

Annex: Biosketches of scientists and other public figures who played important roles in the evolution of tsarist Russia's anti-plague system

A.I. Berdnikov (late 19th century-beginning of the 20th century)	Scant biographical information is available on Berdnikov, the last director of the AP laboratory at Fort Alexander I. After the Bolshevik Revolution of 1917 the laboratory was closed and Berdnikov was transferred to Saratov University, where he was elected chair of the department of bacteriology. On April 8, 1918, the department of microbiology was established at the Saratov University and Berdnikov assumed the chairmanship of this department for a brief period. Berdnikov then was named the first director of the Saratov Anti-plague Institute (Mikrob). However, due to his opposition to the Bolshevik regime, Berdnikov eventually emigrated from the USSR.
Nikolai Mikhailovich Berestenev (1867-1910)	Berestenev was a Russian bacteriologist and physician. He studied at the Moscow University under the guidance of professor G.N. Gabrichevsky, who assisted him in establishing the Moscow Bacteriological Institute in 1895. In 1897, Berestenev defended his doctorate dissertation on the topic of "Actinomycosis and its causative agents," and afterwards became a <i>privat-docent</i> at Moscow University. From 1895 to 1904, Berestenev was the deputy director of the Moscow Bacteriological Institute. Starting in 1900, he participated in a series of scientific expeditions aimed at studying plague in Batumi (in present day Georgia) and India. Berestenev also took part in expeditions studying malaria in both Russia and India. In 1904, he became head of the AP laboratory at Fort Alexander I. In 1908, Berestenev transferred from Fort Alexander I to the Moscow Bacteriological Institute, where he became its director. Berestenev is the author of scientific works on microbiology of diphtheria, cholera, plague, and malaria.
A.N. Cherventsov (late 19th century-beginning of the 20th century)	There is little biographical information about Cherventsov. We know he held a degree of doctor of medical sciences and that he was the last director of the Special Laboratory of the Imperial Institute of Experimental Medicine for Production of Anti-plague Preparations at Fort Alexander I. During 1912-1922, Cherventsov worked at the Pasteur Station in Irkutsk, Siberia, and in 1924 his observations were published in the book <i>Otchet deyatel'nosti Irkutskoy Pasterovskoy Stantsii 1912-1922 god</i> (Report on activities of the Irkutsk Pasteur Station for 1912-1922), Irkutsk, 1924.

<p>Ippolit Aleksandrovich Deminsky (1864-1912)</p>	<p>Deminsky was a Russian physician-epidemiologist. He was born in Novomirgorod (Kherson <i>gubernia</i>, in present day Ukraine) into a family of a veterinarian. Later the family moved to Astrakhan. He received a general education in the First All-Male Classical Gymnasium and in 1883 entered the Department of Medicine of the University of Kazan. Deminsky graduated in 1889 and thereafter moved to Astrakhan, where he was appointed a sanitary doctor at the Directorate of Fisheries. Later he was promoted to chief physician of the Baskunchak salt deposits, where after 16 years of work he managed to open a hospital that had a ward for patients afflicted with infectious diseases, a bacteriological laboratory, and a mud spa. In 1907, Deminsky became administrator of the Tinak mud spa, which he transformed over two years into a well developed resort. However, he saw as the ultimate goal of his life the study of especially dangerous infectious diseases. Deminsky was awarded the Silver Medal and the Third Degree Order of Anna for having dealt with the consequences of plague epidemics of 1905 and 1907. In October 1908, Deminsky was appointed deputy head of the bacteriological laboratory of Astrakhan (predecessor of the AP station of Astrakhan). In 1910, at the first convention of AP specialists of southeastern Russia, Deminsky insisted that scientists should look for plague sources in nature and harshly criticized those who believed that plague was imported into the region via commerce through goods. In August 1922, he went on what would turn out to be his last field trip to the village of Rakhinka in the Tsarevsky district. There, for the first time, he was able to isolate plague bacilli from a dead marmot, thereby proving that marmots were natural plague hosts. Unfortunately, in the course of laboratory experiments Deminsky contracted plague and died soon thereafter.</p>
<p>F.A. Derbek (late 19th century – beginning of the 20th century)</p>	<p>Of German origin, Derbek was a prominent Russian military doctor, naval explorer, and medical historian. Derbek is the author of one of the most detailed and comprehensive accounts of the history of plague epidemics in tsarist Russia – <i>Istoria chumnikh epidemii v Rossii so dnya osnovania gosudarstva do nastoyashchego vremeni</i> (The history of plague epidemics in Russia from the foundation of the state until present), which was published in St. Petersburg in 1905. Before commencing his plague work, Derbek participated in hydrological expeditions in the Sea of Okhotsk, which resulted in the creation of some of the largest collections of seaweed herbariums. In 1884, he became one of the founders and, later, the first chairman of the Society of Studies of Amur Territory (Far East of Russia). During 1902-1904, he served as the director of the Society's museum, which included large</p>

	collections of flora and fauna from the Sea of Japan and Sea of Okhotsk. Derbek's research pursuits also included ethnological studies of the indigenous peoples of the Far East.
Dr. Eshdi (18th century)	Little is known about this local doctor, who worked at the municipal hospital in Izum city (Kharkiv <i>oblast</i> in Ukraine) during the 1736-1739 plague epidemic. When the signs of plague were reported in the nearby settlements of Zinkiv and Svatova Luchka, Eshdi was dispatched to investigate the outbreaks, but initially failed to correctly diagnose the disease, which contributed to its the spread. He is, however, credited with confirming a case of plague by performing an autopsy for the first time in the history of plague epidemics in Russia. Eshdi therefore is considered the founder of pathological anatomical study of plague in Russia.
G.N. Gabrichevsky (1860-1907)	Gabrichevsky was a prominent Russian microbiologist and epidemiologist. In 1888, he defended his doctoral dissertation on the subject of muscle inflammation. During 1889-1891, he worked under the guidance of I.I Mechnikov, E. Ru, R. Koch, and P. Erlich in the fields of bacteriology and hematology. In 1891, Gabrichevsky established a bacteriological clinic under the aegis of the clinic of Dr. Chernov. Gabrichevsky is the founder of the first Bacteriological Society of Russia. In 1895, he established the Bacteriological Institute at the Moscow University, which subsequently trained an entire generation of Russian bacteriologists. In 1894, he organized the first production of diphtheria and scarlet fever vaccines in Russia and began their countrywide distribution. While his achievements in bacteriology are too numerous to list here, Gabrichevsky's most important scientific works were on diphtheria (toxin extraction methods, immunity, diagnostics, treatment by serum, and transmission mechanisms), scarlet fever, and streptococcal theory of scarlet fever etiology.
Nikolay Fyodorovich Gamaleya (1859-1949)	Gamaleya was a renowned Soviet microbiologist and epidemiologist, honorary member of the USSR Academy of Sciences, and an acting member of the USSR Academy of Medical Sciences. In 1886, together with I.I. Mechnikov, he founded the first bacteriological observation station in Russia in the port city of Odessa. In 1893, he defended his dissertation, "Etiology of cholera from the point of view of experimental pathology." During 1896-1908, Gamaleya served as a director of the Odessa Bacteriological Institute, which he had founded. In 1898, Gamaleya discovered bacteriolysins, which are antibodies that act to destroy bacteria. He also discovered a cholera-like vibrio in birds and proposed the development of anti-cholera vaccine. During 1910-1913, Gamaleya was the editor of the journal <i>Gigiya i sanitaria</i> (Hygiene and

	<p>sanitation). Gamaleya was the author of more than 300 academic publications on bacteriology and epidemiology, covering such subjects as bacteriophages, epidemiology of plague, heteromorphism of bacteria, intensive vaccine preparation method, and many others. Today one of the Russian Academy of Medical Science's foremost research institutes is named after Gamaleya: the N.F. Gamaleya Institute of Epidemiology and Microbiology in Moscow.</p>
<p>K.Ya. Gelman (late 19th century-beginning of the 20th century)</p>	<p>As a head of the department of epizootiology at the Imperial Institute of Experimental Medicine (IEM), Gelman supervised studies of glanders, rabies, tuberculosis and other infectious diseases at the Special Laboratory of the IEM at Fort Alexander I. The mullein test– a test used by veterinarians to diagnose glanders – was invented at the IEM department of epizootiology.</p>
<p>Vasily Isayevich Isayev (1854-1911)</p>	<p>Isayev was a Russian microbiologist and epidemiologist. He graduated from the department of medicine of the Moscow University in 1877 and earned a degree of doctor of medicine in 1887. In 1892, he attended a course on bacteriology taught by I.I. Mechnikov (see entry in this table) and Emile Pierre Paul Roux in Paris, France. Beginning in 1894, he served as a chief physician at the Naval Military Hospital in Kronstadt and, simultaneously, was a medical inspector of the port of Kronstadt. Isayev transformed the hospital into a leading medical treatment and scientific research facility. His main scientific works are on epidemiology of plague and the cholera bacterium's impact on immunity. Isayev and the German bacteriologist Richard Friedrich Johannes Pfeiffer discovered the phenomenon of bacteriolysis, which had a significant diagnostic value.</p> <p>Isayev's main scientific works include his dissertation: <i>K voprosu ob izmeneniakh kishhechnykh ganglii pri tuberkuleze i nekotorykh drugykh zabolevanii</i> (On the question of changes in intestinal ganglia during tuberculosis and some other diseases), which was published in St. Petersburg in 1887; <i>Untersuchungen über die künstliche Immunität gegen Cholera</i> (published in <i>Zeitschrift für Hygiene und Infektionskrankheiten</i>), Leipzig, 1894; R.F.J. Pfeiffer and Vasily Isayevich Isayev, <i>Ueber die spezifische Bedeutung der Choleraimmunität (Bakteriolyse)</i> (published in <i>Zeitschrift für Hygiene und Infektionskrankheiten</i>), Leipzig, 1894; and <i>Sbornik rabot po chume</i> (Anthology of works on plague), Main Medical Inspectorate, St. Petersburg, 1907.</p>
<p>Jacob Johann Lerche (1703-1780)</p>	<p>Lerche was a German naturalist and military physician who began serving the Russian tsar in 1731. Lerche accompanied several Russian diplomatic missions, including two to Persia,</p>

	<p>where he wrote travelogues that provide valuable records describing the situation in the Caspian region of that time. Lerche led anti-epidemiological and sanitary efforts during the 1770-1771 Moscow plague epidemic.</p>
<p>Ilya Ilyich Mechnikov (1845-1916)</p>	<p>Mechnikov was a Russian microbiologist who, along with Paul Ehrlich, was awarded the Nobel Prize in Medicine in 1908 for his pioneering research on the immune system and, in particular, discovery of phagocytosis. Mechnikov completed a four-year degree in natural sciences in two years and graduated from the Kharkiv University, Ukraine, in 1864. He went on to continue his studies abroad. Mechnikov studied marine fauna on the small German North Sea island of Helgoland and then pursued advanced studies in Germany at the University of Giessen, University of Göttingen and, finally, at the Munich Academy. In 1867, he returned to Russia and was appointed docent at the newly opened University of Odessa in Ukraine. Next, he studied at the University of St. Petersburg, where he defended his doctoral dissertation in 1868. In 1870, Mechnikov returned to the University of Odessa, where he became the Titular Professor of Zoology and Comparative Anatomy. Mechnikov taught zoology here until 1882 and throughout his incumbency successfully managed to combine pedagogical activities and scientific research. In 1882, Mechnikov resigned from his position at the University of Odessa and then set up a private laboratory in Messina, Italy. Here he conducted a series of experiments on starfish larvae that led to the discovery of phagocytosis. In 1886, Mechnikov and N.F. Gamaleya established a bacteriological observation station in Odessa, which was the first of its kind in Russia. In 1887, Mechnikov moved to Paris, France. In 1888, Louis Pasteur offered Mechnikov a position as director of one of the laboratories at Pasteur's Institute. In 1905, Mechnikov was promoted to deputy director of the Pasteur Institute, where he remained for the rest of his life.</p> <p>Mechnikov is the author of many scientific works on bacteriology. In experiments, which he often conducted on himself, Mechnikov proved the role of the bacterium <i>Vibrio cholera</i> as the causative agent of the Asian cholera.</p> <p>Mechnikov's most famous works include: <i>Study of intracellular digestion in invertebrate creatures</i> (published in German in 1883 as <i>Untersuchungen über die intracelluläre Verdauung bei wirbellosen Thieren</i>), <i>Comparative pathology of inflammation</i> (published in French in 1892 as <i>Leçons sur la pathologie comparée de l'inflammation</i>), <i>Immunity towards infectious diseases</i> (published in French in 1901 as <i>L'Immunité dans les maladies infectieuses</i>), and <i>Etudes on human nature</i> (published</p>

	in French in 1903 as <i>Études sur la nature humaine</i>).
Grigoriy Nikolayevich Minkh (1836-1896)	<p>Minkh was a prominent Russian doctor of medicine and professor at the University of Kiev and University of St. Vladimir. After having graduated from the University of Moscow, he continued to work there as an assistant to Professor Zakharin. In 1869, Minkh published his dissertation – <i>K ucheniyu o lozhnom razvitii obolochek na seroznykh poverkhnostyakh</i> (Contribution to the teaching of false development of capsules around surfaces affected by cirrhosis), which later was included in the compendium of scientific articles, <i>Lehrbuch der pathologische Gewebelehre</i>, edited by the German professor Georg Eduard Rindfleisch. He spent two years studying abroad, and in 1872 was appointed dissector at the Odessa City Hospital. Beginning in 1876, Minkh was appointed professor of pathological anatomy at the University of St. Vladimir.</p> <p>In 1879, Minkh was dispatched to Astrakhan <i>guberniya</i> to investigate and contain a plague outbreak in the Vetlyanka village. After containing this outbreak, Minkh carried out epidemiological studies of plague transmission in Transcaucasus and Iran (in the city of Rasht in northwestern Iran). The results of this study were published in <i>Otchet ob astrakhanskoy epidemii</i> (Report on the Astrakhan epidemic). During 1881-1883, Minkh studied leprosy in Khersonskaya and Tavricheskaya <i>guberniyas</i> and the results of his observations were later published in the compendium <i>Prokaza (Lepra arabum) na yuge Rossii</i> (Leprosy (Lepra arabum) in the south of Russia). From 1884 onward, Minkh was a Consultory Member of the Medical Council of the Ministry of Internal Affairs.</p> <p>In addition to the foregoing publications, Minkh is an author of many scientific articles and medical treatises, including his major works such as “K patologii sibirskoy yazvy” (Towards understanding the pathology of anthrax), which appeared in the <i>Moskovskaya Meditsinskaya Gazeta</i> (Moscow Medical Gazette) of 1868, and which represents the first attempt to describe two obscure diseases – <i>mycosis ventriculi</i> and <i>mycosis intestinalis</i>. His other important contribution include: <i>Gemorrogicheskaya ospa</i> (Hemorrhagic smallpox), which was published in <i>Trudy vrachey Odoevskoy bolnitsi</i> (Works by the physicians of the Odoevsk Hospital) and <i>O vysokom veroyatii perenosa vozvratnogo i synnogo tifov s pomoshchyu nasekomykh</i> (On the high likelihood of transmission of spotted typhoid via insect bites), which was featured in the medical magazine <i>Khirurgicheskaya letopis</i> (The surgical chronicles).</p>

<p>Marceli Vilgelmovich Nencki (1847-1901)</p>	<p>Nencki was a Polish physicist, chemist, and bacteriologist. In his youth, as a gymnasium student, Nencki participated in the January Uprising of 1863 against the Russian occupation. After the collapse of the uprising, fearing prosecution and possible exile to Siberia, Nencki left Poland and settled in Berlin, Germany, where he began studying philosophy and classics. However, several years later he decided to pursue medicine and chemistry. In 1870, Nencki received the degree of Doctor of Medicine for his thesis on “Oxidation of aromatic compounds in animal body.” In 1872, he was offered a position of assistant at the department of pathology at the University of Berne in Switzerland. In 1876, Nencki was promoted to the position of the associate professor and a year later became a professor and director of the newly opened Institute of Medical Chemistry at the University of Berne. In 1891, after 20 years in Berne, Nencki accepted an invitation by the Russian government to organize, in tandem with I.P. Pavlov, the physiological-chemical department at the Imperial Institute of Experimental Medicine. Nencki spent the last ten years of his life in St. Petersburg; a period that was the most successful in his scientific career. During this time, Nencki continued his studies of urea formation and, together with I.P. Pavlov, demonstrated that this compound is synthesized in liver. Nencki’s most significant scientific achievement was the clarification of the chemical structure of hemoglobin. Nencki’s other scientific works include important studies in bacteriology and organic chemistry related to cholera, diphtheria, cattle plague, and other animal diseases. The complete anthology of Nencki’s works was published in 1897 in commemoration of the 25th anniversary of his scientific activities: <i>Sommaire des travaux</i> (St. Petersburg, 1897) and <i>Marceli Nencki opera omnia</i> (Braunschweig, 1904).</p>
<p>Prince Aleksandr Petrovich Oldenburgskiy (1844-1932)</p>	<p>Oldenburgskiy was a prominent Russian patron of medicine and science, General of the Imperial Infantry, State Council member, and Senator. He began his military career in 1864, and by 1885 had risen to become commander of the Guards Corps; a position he held until 1889. On September 3, 1914, after World War I commenced, he was appointed the Supreme Commander of Sanitary and Evacuation Units. In this capacity Oldenburgskiy successfully managed the sanitary welfare of the Russian armed forces; a purpose for which he actively engaged a large number of nongovernmental organizations. Oldenburgskiy’s contribution to the evolution of Russian medical and biological sciences was substantial. By pooling government funds, his own financial resources, and private contributions, Oldenburgskiy managed to collect enough money to build the Imperial Institute of Experimental Medicine (IEM)</p>

	<p>in St. Petersburg. The Pasteur Institute in Paris served as a general model for the IIEM; however, whereas the Pasteur Institute had a narrow specialization, the IIEM had a wide scope of research interests. As a tireless enthusiast of scientific progress, Oldenburgskiy closely oversaw the activities of the IIEM and was one of its principal trustees.</p> <p>After the Bolshevik Revolution of 1917, as a Romanov family member (he was Tsar Nicholas II's cousin), he was forced to resign. Oldenburgskiy and his family immigrated to France, where he lived the rest of his life.</p>
Gustav Orreus (1738-1811)	<p>Orreus was a Russian doctor of Finnish origin. On August 2, 1768, Empress Catherine II (Catherine the Great) signed a decree ordering the issuance of the diploma of doctor of medicine to Orreus, thereby appointing him the first doctor of medicine in the history of Russia. He distinguished himself by investigating and mitigating the consequences of plague outbreak in 1770 among Russian troops occupying the city of Iasi in Romania. This outbreak was a forerunner of the damaging 1770-1772 Moscow plague epidemic. Later, under the leadership of Count Orlov, Orreus was charged with applying epidemiological control measures to eradicate that epidemic.</p> <p>Orreus is the author of the medical treatise <i>Kratkoe sochinenie o prostudnykh goryachkakh, prostom is krovavom ponose, boleznyakh, mezhdru soldatami naipache svirepstvuyushchikh</i> (Short essay on cold fevers, diarrhea and bloody flux, and other diseases that are prevalent among soldiers), which was published in St. Petersburg in 1808.</p>
Ivan Petrovich Pavlov (1849-1936)	<p>Pavlov was a prominent Russian physiologist, psychologist, and physician. He was awarded the Nobel Prize in Physiology or Medicine in 1904 for his research on the digestive system. Pavlov's other major contribution was the discovery and description of the phenomenon of conditioned reflex in experiments with dogs.</p> <p>In 1875, Pavlov graduated with the degree of Candidate of Natural Sciences (with distinction) from the University of St. Petersburg. He continued his studies at the Academy of Medical Surgery in Moscow, where he completed coursework in 1879 and received a gold medal in recognition of outstanding academic achievement. In 1883, Pavlov defended his doctor's thesis on the subject of centrifugal nerves of the heart. He then worked at the Military Medical Academy in St. Petersburg, where he chaired the departments of pharmacology (beginning in 1890) and physiology (beginning in 1895). Pavlov took an active part in the creation of the Imperial Institute of Experimental Medicine (IIEM) in 1890, where he headed the department of physiology until his death 45 years later.</p>

	<p>Renowned both at home and abroad, Pavlov twice refused to accept Prince Oldenburgskiy's offer to become the director of IEM, in 1890 and 1894 respectively. However, to recognize Pavlov's contributions to the IEM, Prince Oldenburgskiy bestowed upon him the honorary title of director emeritus. It was at the IEM, during 1891 and 1900 that he did most of his research on the physiology of digestion, the results of which he then delivered in a series of lectures during 1895 entitled "Lectures on the function of the principal digestive glands" (<i>Lektsii o rabote glavnykh pishchevaritelnyh zhelez</i>) published in 1897. In 1903, he read excerpts from his paper on "The Experimental Psychology and Psychopathology of Animals" at the 14th International Medical Congress in Madrid, Spain. Already in the early stages of his research Pavlov began to receive worldwide recognition. In 1901, he was elected a corresponding member of the Russian Academy of Sciences. As mentioned above, in 1904 he was awarded the Nobel Prize, and in 1907 he was elected academician of the Russian Academy of Sciences. In 1912, Pavlov was given an honorary doctorate at the Cambridge University and in 1915, upon the recommendation of the Medical Academy of Paris, he was awarded the Order of the Legion of Honor.</p> <p>After the Bolshevik Revolution of 1917, the Soviet authorities, fully recognizing his enormous scientific value, paid special attention to Pavlov. As a result, Pavlov and his collaborators enjoyed unlimited scope for scientific research, which led to the Soviet Union becoming a global center of physiology studies. In this regard, the 15th International Physiological Congress was held during August 9-17, 1935, in Leningrad (now St. Petersburg) and Moscow.</p>
I.I. Shirokogorov (1869-1946)	<p>Shirokogorov was a prominent Russian pathological anatomist, microbiologist, and one of the founding members of the Academy of Sciences of Azerbaijan SSR. He studied malaria in the North Caucasus and published results of his observations in the article <i>Malyaria v Dagestane</i> (Malaria in Dagestan), which appeared in the academic periodical <i>Gigiena i epidemiologia</i> (Hygiene and epidemiology) in 1923. Shirokogorov was the author of <i>Chuma</i> (Plague), which was published in Baku, Azerbaijan SSR in 1933.</p>

<p>Eduard-Leonard Fridrikhovich Sperk (1837-1894)</p>	<p>Sperk was a renowned Russian syphilologist and dermatologist. He graduated from the department of medicine of the University of Kharkiv (in modern day Ukraine) in 1859 and then was dispatched to Okhotsk city in the far east of the Russian empire, where he served as a district physician. While in Okhotsk, he participated in the two-year expedition along the Pacific Ocean coastline, during which he collected substantial information on diseases among local population, including the socially devastating syphilis that had recently been imported. Sperk also contributed to the creation of the atlas of comparative pathological geography of eastern Siberia. In 1863, the Medical Surgical Academy of St. Petersburg awarded Sperk the degree of the doctor of medicine. After spending a decade in the Priamursky Territory in eastern Russia, Sperk returned to St. Petersburg, where he was appointed chief physician of Kalinkinsky Hospital in 1871.</p> <p>In St. Petersburg, Sperk actively participated in the creation of the Imperial Institute of Experimental Medicine (IEM) and upon its inception, Prince Oldenburgskiy appointed him as its first director in October 1891. In this capacity, Sperk was responsible for setting up the organizational structure of the institute. Very soon thereafter, research studies began in earnest in all of the institute's departments, including the department of syphilology, which was founded by Sperk. He oversaw the construction of the building that was supposed to house the department of biochemistry and, at the same time, he was involved in organizing the publication of the first print edition of IEM's research in both Russian and French – <i>Archive of Biological Sciences</i>. Unfortunately Sperk was unable to finish these tasks as he died of cancer on May 3, 1894.</p> <p>Sperk's scientific works covered a broad range of topics related to syphilis and prostitution; most of which are included in anthologies such as <i>Arkhiv Sudebnoy Meditsiny</i> (Archive of Jurisprudential Medicine), <i>Obshchestvennaya Gigiena i Meditsinskaya Politsiya</i> (Public Hygiene and Medical Police), <i>Voенно-Meditsinskiy Zhurnal</i> (Military-Medical Journal), and other medical publications. After Sperk's death, all his works were collected and translated into French and published in Paris under the following titles: <i>Oeuvres completes du D-r Edourd Leonard Sperk. Syphilis, Prostitution, etudes medicales diverses, avec une preface du D-r Lanceraux etc.</i> (published in Paris in 1896 with the biography of Sperk).</p>
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<p>General Johann Christoph von Stoffeln (?-1770)</p>	<p>During the Russo-Turkish War of 1768-1774, Stoffeln was dispatched to Moldova, where he commanded the 17,000 strong Moldovan Cavalry Corps. Empress Catherine II (Catherine the Great) charged him with governing Moldova, which had recently affirmed its loyalty to the Russian Empress. In November 1769, Stoffeln assumed full control over the territory of Moldova and a large part of Walachia and captured two nobles opposed to Russian presence. In January 1770, the Turks and Tatars took advantage of the long supply lines connecting different divisions of the Moldovan Cavalry Corps and attacked the Russians. They soon were resolutely defeated at Fokshani (in present day Romania). However, after occupying Yassi city, plague struck Russian troops. Obstinate, Stoffeln refused to withdraw his forces from the infected city and as result in May 1770 he and many of his troops died from plague.</p>
<p>Danilo Samoilovich (Sushchinsky) (1744-1805)</p>	<p>Samoilovich was one of the founders of epidemiology in Russia, and an active organizer and participant in the struggle against plague. He graduated from medical school at the Admiralty Hospital in St. Petersburg. From 1769 to 1771, Samoilovich served in the army during the Russian-Turkish war. In 1771, he worked in the effort to mitigate the consequences of a plague epidemic in Moscow. Starting in 1784, he became involved in the fighting plague epidemics in southern Russia. He was the first Russian scientist to provide a detailed description of the clinical development of plague. Samoilovich also developed a coherent system of anti-epidemiological measures to fight plague. He defended the right of students to publish medical dissertations in Russian (before it could only be done in Latin). Samoilovich was elected member of many foreign academies of sciences. He published several fundamental treatises on plague, which received a wide recognition, including <i>Traactatus de sectione symphyseos ossium pubis et partu caesareo</i> (Lugduni Batavorum, 1780). The significance of Samoilovich's scientific contributions and the continued relevance with which they are regarded can be judged from the fact that his <i>Selected Works</i> were published in two volumes in 1949-1952.</p>
<p>Mikhail Gavrilovich Tartakovskiy (1867-1935)</p>	<p>Tartakovskiy was a Russian epizootiologist, microbiologist, and pathological anatomist. In 1890, Tartakovskiy graduated from the Veterinary Institute in Derpt (now Tartu, Estonia), earning a magistrate degree in veterinary science. In 1898, while working as a deputy head of the department of epizootiology at the Imperial Institute of Experimental Medicine in St. Petersburg, he was appointed the director of the plague research laboratory complex at Fort Alexander I. During 1923-1932, Tartakovskiy served as the director of the Institute of Comparative Pathology in Leningrad, where he participated in the founding of the</p>

	<p>museum of comparative pathology. During 1932-1935, he took active part in a scientific expedition studying cattle peripneumonia. Tartakovskiy's main scientific works are on cattle plague, bird plague and typhoid, cecal spirochetosis in chicken, glanders, epizootic lymphangitis, and design of bacteriological equipment.</p>
<p>V.I. Turchaninov-Vyzhnykevich (? – 1904)</p>	<p>Vyzhnykevich was the head of the laboratory at the anti-plague research center located at Fort Alexander I, when he contracted pneumonic plague in January 1904 as a result of a laboratory accident. This occurred while Turchaninov was carrying out tests on infected animals and was preparing a plague toxin by smearing plague microbes frozen by liquid nitrogen. After the accident, his colleagues examined the laboratory and discovered a broken mortar that had been used to prepare emulsions containing <i>Yersinia pestis</i>. Despite the best efforts to save his life, Turchaninov's conditions worsened and he soon died. His body was cremated and the ashes, in accordance with the deceased's request, were lodged at the IEM library.</p>
<p>Aleksandr Aleksandrovich Vladimirov (1862-1942)</p>	<p>After graduating from the Department of Medicine of the University of Derpt (now Tartu, Estonia), Vladimirov temporarily worked with Dr. B. Kerber and attended courses in bacteriology taught by Dr. R. Koch at the Department of Hygiene of the University of Berlin. Upon returning to Derpt, and before his departure to St. Petersburg, Vladimirov worked as an assistant at the Department of Hygiene of the University of Derpt and at the bacteriological station of the Veterinary Institute. Vladimirov was invited to St. Petersburg by the founder of the Department of Epizootiology at the Imperial Institute of Experimental Medicine (IEM), Dr. K.Ya. Gelman. At that time the main research objective of the IEM's Department of Epizootiology was to develop a vaccine against glanders. This was considered a national priority because every year glanders affected many horses that were used as primary modes of transportation for the armed forces, postal service, and by other components of the Russian economy. In 1895 Vladimirov was put in charge of the Department of Epizootiology and he became a full staff member of IEM. In the course of the research on glanders vaccine, Vladimirov discovered the phenomenon of precipitation. He was also actively engaged in the anti-tuberculosis movement and was one of the founders and leaders of the All-Russian League of Struggle against Tuberculosis. In this capacity, Vladimirov participated in organizing anti-tuberculosis exhibits that were presented at the International Hygienic Exhibition in Dresden, Germany in 1911. In addition to glanders, under Vladimirov's leadership the IEM's Department of Epizootiology carried out</p>

studies related to anthrax, rabies, cattle hemoglobinuria, animal trypanosomes, dysentery, typhoid, as well as comparative pathology of infectious diseases.

Vladimirov made substantial contributions to the emergence and development of the applied immunology of plague. After the creation of the Special Commission for the Prevention of and Fight against Plague (KOMUCHUM) in 1897, Vladimirov was chosen to be a scientific affairs deputy to the Prince Oldenburgskiy, who chaired KOMUCHUM and oversaw its activities. Prior to the opening of the specialized anti-plague laboratory at the Fort Alexander I, the IIEM's Department of Epizootiology under Vladimirov's direction organized one of the world's first production facilities for anti-plague vaccines and sera. He tirelessly trained future cadres of plague specialists and organized expeditions to areas where plague and cholera outbreaks and epizootics occurred.

In 1914, he was honored with the title of Full State Counselor (*Deistvitel'nyi Statskii Sovetnik*). During 1914-1926, Vladimirov was appointed professor at the Department of Epizootiology of the All-Female Medical and Psycho-neurological Institutes. In 1918, he transformed the Department of Epizootiology into Department of Comparative Pathology and Immunology and, in 1921, he further transformed it into Department of Comparative Pathology of Infectious Diseases. In 1930, Vladimirov renamed his department the Department of Medical Microbiology.

Vladimirov devoted much of his professional and academic career to studying the problems of leprosy and was considered one of the leading Soviet specialists in this disease. He often visited the leper colonies in Yakutia, where he personally observed the patients and documented their symptoms. In the 1920s, Vladimirov founded the leprosy station in Leningrad, where he trained future cadres of clinical and sanitary doctors to become leprosy specialists. Vladimirov's extensive knowledge, exceptional organizational capabilities and highly productive scientific research earned him a formidable reputation in the area of infectious pathology. Vladimirov's work on glanders, tuberculosis, plague, anthrax, and leprosy brought him fame and recognition among scientific communities in Europe, United States, and other parts of the world. He represented Russia and the IIEM at various international scientific fora and was a member of the editorial boards of several European specialized scientific journals. Vladimirov was recognized and valued by the Nobel Prize laureates R. Koch, P. Erlich, and I. Mechnikov. Throughout his life, Vladimirov was actively engaged in the scientific research in both laboratory and field. Even towards the end of his life he traveled to the far corners of the Soviet Union,

	<p>including the Far East, where he carried out studies in the tundra. For example, in 1939 he studied the necrobacillosis (Lemierre's disease) in deer populations on the Yamal Peninsula.</p> <p>Most of Vladimirov's scientific works are related to the infectious pathology. In 1940, in recognition of his contributions to this field, Vladimirov received the title of Honorary Scientists of the Russian Soviet Socialist Federated Republic. Vladimirov died during the Nazi blockade of Leningrad while he was working on the manuscript of his memoirs, <i>Memories of a Microbiologist (Vospominanya Mikrobiologa)</i>, which was posthumously published in 1991.</p>
Sergey Nikolayevich Vinogradskiy (1856-1953)	<p>Born in the family of a wealthy lawyer in Kiev, Ukraine, Vinogradskiy graduated with honors (gold medal) from the 2nd Kiev Gymnasium and began studying jurisprudence, natural sciences, and music. In November 1877, he entered the department of natural sciences at the University of St. Petersburg, where he paid special attention to chemistry. After graduating in 1881, Vinogradskiy launched a series of studies in the area of experimental morphology of microorganisms. During 1885-1888, he worked at the laboratory of Antoine de Bary at the University of Strasburg (France). During 1888-1891, Vinogradskiy carried out research on the nitrification process, which included proving its biological origins and isolating its causal agents. These studies propelled Vinogradskiy to become one of the most renowned biologists in the world. In recognition of his fame, he received an invitation from the Pasteur Institute in Paris to head a laboratory and, simultaneously, was offered a job at the Imperial Institute of Experimental Medicine (IEM) in St. Petersburg, which at the time was in the process of being established. Vinogradskiy accepted the IEM's offer and was appointed the head of the department of bacteriology. In 1902, he was appointed the director of IEM and he served in this capacity until 1905. While in St. Petersburg, Vinogradskiy carried out ground-breaking studies on anaerobic fixation of nitrogen by microbes. At the same time he began working on especially dangerous infectious diseases. Prince Oldenburgskiy convinced him to carry out plague research. Thus it was that Vinogradskiy began working hard to develop disinfection methods against plague. For this purpose, he also conducted animal studies at the anti-plague laboratory located at Fort Alexander I. His assistant was D.K. Zabolotniy (see corresponding entry in this table), who later became one of the founders of Russian and, later, Soviet epidemiology. Vinogradskiy's research interests at that time included medical microbiology and epidemiology, as well as plague vaccine</p>

	<p>production methods.</p> <p>In 1903, he founded the Microbiological Society of Russia. In 1912 he resigned from the IIEM and moved to Ukraine, where he studied agriculture and soil sciences until 1922. That year he was forced to emigrate to France where he was appointed head of the agricultural and bacteriological department at the Pasteur Institute in Paris. At the Pasteur Institute he continued to experiment in the area of soil microbiology, which eventually led to the creation of a new scientific discipline – ecological microbiology. Vinogradskiy worked at Pasteur until his death in 1953.</p> <p>In 1923, which was some time after Vinogradskiy had emigrated, he was elected an academician emeritus by the St. Petersburg Academy of Sciences, which was the only case in the history of Soviet science that an émigré academician received such a title.</p> <p>Vinogradskiy is the author of the undated treatise entitled <i>O chumnom kontagii i novom sredstve preduprezhdeniya i lecheniya bubonnoy chumy</i> (On contagiousness of plague and on a new method of prevention and treatment of bubonic plague). Vinogradskiy was also an editor of the academic journal <i>Arkhiv biologicheskikh nauk</i> (Archive of biological sciences), which was published in Russian and French from 1892.</p> <p>The compilation of his selected works on this topic was issued in 1945 under the title of <i>Mikobiologiya pochvy</i> (Microbiology of soil). This book was first published in France in 1945 and in 1952 it was translated to Russian and distributed throughout the Soviet Union. Vinogradskiy's last years of scientific work was devoted to the classification of bacteria. To sum up, Vinogradskiy's most important scientific achievements include the description of morphological variability of microbes, the discovery of microbes' capacity for chemosynthesis, and the creation and development of the bases for ecological and soil microbiology.</p>
Kasyan Osipovich Yagelsky (1736-1774)	<p>Yagelsky received his primary education at the Kiev Spiritual Academy and medical education at the St. Petersburg General Hospital, where he also acquired the doctor's degree. In 1761, he was sent abroad to continue his education. In 1765, Yagelsky received the degree of the doctor of medicine for his dissertation <i>De passione hysterica</i> (On hysterical passion) at the University of Leiden (The Netherlands). Upon returning to Russia in 1765, he received the right to practice medicine and was appointed a junior doctor at the Admiralty Hospital in St. Petersburg, where he also attended lectures in physiology and pathology. In 1768, Yagelsky taught the same subjects at Moscow's General</p>

	<p>Hospital. According to the Russian medical historian Yakov Alekseevich Chistovich, Yagelsky was the first doctor to correctly identify plague during the 1770 Moscow epidemic. Yagelsky is the author of the <i>Instructions on preventive measures against the deadly ulcer</i> (Moscow, 1771). See: Y.A.Chistovich, <i>Istoriya pervykh meditsinskikh shkol v Rossii</i> (History of the early medical schools in Russia) (1883); A.Nikitin, <i>Kratkii obzor sostoyaniya meditsiny v Rossii v tsarstvovanie Ekateriny II</i> (Brief survey of the condition of medicine in Russia during the reign of Catherine II) (1855).</p>
<p>Daniil Kirillovich Zabolotny (1866-1929)</p>	<p>Zabolotny was a prominent bacteriologist and epidemiologist, academician, and president of the Ukrainian Academy of Sciences from 1928 to 1929. Zabolotny received education at the Odessa State University in 1885-1891. In 1889, he was arrested for having participated in student demonstrations and expelled from the University of Novorossiysk in Odessa. However, Zabolotny did manage to graduate in 1891 by taking exams without attending classes. In 1894, he graduated from the Department of Medicine of the University of Kiev. In 1893, Zabolotny experimented on himself by taking an orally administered cholera vaccine and thereby proved that it is efficient. In 1898 he established the Department of Bacteriology at the St. Petersburg All-Female Medical Institute, which was the first such department in Russia and which he led until 1928. In 1920 he established the Department of Epidemiology at the Odessa State University. In 1921 Zabolotny founded and became the first rector of the Odessa Medical Institute. He is also one of the founders of the International Society of Microbiologists. Zabolotny was in charge of the Sanitary-Epidemiological Commission of the Main Military-Sanitary Directorate of the Red Army and a member of the Scientific Medical Council of the People's Commissariat of Public Health (Narkomzdrav). He was actively involved in designing the curricula for professional training courses for military and civilian doctors-epidemiologists. Zabolotny is the author of many scientific works on plague, cholera, malaria, syphilis, diphtheria, spotted typhoid and other diseases. Zabolotny pioneered the teaching about natural plague foci in 1922. His main scientific works are devoted to the studies of plague, cholera, spotted and tick-borne typhoid. Zabolotny participated in many expeditions to study plague in India, Arabian Peninsula, Mongolia, and other regions of the world. In 1928, he was instrumental in establishing the Ukrainian Institute of Epidemiology and Microbiology of the Academy of Sciences of Ukrainian Soviet Socialist Republic in Kiev, which now still carries his name.</p>