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**BERTENSON VASYL OLEKSIYOVYCH (1861–?) – ONE OF THE
CREATORS OF SCIENTIFIC AND EDUCATIONAL BASICS IN
BECOMING AND DEVELOPMENT OF SERICULTURE IN UKRAINE**

The purpose of the article is to highlight the life path, as well as the creative contribution of one of the founders of the field of domestic sericulture, the organizer of higher professional education V. O. Bertenson. On the basis of the complex use of the principles of historicism, scientificity and objectivity, general scientific, interdisciplinary and special historical methods, as well as the use of a diverse source base, the main trends in the development of the sericulture industry in Ukrainian lands are highlighted.

For the first time, the achievements of V. O. Bertenson as Secretary and Chairman of the Sericulture Committee of the Imperial Agricultural Society of Southern Russia is summarized. On the basis of the study of foreign and domestic experience, he developed a project for the organization of an experimental station for sericulture in Odesa, substantiated the possibility of conducting several successive

breeding of silkworms during one summer, proving the profitability of the development of this industry in the south of the country. As a teacher of the sericulture course at the Odesa Agricultural Institute, he prepared the first textbooks and guidelines for the training of specialists in the organization of sericulture farms, breeding and selection of various breeds of silkworms.

It is proved that V. O. Bertenson left a significant mark in science not only as a developer of the scientific foundations of silkworm breeding, an organizer of industry research institutions, but also as a popularizer of the achievements of domestic and foreign scientists, as well as advanced specialized farms in the field of sericulture. His scientific works were systematically published in the most authoritative domestic agricultural journals and republished as separate editions.

Keywords: *history of science, higher agricultural education, sericulture, silkworm, Imperial Society of Agriculture of Southern Russia, Odesa Agricultural Institute, V. O. Bertenson.*

БЕРТЕНСОН ВАСИЛЬ ОЛЕКСІЙОВИЧ (1861–?) – ОДИН ІЗ РОЗРОБНИКІВ НАУКОВО-ОСВІТНІХ ПІДХОДІВ СТАНОВЛЕННЯ ТА РОЗВИТКУ ШОВКІВНИЦТВА В УКРАЇНІ

Метою статті є висвітлення життєвого шляху, а також творчого внеску одного з фундаторів галузі вітчизняного шовківництва, організатора вищої фахової освіти В. О. Бертенсона. На основі комплексного використання принципів історизму, науковості та об'єктивності, загальнонаукових, міждисциплінарних і спеціальних історичних методів, а також використання різнопланової джерельної бази, висвітлено основні тенденції становлення галузі шовківництва на українських землях.

Вперше узагальнено здобутки В. О. Бертенсона як секретаря та голови комітету шовківництва Імператорського товариства сільського господарства південної Росії. На основі вивчення зарубіжного та вітчизняного досвіду розробив проект організації дослідної станції з шовківництва в Одесі, обґрунтував можливість проведення кількох послідовних вигодівель шовковичного шовкопряду впродовж одного літа, довівши рентабельність розвитку цієї галузі на півдні країни. Як викладач курсу шовківництва Одеського сільськогосподарського інституту уклав перші підручники та посібники для підготовки фахівців з організації шовковичних господарств, розведення та селекції різних порід шовковичного шовкопряду.

Доведено, що В. О. Бертенсон залишив значний слід в науці не лише як розробник наукових основ розведення шовковичного шовкопряду, організатор галузевих дослідних інституцій, а й як популяризатор здобутків вітчизняних і зарубіжних учених, а також передових спеціалізованих господарств у галузі шовківництва. Його наукові праці систематично друкували у найбільш авторитетних вітчизняних сільськогосподарських журналах, перевидавали окремими виданнями.

Ключові слова: *історія науки, вища аграрна освіта, шовківництво, шовковичний шовкопряд, Імператорське товариство сільського господарства південної Росії, Одеський сільськогосподарський інститут, В. О. Бертенсон.*

Formulation of the problem. One of the branches of animal husbandry that has traditionally developed on Ukrainian lands is sericulture. The first attempts to introduce the sericulture business in Ukraine date back to the times of Kyivan Rus. Constant communication with Byzantium and the East necessitated the tailoring of clothes for princes and boyars from luxurious silk fabrics, which became a kind of calling card for the country's entry into the world market. Since then, the culture of mulberry silkworm has gradually gained popularity every year.

During the reign of Peter I, mulberry seedlings and seeds, as well as silkworm seeds, were brought to the territory of the Russian Empire, which also included Ukrainian lands, and Kyiv and Lubensky silk gardens were laid. At that time, the mulberry silkworm was raised in the Beliv fortress (Krasnograd, Kharkiv province). Catherine II also encouraged the development of a new industry. Those wishing to engage in a new industry received free land for establishing mulberry plantations and a number of additional benefits. In 1773, an order was signed according to which the village Nova Vodolaga (Kharkiv province) with the slobodas of Mala Vodolaga and Karavanska together with the farms assigned to it, as well as the city's mulberry plantations, were set aside for silk production.

In the second half of the 18th century in Kyiv, the first private silk factory, owned by the merchant Smorodinov, began to function. In 1802, the Sericulture Inspection was approved, which during the 42 years of its existence made a lot of efforts to establish new mulberry gardens. This is how a garden appeared in Lypki with an area of 12 acres, in Zhukovtsi and Cherniakhiv – 5 and 3 acres, respectively, etc. According to documentary data, during the years 1806–1841, 155 poods 24 pounds and 55 zolotniks of raw silk were already produced in Ukraine [11].

At this stage, the role of an entrepreneur belonged to state authorities, which organized production mainly with the help of foreign specialists based on the labor of "regulars", and later military settlers. Over time, landlord sericulture appears, the share of which in the total production of silk raw materials becomes dominant. So, in 1827, a total of 166 decares of land were occupied under mulberry trees, of which

140 were owned by landowners and only 20 were owned by the state. Counts Poniatovsky, Rzhevutsky, and Pototsky held large mulberry plantations in the Kyiv province. At the same time, sericulture is developing significantly in the free Bulgarian and German colonies [10].

After the land reform of 1861, the role of organizer of the further development of the mulberry industry was assumed by public organizations (zemstva, agricultural and branch associations). In particular, in 1847, a Sericulture Committee headed by S. O. Maslov was created at the Moscow Society of Agriculture. Its activities to some extent extended to Ukrainian lands. The committee primarily took care of the opening of practical sericulture schools, the organization of the purchase and distribution of planting and breeding material among the population, and the sale of silk raw materials. Thus, in 1875, the committee allocated funds to M.N. Adamovych for the opening of a practical sericulture school near Khorol (Poltava province). We would like to mention the names of other Ukrainian enthusiasts and popularizers of the sericulture business of this era, such as V. A. Bertenson, I. Demol, K. Ya. Dessmet, N. A. Raiko, P. S. Popov, K. M. Alekseev, A. F. Blumenthal (Kherson province), D. S. Bilous (Chernihiv province), I. I. Korabliov, F. V. Chizhov (Kyiv province) and others. [11].

Review of the recent publications. The separate issues of the development of the sericulture industry on Ukrainian lands were reflected in the scientific works by V. O. Holovko, M. Yu. Braslavsky [13], E. Ya. Kozikov [15] and others researchers, in in our previous publications [10; 11]. The authors have revealed the general prerequisites for the formation of the industry, the main achievements in the breeding and selection of silkworms in Ukraine, and silk production. However, until now, the creative achievements of the Ukrainian scientists and public figures-enthusiasts, thanks to whose efforts the scientific support of this field was carried out, have not been sufficiently revealed. In particular, the scientific, organizational and social activities of the agronomist-scientist V. O. Bertenson who played a decisive role in the formation of the mulberry industry in the south of Ukraine remain unexplored. Bertenson, who played a decisive role in the establishment of the mulberry business in the south of Ukraine. Fragmentary data on his life path can be found in a short report by

V. A. Vergunov [12], published in the "Modern Encyclopedia of Ukraine", which do not contain information about his professional education, achievements in the formation of the domestic sericulture industry and higher professional education. The years of his active activities as the Secretary and Chairman of the Sericulture Committee of the Imperial Agricultural Society of Southern Russia and other data given in the article need clarification.

The purpose of the research is to highlight the life path and creative contribution of agronomist-scientist Vasyl Oleksiyovych Bertenson – one of the founders of the sericulture industry on Ukrainian lands, a popularizer of the prospects for the development of this branch, an organizer of higher professional education.

The research is based on the use of general scientific principles of systematicity, complexity, multifactoriality and comprehensiveness, which ensure a comprehensive coverage of the chosen problem. The general scientific, interdisciplinary and special historical methods, as well as methods of source analysis, were used. Preference was given to the biographical method as the main means of reconstructing the contextual biography, which is based on the idea of personality as a specific model against the background of the evolution of branch scientific thought. The source base of the research consists of archival documents, which are mostly involved for the first time, primary sources.

The research results. V.O. Bertenson was born on August 31, 1861 in Odesa in the family of the chief doctor of the Kuyalnitsa mud hospital, who received a noble title at the end of the 19th century. He received his higher education at the Novorossiysk University (now Odesa National University named after I. I. Mechnikov), but decided to expand it by acquiring agricultural knowledge. In 1884, he graduated from the Petrovsk-Rozumov Academy (now the Russian State Agrarian University – MAA named after K. A. Timiriazev) in Moscow, receiving a master's degree in agriculture. After graduation, he was hired by the Ministry of State Property. At the same time V. O. Bertenson was actively involved in the work of the Imperial Agricultural Society of South Russia, where he held the position of Secretary (until 1906), and then Chairman of the Sericulture Committee, as well as Fellow

Chairman of the Viticulture Committee, editor of the magazine "Viticulture and Winemaking" [11].

It is worth noting that the end of the 19th century was marked by the formation of a number of sericulture committees and societies on Ukrainian lands, mainly in the south, where the natural and economic conditions were most favorable for the development of the industry. One of the first to be organized was the Committee for Silk Production of the Imperial Society of Agriculture of Southern Russia, whose activities covered the Bessarabian, Katerynoslav, Tavry and Kherson provinces. Its active members, in addition to V. O. Bertenson, there were I. Demol, K. Ya. Dessmet, N. A. Raiko, who as early as 1841 presented a project for the development of this industry in the south of the country, approved and allocated by the Ministry of State Property.

The activities of the committee were aimed at performing the following tasks:

- 1) demonstration feeding of silkworm caterpillars;
- 2) organization of purchase and sale of cocoons, seeds and seedlings;
- 3) arrangement of silk spinning mills;
- 4) opening of sericulture schools and courses;
- 5) conducting public readings and discussions;

5) popularization of individual achievements in the development of the industry through printed publications, exhibitions, libraries and museums [10].

Among the measures introduced at that time, the distribution of mulberry tree saplings and silkworms, the organization of demonstration feedings, courses, etc., gained special importance. They tested machines for unwinding silk, promoted the sale of silk raw materials. V. Della-Vosa, an active member of the Imperial Society of Agriculture of Southern Russia, was sent to France to study the foreign experience of sericulture and to find sales markets for grapes.

No less multifaceted was the activities of the Kyiv Sericulture Society opened in 1896, led by P. Kostychev, which covered the entire southwestern region of Ukraine. Among its founders were Tst. A. Abramovich, O. M. Borodin, M. V. Bobretsky, G. I. Vishnevsky et al. Thanks to the efforts of the society, only in 1910, 800 gold coins

were distributed free of charge to the population of the Kyiv province, demonstrations were held at 20 public schools, and silkworm breeding was held at 10 schools [11]. For all those who want to master the basics of rational breeding of silkworms, systematic readings, conversations and instructions were held. It is worth admitting that, despite all the efforts of the societies, the sericulture business was introduced extremely slowly in the country. Only in some estates have certain successes been achieved in the production of raw silk. The peasants, despite the obvious profitability of this trade, treated it with distrust.

With the appointment of V. O. Bertenson as the Secretary of the Sericulture Committee of the Imperial Agricultural Society of Southern Russia, its work became more focused and effective. In total, the scientist devoted more than 35 years of his agronomic activities to the development of this field. He studied a significant number of private farms engaged in the sericulture business, mainly in the south of the country. In 1889, he was sent abroad by the society to study the best practices in viticulture and sericulture. He visited the best farms and research institutions in Belgium, France, Germany, Austria, Hungary, Italy and other European countries. With special attention, he studied the scientific work carried out at the Silk Plant in Montpellier (France). In 1900, he was sent to Paris to inspect the World Exhibition, in particular its industrial and agricultural section [4; 17, s. 4].

In the scientific works, he later wrote that in Western Europe the first place in the development of sericulture should be given to Italy. The country's first industry scientific institution – the Padua Silk Plant made a significant contribution to the development of the sericulture industry throughout the world. It managed a few dozen observatories, exemplary silkworm feeding centers. The station systematically conducted training courses, published a specialized magazine, and established a large museum on the development of sericulture.

V. O. Bertenson summarized the experience of French research stations. One of them was located in Montpellier and had considerable authority. Another famous laboratory for the study of silk operated at the Lyon Chamber of Commerce, and a large museum was opened at the laboratory. The researcher also singled out the

achievements of the silk stations in Murcia (Spain) and Trent (Austria). He also visited the well-known sericulture station and silk plant in Vratka (Bulgaria), where a large mulberry nursery, exemplary silkworms, competitions were systematically organized, and the production of cellular silk was encouraged. He studied with great interest the sericulture stations in Bucharest (Romania) and Brus (Turkey). It is worth noting that the Caucasian Silk Station in Tiflis, opened in 1888, was operating on the territory of the Russian Empire at that time. A significant contribution to the development of the industry was made by gantry stations opened in Tashkent, Petro-Olexandrivsky, Novy Margelan, and Samarkand [17, s. 4].

At that time, the Uman School of Agriculture and Horticulture began work on the development of the scientific foundations of sericulture on Ukrainian lands. It should be noted that until 1868 the school functioned as a professional horticulture institution. In 1868–1903, it had the status of a secondary school of agriculture and horticulture. Since 1885, a sericulture has been operating at it, and since 1894, courses on beekeeping, and later on sericulture, have been opened [11].

At this time, the first scientific works of V. O. Bertenson are published: "The gopher and methods of combating it" (1887), "Sandy soil and American vines as means of protecting viticulture from phylloxera" (1890), reviews of agricultural production in the southern region, etc. His first publications were included in authoritative industry publications: "Agricultural newspaper", "Agriculture and forestry", "Bulletin of Russian agriculture", "Notes of the Imperial Society of Agriculture of Southern Russia". In 1894, his reviews and letters were published as a separate brochure "Along the South of Russia", which is rightfully recognized as one of his best works [5, 8, 9]. In short essays, he provides information on the state of agriculture in one or another county, his thoughts on possible improvement, paying special attention to the culture of grapes and sericulture. This edition was highly appreciated by M. Hrushevsky, who published a review of it in "Notes of the Scientific Society named after T. G. Shevchenko" (Lviv, 1985, vol. 8, book 4).

In 1893, V. O. Bertenson was appointed an agricultural specialist for Bessarabia, Kherson, Tavria and Katerynoslav provinces and a sericulture specialist for the south

of the Russian Empire under the Ministry of State Property, which enabled the scientist to concentrate even more on those issues. On the basis of the study of foreign experience, he developed a project for the organization of a sericulture station in Odessa in 1896, which, unfortunately, was never implemented due to the lack of state funding [7].

With the assistance of the Sericulture Committee of the Imperial Society of Agriculture of Southern Russia, a congress of sericulture growers of southern Russia was held on June 25, 1897. The report "On the needs of sericulture in the southwestern region and measures for its development" was delivered by V. A. Bertenson, outlining a number of problems that arose along the way. Among them, the insufficient amount of planting and breeding material, disorganized sales of silk raw materials, etc. were put forward in the first place.

In 1899, he was appointed agronomist of the Podilsk and Volyn provinces. As an experienced specialist V. O. Berntenson participated in the work of expert commissions at agricultural exhibitions in Orel, Kherson, Kyshyniov and in regional agronomic meetings held periodically in Zhytomyr, Kyiv, Kherson, Kyshyniov, Odessa and other cities.

In 1906, he again visited Austria-Hungary and Italy to study the best experience in the development of sericulture. At that time, he published a description of the state of sericulture in Hungary, Bulgaria and Serbia. For the first time, he proved the possibility of carrying out several consecutive feedings of silkworms during one summer. It is worth noting that he also participated in the Odesa branch of the Imperial Russian Society of Horticulture. He worked on the appointment of the Ministry of Agriculture in the Odesa Phylloxera Committee (until its closure), from 1901 to 1906 he served as its Chairman.

At this time, his scientific works were published: "Turkestan alfalfa. A Code of Observations and Experiments on its Culture" (1896), "Polish Wheat" (1897), "Viticulture on sandy soils" (1897), "The State of Pig Breeding in Bessarabia and Measures for its Development" (1900). [1] V. O. Bertenson also prepared a "Brief outline of measures for the spread of sericulture in the south of Russia in 1906, 1907

and 1908", and his reports on various branch publications: "On the increase in mulberry plantations in the steppes of southern Russia", "On the production of cellular seed in Russia", "On supplying silkworm farmers in the southern provinces of Russia with cellular seed", "On the provision of French silkworm eggs and the advantage of its distribution in Russia", "Organization of the sale of cocoons", "Silk industry in Russia", "Sericulture in Hungary and measures for its development".

In 1907, V. O. Bertenson was appointed a Ministerial Inspector at the Main Department of Agriculture and Land Development [16]. He takes an active part in all branch congresses and meetings. In 1909, he appealed to the Department of Agriculture with a request to allocate funds to increase the mulberry planting area in the state-owned forest farms near of mulberry regions and railways. He spoke at the regional congress of farmers and representatives of zemstvos of the south of Russia in Katerynoslav, September 7–19, 1910, according to his report, a petition was submitted for increased cultivation of mulberry seedlings in state and zemstvo nurseries. He recommended to city and zemstvo institutions to pay attention to mulberry trees when lining streets and roads; the railway administration to introduce mulberry culture into its nurseries and protective plantations and to give the opportunity to railway employees to engage in mulberry cultivation. The military department and the customs administration he asked to pay attention to the planting of mulberry trees in places camp meetings on the borders and in other cities. Zemstvos, in areas where sericulture is poorly developed, are recommended to distribute seed free of charge; conduct courses for folk teachers of rural households with appropriate training; to contribute to the sale of cocoons [17, s. 4].

V. O. Bertenson also spoke at a refrigeration congress in Odesa in 1910 with a report "On the importance of cooling in sericulture", arguing that with the use of artificial cooling with a gradual decrease and increase in temperature, it would be possible to introduce silkworms from the silkworm eggs of the current crop into the system year In 1913, as a representative of agricultural societies, he participated in the work of the congress of members of sub-district committees of the Bureau of the Central Committee on the regulation of mass transportation of goods by railway.

At that time, he prepared the articles "Unstarted land fund / On the use of loose sandy soils" (1907), "The state of sericulture in the world in 1908" (1909), "Caucasian silk production station" (1909), "On measures to develop silk production in Russia" (1909), "Sericulture in Russia" (1910), "Northern sericulture" (1910), "The state of sericulture in southern Russia in 1910 and an outline of measures for the development of ego" (1911), reports "Measures for the development of sericulture in the south of Russia in 1909" (1910). The best scientific work on sericulture is prepared by V. O. Bertenson "Instructions for breeding mulberry and for fattening mulberry worms", published in Odessa in 1913. It is worth noting that this edition was republished in 1922 [3].

We consider it necessary to characterize the public activity of an agronomist. V.O. Bertenson took an active part in Jewish charitable enterprises, in particular, he was the Chairman of the Society for the Care of Poor and Homeless Jewish Children in Odessa. With his assistance and direct participation, the first agricultural educational institution for Jews was established – the agricultural farm of the Odesa Jewish Home for Orphans.

According to V. Shevchenko in the late 1880s, the board of trustees made a proposal to provide housing for orphans on an agricultural farm. On February 28, 1890, an addition was made to the charter, which allowed to send pupils to the farm for training in horticulture, horticulture, dairy farming and agriculture. Ceremonial opening of the farm on the shore of the Khadzhibey estuary, built and equipped under the leadership of R.L. Khari, was held in September 1891. It was headed by its honorary director - agronomist and active member of the Imperial Agricultural Society of Southern Russia and the Odesa branch of the Russian Society of Horticulture – V. O. Bertenson and head A. O. Zusman [19, p. 178].

According to his project, the Novopoltava Jewish Lower Agricultural School was established in the Kherson district of the same province – one of the first agricultural educational institutions in the south of Ukraine, the purpose of which was the growth of agrotechnical culture and economic efficiency in the Jewish agricultural colonies of the Kherson province.

V. O. Berntenson took an active part in the work of the agronomic organization created under the Jewish Colonization Society. In 1893, Baron Hirsch invited him to the Argentine colonies to manage the entire agricultural organization in them. However, not sharing the Hirsch views on the issue of colonization, he rejected this offer.

Thus, before the revolutionary events of 1917, the formation of the sericulture industry on Ukrainian lands as a whole took place. Agricultural societies and zemstvos took a major part in their organizational and advisory support, whose efforts involved the importation of mulberry planting material and mulberry silkworm seeds, popularization of best practices in its breeding and silk production. The teaching of the sericulture course has been introduced in some specialized institutions.

The investment policy of the young Soviet state was aimed at the predominant development of heavy industry and transport. The funds invested in agriculture were not enough to transform it into a highly developed sector. According to archival data, during the years 1917–1925, not a single penny was allocated from the state budget for the development of sericulture [14]. Silk production was considered a luxury incompatible with Bolshevik ideology. The facts about cutting down entire mulberry plantations and hoping in this way at least to some extent to solve the problem of lack of wood and fuel in the country cause bitter thoughts. Sericulture has survived in Transnistria of the Odesa District and the former Tiraspol District, in the villages of Berdiansk and Melitopol Districts, and in some villages of other southern regions of Ukraine [18].

Since 1925, the Uman Research Station of Sericulture has functioned as an independent institution, headed by the well-known scientist in this field, I. I. Korabliov. Employees of the station N. A. Gordienko, S. N. Dombrovska, L. I. Korabliova, and V. G. Pavlovska carried out feeding of various breeds of silkworms and searched for the most optimal ones for the conditions of the Ukrainian SSR. Various breeds were crossed to improve their productivity, including Italian Ascoli with Chinese gold, Sphereco, Bagdad, Bukhara, Margelan, etc. The station held exemplary and demonstrative feeding of silkworms, organized sericulture courses [15].

The fate of V. O. Bertenson after the revolutionary events of 1917 is less known. He mostly directed his further efforts to the formation of the system of higher professional education in Ukraine. We found documents that he was allowed to teach the sericulture course according to item 7 of the minutes of the meeting of the Council of the Faculty of Agriculture of the Odesa Polytechnic Institute on October 9, 1920. When an independent agricultural institute was formed on the basis of this faculty, V. A. Bertenson mechanically transferred to the newly created institution. Subsequently, he reads for the 2nd course "Theory of sericulture" [17, s. 3–4].

In 1927, the publishing house "Soviet Peasant" commissioned him to compile a textbook on sericulture for students of labor schools, an advanced mass reader, and for mass (lower) agricultural schools. V. O. Bertenson prepared a textbook that contained concise information on the anatomy and physiology of the silkworm, data on cellular seed, and the importance and status of sericulture [6]. The textbook contains chapters on mulberry breeding; damage, diseases, parasites and enemies of mulberry; silkworm feeding; diseases and enemies of the silkworm. The scientist provides an analysis of the development of sericulture in the world. The measures planned by him for the development of sericulture are interesting and timely:

1. Supply the population with mulberry seeds and planting material;
2. To supply the population with cellular seed, and even better, silkworms.
3. Expand the activities of the Uman Sericulture station and in the future establish similar stations at other agricultural higher schools.
4. Organize points for storing silkworm eggs.
5. To organize courses for the training of instructors and instruct them to distribute mulberry seeds, saplings, and mulberry seeds among the population, to carry out exemplary fertilization, to give advice and instructions, to help properly organize sales.
6. To connect agricultural cooperatives to this matter.
7. To teach sericulture in all agricultural schools and in some vocational schools.
8. To publish detailed textbooks on sericulture, publicly accessible brochures and posters.

9. For the establishment of sericulture, it is desirable to organize research and observations on issues of acclimatization of various breeds, selection, to give sericulture the character of an independent intensive industry in special stations [6].

According to V. A. Vergunov, V. O. Bertenson in the materials of the "Lake Commission" (O., 1928, issue 1), which operated under All-Ukrainian Academy of Sciences, published 3 surveys: "Dry Liman in July and August 1927", "Dry Liman and its environs in terms of resort and agriculture", "On the study of saline layers that feed the Kuyalnitsky artesian well" [12].

The last scientific work of the scientist we found is "Practical Sericulture" (Kharkiv, 1934), prepared in co-authorship. By its resolution dated September 9, 1932, the USSR Council of People's Commissars decided to build a sericulture husbandry for collective farmers on the same basis as auxiliary dairy and horticulture farms, to prohibit the socialization of sericulture silkworms and fodder funds. It was decided to secure the socialized fodder fund of the mulberry tree in the collective farms to collective farmers engaged in sericulture, without time limits, so that all fodder resources are used for the development of sericulture. At the same time, this resolution proposed the bodies of the People's Commissariat of Land Affairs to provide the necessary assistance to collective farmers with both transport and labor for the collection and delivery of fodder, for the care of mulberry seedlings [2].

Guide V. O. Bertenson's goal was to help collective farmers learn agrozootechnical knowledge of sericulture. He wrote chapters: "The importance of sericulture", "Silkworm, feeding and care of the silkworm", "Feeding the silkworm, diseases and enemies of the silkworm", "Cocoons and how its are used", "Artificial silk and silk from mulberry husks", "Sericulture in collective farms and state farms of the Ukrainian SSR".

The further fate and exact date of death of V. O. Bertenson could not be established. We assume that it was 1934, marked by his last discovered publications.

Thus, V. O. Bertenson is one of the founders of the scientific foundations of the establishment and development of the sericulture industry on Ukrainian lands, an organizer of higher branch education. As the Secretary and Chairman of the Sericulture

Committee of the Imperial Agricultural Society of Southern Russia, he systematically inspected the best private farms for breeding silkworms both in Ukraine and in advanced European countries. Based on the study of foreign and domestic experience, he developed a project for the organization of an experimental station for sericulture in Odesa, for the first time he proved the possibility of conducting several successive feedings of mulberry silkworms during one summer, substantiating the profitability of the development of the industry in the south of the country. He also argued that with the use of artificial cooling with a gradual decrease and increase in temperature, it would be possible to introduce the mulberry silkworm from the seed of the current year's harvest into the system. As a teacher of the sericulture course at the Odesa Agricultural Institute, he prepared the first domestic industry textbooks and guidelines for the training of specialists in the organization of sericulture farms, breeding and selection of various breeds of silkworms.

V. O. Bertenson left a significant mark in science as a popularizer of the achievements of domestic and foreign scientists, as well as advanced specialized farms in the field of sericulture. His scientific works were published in the magazines "Agricultural and Forestry", "Herald of Russian Agricultural Society", "Records of the Imperial Society of Agricultural Society of Southern Russia". The best his scientific work on sericulture is the "Instructions for mulberry cultivation and silkworm rearing" published in Odessa in 1913 and republished in 1922.

In the future, we consider it expedient to study the scientific achievements of the scientist in the fields of viticulture and intensive crops, which have so far been overlooked by researchers of the history of science.

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