

The Fight against Cattle Plague in Russia, 1830–1902

A brief overview of methodical approaches

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The fierce battle against cattle plague is part of the larger story concerning the establishment of veterinary science in Russia. It greatly affected how stockbreeding was advanced as a means of both agricultural and technological development. It also provides a cogent example of interconnection between practical tasks and fundamental knowledge for that particular era. Although at the beginning of the 19th century, the technology needed to carry out the research to develop new practical approaches was completely nascent. The prominent Russian doctors and veterinarians believed that cattle plague spread from the woefully poor care of cattle and could not be eradicated by means of inoculation. Peter Jessen was one of the foreign veterinarians employed in Russia who was an advocate of cattle plague inoculation. He believed in the viral nature of the disease and devoted his life to his experiments. Its viral nature was proved by several epizootologists in the early 1900's.

Keywords: cattle plague, The Committee for the improvement of the veterinary structure, Peter Jessen, mortality of horned livestock, inoculation, viral nature of the disease.

Fighting the cattle plague is part of the larger story surrounding the establishment of veterinary science in Russia. It affected how stockbreeding developed as a means of advancing both agricultural and technological understanding in the field. It also provides a cogent example of interconnection between practical tasks and fundamental knowledge for that particular period of time.

Fighting against the cattle plague is clearly a core subject in terms of the history of veterinary science throughout Europe. The end of the 18th century is when, in some European countries, the cattle disease (named the cattle plague, or Rinderpest) started to be examined, because it was a disease that regularly killed off thousands and, over time, millions of beasts and caused long-term damage to stockbreeding, local economies and the wealth of citizens. In the very beginning of the 19th century, some researchers, especially in the Copenhagen veterinary institute, expressed the opinion that the cattle plague was coming to Europe from Russia, which was reported to be a “motherland” for the Rinderpest.¹ This assertion for Russia certainly was disastrous as it could threaten the Russian foreign cattle trade. For this reason, it eventually gained the attention of the government, which initiated its examination within the Empire.

In turn, in the Russian Empire epizooties took away not less cattle heads than it did in Europe. They spread over the vast territory from Eastern Siberia to the Western provinces, as there were no railways in the first half of the 19th century that could be used for transportation of cattle. So cattle bands drifted from the eastern steppes to St. Petersburg and further into Europe. The charge of fighting against and the prevention of the Rinderpest in Russia was already one of the most important practical tasks in the first half of the 19th century. But

¹Russian State Historical Archives (Rossiiskii Gosudarstvennii Istoricheskii Archiv, hereafter referred to as RGIA). F. 412. Op. 3. D. 198 (1845–1850. Ob ustroistve veterinarnoi chasti v Rossii [About organization of veterinarian structure in Russia]). L. 202–203.

this mission could not be accomplished due to the lack of sufficient conditions and facilities available, as well as specialists who could carry out the research that would have brought about the knowledge and methods necessary to develop those practical tasks.²

In Europe, since the end of the 18th century, some efforts were made to research such methods of dealing with the Rinderpest, such as the inoculation of cattle. Some specialists believed in the contagious nature of the cattle plague and carried out some experiments of immunizing the animals. Those experiments did not always prove the effectiveness of inoculation, but this was work in progress and it didn't have wide applications; it was carried out in veterinary schools and academies as part of fundamental research. Although, when applied, the quarantine policy had worked very well.³ The same quarantine methods were applied in Russia, too. But here they didn't work so well. And there was no alternative at the same time. There were no satisfactory conditions for research, no institutes that could produce veterinary specialists or institutions where the research could be carried out. The only institution that produced veterinary specialists was the Medical-Surgery Academy in St. Petersburg, and even there to become a veterinarian (not a veterinary assistant), one should have earned a degree of doctor of medicine, because before the 1850's, the degree of master or doctor of veterinary medicine did not exist in Russia.⁴

One of those specialists was a doctor of medicine, Vsevolod Iv. Vsevolodov, an academic and an established specialist in veterinary matters. In 1840, he published a book about terminal diseases of livestock. In this book he described the cattle plague as typhoid disease, which happened because of poor care of the animals, because of climate conditions (too cold or too hot), and even because the animals were forced to drift soon after they had eaten food. Also, he wrote that he had observed the cases of cattle plague in the north and northwest, so he thought that the theory that the cattle plague came from the southeast was false. And he didn't believe in the contagious nature of this disease (Vsevolodov, 1846, p. 70). Vsevolodov was an opponent of the inoculation approach; he insisted that only good care and hygiene could prevent his cattle from epizooty (*ibid*, p. 100). Obviously, when the most respected veterinarian of the Empire didn't believe in the need for fundamental research, there was no reason for the research to be started on any grounds.

But, again, there was a lack of specialists to fill many veterinarian positions in the Empire in the first half of the 19th century. The vast majority of positions were taken by foreign specialists invited from abroad, from veterinary institutes of Copenhagen, Vienna, and Berlin, among others. One of those foreign veterinarians employed in Russia was Peter Jessen, who was born in Holstein in 1802. In 1822, he got a degree in veterinary medicine in Copenhagen and in 1823 was invited to Russia to work as a veterinarian in the military settlements in Novgorod. Shortly after that, in 1827, he became a veterinary doctor at the Tsar's Stables in St. Petersburg.



Peter Jessen (from Peshtich, 1896)

² RGIA. F. 412. Op. 3. D. 198. L. 47.

³ *Ibid*. L. 201.

⁴ *Ibid*. L. 10–12.

In 1847, he was included as a consultative member into the Medical Council, which proved an extraordinary career for the German veterinarian after 25 years of employment in Russia. In 1848, he left St. Petersburg for Dorpat where he took the post of the head of the newly founded Veterinary School (Peshtich, 1896, p. 37). He carried out several field and laboratory studies. Between 1858 and 1867, he was a member of the Special Committee at the Ministry of Internal Affairs. He published several monographs and a great many articles in professional journals. He died in 1875.⁵

He was a student of Erich Viborg, who was the first to begin to fundamentally examine the Rinderpest and inoculation against it. So, as his pupil, Jessen was very committed to the idea of inoculation and he wanted very much to advance and promote this research. He formulated several objectives for his fundamental research, that is “which contagious substance is best to use,” “what are the best conditions for this substance to immunize these animals,” etc. Since the 1830’s, he had contacted the government several times (various departments) and asked for funding to study the disease within a laboratory. What he promised was “total extermination of cattle plague in Russia.”

For the first time, his proposals gained the attention of the Medical Council of the Ministry of Interior in 1830, but was rejected because the Vice-Director of the Medical Council and Academic Secretary of the Medical-Surgery Academy, Jakov K. Kaidanov, commented on it by saying there was no need for any committees or laboratories besides Medical Council, which already existed, but as for need for more specialists, he agreed that there could be more veterinary schools and institutes.⁶ We can see how the natural, philosophic approach, which was dominant in the academic community at the time, didn’t allow many scientists to support fundamentally experimental research. The practical task of fighting against the cattle plague was accomplished locally by applying quarantine policies and killing all diseased and suspicious cattle. But even with these actions, given that there were not enough veterinarians, the epizooties didn’t stop. In 1844, in the eastern and southern areas of the Empire, the cattle plague destroyed nearly 500,000 cattle. And, for example, in Permskaya Province, 24,000 beasts died; in Ekaterinoslavskaya Province — 19,968; in Hersonskaya Province — 15,683.⁷ The necessity to develop approaches to halt this disaster became obvious and urgent.

In 1844, Pavel Dm. Kiselev, Minister of State Domains, reported to the Emperor the urgent need for solving the problem of the cattle plague, which would include the re-organization of the entire veterinarian sector of the state administration.⁸ First, he reported, it was necessary to start producing scientific human resources, specialists who could go into scientific expeditions and contribute valuable reporting and also form scientific commissions, as had been done successfully in European countries. To accomplish the task, the Emperor appointed the Special Committee, which consisted of representatives of the following administrative departments:

Ministry of State Domains;
Horse-breeding Department;
Ministry of Interior;
Medical Council;
Ministry of Public Education.

⁵ His most detailed publication about the cattle plague is: Jessen, 1853.

⁶ RGIA. F. 472. Op. 1. D. 969 (1830. O sochinennyh vrachom Jessenom zamechanijah o padezhah skota [About doctor Jessen’s notes about the mortality of livestock]). L. 3–4.

⁷ Ibid. F. 412. Op. 3. D. 198 (1845–1850). L. 16.

⁸ RGIA. F. 412. Op. 3. D. 198. L. 1–5.

The purpose of the Committee was to find ways to re-organize the veterinarian sector of the state, and the prioritized goal of it was to win the fight against the cattle plague. In the course of its work, the Committee received the paper by Peter Jessen, who hadn't given up his attempts to gain governmental attention to his ideas. The paper was what we currently know as "the project for grant." He asked for funding to organize a laboratory for field study of the Rinderpest. He promised that this research would help to solve the problem completely. He wrote that the fact that epizootics appeared in Russia again and again proved that the quarantine policy didn't work here as it had worked in Holstein (where he was born), for instance. This again brought about a question of the "motherland" of the Rinderpest. Jessen asked for funding for a big, experimental station for inoculation of cattle plague somewhere in the steppes, around Novorossiisk. There he wanted to arrange a few buildings for the animals, buildings for the veterinarians and servants, the laboratory, pharmacy and the anatomic theater. The station could have at one time about 200 cattle. The period of inoculation and recovery is two weeks, so he assumed that one year would have been enough to immunize all the cattle of the steppes. He also wished to use this station to clarify some scientific questions, which were important for fundamental research in veterinary science at that time:

Which substance is better for inoculation: blood, mucous or urine?

In which stage of the course of the disease should those substances be collected?

Which method of inoculation is preferable?

Which part of the body should be inoculated: shoulder, neck or under the tail?

Which season is a better time for inoculation?

At what age of the animal is inoculation more effective?

Is it possible to keep the substance for a long time so it doesn't lose its properties?

Is it possible to process the substance in the laboratory so it becomes more effective?

As he thought from a scientist's perspective, he mentioned that even if the research proved that inoculation doesn't work, it would be an advantage to veterinary science, and if it proves its usefulness, that would be an advantage of both the state economy and veterinarian medicine. We can see that as early as the first half of the 19th century, fundamental research should have been of interest to the administration (i. e. have economic applications and meet practical needs) to get funding from the government. Compared to what the opponents of inoculation suggested to do in case of the cattle plague — to process the animal sheds with a solution of sulfuric acid and corrosive sublimate, feed the animals well and isolate them from suspicious ones — the fundamental approach required a lot of funding.

Unfortunately, Jessen's project didn't get funding. But the following thing happened: The Committee made a decision to open in Dorpat (now Tartu) the Veterinary Institute which would prepare specialists and doctors of veterinary medicine.⁹ The Institute was opened in 1848, and Peter Jessen received the post of its first director and could arrange there a laboratory. This appointment strongly indicates that the government was finally persuaded by Jessen and his frontline projects that fundamental knowledge could greatly benefit the economy and help to accomplish practical tasks.

But, to highlight the broader picture of the fight against the cattle plague of that time (1830–1850's), it's worth mentioning that the frontline ideas of Peter Jessen were not supported by a majority of veterinarians and local authorities. The most common belief was still that "inoculation is not approved by most scientists, unknown in most places, and very difficult

⁹RGIA. F. 412. Op. 3. D. 198. L. 10.

to apply.”¹⁰ The Free Economic Society published pamphlets about the cattle plague with descriptions of different approaches of dealing with the disease, such as rubbing the live-stock’s skin with solutions of sulfuric acid, chlorine and lime.¹¹ These pamphlets were distributed among farmers and local governments and were obligatory to use against epizooties.

That same year, Peter Jessen started his research in Dorpat. For 20 years he performed numerous laboratory and field experiments. He and his former student Fedor Unterberger carried out experiments during 1853 and 1854 in Kharkov, Kursk, Kazan and Herson. In 1854, Jessen carried out his first experiments in the Novorossiisky area (Otchet, 1854). Those experiments had positive results and promised victory in the fight against the disease in the near future. As a substance, he used secretions from the eyes and noses of diseased animals. As a method of inoculation, he used implantation of woolen threads under the skin. After this field research he came up with the plan for future research, which emphasized three main points:

1. Need to arrange an institute to produce inoculate.
2. Need more specialists.
3. Need money (to reimburse owners who had lost their cattle).

Then, in 1855, there were more experiments in Herson, and in 1858, Raupach, a graduate of the Dorpat Institute, carried out some experiments in Poltava (Karlovka village), which also had positive results.

This news inspired the government, and in 1858, it arranged a special Scientific Committee under the Ministry of Internal Affairs to study the results of cattle plague inoculation in the Russian Empire. The Committee consisted of the president of the Medical-Surgery Academy, P.A. Dubovitsky, member of the Military-Medical Scientific Committee, G.M. Prozorov, professors of the Medical-Surgery Academy Rozhnov and Ravich, Peter Jessen and a member of the Scientific Committee of the Ministry of State Domains, E.A. Peterson.¹² They performed some experiments which proved the effectiveness of inoculation, because immunized cattle didn’t catch the disease again. The report about these experiments was published in 1867. Shortly after that, the Committee was dismissed.¹³

Although there was evidence of effectiveness of inoculation, there was no agreement between members. Some members still objected to the introduction of this method into practice. This disagreement can be illustrated by one case that took place shortly before the closing of the Committee: Peter Jessen asked the Ministry of State Domains to fund him to go to Zurich to represent Russia at the International Veterinarian Congress. He was refused because Peterson commented that “Jessen can not represent Russian veterinarians abroad because Russian

¹⁰ About this controversy in 1856–1860 see: Zolotovskiy, 1856; 1863.

¹¹ Central State Historical Archives of St. Petersburg (Centralnii Gosudarstvennii Istoricheskii Archiv in St. Petersburg = CGIA SPb). F. 536. Op. 9. D. 2654 (1844. O tom kak dolzhno postupat v sluchaje pojavleniya chumy rogatogo skota [About what must be done in case of appearance of plague in the cattle]). L. 3–16.

¹² RGIA. F. 1287. Op. 21. D. 1941 (1858. Po otnosheniju Medicinskogo Departamenta MVD ob uchrezhdenii komiteta I ob otpuske summy dlja ustroistva chumoprivivaniya skotu [Paper from the Medical Department of the Ministry of Interior about setting up the committee and allotment of funding for inoculation of cattle plague]). L. 1–15.

¹³ RGIA. F. 1341. Op. 119. D. 218 (1867. Po vysochaisheму poveleniju o zakrytii komiteta ob uluchshenii veterinarnoi chasti [About the dismissing of the Committee for the improvement of veterinary structure]). L. 1–5.

veterinarians do not believe in inoculation of Rinderpest; they consider it a typhoid disease which can be cured only by hygiene."¹⁴

Thus, by the beginning of 1870's, the results of fundamental research weren't yet practically embraced. Moreover, opposition to the research started to grow within the scientific community. We should note that the viral nature of the disease wasn't discovered until the end of the 19th century. There were no vaccines yet, and using the "substance" led to great losses of cattle in the course of inoculation. Therefore, enormous funding was required. The government slowly started taking the side of the opposition. It turned out that to kill all the diseased (and even suspected) cattle and reimburse the owners would be less expensive for the administration than to continue supporting fundamental research along with funding its practical implementation, which was organizing special institutes and inoculation stations all over the Empire.

As a result of this change of attitude in the government, a law was passed on June 3rd, 1879. According to this law, cattle owners could not resist the killing of their cattle if one case of cattle plague was discovered. They had no alternative, though they did receive some financial compensation.¹⁵ Nevertheless, this measure appeared to be quite effective. In the six years after its introduction, the spread of the Rinderpest epizooties was limited to three provinces, and in 38 provinces it was totally eradicated. The three provinces where the measure of killing wasn't so effective — Samarskaya, Orenburgskaya, Ufa and Zakavkazje — are all Eastern and South-eastern provinces and steppes. This reminds us about Jessen's idea that the Rinderpest spreads from certain places, its so-called "motherland," and that's why it's impossible to fight against it there with quarantine and radical policy.

It is interesting that the fundamental research continued even after it was officially claimed ineffective and impractical. In the late 1880's, the special institute for pure fundamental biomedical research was opened in St. Petersburg — the Institute for Experimental Medicine. And there Professor M.V. Nentsky carried out research of effective approaches for inoculation.¹⁶ At the end of the 1880's, his results were successfully applied in Zakavkazje where part of IEM's funding was spent on organizing a special station where the vaccines were produced. In 1900, the same station was also opened in Chita (further to the east). Simultaneously, with professor Nentsky, the research of cattle plague inoculation was done by another employee of the IEM, Mikhail Tartakovsky. It was Tartakovsky who experimentally proved the viral nature of the disease and its contagious character. In 1902, Nicole and Adil-Bey discovered the virus activator. Tartakovsly described their research and published it in several brochures in Russian (Tartakovsky, 1899; 1901).

By the turn of the 19th century, the results of fundamental research, which was carried out by means of pure science, allowed the government again to think of the possibility of "replacing knife by syringe." But it didn't happen until the production of vaccines became massive, on an industrial basis, and this happened only in the second third of the 20th century.

¹⁴RGIA. F. 382. Op. 1. D. 27 (1867. Po predlozheniju Jessena o komandirovanii ego na veterinarnyi congress v Zurich [About Jessen's proposal about sending him on to the International veterinarian congress in Zurich]). L. 5–6.

¹⁵See the details of the act in: Полн. Собр. Зак. 1867 г., Т. XIII, изд. 1892 г., Уст. Врач., ст. 1278, 1279, 1291, 1299. Complete Collection of Laws of 1867. Vol. XIII. Medical Statutes, 1892. P. 1279, 1291, 1299.

¹⁶*Nencki, Wilhelm Marcell* (1847–1901), physiologist-chemist and bacteriologist, professor of physiological chemistry in Bern, from 1891 was a head of physiological-chemical department of the Imperor's Institute of Experimental Medicine in St. Petersburg. About him: Golikov, 2011, p. 340.

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Борьба с чумой рогатого скота в России в 1830–1902: краткий обзор путей и подходов

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Борьба с чумой рогатого скота — это часть истории развития ветеринарной администрации и научной ветеринарии в России. Она повлияла на то, каким путем развивалось скотоводство, как в сельскохозяйственном, так и в технологическом отношении. Она также является хорошим примером взаимодействия практических задач и фундаментальных исследований в данный период времени. Хотя в начале XIX в. не существовало ни подходящих условий, ни специалистов, которые могли бы проводить исследования и создавать знание и методы, необходимые на практике. Ведущие русские врачи и ветеринары считали чуму рогатого скота заболеванием, проистекающим от плохого ухода за животными, и не верили в пользу прививания. Петр Иессен был одним из иностранных ветеринаров на русской службе, который отстаивал признание пользы прививания, верил в вирусную природу заболевания и посвятил жизнь экспериментам и исследованиям в этой области. Вирусная природа чумы рогатого скота была доказана в 1896 г., а возбудитель её был выделен в 1902 г.

Ключевые слова: чума рогатого скота, Комитет по улучшению ветеринарной части, П.П. Иессен, падежи скота, прививание, вирусная природа заболевания.