animal husbandry was not well [45, p. 152] , this area of the veterinary service was considered through its practical significance. V.M. Koropov was close in opinion with S.K. Kozhakin, noting that the organizational structure of the veterinary service did not correspond to the tasks of animal husbandry [335, p. 227]. But at the same time, S.K. Kozhakin did not exclude fruitful activity in the field of studying various infectious diseases [45, p. 512]. Like I.N. Nikitin, representing the gradual development of veterinary science, who paid attention only to the achievements and production activities of the veterinary service in the animal disease control [209, p. 80-81] .

In the modern period, the study of this topic is distinguished by the development of this problem within the framework of a broader colonial policy on the example of Western empires. One of them, D. Gilfoyle, studying anthrax in South Africa and

attempts to combat it, argues that the mandatory mass vaccination of livestock owned by Africans has become an important component of state policy. African animals became the means by which government veterinarians gained knowledge of the disease and evaluated innovations in vaccine technology [336]. Or, according to P. Chakrabarti, animal experiments in Indian laboratories must be considered in the context in which Indian animals became subjects and resources of the British Empire [337] .

This, in turn, prompts another thought by M. Foucault, about governance, in which close attention paid to environmental or epidemiological problems prompts administration to take certain measures. Subsequently, it becomes one of the mechanisms of safe governance, a guarantee that society is protected from internal adverse factors such as diseases and damage from them. To be able to ensure security, the state uses laws and prohibitions, continuous control and interference in the public and private space of the population, hiding behind care and tolerance [99, p. 97]. This stage of a variety of practices, techniques and technologies of management allows you to guide the behavior within the state itself or various types of institutions and societies in order to achieve the welfare of the latter, and becomes controlled by these practices, which is understood by the concept of "governmentality".

Enough comparative examples can be given where new management technologies were described, where the colonial administration used to form the relationship between the inhabitants of the area and management – the rules of the forest council [100, p. 103] ; or famine as a systematic social problem that the state, using the example of the British Empire, tried to solve through its politicization and considered a purely state problem. One of these elements of regulation was the issue of nutrition, and after that, the tool of the social transformation itself, as the science of nutrition [102, p. 144] .

In turn, recurring with particular severity and scope every ten or twelve years, jute was a disaster for the livestock breeders of the Kazakh steppe, "the scourge of animal husbandry, as I. Campbell [338] called it. And despite its regular occurrence, its scope remained potentially devastating. And the task facing the tsarist government, which sought to correct the problem, was enormous. These attempts to correct and prevent, I. Campbell also connects with the Foucault government (Foucauldian governmentality), the desire to minimize the risk and improve the well-being of its population. The government began to introduce loan offices to help the population affected by dzhut. In turn, the successful fight against it promised a more prosperous and safe existence [338, p. 73]. For greater clarity, the author gives several more similar examples, how between 1866 and 1876 all the zemstvo provinces of the Russian Empire developed compulsory fire insurance programs to solve the problem of mass destruction of peasant property by fires; how the law of 1866 created the most comprehensive program of food aid that has long existed in the Russian Empire; or how the law of 1865 regularized and placed under state control the smallpox inoculation [338, p. 336] .

According to M. Foucault, the need for restrictions, both temporal and behavioral, indicating a system of a disciplinary type, unfolds as a movement within which the structures of the law are added to their own protection mechanisms and brought into

action by the structure of the law, and gives an example of compulsory vaccination [99, p. 23]. But all this is covered by the fact that "security" is the main motive for all actions. And now vaccination finds a place for itself in the real practice of managing society and has a real impact on the way of life of the population [99, p. 91] .

But the most important thing in this is that security and discipline have become identical concepts. Punishment for violation or disobedience, in the form of prosecution, as a disciplinary technique, in the name of maintaining security, can also be considered one of the main schemes of the new management.

While the Kazakhs managed to prevent livestock diseases by organizing preventive precautions that meet the basic requirement: it is easier to prevent than to cure. "*Auru astan*" – "Disease comes from food" says a Kazakh proverb. This attitude led to the creation of original methods of animal husbandry and its protection, inherent in the Kazakh nomadic economy. In his study, S.K. Kozhakin agreed that these methods are effective in their mass, equally from the zootechnical and veterinary points of view; they can be scientifically substantiated [45, p. 58]. First of all, these methods consisted in the correct use of natural fodder resources, taking into account the diversity of climatic, physical and geographical conditions, vegetation cover and water regime, as well as recording the well-being or disadvantage of the area (long-term or short-term) [45, p. 59] .

Here are some important examples that were given in the studies of S.K. Kozhakin, and in the work of Kh. Argynbaev, who gave a brief ethnographic description of Kazakh folk veterinary medicine. During the summer period, the main goal of the livestock breeder was to ensure proper feeding of the livestock and to put the younger generation on their feet. In addition, a partial, selective sale of animals was carried out, being the primary, small cleaning of the herd. On the autumn grounds, livestock was still being fed, but in parallel, the process of preparing for winter maintenance was going on. There was the most strict culling, mass sale of livestock, slaughter for own needs "*sogym*". Thus, only stable, healthy animals, able to endure the severity of the conditions of winter keeping of livestock, went into the winter. Further, calving, shoaling, flocking, selection of producers, everything that was needed to prepare for frequent summer transitions, were carried out on the spring plots [45, p. 60] .

In epizootic terms, it was important that the transition from seasonal sites occurred, as a rule, after a year. The selected area of temporary exploitation, regardless of its size, should not bear traces of its use, during the entire current annual season, and any mass movement of outside livestock on it was prohibited. Often, the Kazakhs used artificial preventive treatments for pastures. Sh. Valikhanov wrote about this issue that "Summer migrations are burned out in autumn to destroy insect larvae that disturb in summer, while winter ones remain untouched all summer" [339, p. 107]. Further, the frequency of changing camps and pastures had a preventive value .

Constant ventilation could reduce the percentage of diseases in the infected herd. In cases where a disease of an infectious nature occurred, sick animals were immediately separated from healthy ones. The movement of animals was differentiated. At first, healthy livestock walked, followed at a distance suspicious of infection. If there were a significant number of sick animals, and they could not be

slaughtered for economic reasons, in the hope of a cure, this group of livestock remained in place. With a subsequent warning about this to neighboring nomadic vsickages. Kazakh livestock breeders, in particular in relation to anthrax, made a thorough registration of disadvantaged areas. The main natural and geographical features (locations) were transferred from one nomad to another and thus, it became known to the widest range of the local Kazakh population [45, p. 62]. At the same time, the rest tried not to enter these lands. Having passed the midday journey from the infected area, the shepherd stopped for several days in a new place, and observed the condition of the livestock. If the disease receded, then having assigned the infected area to it, they did not return to the old areas for a long time. In the case of the duration of the disease, they went even further, in search of a land free from disease. At the same time, animals that died from anthrax were buried without removing their skins [47, p. 10] .

The Kazakhs living near the banks of the Ural River and the Caspian Sea also encountered measures of artificial reinfection of sheep from anthrax. In a thicket of blood from a slaughtered sick sheep, her own lung was dipped. Some time later, a thread of camel hair strung on a needle was passed through a moistened lung and then the needle was passed through the ears of healthy sheep. According to the old people, in this way the sheep could endure the disease a little easier than usual [47, p. 9]. Sheep also had a more common disease of smallpox, in Kazakh "*kul*". The folk method of dealing with this disease was also based on the artificial reinfection of sheep. For which, crushed lungs of animals that fell from smallpox were used. At the same time, an incision was made on the skin of the ear, separating it from the cartilage; a piece of the lung was placed in the resulting cavity. In the future, they tried to constantly move the animal, for rapid blood circulation and rapid infection [47, p. 11].

In order to prevent the "*katpa*" of camels, the driving was carried out before the appearance of summer horseflies, camels were avoided driving to swampy and stagnant sources, as well as to dense reed thickets [45, p. 63]. The disease of glanders horses, according to the Kazakhs, most often affected horses exhausted by work, persecution from a far, at a transitional high and cold temperature. At the same time, the Kazakhs rarely tried to use horses as draft animals [47, p. 15].

In case of skin diseases, especially scabies, among the Kazakhs, the idea was widespread that the causes of the disease from dampness in enclosed spaces, when sheep returned from grazing with wet wool, while without the opportunity to dry it [47, p. 15] , trying to keep them in open pens whenever possible. As they tried to choose reservoirs for livestock, since when drinking from a puddle overheated in the sun, pulmonary diseases could occur such as "*qara okpe*" – pneumonia in horses and camels, "*ala okpe*" in cattle, and "*okpe kurty*" in sheep and goats [47, p. 23] .

The Turgai veterinary organization had a very limited number of measures at its disposal to combat epidemic diseases: the ksicking of glanders with the issuance of remuneration from zemstvo sums, on the basis of mandatory decrees of 1897; veterinary-police measures amounting to isolation and quarantine; and lastly, vaccinations. The first priority in the steppe space was vaccination to stop and prevent anthrax, epidemic pneumonia in cattle, swine erysipelas and sheep pox [255, p. 153] .

Concern about the spread of the anthrax epizootic, which appears annually among domestic animals in various parts of the empire, as well as the fear of anthrax infection of people were quite high. This state of affairs seemed extremely undesirable, due to the complete cessation of plague epizootics within European Russia. And not properly fulfsicking all the rules and instructions on measures to prevent and stop this disease threatened the spread of a new stage of infection. In this connection, the Veterinary Committee and the Ministry of Internal Affairs, it was proposed to use the method of "mass protection", with the help of protective vaccinations with a weakened poison of this disease, that is, anthrax vaccine [340]. But the use of protective anthrax vaccinations in the Turgai district can only be traced back to 1902, produced in the village Mikhailovsky, Aktobe district, where 226 cattle and 8 horses were vaccinated in August [341, p. 349] .

In this matter, the peculiarity of "preventive" vaccinations was not just an intensifying feature, but it was different from the "diagnostic" vaccination. According to the Medical Charter, when diseases appear, the list of which is established by the Minister of Internal Affairs, forced, as well as diagnostic vaccinations are made. ” According to G.V. Svetlov, under the name of diagnostic vaccinations, the law “understands” the injection of mallein and tuberculin into animals suspicious of a disease, for the purpose of diagnosis [341, p. 349] , and not vaccines, taken from diseased animal materials for inoculation of healthy ones.

The first information about vaccination in the Turgai region, we find in the annual report for 1896, the head of the veterinary department of the region A.I. Dobrosmyslov. He gives a list of vaccinations, noting that no protective vaccinations were made for animals, but for the same diagnostic purpose, only mallein was used for the first time. Only 5 cases of vaccination were made, after which all horses began to have a general reaction to the vaccination, in the sense of general oppression, increased nasal flow and a hard swelling at the injection site, in some the size of 3 palms. All horses were found to have nasal and lung glanders, as a result of which all were killed [342] .

Time of inoculation	Where and whose horse was vaccinated	At what hour and what is the max. temperature reaction	General reaction phenomenon	What was discovered by autopsy
September 6, 1896	Berdyansk point, horses of the Kazakh Dzharenbay Kazybekov	within 28 hours 40,4 °C	General oppression, increased nasal flow, muscular trembling, difficulty in breathing, yawning and chewing movements. Soft, very sensitive	Nasal and pulmonary glanders. Killed.

			swelling at the injection site.	
September 27 1896	The settlement of Kustanai, the horse of the tradesman Druznin	within 8 hours 40,9 °C	Solid swelling in the palm at the injection site. Loss of appetite, oppression, increased nasal flow.	Nasal and pulmonary glanders. Killed.
September 17 1896	Irgiz city, the horse of the Cossack Osipov	within13 hours 40,9 °C	The tumor at the injection site is painful, hard, the size of 3 palms. Loss of appetite, cough, increased nasal течения.	Nasal glanders. Killed.
September 7 1896	Kustanai city, the horse of the peasant Roman Prosolov	within 16 hours 40,1 °C	Swelling at the injection site, near the palm, accelerated breathing.	Nasal and pulmonary glanders. Killed.
September 17 1896	Kustanai city, horse tradesman Kornikova	within 14 hours 40,3 °C	Swelling at the injection site, larger than the palm, general depression.	Nasal and pulmonary glands.

Table 7. List of cases of malleinization of horses in the Turgai region for 1896.

And in the following year, 1897, vaccinations were applied also only in maleic cases. All the horses were killed, at the autopsy they were recognized as "sapniks" [343]. In 1900, 23 cases were checked with mallein, of which 6 horses [250, p. 21-23] were found to be healthy. In the following year, 1901, for the diagnostic purpose of glanders, mallein was used in 28 cases by veterinarians of the 1st, 5th and 11th veterinary districts, and in 4 cases they received a negative result and the animals were returned to the owners, and 24 horses were shot and were found at autopsy nasal and pulmonary glanders [250, p. 21-23] .

As already mentioned above, in 1902 more than 200 heads of cattle and horses were vaccinated with the anthrax vaccine. The vaccine was issued from the Kharkov Veterinary Institute, and some of the livestock of the "more prudent inhabitants", that is, among the peasant population, were vaccinated [251, p. 28]. Mallein was administered to suspicious horses for glanders in 35 cases and gave 12 negative results [251, p. 29]. After a while, by 1908, already in 11 points, 11,166 head of livestock were vaccinated with the first and second anthrax vaccinations, most of the vaccinations were done to sheep, according to the “assurance of the Kazakhs”, the most suffering from "Siberian" [288, p. 18]. That is, unlike in 1902, vaccinations were also received for Kazakh livestock.

At the same time, vaccinations for general pneumonia were first used in the region in 1907 at the Orenburg Stable of the State Horse Breeding [288, p. 18]. Since 1909, vaccination has been used in Kazakh vsickages.

From 1909 to 1912, 26,931 heads of livestocj were vaccinated in Russian settlements and the city of Aktobe, and 17,508 heads in vilages [255, p. 157]. In the report for 1912, the number of those vaccinated turned out to be much less than those vaccinated in 1911: 2945 and 34,410 in the Aktobe district, and 1396 and 9241 in the Kustanai district [255, p. 156]. At the same time, an increase in the share of vaccinations received by Kazakh vsickages is visible. In an attempt to explain the significant decline in the number of vaccinated in 1912, the Regional Board presents several reasons. One of them was the unsuccessful outcome of vaccinations in 1911 in one point of the Aktobe district, in which there may have been a strong reaction and the death of 11 heads [255, p. 156]. But at the same time, the administration was not afraid of losses, as it believed that it was necessary to show "persistent need, not to stop at even the largest expenses in order to develop the right material of a certain virulence". This is a matter of science, but a matter of practice is to verify [255, p. 157]
.

In the same year, 1912, the number of people vaccinated against anthrax also decreased. The reason was primarily seen in the severe depletion of livestock in the spring, which did not allow vaccination to be recommended. But more acute was the issue of the case received as a result of vaccinations made in 2 points of the Kustanai district. After the first vaccination, 480 horses were vaccinated, the disease began on days two and three, and as a result, out of 100 cases, 69 vaccinated animals died. The investigation indicated that the most likely cause of the death was the particularly strong virulence of some of the vaccine vials [255, p. 159]. The livestock that died from vaccination in 1912 was valued at 3887 rubles, the amount of which could not be paid from zemstvo funds for their complete depletion. The Veterinary Administration did not consider it possible to satisfy the application for the issuance of remuneration from zemstvo sums [255, p. 159]. However, according to the Medical Regulations, in Chapter Six, under Article 1166, it is stated that “For animals killed in order to prevent and stop infectious diseases, as well as those killed after vaccinations carried out by a competent authority, the owners of these animals are immediately given a reward from the amount of the percentage fee from the driven herd referred to in the following articles [341, p. 356]. Just the following article 1167 sounds like: “The limit estimates for issuing rewards for animals killed and dead after vaccination from local livestock are approved by the Minister of the Internal Affairs, by agreement with the Chief Manager of Land Management and Agriculture” [341, p. 357]. At the same time, the Regional Board issues a "Review" with a report that despite repeated requests from the Regional Administration, the Veterinary Administration refused to pay out of the percentage of the fee. That is, does it mean that the administration refused to pay twice, since the expenses for the veterinary part were carried out from regional zemstvo funds, as well as for the amount of percentage of the fee [241, p. 163]. G.V. Svetlov was also interested in this issue, expressing his opinion on the size of the marginal estimates for animals killed in order to prevent and stop infectious and epidemic diseases, as well as those that died after vaccination. That under Article 1124 the size of the marginal

estimates is set by the Zemstvo Assembly, and according to 1157 and 1167 – by the Minister of Internal Affairs, "how can we agree on this contradiction?" [344, p. 67]

The population of the region, after learning that the reward had not been issued, immediately refused to consent to vaccinations at all. And now the use of the latter required not only the consent of the livestock owner, but also the prefix "without a guarantee", due to the lack of sufficient Zemstvo funds in issuing remuneration, for all those who died from the consequences of vaccinations. The reward was not issued in 1913, during the loss of livestock in the Aktobe district. In which 75 horses and 500 cattle were vaccinated at one point, of which 13 horses and 12 cattle died [244, p. 105]. And the population of the region ceased to agree not only to anthrax vaccinations, but also to the culture of pleuropneumonia.

Later, as can be seen from the data on the distribution of anthrax vaccinations for 1914, the number of vaccinated people exceeded all previous years, which was explained by the influence of the publication of rules in 1914 guaranteeing payment from zemstvo sums for fallen animals from vaccination. If by 1913 19,035 heads of cattle were vaccinated with the 1st vaccine, and 15,278 heads with the 2nd, then by 1914, 28,562 heads were already vaccinated with the 1st vaccine, and slightly less than 24,685 head of cattle with the 2nd vaccine [243, p. 96] .

And if in 1896 the military governor asked for permission from the Ministry of the Internal Affairs and Finance to make an expense from the remnants of the zemstvo sums for the payment of remuneration for killed glanders, then anthrax vaccinations were added to this provision, with a guarantee of payment from the zemstvo sums for fallen animals from vaccination.

In particular, in 1914 they were vaccinated [243, p. 96] :

Type of livestock	Vaccinated with 1st vaccine	Died	Vaccinated with 2nd vaccine	Died
Horse	3668	1	3387	1
Cattle	5675	1	3991	-
Sheep and goats	18 734	9	16 859	5
Camels	472	-	448	-
Pigs	13	-	-	-

Table 8. The number of livestock vaccinated with anthrax vaccine in the Turgai region in 1914.

Thus, the presence of general pneumonia, as well as anthrax, "lay down" a burden on the animal husbandry of the Turgai region. The first, according to the information of the Regional Board, was difficult for the cattle merchants and made this industry risky, undermined the economy, and also slowed down the work to improve animal husbandry [241, p. 142]. As for anthrax, which was found throughout the region throughout the year, it was especially dangerous for the local livestock of the northern regions, where agriculture and settled life developed.

In one of the issues of the "Kirghizskaya Stepnaya Gazeta", an article was placed "Is it necessary to declare the disease of livestock?". In which it was warned that if the

concealment of the disease was discovered, it would be necessary to answer before the court, up to 3 months in prison. And now, when the current folk healing practices of the Kazakhs were completely ignored, with the new "Rules" on measures to prevent and stop epizootics; literally it was not possible to drive livestock to new pastures, due to quarantine measures, and the lack of free land. The anxiety of the tsarist administration, in the form of constant registration of diseases, control of the transition and exit from quarantine, reporting on infected points to the administration, forced the Kazakhs to live in a new way and borrow new practices.

If earlier the Kazakhs knew disadvantaged pastures and watering places, and had the opportunity to deliberately avoid them, now, with reduced land use, they were forced to use these areas. At the same time, the emergence of new foci of diseases was pursued by constant control by the management. Subsequently, he also had to put forward the "scientific question of the possibility of mass protection" from infection of animals. As a result, vaccinations have supplanted the system of preventive measures of the Kazakhs, based on the body of knowledge. This knowledge was not a review of a narrow circle of people, but was the property of the whole society. While new practices raised the state apparatus above the nomadic society, putting preventive measures in the hands of veterinarians.

3.2 Measures for the introduction of new improved breeds of livestock in the Kazakh steppe: technocratic and folk methods of animal husbandry

This paragraph discusses another aspect of the veterinary service, which was carried out under the guise of care.

In Soviet historiography, the breeding of new breeds of livestock was considered as a set of measures aimed at increasing the efficiency of animal husbandry [345, 346]. In the modern period, in Western historiography, it is studied in the aspect of colonial conquest, the exploitation of steppe horses by Russians. K. Ferret saw in this the possibility of using "Central Asian" horses in the imperial army. Arguing the latter, discussions in the specialized Russian press (military and horse breeding magazines), based on the hope that the conquered territories can be used to the benefit of their cavalry [70, p. 211]. As well, as value judgments about the quality of local breeds, their possible improvement, as well as about the features of local riding. S. McDaniel's opinion partially agrees with this, as the Russian authorities began to consider the Kazakh steppe as a potentially unlimited source of horses for their military, agricultural and even industrial sectors [83] .

The importance of the development and implementation of new technologies for any sphere of life is often mediated by power relations, since these same development practices and technologies have been used to achieve and implement political goals [104, p. 43]. More often, this was due to the fact that it was the government, combined with expert knowledge, that was responsible for developing new ways of governing. In this sense, the imperial rule in the steppe wanted the nomadic pastoralists to use the latest production methods and technologies to exploit the steppe, turning it into a

structural animal husbandry. Their plans called for vast territories, as well as new institutions such as experimental farms, laboratories, and agricultural schools. They also needed a "human infrastructure" that could help develop in the course of "colonial clash in the steppe" [82, p. 3] , dissent or indifference.

The Turgai region, among other Steppe regions, was a vast plain. The steppe is monotonous, but highly original. As mentioned earlier, it was customary to divide the plain of the Turgai region into two large regions: northern and southern. The entire area of the first part was suitable for agriculture and abounded in excellent pastures, served both in summer and in winter as the best pasture for steppe domestic animals, especially for horses, at any time of the year [32, p. 9] .

While the new board sought to uncover the mechanisms of environmental impact, due to concerns about the well-being, adverse atmospheric, climatic and soil conditions, and the possibility of a less disastrous impact on the structure of the Kazakh animal husbandry. At the same time, it became customary to reproach the nomadic economy with "aziness and carelessness", and that “they conduct their animal husbandry tradition primitively, without investing labor and not showing concern for its improvement” [82, p. 144] .

Veterinary work was one of the earliest forms of agricultural science and agronomy in the steppe, playing a key role in both the transformation of the steppe and its inhabitants [82, p. 141]. And the way these forces and ideas were brought into play, coordinated, and created constituted a technopolitical structure [82, p. 144]

But J. Seitz believes that imperial officials have changed their tactics, and instead of focusing this new agronomic infrastructure on local Kazakhs, the empire has largely turned its attention to supporting the peasant settlers [82, p. 2]. And seeks to highlight how settler colonialism has affected ideas about the environment and the nature of the science that is practiced. The author reinforces his argument with P. Woolf's assertion that in settler colonialism "an invasion is a structure, not an event" [82, p. 2]. In the case of settler colonialism in the Kazakh steppe, part of the invasion structures, in his view, were physical (infra) structures such as railways and wells. The other part was intellectual and scientific, like the methods of cultivating varieties of crops and livestock. Other aspects of this invasion structure were economic, such as taking land and supporting grain markets, in addition to peasant loans for msicks, grain refiners, or oil cooperatives. They were all part of (and also meant to support) the human infrastructure of the invasion, i.e. the real peasant settlers and their descendants [82, p. 2] .

Officials tried to create the ideal cattle, and the ideal pastoral economy for their vision of the steppe in the way they wanted. The purpose of improving livestock was to add "better" genes [82, p. 134] to steppe livestock, that is, to transform their offspring in the right direction. However, the fundamental differences between sedentary and nomadic forms of life give a completely different importance to this process. The entire argumentation of tsarist rule was directed at the lack of "qualitative" characteristics.

A different understanding and attitude towards the culture of pastoralism itself, and its main attribute as livestock, represents the main difference between the worldview of different societies. In a more rigorous assessment, based on some

conformation data that would tell them, for example, about strength, beauty, running speed, greater ability to work, and so on, and the Kazakhs were not busy seeing in their animals any other qualities, except for a great ability to withstand all winter hardships [30, p. 94; 36, p. 23]. Small in height, the Kazakh horse was not so small in parts: with a strong, short back and with a somewhat drooping, strong, muscular and moderately long rump; a well-built body rested on short, hard, bony legs; and on the same short ones, with strong hoof joints and round, also strong hooves. And since the amount of land required for the maintenance of horse breeding in the Turgai region was not the same everywhere, it was important to have the ability to adapt to the environment. The northern destricts – Aktobe and Kustanai – had excellent pastures and good watering places, but despite this, sometimes in winter, horses had to break the ice crust with their strong hooves to get herbs [30, p. 82] ; on the contrary, in the Irgiz and Turgai districts, the Kazakh steppe was a shallow, treeless, exorbitantly hot in summer, and cold desert in winter, covered with extremely sparse vegetation and alternating loose sands in their vast expanses, or with solonchak plains devoid of any vegetation, due to which the Kazakhs to feed their herds of horses and herds of other animals, they had to roam with the latter from place to place and thus cover very large spaces. According to A. Dzhantyurin, horse breeding is nowhere so strongly dependent on natural conditions as in the Kazakh steppes [36, p. 15]. Therefore, the Kazakhs, when choosing producers, mainly paid attention to the strong build, width, density, and strength of the stallion [36, p. 15] , in the hope of getting hardy offspring.

The tsarist administration saw no need for this endurance. Offering the latter an alternative development path. Peasant migrants needed draft-type producers, first of all, as pack animals [195, p. 90] , while the cavalry needed tall, graceful in shape, riding horses [195, p. 90]. Looking ahead, one can present one of the conclusions from the Kustanai stable presented by K. Ferret on the process of improving the Kazakh horse, where specialists selected mares up to the age of four, which were not milked, grazed all year round and fed in the off season; foals were weaned in October, then fed and housed for the winter. In this way, we hoped to increase the size and correct some defects: refine the head, lengthen the neck, limbs and improve balance. The design has improved, but the size has not increased enough to be used in the cavalry. With this example, K. Ferret showed the direction of one of the possible goals to have stud farms.

In this sense, the rhetoric of improving pastoralism was a kind of justification for imperial rule in the steppe, covered by economic access. In the process of this regulation, which took place in state-owned organizations, a disciplined population became economically profitable, a disciplined animal became a profitable animal [347] .

The first experience in setting measures to improve Kazakh animal husbandry was associated with the opening of three steppe state factory stables at once in 1886, 1887 and 1888: Orenburg, Turgai and Kustanai, to raise Kazakh horse breeding. The first builder of all three stables and the organizer of the business was the veterinarian V.M. Freifeldt, who held the position of manager and senior veterinarian, first in the Orenburg stable, then in Turgai and finally in Kustanai [31, p. 90]. Some information about the fate of the first steppe factory stables can be viewed in the main work of A.I. Dobrosmyslov, about animal husbandry in the Turgai region. The veterinarian notes

the unsatisfactory work of all three stables. The fact is that the improvement of the Kazakh horse for a certain period of study of the region, at significant costs, both on the part of the Kazakhs, who conceded significant land plots for the stables of the state horse breeding, and on the part of the allocation of amounts from the state treasury, up to 120,000 rubles a year, did not gave some tangible results. Apparently, it did not achieve those “good goals” that were meant when establishing stables in the Turgai region. In author`s opinion, it is really impossible to consider as satisfactory results the covering of 12,000-13,000 Kazakh horse female by factory stallions for 8 years, and in the opinion of the horse breeding officials, who were interested in showing large numbers in their reports, no more than half gave birth, and of this second half also at least half fell in the winter of 1891-1892 from lack of food and other adverse conditions. Consequently, as a result, we have an "improved" offspring of Kazakh horses only up to 3000 heads. “And it is unlikely that such a number existed by 1893, since the Kazakhs stsick do not particularly trust the endurance of the improved offspring of the horse and strive at the first opportunity to sell them more or less profitably” [30, p. 165] .

The Turgai stable was located 7 km from the city of Orsk, Orenburg province, in the area of the Aral-Tyubinsk, Aktobe district. About 25 thousand desiatinas of land were ceded by the Kazakhs for the stable. The cost of building and repairing the building, from 1886 to January 1, 1895, amounted to 67,859 rubles. The stallions of this stable covered Kazakh horse females: in 1887 – 523 heads, in 1888 – 779, in 1889 – 579, in 1890 – 660, in 1891 – 1029, in 1892 – 433, in 1893 – 570 and in 1894 – 945, and in total for eight years 5518 [30, p. 160] .

In the first two or three years, mating was carried out exclusively in shoals at a breeding station at the stable. The procedure for attracting Kazakhs at a specified time to bring horse females to a breeding station was usually practiced as follows: back in winter (in January or February), the stable manager asked the military governor of the region to induce district chiefs to make an order for the Kazakhs to bring in May a sufficient number of fit mares for mating. There were instructions from the chief of the region to the district chiefs, and from these latter, in turn, to the township governors. The township governors, fearing responsibility for disobedience, recruited mares from the township indiscriminately, and sent them to the stable for mating. Here you could also find very young, stsick incapable of mating, various kinds of cripples, and most often already foals. And out of the total number of queens brought by Kazakhs, no more than 5% became foals from factory stallions. This was clearly seen from one of the livestock shows of Kazakh horses on May 31, 1889 at the Turgai stable, where out of the mass of horses brought (up to 3000), only a few (less than 10 heads) were brought one-year-old colts and fsickies born from Kazakh mares and factory manufacturers. In the following years, the order of mating of factory stallions with Kazakh mares was changed: factory stallions were given to Kazakhs in auyls, where they walked with queens in jambs [30, p. 162]. With this, the second method of mowing mating, according to the recall of the former manager of the Turgai factory stable, Revyakin, the number of mares that were in mating with factory stallions was fertilized and gave birth to up to 50% of the mares. The Kustanai stable was located 4 km from the city of Nikolaevsk (Kustanai), in the area of the Arakaragai township, Nikolaevsky (Kustanai)

district. The Kazakhs ceded about 30,000 acres of land for stables. The cost of construction and repair of buildings cost, from 1888 to January 1, 1895, 77,270 rubles. The stallions of this stable covered Kazakh queens: in 1889, 834 heads, in 1890 – 1162, in 1891 – 1229, in 1892 – 1038, in 1893 – 1272 and in 1894 – 1972, and in total for six years 7507 [30, p. 162] .

The last Orenburg factory stable was formed in 1890 from the factory of Prince Dolgorukov, which was opened back in 1877, in vsickage No. 1, Burtinskaya township, Aktobe district, 40-45 km from the city of Orenburg. The Kazakhs ceded about 18,000 acres of land for the plant for 24 years, with the condition that from the end of 1886 the plant had 900 horses, including 270 horse female. When the plant was inspected by the military governor of the Turgai region on May 10, 1889, only 170 queens and 8 stallions were found, of which 5 were old, and 3 were young, under the age of three. This plant, over the twelve-year period of its existence, had absolutely no influence on the improvement of the Kazakh horse, since it existed only on paper, in fact it was an agricultural farm. At the end of 1889, the factory of Prince Dolgorukov was transferred to the jurisdiction of the Ministry of State Property, and the following year, to the state horse breeding [30, p. 167]. Already in 1891 and 1892, the stallions of this stable were also distributed to the Kazakhs in the vsickages, but in the smallest number, so that in both years no more than 100 – 200 Kazakh queens were covered with them, and in 1894 – 551 (in reality, probably less, so as part of the stallions in 1894 was distributed to the Kazakhs of the Ural region), and in just four years about 600 – 700 [30, p. 167] .

The Kazakhs were not sufficiently convinced that the improved offspring of their horse would also be hardy and, therefore, able to endure all the hardships that it experiences year after year in the steppes. Often, wealthy, influential Kazakh horse breeders took factory stallions (1-2 stallions each) not out of awareness of the usefulness of improving the horse, but in order to please the authorities [30, p. 162] .

As early as 1897, at the time of the study of the field and the press of A.I. Dobrosmyslov, he argued that the Kazakhs do not improve their herds of cattle, either by more or less correct selection of producers, males and females from among their own herds, or by crossing with other breeds, except for a small number of cases of crossing cattle of a local breed with Kalmyk. And even then, these cases happened almost only in Aktobe district. The Kazakhs did not pursue breeding goals for this type of animal [30, p. 162]. Nevertheless, after a while, with the arrival of the resettlement population and the growth of settled life, and then the further development of agriculture, the demand for a draft animal, like cattle, increased.

The settlers brought with them livestock of the Kalmyk breed, which was able to adapt to the new conditions, while the gray steppe livestock, bred from Russia, turned out to be slightly suitable and, when crossed with Kirghiz livestock, gave negative results [30, p. 162] .

By 1903, the Turgai Agricultural Society, which functioned for the first time, bought 20 Kalmyk bulls [255, p. 179] in the Don region with funds raised by the Kazakhs of the Tuztyubinsk township. V.Ya Benkevich wrote about this in the newspaper "Kazakh" that the latter received good offspring [255, p. 179]. And at their own expense they bought 1 bull and 2 cows to form a farm [255, p. 179]. The latter

was opened in the 1st Burtynsk, Aktobe district under the control of a veterinarian E.P. Nikolsky. And only by 1910-1912, the Regional Board included in the estimate an amount of 2,500 rubles a year for the practical work of the regional nursery. And in 1911, the organization of agronomic assistance to the population was laid, in 1912, at the end of the year, according to the accumulation of zemstvo funds in the amount of 7,500 rubles for three years, as well as a subsidy from the Department of Agriculture in the amount of 6,500 rubles for the arrangement and maintenance of a farm, another several heads of cattle. As a result, a regional breeding farm was opened 15 km from the city of Kustanai on a government plot, covering about 400 desiatinas [255, p. 179].

Simultaneously with the purchase of livestock for a farm, 29 bulls for breeding stations were purchased in the Stavropol province exclusively at the expense of the Department of Agriculture, and 8 heifers for the formation of a farm in the city of Irgiz with funds collected by the Kazakhs of the Irgiz district [255, p. 179] .

And by the end of 1912, a regional nursery for breeding livestock and pigs, a nursery for breeding livestock in the city of Irgiz, and 14 breeding centers began to function [255, p. 179]. When distributing breeding points by county, the need to organize control over them was taken into account, in the sense of proper feeding and use of producers, and therefore, guided by these considerations, 12 points out of 14 were transferred to the jurisdiction of permanent and seconded veterinarians [255, p. 180]. Also, most of the points were located in vsickages and cities in which there were a large number of livestock.

The results of the activities of the points in the reporting year of 1915 were, as expected, small. According to veterinarians, the novelty of the case, the unwsickingness of the population to use manual mating, led to the fact that bulls were used little, while the costs of arranging points were relatively high. All this led at the agronomic meeting to the decision to reduce the cost of maintaining the points by distributing bulls to the vsickages on certain conditions. As a result, some points under veterinary control were abolished in 1914 [241, p. 161].

Maintaining of the purchased bulls, transferred to the vsickages, often left much to be desired, because the bulls were poorly fed, exhausted by mating, they found the bulls weak [241, p. 162] and the bulls should be larger, because the purchase at the age of one and a half years [244, p. 125] , in other words, the population has not yet learned and sksickfully neither appreciate producers nor use them, which led not only to the expenditure of money, but also to possible disappointments.

Ultimately, the close acquaintance of the tsarist government with nomadic animal husbandry became a meeting of different understandings and different worlds. Subsequently, these relations took on a colonial character, but not because the goal of colonization was defined, the general imperial policy can become colonial in a specific context, when applied to certain conditions. And the subsequent need to "improve" livestock served to justify countless imperial projects. First of all, because it did not fully recognize the value of existing practices. And tried to serve only in the interests of the government. Despite the fact that improved breeds of livestock also needed "improved" conditions of maintenance and operation, to cut hay and switch to new forms of farming.

4 CHANGES IN THE INTERNAL MECHANISMS OF KAZAKH ANIMAL HUSBANDRY

4.1 The new role of sheep in the economy of the Kazakhs

This chapter examines the level of change in the internal mechanisms of Kazakh animal husbandry as a result of imperial structures impact.

N. Masanov, writing his classical work, presented precise parameters for the functioning of nomadic pastoralism among the Kazakhs. According to him, the pastoral pastoralism in the steppe was ecologically determined, and depending on specific natural and social aspects, the types and forms of pastoralism could change, as well as the area and extent of the nomadic system, the speed and intensity of movements, the composition and structure of the flock also could change with living culture, and partly even with the way of life, the technique and technology of pasturing and the organization of the material production system. Thus, the nomadic pastoral economy of any modifications remained the only possible and most optimal way of human livelihood in the conditions of the arid zone of Eurasia [48, p. 73]. Moreover, any external impact on one of the parameters of the functioning of the nomadic production mode could damage not only the entire industry, but also the life of society.

In modern historiography, first of all, this can be seen on the example of European colonialism, where most often the peripheries were perceived as part of the wild, natural world, while the central and western regions portrayed themselves as bearers of civilization and cultural development [1, 2]. Therefore, the center strained to advance and legitimize its rule not in a small measure, but by transforming the entire environment. The American environmental historian, D. Moon, has studied the practices of coping with the vagaries of nature, and environmental changes of the Russian steppes west of the Urals, reaching the Kazakh steppes. The author contends that the growing population of settlers has changed the predominant land use in the steppe region, from pastures to farm fields. In the process of settlement, the latter have removed native plants, wild herbs, and drove away some fauna from the old lands [78, p. 4]. This partially changed the natural environment of the steppe and led to even bigger problems like drought. While the managers themselves saw the problem in the lack of spare water. The main methods to resolve the issue were tree planting, artificial irrigation and agronomy [78, p. 171]. The similar scheme was operated in the Aral Sea region, trying to transform the landscapes of Central Asia using hydraulic projects. The author of "The Impossible Dream", M. Peterson argued that the irrigation of Central Asia by both regimes, represented by the Russian and later Soviet governments, was characterized by their imperialism and a global belief in favor of using modern technologies to control nature [81, p. 3]. At another point, the irrigation methods that led to the shrinking and, by some estimates, the disappearance of the Aral Sea were the result of "imperial arrogance". Hereby, it is appropriate that some researchers from environmental history have dedicated themselves to analyzing the colonialism impact on environment of the peripheral societies.

Thus, in this paragraph, using the example of sheep keeping, it is analyzed how Kazakh sheep keeping gradually began to adapt to the market requirements, as a result of Russian intervention. Such changes ignored the fundamental role of traditional sheep keeping in the culture and economic life of the Kazakhs. Loss of habitat and reduction of migration routes, at the time of the increase in demand for livestock and livestock products have entailed the threat of degradation of this industry and the loss of a key element of culture [348 .

The choice of this industry was due to the significant predominance of sheep in the herd of Kazakhs, which was distinguished by the highest productivity and the greatest adaptability to environmental conditions. Confirmation of this may be the quantitative predominance of one type of livestock over another, which was undoubtedly the result of the economic needs of the population.

	Horses %	Camels %	Cattle %	Sheep %	Goats %
Kokchetav district, 1896 [349, p. 26]	185 527 (31,03%)	646 (0,10%)	105 532 (17,65%)	239 064 (39,99%)	66 967 (11,20%)
Karkaralinsky district, 1898 [350, p. 51]	181 401 (19,37%)	18 641 (1,99%)	94 947 (10,13%)	584 146 (62,38%)	57 245 (6,11%)
Kustanai district, 1899 [197, p. 88]	280 161 (31,21%)	11 129 (1,23%)	206 376 (22,99%)	399 870 (44,55%)	

Table 9. The percentage rating of animal species in the economy of the Kazakh steppe districts (based on the materials of the expedition of F. Shcherbina)

By the end of the 19th century, when the steppe was under imperial power, significant changes took place in Kazakh nomadic animal husbandry. More than a million peasants from the European part of Russia settled in the Kazakh steppe. The response to the challenge of imperial politics, in turn, was the process of adaptation to changing political or environmental conditions [79, p. 43] , which has led to the transformation of the traditional economy of the Kazakhs, namely nomadic pastoralism. But these changes were not easy. If we agree with group of authors that nomadism itself is an adaptation to a certain set of political, social, economic, and physical conditions, then nomadic groups can be considered as participants of deals with many ecological systems, and changes in any of these ecological systems may require new adjustments [351, p. 4].

A.I. Dobrosmyslov describes the importance of animal husbandry as not only the predominant type of economic activity of the Kazakhs in the steppe, but also as a macrocosm that exists for society: "Animal husbandry for the Kazakhs is food, drink, clothes, fuel, lighting, housing, part of housewares, an object of income and barter, a means of transportation and reserve fund, saved for a rainy day" [30, p. 3]. In this regard, the images of animals have always had a positive meaning in the usual way of Kazakh life, which is opposed in Russian culture, where the ram is always “stubborn” and the sheep is “lousy”.

Any steppe animal, including the Kirghiz (Kazakh) sheep, was adapted to the conditions of steppe life and to the requirements of nomadic pastoralism. Nomadism, in its turn, is the adaptation of people to the steppe nature. And the way animal husbandry was perceived by Kazakh people came from the same point: from the steppe nature. The main approach to understanding the nature of the relationship between nature and society in the field of nomadic economy was based on one thing, what we call unity or a special connection, adaptation to a whole range of natural and historical conditions, but the royal power and its "cultural" bearers, assumed it as no more than weak, unstable, deterministic economy. Since it was directly related to nature, in which, due to one accident, "the whole economy could be undermined in a blink" [349, p. 111].

Based on this practice, it is natural that the constant attempts of the royal power to reorganize and replace the various components of traditional animal husbandry contributed to a partial change in the existing system of harmony between men, animals and the environment.

It is fair to say that the noble and most valuable unit that measured wealth and poverty in Kazakh society was the horse – *zhylky*. The horse was an object of study not only in this particular time and space under study, but also had a significant historical presence in folklore, literature, in the works of Western and local researchers, and this is the evidence of its importance as a commodity and it speaks of a special relationship with it, that people have tried to build throughout history [352]. In one of the latest studies on the horse, devoted to the problem of horse-keeping and power in the Kazakh steppe during the period of tsarist and in the course of Soviet rule, the American historian S. McDaniel argues that the reduction of pastures, combined with the changing role of horses in the transitional economy in the steppe, contributed to a reduction in the number of Kazakh people actively engaged in horse breeding [83, p. 44]. This, in turn, contributed to the loss of mobility of the Kazakhs. Although the policy of sedentarization could be not a permanently open issue in practice, however it was a constant and multifaceted feature of Soviet efforts to transform the Kazakh economy and society [83, p. 185]. This process can be compared with the development of sheep-keeping in the steppe.

The main exposing cause of influence on these processes was a significant difference between the royal and Kazakh concepts of the environment, man and animal world. One of these examples is the omission of the factor of the importance of sheep-keeping as the fundamental basis of the Kazakh economy, an industry that ideally suited the harsh natural and climatic conditions of the steppe. Whereas, that entailed the "risk" of degradation of this industry, and the loss of the culture key element. The fact is that the number of the population grew, however the provision of the population with the livestock, especially sheep, decreased. The reduction in sheep breeding and the number of sheep was mainly due to the loss of habitat and the reduction of migration routes. The loss of good grazing areas could be the reason of the decline in its productivity. Again, it has also affected the growth of cattle in the herd, which caused a qualitative change in the composition of the herd. The difference between livestock types attached a completely different importance; one was less tied to social and cultural capital, the other to the economic necessity of commodity-oriented trade.

And the Kazakh sheep keeping, being adapted to the conditions of the steppe life and to the requirements of nomadic pastoralism, was the result of the adaptation of the Kazakh people to the steppe nature.

"The Kirghiz sheep is distinguished by great endurance and the ability to quick fattening, but it must be sksickfully pastured, and the Kirghiz perfectly know the secret of the sensible use of summer and winter pastures, and they also take into account the composition of the vegetation and the degree of its nutritional value according to the seasons," – Ya. V. Benkevich, in one sentence, was able to show what sheep keeping in the steppe is, without whittling away the role of the Kazakh sheep breeder himself, – "after all, the local sheep is not only a product of natural selection, but also human knowledge" [32, p. 57] .

Kazakh sheepherders were clearly, in this sense, an integral part of the steppe. Despite the steppe's varying regional and climatic features, Kazakhs could skillfully adapt to these natural factors, develop their form of sheep keeping, and be in unity with the environment – and these relations were built, in many aspects, through the animals.

Seasonal migration is a key factor in the annual cycle of livestock grazing, and it is the seasonality of the pasture that determines how a particular type of livestock should grazed, how the transition from pastures takes place, what grass to choose and how climate conditions change the place of dwelling. For example, Kazakhs in the north of the steppe regions spent the whole winter, from early October to May, in permanent dwellings of turf, stone, or wood, with hay feeding of livestock. By contrast, southern Kazakhs roamed in winter in pursuit of pastures and lived in felt matted yurts [34, p. 105]. That also affected the sheep keeping. Such seasonal and regional differences were reflected in the practice of sheep keeping that Alikhan Bokeikhanov described for the first time (1904) in his statistical research as part of the economic study of the Siberian railway area led by S. P. Shvetsov. Based on this expedition's materials, A. Bokeikhanov wrote one of the first monographs about the Kirghiz sheep, published in 1904. "[Kazakhs] are perfectly aware of the qualities of different lands and grasses, thus they are perfectly able to use this knowledge, allocating some pastures for cattle, others for horses and sheep," noted Ya.V. Benkevich [32, p. 21]. Choosing to graze livestock over a long or short distance was not at all a matter of laziness.

In this regard A. Alektorov noted when «endless grassy steppes along the Ilek and Uisyl-Kara rivers grow at the service of one, while for another there is the scarce vegetation of desert Kara-Kum and the rest of the Syr-Darya steppes. When one person can not only graze his livestock from early spring to late spring in the same space but even mow this grass for the winter, the other one barely manages to keep his cattle on pasture, driving it a distance of 100 versts" [187, p. 38]. It is in these varieties of natural conditions that the circumstances of adaptation lie.

Therefore, when choosing a pasture, Kazakhs considered its distance from the auyl, reasoning that it should not be far away in case of bad weather and reckoned with the nature of the pasture itself – both fresh forage and alkaline soil [*solontsy*] were needed, as the sheep need to change the grass from fresh food to salt licks. The area also needed to protect from the wind, so that if the flock returning in the evening would go down the wind, not into a wind. As the Kazakh proverb says, "*Aldynan zhel bolgansha, artynan zhau bolsyn*" – "The enemy from behind is better than a headwind"

. In summer, on the contrary, the sheep went into the wind, freeing themselves from insects [197, p. 94].

All winter pastures of the auyl were allocated in advance for each month, week, and even day, and an experienced livestock breeder knew how much area per day the sheep flock of his auyl could graze. Sheep grazing on winter pastures was not just a chaotic process – it had its mechanism. For example, before the snow fell, the sheep were herded throughout the whole pasture "*koibolik*" – the sheep's share, to eat the small, tasty grasses, so that these herbs did not remain under the snow later. Later, sheep chose a larger, less tasty food, which had been neglected until the snow fell when there is a lot of food and there is a choice. After the first snow, the sheep were grazed on the plains, the gorges, and mountain slopes that were covered with snow during winter [34, p. 107]. The area was grazed on one side and the sheep gradually passed to the other part; allowing the sheep to stay on one half of the selected area, the herder guarded the other half, letting them move gradually as the first was depleted. When at a given place all the snow had been turned over and old sheep were seeking for untouched places, it was called "*ak tebin*" – white *tebenevka* [winter grazing] meaning the full use of the pasture; when the snow was only overturned in spots the pasture was called "*ala tebin*" – *motley tebenevka* [winter grazing], indicating incomplete use of the pasture [34, p. 109]. This rational use of pasture for sheep in many respects helped to save the flock, since overgrazing is one of the biggest violations of steppe ecosystems. Overgrazing by sheep and goats was particularly devastating for the steppe. It is interesting that V.G. Mordkovich, in his work on the study of steppe ecosystems, notes "the lack (especially the complete absence) of grazing also leads to negative consequences, one of which is frequent and strong steppe fires, destroying an excess of dry rags instead of missing phytophages (herbivores)" [198, p. 153] .

The livestock breeders also knew their herd well, and at the first glance, they could determine its condition. Usually, if the pasture was good, the sheep grazed wsickingly. In such cases, at long range the flock looked like peas scattered on the floor. In general, it seemed as if it had frozen. An insignificant and hardly noticeable movement of individual animals occurred only within the herd, and in the most diverse directions. The Kazakhs described such grazing of sheep as: "*Koydyn kadalyp, kazbauyrlap toktau, ar zhulgany bir mai bolyp zhatyr*" – "The herd grazes without walking, digging into the ground, while each pinch of grass turns into a fat in the sheep body" [49, p. 561] .Nevertheless, they also knew for certain when the sheep needed to change grass from fresh food to salt licks, which was judged by the abundance of snot that prevented the sheep from breathing and by the feces that broke into separate lumps due to a long stay on fresh pasture [34, p. 108] .

Full immersion in the process and the understanding that animal husbandry, just like sheep keeping, is dependent on nature, contributed to the development of a kind of "philosophical view" on the safety of their herd among livestock breeders – to protect and warn, since the loss and multiplication of livestock was history after that side of reality. Concerning this, the Kazakhs said: "*Maldy zhaz ben kuzde arkim bagady, koktem men қysta malshynyn malshysy bagady*" – "Everyone is ready to graze cattle in summer and autumn, but only an experienced shepherd can take care of the herd in spring and winter".

A characteristic trait of Kazakh sheep keeping was the dominance of ewes in it, as a source of growth in the Kazakh sheep's wealth, striving to increase its herd, by protecting and selecting ewes [34, p. 79]. Protecting the sheep from untimely mating, castrated young rams at 2-3 months old were returned and tied to the ram-sire "*kuek*" – a four-sided piece of felt mat, 8-10 inches long and 5-6 inches wide, with a notch in the upper part, preventing the ram from mating the sheep [34, p. 83]. Then no less important event, like mating. The start of mating in November was chosen at the request of the economy conditions: the sheep gestates five months – "*bes ai, bes kun*", literally meaning five months and five days. Mating in early November, the lambing time fell in early April, when the weather was already warm. Winter with the care of the pasture gradually left and each piece of regenerating land gave shelter to the sheep; during this time, newborn lambs required the least care and were least at risk of death from bad weather [34, p. 84] .

As can be seen from the above, animal husbandry is the centuries-old knowledge and experience of the whole society. Knowledge is valuable because it is useful and applicable to human survival and livelihood. In turn, indigenous knowledge is the set of knowledge, understanding, meaning, interpretation, experience and philosophy of the people. D.R. Katerer have tried to categorize these knowledge systems as indigenous/traditional ecological knowledge, indigenous agricultural knowledge, indigenous meteorology, and indigenous/traditional medicine – this includes pharmacology and medical practice, local herbal medicines and ethno-veterinary medicines [353, p. 6]. Talking about any diseases or unpleasant parasitic enemies of Kazakh sheep, then most often many diseases were prevented by the persistence of the "Kirghiz sheep" developed in the harsh struggle for existence, and secondly, a possible delaying force in the development of the disease was the slaughtering of the most vulnerable to diseases, "*kunali*" – sinners and "*aiypty*" – guilty animals [34, p. 102]. Nevertheless, a whole culture of medical practices developed among the Kazakhs . It seems fair to say that vast experience in diagnostics was the secret of the folk healers' success or the livestock breeders themselves. Timely recognition of dise ased cattle by external and internal signs rarely made it possible to make a mistake in the diagnosis. The most valuable knowledge of the cattle anatomy, which was also applicable in the Kazakh slaughter, where it is sorted into different bones with muscle complexes [34, p. 97] belonging to them, confirms the above-mentioned deep knowledge.

Despite the temporary, and in terms of its scope, territorial and climatic features of the steppe, the "Kirghiz sheep" was able to adapt to a specific steppe environment. Proceeding from the same steppe environment, it could penetrate into all spheres of the relationship between man and steppe nature. It is significant that the winter pasture "*Kystau*" was called "*Koibolik*", that means "the share of the sheep". It is impossible not to see in this the stamp that sheep keeping has left on the Kazakh land life [34, p. 107]. However, this is not all. The predominant color of the Kirghiz sheep is "*boz*" and "*kongr*": the predominance of light, but not white hair in the undercoat, gives the color *"boz*", and the predominance of dark hair in the undercoat, but not black, gives the color "*kongr*"; the combination of both colors of wool gave the most common felt that covers Kazakh yurts, which merge with the surrounding steppe. "Like the Kazakh auyl, its sheep flock drowns in the grey tone of the steppe, comprising part of it. This

similarity of the color of the Kirghiz sheep with that of its homeland inspired the Kazakhs to give the mountains the name "*koitas*", a sheep-stone. Indeed, on "*koitas*", scattered alone and in groups, the stones from some distance appear to be sheep flocks grazing on the slopes of the mountains. This is due to the fact that the color of "*boz*", and especially "*kongr*", is close to the color of the granite and merges with it". It is remarkable how A. Bokeikhanov notes "in this harmony of the color of the Kirghiz sheep with the environment one cannot fail to see the sign of the sheep's adaptation to environmental conditions" [34, p. 75] .

It became clear that the goal of the pastoral society was not to oppose the nature, but to be able to coordinate its interests with it, to understand the basic laws of nature and not contradict it. The nomadic world was perceived as a single whole and the nomadic society felt itself as an integral part of this world, and not its master. V.Ya. Benkevich shared an interesting thought "the Kazakh nomadic economy and the "Kirghiz sheep" form one harmonious whole, mutually adapted to each other" [32, p. 55] .

The fact is that sheep keeping was perceived not just as one of the ways of farm management, in fact, it has pierced all spheres of life and life support of the Kazakh society, fully adapted to the conditions of the steppe life.

Kazakh people said: "*Koiyn mynga zhetse, kolyn shynga zheter*" – "If you have a thousand sheep, you wsick reach the top". The constancy of the percentage of sheep to the rest of the herd, regardless of overall wellbeing, indicated that sheep had the same value to poor and rich households [34, p. 128]. The moment of mass lambing, too, was a moment of general happiness for livestock breeders. The first one who brought a lamb to a yurt received a gift from the lady of the house. She met him with a "*shashu*", saying to the lamb "*mynnyn basy bol*" – "be the beginning of a thousand". The spring time, bringing growth to the flock and opening up vastness of rich pasture, was a special holiday for the Kazakh family [34, p. 86]. People said "*Koiyn bolmasa, bailykta oiyn bolmasyn*" – 'Without a sheep, don't even think about wealth". After all, a sheep was a symbol of stability for Kazakh people.

Stability came with the understanding that a sheep is not only an indicator of wealth but also a symbol of satiety, comfort and warmth. The sheep provided wool for the yurt – the symbol and basis of nomadic life; meat – which was the main food of the Kazakhs; milk – which played an important role in food ration; skin – which was used for clothing and sent to the market, as a commodity; and finally, fuel for the hearth, which is expensive in the steppe [34, p. 123]. The Kazakh economy consumed all products from the slaughter of a sheep and Kazakhs themselves noted, "*Mal osirsen koi osir, onimi bolar kol-kosir*" – "If you breed livestock, then choose only the sheep, because of the abundance of his products".

A.I. Dobrosmyslov worked with veterinary physicians in the Turgai Region for two years to describe the productivity of sheep in the Kazakh economy, and this work is indispensable. According to this study, a good dairy sheep in May in two milkings gave from 6 to 8 tea cups of milk, an average sheep in May usually gave 4-5 cups, and in June and July 2-3 cups a day. Thus, on average, Kazakhs received four glasses of milk from each sheep per day in May, 2 cups in June and July, and up to about 240 cups in total during those three months [30, p. 50].

From this amount of boiled milk, it was possible to obtain: sour milk prepared without adding water – “katyk”, diluting it with water people prepared “airan”, drying “katyk” on reed braids became sheep cheese – “kurt” , strained sour milk – “suzbe”, excess milk was used to make creamy, sweetish cheese – “irimshik”, from pounded irimshik they made a kind of gingerbread called “zhent”, made with butter, sugar, and sometimes honey and raisins, and of course sheep butter – “may” , obtained by beating katyk in a leather bottle [30, p. 51]. Continuing the theme of food supply, it was believed that the best meat after horsemeat in the summer is lamb meat, eaten in the form of boiled lamb “pisken et”, “kuyrdak”, lamb steam or broth, called “sorpa” [30, p. 54]. It is worth adding that all the entrails of the sheep, like the stomach, intestines and others, were primarily for food.

In physical characteristics, the “Kirghiz sheep” was distinguished by its large growth, strong physique, coarse wool, having various colors and a fat bifurcate growth, known as a fat tail – “kuyryk” [30, p. 39]. Rrom this fat tail that, by rendering, fat was obtained, which was used to make home-made lighting lamps – “sham” and soap – “sabyn” [30, p. 55] , and it was also used for ailments for medicinal purposes. Liquid fat “kuyryk mai” was poured into the nose of camels when they suffered from the disease “kumyr” – the nostrils stuck to the nasal septum, also the fat was given to weakened cattle in the spring [34, p. 98]. Kazakh people said: “Maldy baksan koydy bak, may ketpeydi sharadan” – “If you graze the livestock, graze only sheep, and the fat wsick not leave the bowl.”

“Kirghiz (fat-tailed) sheep” was not only a food product, but also a source of material wealth. Sheepskins “koi terisi” were used for fur coats (ishik, ton), fur caps (malakhais) (tymak) and trousers (shalbar), and the excess of wool was sold [30, p. 57]. Sheep wool was sheared twice a year, at the beginning of May and at the end of September. The wool removed in the spring was called “zhabagy”, and the autumn one “kuzem zhun”. Zhabagy was sheared with a whole fleece, it was used to make fur coats (kupi) and blankets (zhabagy-korpe). Almost all autumn wool was used for household needs: to make felts (kiiz), cloth (shekpen), which went to make bags (kapshyk – a small bag and kap – a large bag). People also used the wool to make ropes (arkan) for wagons and other needs [30, p. 53]. In everyday life the Kazakhs also used skins of lambs – “eltiri” – merlushka lambskin, which went to make “borik”, a headdress for adults and “tymak” – fur cap for children [34, p. 99].

It is also worth noting several interesting points where the products of sheep slaughter were used to prepare household items. The sheep's stomach – “karyn” – served as dishes to keep “sary mai” – oil, “suzbe” – filtered “katyk” and kept “airan”, “kymyz” in it. . The shinbone (asykty zhilik) was used to make a “shumek” – a tube inserted between the child's legs to drain urine from his bed. With the sheep anklebone children played the national game “asyk” [34, p. 100] .

And last but not least, due to the absence of forests and other heat sources on the steppe, the production of sheep dung (ki) for burning indicates the critical importance of sheep keeping in the Kazakh life. By comparison, horse dry manure fuel was considered the worst fuel [30, p. 150]. “Ki” from 100 sheep could provide fuel for one household for the whole winter. Having 100 sheep “it was possible not to worship the

Khan himself"– "Khanga salem bermeidi", which meant that the person might not need anything, in this context, fuel for the winter [34, p. 95].

Apart from satisfying everyday needs, Kazakhs could sell some parts of the sheep. Trade in sheep, and the products obtained from them, was carried out in auyls, and later at trade fairs and bazaars. Domestic trade, occurring mainly through exchange trade in auyls, was the most important. G.O. Kalmogorov called this barter trade as "satyn koi", which means selling sheep [354, p. 18]. In fact, a whole system of barter trade was developed, where all animals and all household items had a strictly defined relative value. The exchange unit was a one-year-old ram – "sek" [34, p. 78]. According to A. Bokeikhanov, Kazakh animal husbandry developed a complex nomenclature to designate each type of livestock by its age and economic value. According to it, sheep were divided into 8 groups, in which the "sek" occupied the fifth place. The choice of the ram as the basic unit of calculation in exchange trade was not random. According to G. McGuire, who has studied barter practices in rural areas in southern Kazakhstan, sheep were seen not only as a unit of commodity measurement, but also served as an object of trust, mitigating anxiety, delays and conflicts [355, p. 57].

We hypothesize that this also related to the trade process. Sometimes merchants sold goods with payment delayed for a year, two-three years or more. Both sides benefitted from this arrangement, contrary to expectations and despite such a progressive increase in debt. If a Kazakh owed 20 sheep in the spring of 1850, then in the spring of 1851 he had to pay the debt: one plus one. With the well-being of the herd, which can give offspring in twos, the merchant received 40 rams from the debtor, including the old 20 rams; as a result, he should have had 60 heads in the corral. Conditionally, he had to pay 40 rams for the year of deferment, the remaining 20 rams remained with a bound. At the same time, for all this time, the Kazakh in the aforementioned year had the opportunity to use a ram, receiving wool and milk [354, p. 20]. The sheep served to determine the price of things instead of money, and also constituted the main subject of trade with its neighboring peoples.

Nevertheless, the Kazakh people considered the sheep not only as the main unit of life support of the traditional economy, it permeated all spheres of life of the society, both in material culture, through the symbolism of traditional ornaments, and in a sacred relationship to the sheep, in mythological positive thought, expressed in various kinds of beliefs and prayerful wishes. The sheep was a kind of "microcosm".

A special attitude to the animal world was captured in all genres of culture, folklore and the language of the Kazakhs. The valuable role of livestock was accurately and figuratively reflected in the linguistic consciousness of the Kazakhs, thereby becoming the definition of a national and cultural phenomenon, a kind of ethno-cultural marking [178]. Indeed, phraseological units present the distinctive character of the historical development of the people, spiritual culture, features of the household way, and form stable concepts. In this connection, metaphorical and phraseological phrases associated with cattle began to penetrate more and more frequently, and the images of animals always had a positive connotation.

The sheep, as the main object of the national economy of the Kazakhs, was a symbol of comfort, appeasement, peace and harmony. The image of a sheep was addressed mainly with a positive description of people and life situations, for example,

quiet – “koydan zhuas” – “calmer than a sheep”, peaceful – “koy auznan shop almas” – “the one who wsick not take a blade of grass from a sheep”, meek, shy – “ koydai konyr” – “meek / humble as a sheep” and modest – “semizdikti koi gana koteredi” – “fat is not a burden only for a sheep”. The image of sheep also was used to describe peaceful existence of people: “koy ustine boztorgai zhumyrtkalagan zaman” – "the time when sparrows could lay eggs on sheep” – a period of prosperity, a happy, serene life.

In material culture, the symbolism of the sheep can be found in traditional ornaments, both on household utensils and on carpets, blankets and clothes. When studying Easter egg decorations in rural Romania, V. Glaveanu comes to the conclusion, that ornaments are not only aesthetic, but can also serve as “a marker of everyday life, and everyday life itself would be impossible without signs and patterns”. In her opinion, ornaments help us to identify and locate, tell or communicate, remind and organise our actions, they guide our attention, express and individualize, can generate an experience, beautify as well as re-present [356, p. 82]. This concept can be extended to the Kazakh case. Here, the main and leading motive of the zoomorphic ornament was a stylized image of ram's horns – “koshkar muyiz”, with which the concepts of welfare and prosperity were associated. The Kazakhs have a widely known belief: “Where the bones of a ram or its horns lie, there are no evil spirits, it is the purest animal that appeared before man. It carries a certain vitality, luck and happiness” [183, p. 16].

Mythological positive symbolism is also found in various kinds of beliefs, for example: “for the woman who gave birth, they especially slaughter a white sheep and present “kalzha” – lamb broth, with good wishes. The fact is that it is necessary to expel the whole birth sweat from a new mother, otherwise forty troubles lie in wait for the mother and the baby, and the child of the woman who has not eaten the “kalzha” grows sicky and whiny” [184, p. 105]. The following sounds like this: “The boiled cervical spine of a sheep slaughtered for “kalzha” is cleaned and, strung through the spinal canal on a twig, is suspended above the entrance to the dwelling – so that the newborn’s neck gets stronger faster and the child holds his head” [184, p. 106]. Moreover, such positive symbolism can be seen in samples of Kazakh folk literature, as, for example, in prayerful wishes – “Bata soz”, when one asks the God to show mercy to someone else, out of a sense of personal gratitude to him [176].

One of such examples was recorded in the Baksay volost of the Irgiz district from the words of 100-year-old old man Shokaman Isin, which began with the words: “kudaydyn ozi suyip ondasyn! Bes zhuz saulyk kozdasyn...” – “May God bless you! Let five hundred sheep lamb...” [176, p. 4] or “Aktyly koy, saryly tuyege koran tolgay” – “Let your folds be fsicked with white rams and yellow camels” [176, p. 17] .

Producing and fully using a variety of products obtained from sheep keeping was possible due to a whole complex of well-established measures and knowledge. These are the rational use and choice of pastures, grazing technique and technology, care for sheep, based on knowledge of their biological characteristics and external signs of the state of the flock, and the culture of medical practices – all this together allowed Kazakh sheep-keepers to manage their economy successfully, despite regional and climatic features , natural areas and reliefs of habitats.

The Kazakhs lived according to the conviction: “Malym zhanymnyn sadagasy, zhanym arymnyn sadagasy” – (“Safety of the soul is more valuable than the safety of cattle, and the safety of honor is more valuable than the safety of the soul” / “Cattle is the payment for my own life, and my own life is the payment for my honor”). In the value system of the Kazakhs, cattle hold a valuable place, after honor – “ar” and, of course, “human life”.

The number of livestock also served as a “measure to determine the wealth of the family and the degree of respect” [30, p. 3] that the cattle owner hold among his relatives. The Kazakh society did not need additional knowledge, discoveries, and particularly the improvement of livestock for the purpose of commercialization, for the development of “commercial cattle animal husbandry” [357, p. 63] , or a kind of “technological animal husbandry” [358] .

However, the beginning of the resettlement movement in the Kazakh steppes in the second half of the 19th century did not leave aside interference in the established norms of life and subsistence of the Kazakh society. The new culture and farming were fundamentally different from the old way of life in the steppe.

In the archival materials of the “Ethnographic Bureau”, created in 1897 in St. Petersburg by Prince V.N. Tenishev, to organize and conduct a mass collection of information about the culture and social and economic conditions of life of Russian peasants in the central provinces of European Russia, there are a lot of unique data. There it is possible to find the answer to the most important and practical question about the Russian agriculture characteristic. And the first, of compiled 2500 questions of the “Program of Ethnographic Information about the Peasants in Central Russia,” sounded like “What does the land give to the peasants” [359, p. 16] .

According to correspondents from different uezds (districts) and provinces, the most often ideas indicated about sowing crops – rye, oats, wheat, buckwheat and potatoes [360, p. 60]. There follow next: “The peasants keep few cattle, as a result they are not able to manure the fields, and therefore the harvest is getting smaller every year. Peasants keep horses on which they perform various household chores. Cows, from which they use milk, sheep, from which they obtain wool, and if there is an excess in bread, they sometimes slaughter them for their own use. Peasants fatten pigs only for own use, unless severe need wsick force them to sell the pig that they fed for themselves, at least on a holiday to find out the taste of meat food [359, p. 16] .

It follows that animal husbandry hold an auxiliary character for the agricultural economy, providing it with draught power and fertilizer, and if it is possible, with milk, meat and wool. M.M. Gromyko, who studied the traditional forms of life of the Russian peasantry in the 19th-20th centuries, also notes that, in the view of Russian people closely connected animal husbandry with agriculture, and the peasants saw the “first benefit” [239, p. 305] from keeping livestock in obtaining manure to fertilize the fields.

Thus, it becomes clear that the basis of the economy of the Russian peasantry was agriculture, and in order to “successfully carry out the entire cycle of work from sowing to harvest in various crops, they took care of livestock at the same time, without which the Russian grain grower could not imagine his economy” [239, p. 305]. It is quite natural that the role of cattle for the production of manure or the horse as a draught

force for the export of fertilizer, ploughing, harrowing, planting crops, transporting harvested crops and other things were especially important in agricultural production.

As for sheep, the main purpose of keeping them was to obtain wool, sheepskins and meat. However, a special interest in sheep keeping began to appear only in the twenties of the XIX century, in the form of "industrial reproduction" of the flock [361, p. 186] , that is, fine-fleeced or merino sheep keeping. Despite, based on the ratio of sheep in the difference [361, p. 190] , merino, fine-fleeced wool was valued above coarse wool, the latter, prevailed and was a more important raw material for home, handicraft, and factory industries. First of all, of course, the sheep wool was used for manufacturing short fur coats and sheepskin coats, clothes that are irreplaceable in the conditions of frosty Russian winters. In Buisk district, Kostroma province: "Each peasant of average prosperity has a horse, one or two cows, almost all keep sheep, from the latter they mainly use wool; the vsickage has its own felted boots fullers, they make felt and weave thick fabrics of gray, black and brown caftans" [360, p. 26]. The cultivation of sheep in order to obtain meat can be placed only on the third place. According to A.V. Ostrovsky, perhaps it is the low demand for lamb that explains why the issue of the live and slaughter weight of sheep bred in European Russia is almost not studied [361, p. 206]. Also he quotes from the work of P.N. Kuleshev: "It is no exaggeration to say that 4/5 of Russia thinks that lamb is a bad meat and that a person of any wealth wsick not eat it" [361, p. 205] .

This was reflected both in the linguistic consciousness and in the Russian cultural space, in which the sheep – "ram" is an animal which is extremely ssicky, meek, silently subordinate to fate, but also distinguished by "dumb" stubbornness. There are no less categorical expressions, such as "black sheep" – often used when talking about a person who has a bad influence and such proverbs as: "one scabby sheep wsick mar a whole flock" or "even a mangy/ragged sheep is good for a little wool" [362, p. 89]. If the first one means "a weak link that needs to be got rid of", then the second proverb speaks of "insignificant benefit/benefit that can stsick be obtained from a disadvantageous business". The general negative meaning of a sheep features, the attitude towards it as a "lousy", "tattered", is complemented by no less similar phraseological unit in relation to it, like a "sheeple" (flock of sheep), in the sense of an unorganized crowd, about people who follow anyone blindly, without reasoning [363]. The expressions used in the same meaning were "looking like a ram at a new gate" – stared confusedly, was stumped, faced with something new, unexpected and "not a ram sneezed" – not a trifle, but something significant, important, which should be reckoned and considered. Everything that was associated with a sheep-ram or pointed to any components of the connection had a negative connotation.

However, by the first half of the 19th century, the Russian Empire had a very significant economic potential. And the dynamics of industrial growth was undoubtedly influenced by both territorial expansion and an increase in population, as well as the improvement of the transport system, which also contributed to the establishment and development of industry. This process found its expression in the development of textile, including cloth production, which stimulated the growth in demand for wool and led to the development of commercial sheep keeping. Sheep

keeping, which played an insignificant role both in peasant and privately owned farms, became one of the significant economic concerns.

The importance of the development and rapid growth of sheep keeping in European Russia, especially fine-fleeced, was dictated by the rapid development of the Russian wool processing industry. In 1871, there were 40 wool-processing factories in Russia, 248 wool-weaving factories, 510 cloth factories, and a total of 798 enterprises, employing 110 thousand workers and manufacturing goods worth 66.6 million rubles. In addition, Russia had 10 more wool-processing enterprises in Finland, 531 in Privislansky region (modern Poland and adjacent territories), 5 steam manufacturers with a production for 326 thousand rubles. By 1880, felt was produced at 48 factories with an annual output of 787 tons of products. In Tsarist Russia at the end of the nineteenth century, processing of fiber materials totalled 33.3% in the industry employment, 22.8% – in food production, 24.8% – in mining and metalworking [211, p. 25]. Thus, among other areas of production, the manufacturing hold the first place. Later, the North Caucasus served as the main raw material base for the wool industry in Russia, where there was land and the number of Merino sheep grew steadily. By the end of the 90s, it gradually shifted to the territories of South-Western Siberia and the Kazakh steppes [211, p. 31]. Perhaps one of the main reasons for the course shift of such important industry was the reduction of meadow pastures in the interior provinces by 80% or in 5 times, as well as an increase in rental prices by almost 7 times, as a result of which the cost of grazing per sheep increased by 3 times from 1881 to 1913 [361, p. 273]. While the lands in Central Asia, Siberia and the Caucasus provided cheap pastures, plentiful cheap hay and straw.

According to A.V. Ostrovsky, perhaps this process also have been influenced by the crisis of extensive agriculture, that is, the decline in animal husbandry [361, p. 283]. One of its displaying was the reduction in the provision of the population with livestock and livestock products. This problem began to be recognized by the government, it was discussed in zemstvo assemblies, in commissions, in agricultural societies, in special and general publications. At the beginning of 1902, there was created “Special Meeting” on the needs of the agricultural industry, which was headed by the Minister of Finance S.Yu. Witte. As a result of the work of the “Special meeting”, there was collected rich material on the situation and needs in the pre-revolutionary Russian countryside, including the state of animal husbandry [364]. General concern was expressed by the fact that from the “exporter of livestock products at the turn of the XIX-XX centuries Russia has become its importer .

This was especially clearly expressed in the sheep keeping industry, since initially sheep keeping arose in Russia as a commodity. By 1890, the import of wool and woolen goods exceeded the export of wool by more than 6 times. Returning to data: “From 1888 to 1892, raw wool, woolen tape, yarn and woolen products were imported annually from abroad for 2,336,100 rubles, and coarse and merino wool was exported from Russia for 16,636,000 rubles a year. Therefore, imports exceeded exports at 6,725,000 rubles; in the period from 1893 to 1903, all the above woolen goods were imported into Russia for 35,793,000 rubles, and coarse and merino wool was exported for only 7,145,000 rubles a year, that is, on average, imports exceeded exports at 28,648,000 rubles per year” [361, p. 330]. Further, it can be seen that this process was

longstanding: “In 1906, wool and yarn were imported for almost 40 million rubles and in 1910– for 54 million rubles” [365, p. 15]. It is obvious, that the special interest of the center in using Kazakh steppes as a raw material base for the agricultural industry due to the domestic demand for marketable livestock products has always remained relevant.

Every year the number of imported animal products from the steppe to the provinces and markets of European Russia increased.

№	Reporting year	Veterinary station	Was sent to	The number of animal products				
				horse skin	cattle skin	camel skins (pcs)/ wool (pood)	sheep skins (pcs)/ wool (pood)	goat skins (pcs)/ wool (pood)
1	1891 [336]	at the Berdyansk River, in the №1 auyl of Burtinskaya volost, Iletsk district (Aktobe), Turgai region	Orenburg	28 651	37 654	18 635/ 84 225	770 699 / 176 276	219 661 / 5447
2	1892 [367]	at the Karabutak fort	Orenburg and Orsk	33 528	19 066	12 983 / 31 298	485 264 / 91 775	92 495 / 4804
3	1894 [368]	at Turgai region, points of Berdyansk, Tomar-Utkul, and Kustanai	Orenburg and other provinces of European Russia	60 800	11 8066	25 838/ 115 108	746 570 / 220 456	176 330 / 5144
4	1895 [369]			59 975	113 523	26 878/ 117 193	496 855/ 274 327	237 932/ 4091
5	1900 [370, p. 20]	at Turgai region, points of Berdyansk, Tomar-Utkul, and Kustanai	Orenburg and other provinces of European Russia	89 331	162 791	49 325/ 114 580	670 048/ 222 347	287 099/ 1427

Table 10. The number of sent animal products.

Presented in the table annual increase in animal products, brought to the inner provinces of Russia, especially sheep products can be an affirmative argument of the importance of sheep for the Russian market and industry, both fine-fleeced and coarse-wooled sheep.

The success of sheep keeping development as an industrial sector, and then its crisis, as well as the decline in animal husbandry in European Russia had a significant impact on the further development of Kazakh sheep keeping and animal husbandry in general. All post-reform literature devoted to this industry considered the lack of pastures and fodder as the main reason of this decline [361, p. 383-388] .

The problem of lack of land also worried the government about the issue of "small-land peasants" in the inner provinces of Russia, not counting the solution of the most important "geopolitical, economic, national tasks" entrusted to the resettlement movement [371, p. 25]. In both cases the problem was solvable by shifting the industry or resettlement of peasants to the imperial outskirts. A complex, heterogeneous migration flow has become a process of "acquisition" of new space [371, p. 245]. Settlers society, whether dominant or not, was invading and transformative.

The first systematic resettlement of peasants to the Semirechensk and Syr-Darya regions, which later extended to the Steppe Territory, were continued by spontaneous resettlements of the peasants themselves [272, p. 106-116]. For example, before the new city of Kustanai was created, the military governor planned to allocate an area of 13,300 desiatinas of land for the city, on both banks of the Tobol, including 10,000 desiatinas for the formation of an agricultural vsickage near the city, numbering only 1,000 men. In addition, the Kazakhs of the Ara-Karagay volost had to resettle 71 wagons from the right bank of the Tobol, with which the Kazakh population did not agree [373, p. 3]. Despite the convened volost congress, and the petitions of the Kazakhs to reduce the number of settlers, and to cede land of only the left bank, where at least there was not a single wintering place, and therefore no one would have to be evicted [373, p. 3] , this decision did not satisfy the regional administration. By June 17, 1881, a judgment was drawn up on the cession of a land within the boundaries outlined by the administration, on both sides of the Tobol [373, p. 5]. Nevertheless, this was aggravated by the fact that the administration was completely unable to stop or at least reduce the influx of migrants to the city of Kustanai. The continuous movement of settlers resulted in the fact that the land in use of the city and the settlements that arose with it increased to 41,000 desiatinas [373, p. 8] .

Loss of habitat and reduction of migration routes led to the process of decreasing the number of livestock. The population grew, but the supply of livestock, especially sheep, also decreased.

In Turgai region, by 1878 for 317,160 people of the nomadic population [374, p. 7] , there were 2,145,840 sheep [374, p. 5] , making 35 sheep per wagon/farm. Already by 1912, there were 1,353,535 heads of sheep [255, p. 30] for 480,569 people [255, p. 16] , and 15 sheep per wagon/farm. This can be added by following data. The ratio of the growth of sheep of the sedentary population to the nomadic, from 1900 to 1912, is designated 76% to 28% in favor of the sedentary population: in 1900, the sedentary population had 25,226 sheep , and by 1912 – 106,813 sheep [255, p. 30]. At the same time, the nomadic population by 1900 had 966,488 heads of sheep [370, p. 17] , and by 1912 increased to 1,353,535 [255, p. 30]. However, the growth of the nomadic population was only 28% against the growth of the settled population.

The settlers, in turn, began to increase their own economy, by breeding their Russian sheep with the "Kirghiz sheep", or trying to raise other breeds of sheep,

thereby capturing more pasture areas. The government really provided all kinds of support in an attempt to breed fine-fleeced sheep in the steppe [375]. People habituated to cultivated cattle refused the coarse-wooled Kirghiz sheep [32, p. 34]. And recommendations, and veterinary reports more and more often noted that there should be an improvement in livestock, by mating with more necessary, in their opinion, breeds of livestock. However, of course, these "improvements" concerned only Russian interest, which was caused, for example, by the need for fine, soft wool for sale, which the "Kirghiz sheep" could not provide. At that time, for Kazakh people, it was more important to have a good sire ram, which had a sickle nose, a wide back, thick legs, a wide chest, a large fat tail and thick wool . Traditional Kazakh economy did not consider as the primary goal that "improvement of animal husbandry" [338, p. 69; 97, p. 117] , which the settlers aspired to, on the example of the transition to intensity.

Different views between the settled and nomadic people existed in many other things. The ways of keeping livestock in winter and summer, especially in winter, caused great concern, and the Kazakhs were often blamed for the carelessness. It was said: "Is it difficult to arrange, where necessary, special premises for driving cattle at night? [156, p. 3] " . But according to Kazakh people, they make fenced facilities to livestock not for th convenience, and not because they were not sure that the cattle would not endure the winter – rather, that with the warmth delivered by the animals, they slowly lose weight, require less food and do not have to go far from wintering [23, p. 47] .

New practices of settlers have largely changed the reality and purposefulness of animal husbandry in the steppe. Their vision, practices and, most importantly, the main goal in breeding of any type of the livestock were completely different from what foundations laid in steppe animal husbandry. They considered haymaking as the main problem of all troubles in the steppe, although despite the regional division and diversity, where the steppes were divided into common southern and northern parts, their attitude to haymaking was almost the same in all its parts. In case of the Kazakh practice, in the north it was possible to make significant stocks of hay, and livestock breeders could provide feed for the livestock in their stall for the whole winter, but to thee south there were less lands fit for haymaking, but since there were shallow snow packs in the south, it was more possible to do without hay supplies [376, p. 21]. Nevertheless, this was ignored from the outside, and the calls to prepare hay for the winter were not entirely clear to the Kazakhs of the southern region, if not impossible. For example, according to the Kazakhs of Kustanai district, sheep are better bred with a nomadic lifestyle, when they eat pasture all year round, while feeding the sheep with hay made them less productive, sheep gave less milk and wool, and was less fertile – they lambed twins less [197, p. 92]. This also applied to the "feeding up" of fat, if the pasture conditions were not the best, the sheep could grow less fat.

With the development of the railways and sales, appearing of hayfields and beginning of agriculture evolving as well as with the decline in the land use, "the Kazakhs could neither remain as they were, nor return to their usual way of life" [338, p. 72]. In turn, the knowledge and experience of the people themselves were passively ignored or actively challenged as an obstacle to rational progress [64, p. 116] .

Undoubtedly, the way of life largely depends on the habitat and geographical conditions, and the environment "located at the junction of the most diverse geographical zones, distinguished by an extraordinary variety of geophysical and natural and climatic conditions and representing a rather complex and at the same time integral ecosystem" [377, p. 14] , – the steppe, and nomadic pastoralism, as a fundamental form of farming, has legally become a form of human adaptation to difficult geographical conditions.

Traditional Kazakh sheep keeping was perceived not just as one of the ways of farm management, it permeated all spheres of society, and was captured in all genres of culture, folklore and Kazakh language. A different understanding and attitude towards the culture of animal husbandry itself, and o its main attribute -the cattle, represents the main difference between the worldview of the confronted societies. The Kazakhs addressed to the image of a sheep mainly with a positive description of people and life situations, which is opposed to Russian culture. Sheep, as the main object of the national economy of Kazakh economy, was a symbol of comfort, conciliation, peace and harmony, as well as a source of material wealth and a food commodity.

But the attitude of the center to the maintenance of livestock in the steppe, and the attitude towards the latter, in particular sheep keeping, as a weak, unstable system of economy, was due to the underestimation of the objectively complex and specific type of economy. The center tried in every possible way to save the primitive farming from natural disasters, by solving the issue of haymaking and corrals, regardless of the natural and climatic conditions of the steppe, improving the sheep, through crossing with other breeds of sheep. However, they did not take into account the ability of sheep to live in a harsh climate and the needs of the Kazakhs themselves in this breed of sheep.

The denial and omission of the importance of the development of Kazakh sheep keeping, as a result, caused the "risk" of degradation of this industry and the loss of a culture key element. This was primarily due to the fact that sheep keeping, in most cases did not deliver any products for sale and, therefore, with almost no role in the monetary budget of the Russian peasant, only supplied the latter with household material, wool and sheepskin for clothes and meat for food – had a diametrically opposite perception. For the Russian society, the social and economic conditionality of the development of sheep keeping had great importance. Whereas for the Kazakh society, sheep keeping literally completely enveloped and covered the Kazakh economy, and also had a sacred meaning in the system of knowledge and worldview ideas. It was important to preserve this created microcosm.

This process of "ignoring" was supplemented by a large flow of migrations of peasant-settlers and the emergence of railway lines and, accordingly, railway stations, also reduced the nomadism area and caused the emergence of settled settlements, where trade, marketing and supply of raw materials have become an important component in the changing economic life of Kazakh people, due to the increase in the sale of livestock and animal products. An important component in this complex process of re-adaptation to the conditions of a new ecological niche was the cattle. The different composition of the herd caused different ways of using the pasture, and a new element for the Kazakh steppes – hayfield meadows, which in its turn created "diverse forms

of land use" [197, p. 3] and farming. Based on this, the inevitability of a rapid and radical change in the pastoral life of the Kazakh population, with resettlement and because of a reduction in the size of nomadism and the closure of nomadic routes, contributed to the process of a qualitative change in the herd structure. The intervention of the Russian Empire in the sheep keeping system is a vivid symbol of how, by changing small structures, it is possible to trace the change in existing systems and the irreversibility of these processes.

4.2 Increasing the percentage share of cattle in the economy of the Kazakhs

In 1877, in one of the vsickages of the Chingil volost of the Irgiz district, Kazakh children, who saw for the first time a cow brought to them for wintering from Aktubinsk district, ran to their elders screaming to announce the extraordinary news that a horse with four ears, with two of which were very large, had been brought to them. Of course, it is clear that the horns of a cow were mistaken for ears of the horse, never before seen by children, where one or two wagon owners in the whole volost had one or two heads of cattle [30, p. 171]. And not so much time wsick pass as from the beginning of the process of resettlement of peasants in the lands of the Kazakh steppes, and with the subsequent development of agriculture, there was a sharp change in the life and economy of the Kazakh society. First of all, the size of summer migrations decreased and, secondly, winter migrations were almost completely terminated, as a result of which the need arose to acquire permanent winter pastures with hayfield meadows, and the need in qualitative change in the composition of the herd was outlined.

Placing domestic animals, in particular cattle, in the process of colonization of the Kazakh steppe, this paragraph examines how the attitude towards domestic animals, the herd structure and cattle became the key factor in the cultural collision between Russian settlers and Kazakhs.

The development of settled lifestyle, according to the testimony of A. Dobrosmyslov on the example of the Turgai region, "gave the opportunity" to the Kazakhs of the southern districts to grow cattle, and in the northern – to breed it in large sizes [30, p. 171]. The inevitability of a rapid and radical change in the pastoral life of the Kazakh population, with resettlement and because of a reduction in the size of nomadism and the closure of nomadic routes, contributed to the process of a qualitative change in the herd structure, which in turn changed the traditional way of life of Kazakh livestock breeders. Livestock allowed the settlers to expand their dominance in the steppe with amazing speed and thoroughness. Different way of life had a different impact on the environment, changed it and itself in different ways, my amending the stable triad of nature-human-animal connection in the steppe space.

The habitat was one of the most important factors in determining the dynamics of the pastoral economy development. This was caused by the fact that the natural and climatic conditions of the Kazakh steppes determined the nature and main directions of the material production system, the structure of economic activities, and the economic potential of the Kazakh nomadic society [48, p. 64]. The latter was

interestingly reflected in the conditions of the formation of the herd composition at certain farms, since it also influenced the ability to use and master this advantage: in a qualitative and quantitative understanding of the livestock diversity.

Thanks to the inspections of certain people, as well as from the studies of statistical and research expeditions, the features of the life support of the Kazakhs can be tracked. One of these important aspects were the multiplicity and indisputability of the fact of the dependence of the herd structure on economic level of its owner. So, the district veterinarian of the Syr-Darya region S.S. Zdzenitsky noted that "the richer the household, the relatively less it contains cattle, goats and camels; on the contrary, horses and sheep, playing a secondary role among the poor, occupy a dominant position in the herds of the rich people" [378, p. 4]. The reason for this is that "a wealthy nomad seeks to breed herds of horses and make huge journeys in the steppe on horseback. Camels, on the other hand, are the property of the poorer class of the population, who engaged in the transportation of heavy goods between trade centers. Goats are also bred by the poor, in areas where pastures cannot be used by other animals due to inaccessibility. Sheep are available in almost all farms and hold the most important place.

Further, according to the data of the Petropavlovsky district, Akmola region, the table demonstrates a decrease as the quality of life and change of the herd structure in various sections of the Kazakh population, through the grouping to various economic groups of farms by researchers. Indicators are a number per household.

Designation of farm groups	A number per 1 household			
	Horses	Cattle	Sheep	Goats
I. Without horses	-	3,6	1,1	0,7
II. With 1 horse	1,0	4,1	1,0	0,9
III. Having 2-3 horses	2,7	5,4	3,6	1,7
IV. Having 4-5 horses	5,4	6,6	6,8	2,1
V. Having 6-7 horses	8,2	7,8	11,2	2,6
VI. Having 8-10 horses	11,3	9,2	15,8	2,7
VII. Having 11-15 horses	16,2	11,7	24,4	3,6
VIII. 16-25 horses	25,3	15,1	32,4	4,5
IX. 26-35 horses	38,0	19,1	41,5	4,5
X. 36-50 horses	52,4	24,6	54,4	5,9
XI. 51-100 horses	87,3	33,7	77,2	7,8
XII. More tha 100 horses.	220,0	50,9	114,0	7,0

Table 11. The herd structure of economic groups of the Petropavlovsky district, different in their property position (based on the materials of the expedition of F. Shcherbina)

Thus, groups I-VI were determined as poor farms and had from 1 to 5 horses, medium-sized households VII-VIII with 6-25 horses, and farms above the average from IX to XII with over 100 horses. Taking the average of all groups and numbers

that one farm of each type of cattle had, shows the following [379, p, 130]. In groups of poor households, for example, II – with 1 horse: horses 1,0; cattle 4,1; sheep 1,0. While in medium-sized farms, the dynamics of indicators have changed, in group VII – with 11-15 horses: horses – 16,2; cattle – 11,7; sheep – 24,4. Finally in wealthy households having 35 and more heads of horses: horses – 52,4; cattle – 24,6; sheep – 54,4. With the wellbeing increase, that is, as the total number of cattle in various groups increased, the structure of the herd was changed sharply. Horses and sheep prevailed in the herd of wealthy farms, when the cattle prevailed in the herd of the poor households. The indicators show that the percentage of cattle was invariably reduced in each of the subsequent economic groups, located vertically, according to the degree of their wellbeing, while the percentage of horses also invariably increased.

This situation was relevant for almost all districts of the Kazakh steppe. We can take another example of the digital indicators analysis of the of Kazalinsky district in the Syr-Darya region.

Designation of farm groups	A number per 1 household				The number of households in %	
	Horses	Cattle	Sheep and goats	Camels	sowing	nomadic
I. Without horses	-	0,96	1,79	2,58	35,78	40,64
II. With 1 horse	0,99	1,67	2,92	3,09	59,27	34,32
III. Having 2-3 horses	2,18	2,35	5,86	5,59	58,94	42,88
IV. Having 4-5 horses	4,07	2,68	9,00	8,07	44,91	57,44
V. Having 6-8 horses	5,87	2,21	8,61	8,47	38,67	63,43
VI. Having 9-13 horses	8,04	2,95	13,27	10,33	31,99	72,53
VII. 14-23 horses	14,02	2,35	18,51	13,01	24,50	79,22
VIII. 24-50 horses	24,82	3,66	26,11	17,04	24,62	84,75
IX. More than 50 horses	66,40	9,08	63,58	38,49	21,21	92,93

Table 12. The structure of the herd of economic groups of the Kazalinsky district, different in their property position (based on the materials of the expedition of F. Shcherbina)

The horse in this area was also the most stable of all types of livestock, a solid element in the pastoral economy and this district, can be recognized as the most accurate indicator of the general prosperity of the nomadic population. According to this district data, in group II – with 1 horse: horses – 1; cattle – 1,67; sheep and goats 2,92. In medium-sized farms, the dynamics also changed, group VI – 9 to 13 horses: 8,64 horses; cattle – 2,21; sheep and goats 13,27. And finally, in wealthy households from 35 and more heads of horses: horses – 66,40; cattle – 9,08; sheep and goats – 63,58 [380, p. 51]. It was also due to the number of nomadic farms in proportion to the

wealth of various groups, where it steadily increased, and “the number of sowing farms by groups decreases in ascending order”. If sowers in group II accounted for 59,27%, nomads 34,32%; in group VI sowing were 31,99% and nomadic – 72,53%; in wealthy farms: sowing – 21,21% and nomadic – 92,93% [380, p. 51] .

Designation of farm groups	A number per 1 household			
	Horses	Cattle	Sheep and goats	Camels
I. Without horses	-	68,3	14	17,7
II. With 1-й horse	23,1	60,1	10,7	6,1
III. Having 2-5 horses	36,7	44,3	14,3	4,5
IV. Having 6-10 horses	47.6	32,1	15,9	4,4
V. 11-25 horses	52,9	25,4	17,3	4,4
VI. 25-50 horses	56,8	21,7	17,2	4,3
VII. 51-100 horses	60	18,1	16,6	5,1
VIII. 101-300 horses	65,6	16	13,8	4,6
IX. More than 300	69,1	14,2	10,2	6,5

Table 13. The structure of the herd of economic groups of the Kustanai district, different in their property position (based on the materials of the expedition of F. Shcherbina)

According to the last table on the Kustanai district, it is clear that the richer the farm with horses or, the more it was provided by livestock, the greater the percentage horses and the less cattle in this herd. Starting from the second group, the percentage of horses gradually increased in all groups to the last inclusive. The smallest percentage of cattle amounted to the farms of the last group with over 300 horses [197, p. 90] .

This coherence between the economic state of the household and the nature of the activity of the farm itself also had a significant role in changing cattle species among Kazakhs. First of all, this is due to the natural and climatic and geophysical conditions of the steppe, characterizing special features and properties for the breeding of animal husbandry. For example, cattle could hold a small place in the farm, since it was not adapted to the conditions of year-round grazing and especially to extracting feed from under the snow in winter. After all, the natural and climatic difference in the steppes is colossal. And, no matter how large cattle are feeding and undemanding to the fodder, nevertheless, in winter, it demanded stable keeping. It was an excessive task to feed several hundred heads of cattle for 5-6 winter months with hay or straw.

Thus, cattle, whose importance increased with the development of settled agriculture, in connection with resettlement and the reduction of nomadism, became a symbol of the decline in the pastoral economy and its well-being. Since cattle were

bred in relatively small numbers, poor Kazakh families, who were not able to have additional livestock, depending on natural and climatic conditions or external effects, subsequently it lead to the loss of their farm. The Kazakhs said: “Dunieden kasieti ketse, siyr pul bolar”, which translated as “If holiness leaves this world, the cow wsick become a value”.

At the same time, for the resettled peasant population, cattle was a “constant source of material wealth” [381, p. 33] , which was also a symbol of fertility and prosperity . The set expression “cow in the yard is foodstuff on the table”, had of positive maning in the national corps of the Russian language [381, p. 33] .

The understanding and worldview of the two societies of the importance of cattle was initially dissimilar. Primarily, this was reflected in the linguistic consciousness of both Kazakh society and Russian accurately and figuratively. In a ɔcertain sense, it alsoɔ has a negative connotation in the mythological thought and the “life support culture” [273, p. 62] of the Kazakhs.

A.I. Dobrosmyslov exploring animall husbandry in the Turgai region, in particular, paying attention to each type of cattle, noted that the Kazakhs called the cattle “Kara Mal”, “Sasyk Mal”, “Jaman Mal”, “Pshuk Mal”, which means “ssicky”, “smelly”, “bad”, “snub cattle”. And these names demonstrate how not so long ago the cattle was unpopular among the Kazakhs; very few people bred cattle, and only the inhabitants of the Northern districts, as Kustanai and Aktubinsk, the Kazakhs of the Irgiz and Turgai districts almost did not have cattle at all, and refused to consider it as useful domestic animals [30, p. 170]. The above mentioned phraseological combinations and sets perfectly reflected the traditional system of knowledge of the people, who were collateral native speaker of the language about man, society, and nature [383, p. 61]. In fact, phraseological units presenting the identity of the historical development of the people, the features of the household structure, formed stable concepts. It is necessary to note separately the meaning of the phraseological combination – “kara small”, in direct translation meaning “black cattle”.

In fact, a “black” color naming in the Kazakh language has a symbolic meaning. Black is one of the colors in the Kazakh language, which has many figurative, conditional, symbolic meanings. Combining with many namings with the meaning of things, phenomena and activity, the word black was the basis of the creation of symbols [383, p. 61]. This is evidenced by a large number of phraseological combinations found in the dictionary: kara zher, kara kuz, kara kazak, kara kazan, kara orman, kara sirak, kara taban, kara tanu, kara shanyrak, kara soz [180, p. 117-118]. Due to this, the semantic field of black color in the Kazakh language can be distributed in the following meanings: a sign of trouble, a sign of cruelty, a sign of championship, a sign of holiness, a sign of simplicity, a sign of grief, a sign of the majority [384]. Positive semantics of black color in the Kazakh language prevails, in this sense we choose 2 phrases: “kara shanyrak” and “kara kazakh”. “Kara shanyrak” – literally “black shanyrak (carcass of yurt)”, was used in the meaning of the respected and well-regarded house of the ancestors, and their direct descendants [180, p. 118]. In the case of “kara kazakh”-in the translation “black Kazakh”, most often used in the meaning of the Kazakh commoner [180, p. 117] as well as with the phrase “kara halyk”- simple people, commonalty. In this sense, the word “kara mal” should have been used in the meaning

of “simple livestock” or “livestock of common people”. The horse was not included in this naming. As previously noted that the horse was a symbol of prosperity and wealth. In the same sense, “kara mal” was mentioned during the description of the pasture regions of the Semipalatinsk district in Semipalatinsk region. “Boskaragan (boxthorn) goes to livestock feed: it is fed to“karamal” to the cattle (camels, cattle and sheep) to the root, or it is taken as a surrogate of hay” [386, p. 5] .

The attitude of the Kazakhs to the cattle – “siyr” in everyday life, was caused by the fact that it was considered a less useful and productive domestic animal. Bulls, as a labor force, could not be used in everyday life, because the carrying trade was then performed exclusively on camels, agriculture was not developed on a large scale, cow's milk and all the products obtained from it could always be replaced in winter with horse and sheep meat [30, p. 170]. And due to the fact that cattle with a low coat needed special care, they needed warm premises and were unable to bear long transitions and arid deserts.

A lot of examples of phrases used in relation to cattle in everyday life have a certain expostulatory and negative connotation. The image of a cow was addressed mainly with a negative characterization of people: people with a negative, unpleasant character were called “Siyr minez” – “cow character”; stubborn and capricious people were described as “Siyr tektes” – “similar/ like a cow”. As well as this negative connotation can be seen in describing life situations: “Siyrdyn buiregindei bytyrady” – “To crumble like a cow's kidney” in the sense of being divided, disintegrated, losing peace; “Siyr kuyymshaktatu” – with a literal translation “Turn (something) into a cow's sacrum”, which meant “be in a state of uncertainty” or “hang in the air” [180, p. 158] ; “Kashpagan kara siyrdyn uyzyna karatty”, is a more semantic and complex phraseological expression, in direct translation it sounds like “Wait until colostrum appears in a non-mating cow. While a non-mating cow does not calve, which means it is used in the meaning of false hopes, self-delusion or “fooling around” someone else.

This attitude consistently shifted to mythological negative symbolism, found in various kinds of beliefs or in examples of farewell and memorial rituals, for example: “a bad omen if a cow rubs against a house”, the following sounds like “if a cow roars at night, then expect a trouble” or “if several cows roar together, then pestilence may come upon the cattle”. In religious beliefs in farewell and memorial rituals, the choice of cattle for slaughter is of great importance, due to the animistic representation of the Kazakhs, it is clearly manifested in funeral rites that are performed on the seventh day, fortieth day and a year after death. Depending on the species, the slaughtered animal for the annual commemoration, called “zhyly” or “as”, the Kazakhs spoke about the descendants of the deceased: “Akesin atka mingizip zhiberipti” – “Father on the horse was sent”, or “Akesin siyrga mingizip zhiberipti” – “Father on the cow was sent”. The latter has a shade of mockery or irony [60, p. 117]. Kazakhs always tried to erect a horse for annual commemoration.

According to A.I. Dobrosmyslov, the Kazakhs cut relatively few cattle into meat. In the summer, cattle were killed only by need: at weddings, funerals of the poor who are not able to slaughter the horse [30, p. 196]. The main slaughter of cattle for meat was carried out in the fall during a slaughtering (sogum), but even at that time it was killed, relatively little. It is interesting that “the Kazakhs did not particularly love cattle

meat and gave it to guests only in case of emergency, always with great apologies: to treat the guest with beef, when there was a supply of horses and lamb seemed the acme of obscenity. Cattle meat was eaten by a family, without strangers" [30, p. 196] .

The need to highlight the description of the structure of the life-supporting parameters of the economic and cultural activities of the Kazakhs prompts us to identify one more, but undoubtedly important aspect, already in the legal culture of the Kazakhs, associated specifically with cattle. In the field of traditional customary rights, there is one of the main categories – punishments. That is, a legal measure applied to a person guilty of actions contrary to social norms. Types of punishments are divided into – to pay off with one's own life, head or cattle. Punishments for which a person is obliged to pay with his head or his own life: a) the death penalty on the principle of "blood for blood"; b) causing bodily harm to a person as a result of a type of crime, such as stabbing, physical and cold pain; b) humiliation, smear soot on the face of the accused, put him in the opposite direction from the road riding a black donkey or a cow, and send him around the vsickage with black felt around his neck [386, p. 145]. The latter, without any cruel reprisals, was one of the trampling and shameful types of punishment, and the way it was executed once again serves as direct evidence of the low position and value of the "black cattle" itself. It seems that in the meaning of this situation, the following Kazakh proverb can be brought: "Zhylky kyyaga tartadi, siyr zhyraga tartadi", which literally and figuratively translated as: "The horse pulls beyond the horizon, the cow pulls towards the ravine".

It is difficult to determine the very first information about the number of livestock and its herd structure in the Kazakh nomadic economy. One of these most important samples and materials are the data of the Kazakhs of the Orenburg department, cited by A.I. Levshin "on the amount of cattle exchanged from the Kirghiz-Cossacks in Orenburg from 1745 to 1821" [11, p. 221-224] and by L. Meyer, who used "official data on the bringing of cattle beyond the Russian land" [16, p. 5] and on the basis of "approximate considerations in the amount of meat of various animals consumed by the Kirghiz, which also could indicate the number of different kinds of livestock that the Kazakhs of the Orenburg department [197, p. 5] had. The importance of which is to show the relative predominance at different times of various types of livestock in the Kazakh economy. Thus, to demonstrate the actual growth of one and the decline of another type of livestock, and what components it could affect. This information, which covers the period from 1745 to 1862, was additionally verified via the data of the "Survey of the Turgai region for 1899", and was compared in one of the works "Material on Kirghiz (Kazakh) land use" [143] .

	Sheep and goats	Horses	Cattle
since 1745 to 1754	80,43%	17,48%	0,09%
by 1784	97,22%	2%	0,23%
by 1820	99,16%	0,63%	0,79%
by 1865	85,62%	6,24%	1,72%

Table 14. The percentage of various types of livestock by years.

It wsick be essential to state the indicators for each district, since it is possible to trace not only the quantitative aspect, but also to see whether there is a real difference in the structure of the herd, due to the natural and geographical location of certain districts and farms, since it is known that the Turgai region was divided into two parts – northern and southern different in nature of climate, soil and vegetation. Starting with the Turgai and Irgiz districts, that is, from the southern part, where: sheep and goats accounted for 64,24%, horses – for 16,43%, cattle – for 9,12% and from that time data on camels were added in relation to 10,11% . When in the northern Aktubinsk and Kustanai districts, it was distributed as follows: 45,34% of sheep and goats, 27,7% of horses, 24,84% of cattle and finally 2,09% of camels [197, p. 5] .

From these data, the following conclusions can be drawn: 1. In the 18th and early 19th centuries, the Kazakhs were mainly engaged in sheep keeping; 2. The number of cattle increased each time; 3. The comparison of the digital data of L. Meyer for 1865 with the Survey data for 1899 indicates that the breeding of cattle and horses increased due to a decrease in sheep keeping [197, p. 6] .

Ten years later, there was a publications of materials of new expeditionary research under the leadership of A.P. Khvorostansky, who was sent to the Turgai and Ural regions for re-inspection and recalculation of land for settlers. As a result of the statistical studies carried out from 1904 to 1912, it resulted in a 7-volume source of “Materials” for the Turgai and Ural regions. The importance of this statistical work is that the digital data of this work can be an sickustrative example of the duration of the process of reducing and increasing the structure of the herd in the above-described districts of the Turgai region. For example, in Kustanai district, in 1899, the percentage of different types of livestock was as follows [197, p. 5] :

	Sheep and goats	Camels	Horses	Cattle
1899	45%	1,35%	32,55%	21,1%
1909 [148, p. 416-418]	45,03%	0,85%	26,06%	28,05%

Table 15. The percentage of various types of livestock by years.

Although the small cattle in the form of sheep and goats have remained unchanged, there is an obvious decline in the numbers of horses, and an increase in cattle.

The growth of cattle was also influenced by an important circumstance, such as the emergence of railway lines and stations, due to the reduction in the radius of nomadism, and the emergence of settled settlements. For example, according to the “Materials” of the expedition in 1908, the Petropavlovsk district had a relatively high percentage of cattle in the herd (25,3%) [379, p. 128] comparing to that in Karkaralinsky (9,8%) or Atbassar (0,9%) districts. And in the same place, in the General essay on the district, this was explained by many reasons: the insignificance

of the nomadic way, the large number of pastures, especially suitable for cattle, hayfields, and mainly the geographical position of the district. Its proximity to the Siberian railway created a market for selling cattle skins, meat and dairy products from cattle, which were exported in significant numbers to European Russia [379, p. 133]. The same happened with the districts of the Turgai region, through which the Orenburg-Tashkent railway passed at a distance of 500 versts.

In the Aktubinsk district, through which in 1902 the Railway was laid and one of the large railway stations in Aktubinsk was founded, the cattle was accounted for: in 1910 – 349,586 heads (29,1% of the herd total number) [149, p. 382-384]. While the North-Eastern Kustanai district, purged from railways, by 1909 accounted for 372,065 heads of cattle (28,07%) [148, p. 416-418, 468-469, 458-459.]. As in Turgai district, the number of cattle by 1908 only was 161,589 heads (13,12%) [150, p. 258-259]. But unfortunately, it is not possible to calculate the income received by the road for passengers and cargoes of the Turgai region, since the income was calculated throughout the line of the road, and not for individual provinces and regions adjacent to the road. Whereas the Tashkent railway road erupted the Turgai, and the Syr-Darya regions, not counting the Orenburg province [195, p. 59]. However, it was more important that for the construction of this road, the nomads of the Kazakhs fell under the disposition. So, for example, G. Izbasarova presentes data on the departure in 1903 in the area Badgers Major of hayfields and winter encampments of 18 wagon owners of the Kabyrginsk volost, the Irgiz district for the construction of railway tracks [387, p. 1651] .

Long before the launch of the main branch of the railway through the northern steppes of the Turgai region, the border area with one of the largest economic regions was marked by rapid development of trade relations. Trade, marketing and supply of raw materials have become an important component in the changing economic Kazakh life, due to the increase in sold livestock and the diversity of animal products. If in 1891 animal products, such as leather, were transported through the Turgai region:

Year	Cattle	Horse	Sheep
1891	97 610 pcs	62 961 pcs	49 367 pcs [388]
1897	400 563 pcs	168 923 pcs	3 579 208 pcs [389]

Table 16. Animal products transported through the Turgai region.

Thus, cattle – a cow has become the main subject of quick and radical change in the Kazakh husbandry, and the most important element of a qualitative change in the composition of the herd, as well as it has become the symbol of the decline of the cattle-breeding economy and its well-being.

Before the start of the mass migration of Russian peasants to Kazakh lands, cattle were for the Kazakhs the destiny of commoners, a sign of poverty and inability to roam, as internal colonization intensified, for some of the Kazakhs it brought new meanings: a different understanding of settled life, cattle is not an appendage. First of all, this was influenced by the connection with the settled agricultural population, as well as the emergence of railways and, consequently, railway stations, accompanied by a

reduction in the size of nomadism and the closure of nomadic routes, which caused the emergence of settlements. The latter required new methods of managing the farming, moving away from long migrations, which actually led to the growth of cattle in the herd, due to the reduction, mainly in sheep keeping, and horse-breeding as well. At the same time, trade, marketing and supply of raw materials have become an important component in the changing economic life of the Kazakhs, due to the increase in sold livestock and the diversity of animal products. If earlier the value role of livestock and its presence in the herd directly depended on the economic level of the household, as well as on the features of the natural, climatic and geographical conditions of nomadic and semi-nomadic farming, now, in the process of constant presence and interference from the tsarist government, it has become a dependent variable.

4.3 Development of haymaking as an indicator of changes in the internal mechanisms of Kazakh animal husbandry

In the process of studying new forms of the economic structure, in understanding the importance of certain cultural and social practices, much attention is paid to the study of the agriculture development. Haymaking also became the subject of the Kazakh economy, due to the reduction of pasture lands for grazing nomadic livestock. At the same time, by making changes in the structure of the herd structure, with a noticeable increase in cattle and its stable keeping. This, in turn, influenced the change in the nutritional norm in animal food. Once an ordinary herd of a Kazakh nomad, used to graze in the warm season, and "tebenevat'" (to obtain fodder from the snow) in the winter [9, p. 293; 11, p. 197; 17, p. 478; 390, p. 240] , now needed haymaking, primarily in case of a extreme winter period. Which undoubtedly affected the organization of keeping livestock in the winter, and the emergence of demand for agricultural facilities. Alongside with the process of haymaking the arable farming was twice as active, in the form of grain husbandry and sowing of forage grasses. This connection was due to the fact that now the fodder diet of livestock included not only meadow and steppe grasses, but also cereals. After plowing of which for 2-3 times, the lands turned into idle lands, where even feather grass did not grow on the abandoned arable lands.

Thus, this paragraph analyzes destructive effect of haymaking on the lifestyle of Kazakh society established for centuries.

The development of agriculture in the Kazakh steppe was significantly limited by the geographical environment, in particular, the poverty of the soil cover, lack of water resources, aridity and climate continentality. In this sense, agricultural plots were localized mainly in areas provided with the necessary water resources, with fertile, high quality and deep soils, with the most abundant and diverse forage of the land. Regarding arable farming in the steppe space, there is enough data starting from the first half of the 19th century, as well as its development as an economic activity, a system and order of special methods of sowing and irrigation [11, p. 23, 200-204; 16, p. 103-105; 17, p. 487; 190, p. 19-31; 391, p. 243-249]. Despite this, it is indeed difficult to determine when and how crops were first introduced in the steppe. In this

matter, N.G. Apollova, when studying the development of agriculture and haymaking of the Kazakhs from the 18th century to the 19th century, suggested an opinion about the impact on the economy of the Kazakhs of the agricultural cultures of neighboring peoples: the Tobolsk Tatars in the north, the Karakalpaks and Uzbeks in the south, as well as the neighborhood along the fortified lines to the settlements of the "linear" Cossacks and Russian peasants [392, p. 154]. The transition to agriculture, subsequently changed into the need for an "agrarian transformation" of the steppe, became a kind of solution to the problem of Kazakh backwardness, which was for the tsarist administration, certainly higher than nomadic animal husbandry [97, p. 111] .

Such a linear neighborhood in the northern, northwestern and northeastern regions of the steppe led to the deviation from the usual forms of the "pastoral" economy of the Kazakh population. What can be shown on the example of the Kustanai district. First of all, this was due to the process of establishment of settlers in the city of Kustanai and the agricultural settlement projected near the city. The continuous movement of settlers since 1881 was especially strong from 1884 to 1888. Settlers moved in masses, the land system remained completely unsettled regarding administrative terms. Another problem was related to the division of farms between the Kustanai bourgeois and peasants, it was supposed to give the bourgeois only estates and give them the right to use the pasture, and allocate a ten thousandth arable land to an agricultural vsickage. However, in reality, it turned out to be impossible to make such a distinction, the bourgeois also needed arable lands [373, p. 6] .

According to A.A. Kaufman, the administration hoped that there would be less and less such families every year, and the majority of the bourgeois would either engage in trade and crafts, or lead an agricultural economy, on "commercial grounds", that is, on land leased from the Kazakhs [373, p. 7]. However, these expectations were justified only in part: quite a few settlers actually rented large plots of land from the Kazakhs, but some managed to re-let them to other peasants at a high price. Like the majority chose to plow up the city allotment arbitrarily, completely failing to obey the designated boundaries, seizing in all directions further and further into the interior parts of the steppe [373, p. 7]. And as noted earlier, by 1886 the settlers captured, up to forty thousand desiatinas, instead of thirteen desiatinas. The Kazakhs complained to the district chief, sometimes they tried to stop the invaders by force. On the example of such disputes [373, p. 7, 9, 29] , according to official information, in May 1885 there was a collision that ended in the murder of two Kazakhs [373, p. 7] .

These inconveniences were not over, as after the constant exploitation of the natural productivity of their virgin lands, the settlers, having removed everything that could be removed from it, without resorting to care or fallow, moved to other virgin lands. After that, they could simply move to the Kazakh vsickages as farms, or in the summer they moved to the winter quarters of the Kazakhs [373, p. 13]. And the last impetus that prompted many Kustanai residents to move to live in Kazakh lands was the allotment of a huge plot near the city to the Kustanai factory stable, which also included almost all Kazakh meadows located in the immediate vicinity of the city.

Settlers slowly but surely moved closer to the Kazakh vsickages from the fortified lines. Following which, there was a process of reducing the size of nomadism and closing nomadic routes for the development of new lands by settlers. And as F.

Shcherbina accurately emphasizes, when describing the changes in the region, as "narrow and wide strips of arable land, continuous crops of grain in fairly large areas lay already across the steppe as inviolable boundaries, in front of which the nomad livestock breeder had to stop along with his herd, as before the border, since it is not possible to pass it [144, p. II] .

The development of new economic forms affected everything, the nature of settlement forms, the methods of farming, the structure of the herd, and land use patterns. "In place of the shepherd and the flock constantly wandering with him, agricultural occupations advanced, and where the plougher's plow crashed into the chest, the growth of agricultural life began" [144, p. IV]. F. Shcherbina also argues that the materials of the expeditions of the steppe regions, after all, proof how significantly the life and nomadic economy of the Kazakhs have changed, towards a more "complex culture" [143, p. IV] .

A particularly characteristic feature of this was the development of haymaking. If earlier, in separate notes on the Kazakhs animal husbandry, I.V. Rychkov noted that Kazakh horses "do not know hay" [9, p. 293] , since they are kept in the steppes in winter and summer, and Ya.P. Gaverdovsky noted that for "Russian buyers, nothing is so heavy as to accustom a horse to a harness, as well as to oats and hay" [17, p. 475]. However, after no more than two decades, A.I. Levshin writes about "certain Kirghiz", especially those who roam near the Russian border, who hay in autumn, make dugouts and build wattle fences for cattle [11, p. 23]. Like F. Shcherbina, when studying the northwestern parts of the Kazakh steppe from 1898 to 1899, notices a completely different reality, in which mowing tracts are defined. Mowings divided between auyls already have own order and time of mowing, where farms make hay together or by "household" [197, p. 32-33] .

One of the first mentions in the official reporting of the Regional Board, hay collection and the provision of such supplies for the people was recorded in 1870. First of all, there was a question of protecting the people's livestock from the cases of poor harvest of grasses, sleet and snowstorms, through the need to make public stocks of hay to feed livestock during the winter [393, p. 6]. The main reason was the poor harvest of grasses and deep snow, in which winter grazing in many areas was extremely difficult. In the reporting year in the Turgai district, the loss of livestock from fodder shortage was significant. Only in the Tusun and Naurzum volosts, the damage amounted to 73,000 rubles. Although the administration also understood the impossibility in some parts of the region to arrange these public hay reserves, noting the lack of land suitable for mowing in the Irgiz district [393, p. 7] .

From the following 1871 year, according to the rules drawn up by the regional administration, the formation of hay reserves began. In the Nikolaevsky (Kustanai) district, stocks of hay were made in one Ara-Karagai volost, in other districts and volosts establishing public hay reserves was not recognized as necessary yet. The latter drove cattle in harsh winters to the Khiva borders, or partly to the Syr-Darya region [394, p. 6]. By 1872, stocks of hay were harvested in five volosts of Turgai, and in one volost of the Nikolaevsky (Kustanai) district. But these "significant preparations" have not yet been specified in a numerical sense [395, p. 4-5]. Regional and volost loan offices [395, p. 3] were added to this process, as support for animal husbandry. The

loan office under the Regional Board had a capital of 25,000 rubles, by 1875 an amount of 21,168 rubles [396, p. 6] was collected in 15 volost loan offices.

Years	The hay made
1876	862 541 poods [397, p. 6]
1877	1 058 920 poods [398, p. 3]
1878	1 145 238 poods [399, p. 4]

Table 17. Total amount of reserve hay by years.

The last districts were as follows: in the Iletsk (Aktobe) district collected 298,805 poods, Nikolaevsky (Kustanai) 520,468 poods, and in Turgai 325,965 poods. The lack of data on the reserves of the second southern district of Irgiz, as in the 70s, was due to the lack of water, plant and soil resources. The Kazakhs said "Sortan zherge shop shykpas; Shop shyksa da, kop shykpas", speaking about the impossibility of growing grasses on saline soil. And even if it can be possible, then not in large volumes.

However, over time, the collection of public stocks of hay was very slow and slovenly. There was no regulated amount of hay contribution, as well as strict monitoring of its storage. Each time, the population evaded hay contributions under various excuses. Numerical data on hay stocks also stopped appearing in the annual reports of the Regional Board. According to the Regional Board, for the continued existence of hay reserves, the practice itself needed "detailed and specific rules in the formation of stocks, and measures for their exact observance" [276, p. 6]. In such a state of public hay stocks, in 1885 the Military Governor recognized that each wagon owner should be allowed to make hay on his own, and the collection of hay for public stocks should be stopped [276, p. 6] .

Nevertheless, the peculiarities of the natural and climatic conditions throughout the steppe did not allow to exist serenely either the Kazakh population or the Regional Administration. If for the first category, it was an integral part of the life norm with which they tried to coexist, then for the second it became a kind of issue of overcoming the "blind spot". The winter of 1891-1892 brought starvation and massive loss of livestock from drought, crop failure and ice-covered ground.

It was absolutely impossible to drive the livestock to other places, since the animals, exhausted from hunger, could not be driven to large areas over slippery and foodless areas [27, p. 5-13]. The overall percentage of livestock mortality was 35,7% [27, p. 19]. Striving to take responsibility for solving the next problem of "the government itself" [156, p. 3; 400, p. 1] , in 1893, by the decision of the Regional Board, the establishment hay reserves was resumed based on new rules. With the approval of the Ministry of Internal Affairs of April 9 of that year [263, p. 2] , they were put into effect as a temporary measure, pending the approval of the State Council of the draft on hay stocks [276, p. 7] common to all steppe regions.

According to the rules, it was necessary to bring the stock of hay up to 3 haystacks for each wagon, and to form stocks of hay during the wintering of every 50 wagon owners. Then, each group of 50 wagons is divided into three categories, and obliged: those who wsick have from 1 to 6 heads of cattle must bring one cart of hay into the reserve annually. Livestock owners having from 5 to 10 heads should contribute two carts of hay, and those with cattle over 10 heads – three carts. It was stated to put the collected hay in stacks, and lay the savings from theft and waste on the head of the abovementioned 50 wagons. All other members of the 50 wagons must take part in the preservation of hay. Hay harvest should be executed in autumn, at the same time obliging each wagon owner to bring their own hay, consisting of at least 25 poods per wagon. The hay reserve must be dug around by moat to protect it from damage. The hay already accepted from each wagon owner should be recorded in a specially established book, which should be given to the local auyl leader for keeping. Issuance of hay to be carried out in the presence of the auyl leader and trusted representatives [157, p. 2] chosen from 50 wagons, only in troubled years and not earlier than February 15th. The size of the loan to be issued at the discretion of all persons elected from among the auyl society, as the needy required. The hay taken from the warehouse should be replenished after the first harvest of herbs [157, p. 3] .

A year after the approval of the collection of hay stocks, in 1894, in order to clarify the practical formulation of this case, it was proposed to all veterinarians of the region to conduct a detailed investigation on the state of all public hay reserves [276, p. 7]. One of these reports came from the 4th veterinary station, Aktubinsk district. The veterinarian Kerbak reported that in all volosts of the 4th district without exception, the amount of hay was shown arbitrarily and too exaggerated [401]. The main reason for this conclusion was the order of delivery, and the amount of hay delivered. According to the veterinarian, Kazakhs instead of the prescribed 25 poods in 1 wagon, handed over only 12-18 poods, or an average of 15 poods. If, for example, in the Karatugai volost, the final results showed 100%, then in fact this corresponded to 75%. In other 3 volosts, it did not even reach this threshold [401, l. 56ob]. Further, he described the actions of the Kazakhs themselves, about their unwsickingness to store hay, collecting their own private stocks, driving their cattle to state stocks in winter and demolishing them. If we consider this grass to be about 10% of the collected hay, and in addition, in many warehouses there was stsick a significant amount of spoiled, rotten and moldy hay, then the general conclusion was as follows: “in the hay reserves in the 4th district there are only 65%, or an average of 45-50% of the established norm [401, l. 57]. The latter also applied to the Kara-Khobdinsk volost, in the second Khobdinsk volost there were only 75-80% against the established norm” [402] .

Perhaps such an mixed attitude on the part of the Kazakhs was associated not only with unwsickingness, but also with distrust of these hay reserves. Veterinarian of the 5th district V.V. Lavrov, indeed, notes the distrust of the Kazakhs of public reserves. “Kazakhs call it “treasury msicket” (kazyna pishen – state hay), and they think that crumbs wsick be given out when needed. The rest wsick remain with the volost and local governments” [403]. The “official” nature of public reserves is also found in Kerbak’s report [401, l. 56ob] .

Nevertheless, in view of the “persistent” demands of the administration on the formation of hay reserves, the Kazakhs began to mow not only meadows, but also feather grass steppes, which they used to bring in the main part of hay [404, p. 6] .

Before getting acquainted with the Russian scythe, the main tool of the Kazakhs was “shalgy-orak” (scythe-sickle) or “shot-orak” [46, p. 59]. A straight and scythe-shaped to a hand tool, with a sharp, finely serrated inner edge no more than 30 cm, and with a handle of 40-60 cm long. This tool was usually used when harvesting small areas of grain crops, harvesting bread [405]. But later, the Russian hunchback scythe first appeared in everyday life, with a short and curved handle, and later the lithuanian scythe – with a long handle [46, p. 59]. But a scythe could only be mowed in meadows, and in the new realities, it was difficult to mow feather grass in large spaces with hand scythes [32, p. 10]. And in order to somehow “facilitate” the fulfsickment of this duty by the population, in the same 1893, 43 hay-mowing machines were purchased and distributed on credit to individual wagon owners. 11,000 rubles were expended to purchase them, the payment of which was spread over several years [263, p. 2]. Back in 1892, A. Jacquemont, in the correspondence section of the “Moskovskie Vedomosti”, wrote about the purchase in St. Petersburg in the spring of 1891, up to 50 hay-mowing machines, by order of the Turgai Regional Board. And as he writes, later they were distributed to the Kazakh owners of the Burta volost, Turgai region [406, p. 333]. In addition, in the same 1893, hay-mowing machines could stsick be found among some rich Kirghiz in Aktubinsk (3 pcs), Khobdin (2 pcs), Karatugay (7 pcs) and Aral-Tyubinsk (1 pcs) volosts of the same Aktubinsk district and in Bistyubinsk (1 pc), Suyunduk (1 pc), Dambar (1 pc) and Saroy (12 pc) volosts of the Nikolaevsky (Kustanai) district.

Later, studying statistical and research expeditions in the steppe regions, in particular in the northern districts of the Turgai region, led by F. Shcherbina, a little later, the southern districts, led by P. Khvorostansky, made it possible to find out the dynamics of growth in the consumption of new tools and mechanisms. As well as the opportunity to find out the general condition and level of development of hay practices in the steppe regions, in Kazakh vsickages.

The first who used the digital data of the expeditions to justify the success of the taken measures was V.Ya. Benkevich. Noting the importance of this “evolution”, that the Kazakhs, who cared relatively little about forage even 25 years ago, now collect thousands of poods and a stacks of hay, msicket and straw. But at the same time, they stsick did not have the opportunity to provide all the amount of forage for livestock needed for the winter [32, p. 122-132] .

№	District	Period	Total number of households	Total hay made in a household	Stacks (counting 5 poods in a stack)						Hay-moving machines
					In the meadow		In the steppe		In the idle lands		
					household	stacks	household	stacks	household	stacks	
1	Kustanai	1898	19 474 [407, p. 92]	18 037 [407, p. 95]	17 418	1 504 353	-	-	-	-	-

		1909	20 768 [408, p. 412, 458, 466]	20 264 [408, p. 431, 461, 475]	15 042	2 060 341	12 710 [408, p. 431, 461, 475]	2 314 159	3002	327 469	2002 [408, p. 428, 460, 473]
2	Aktobe	1898-1899	17 689 [409, p. 62]	17 247 [409, p. 69]	16 640	2 722 092	4225	390 748	-	-	-
		1910	17 837 [149, p. 378]	17 464 [149, p. 396]	14 281	1 455 758	13 202	1 713 530	8029	596 212	3274 [149, p. 394]
3	Turgai	1908	15 344 [150, p. 256]	14 776 [150, p. 268]	14 574	3 067 384	196	23 846	-	-	126 [150, p. 266]
4	Irgiz	1911	17 328 [151, p. 260]	15 995 [151, p. 275]	-	600 397	-	213 788	-	215 958	501 [151, p. 273]

Table 18. Comparative number of hay harvests by districts.

First of all, it is worth noting the noticeable difference between the number of special harvesting machines, which in 1893 could have numbered no more than 50 units in the entire region. However, after more than 15 years, 3,274 pieces of hay-moving machines had been recorded in one Aktubinsk district. The latter played an important role in the development of hay collections, scaling the coverage of hayfields in quantitative and temporal proportions during harvesting.

The next that has to be paid special attention to in table evidences is the prevailing percentage of those engaged in hay mowing, in almost all districts of the region. According to the numbers of the Kustanai uyezd, when studying the latter in 1898, it turned out that only 1,437 households were not engaged in haymaking in the uyezd, which accounted for only 7,69% of the total number of farms in the uyezd. That is, almost 92% of the population was engaged in haymaking. After 10 years, the number of those not engaged in haymaking decreased to 2,48%, that is, only 504 farms did without hay. At the same time, the amount of harvested hay also increased almost by 3 times. Steppe pastures and idle lands were attached to meadow mowing. In this regard, the reduction of farms that mowed in the meadows is alerting, this could be affected by the transition to steppe pastures, for the harvesting of steppe hay – feather grass.

Unfortunately, the situation in the southern districts of the region is known only since 1908. But nevertheless, it is possible to compare with the presented data of the northern districts, which were considered very favorable for both crops and mowing. Despite a number of well-known unfavorable conditions for hay harvesting in the Irgiz district, and a lag in the amount of hay harvested from the most northern district in 4,5 times, by 1911 haymaking in the district accounted for 91,7% of the total number of farms. Also in the Turgai district in 1908, 96.2% of all households were engaged in hay collection, which should be recognized as the maximum result for a nomadic economy.

Moreover, the possible reasons for such high hay harvests and the involvement of the population of the northern districts are logically understandable. It was not only because of the development of a strong “colonization” of all border districts, especially at the end of the 19th century, but also due to favorable natural and climatic conditions for all haymaking activities. It would seem, what is the reason for the wide development of haymaking in such a short time for the southern districts. In the sense that the latter, being tacitly “inland” lands, also did not meet their productivity and fertile structure of the soil cover. On this issue, it is quite possible to agree with V.Ya. Benkevich that the withdrawal of the northern lands could not help but reduce the number of nomadic Kazakhs moving to the Aktubinsk and Kustanai districts for grazing in the summer. In the same way, the haymaking or arable farming in winter or summer stays, where it was possible, could have influenced the reduction in nomadic migrations [32, p. 31]. The southern plains, which have alkaline soil, often turning into completely depleted alkaline (solonetz) land, forced to move north in search of salvation from the lack of water and feed, and heat in the summer, as well as from the need to save food for the winter. According to V.Ya. Benkevich, in the south of the region, the Kazakhs began to roam in February, as soon as the snow began to melt: “Nomads move north following the disappearing snow cover, exposing the remains of last year’s vegetation, among which new grass begins to come up. After the snow melts, water remains for some time for people and for watering livestock, which is what the nomads use on waterless lands” [32, p. 22] .

The records of these nomadic migrations within the region from district to district, in the usual directions from south to north and back, is found in the “Materials” of F. Shcherbina's expedition to Aktobe [410] and Kustanai [411] districts, relating to 1898 and 1899. During the period of new studies of the region in 1908-1912, not a single report for the district mentions migrations either within regions districts. Thus, it can be assumed that with the reduction of nomadic migrations to the northern districts, the population of the southern districts of the region found a different way of keeping livestock forcedly associated with hay harvesting for available livestock.

The gradual reduction of migrations throughout the steppe also began to hamper the maintenance of livestock, especially in winter, on grazing. This absolutely influenced the structure of the herd, in which more and more space was occupied by cattle, which did not need grazing for pasture in transhumance herds. As it was mentioned earlier, being working cattle, it began to displace, mainly horse husbandry and partly sheep keeping. In the southern districts of Irgiz and Turgai, where nomadic migrations were widely developed, and where it was more difficult to prepare forage for the winter, cattle also became widespread, but to a lesser extent than in the northern districts.

№	District	Livestock					Period
		Horses	Cattle	Camels	Sheep	Goats	
1	Kustanai	242 944 (35,07%)	78 644 (11,35%)	11 555 (1,66%)	340 458 (49,15%)	18 900 (2,72%)	According to the Survey of the Turgai Region
	Aktobe	254 602 (23,13%)	80 626 (7,32%)	50 000 (4,54%)	700 269 (63,63%)	15 000 (1,36%)	
	Turgai	187 598	75 520	45 390	520 640	12 300	

		(22,29%)	(8,97%)	(5,39%)	(61,87%)	(1,46%)	for 1870 [393, p. 69-70]
	Irgiz	300 516 (18,86%)	15 911 (0,99%)	61 969 (3,88%)	1 204 687 (75,60%)	10 297 (3,88%)	
2	Kustanai	280 161 (31,21%)	206 376 (22,99%)	11 129 (1,23%)	321 400 (35,80%)	78 470 (8,74%)	According to the “Materials” of the expedition of the Kustanai district for1898 [407, p. 93]
		356 621 (26,91%)	372 065 (28,07%)	9487 (0,71%)	461 716 (34,84%)	125 308 (9,45%)	According to the “Materials” of the expedition of the Kustanai district for1909 [148, p. 416-418, 468-469, 458-459]
3	Aktobe	127 363 (18,06%)	233 104 (33,05%)	19 037 (2,64%)	280 978 (39,84%)	44 735 (6,34%)	According to the “Materials” of the expedition of the Aktobe district for 1898-1899 [412, p. 64-66]
		166 709 (13,89%)	349 586 (29,1%)	21 312 (1,77%)	632 870 (44,42%)	128 910 (10,74%)	According to the “Materials” of the expedition of the Aktobe district for 1910 [149, p. 382-384]
4	Turgai	171 555 (13,93%)	161 589 (13,12%)	51 945 (4,21%)	738 191 (59,94%)	108 157 (8,78%)	According to the “Materials” of the expedition of the Turgai district for 1908 [150, p. 258-259]
5	Irgiz	143 161 (14,98%)	98 493 (10,30%)	89 547 (9,37%)	553 397 (57,92%)	70 827 (7,41%)	According to the “Materials” of the expedition of the Irgiz district for 1911 [151, p 264-265]

Table 19. The quantitative composition of the herd by districts.

As can be seen from the presented table, from all available indicators of the quantitative composition of the herd by districts, there is a change in percentage in the direction of growth in the number of cattle in all 4 districts. Back in 1870, in the Kustanai district, the number of cattle was estimated at 78,644 heads, holding only the

3rd place in the herd. By 1898, the number of cattle increased by 3 times, at the same time, its presence in the herd increased as a percentage. According to the "Materials" of the expedition of 1909 in the Kustanai district, a continuous growth in the number of cattle began to slowly expel the number of horses. As in the Aktubinsk district, the number of cattle in the herd increased due to a decrease in sheep keeping, which went down from 63,63%, first to 39,84%, and then to 44,42%. Despite some growth in the last year of 1910, the number of sheep could no longer return to its early figures. In comparison with sheep keeping, the decrease in the number of horses in the herd went fairly evenly, towards a constant decline. In 1870, horses composed 23,13% of the total herd, in 1989 – only 18,06%, and 13,89% – in 1910, respectively.

The southern regions had impressive results. And first of all, due to the large time jump, which does not allow us to see the dynamics of growth or decline, and which shows only a relative final result. The most sheep keeping "desert" districts contained a large livestock, numbering more than a million heads of sheep. The Turgai district, located south of the Kustanai district, had, at its northern borders, up to the central part, sufficiently irrigated land with good grass, which allowed the population to keep the same number of cattle in the early times [32, p. 7]. However, the herd was dominated by sheep, occupying more than half of the place at 61,78%. This figure was reduced in 1908 to 59,94%, while the number of cattle in the herd rose from 8,97% to 12,12%. The same situation happened with the number of the horse. The Irgiz district the least adapted to livestock breeding, which from 15,911 heads grown to one hundred thousand, from 0,99% to 10,30% of the presence in the herd. This preponderance leaned towards a reduction in the share of the sheep population, which was halved in number. The loss of every hundred thousand of sheep can be equated to a double increase in the composition of a herd of cattle.

Breeding and maintenance of steppe livestock within new conditions were complicated by new grazing patterns, gradually moving from the issue of providing livestock with fodder, into the procurement of fodder for the livestock. If earlier a small area of grazing and low speed of movement when driving cattle from one pasture to another, would significantly complicate its maintenance, now each auyl had "its own" mowings, allowed to feed livestock with hay in the time of stable keeping. Back in the 30s years of the 19th century, Major General Bronevsky wrote about the Kazakhs roaming near the line, whose volosts learned from the Russians to mow hay and better build yards for livestock which helped to save it in winter [413, p. 360]. Open corrals for cattle made of reeds and wickers remained in use in the southern districts, nearer to the north people began to arrange closed rooms/warm corrals.

The structure of the premises, the building and the location of livestock in it can be found in detail in the work of A.I. Dobrosmyslov [30, p. 18-19, 69-70, 93, 181-182, 231-232]. Premises for animals, in Kirghiz azbar (zhalanashazbar – uncovered premises for animals and biteu kora – covered premises), in the northern districts of the region – Kustanai and Aktubinsk – were made of the same material as the premises for people, i.e. made of wood and raw bricks, covered with reeds or straw. Azbars directly adjoined the winter quarters, forming a regular quadrangle. In areas with thickets of wsickow twigs along the banks of the rivers, winter quarters for the livestock were sometimes arranged from this material. In the southern districts – Turgai

and Irgiz – premises for cattle were almost entirely made of reeds. Wooden premises were found only among a few rich Kirghiz in the Nikolaevsky (Kustanai) district. Inside the azbar, according to economic needs, they often shared partitions made of the same material as the outer walls. Separate several rooms iwere intended for only one type of animal (rooms for horses – zhylky azbar; sheepfolds – koi kora; for camels – tuye kora; for cattle – siyr kora) [30, p. 18]. The livestock quarters arranged like this were of various sizes; the largest of them contained from 1000 to 2000 sheep and goats, up to 100 cattle and up to 50 camels [30, p. 19]. The barn maintenance of livestock continued until the first spring months, mainly feeding with hay. It goes without saying that the cattle did not get fat from such food, but it kept them alive. The Kazakhs said about this: "Sudy ozi keship ishpey, mal qondanbaydy; Shopti ozi oryp zhemey, mal zhondanbaydy". It means that without free grazing, cattle wsick not be able to fatten up, as well as gain weight.

The households did not make hay in random. In 1898, according to the "Materials" of the expedition, each economic auyl of the Kustanai district had mowings and arable lands isolated from others. Without the permission of the auyl-aksakals (leaders), none of the unauthorized persons had the right to plow or mow the steppe belonging to the auyl [197, p. 66]. The use of mowing in the Kustanai district was extremely diverse. The simplest form of use was the mowing of the entire farm "conjointly". Each wagon put up one mower, and some of the richest owners were allowed to send 2-3 or more movers for haymaking. Hay was harvested conjointly and distributed among the owners according to the number of workers they put up [197, p. 71]. But these examples were not met in all volosts in the same way, since there was their own use of mowing, mowed "yard by yard" [197, p. 47]. There was also an annual division of mowing, in most cases, when dividing hayfields into equal parts, in which the choice of the best plot was given by seniority to respected aksakals [197, p. 61, 71]. The value of hayfields increased more and more.

However, despite the high productivity and large volume of hay reserves, which were possessed not only by the northern plots, but also by the southern ones, there was not enough fodder needed for the winter, in relation to the number of livestock. This is also connected to the expansion of grassland on steppe pastures [Table 18], as well as the practice of sowing grain crops, for the consumption of livestock with msicket or oats. The latter was practiced more in the northern districts, and we can find data on this only in the "Materials" of the expedition of the statistical party. In Aktubinsk district in 1910, 95,745 poods of oats and 29,083 poods of msicket were consumed by the livestock [149, p. 395]. In the Kustanai district in 1909, 112,116 poods of oats and msicket were consumed by the livestock in the Saroy volost [148, p 463] , 57,012 poods of oats – in the Chubar volost [148, p. 474] , and 567,939 poods of oats and 27,825 poods of msicket were consumed in the other volosts [148, p. 429].

In this matter, the cornerstone is the left plowed land, which was subjected to "predatory" methods of using land for arable farming, now also for haymaking due to the extensive development of agriculture. The fact is that, having first raised the virgin land and sowing bread on it, the owners most often sowed bread on the same area from year to year until the land begins to be completely drowned out by weeds [197, p. 125]. Indeed, plowing undoubtedly significantly changes the flora of the steppes. It is

sufficient to point out the fact, presented according to the "Materials" of the expedition in Kustanai and Aktubinsk districts, that "feather grass" – bos does not grow on the plowed steppes. Kazakhs did not meet feather grass even on 20-year-old and even older idle lands [197, p. 96] .

Moreover, due to the lack of hay reserves in the new realities, idle lands (fallows) began to serve as new hay lands. The Kazakhs of the Ara-Karagay volost said that the idle land during the first 2-3 years could not serve as a pasture at all, "nothing grows", except for high shagyr (tall grasses with rough woody stems) which, camels may eat it in winter in a dry form after mowing [197, p. 95]. Cattle and sheep could already graze on 3-4-year-old idle lands, but horses did not graze in summer on these lands until small grasses appeared on them – betege (feather grass; sheep's fescue). Betege appeared on light soils after 7-10 years and on heavier soils after 10-15 years in unmoved idle lands [197, p. 96]. Ultimately, some fallows due to plowing of land brought a decrease in soil fertility, a long restoration of the soil cover, deep and hard snow on the surface.

As a result of the introduction of haymaking alone, in the form of agricultural innovations in the Turgai steppes, the latter had a large scale of influence, not only on the deviation from the usual forms of the "pastoral" economy of the Kazakh population, but also on its surrounding in the form of the natural environment. Definitely, this issue was attributed to the expanding presence of migrant peasants. The forms of economy of the settlers were fundamentally different from the nomadic life of the Kazakhs. But the early penetration of new practices near the fortified lines cannot be denied. The only difference is that in the second case, social interaction was an independent process, which at a later time began to take on the character of persistent demands. The discourse of power expressed concern about the large-scale death of livestock in crop failure, in storms and black ice, as the salvation necessarily depended on the state, rejecting different ideas about the steppe environment, its potential and human adaptability to it, equating the economic interests of the Kazakh and Russian peasantry. Subsequently, the obligation to make hay stocks, the purchase and distribution of mowing machines, the payment of which was spread over several years, the release of pasture lands for the sake of hayfields were among the most important steps taken by the administration towards the development of haymaking. In turn, barn maintenance of the livestock, new practices of land use, decline in the soil cover fertility have become a response to this challenge.

CONCLUSION

Over the course of a long period of time, Kazakh society developed its own independent and original methods of breeding and keeping various types of livestock. At the same time, they amassed materials for the recognition of various conditions of healthy and sick animals, as well as individual diseases. This process involved knowledge of epizootic and etiological factors, diagnosis and prognosis of diseases, and knowledge of how to treat them. All this occurred on the basis of a purely empirical practice of animal husbandry, based on personal experience, improving each time in a cyclical process.

All Kazakh livestock breeders to a certain extent knew and could help their animal. Medical techniques consisted mainly of surgical care (bleeding and castration) and the widespread use of various medicinal herbs. The process of growth and development of folk veterinary medicine continued until the penetration of "scientific" veterinary medicine into the Kazakh steppe. Scientific-Russian veterinary medicine, in the process of its development, had a corresponding influence on Kazakh animal husbandry – sometimes contributing to it, sometimes borrowing from it – but this influence was not always positive.

The Turgai region attracted the tsarist administration because of the many opportunities it presented. Its first importance lay in its economic potential, as well as the transit role of the steppe for Russian merchants, in order to develop and control trade with China and with the Central Asian people. The next important factor was steppe livestock, which could be a raw material base for the European part of the empire, since the decline of animal husbandry in the interior provinces, related to the crisis of extensive agriculture there, was on the agenda. At the same time, the process of resettlement of Russian peasants was going on, which also aggravated the epizootic situation in Turgai region. To overcome these crisis, an organization was needed that would regulate this pressing issue.

The following scientific results were obtained:

1. Foucault's theory provides an opportunity to look at how, based on the organization of the veterinary service in the steppe, the introduction of veterinary practices in Kazakh animal husbandry created new forms of disciplinary power. Veterinary regulation methods became part of the process of colonial management in the steppe, part of the creation of new forms of life and the transformation of the environment.

2. One must note the belatedness and backwardness of the introduction of the Russian veterinary service in the Kazakh steppe. The main reason for this was the lack of legislative provisions defining the veterinary network and its legal status in the steppe. Only the development of plague epizootics provoked the government's concern for agriculture and food production. Only areas around railway stations and border districts entered into the imperial government’s concern. At the same time, the outlying areas of the southern districts remained relatively outside of the activity of this service.

This is explained by the fact that commercial and industrial livestock and driving routes were concentrated in the northern districts of the region.

The veterinary service included, in addition to veterinary and sanitary control of the area: the organization of bacteriological laboratories, anti-plague stations, security and quarantine points of border regions, and railway and road veterinary points. This is what constituted government veterinary medicine. Despite the economic significance of the region, particularly with respect to the cattle industry, veterinary medicine in the steppe did not receive the proper development of all of its branches. Limited resources, the small number of personnel and the vastness of the region, and the underdevelopment of communications, were the reasons for the development of only individual elements of the veterinary service in the steppe.

3. The interest of the authorities in raw animal products to meet the needs of commercial and industrial circles, and ensuring the safety of these products, caused a surge in the fight against livestock diseases. Attention was paid to the destruction of sick livestock (and animals which appeared to be sick), as well as strict observance and implementation of veterinary and sanitary quarantine measures at livestock points. At the same time, insufficient attention was paid to measures against non-communicable animal diseases, such as internal diseases, respiratory diseases, limb diseases, congenital diseases, external injuries and fractures.

4. In Kazakhstan, governmental veterinary medicine received some development, but there was no zemstvo. The importance of the latter was in the organization of an independent branch of veterinary medicine and the training of veterinary personnel, since the existing veterinary educational institutions did not meet the needs of the inner provinces, nor of borderland regions. Personnel in the steppe were few in number. By 1912, there were 1,374 veterinarians and 2,811 veterinary assistants in the zemstvos of Russia; at that time, there were 231 veterinarians and 214 veterinary assistants in the steppe. The staff, even including temporary and seconded personnel, was stsick extremely insufficient to serve this area of 418,000 square versts, which had more than 3 million heads of cattle and was characterized by an abundance of epizootics and a developed industrial animal husbandry. The vastness of the space occupied, the extreme difficulty of financing veterinary activities and supporting veterinary personnel, as a result, put veterinary specialists in a difficult situation. But most often the social background of veterinarians influenced their attitude. They were professionally engaged in veterinary activities, and enthusiastic about their work.

5. Vaccinations became a practice of continuous control and interference in the public and private space of the Kazakh people. As a result of the complete cessation of plague epizootics within European Russia, the spread of anthrax epizootics and pneumonia, which appeared annually among domestic animals in various parts of the empire, aroused concern. Anthrax, which was found everywhere in Turgai region throughout the year, was especially dangerous for the local livestock of the northern districts, where agriculture and settled life developed. Kazakhs knew about pastures and watering places that were dangerous in this respect. They avoided such areas, and if they got there, they quickly migrated, which helped to stop mortality. But the newly arrived settlers did not know these places. Kazakhs, in turn, had to use these obviously dangerous pastures and watering places because of reduction of lands at their disposal.

Meanwhile, a lack of constant control over the course of the disease, and fear of failure to comply with the rules and instructions on measures to prevent and cure the disease, forced the administration to put forward the "scientific question of the possibility of mass prevention" with the help of vaccinations. Although there were cases of deaths from the unsuccessful outcome of vaccinations, the administration was not afraid of such losses, since it believed that it was necessary to show an “urgent need” and not stop even in the face of large losses.

6. The loss of habitat and the reduction of migration routes for Kazakhs, together with an increase in demand for livestock and livestock products, threatened the degradation of Kazakh sheep keeping and thereby the loss of a key element of culture. The root cause of this process lay in a significant difference between the imperial (Russian) and Kazakh concepts of the environment, man and wildlife. The imperial center viewed both the maintenance of livestock in the steppe, and sheep breeding in particular, as a shaky, unstable economic system; it did not appreciate the complexity and specificity of Kazakh animal husbandry. The center tried in every possible way to save the primitive economy from natural disasters by encouraging the development of haymaking and paddocks, without regard for the natural and climatic conditions of the steppe. It also focused on “improving” Kazakh sheep, through crossing with other breeds of sheep, for commercial goals – the development of "commercial animal husbandry". But in this too it did not take into consideration the natural conditions of the steppe – the Kazakhs’ own needs in sheep and, particularly, the ability.

7. Resettlement had as its immediate consequence the reduction in the size of nomadism and the closure of nomadic routes. This made a rapid and radical change in the pastoral life of the Kazakh people inevitable. Thus, resettlement contributed to the process of a qualitative change in the composition of the herd. The changed composition of the herd caused different ways of using pastureland, and introduced a new element for the Kazakh steppes – hay mowing lands, which in turn created "diverse forms of land use" and economic management. Differences between types of livestock were given completely different importance, where one type could be less tied to social and cultural capital, the other to economic necessity. The growth of the share of cattle in Kazakh herds was also influenced by an important new factors: the emergence of railway lines and stations, the reduction of the radius of nomadic routes, and the emergence of permanent points of settlement. Trade, marketing and supply of raw materials became important components in the changing economic life of the Kazakhs, due to the increase in the sale of livestock and animal products.

8. Any steppe animal is adapted to the conditions of steppe life and to the requirements of nomadic pastoralism. Nomadism, in turn, is the adaptation of people to the steppe environment. And the way Kazakhs perceived livestock breeding came from the same point: from the steppe environment. The main approach to understanding the nature of the relationship between nature and society in the field of nomadic economy boiled down to one main point – what we call unity or a special connection, an adaptation to a whole range of natural and historical conditions. Meanwhile, for imperial power and its “cultured” representatives, nomadism seemed no more than a shaky, unstable, and deterministic economic. This was because it was closely connected to the natural environment and could thus be undermined in a

moment, as the result of a single accident. This was part of a common trend in European colonialism, where most often the peripheries were perceived as part of the wild, natural world, while the core colonizing regions portrayed themselves as carriers of civilization and cultural development. Based on this trend, it is natural that the constant attempts of the imperial authorities to reorganize and replace the various components of traditional animal husbandry contributed to a partial change in the existing system of harmony between man, animals and the environment.

Thus, through the introduction of imperial veterinary practices among the Kazakh people in the late imperial period, we can see not only the accession of new territories to the imperial borderlands, but also the entire process of transformation of the Kazakh society, economy and landscape, which were influenced by various methods of colonial management.

BIBLIOGRAPHY

1. Grove R.H. Green imperialism. – Cambridge: Cambridge University Press, 1996. – 540 p.
2. Arnold D. The Problem of Nature: environment, culture and European expansion. – Oxford; Cambridge, Mass.: Blackwell Pub., 1996. – 199 p.
3. «Anthropocentric". Merriam-Webster.com Dictionary, Merriam-Webster [Ellektronnyi resurs]. – Rezhim dostupa: https://www.merriam-webster.com/dictionary/anthropocentric (19.04.2020).
4. Weitering K. Recent Studies in Animal History // Cultural History. – 2020. – Vol. 9. – No. 1. – P. 123-128.
5. Specht J. Animal history after its triumph: unexpected animals, evolutionary approaches and the animal lens // History Compass. – 2016. – No.14/7. – P. 326-336.
6. Kundakbaeva Zh.B. Organizatsiia imperskogo prostranstva v kochevoi srede: kazakhi i volzhskie kalmyki v orbite vnimaniia Rossii v XVIII veke: monografiia. – Almaty: Kazak universitet, 2019. – 384 s.
7. Kapeller A. Rossiia – mnogonatsional'naia imperiia. Vozniknovenie, istoriia, raspad. – M.: Traditsiia-Progress-Traditsiia, 2000. – 344 s.
8. Fuko M. Rozhdenie biopolitiki. Kurs lektsii, prochitannykh v Kollezh de Frans v 1978-1979 uchebnom godu / M. Fuko; Per. s fr. A. V. D'iakov. – SPb.: Nauka, 2010. – 448 s.
9. Rychkov N.P. Topografiia Orenburgskoi gubernii. Ch.1. – Spb, 1762. – 331 s.
10. Alektorov A.E. Skotovodstvo kirgiz / Ukazatel' knig, zhurnal'nykh i gazetnykh statei i zametok o kirgizakh / A.E. Alektorov. – Kazan': Tipo-lit. imp. un-ta, 1900. – S. 65-74.
11. Levshin A.I. Opisanie kirgiz-kazach'ikh, ili kirgiz-kaisatskikh, ord i stepei. Chast' tret'ia: etnograficheskie izvestiia. – Sankt-Peterburg: Tipografiia Karla Kraiia, 1832. – S. 197-198.
12. Kazantsev I. Opisanie Kirgiz-Kaisak / Bukeevskoi Orde 200 let. Kniga 1. – Almaty: Olke, 2001. – S. 305-306.
13. Ivanov I.S. Vnutrenniaia Kirgizskaia Orda / Bukeevskoi Orde 200 let. Kniga 2. – Almaty: Olke, 2001. – S. 17-246.
14. Troitskii N. Vzgliad na Vnutrenniuiu Kirgizskuiu Ordu / Bukeevskoi Orde 200 let. Kniga 3. – Almaty: Olke, 2001. – S. 81-82.
15. Blaramberg I.F. Zemli Kirgiz-Kaisakov Vnutrennei i Zaural'skoi Ordy / Bukeevskoi Orde 200 let. Kniga 1. – Almaty: Olke, 2001. – S. 26-33.
16. Meier L. Materialy dlia geografii i statistiki Rossii. Kirgizskaia step' Orenburgskogo vedomstva. – Sankt-Peeterburg, 1865. – S. 133-170.
17. Gaverdovskii Ia.P. Obozrenie Kirgiz-kaisatskoi stepi. Ch. 2. / Istoriia Kazakhstana v russkikh istochnikakh XVI-XX vv. Tom 5. / Sost. I.V. Erofeeva, B.T. Zhanaev. – Almaty: Daik-Press, 2005. – S. 473-479.

18. Potanin G.N. O skotovodstve u kirgizov Zapadnoi Sibiri / Istoriia Kazakhstana v russkikh istochnikakh XVI-XX vv. Tom 7. / Sost. K.Sh. Alimgazinov. – Almaty: Daik-Press, 2006. – S. 443-451.
19. Eversmen E. Estestvennaia istoriia Orenburgskogo kraia. – Orenburg: Tip. shtaba otd. Orenb. korpusa, 1840. – S. 215-276.
20. Pallas P.S. Puteshestviia po raznym provintsiiam Rossiiskoi imperii. Ch. 1. – SPb.: Imp. Akad. nauk, 1809. – 657 s.
21. Ostrovskii E. Poezdka vo Vnutrenniuiu Kirgiz-Kaisatskuiu Ordu, s veterinarnoi tsel'iu / Bukeevskoi Orde 200 let. Kniga 3. – Almaty: Olke, 2001. – S. 46-241.
22. Kravtsov G. Otchet o poezdke v kirgizskie stepi Evopeiskoi i Aziatskoi Rossii v 1872-1873 i 1874 g. S tsel'iu issledovaniia uslovii i prichin razvitiia i rasprostraneniia skotskikh padezhei // Arkhiv Veterinarnykh Nauk. Kn. 2. – S. Peterburg, 1877.
23. Kadomtsev A.V. Otchet o poezdke v Kirgizskie stepi Evropeiskoi i Aziatskoi Rossii s tsel'iu issledovaniia uslovii i prichin razvitiia i rasprostraneniia skotskikh padezhei. – SPb: Tipografiia i litografiia A.K.Landau, 1877.
24. Otchet o zaniatiiakh Veterinarnogo komiteta za 1871 g. // Arkhiv Veterinarnykh Nauk. Kn. 1. – S.Peterburg, 1874.
25. Grazhdanov A.K. Velikaia ekspeditsiia po izucheniiu chumy v Bukeevskoi Orde (k istorii issledovaniia endemii chumy na transgranichnykh territoriiakh Rossii i Kazakhstana) // Karantinnye i zoonoznye infektsii v Kazakhstane. – 2020. – № 2 (41). – S. 129-138.
26. Polenov A. Puti torgovo-promyslovogo dvizheniia v Bukeevskoi Orde i v pogranichnykh s neiu mestnostiakh. Kniga 6. – Almaty: Olke, 2001. – S. 46-242.
27. Dobrosmyslov A.I. Padezh zhivotnykh v Turgaiskoi oblasti vo vremia zimy 1891-92 gg. i vesny 1892 goda ot nedostatka korma, gololeditsy i buranov. – Orenburg: Tipo-litografiia B.Breslina, 1892. – 26 s.
28. Dobrosmyslov A.I. Ovtsevodstvo v Turgaiskoi oblasti // Orenburgskii krai. – 1893. – №58.
29. Dobrosmyslov A.I. Konevodstvo i ego znachenie dlia kirgizskogo naseleniia Turgaiskoi oblasti. – Orenburg: Tipo-litografiia B.A.Breslina, 1894. – 62 s.
30. Dobrosmyslov A.I. Skotovodstvo v Turgaiskoi oblasti. – Orenburg: Turgaiskii Oblastnoi Statisticheskii Komitet, 1895. – 360 s.
31. Dobrosmyslov A.I. Veterinarnyi nadzor v Turgaiskoi oblasti. – Orenburg: Tipo-litogr.P.Zharinova, 1897. – 210 s.
32. Ben'kevich V.Ia. Zhivotnovodstvo v Turgaiskoi oblasti i ego ekonomicheskoe i khoziaistvennoe znachenie dlia naseleniia. – Orenburg: Elektro-Tip.Turg.Obl.Uprav, 1918. – 186 s.
33. Polferov Ia.Ia. Turgaiskaia oblast' na Vserossiiskoi khudozhestvennoi i promyshlennoi vystavke v Nizhnem-Novgorode 1896 g.: Ocherk. – M.: Rus. t-va pechatnogo i izd. Dela Izd. Turg. stat. kom., 1896. – 36 s.
34. Bokeikhan A. Materialy po ekonomicheskomu obsledovaniiu raionov Sibirskoi zheleznoi dorogi. Zhivotnovodstvo. Sochineniia. / Kur. S.Kh. Zhusip. – Astana: Saryarka, 2017. – S. 63-146.
35. Babadzhanov M-S. Loshadi i ikh vospitanie vo Vnutrennei kirgizskoi orde // Zhurnal konevodstva. – 1871. – № 6-7, 11-12.

36. Dzhantiurin S. Ocherki kirgizskogo konevodstva // Zhurnal konnozavodstva. – 1883. – № 7. – S. 1-43.
37. Dzhantiurin S. Ocherki kirgizskogo konevodstva // Zhurnal konnozavodstva. – 1883. – №8. – S. 1-24.
38. Seidalin A. Veterinariia u kirgizov // VOV. – 1906.– № 4. – S. 195-196.
39. Al'zhanov O. O suevernykh obriadakh u kirgizov vo vremia epizootii / KGS. – Almaty: Gylym, 1994. – S. 486-488.
40. Gizatullin Kh.G. O probleme profilaktiki i iskorenenii zaraznykh boleznei sel'skokhoziaistvennykh zhivotnykh v Rossii i SSSR: Diss.dokt.vet.nauk. – M., 1956. – 560 s.
41. Kalugin V.I. Bor'ba s epizootiiami v SSSR i nekotorykh zarubezhnykh stranakh (1500-1966): Diss. dokt.vet.nau. – M., 1966. – 435 s.
42. Gil'mutdinova O.N. Kazanskii veterinarnyi institut v 70-90-e gody 19 veka: Diss.kand.istorich.nauk. – M.-Kazan', 1997. – 213 s.
43. Akhmetov P.M. Veterinariia sluzhba Tatarii v bor'be s bolezniami zhivotnykh. – Kazan', 1975. – 143 s.
44. Lapshin A.I. Veterinariia Novosibirskoi oblasti. – Novosibirsk, 1982. – 18 s.
45. Kozhakin S.K. Istoriia veterinarii v Kazakhstane: dis. … kand. vet. nauk. – Alma-Ata, 1949. – 623 s.
46. Argynbaev Kh.A. Istoriko-kul'turnye sviazi russkogo i kazakhskogo narodov. 2-e izdanie. 10 tom. – Astana: Altyn kitap, 2007. – 242 s.
47. Argynbaev Kh. Mal aurularyn emdeudegi kazaktyn khalyk tazhiribesi turaly. – Almaty: Kazmemauylshar.adebbas, 1963. – 51 b.
48. Masanov N.E. Kochevaia tsivilizatsiia kazakhov: osnovy zhiznedeiatel'nosti nomadnogo obshchestva. – Almaty: Sotsinvest – Moskva: Gorizont, 1995. – 320 s.
49. Tolybekov S.E. Kochevoe obshchestvo kazakhov v KhVII – nachale KhKh veka: politiko-ekonomicheskii analiz. – Alma-Ata: Nauka, 1971. – 633 s.
50. Syromolot S.P. Veterinarnaia sluzhba Samarskoi oblasti: istoricheskie etapy razvitiia, dostizheniia i perspektivy: dis. ... kand. vet. nauk: 16.00.03. – Kazan', 2006. – 190 s.
51. Starostin V.A. Rol' zemstv v agrarnom razvitii Kazanskoi gubernii, 1906-1914 gg.: dis. ... kand. ist. nauk: 07.00.02. – Kazan', 2002. – 221 s.
52. Kostiukov A.V. Sotsial'no-ekonomicheskaia deiatel'nost' Samarskogo zemstva, 1865-1914 gody.: dis. ... kand. ist. nauk: 07.00.02. – Samara, 2003. – 233 s.
53. Korsun V.P. Razvitie zemskoi meditsiny i veterinarii v kontse XIX-nachale XX vv.: na materialakh Vladimirskoi i Kostromskoi gubernii: dis kand. ist. nauk: 07.00.02. – Ivanovo, 2007. – 241 s.
54. Tret'iak A.S. Istoriia zemskoi meditsiny i veterinarii v Tsentral'nom Chernozem'e: 1865-1914 gg.: dis. kand. ist. nauk: 07.00.02. – Kursk, 2009. – 186 s.
55. Khinaiat B. Kazaktyn dasturli mal darigerlik bilim zhuiesi (tarikhi-etnologiialyk zertteu): tarikh gylym. kand. diss. – Almaty, 2001. – 193 b.
56. Toktabai A. Kazak zhylkysynyn tarikhy. – Almaty: Almatykitap, 2010. – 496 s.
57. Toktabai A.U. Kul't konia u kazakhov. – Almaty: Kazizdat-KT, 2004. – S. 93-110.
58. Sansyzbai A.R. Zhylky zhane tuie aurulary. – Almaty: Bastau, 1998. – 151 s.

59. Babalykuly Zh. Mal aurularynyn kazaksha ataulary. – Almaty: Kainar, 1986. – 240 b.
60. Toleubaev A.T. Relikty doislamskikh verovanii v semeinoi obriadnosti kazakhov (XIX – nachalo XX v .). – Almaty: Gylym, 1991. – 214 s.
61. Sharipbaev N. Paidaly osimdikterdi mal darigerliginde koldanu. – Almaty: Kainar, 1988. – 248 b.
62. Browne K. Environmental and Veterinary History – Some Themes and Suggested Ways Forward // Environment and History. – 2014. – Vol. 20. – No. 4. – P. 547-559.
63. Enticott G. The Changing Role of Veterinary Expertise in the Food Chain // Philosophical Transactions: Biological Sciences. – 2011. – Vol. 366. – No. 1573. – p. 1955-1965.
64. Mwatwara W., Swart S. 'If our cattle die, we eat them but these white people bury and burn them!' African Livestock Regimes, Veterinary Knowledge and the Emergence of a Colonial Order in Southern Rhodesia, c. 1860-1902 // Kronos. – 2015. – No. 41. – R.112-141.
65. Guenel A. Cattle for the Colony: Veterinary Science and Animal Breeding in Colonial Indochina / Translating the Body: Medical Education in Southeast Asia / ed. by Hans Pols et al. – Singapore: NUS Press, 2017. – p. 95-115.
66. McNeill J. p. Mosquito Empires: Ecology and War in the Greater Caribbean, 1620-1914. – Cambridge: Cambridge University Press, 2010. – 371 r.
67. Anderson V.D. Creatures of Empire: How Domestic Animals Transformed Early America. – Oxford and New York: Oxford University Press, 2004. – 336 p.
68. Mishra S. Beastly encounters of the Raj: Livelihoods, livestock and veterinary health in North India, 1790–1920. – Manchester: Manchester University Press, 2015. – 184 r.
69. Direito B. Livestock and veterinary health in southern Mozambique in the beginning of the twentieth century: the case of the fight against East Coast fever // Historia, Ciencias, Saude – Manguinhos, Rio de Janeiro. – 2021. – Vol. 28. – No. 4. – P. 939-959.
70. Ferret C. Des chevaux pour l'empire // Cahiers d'Asie centrale. – 2009. – №17/18. – p. 211-253.
71. Weiner D.R. Models of Nature: Ecology, Conservation and Cultural Revolution in Soviet Russia, 1st edn. – Bloomington: Indiana University Press. – 312 p.
72. Weiner D.R. A Little Corner of Freedom: Russian Nature Protection from Stalin to Gorbachev. – Berkeley: University of California Press, 1999. – 556 p.
73. Josephson P., Dronin N., Mnatsakanian R., Cherp A., Efremenko D., Larin V. An Environmental History of Russia. – Cambridge: Cambridge University Press. – 2013. – 340 p.
74. Bruno A. The Nature of Soviet Power: An Arctic Environmental History. – New York: Cambridge University Press, 2016. – 305 p.
75. Bruno A. Making Reindeer Soviet: The Appropriation of an Animal on the Kola Peninsula / ed. by J. Costlow and A. Nelson / Other Animals: Beyond the Human in Russian Culture and History. – Pittsburgh: University of Pittsburgh Press, 2010. – P. 117-137.

76. Bruno A. Russian Environmental History: Directions and Potentials // Kritika: Explorations in Russian and Eurasian History. – 2007. – Vol. 8. – No. 3. – P. 635-650.
77. Brain S. Song of the Forest: Russian Forestry and Stalinist Environmentalism, 1905-1953. – Pittsburgh: University of Pittsburgh Press, 2011. – 232 p.
78. Moon D. The Plough that Broke the Steppes. Agriculture and Environment on Russia's Grasslands, 1700-1914. – Oxford: Oxford University Press, 2013. – 319 p.
79. Cameron S. The Hungry Steppe: Soviet Kazakhstan and the Kazakh Famine, 1921-1934. Ph.D. dissertation. – Yale University, 2010. – 273 p.
80. Campbell I. Knowledge and Power on the Kazakh Steppe, 1845-1917. Ph.D. dissertation. – University of Michigan, 2011. – 471 p.
81. Peterson M. Technologies of Rule: Empire, Water, and the Modernization of Central Asia, 1867-1941. Ph.D. dissertation. – Harvard University, 2011. – 546 p.
82. Seitz J.B. Science and the steppe: Agronomists, nomads, and the settler colony on the Kazakh steppe, 1881-1917. Ph.D. Dissertation. – Iowa State University, 2019. – 289 p.
83. McDaniel S. Equine Empire: horses and power on the Kazakh steppe, 1880s-1920s. Ph.D. Dissertation. – Michigan State University, 2019. – 242 p.
84. Eurasian Environments: Nature and Ecology in Imperial Russian and Soviet History / ed. by N. Breyfogle. – Pittsburgh: University of Pittsburgh Press, 2018. – 424 p.
85. http://webstersdictionary1828.com/Dictionary/environmental%20history
86. https://www.merriamwebster.com/dictionary/environmental%20history
87. Environmentalism // Encyclopedia Britannica. – William Hemingway Benton Publisher, 1974. – Vol. 3. – P. 912.
88. White p. American Environmental History: The Development of a New Historical Field // Pacific Historical Review. – 1985. – Vol. 54. – No. 3. – P. 297-335.
89. McNeill J. p. Observations on the Nature and Culture of Environmental History // History and Theory. – 2003. – Vol. 42. – No. 4. – P. 5-43.
90. Radkau J. Nature and Power: A Global History of the Environment. – Cambridge: Cambridge University Press, 2008. – 430 p.
91. Davis D. Resurrecting the Granary of Rome: Environmental History and French Colonial Expansion in North Africa. – Athens: Ohio University Press, 2007. – 296 p.
92. Crosby A. Ecological Imperialism: The Biological Expansion of Europe, 900-1900. – Cambridge: Cambridge University Press, 1986. – 368 p.
93. Griffiths T., Robin L. Ecology and Empire: Environmental History of Settler Societies. – Edinburgh: Keele University Press, 1997. – 248 r.
94. Kumar D. The evolution of colonial science in India: natural history and the East India Company / Imperialism and the Natural World / Ed. by John M. MacKenzie. – Manchester: Manchester University Press, 1990. – P. 51-68.
95. Schneider W. Geographical reform and municipal imperialism in France, 1870-80 / Imperialism and the Natural World / Ed. by John M. MacKenzie. – Manchester: Manchester University Press, 1990. – P. 90-117.
96. Stafford p. Annexing the landscape of the past: British imperial geology in the nineteenth century / Imperialism and the Natural World / Ed. by John M. MacKenzie. – Manchester: Manchester University Press, 1990. – P. 67-89.

97. Campbell I.W. Knowledge and the Ends of Empire: Kazak Intermediaries and Russian Rule on the Steppe, 1731-1917. – Ithaca, NY: Cornell University Press, 2017. – 288 r.
98. MacKenzie J.M. Experts and amateurs: tetse, nagana and sleeping sickness in East and Central Africa / Imperialism and the Natural World / Ed. by John M. MacKenzie. – Manchester: Manchester University Press, 1990. – P. 187-212.
99. Bezopasnost', territoriia, naselenie. Kurs lektsii, prochitannykh v Kollezh de Frans v 1977-1978 uch. godu / M. Fuko; per. S fr. V.Iu. Bystrova i dr. – Spb.: Nauka, 2011. – 544 s.
100. Agrawal A. Environmentality: Technologies of Government and the Making of Subjects. – Durham, N.C.: Duke University Press, 2005. – 325 p.
101. Hannah M.G. Governmentality and the Mastery of Territory in Nineteenth-Century America. – Cambridge: Cambridge University Press, 2000. – 245 r.
102. Vernon J. Hunger: A Modern History. – Cambridge, Mass.: Belknap Press, 2007. – 369 r.
103. Hacking I. The Taming of Chance. – Cambridge: Cambridge University Press, 1990. – 264 r.
104. Mehos D.C., Moon S.M. The Uses of Portability: Circulating Experts in the Technopolitics of Cold War and Decolonization / Entangled Geographies: Empire and Technopolitics in the Global Cold War / Ed. by G. Hecht. – Cambridge, Mass./London: MIT Press, 2011. – P. 43-74.
105. Mitchell T. Rule of Experts: Egypt, Techno-Politics, Modernity. – Berkeley, CA: The University of California Press, 2002. – 413 r.
106. Nail T. The Crossroads of Power: Michel Foucault and the US/Mexico Border Wall // Foucault Studies. – 2013. – No. 15. – P. 110-118.
107. Duisebaeva A.I. «Zhivotnye brodiat po roshcham akademicheskogo mira»: «Animal turn» i novye issledovatel'skie vozmozhnosti // Sovremennye nauchnye issledovaniia: aktual'nye voprosy, dostizheniia i innovatsii: sbornik statei KhI Mezhdunarodnoi nauchno-prakticheskoi konferentsii. – Penza: MTsNS «Nauka i prosveshchenie», 2020. – S. 113-116.
108. Ritvo H. The animal estate: The english and other creatures in the victorian age. – Cambridge: Harvard University Press, 1987. – 347 r.
109. Cronon W. Changes in the Land: Indians, Colonists, and the Ecology of New England. – New York: Hill and Wang, 2003. – 257 p.
110. Crosby A. The Columbian Exchange: Biological and Cultural Consequences of 1492. – Greenwood Press, 1972. – 268 p.
111. Domanska E. Animal history // History and Theory. – 2017. – V.56. – No. 2. – P. 267-287.
112. Rees A. Animal agents? Historiography, theory and the history of science in the Anthropocene // BJHS: Themes. – 2017. – Vol. 2. – P. 1-10.
113. Duisebaeva A.I. Analiz i osnovnye kharakteristiki istochnikov v izuchenii vnedreniia imperskikh veterinarnykh praktik v sistemu kazakhskogo skotovodstva // Vestnik KazNU. Seriia istoricheskaia. – №4 (103). – 2021. – p. 209-215.
114. Raport veterinarnogo vracha Lermana za №150 ot 16 Avgusta 1893 g. // TsGA RK F. 25. Op. 1. D. 4214. L. 24.

115. Raport veterinarnogo vracha Lermana za №150 ot 16 Avgusta 1893 g. // TsGA RK F. 25. Op. 1. D. 4214. L. 24ob.
116. Veterinarnomu vrachu 5-go uchastka Lavrovu // TsGA RK F. 25. Op. 1. D. 4182. L. 2.
117. Otchet o veterinarno-sanitarnom sostoianii 2-go uchastka v 1892 g. // TsGA RK F. 25. Op. 1. D. 4193. L. 2-8.
118. Veterinarno-sanitarnyi otchet veterinarnogo vracha 7-go uchastka za 1894 g. // TsGA RK F. 25. Op. 1. D. 4217. L. 41.
119. Veterinarno-sanitarnyi ocherk 3-go veterinarnogo uchastka za 1893 g. // TsGA RK F. 25. Op. 1. D. 4206. L. 185-185ob.
120. Tsirkuliar Predsedatelia Veterinarnogo komiteta za №107 ot 10 Ianvaria 1897 g. // TsGA RK F. 25. Op. 1. D. 4204. L. 52.
121. Raport veterinarnogo vracha Skorobogatko za №33 ot 1 iiulia 1894 g. // TsGA RK F. 25. Op. 1. D. 4214. L. 46.
122. Otpusk veterinarnomu vrachu Skorobogatko za №6960 ot 8 Iiulia 1894 g. // TsGA RK F. 25. Op. 1. D. 4214. L. 47.
123. Akt vskrytiia za №37 // TsGA RK F. 25. Op. 1. D. 4188. L. 2.
124. Protokol vskrytiia za №36 // TsGA RK F. 25. Op. 1. D. 4188. L. 4.
125. Zhurnal prisutstviia Turgaiskogo Oblastnogo pravleniia za №405 ot 21 Marta 1909 g. // TsGA RK F. 25. Op. 1. D. 4246. L. 49ob.
126. Raport Zaveduiushchego veterinarnoi chast'iu za №2971 // TsGA RK F. 25. Op. 1. Kn. 2. D. 4207. L. 152.
127. Materialy ob epizootii zhivotnykh v nekotorykh mestnostiakh imperii. 6/KhI-1869 – 18/XI-1874 // TsGA RK F.25. Op.1. D. 4160.
128. O priniatii mer protiv zaneseniia iz kirgizskoi stepi v Aktiubinskoe ukrepleniia raznykh epizooticheskikh boleznei 21/V-1882 – 22/XII-1883 // TsGA RK F.25. Op.1. D.2379.
129. O merakh protiv sapa 14/II-1884 – 31/XII-1885 // TsGA RK F.25. Op.1. D.2393.
130. O merakh protiv poval'noi bolezni na skote v Turgaiskoi oblasti v 1885 g. // TsGA RK F.25. Op.1. D.2406.
131. O priniatykh merakh k predotvrashcheniiu chumnoi epizootii na rogatom skote v Turgaiskoi oblasti 13/I-1890 – 30/KhII-1890 // TsGA RK F.25. Op.1. D.4172.
132. O merakh prekrashcheniia chumnoi epizootii na mestnom skote v Turgaiskoi Oblasti 23/IV-1893 – 1/II-1894 // TsGA RK F.25. Op.1. D.4213.
133. O konevodstve v Turgaiskoi Oblasti 20/II-1892 – 10/Kh-1895 // TsGA RK F.25. Op.1. D.4199.
134. Delo o sostoiani konevodstva v Turgaiskoi Oblasti 1893-1894 gg. // TsGA RK F.25. Op.1. D.4199a.
135. Svedeniia o sostoianii kirgizskogo ovtsevodstva v Turgaiskoi Oblasti 4/KhI-1892 – 20/II-1895 // TsGA RK F.25. Op.1. D.4200.
136. Svedeniia o krupnom rogatom skote v Turgaiskoi Oblasti 23/IKh-1893 – 2/VI-1895 // TsGA RK F.25. Op.1. D.4210.
137. O sostoianii kirgizskogo kozovodstva v Turgaiskoi Oblasti 9/II-1892 – 8/I-1897 // TsGA RK F.25. Op.1. D.4218.

138. O sostoianii kirgizskogo verbliudovodstva v Turgaiskoi Oblasti 12/II-1894 – 8/I-1897 // TsGA RK F.25. Op.1. D.4219.
139. O konevodstve v Turgaiskoi oblasti 26/IKh-1895 – 18/VI-1897 // TsGA RK F.25. Op.1. D.4224.
140. Svedeniia o konevodstve v Turgaiskoi Oblasti 22/III-1914 – VIII-1914 // TsGA RK F.25. Op.1. D.4415.
141. O razvedenii v Turgaiskoi Oblasti Karakul'evykh baranov. 8/V-1914 – 22/V-1914 // TsGA RK F.25. Op.1. D.4417.
142. Veterinarno-sanitarnyi otchet veterinarnogo vracha 7-go uchastka Turgaiskoi oblasti za 1896 g. // TsGA RK F. 25. Op. 1. D. 4231. L. 174.
143. Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye ekspeditsiei po issledovaniiu stepnykh oblastei Turgaiskaia oblast'. Kustanaiskii uezd. T.V. / Pod red. F. Shcherbina. – Voronezh, 1903. – 537 s.
144. Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye ekspeditsiei po issledovaniiu stepnykh oblastei. Turgaiskaia oblast'. Aktiubinskii uezd. T.VII. / Pod red. F. Shcherbina. – Voronezh, 1903. – 575 s.
145. Campbell I.W. Settlement promoted, settlement contested: the Shcherbina Expedition of 1896-1903 // Central Asian Survey. – 2011. – Vol.30. – P. 423-436.
146. Programmy i organizatsiia raboty / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye ekspeditsiei po issledovaniiu stepnykh oblastei. Akmolinskaia oblast'. Kokchetavskii uezd. T.I. / Pod red. F. Shcherbina. – Voronezh, 1898. – S. 22.
147. Tasilova N.A. «Kyrgyzdardyn (Kazaktardyn) zher paidalanu materialdary...» – kazak kogamynyn rulyk-taipalyk kurylymy tarikhynyn derek kozi (XIX g. sony – XX g. basy): monografiia. – 2 bas. – Almaty: Kazak universiteti, 2017. – S. 78.
148. Kombinatsionnye tablitsy statisticheskikh svedenii s gruppirovkoi khoziaistv po trudovym priznakam i po skotu po uezdu / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye Statisticheskoi partiei Turgaisko-Ural'skogo pereselencheskogo raiona. Kustanaiskii uezd. – Orenburg, 1912. – S. 387-436;
149. Kombinatsionnye tablitsy statisticheskikh svedenii s gruppirovkoi khoziaistv po trudovym priznakam i po skotu – po uezdu / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye Statisticheskoi partiei Turgaisko-Ural'skogo pereselencheskogo raiona. Aktiubinskii uezd. – Orenburg, 1912. – S. 355-400.
150. Kombinatsionnye tablitsy statisticheskikh svedenii s gruppirovkoi khoziaistv po trudovym priznakam i po skotu – po uezdu / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye Statisticheskoi partiei Turgaisko-Ural'skogo pereselencheskogo raiona. Turgaiskii uezd. – Orenburg, 1911. – S. 241-270.
151. Kombinatsionnye tablitsy statisticheskikh svedenii s gruppirovkoi khoziaistv po trudovym priznakam i po skotu – po uezdu / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye Statisticheskoi partiei Turgaisko-Ural'skogo pereselencheskogo raiona. Irgizskii uezd. – Orenburg, 1913. – S. 243-276.

152. Razdorskii A.I. Obzory gubernii, oblastei i gradonachal'stv Rossiiskoi imperii za 1870-1916 gg. kak istoricheskii istochnik // Journal of Modern Russian History and Historiography. – 2015. – №8(1). – S. 38.
153. Diatlova N.P. Otchety gubernatorov kak istoricheskii istochnik / Problemy arkhivovedeniia i istochnikovedeniia / Otv. redaktor V.V. Bedin. – Leningrad: Nauka, 1964. – S. 241.
154. Rygalova M.V. Obzory oblastei Rossiiskoi imperii. kak istochnik po istorii obrazovaniia (na primere oblastei Stepnogo kraia i Turkestana // Izvestiia AltGU. Istoricheskie nauki i arkheologiia. – 2021. – №2 (118). – S. 69.
155. Minakov A.S. Vsepoddanneishie otchety gubernatorov Rossiiskoi imperii: sovremennye problemy istoriografii // Izvestiia VUZov. Povolzhskii region. Gumanitarnye nauki. – 2016. – №2(38). – S. 10.
156. Mikhailov V. Besedy o skotovodstve IV // Kirgizskaia stepnaia gazeta. – 1894. – №11. – S. 3.
157. Mikhailov V. Besedy o skotovodstve V // Kirgizskaia stepnaia gazeta. – 1894. – №15. – S. 2-3.
158. Gratsiapov E. K voprosu o prichinakh vyrozhdeniia kirgizskikh loshadei i o merakh podderzhaniia etoi porody // Kirgizskaia stepnaia gazeta. – 1894. – №21. – S. 3.
159. Dobrosmyslova A.I. Tranzitnoe peredvizhenie promyshlennogo skota i zhivotnykh produktov cherez Turgaiskuiu oblast' s 1891-1895 g. – Orenburg: Tipo-lit. N. Zharinova, 1896. – S. 13.
160. Ben'kevich V.Ia. O neobkhodimosti organizatsii pereselencheskoi veterinarii v Turgaiskoi oblasti / Trudy soveshchaniia veterinarnykh vrachei Orenurgskoi gub. i Turgaiskoi obl. za 1912 g. – Orenburg, 1913.
161. Ben'kevich V.Ia. O neobkhodimosti ustroistva v kirgizskikh stepiakh laboratorii dlia izucheniia PVL krupnogo rogatogo skota // V.O.V. – 1905. – №3.
162. Ben'kevich V.Ia. O neobkhodimosti ustroistva tsentral'noi vet. laboratorii v Omske i ee zadachi // V.O.V. – 1908. – №23.
163. Ben'kevich V.Ia. Sovremennoe polozhenie punktovoi veterinarii i mery dlia uluchsheniia etoi otrasli vet. dela / Trudy soveshchaniia veterinarnykh vrachei Orenurgskoi gub. i Turgaiskoi obl. za 1912 g. – Orenburg, 1913.
164. Babalar sozi: Zhuz tomdyk. 65-tom. Kazak makal-matelderi. – Astana: Foliant, 2010. – 488 b.
165. Babalar sozi: Zhuz tomdyk. 66-tom. Kazak makal-matelderi (Kytai kazaktarynyn makal-matelderi). – Astana: Foliant, 2010. – 408 b.
166. Babalar sozi: Zhuz tomdyk. 67-tom. Kazak makal-matelderi (Kytai kazaktarynyn makal-matelderi). – Astana: Foliant, 2010. – 464 b.
167. Melioranskii P.M. Kirgizskie poslovitsy i zagadki / Zapiski Vostochnogo otdeleniia russkogo arkheologicheskogo obshch. 1893. – S.39-50.
168. Katarinskii V.V. Sbornik kirgizskikh poslovits / Materialy po etnografii kirgiz. Izdanie Turgaiskogo oblastnogo staticheskogo komiteta. – Orenburg, 1899. – S. 3-153.
169. Gern V-F. Kirgizskie poslovitsy. – Semipalatinsk, 1899.
170. Laptev I. Materialy po kazakh-kirgizskomu iazyku. – Moskva, 1900.

171. Vasil'ev A.A. Poslovitsy, zapisannye so slov kirgiz Turgaiskoi oblasti. – Orenburg, 1892.
172. Divaev A. Kirgizskie vedomosti na pravakh rukopisi. –Tashkent, 1900.
173. Babazhanov M. Sankt-Peterburgskie vedomosti. – 1861. – №136.
174. Dauylbaev B. Makaldar// «Dala ualaiatynyn gazeti». – 1892. – S. 42-46.
175. Abdul'dina B.Sh. Malye zhanry kazakhskogo fol'klora (Problemy poetiki i sistematizatsii): avtoreferat dis. ... kandidata filologicheskikh nauk: 10.01.09. – Alma-Ata, 1993. – 23 s.
176. Vasil'ev A.V. Obraztsy kirgizskoi narodnoi slovesnosti. KhII molitvennykh blagozhelanii "Bata soz". – Orenburg: tip.lit. Turg.obl.pravl., 1905. – 24 s.
177. Baidauletova N.R., Kenzhebaeva A. Blagopozhelanie kak osobyi zhanr ustno-rechevogo diskursa // Vestnik KazNU. Seriia vostokovedeniia. –2016. – №3 (78). – S.84-85.
178. Ustun'er I. Zoomorfnaia metafora, kharakterizuiushchaia cheloveka, v russkom i turetskom iazykakh. Dis. … kand. filol. nauk: 10.02.20. – Ekaterinburg, 2004. – 220 s.
179. Kenesbaev. Kazak tilinin frazeologiialyk sozdigi. – Almaty: Gylym, 1977. – 712 b.
180. Kozhakhmetova Kh.K. i dr. Kazakhsko-russkii frazeologicheskii slovar'. – Almaty: Mektep, 1988. – 224 s.
181. Zav'ialova N. A. Frazeologicheskie edinitsy s kolorativnym komponentom kak sostavliaiushchaia diskursa povsednevnosti Iaponii, Velikobritanii i Rossii. – Ekaterinburg: Izd-vo Ural. un-ta, 2011. – 320 s.
182. Toktabai A., Seitkulova Zh. Tort tuliktin kasieti. – Almaty: Zhasushy, 2005. – S. 33.
183. Dzhanabaeva G.D. Iskusstvo narodov Tsentral'noi Azii. – Vashington: Programma izucheniia Tsentral'noi Azii, Universitet Dzhordzha Vashingtona, 2019. – 320 s.
184. Nysanbaev A. Kazak yrymdary. Almaty: Kazak entsiklopediiasy, 1998. – 160 b.
185. Matsuzato K. General-gubernatorstva v Rossiiskoi imperii: ot etnicheskogo k prostranstvennomu podkhodu / Novaia imperskaia istoriia postsovetskogo prostranstva / Pod red. I.V. Gerasimova, i dr. – Kazan': Tsentr Issl. Nats. Imp., 2004. – S. 443.
186. Sanderlend U. Imperiia bez imperializma? Neodnoznachnyi kharakter kolonizatsii v Tsarskoi Rossii / Novaia imperskaia istoriia postsovetskogo prostranstva / Pod red. I.V. Gerasimova, i dr. – Kazan': Tsentr Issl. Nats. Imp., 2004. – S. 471.
187. Alektorov A.E. Turgaiskaia oblast'. Statisticheskii ocherk. Estestvennye i proizvol'nye sily oblasti. – Orenburg: Tipo-lit. Efimovskogo-Mirovitskogo, 1891. – 98 s.
188. Dobrosmyslov A.I. Turgaiskaia oblast'. Istoricheskii ocherk. – Tver': Tipo-lit. N. M. Rodionova, 1902. – 524 s.
189. Polferov Ia.Ia. Okhota v Turgaiskoi oblasti. – Orenburg: Tipo-lit. P.N. Zharinova, 1896. – 137 s.
190. Polferov Ia.Ia. Zemledelie v Turgaiskoi oblasti: ocherk. – Orenburg: Turgaiskii obl. stat. komitet, 1896. – 66 s.;

191. Khokhlov N. Ocherk Turgaiskoi oblasti. – Orenburg: Tip. A.N. Gavrilova, 1909. – 57 s.
192. Volosti i naseleniia mesta. Vyp. 14. Turgaiskaia oblast'. – Orenburg: Izd. Tsentr. Stat. Kom., 1894. – 21 s.
193. Ocherk gornogo dela v Turgaiskoi oblasti. – Orenburg: Izd. Turg. Obl. Stat. Kom., 1896. – 40 s.
194. Opisanie Turgaiskoi i Ural'skoi oblastei. – Petrograd: Tip. Sodruzhestvo, 1916. – 51 s.
195. Obzor Turgaiskoi oblasti za 1909 god. – Orenburg: tip. B. Breslina, 1910. – 119 s.
196. Obzor Turgaiskoi oblasti za 1887 god. – Orenburg: tip. B. Breslina, 1888. – 26 s.
197. Ocherk khoziaistvennogo byta kirgizov po dannym Kustanaiskogo i dr. uezdov / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye ekspeditsiei po issledovaniiu stepnykh oblastei Turgaiskaia oblast'. Kustanaiskii uezd. T.V. / Pod red. F. Shcherbina. – Voronezh, 1903. – S. 94.
198. Mordkovich V.G. Stepnye ekosistemy / otv. red. I.E. Smelianskii. 2-e izd. ispr. i dop. – Novosibirsk: Akademicheskoe izdatel'stvo "Geo", 2014. – 170 s.
199. Istoriia Kazakhstana: narody i kul'tury / Masanov N.E. i dr. – Almaty: Daik-Press, 2000. – S. 89.
200. Michaels P. Curative Powers: Medicine and Empire in Stalin's Central Asia. – Pittsburgh: University of Pittsburgh Press, 2003. – 264 r.
201. Saha J. Colonizing Animals. – Cambridge: Cambridge University Press, 2021. – 280 p.
202. Suraiya F. Animals and People in the Ottoman Empire. – Istanbul: Eren, 2010. – 475 p.
203. Mikhail A. The animal in Ottoman Egypt. – New York: Oxford University Press, 2013. – 331 p.
204. Afanas'eva A. Na styke kolonial'nykh istoriografii: istoriia kolonial'noi i traditsionnoi meditsiny v transnatsional'noi perspektive: otchet o konferentsii // Ab Imperio. – 2008. – №4. – S. 565-570.
205. Afanasyeva A. Russian imperial medicine: the case of the Kazakh steppe / Crossing Colonial Historiographies: Histories of Colonial and Indigenous Medicines in Transnational Perspective. – Newcastle upon Tyne: Cambridge Scholars Publishing, 2010. – P. 57-75.
206. Afanasyeva A. Kazakh Religious Beliefs in the Writings of Russian Doctors during the Imperial Age (1731 – 1917) / Islam, Society and States across the Qazaq Steppe (18th – Early 20th Centuries). – Wien: Verlag der Österreichischen Akademie der Wissenschaften, 2013. – p. 143-180.
207. Afanasyeva A. Quarantines and Copper Amulets: the Struggle against Cholera in the Kazakh Steppe in the Nineteenth Century // Jahrbucher fur Geschichte Osteuropas. – 2013. – Vol. 61. – No. 4. – P. 489-512.
208. Afanas'eva A. «Osvobodit'... ot shaitanov i sharlatanov»: diskursy i praktiki rossiiskoi meditsiny v Kazakhskoi stepi v XIX veke // Ab Imperio. – 2008. – № 4. – S. 113-150.

209. Nikitin I.N., Kalugin V. I. Istoriia veterinarii. – Moskva: Agropromizdat, 1988. – 90 s.
210. Nikitin I.N. Istoricheskie etapy formirovaniia, razvitiia i sovershenstvovaniia Gosudarstvennoi veterinarnoi sluzhby Rossii // Uchenye zapiski KGAVM im. N.E. Baumana. – 2016. – №2. – S. 4-12.
211. Selionova M.I. Iz istorii rossiiskogo ovtsevodstva i ego nauchnogo soprovozhdeniia. – Moskva: FGBNU VNIIOK, 2017. – 238 s.
212. Duisebaeva A.I. Osobennosti organizatsii imperskoi veterinarnoi sluzhby v kazakhskoi stepi: na primere Turgaiskoi oblasti (konets XIX veka) // Otan tarikhy. – №3 (99). – 2022. – S. 52-61.
213. Luk'ianov S.A. Zemskaia veterinariia: stanovlenie i razvitie vo vtoroi polovine XIX – nachale XX v. // Obrazovanie. Nauka. Nauchnye kadry. – 2020. – №4. – S. 87.
214. Kolganova O.A. Istoriia razvitiia veterinarii v Rossii. – Novosibirsk: NGAU, 2018. – S. 73.
215. Khokhlov N. Ocherk Turgaiskoi oblasti. – Orenburg: Tip. A.N. Gavrilova, 1909. – 57 s.
216. Spiski naselennykh mest Rossiiskoi imperii. [Vyp. 6]: Vladimirskaia guberniia: ... po svedeniiam 1859 goda / obrab. st. red. M. Raevskim. – SPb.: izd. Tsentr. stat. kom. Min. vnutr. Del, 1863. – S. V.
217. Noda J. The Kazakh Khanates between the Russian and Qing Empires: Central Eurasian International Relations during the Eighteenth and Nineteenth Centuries. – Brill: Leiden, 2016. – 370 r.
218. Vremennoe Polozhenie ob upravlenii v oblastiakh Ural'skoi, Turgaiskoi i Semipalatinskoi. – S.-Peterburg: tip. MVD, 1883. – 50 s.
219. Ukaz o merakh preduprezhdeniia i prekrashcheniia chumy na rogatom skote // TsGA RK F.25. Op.1. D. 4160. L. 87-87ob.
220. Otchety veterinarnykh vrachei za 1889 g. // TsGA RK F. 25. Op. 1. D. 4163.
221. Otchet po veterinarnoi chasti v Turgaiskoi oblasti za 1889 g. // TsGA RK F. 25. Op. 1. D. 4164. L. 3ob.
222. Obzor Turgaiskoi oblasti za 1883 god. – Orenburg: tip. B. Breslina, 1884. – 15 s.
223. O komandirovanii v Akmolinskuiu oblast' zaved. vet. chast'iu koll. sovetn. Dobrosmyslova dlia uporiadocheniia protivochumnykh merop. vo vsem stepnom krae // TsGA RK F. 25. Op. 1. D. 4223.
224. Stepnoe Polozhenie 25 marta 1891 goda s ob"iasneniiami po ofitsial'nym istochnikam. – S.-Peterburg: tip. MVD, 1891. – 208 s.
225. Otnoshenie Veterinarnogo Upravleniia k voennomu gubernatoru Turgaiskoi Oblasti // TsGA RK F. 25. Op. 1. D. 4184. L. 1ob.
226. Posluzhnoi spisok A.I. Dobrosmyslova // TsGA RK F. 25. Op. 5. Kn. 6. D. 52. L. 3ob.
227. Chase-Levenson A. The Yellow Flag: Quarantine and the British Mediterranean World, 1780-1860. – Cambridge: Cambridge University Press, 2020. – 318 r.
228. Raport zaveduiushchego veterinarnoi chast'iu Turgaiskoi oblasti ot 16 Iiulia 1891 g.// TsGA RK F. 25. Op. 1. D. 4183. L. 19-21ob.

229. Raport zaveduiushchego veterinarnoi chast'iu Turgaiskoi oblasti ot 16 Iiulia 1891 g. // TsGA RK F. 25. Op. 1. D. 4183. L. 21.
230. Raport zaveduiushchego veterinarnoi chast'iu Turgaiskoi oblasti ot 16 Iiulia 1891 g. // TsGA RK F. 25. Op. 1. D. 4183. L. 19-21ob.
231. Avilov V.M. Veterinarnoe delo v Rossii: istoriia voprosa, kriticheskii analiz sovremennogo sostoianiia i zadachi // Innovatsii i prodovol'stvennaia bezopasnost'. – 2013. – №2. – S. 25-40.
232. Obzor Turgaiskoi oblasti za 1899. – Orenburg: Tip. B. Breslina, 1901. – 36 s.
233. Veterinarno-sanitarnyi otchet veterinarnogo vracha 7-go uchastka Turgaiskoi oblasti za 1896 g. // TsGA RK F. 25. Op. 1. D. 4231. L. 174.
234. Veterinarno-sanitarnyi otchet veterinarnogo vracha 1-go uchastka Turgaiskoi oblasti za 1896 g. // TsGA RK F. 25. Op. 1. D. 4231. L. 355.
235. Obzor Turgaiskoi oblasti za 1910. – Orenburg: Tip. B. Breslina, 1911. – 119 s.
236. Slovar' russkogo iazyka, sostavlennyi Vtorym otdeleniem Imperatorskoi Akademii Nauk / red. akad. Ia.K. Grot. Izd. 5-e. – S.-Peterburg: tip. Imperatorskoi Akademii nauk, 1891. – S. 386.
237. Veterinarno-sanitarnyi otchet veterinarnogo vracha 8-go uchastka Turgaiskoi oblasti za 1895 g. // TsGA RK F. 25. Op. 1. D. 4217. L. 366ob.
238. Otnoshenie Voennogo gubernatora v Veterinarnoe Upravlenie za №1191 ot 18 Sentiabria 1909 g. // TsGA RK F. 25. Op. 1. Kn. 2. D. 4246. L. 54.
239. Gromyko V.V., Buganov A.V. O vozzreniiakh russkogo naroda. – Moskva: Palomnik, 2000. – 541 s.
240. Alekseevsky M. Treating the “Other Animals”: Russian Ethnoveterinary Practices / Other Animals: Beyond the Human in Russian Culture and History / Ed. By J. Costlow, A. Nelson. – Pittsburgh: University of Pittsburgh Press, 2010. – p. 42-58.
241. Obzor Turgaiskoi oblasti za 1915. – Orenburg: Tip. B. Breslina, 1916. – 175 s.
242. Obzor Turgaiskoi oblasti za 1889. – Orenburg: Tip. B. Breslina, 1890. – 23 s.
243. Obzor Turgaiskoi oblasti za 1914. – Orenburg: Tip. B. Breslina, 1915. – 234 s.
244. Obzor Turgaiskoi oblasti za 1913. – Orenburg: Tip. B. Breslina, 1914. – 183 s.
245. Otpusk direktoru eksperimental'noi meditsiny za №338 // TsGA RK F.25. Op.1. D. 4239. L. 1.
246. Otpusk direktoru Iur'evskogo Veterinarnogo Instituta za №340 // TsGA RK F.25. Op.1. D. 4239. L. 1ob.
247. Otpusk direktoru Kazanskogo Veterinarnogo Instituta za №339 // TsGA RK F.25. Op.1. D. 4239. L. 1ob.
248. Otpusk direktoru eksperimental'noi meditsiny za №338 // TsGA RK F.25. Op.1. D. 4239. L. 1ob.
249. Veterinarno-sanitarnyi otchet po Turgaiskoi Oblasti za 1897 god // TsGA RK F.25. Op.1. D. 4244. L. 1-13.
250. Obzor Turgaiskoi oblasti za 1901. – Orenburg: Tip. B. Breslina, 1902. – 38 s.
251. Obzor Turgaiskoi oblasti za 1902 god. – Orenburg: tip. B. Breslina, 1904. – 65 s.
252. Obzor Turgaiskoi oblasti za 1903 god. – Orenburg: tip. B. Breslina, 1905. – 27 s.
253. Obzor Turgaiskoi oblasti za 1904. – Orenburg: Tip. B. Breslina, 1905. – 22 s.

254. Obzor Turgaiskoi oblasti za 1905 god. – Orenburg: tip. B. Breslina, 1906. – 22 s.
255. Obzor Turgaiskoi oblasti za 1912 god. – Orenburg: tip. B. Breslina, 1913. – 202 s.
256. Otchet po veterinarnoi chasti v Turgaiskoi oblasti za 1889 g. // TsGA RK F. 25. Op. 1. D. 4164. L. 4.
257. Proekt pravil o preduprezhdenii i prekrashcheniia chumnoi epizootii na mestnom rogatom skote Turgaiskoi oblasti 30/III-1889 –16/VII-1889 // TsGA RK F. 25. Op. 1. D. 4162.
258. Veterinarno-sanitarnyi otchet veterinarnogo vracha 5-go uchastka za 1893 g. // TsGA RK F. 25. Op. 1. D. 4206. L. 76.
259. Veterinarno-sanitarnyi otchet veterinarnogo vracha 5-go uchastka za 1892 g. // TsGA RK F. 25. Op. 1. D. 4193. L. 41ob.
260. Godovoi otchet za 1892 g. punktovogo veterinarnogo vracha 8-go uchastka N. Shtange // TsGA RK F. 25. Op. 1. D. 4193. L. 137.
261. Veterinarno-sanitarnyi otchet veterinarnogo vracha 6-go uchastka za 1893 g. // TsGA RK F. 25. Op. 1. D. 4193. L. 53.
262. Veterinarno-sanitarnyi otchet veterinarnogo vracha 7-go uchastka za 1897 g. // TsGA RK F. 25. Op. 1. D. 4245. L. 71ob.
263. Obzor Turgaiskoi oblasti za 1893. – Orenburg: Tip. B. Breslina, 1894. – S. 23.
264. Veterinarno-sanitarnyi otchet veterinarnogo vracha 5-go uchastka za 1893 g. // TsGA RK F. 25. Op. 1. D. 4206. L. 75ob.
265. Shuliak E.V. Zemskaia meditsina i veterinariia v Ufimskoi gubernii (1875-1914 gg.): dis. kand. ist. nauk: 07.00.02. – Tiumen', 2014. – 369 s.
266. Brown K., Gilfoyle D. Healing the Herds: Disease, Livestock Economies, and the Globalization of Veterinary Medicine. – Athens: Ohio University Press, 2010. – 299 p.
267. Dela Cruz A. Epizootics and the colonial legacies of the United States in Philippine veterinary science // International Review of Environmental History. – 2016. – Volume 2. – P. 143-172.
268. White S. A model disaster: from the Great Ottoman panzootic to the cattle plagues of Early Modern Europe / Plague and Contagion in the Islamic Mediterranean / ed. by N. Varlik. – Yorkshire: Arc Humanities Press, 2017. – P. 91-116.
269. Samiparna S. Dealing with Disease: Epizootics, Veterinarians and Public Health in Colonial Bengal, 1850–1920 / Medicine and Colonialism: Historical Perspectives in India and South Africa / ed. by P. Bala . – London: Routledge. – P. 61-74.
270. Daniel G. Veterinary Research and the African Rinderpest Epizootic: The Cape Colony, 1896-1898 // Journal of Southern African Studies. – 2003. – vol. 29. – No. 1. – P. 133-154.
271. Polferov Ia. Ia. Epizootiia // Entsiklopedicheskii slovar' Brokgauza i Efrona: v 86 t. (82 t. i 4 dop.). – SPb., 1890-1907. – S. 903.
272. Kopiia s zhurnala na 26 noiabria 1869 goda obsuzhdeniia Predlozheniia Orenburskogo general-gubernatora TsGA RK F.25. Op.1. D. 4160. L. 5.

273. Alimbai N., Mukanov M.S., Argynbaev Kh. Traditsionnaia kul'tura zhizneobespecheniia kazakhov. Ocherki teorii i istorii. – Almaty: Gylym, 1998. – 234 s.
274. Obzor Turgaiskoi oblasti za 1877 god. – Orenburg: tip. B. Breslina, 1878. – 41 s.
275. Obzor Turgaiskoi oblasti za 1888 god. – Orenburg: tip. B. Breslina, 1889. – 36 s.
276. Obzor Turgaiskoi oblasti za 1896 god. – Orenburg: tip. B. Breslina, 1897. – 54 s.
277. Godovoi otchet za 1892 god punktovogo veterinarnogo vracha 8-go uchastka Turgaiskoi oblasti // TsGA RK F. 25. Op. 1. D. 4193. L. 136ob.
278. Godovoi otchet za 1895 god veterinarnogo vracha 8-go uchastka Turgaiskoi oblasti // TsGA RK F. 25. Op. 1. D. 4217. L. 365ob.
279. Veterinarno-sanitarnyi otchet veterinarnogo vracha 7-go uchastka za 1893 god // TsGA RK F. 25. Op. 1. D. 4206. L. 160ob.
280. Obzor Turgaiskoi oblasti za 1911 god. – Orenburg: tip. B. Breslina, 1912. – 136 s.
281. Otpusk v Veterinarnoe Upravlenie Ministerstva Vnutrennikh Del za №12516 // TsGA RK F.25. Op.1. D.4171. L. 2ob.
282. Otpusk v Veterinarnoe Upravlenie Ministerstva Vnutrennikh Del za №12516 // TsGA RK F.25. Op.1. D.4171. L. 2ob.
283. Otpusk Ministerstva Vnutrennikh Del za №897 // TsGA RK F.25. Op.1. D.4171. L. 4.
284. Proekt pravil o merakh protiv sapa v Turgaiskoi oblasti // TsGA RK F.25. Op.1. D.4171. L. 6-7.
285. Proekt pravil o merakh protiv sapa v Turgaiskoi oblasti // TsGA RK F.25. Op.1. D.4171. L. 6ob.
286. Proekt pravil o merakh protiv sapa v Turgaiskoi oblasti // TsGA RK F.25. Op.1. D.4171. L. 7.
287. Otchet zaveduiushchego veterinarnoi chast'iu o veterinarno-sanitarnom sostoianii Turgaiskoi oblasti za 1896 g. // TsGA RK F.25. Op.1. D. 4229. L. 7.
288. Obzor Turgaiskoi oblasti za 1908. – Orenburg: Tip. B. Breslina, 1909. – 36 s.
289. Otpusk v Veterinarnoe Upravlenie Ministerstva Vnutrennikh Del za №12516 // TsGA RK F.25. Op.1. D.4171. L. 2ob.
290. Otchet sverkhshtatnogo veterinarnogo vracha Nikolaevskogo uezda Turgaiskoi Oblasti za 1890 g. // TsGA RK F. 25. Op. 1. D. 4166. L. 10ob.
291. Svedeniia dlia Vsepoddanneishego otcheta za 1890 g. Veterinarnaia chast' // TsGA RK F.25. Op.1. D. 4167. L. 20.
292. Otchet zaveduiushchego veterinarnoi chast'iu o veterinarno-sanitarnom sostoianii Turgaiskoi oblasti za 1895 g. // TsGA RK F.25. Op.1. D. 4181. L. 257ob.
293. Veterinarno-sanitarnaia chast' Turgaiskoi oblasti za 1891 g. // TsGA RK F.25. Op.1. D. 4181. L. 2ob.
294. Raport veterinarnogo vracha 6-go uchastka za №90 ot 27 Fevralia 1898 g. // TsGA RK F. 25. Op. 1. D. 4245. L. 128ob.

295. Veterinarno--sanitarnyi otchet veterinarnogo vracha 7-go uchastka za 1894 g. // TsGA RK F. 25. Op. 1. D. 4217. L. 45ob.
296. Otchet sverkhshtatnogo veterinarnogo vracha Nikolaevskogo uezda Turgaiskoi Oblasti za 1890 g. // TsGA RK F. 25. Op. 1. D. 4166. L. 14.
297. Otchet o veterinarno-sanitarnom sostoianii 2-go uchastka Turgaiskoi oblasti v 1892 g. // TsGA RK F. 25. Op. 1. D. 4193. L. 7ob.
298. Duisebaeva A.I. Bor'ba s bolezniami: chuma rogatogo skota, veterinary i zashchita interesov torgovo-promyshlennoi otrasli v Turgaiskoi oblasti, 1868-1917 gg. // Novye nauchnye issledovaniia: sbornik statei VII Mezhdunarodnoi nauchno-prakticheskoi konferentsii. – Penza: MTsNS «Nauka i prosveshchenie», 2022. – S. 113-116.
299. Davis K.D. Brutes, beasts and empire: veterinary medicine and environmental policy in French North Africa and British India // Journal of Historical Geography. – 2008. – Vol. 34. – P. 242-267.
300. Ocherk veterinarno-sanitarnogo sostoianiia 3-go uchastka Turgaiskoi Oblasti za 1892 g. // TsGA RK F. 25. Op. 1. Kn. 2. D. 4193. L. 83.
301. Sunderland W. Taming the wild field: colonization and empire on the Russian steppe. – Ithaca: Cornell University Press, 2004. – 264 r.
302. Kundakbayeva Zh., Duisebayeva A. Raznochinets A.I. Dobrosmyslov – on guard of social conscience and “correct colonialism” // Bulletin of history. – №1 (100). – 2021. – p. 20-27.
303. Duisebaeva A.I. A.I. Dobrosmyslov – organizator veterinarnoi sluzhby Turgaiskoi oblasti (konets KhIKh veka) // Astrakhanskie Petrovskie chteniia: materialy V Mezhdunarodnoi nauchnoi konferentsii (g. Astrakhan', 27 noiabria 2020 g.). – Astrakhan': Astrakhanskii gosudarstvennyi universitet, Izdatel'skii dom «Astrakhanskii universitet», 2021. – C. 232-239.
304. Posluzhnoi spisok A.I. Dobrosmyslova // TsGA RK F. 25. Op. 5. Kn. 6. D. 52. L. 1ob.
305. Otnoshenie Predsedatelia Veterinarnogo Komiteta №5534 // TsGA RK F. 25. Op. 1. Kn. 2. D. 4207. L. 38.
306. Prikaz po Stepnomu general-gubernatorstvu №21 // TsGA RK F. 25. Op. 1. Kn. 2. D. 4207. L. 151.
307. Raport Zaveduiushchego veterinarnoi chast'iu №2971 // TsGA RK F. 25. Op. 1. Kn. 2. D. 4207. L. 152.
308. Ergashev B.E. Novye dannye o biografii A. I. Dobrosmyslova – avtora knigi «Tashkent v proshlom i nastoiashchem» (po materialam kantseliarii Turkestanskogo general-gubernatora) // Evraziiskoe prostranstvo: proshloe, nastoiashchee, budushchee : materialy Kruglogo stola / otv. red. Zh.S. Syzdykova. Moskva, 2012. URL: https://textarchive.ru/c-1314075-pall.html (data obrashcheniia: 27.11.2020).
309. Raport Zaveduiushchego veterinarnoi chast'iu №2971 // TsGA RK F. 25. Op. 1. Kn. 2. D. 4207. L. 152.
310. Otnoshenie voennogo gubernatora Turgaiskoi Oblasti g. Ministru Vnutrennikh Del za №2590 ot 9 Aprelia 1897 g. // TsGA RK F.25. Op.1. D. 4246. L.1.
311. Raport zaveduiushchego veterinarnoi chast'iu Turgaiskoi oblasti ot 16 Iiulia 1891 g. // TsGA RK F. 25. Op. 1. D. 4183. L. 19-21ob.

312. Otnoshenie voennogo gubernatora Turgaiskoi Oblasti g. Ministru Vnutrennikh Del za №2590 ot 9 Aprelia 1897 g. // TsGA RK F.25. Op.1. D. 4246. L.4.
313. Ocherk veterinarno-sanitarnogo sostoianiia 3-go uchastka Turgaiskoi Oblasti za 1892 g. // TsGA RK F. 25. Op. 1. Kn. 2. D. 4193. L. 78.
314. Otnoshenie voennogo gubernatora Turgaiskoi Oblasti g. Ministru Vnutrennikh Del za №2590 ot 9 Aprelia 1897 g. // TsGA RK F.25. Op.1. D. 4246. L.4ob.
315. Otnoshenie voennogo gubernatora Turgaiskoi oblasti nachal'niku Veterinarnogo Upravleniia za №7535 ot 17 Maia 1912 g. // TsGA RK F.25. Op.1. D. 4246. L.79.
316. Otnoshenie Oblastnogo veterinarnogo inspektora Predsedateliu Gosudarstvennoi Dumy M.V. Rodzianko // TsGA RK F.25. Op.1. D. 4246. L.96.
317. Tsirkuliar voennogo gubernatora Turgaiskoi oblasti za №48 ot 3 Ianvaria 1896 g.// TsGA RK F.25. Op.1. D. 4243. L. 4.
318. Veterinarnoo-sanitarnyi otchet veterinarnogo vracha 4-go uchastka Turgaiskoi Oblasti za 1897 g. // TsGA RK F. 25. Op. 1. Kn. 2. D. 4245. L. 280.
319. Otpusk assignovki za №573 ot 18 Ianvaria 1894 g. // TsGA RK F. 25. Op. 1. Kn. 2. D. 4207. L. 4.
320. Otpusk assignovki za №14181 ot 15 Dekabria 1894 g. // TsGA RK F. 25. Op. 1. Kn. 2. D. 4207. L. 41.
321. Otpusk assignovki za №4 ot 2 Ianvaria 1895 g. // TsGA RK F. 25. Op. 1. Kn. 2. D. 4207. L. 42.
322. Sultangalieva G.S. Zapadnyi Kazakhstan v sisteme etnokul'turnykh kontaktov (XVIII – nachalo XIX vv.). – Ufa: RIO RUMNTs Goskomnauki RB, 2002. – 262 s.
323. Otnoshenie Veterinarnogo Upravleniia voennomu gubernatoru Turgaiskoi oblasti za №1714 ot 26 Aprelia 1901 g. // TsGA RK F. 25. Op. 1. D. 4233. L. 22.
324. Vypiska iz postupivshego v Ministerstvo Vnutrennikh Del anonimnogo zaiavleniia // TsGA RK F. 25. Op. 1. Kn. 2. D. 4168. L. 9.
325. Tsirkuliar voennogo gubernatora Turgaiskoi oblasti №11281 ot 15 Oktiabria 1891 g. // TsGA RK F.25. Op.1. D.4179. L. 8.
326. Veterinarno-sanitarnyi otchet veterinarnogo vracha 3-go uchastka Turgaiskoi oblasti za 1894 g. // TsGA RK F. 25. Op. 1. Kn. 2. D. 4217. L. 100.
327. Orenburgsko-Turgaiskoe soveshchanie veterinarnykh vrachei (1-13 marta 1908 g.). Ocherk IV // Veterinarnaia zhizn'. – 1909. – №12. – S. 186.
328. Iessen P. Opyty chumoprivivaniia skota. – Derpt, 1855. – S. 94.
329. Murzaev B. Ob osnovaniiakh immunizatsii s nomoshch'iu vaktsin Tsenkovskogo // Vestnik obshchestvennoi veterinarii. – Spb. – 1904. – № 20. – S. 889-892.
330. Lange I.N. K istorii predokhranitel'nykh privivok anthrax' s i postroiki bakteriologicheskoi stantsii pri Kazanskom veterinarnom institute // Uchenye zapiski Kazanskogo veterinarnogo instituta, t. 7. – 1890. – S.515-532.
331. Lange I.N. K istorii predokhranitel'nykh privivok anthrax' s i postroiki bakteriologicheskoi stantsii pri Kazanskom veterinarnom institute // Uchenye zapiski Kazanskogo veterinarnogo instituta, T.8. – 1891. – C. 625-662.
332. Pyrkov V. Sibireiazvennye privivki vaktsinami professora I.P. Lange // Vestnik obshchestvennoi veterinarii. – Spb. – 1906. – №21. – S. 933-952.

333. Bogdanovich V. Sap i mallein //Veterinarnoe obozrenie. – M. – 1899. – № 15. – S. 659-660.
334. Andreenko M. Ob ustroistve i oborudovanii veterinarnoi laboratorii // Veterinarnyi vestnik. – Khar'kov. – 1899. – № 3. – S.93-98.
335. Koropov V.M. Istoriia veterinarii v SSSR. – Moskva: Gosizdat sel'khozlit., 1954. – S. 227.
336. Gilfoyle D. Anthrax in South Africa: economics, experiment and the mass vaccination of animals, c. 1910-1945 // Medical History. – 2006. – №50 (4). – P. 465-490.
337. Chakrabarti P. Beasts of Burden: Animals and Laboratory Research in Colonial India // History of Science. – 2010. – №48 (2). – P. 125-151.
338. Campbell I. 'The scourge of stock raising': Zhut, limiting environments and the economic transformation of the Kazak steppe" / Eurasian Environments: Nature and Ecology in Imperial Russian and Soviet History / ed. by N. Breyfogle. – Pittsburgh: University of Pittsburgh Press, 2018. – p. 60-74.
339. Valikhanov Ch.Ch. V 5-i tomakh. Tom 4. – Alma-Ata: Gl. red. Kaz. sov ents., 1985. – S. 107.
340. Tsirkuliar Ministra Vnutrennikh Del za №210 ot 22 Aprelia 1892 g. // TsGA RK F.25. Op.1. D.4180. L. 21ob.
341. Kolychev L.A. Ustav vrachebnyi, izd. 1905 g. i po prod. 1912 i 1913 g.g., i uzakoneniia po vrachebno-sanitarnoi chasti, dopolnennye postateinymi raz"iasneniiami Senata i pravitel'stvennykh ustanovlenii, pravilami i instruktsiiami. – Petrograd: izdanie iuridicheskogo knizhnogo magazina V. P. Anisimova, 1915. – 660 s.
342. Otchet zaveduiushchego veterinarnoi chast'iu o veterinarno-sanitarnom sostoianii Turgaiskoi oblasti za 1896 g. // TsGA RK F.25. Op.1. D. 4229. L. 7.
343. Otchet zaveduiushchego veterinarnoi chast'iu o veterinarno-sanitarnom sostoianii Turgaiskoi oblasti za 1897 g. // TsGA RK F.25. Op. 1. T. 2. D. 4244. L. 8.
344. Svetlov G.I. Veterinarnoe delo v russkom zakonodatel'stve. – S.-Peterburg: Tip. Min. Vn. Del, 1906. – 74 s.
345. Vitt V.O. Iz istorii russkogo konnozavodstva. Sozdanie novykh porod loshadei na rubezhe XVIII–
4. XIX vv. – Moskva: Gos. Izd. Sel. Lit., 1952. – 359 s.
346. Kozhevnikov A.N., Gurevich D.Ia. Otechestvennoe konevodstvo: istoriia, sovremennost', problemy. – Moskva: Agropromizdat, 1990. – 221 c.
347. Duisebaeva A.I. Imperskaia veterinariia kak gosudarstvennaia ritorika «zaboty»: meropriiatiia po vnedreniiu novykh uluchshennykh porod skota v kazakhskoi stepi // Vestnik KazNU. Seriia istoricheskaia. – №3 (106). – 2022. – S. 247-264.
348. Duisebayeva A., Campbell I.W. Changes in the flock: sheep-keeping as a symbol of the transformation of the Kazakh traditional economy // Central Asian Survey. Published online: 30 May 2022. DOI: 10.1080/02634937.2022.2069086
349. Obshchie khoziaistvennye usloviia / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye ekspeditsiei po issledovaniiu stepnykh oblastei. Akmolinskaia oblast'. Kokchetavskii uezd. T.I. / Pod red. F. Shcherbina. – Voronezh, 1898. – S. 26.

350. Ocherk kirgizskogo khoziaistva / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye ekspeditsiei po issledovaniiu stepnykh oblastei. Semipalatinskaia oblast'. Karkaralinskii uezd. T.VI. / Pod red. F. Shcherbina. – SPb, 1905. – S. 51.
351. Sadalla E.K., Stea D. Behavioral and psychological adjustments to sedentarization // Geographical Research Forum. – 1982. – No.5. – Sept. – p. 4. [Ellektronnyi resurs]. – Rezhim dostupa: URL: http://raphael.geography.ad.bgu.ac.il/ojs/index.php/GRF/article/view/30
352. See: David A.W. The Horse, the Wheel, and Language: How Bronze-Age Riders from the Eurasian Steppes Shaped the Modern World. – Princeton, N.J.; Woodstock: Princeton University Press, 2007; Bankoff G. and Sandra Swart eds. Breeds of Empire: The 'Invention' of the Horse in Southeast Asia and Southern Africa 1500-1950. – Copenhagen: NIAS Press, 2007; Barclay H. The Role of the Horse in Man's Culture. – London: J.A., 1980; Allen D. M. Horses in Society: A Story of Animal Breeding and Marketing, 1800-1920. – Toronto: University of Toronto Press, 2006; Greene A.N. Horses at Work: Harnessing Power in Industrial America. – Cambridge: Harvard University Press, 2008; Kelekna P. The Horse in Human History. – Cambridge: Cambridge University Press, 2009; McShane C. and Joel Tarr. The Horse in the City: Living Machines in the 19th Century. – Baltimore: Johns Hopkins University Press, 2007; Landry D. Noble Brutes: How Eastern Horses Transformed English Culture. – Baltimore: Johns Hopkins University Press, 2008.
353. Katerere D.R., Applequist W., Aboyade O.M. and Togo Ch. Traditional and Indigenous Knowledge for the Modern Era. A Natural and Applied Science Perspective. – CRC Press, 2019. – 356 r.
354. Kolmogorov G. O promyshlennosti i torgovle v Kirgizskikh stepiakh Sibirskogo vedomstva // Vestnik IRGO. – 1855. – Ch. KhIII. – S. 1-38.
355. McGuire G. By Coin or By Kine? Barter and Pastoral Production in Kazakhstan // Ethnos. – 2016. – 81(1). – P. 57.
356. Glaveanu V.P. The function of ornaments: A cultural psychological exploration // Culture & Psychology. – 2014. – 20(1). – S. 82-101.
357. Kasymbaev Zh. K. Goroda Vostochnogo Kazakhstana v 1861-1917 gg. – Alma-Ata: Gylym, 1990. – 184 s.
358. Milton Sh. The Transvaal Beef Frontier: Environment, Markets and the Ideology of Development, 1902–1942 / Ecology and Empire: Environmental History of Settler Societies / edited by T. Griffiths and L. Robin. – Edinburgh: Keele University Press, 1997. – p. 199-212.
359. Russkie krest'iane. Zhizn'. Byt. Nravy. Materialy «Etnograficheskogo biuro» kniazia V.N. Tenisheva. T.3. Kaluzhskaia guberniia. – Sankt-Peterburg: Delovaia tipografiia, 2005. – 647 s.
360. Russkie krest'iane. Zhizn'. Byt. Nravy. Materialy «Etnograficheskogo biuro» kniazia V.N. Tenisheva. T.1. Kostromskaia i Tverskaia gubernii. – Sankt-Peterburg: Delovaia tipografiia, 2004. – 568 s.
361. Ostrovskii A.V. Zhivotnovodstvo Evropeiskoi Rossii v kontse XIKh – nachale XX v. – SPb.: Poltorak, 2014. – 442 s.

362. Ilin' Zh. Frazeologizmy s nazvaniiami zhivotnykh ovtsa/baran v russkom iazyke (po materialam leksikograficheskikh istochnikov) // BGZh. – 2017. – №4 (21). – S. 88-90.
363. Slovar' russkogo iazyka: V 4-kh t. / pod red. A.P. Evgen'evoi. M.: Rus. iaz. – Poligrafresursy, 1999. [Ellektronnyi resurs]. – Rezhim dostupa: URL: http://feb-web.ru/feb/mas/mas-abc/02/ma106107.htm?cmd=0&istext=1
364. Trudy mestnykh komitetov o nuzhdakh sel'skokhoziaistvennoi promyshlennosti. 1903-1904. T. 1-58. – SPb.
365. Kuleshov P.N. Ovtsevodstvo. – Moskva: Novaia derevnia, 1925. – 142 s.
366. Otchet zaveduiushchego veterinarnoi chasti o veterinarno-sanitarnom sostoianii v Turgaiskoi oblasti za 1891 g. [Report of the head of the veterinary department on the veterinary and sanitary state in the Turgai region for 1891]. // TsGA RK f. 25, op. 1, d. 4181, ll. 68 ob-69.
367. Otchet zaveduiushchego veterinarnoi chasti o veterinarno-sanitarnom sostoianii v Turgaiskoi oblasti za 1892 g. [Report of the head of the veterinary department on the veterinary and sanitary state in the Turgai region for 1892]. TsGA RK f. 25. op. 1. d. 4181, ll. 104 ob-105.
368. Otchet zaveduiushchego veterinarnoi chasti o veterinarno-sanitarnom sostoianii v Turgaiskoi oblasti za 1894 g. [Report of the head of the veterinary department on the veterinary and sanitary state in the Turgai region for 1894]. TsGA RK f. 25. op. 1. d. 4181, l. 193.
369. Otchet zaveduiushchego veterinarnoi chasti o veterinarno-sanitarnom sostoianii v Turgaiskoi oblasti za 1895 g. [Report of the head of the veterinary department on the veterinary and sanitary state in the Turgai region for 1895]. TsGA RK f. 25. op. 1. d. 4181, l. 261.
370. Obzor Turgaiskoi oblasti za 1900 [Review of the Turgai region for 1900]. – Orenburg: Tipografia B. Breslina. – P.20
371. Remnev A.V., Suvorova N.G. Kolonizatsiia Aziatskoi Rossii: imperskie i natsional'nye stsenarii vtoroi poloviny XIX – nachala XX veka. – Omsk: Izdatel'skii dom «Nauka», 2013. – 248 s.
372. Bekmakhanova N.E. Mnogonatsional'noe naselenie Kazakhstana i Kirgizii v epokhu kapitalizma (60-e gody XIX v. – 1917 g.). – Moskva: Nauka, 1986. – 246 s.
373. Kaufman A.A. Pereselentsy-arendatory Turgaiskoi oblasti: (2-ia ch. Otcheta st. proizvoditelia rabot Kaufmana po komandirovke v Turgaiskuiu oblast'). – Sankt-Peterburg: Tipografiia V. Bezobrazova i Ko, 1897. – 140 s.
374. Obzor Turgaiskoi oblasti za 1878 god. – Orenburg: tip. B. Breslina, 1879. – 19 s.
375. Tonkorunnoe ovtsevodstvo v Turkestane // Turkestanskii Sbornik. – T. 542. – S. 44-46. (Pervonachal'no opublikovano v Nov. Vremia, 1910, №12478).
376. Obshchii ocherk / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye ekspeditsiei po issledovaniiu stepnykh oblastei. Akmolinskaia oblast'. Atbasarskii uezd. T.II. / Pod red. F. Shcherbina. Voronezh, 1902. – S. 21.
377. Masanov N.E. Problemy sotsial'no-ekonomicheskoi istorii Kazakhstana na rubezhe XVIII – XIX vekov. – Alma-Ata: Nauka, 1984. – 176 c.

378. Zdzenitskii S.S. Zhivotnovodstvo v Syr-Dar'inskoi oblasti: (Iz materialov po obsledovaniiu oblasti po zhivotnovodstvu u"ezdnymi veterinarami). – Tashkent: Tip. pri kants. Turk. gen. gub., 1915. – 23 s.
379. Obshchii ocherk / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye ekspeditsiei po issledovaniiu stepnykh oblastei. Akmolinskaia oblast'. Petrapavlovskii uezd. T.KhII. / Pod red. F. Shcherbina. Chernigov, 1908. – S. 130.
380. Obshchii ocherk / Materialy po kirgizskomu zemlepol'zovaniiu v Syrdar'inskoi oblasti. Kazalinskii uezd. – Tashkent, 1913. – S. 51.
381. Sisse K. Leksema korova kak kul'turnyi simvol v russkom iazyke // Vestnik VGU. Seriia: filologiia. Zhurnalistika. – 2019. – № 4. – S. 33-35.
382. Trostina M.A. Arkhetip korovy-kormilitsy v fol'klore russkikh i mordvy // Filologicheskie nauki. Voprosy teorii i praktiki. – Tambov. – 2018. – №12(90). – Ch. 1. – S. 62-65.
383. Elibaeva K.Zh. Simvolika i semantika tsveta v kazakhskoi kul'ture // Vestnik MGUKI. – 2012. – №4(48). – S. 60-67.
384. Kasym B. Slovoobrazovatel'nyi potentsial i semanticheskie polia chernogo tsveta v kazakhskom iazyke. [Ellektronnyi resurs]. – Rezhim dostupa: http://www.rusnauka.com/30_NNM_2010/Philologia/72928.doc.htm. Poslednee poseshchenie: 22 marta 2021 g.
385. Zhaza // Kazaktyn etnografiialyk kategoriialar, ugymdar men ataularynyn dasturli zhuiesi. Entsiklopediia. Tom 2. – Almaty: DSP, 2012. – S. 145.
386. Obshchii ocherk po uezdu / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye ekspeditsiei po issledovaniiu stepnykh oblastei. Semipalatinskaia oblast'. Semipalatinskii uezd. T.Kh. / Pod red. F. Shcherbina. – Sankt-Peterburg, 1909. – S. 5.
387. Izbasarova G.B. Orenburgsko-Tashkentskaia zheleznaia doroga i kazakhskoe obshchestvo na rubezhe XIX–XX vv. (na primere Turgaiskoi oblasti) // Bylye Gody. – 2019. – Vol. 54. – Is. 4. – S. 1651.
388. Otchet zaveduiushchego veterinarnoi chast'iu o veterinarno-sanitarnom sostoianii Turgaiskoi oblasti za 1891 g. // TsGA RK F.25. Op.1. D. 4181. L. 3ob.
389. Otchet zaveduiushchego veterinarnoi chast'iu o veterinarno-sanitarnom sostoianii Turgaiskoi oblasti za 1897 g. // TsGA RK F.25. Op. 1. T. 2. D. 4244. L. 8.
390. Polnoe geograficheskoe opisanie nashego otechestva. Nastol'naia i dorozhnaia kniga dlia russkikh liudei. T. 18. Kirgizskii krai. / Pod red. V. P. Semenova i pod obshch. rukovodstvom P. P. Semenova i prof. V. I. Lamanskago. – Sankt-Peterburg: Izdanie A. F. Devriena, 1903. – S. 240.
391. Seidalin T. O razvitii khlebopashestva po basseinu reki Turgaia // ZOOIRGO. – 1870. – Vyp. I. – S. 243-249.
392. Appolova N.G. Ekonomicheskie i politicheskie sviazi Kazakhstana s Rossiei v XVIII – nachale XIX vv. – M.: Izd. AN SSSR, 1960. – S. 154.
393. Obzor Turgaiskoi oblasti za 1870 god. – Orenburg: tip. B. Breslina, 1871. – 69 s.
394. Obzor Turgaiskoi oblasti za 1871 god. – Orenburg: tip. B. Breslina, 1872. – S. 6.

395. Obzor Turgaiskoi oblasti za 1872 god. – Orenburg: tip. B. Breslina, 1873. – S. 4-5.
396. Obzor Turgaiskoi oblasti za 1875 god. – Orenburg: tip. B. Breslina, 1876. – S. 6.
397. Obzor Turgaiskoi oblasti za 1876 god. – Orenburg: tip. B. Breslina, 1877. – S. 6.
398. Obzor Turgaiskoi oblasti za 1877 god. – Orenburg: tip. B. Breslina, 1878. – S. 4-5.
399. Obzor Turgaiskoi oblasti za 1878 god. – Orenburg: tip. B. Breslina, 1879. – S. 4-5.
400. Bor'ba s epizootiiami // Kirgizskaia stepnaia gazeta. – 1894. – №7. – S. 1.
401. Raport veterinarnogo vracha 4-go uchastka za №60 ot 26 Maia 1897 g. // TsGA RK F. 25. Op. 1. D. 4237. L. 56.
402. Veterinarnoo-sanitarnyi otchet veterinarnogo vracha 4-go uchastka Turgaiskoi Oblasti za 1897 g. // TsGA RK F. 25. Op. 1. Kn. 2. D. 4245. L. 280.
403. Veterinarno-sanitarnyi otchet veterinarnogo vracha 5-go uchastka za 1893 g. // TsGA RK F. 25. Op. 1. D. 4206. L. 73ob.
404. Obzor Turgaiskoi oblasti za 1894. – Orenburg: Tip. B. Breslina, 1895. – S. 6.
405. Orak // Kazaktyn etnografiialyk kategoriialar, ugymdar men ataularynyn dasturli zhuiesi. Entsiklopediia. Tom 4. – Almaty: TOO ADI, 2017. – S. 609.
406. Zhakmon A. Vnutrennie izvestiia. Orenburg, 18 avgusta // Moskovskie vedomosti. – 1892. – №237. Tsit po: Alektorov A.E. Ukazatel' knig, zhurnal'nykh i gazetnykh statei i zametok o kirgizakh. – Kazan': Tip.-lit. Imp. Univ., 1900. – S. 333.
407. Poraionnye tablitsy s gruppirovkoi khoziaistv po kolichestvu loshadei / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye ekspeditsiei po issledovaniiu stepnykh oblastei Turgaiskaia oblast'. Kustanaiskii uezd. T.V. / Pod red. F. Shcherbina. – Voronezh, 1903. – S. 92.
408. Dannye iz Saroiskoi i Chubarskoi volosti dany v otdel'noi tablitse. Kombinatsionnye tablitsy statisticheskikh svedenii s gruppirovkoi khoziaistv po trudovym priznakam i po skotu po uezdu / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye Statisticheskoi partiei Turgaisko-Ural'skogo pereselencheskogo raiona. Kustanaiskii uezd. – Orenburg, 1912. – S. 412, 458, 466.
409. Poraionnaia tablitsa statisticheskikh svedenii s gruppirovkoi khoziaistv po kolichestvu loshadei / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye ekspeditsiei po issledovaniiu stepnykh oblastei. Turgaiskaia oblast'. Aktiubinskii uezd. T.VII. / Pod red. F. Shcherbina. – Voronezh, 1903. – S. 62.
410. Tablitsa statisticheskikh svedenii o vkochevyvaiushchikh v Aktiubinskii uezd kirgizakh, mestakh kochevok i vremeni prebyvaniia na nikh / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye ekspeditsiei po issledovaniiu stepnykh oblastei. Turgaiskaia oblast'. Aktiubinskii uezd. T.VII. / Pod red. F. Shcherbina. – Voronezh, 1903. – S. 14-28.
411. Tablitsa statisticheskikh svedenii o vkochevyvaiushchikh v Kustanaiskii uezd kirgizakh, mestakh kochevok i vremeni prebyvaniia na nikh / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye ekspeditsiei po

issledovaniiu stepnykh oblastei Turgaiskaia oblast'. Kustanaiskii uezd. T.V. / Pod red. F. Shcherbina. – Voronezh, 1903. – S. 186-189.
412. Poraionnaia tablitsa statisticheskikh svedenii s gruppirovkoi khoziaistv po kolichestvu loshadei / Materialy po kirgizskomu zemlepol'zovaniiu, sobrannye i razrabotannye ekspeditsiei po issledovaniiu stepnykh oblastei. Turgaiskaia oblast'. Aktiubinskii uezd. T.VII. / Pod red. F. Shcherbina. – Voronezh, 1903. – S. 64-66.
413. Bronevskii. Zapiski o kirgiz-kaisakakh Srednei ordy // Otechestvennye zapiski. – 1830. – № 122. – S. 360.