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## ANDRZEEVSKIY IVAN IVANOVICH — RUSSIAN MILITARY DOCTOR, DOCTOR OF MEDICAL SCIENCES, SENIOR DOCTOR OF THE IZHEVSK ARMS FACTORY

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**ABSTRACT.** Andrzevskiy Ivan Ivanovich is a Russian military doctor, Doctor of Medical Sciences. In 1857–1885 I.I. Andrzevskiy was the junior and then senior physician of the Izhevsk Arms Factory. In addition to the daily care of patients, the doctor studied the specifics and causes of high diseases rate of the population of the factory village. He fought epidemics, made considerable efforts to create effective methods of treating various fevers and typhus. He did his best to improve the organization of medical services at the Izhevsk plant by increasing the number of the medical staff and the number of the beds for the patients in the inpatient department. In the doctoral dissertation “Swamp diseases in the north. Medical and topographic description of Izhevsk Arms Factory” he was the first to introduce important medical, topographic and statistical materials, analyzed the class, national, age and gender of the factory population, marriage, fertility, morbidity and mortality, the influence of climate, epidemics and social problems on the dynamics of reproduction. I.I. Andrzevskiy also made a significant contribution to the study of the living conditions of the factory population.

**KEYWORDS:** Andrzevskiy Ivan Ivanovich, Izhevsk Arms Factory, medical and topographic research, “swamp diseases”, fevers, life expectancy, mortality, birth rate, social and hygienic living conditions of Izhevsk workers

## АНДРЖЕЕВСКИЙ ИВАН ИВАНОВИЧ — РУССКИЙ ВОЕННЫЙ ВРАЧ, ДОКТОР МЕДИЦИНСКИХ НАУК, СТАРШИЙ ЛЕКАРЬ ИЖЕВСКОГО ОРУЖЕЙНОГО ЗАВОДА

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**РЕЗЮМЕ.** Анджеевский Иван Иванович — русский военный врач, доктор медицинских наук. В 1857–1885 гг. И.И. Анджеевский являлся младшим, а затем старшим лекарем Ижевского оружейного завода. Иван Иванович проводил прием пациентов, выявлял основные факторы возникновения болезней среди рабочих оружейного завода, определял структуру патологии среди приписного населения. Боролся с эпидемиями, приложил немалые усилия для создания эффективных методов лечения лихорадок и тифов. Осуществлял мероприятия по увеличению численности медицинских кадров и коек в лазарете. В научной работе «Болотные болезни на севере. Медико-топографическое описание Ижевского оружейного завода» впервые дал характеристику заболеваемости, рождаемости, смертности рабочих завода, представил соотношения мужского и женского населения, их национальность и распределение по сословиям. И.И. Анджеевский также внес весомый вклад в изучение быта заводского населения.

**КЛЮЧЕВЫЕ СЛОВА:** Анджеевский Иван Иванович, Ижевский оружейный завод, медико-топографическое исследование, «болотные болезни», лихорадки, продолжительность жизни, смертность, рождаемость, социально-гигиенические условия жизни ижевских рабочих

Ivan Ivanovich Andrzejewski (Andreevsky) was born 23.04.1832 in a family of Polish nobles in the family estate Fortunatovo (now the village Surmilitsey) in Vitebsk province. At baptism he received the name Jan Marzelius. His grandfather was Jozef (Joseph) Bialecki-Andrzejewski. His father was Jan Mikołaj Bialecki-Andrzejewski (Jan Mikołaj Bialecki-Andrzejewski), his mother was Rozalia Bobaszynska [5, 6].

It is interesting to note that in 1844 Antonina Frantsevna Andrzejewski (Eliashevich), the second wife of Jan Mikołaj Bialecki-Andrzejewski, submitted a petition to the Vitebsk Noble Deputation Assembly to recognise her husband's sons from the first marriage Ivan-Marcelius and Pavel in the nobility. The request was satisfied [5, 6].

Ivan Ivanovich Andrzejewski studied in Vitebsk gymnasium. In 1855 he graduated from the Imperial Medical and Surgical Academy in St. Petersburg. During the Crimean War he was sent to the Novoglukhov military hospital of the Ukrainian military settlement (1853–1856). On 17.11.1857, as a military doctor, he was appointed junior doctor at the Izhevsk gun factory (Fig. 1).

After the abolition of the serfdom “the gunsmiths were granted the rights of rural inhabi-

tants and given freedom: to continue to engage in the gunsmithing business, ...or to move to the allotted land plots and become farmers” [1, 7]. At the Izhevsk gun factory there was a hospital with 150 beds, in 1865 an emergency room with 8 beds was opened. I.I. Andrzejewski was the director of the hospital [2]. Medical care, including in-patient care, and drug supply were provided free of charge. However, most workers could not exercise their right to free medical care due to the high workload of medical centres. In addition, workers often preferred to be treated at home, as they lost part of their wages and provisions while in hospital. The situation was aggravated by the lack of medicines [3].

According to statistical reports of 1866, up to 65 patients, mostly traumatised factory workers, applied to the hospital every day [3]. In 1868 the mortality rate in the emergency room was 6.7%, in 1872 — 2.7%. In 1870, 3248 people were treated as outpatients, of whom 1629 were factory workers. “The local hospital or emergency room would not correspond neither to the population of the factory, nor to the number of workers ... if patients did not prefer to be treated at home, by their own resources...” [1, 3].

Since 1873 I.I. Andrzejewski headed the military infirmary, the staff of which consisted of a head doctor, two paramedics, a pharmacy para-



Ижевский Заводъ. Ижевскіе оружейный и сталелѣтельный заводы

Fig. 1. Dam of the Izhevsk Arms Factory

Рис. 1. Плотина Ижевского оружейного завода

medic, a supervisor, infirmary attendants and service personnel. Financing was envisaged — 25 kopecks per patient per day. Medicines were provided from the Moscow pharmacy. Patients of the infirmary were soldiers of garrison artillery companies, regimental students and artillery observers. For the maintenance of the infirmary in 1883 were spent 4456 rubles 68 kopecks [2, 3].

The head doctor reported to the administration of the factory on the expenditure of funds, the work of medical and paramedical staff, the number of patients on in-patient and out-patient treatment once a quarter. He provided information on the structure of sickness rate of factory workers, industrial injuries and accidents. In his report dated 02.01.1877 Ivan Ivanovich gave an analysis of the organisation of the factory health care and revealed a decrease in the general level of health of the lower ranks. Among the main reasons for the development of high morbidity and traumatism I.I. Andrzejewski noted the poor health of recruits, who mostly suffered from the tuberculosis. Local unfavourable climatic conditions and, as a consequence, the prevalence of endemic diseases have had an impact [2].

The epidemiological situation was complicated by the fact that the infirmary was located in the building of the former factory hospital, in a dilapidated building without major repairs. By 1870, the roof of the building was leaking, the rooms were cold and damp. In order to prevent the spread of typhus and disinfection, patients had to be constantly transferred from one ward to another [2].

In 1880, I.I. Andrzejewski received the degree of Doctor of Medical Sciences for his dissertation “Swamp Diseases in the North. Medico-topographical description of the Izhevsk gun factory”. I.I. Andrzejewski’s dissertation research begins with a description of the territory of the Izhevsk factory and the livelihood of the workers and their families. Describing the territorial location of the Izhevsk iron forging (founded in the early 18th century) and gun works (founded in 1807), I.I. Andrzejewski noted that the Izh River divided the Izhevsk settlement into two almost equal parts: the highland and the backland. The zarechnaya part of the Izhevsk factory was located below the level of the pond. “In many houses, for the better part of the year, the water stands right under the floor



... the dampness and swampiness of this area is further increased by the considerable number of springs...". The damp climate, according to I.I. Andrzejewski, was the cause of high morbidity and recurrent epidemic fevers among the local population. Thus, according to the doctor, "terrible sickness was rampant among the workers of the iron forging plant and they quickly died out". "In their place came in large numbers others..., but the same fate awaited these too" [1].

The epidemic of fever in 1807–1816 I.I. Andrzejewski defined it as "horrifying in its strength and duration" with a mortality rate of up to 13.5% per year. "During the epidemic, relocations to the factory, or, as they were called, 'man-ning of workers' must have continued almost continuously and occurred in batches of several hundred to 2,000 people at a time", the doctor wrote. During the fever epidemic of 1842–1845 "with a population of about 15,000 souls, the daily number of sick exceeded ... 1,500 people". The sick were placed "in corridors, sometimes two by two on one bed, ... several people on one bunk, ... just on the floor, on straw". They died from fevers at the peak of the disease and from its consequences: tuberculosis and disorders of the digestive system [1].

It is interesting to note that during the epidemic of 1842–1845 "skilful and experienced doctors" sent to the plant saw the main cause of epidemics "in the damp, swampy terrain of the plant and demanded radical measures to improve it" [1]. The factory authorities, on the contrary, "insisted that the epidemic was nothing but an accidental 'weather' ", which was left to the "art" of doctors to fight. In the end, they agreed on "medium measures aimed at improving the life of gunsmiths". Wages were increased and rations were introduced for the family members of the workers, who "literally ... starved to death during the workers' illness". However, as I.I. Andrzejewski notes, these measures "were implemented slowly and reluctantly", and epidemics of fevers did not stop (1853, 1863, 1876) [1].

I.I. Andrzejewski studied the climate in detail, during twelve years he recorded the average monthly and average annual temperature, also studied daily temperature fluctuations, monthly distribution of clear and cloudy days with precipitation, wind direction, conducted a comparative analysis of Izhevsk climate with the climate of Yaroslavl. Thus, among "the most unhealthy winds" he referred to "south-east and especial-

ly south-west wind" — wind "from the rotten corner", i.e. "from the swampy basins of the rivers Posimi and Izh". "...and always at the same time the most violent and transient forms of swamp fever spread through the factory", Ivan Ivanovich wrote. In addition, the dissertation research contains data on the monthly distribution of thunderstorms at the plant, the observation of which was carried out for eight years. The doctor revealed the dependence of certain diseases on the time of year. He also described the quality of water used in the home. Water is "abundant everywhere; but good water for drinking is a scarce resource". Analyses of key water, water from deep and shallow wells, pond and river water are presented. He considered water from springs to be the most suitable for drinking, and the least suitable — pond and river water, water from shallow wells, because after heavy rain and snow melting "whole dirty streams with a mass of organic residues and rubbish" were poured there. According to I.I. Andrzejewski's findings, poor water quality led to an increase in the incidence of typhoid fever, cholera, and worm infections [1].

Describing the difficult working conditions of gunsmiths, the influence of the swampy area around the settlement as the main cause of many diseases, I.I. Andrzejewski first determined the average life expectancy of the factory workers — 17.6 years due to the exceptionally high infant mortality and male mortality [1].

In the period from 1839–1878 he found a decrease in the number of marriages (in 1839–1842 one marriage was registered per 77 citizens, in 1872–1878 one marriage was registered per 100 citizens). It revealed seasonality of weddings (mainly in winter and autumn periods), predominance of early marriages (marriage age was 20–25 years for grooms and 16–20 years for brides). There were from 4.3 to 6.1 births per marriage. The couples, according to the doctor, had very limited life needs and did not think about the fate of their offspring [1, 2].

The highest birth rate was recorded by Ivan Ivanovich in the period from 1854–1860, when after the fever of 1842–1844 gunsmiths were granted various privileges. I.I. Andrzejewski also studied the monthly distribution of births and conception at the factory depending on the fasts, sowing and harvesting works. The dissertation research presents data on stillborn, illegitimate and abandoned children. Thus, for the period

from 1860–1878 illegitimate children made up 3.03% of all newborns, foundlings — 2.47% [1].

According to the study of I.I. Andrzejewski, mortality among workers and peasants of the Izhevsk plant was high, in 1840–1880 was 1:23 people, or 4.33%. The “Medico-topographical description” presents data that one dead person was one per 26 citizens in 1840, in 1845 — per 23.5, in 1850 — per 20, in 1855 — per 20, in 1855 — per 26, in 1860 — per 22.5. In 1867 the death rate was 50% [1–3].

Among all the dead children under the age of one year made up 41.3%, boys prevailed (117 boys per 100 dead girls) [3]. The high infant mortality rate was attributed to poor hygiene and early complementary feeding (from one month of age) with steamed bread, semolina and buckwheat porridge, which upset the digestion of newborns. Scarlet fever, measles, whooping cough, smallpox, and diphtheria were common among older children. However, “...none of these diseases was particularly widespread, nor particularly malignant, but .... each of them raised more or less significantly the percentage of mortality” [1].

I.I. Andrzejewski for the first time carried out an in-depth analysis of mortality at the Izhevsk gun factory in the period from 1860 to 1878, revealing a particularly high mortality rate at the age of up to 4 years (Table 1).

From 1860 to 1866 a total of 5677 men and women died from various causes. In 1866–1872 — 5770 people, for 1872–1878 — 4941 people. The mortality of children under 6 months accounted for 32.83 % of the total mortality, and the mortality of children under 1 year of age was 41.29%.

The production experience of an Izhevsk worker began “often from the age of 10, or even from the age of 9”. “...the most frequent reason for their admission to the factory is that an adult worker in the family either falls ill without end, or died, or, finally, became a soldier, and the whole family ... sits literally without any bread” [1, 7].

The mortality rate of men of working age was higher compared to the mortality rate of women, which contributed to the increase of women in the structure of factory workers. In 1860–1866 there were 134.15 dead men per 100 dead women, in 1878 this indicator increased to 160.90 dead men. The highest mortality rate in 1860–1878 among men of the factory was registered at the age of 20–25 years, then — after the age of 35 years, and from the age of 40 years the mortality rate began to decrease. Throughout the history of the Izhevsk plant, the mortality of the male population in the working age prevailed over the mortality of the female population [7]. “According to the number of orthodox parishioners of the plant by the beginning of 1878, there were already more than 115 women per 100 men”. The doctor explained this fact by “increasing physiological weakening — degeneration of the population and, predominantly, of its male half” [1].

Ivan Ivanovich among the causes and factors contributing to high mortality indicated physical or natural (soil, climate, “national peculiarities”) and social conditions of life. Ivan Ivanovich identified the leading factors of population reproduction as a natural and climatic factor (the swampy terrain, poor quality of drinking water and changeable cold climate), unsanitation, unfavourable living and production conditions [1–3]. He attributed the excess mortality rate of men

Table 1

Distribution of children from 0.5 to 4 years died in 1860 to 1878 in the Izhevsk arms factory

Таблица 1

Распределение умерших детей с 0,5 до 4 лет с 1860 по 1878 гг. в Ижевском оружейном заводе

Возраст / Age	С 1860 по 1866 гг. / From 1860 to 1866			С 1866 по 1872 гг. / From 1866 to 1872			С 1872 по 1878 гг. / From 1872 to 1878		
	муж. / male	жен. / female	итого / total	муж. / male	жен. / female	итого / total	муж. / male	жен. / female	итого / total
До 0,5 лет / Up to 0.5 years	982	853	1835	1024	802	10 826	923	796	1719
До 1 года / Up to 1 year	240	222	462	226	219	445	256	224	480
1 год / 1 year	180	190	370	197	179	376	167	144	311
2 года / 2 years	200	201	401	144	123	267	117	96	213
3 года / 3 years	123	107	230	95	95	190	61	67	128
4 года / 4 years	66	81	147	64	56	120	41	49	90

working at the factory to high traumatism and the presence of metallic and organic dust in the air [8]. In the workshops “people crammed together like herrings in a barrel”. “When working in the polishing and sharpening workshops, workers inhale mineral dust heated by friction ..., and a rare one of them, after several years of work does not suffer from chronic bronchitis or pulmonary emphysema. In addition, sparks bursting out by the jet ..., often get into the eyes, burn the skin on the hands ...”. In a steel factory “with an atmosphere constantly poisoned by coal smoke, ... do not get sick, but die quickly from carbon monoxide” [1].

In addition, the high mortality rate of Izhevsk workers was partly due to their adherence to folk medicine. Factory workers and their families often turned to retired paramedics, folk healers and witch doctors [1, 3].

The population of the Izhevsk factory in 1866 was 20,618 people, including 9,886 men and 10,732 women.

I.I. Andrzejewski considered the spread of alcoholism as one of the most unfavourable factors reducing the population. The number of drinking establishments in Izhevsk increased from 4 to 88 from between 1862 and 1874. Thus, in 1874 there was one pub per 273 citizens, in 1880 — one pub per 190 citizens. Ivan Ivanovich noted that the younger generation also followed the harmful example of adults. Ivan Ivanovich explained the growth of criminal statistics by “the influence of the machine mode of production, which turns man into some kind of automaton, suppressing the mind and consideration” [1].

The thesis presents a characterisation of the health of workers at the factory for the period 1866–1878. Ivan Ivanovich noted that “given the insufficient size of the hospital, it was necessary to take there exclusively men working at the factory, and moreover with the most severe and, mostly, acute disease forms”. The doctor begins his description of the diseases common among the factory population with contagious diseases of childhood (scarlatina, measles, smallpox) and typhus (typhus and typhoid). The doctor examines the characteristics of typhoid fevers in detail. According to I.I. Andrzejewski’s data, typhoid fever accounted for 0.43% of the total morbidity rate. The doctor explained the rarity of typhuses by “very satisfactory hygienic conditions of gunsmiths’ dwellings”. “Contagious diseases of childhood draw attention to themselves... unusually high percentage of mortality”, — wrote

Ivan Ivanovich. At the same time, “a few of the gunsmiths consider it necessary to consult a doctor about any childhood diseases, especially in the first months of life of newborns”. “By a ridiculous prejudice, ... those possessed of these diseases are endeavoured always to keep as hot as possible. ...the unfortunate child is almost always found red as a kumach, somewhere in a stuffy corner, or near a hot-heated cooker, wrapped in all sorts of blankets, and, literally, suffocating from the violent rush of blood to the lungs” [1].

Malarial diseases (swamp fever) accounted for 33.05% of the total morbidity. I.I. Andrzejewski considered it obligatory for a doctor “to keep in mind constantly the possibility of complication of any disease by swamp fever”. In the dissertation study the types of fevers with clinical characteristics, consequences of the disease, including swamp fever — a non-intermittent form of swamp fever are considered in detail. Quinine was used in the treatment of various swamp fever processes. “In Izhevsk plant, among gunsmiths, deaf-mutes after swamp fever are counted by dozens”, — wrote Ivan Ivanovich [1].

I.I. Andrzejewski also mentions syphilis among other diseases — 1.15% of the total morbidity rate. “One of the conditions facilitating the spread of syphilis among adults is... the work at the factory, where the whole workshop quenches its thirst from a single ladle”, Ivan Ivanovich noted. Respiratory pathology (18.02%), gastrointestinal diseases (9.37%), diseases of the musculoskeletal system (5.10%) and skin pathology (19.43%) prevailed among the workers. The doctor gives clinical characteristics of pneumonia, bronchitis and emphasises their close connection with the spread of swamp fever. Diseases of gastro-intestinal tract “are also in close connection with the spread of swamp fever processes”. According to the doctor’s observations, “a particularly close correlation is found between bog diseases and the most numerous class of digestive disorders... diarrhoea”, accounting for 72.7% of all gastrointestinal diseases. “Among the immediate causes of digestive disorders a prominent role is played at the factory by worms (1.06%)...; then water of bad quality, and also... disproportionate consumption of... kvass”.

Among skin diseases the doctor notes rashes, ulcers, burns, scabies, eczema, caused by the conditions of work at the factory. Ivan Ivanovich attributes a very large number of injuries to the too early age of workers, the duration and monotony



Fig. 2. Ivan I. Andrzejewsky

Рис. 2. Иван Иванович Анджеевский



Fig. 3. I.I. Andrzejewsky's wife

Рис. 3. Жена И.И. Анджеевского

of work, insufficient lighting, terrible cramped workshops due to “a disproportionate number of machines cluttering them...” [1].

In his study I.I. Andrzejewski gives some details of the life of Izhevsk gunsmiths of the second half of the XIX century. The number of houses in Izhevsk settlement at that period was 3870.

“And if we take into account the enormous spread of sickness in the factory in general, and among the workers in particular, it becomes quite understandable that strange at first glance phenomenon that, with the apparently increa-

sing prosperity of the population, long ago there had not been in the factory so many hungry poor people, as now, and never before there were outwardly such striking contrasts between large affluence and extreme poverty” [1].

In 1872, the preparations for the Russo-Turkish war, which had begun, led to a significant increase in the productivity of the factory. Workers laboured at the factory both during the day and night, on weekdays and on holidays (except Sundays). Gunsmiths produced 150 thousand guns annually. The number of workers at the gun and steel factories increased from 3 thousand in the early 1870s to 5 thousand in 1878, labour remuneration increased to 17 rubles. Izhevsk factory was transformed, stone and wooden buildings were built. Trade in the factory settlement reached unprecedented proportions. Factory workers owned meadows, mowings, raised cattle [1, 7].

I.I. Andrzejewski's dissertation describes the interior decoration of workers houses, which consisted of a wooden table, 2–3 chairs and benches along the walls. Two walls of the armourer's hut had windows. They slept mostly on the floorboards or on the cooker, although some houses had a bed. However, even in the homes of well-to-do workers, clean rooms with European furniture were either rented or not used, and the family lived “somewhere in the kitchen with cockroaches and other household insects”. “Cleanliness in the workers' homes is maintained by the women very satisfactorily. The family bathes in a bathhouse, which is available in almost every house, but most of the bathhouses are built ‘black’. There are no latrines in the house, they are replaced by a stable and a corner in the yard”. “A Tula samovar is the first sign of the developing contentment in an armourer's house. They are followed by cheap wall clocks of the largest sizes. As soon as there is a need, the clock and samovar are sold to a happier neighbour, but at the first opportunity they are bought again, and if there are no longer these objects in the house, it means that the gunsmith's budget is in the worst condition” [1].

“Women in general are kept tidy. Unfortunately, the same cannot be said for children. But the cleanliness of men is dependent on the way they work. There are such kinds of factory work, in which the whole body of the worker is covered with a layer of liquid and at that greasy dirt (a mixture of mineral dust and oil), which



penetrates deeply into the skin and is washed off with the greatest difficulty, after repeated smearing with oil. Such workers are washed clean only once a week, in the bath, and it is clear that only the habitual, rough skin can bear such dirt without inflammation" [1, 7].

The predominant place in the diet of factory workers was occupied by vegetable food. "Fresh fish, due to its rarity and high cost, was available to the few. But a lot of salted and dried fish is brought to the factory. ... Meat is consumed quite often in the form of various pies and the famous dumplings. .... Dumplings are also made from fish and even from cabbage ... each Izhevsk resident consumes at least 60 pounds of meat per year ...". However, the doctor notes the insufficient nutrition of a significant part of the factory workers during the working day. "In some workshops the work starts from 5 a.m. and continues until 7 p.m. (sometimes later), with a lunch break of only 2 hours. Therefore those gunsmiths who live closer to the factory have breakfast (not always), lunch and dinner, but those further away must be content with dinner alone. They bring with them to work a slice of bread and dried fish, which they break with a spoon, soak a little in water, and then eat. Their favourite drink is kvass, sometimes homemade beer, which is sold in mugs in the streets" [1, 7].

I.I. Andrzejewski characterises workers' clothes from the point of view of health preservation. The elderly dressed in "zipuns" and long-sleeved caftans, while the clothes of the young did not correspond to the harsh climate: "the predominant style was a puffy coat, sometimes made of very expensive drape and with ... a beaver collar, and in summer — a 'vizitka', with the inevitable open waistcoat and a tightly starched shirt. The happy owner of such a 'German' suit considers it ... a duty to show himself in it on the first Sunday, walking along the streets, with his chest open to all winds, and he is shivering from the cold. Women still retain the former half-peasant costume, but even here the motivation in the form of velvet katsavekas, burnuses, dandy shoes, etc. begins to peep through" [1, 7].

I.I. Andrzejewski during his service at the Izhevsk factories was repeatedly promoted in rank, having passed the way from titular counsellor (IX class of the "Table of Ranks") to collegiate counsellor (VI class).

For his diligent service, on 23.07.1868 I.I. Andrzejewski was awarded the Order of St.

Anne of the 3rd degree. In 1880 Ivan Ivanovich was awarded the Order of St. Stanislaus of the 2nd degree, and in 1883 — the Order of St. Anne of the 2nd degree. He had a bronze medal on the St. Andrew's ribbon in memory of the war of 1853–1856 [2, 4, 5, 9].

By the highest order of 08.09.1885 I.I. Andrzejewski was appointed chief doctor of the Chuguev military plant [2]. The last years of his life he spent in Ufa, having the rank of State Counsellor. The Andrzejewski family had a stone house with a wooden wing for 8 rooms in Ufa [2, 5, 10].

I.I. Andrzejewski (fig. 2) was married to Lyudmila Zakharovna Popova (fig. 3), a native of Vyatka province. The marriage produced 5 daughters: Marionilla (1868–1958), Elizaveta (1874–1948), Natalia, Olga, Lyudmila and a son Pavel. His wife and children professed orthodoxy [5].

The work of Ivan Ivanovich Andrzejewski in the military medical service entered the history of national medicine. From 1857 to 1885 he served as junior and elder doctor of the factory hospital. The statistical data of his doctoral dissertation are important information characterising the birth rate, mortality and morbidity of the population of a large industrial settlement. I.I. Andrzejewski studied in detail the influence of climatic and sanitary conditions, religious and production factors on health indicators and life expectancy of the population of the Izhevsk gun factory.

## ADDITIONAL INFORMATION

**Author contribution.** Thereby, all authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published and agree to be accountable for all aspects of the study.

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