

UDC 378.4.091.12-051(477-25):631.3“1898/1929”  
DOI 10.24919/2519-058X.29.292928

**Victor VERHUNOV**

PhD hab. (History), PhD hab. (Agricultural Sciences), Professor, Academician NAAS, Director of National Scientific Agricultural Library of National Academy of Agrarian Sciences of Ukraine, 10 Heroiv Oborony Street, Kyiv, Ukraine, postal code 03127 (dns.gb.uaan@ukr.net)

ORCID: 0000-0002-5476-4845

Researcher ID: H-1636-2018

**Віктор ВЕРГУНОВ**

доктор історичних наук, доктор сільськогосподарських наук, професор, академік НААН, Національна наукова сільськогосподарська бібліотека НААН, вул. Героїв Оборони, 10, м. Київ, індекс 03127 (dns.gb.uaan@ukr.net)

**Bibliographic Description of the Article:** Verhunov, V. (2023). Educational and Scientific Dimensions of Agricultural Mechanical Science at Kyiv Polytechnic Institute (1898 – 1929): Institutional Transformations, Personalities, Achievements. *Skhidnoievropejskyi Istorychnyi Visnyk [East European Historical Bulletin]*, 29, 105–120. doi: 10.24919/2519-058X.29.292928

**EDUCATIONAL AND SCIENTIFIC DIMENSIONS OF AGRICULTURAL MECHANICAL SCIENCE AT KYIV POLYTECHNIC INSTITUTE (1898 – 1929): INSTITUTIONAL TRANSFORMATIONS, PERSONALITIES, ACHIEVEMENTS**

**Abstract.** The purpose of the article is to highlight the main milestones of establishment, development and activity of academician P. M. Vasylenko Department of Agricultural Machines and System Engineering of National University of Bioresources and Nature Management of Ukraine during the first twenty years of its operation, initially a subdivision of Kyiv Polytechnic Institute (1898 – 1922), and then as a structural subdivision of Kyiv Agricultural Institute (1922 – 1929) through the prism of personalized achievements of lecturers and employees regarding the establishment and development of domestic agricultural engineering and testing systems of agricultural machinery for agricultural needs, expansion of archival searches of students and followers of the Department founder – Professor K. H. Schindler; and their creative achievements in the field of industry science and education. **The Research Methodology.** The article is based on general scientific – analysis, synthesis, classification and historical methods – problem-chronological, comparative and historical, retrospective. Chief focus was on the biographical method as a means of reconstructing the creative work of scholars who made a significant contribution to ensuring scientific and educational activities of the Department. **The scientific novelty** of the research consists in elucidating the formation process significance of one of the first departments of the educational institution in relation to its projected modern European future through the formation and representation of the best representatives' achievements of the time in the field of industry education and science, who deserve to be immortalized in the pantheons of the Ukrainian memory. **The conclusions** relate to the period of 1898 – 1929 in the history of the modern NUBiP of Ukraine in general and especially after K. H. Schindler was removed from the position as Professor at KPI, Dean of the Mechanical Department, Head of Kyiv Station for testing agricultural machines and tools and, of course, Head of Department in 1911. It is for the first time in the modern history of Ukraine that an attempt has been made to bring historical justice to the figure of Professor O. O. Khokhriakov as the head of the Department in 1911 – 1912 and to determine that after him, during the period of 1912 – 1915, the Department was initially headed by Professor P. R. Sliozkin and clarify

that he had not been in charge since 1911, and from 1915 to 1924 – Professor L. P. Kramarenko was the head of the Department. In addition, to elucidate the previously unknown pages in the Department activity in the field of branch science from the end of 1924 to October of 1929, its Head – Professor P. F. Yovk. The focus is on the participation of employees of the Department of Mechanical Science and Mechanical Engineering at KPI in the establishment and activities of the leading creative associations, in particular The Kyiv Agronomic Society, which became the first and the only specialized scientific society during the imperial era in the history of Ukraine and the forerunner of the Agricultural Scientific (later – Scientific) Committee of Ukraine, which, in turn, through the Scientific Advisory Council at the National Research Council of the UkrSSR from May 22, 1931, in the form of All-Ukrainian Academy of Agricultural Sciences became the forerunner of modern National Academy of Agricultural Sciences of Ukraine. The lack of reliable archival documents made it impossible to reproduce a comprehensive and balanced contextual picture of the course of all events and facts with a full personalized content in the extracts for the sake of the future of one of the most effective and innovative areas of industry research of the second half of the 19th – the beginning of the 20th centuries – domestic agricultural engineering and testing of agricultural machinery for its needs.

**Keywords:** Kyiv Station for testing agricultural machines and tools, scholar, agricultural production, agricultural engineering, educational process, agricultural research, agricultural machinery.

### ОСВІТНІЙ ТА НАУКОВИЙ ВИМІРИ СІЛЬСЬКОГОСПОДАРСЬКОГО МАШИНОЗНАВСТВА В КИЇВСЬКОМУ ПОЛІТЕХНІЧНОМУ ІНСТИТУТІ (1898 – 1929): ІНСТИТУЦІЙНІ ТРАНСФОРМАЦІЇ, ОСОБИСТОСТІ, ДОСЯГНЕННЯ

**Анотація.** Метою статті є висвітлення основних віх створення, розвитку і діяльності кафедри сільськогосподарських машин та системотехніки ім. академіка П. М. Василенка Національного університету біоресурсів і природокористування України в перші двадцять років існування спочатку при Київському політехнічному інституті (1898 – 1922), а потім як структурний підрозділ Київського сільськогосподарського інституту (1922 – 1929) через персоніфіковане наповнення здобутків викладачів і співробітників щодо становлення основ та розвитку вітчизняного сільськогосподарського машинобудування, а також системи випробування землеробської техніки для його потреб, розширення архівних пошуків учнів і послідовників її засновника – професора К. Г. Шиндлера, та їхніх творчих звитяг на ниві галузевої науки й освіти. **Методологія дослідження.** Стаття ґрунтується на загальнонаукових – аналіз, синтез, класифікація та історичних методах – проблемно-хронологічний, порівняльно-історичний, ретроспективний. Особлива увага надавалася біографічному методу як засобу реконструкції творчого доробку вчених, які зробили вагомий внесок у забезпечення науково-освітньої діяльності кафедри. **Наукова новизна дослідження** полягає у тому, що доведено вагомість процесу становлення однієї з перших кафедр закладу освіти щодо його прогнозованого сучасного європейського майбутнього через формування та репрезентацію напрацювань кращих тогочасних представників на ниві галузевої освіти і науки, які заслуговують бути увіковіченими на пантеонах пам'яті України.

**Висновки** стосуються періоду 1898 – 1929 рр. в історії сучасного НУБіП України взагалі та особливо після відсторонення в 1911 р. від праці К. Г. Шиндлера в КПІ на посадах професора, декана механічного відділення, завідувача Київської станції з випробування сільськогосподарських машин і знарядь та, зрозуміло, кафедри. Чи не вперше у новітній історії України зроблена спроба внести історичну справедливість стосовно постаті професора О. О. Хохлаєва як завідувача кафедри у 1911 – 1912 рр. і встановити, що після нього протягом 1912 – 1915 рр. її спочатку очолював професор П. Р. Сльозкін та уточнити про керівництво нею не з 1911 р., а з 1915 до 1924 рр. – професора Л. П. Крамаренка. Крім того, ствердити раніше невідомі сторінки в діяльності кафедри на ниві галузевої науки з кінця 1924-го до жовтня 1929 рр. її керманіча – професора П. Ф. Вовка. Акцентована увага на участі співробітників кафедри машинознавства та машинобудування КПІ у створенні та діяльності провідних для свого часу творчих об'єднань, зокрема Київського агрономічного товариства, що стало першим та єдиним спеціалізованим науковим товариством у часи імперської доби в історії України і передвісником Сільськогосподарського вченого (згодом – наукового) комітету України, що, зі свого боку, через

*Науково-Консультативну Раду при НКЗС УСРР з 22.05.1931 р. у вигляді Всеукраїнської академії сільськогосподарських наук став предтечою сучасної Національної академії аграрних наук України. Відсутність достовірних архівних документів унеможливила відтворення всебічної та виваженої контекстової картини перебігу всіх подій та фактів із повним персоналізованим наповненням у звітнях заради майбутнього одного з найефективніших та інноваційних напрямів галузевого дослідництва другої половини XIX – початку XX ст. – вітчизняного сільськогосподарського машинобудування та випробування землеробської техніки для його потреб.*

**Ключові слова:** *Київська станція по випробуванню сільськогосподарських машин і знарядь, вчений, аграрне виробництво, сільськогосподарське машинобудування, освітній процес, аграрне дослідництво, землеробська техніка.*

**The Problem Statement.** For more than 25 years of my historical researches in the field of evolution of domestic branch scientific thought and its organizational foundations on the issues of origin, formation and development of agrarian research, as well as education and technology for agrarian needs, I am convinced of the need to revise the seemingly years-old knowledge, since each system of power, by and large, adjusted everything to its values and, the most importantly, its ideology. As a result, especially when archival documents that were previously unavailable due to the political situation are involved, unexpected facts emerge that force a different interpretation of individual events. The majority of such discoveries relate to the personified filling of ambiguous periods of the Ukrainian history associated with wars, revolutions, repressions, as well as elementary reluctance of scholars to do the research on the course of events thoroughly. Thus, during the preparation of the monograph about an outstanding world-class scholar and educator, Full Professor of Emperor Alexander II Kyiv Polytechnic Institute of (nowadays – National Technical University of Ukraine “Ihor Sikorsky Kyiv Polytechnic Institute”), the founder of the first Kyiv station for testing agricultural machines and agronomic tools in Europe (1900), the Swiss subject K. H. Schindler (1869 – 1940) (Verhunov, 2019; Verhunov, 2021) it turned out that there is a lack of information about his students and followers, as well as information about an objective fulfillment of the outstanding actions by the scholar in the direction of domestic agricultural engineering development and the system of testing machinery for agricultural needs. First of all, there is meant the period of years 1899 – 1911 – the time of K. H. Schindler’s work at KPI on the positions of Professor, Dean of Agricultural and Mechanical Departments, Head of the mentioned above Station. It is clear that he was also the Head of the Department of Applied Mechanics in 1898 – 1899 and Department of Mechanics in 1899 – 1911 at the Agricultural Department, as well as the Head of the Departments of Agricultural Engineering and Mechanical Engineering at the Mechanical Department in 1900 – 1911. Nowadays, the Department is successfully represented at the Mechanical and Technological Faculty of NUBiP of Ukraine under the name M. P. Vasylenko Agricultural Machines and System Engineering Department. Although in a special publication dedicated to the 100th anniversary of its operation, it is written that the Department was established “in 1898 at Kyiv Polytechnic Institute (KPI)” under the name “Agricultural Machinery Department”, and its “first head was a technological engineer by education (later Prof.) K. H. Schindler, who was invited to this position from Moscow Agricultural Institute, which he “had headed it until 1916” (Bulgakov, 1998, p. 42).

As for the fact that the Department was headed by Professor K. H. Schindler, in the historical presentation edition to the 120th anniversary of NUBiP of Ukraine, he is considered its founder “... in 1898 on the basis of the Agricultural Department of KPI ...” and its “... first

head ...” (Kafedra silskohospodarskykh mashyn, 2018, p. 240). On the basis of the archival research, I state confidently that the mentined above fact is not fully true in relation to K. H. Schindler. The same concerns his successors as Heads of the Department, let alone the names of this Department during the period of 1898 – 1929.

In modern history of Ukraine I was the first one to make an attempt to bring historical justice to the figure of Professor P. R. Sliozkin as the Head of the Station since 1911 (Verhunov, 2007), and from 1912 or, as it turned out, after the dismissal of O. O. Khokhriakov, also the Head of the Department. In a series of other publications, I approved for the history of the current Department of Agricultural Machinery and System Engineering named after Academician P. M. Vasylenko of the NUBiP of Ukraine, its first employees: S. M. Bohoyavlensky (Verhunov, 2023d) and M. M. Kahan (Verhunov, 2022), lecturers and heads, Professor K. H. Schindler’s successors: O. O. Khokhriakov (Verhunov, 2023b) and L. P. Kramarenko (Verhunov (a), 2023), and also made important clarifications regarding Professor P. F. Vovk (Verhunov, 2023c). It was the work of these scholars that became the driving force which, during the period of the so-called industrial capitalism in the country (1861 – 1900), made it possible to take a giant step to transfer agriculture from the level of “grandfather’s customs” to commercial agriculture with a globally competitive domestic agricultural industry. It was this Department that subsequently became the main customer of the latest scientific knowledge, skills and training of educated specialists for the agricultural industry, adapted to a specific soil and climate zone.

**The Research Results.** At the end of the 19th century the issue of agricultural production mechanization, including mechanical engineering and machine science, required an urgent solution. Moreover, at that time only 20 universities of agricultural profile operated in the country (Shchoholiv, 1929, pp. 20–21). Emperor Alexander III Kharkiv Practical Technological Institute established in 1885 and Emperor Alexander II Kyiv Polytechnic Institute established in 1898 developed their activities in this direction almost immediately. Kyiv Institution almost immediately became a flagship in the country due to a well-thought-out combination of theoretical and practical principles in the educational process, taking into account the best world experience. Behind all this was the painstaking and well-thought-out activity of a whole galaxy of outstanding scholars and educators of the Institution (as, by the way, at one time in Kharkiv), led by the first director (rector), Professor V. P. Kyrpychov (1845 – 1913). Among them, Professor K. H. Schindler and the Department headed by him played an outstanding generating role.

As for the original name of the Department, I state confidently that at the time of its foundation, under the objective circumstances of the educational process organization peculiarities due to the “University Charter” in tsarist Russia, the word combination “agricultural machines” was not even used. According to the “Regulations on Emperor Alexander II Kyiv Polytechnic Institute” approved on June 8, 1898, Paragraph 1 runs that, among other disciplines, in the curriculum of the Agricultural Department there is the following subject: “Mechanics Adapted to Agriculture” or in the modern sense – Agricultural Mechanics. According to Paragraph 3 of this document, two Departments were established: 1. Theoretical Mechanics and 2. Applied Mechanics. According to Paragraph 6 the Head of the latter was also entrusted with the management of the “Station for the use of steam and other machines and the workshop ...” (Polozhenie i Ustav, 1898). The same was confirmed by the “Statute of Emperor Alexander II Kyiv Polytechnic Institute” signed by His Highness on 07/25/1899 (KSA, f. 18, d. 1, c. 4, pp. 1, 3). By the way, in accordance with Paragraph

5, the Department of Applied Mechanics was allowed to have three laboratory assistants (employees). Since it was not so easy at that time to find a suitable specialist in the country, and even with a scientific degree diploma on the one hand, and on the other hand, Applied Mechanics at the Agricultural Department of KPI had to be studied not from the first year, then the director of KPI, Professor V. L. Kyrpychov, on 16.05.1899 invited to the Institution, upon transfer from Emperor Alexander III Kharkiv Institute of Technology, “a laboratory assistant at the agricultural station K. Schindler ...” to become the Head of the Department of Applied Mechanics or, more precisely, to the position of an acting extraordinary Professor from September 1, 1899 to conduct lectures on “... Mechanics Course at the Agricultural Department and a special course on Agricultural Engineering at the Mechanical Department” (KSA, f. 18, d. 2, c. 289, p. 8). The Council of the KPI adopted the corresponding decision on August 24, 1899 (SAKR, f. 361, d. 1, c. 73, p. 62). Although there is information that at KPI K. H. Schindler began to conduct lectures on the course under the title “Design, Construction and Operation of Agricultural Machines” (Pavlenko, Ruda, Khorosheva & Khramov, 2001, p. 250). Since at the time modern understanding of a department and, even more so, its head did not exist, but the concept of Professor, who heads a department or conducts lectures on a discipline determined by the Council of an educational institution, was present, then, according to its decision dated 05/24/1898 (SAKR, f. 361, d. 1, c. 73, p. 62), instead of Departments of Applied and Theoretical Mechanics, the Department of Mechanics was established at the Agricultural Department. In addition, instead of the Department of Applied Mechanics, the Department of Agricultural Machinery was established at the Mechanical Department of KPI. Under this name, they functioned until 1921, inclusive, and after the unification, they were transferred to Kyiv Agricultural Institute.

On March 18, 1900, after the decision of the joint meeting of the Agricultural and Chemical Department at KPI, and then the Council of the institution on the establishing the Station for testing agricultural machines and tools, K. H. Schindler was appointed its Head with an appropriate payment in accordance with Art. 13 of the KPI Statute. It seems that with the Station foundation in the structure of KPI at the Agricultural and Mechanical Departments since 1900, in the Institution conducting lectures on the discipline “Agricultural Machines and Tools” began in theory and practice in full. At least, its first employee – a junior laboratory assistant, a graduate of Kharkiv Secondary Agricultural School of 1899, S. M. Bohoyavlensky (1876 – ?), was enrolled in its staff from August of 1901 (Bogoyavlenskij Sergej Nikolaevich, 1908, p. 35).

However, in the current reception, as the Department at which the discipline of “Agricultural Engineering and Mechanical Engineering” is taught, it appeared on March 18, 1900, after the review and approval of the project “Test Station for Agricultural Machines and Tools at Kyiv Polytechnic Institute” developed by Professor K. H. Schindler. He suggested the name of this Department or the principles of educational training of this discipline. Although there are grounds, due to legislative or regulatory analogues, to claim that the very beginning of the activity of the Department (discipline) with such a name became the basis for the establishing the Station. As time has proven, the candidacy of K. H. Schindler turned out to be not only a successful idea of the first director of KPI, Professor V. L. Kyrpychov, but even optimal, since he, elaborating or introducing a new discipline and the Department under it, took into account all the best of what he had seen abroad during a one-and-a-half-year internship funded by the Ministry of Agriculture and State Property in the USA and Europe.

By the way, time has proven my conclusion with the real success of the newly created Department at KPI, not only in terms of the level of educational training, but also in the

organization of the research process, especially in terms of design for the needs of agricultural engineering. To achieve these objectives, K. H. Schindler justified the need to have in the structure of the Kyiv Station for testing agricultural machines and tools a special laboratory of machine science, as well as two more for “physical and chemical analysis of soil ...”, as well as “... various products” (Izvestiya Stancii, 1907, p. 9). As part of the Station, which was located “... in 3 versts from the main building of the Institute ...” (Izvestiya Stancii, 1907, p. 10), there was also an experimental field, the land for which was allocated by the Kyiv City Administration, which occupied 30 acres, with four crop rotations: four–six–eighth– and three-field. It is no coincidence that the best material and technical base in the country for this type of institution provided an opportunity not only to provide a high-level educational training of specialists, but also to conduct priority special research, which the Station and the Department of Agricultural Machine Building and Mechanical Science of KPI carried out through, first of all, the holding of relevant competitions in field conditions combined with laboratory ones practically throughout the European part of the country. All together made it possible “... to lay the basis of engineering methods of approach to the assessment of the technological process of soil cultivation and, as a result, to the calculation of a specific type of working body” (Bulgakov, 1998, p. 42). But in the majority of cases, the results of the Department’s and the Station’s activities were of an applied nature for the needs of manufacturing of agricultural machinery improved samples.

Thus, in 1899, in the structure of KPI there were two Departments under the leadership of Professor K. H. Schindler: 1) Mechanics in the Agricultural Department and 2) Agricultural Engineering and Machine Science in the Mechanical Department. Professor K. H. Schindler was dismissed at both positions: the position of Dean at the Mechanical Department at KPI, as well as the Head of Kyiv Station for Testing Agricultural Machines and Tools after receiving the telegramme sent by S. I. Timashev, the Minister of Trade and Industry of the Russian Empire dated February 5, 1911. According to the “History” of NUBiP of Ukraine, after Professor K. H. Schindler’s dismissal during the period of “... 1911 – 1924 ... the Department was headed by ... Professor L. P. Kramarenko ...” (Kafedra silskohospodarskykh mashyn, 2018, p. 240).

As it turned out, not all of the above mentioned facts are true. After the dismissal and departure of K. H. Schindler, the Department of Agricultural Machinery was headed by his student, a graduate from the Agricultural Department of KPI (1904) and from January 13, 1910, a lecturer of Agricultural Machinery discipline at KPI (KSA, f. 18, d. 2, c. 271, p. 21) O. O. Khokhryakov (1877 – 1930?). He worked as the Head of the Department until January 1, 1912 (KSA, f. 18, d. 2, c. 271, p. 37) and resigned because of his appointment as a senior specialist of the agricultural part of the Department of Agriculture of the Main Directorate of Land Management and Agriculture.

There is every reason to believe that after O. O. Khokhriakov left for St. Petersburg, there was no Head at the Department, and the discipline was taught part-time by Professor P. R. Sliozkin (1862 – 1927). It was he who, since April of 1911, headed the Station for Testing Agricultural Machines and Tools along with performing the functions of the Dean of the Agricultural Department at the KPI. That is why, it was P. R. Sliozkin, as the Head of the Department of Applied Agriculture, who turned out to be the most competent specialist in the field of agricultural mechanical engineering. It is no coincidence that he was also the author of the unique for its time publication “Agronomist-practitioner in Farming. Guide to Getting Acquainted with Agricultural Machinery” (St. Petersburg, 1905, 136 p.). According to the

“Statute” of KPI (clause 23), P. R. Sliozkin, as Professor close to a vacant position, was paid half the salary of an ordinary Professor for part-time work. But according to its Paragraph 10, part-time work was allowed for no more than three years. Therefore, it becomes clear why in 1915 the teaching of the discipline “Agricultural Mechanical Engineering”, and the management of the Station, was transferred from Professor P. R. Sliozkin to L. P. Kramarenko. An even more significant argument for this was the refusal of Professor P. R. Sliozkin, due to health problems, from the position of Dean of the Agricultural Department at the KPI. The official appeal dated 04/28/1915 was approved by the Ministry of Trade and Industry on 05/05/1915 (Verhunov, 2007, p. 92). According to his own conviction, the main reason for P. R. Sliozkin’s rejection of almost all positions at the KPI was that he connected his further creative activity with Kyiv Commercial Institute established in 1906 (nowadays – V. Hetman Kyiv National University of Economics ).

As we managed to determine, L. P. Kramarenko headed the Department from 1915. At least, in the article for the collection dedicated to the 25th anniversary of the KPI and KSHI, it is stated, that “in 1915, the Faculty of Mechanical Engineering at KPI assigned an engineer L. P. Kramarenko for conducting lectures on the course of Agriculture Mechanical Engineering, who was entrusted with the management of the Station in 1916” (Kramarenko, 1923, p. 188). In the “Autobiography” of L. P. Kramarenko, it is stated that in 1907 he graduated with the 1st degree Diploma from the Physics and Mathematics Department of the University of St. Volodymyr (nowadays – Taras Shevchenko National University of Kyiv), and in 1913, also the Mechanical Department of Emperor Alexander II Kyiv Polytechnic Institute, obtained Diploma of a technological engineer. This proves that he could not in any way head the Department of Agricultural Engineering at KPI since 1911, which is confirmed by the modern history of its legal successor at NUBiP (Kafedra silskohospodarskykh mashyn, 2018, p. 240). As L. P. Kramarenko later pointed out: “in 1915, was elected by the Council of Kyiv Polytechnic Institute ... the head of the Department of Agricultural Machines ...”, and a little later, “... after conducting a lecture, was elected the Head of the Department of Mechanical Science and Mechanical Engineering at KPI” (AP NASU, f. 251, d. 3, c. 744, p. 46). This proves once again that there were two Departments with a similar name at KPI, and the one that over time in 1922 through KSHI passed to the present NUBiP of Ukraine, and in 1915 was called the Department of Agricultural Engineering.

Employees of the Department of Mechanical Science and Mechanical Engineering at KPI took an active part in the creation and activities of the leading creative associations at that time. Among them, there should be singled out the Kyiv Agricultural Society (KAT), which became the first and only specialized scientific society of the imperial period in the history of Ukraine. I consider it, to a certain extent, a forerunner of the Agricultural (later Scientific) Committee of Ukraine, which, in turn, through the Scientific and Advisory Council of the National Academy of Sciences of the UkrSSR, became the forerunner of the current National Academy of Agrarian Sciences of Ukraine in the form of the All-Ukrainian Academy of Agricultural Sciences from May 22, 1931 (Naukovo-orhanizatsiini zasady, 2016). At least, at the meeting of February 9, 1911, the next head of the State Technical Committee after Professor K. H. Schindler, Professor V. V. Kolkunov (1866 – 1939) at the KPI, also spoke in favour of the establishment of Scientific and Educational Agricultural Academy for the needs of the Ukrainian provinces (Protokol 2-go, 1912, pp. 1–4). The KAT began its activities after the approval of its “Statute” by the local administration on February 12, 1909, developed by 39 founders. Among them were Professors K. H. Schindler and P. R. Sliozkin, as well as O. O. Khokhriakov. The first of them was elected

as the chairman of the Board of the KAT at the founding meeting on February 17, 1909 (Otchet o deyatelnosti, p. 3). A little later, M. M. Kahan was also included into the list of members of the KAT. Without exception, all the employees of the Department of Agricultural Machinery Science at the KPI presented problematic reports at the general meetings of the members of this prestigious society for its time.

Employees of the Department, first of all, O. O. Khokhriakov and M. M. Kahan, initiated the emergence of another, practically forgotten nowadays, creative association – Kyiv Polytechnic Society of Engineers and Agronomists (“KPSE and A”). Moreover, O. O. Khokhriakov was one of its founders. He is among those who, on 11.12.1910, participated in the organizational meeting of the KPI graduates to discuss “... the main provisions of the “Statute” of the future society and the election of the organizational Bureau” (Vstupitelnoe slovo, 1913, p. 13). O. O. Khokhriakov and M. M. Kahan carried out their direct activities in (“KPSE and A”, primarily through the Technical Bureau, participating in the implementation of various problematic projects, providing relevant certificates and conducting laboratory tests in mechanical engineering at the Department, as well as involving the capabilities of Kyiv Station for Testing Agricultural Machines and Tools.

Members of the Department also participated in professional meetings of various kinds, from national to regional, as speakers. There were also exhibitions, competitions, fairs and professional comments in the column “From the Editors” to the leading magazines of their time, most of all – in the official printed organ of the South Russian Society for the Promotion of Agriculture and Agricultural Industry, better known as the Kyiv Agricultural Syndicate, – the magazine “Khoziaystvo”. It was possible to systematize the latter in relation to O. O. Khokhriakov and M. M. Kahan. Together, their creative work consisted of forty responses to readers’ letters up to and including 1912. Separate fundamental publications prepared based on the results of competitions for testing agricultural machines and tools, deserve even greater preferences, which contain the authors’ visions of the Department’s employees regarding the theoretical, methodological and practical foundations of agricultural engineering in Ukraine before the revolutionary events of 1917. At least, in 1907, the publication of the first issue of “News of the Station for Testing Agricultural Machines and Tools at Kyiv Polytechnic Institute” became the first publication of this type in the country (Izvestiya Stancii, 1907).

I have every reason to believe that the Department should have become the base in the first official attempt to radically change the system of training agricultural specialists, when the Minister of Land Affairs of the Ukrainian People’s Republic M. M. Kovalevsky (1892 – 1957) developed his project “Kyiv Agricultural Academy”. The first item envisaged the opening of six faculties at the newly established institution, which was joined by the Agricultural Department of the KPI: agronomic, forestry, border, veterinary, economic and engineering. The latter was subdivided into three departments: Engineering and Reclamation, Technological and Machine-building. For the needs of the latter was to become the basis, first of all, the Department of Agricultural Mechanization and Mechanical Engineering at the KPI and the Kyiv Station for Testing Agricultural Machines and Tools (Verhunov, 2005). The unique project was inherently ahead of its time, as it absorbed all the best of world analogues. The project received government support and even special budget funds for practical implementation, but another change of power during the Ukrainian Revolution of 1917 – 1921 prevented it. By and large, this approach largely found its embodiment in the modern and European training of relevant specialists at the NUBiP of Ukraine.



Due to the lack of necessary educational laboratories and classrooms for conducting practical classes, the educational training of specialists was provided by the Department of Agricultural Engineering and Agricultural Engineering at the KPI, which was united in 1920, headed by L. P. Kramarenko. In 1924, he was elected Professor of the second rank, and in the next year – of the first rank. He conducted lectures on “The Tractors” course at the KPI, and both disciplines at KSHI, but as part-time Professor. According to his own conviction, this decision was connected with the fact that the KPI was in its structure a well-technically equipped workshop necessary for construction.

By the resolution of the Presidium of the Holovprofosvity of the NKO of the UkrSSR dated September 11, 1922 and corresponding orders No. 814, 816 and 817 (Kyivskiy silskohospodarskyi instytut, 1922, p. 89) of September 1, 1922, the Agricultural Department at the KPI was transformed into a separate H. Rakovsky Kyiv Agricultural Institute. It included four departments (faculties): Zootechnical, Economic, Agricultural Mechanical Engineering and Agricultural (Agronomic). From next year, the Institute was financed by a separate budget article and had a separate material and technical base of auxiliary units along with seven departments, including the Department of Agricultural Technology. A Machine Testing Station and an experimental field with an area of 61 acres functioned at it, headed by an agronomist Hrebenchuk. During the period of 1922 – 1923, the Station and the Department conducted “... tests on several plows, cultivators and planters of the factory “Chervony Pluhatar”, but its full-fledged work was not yet “... completely organized ...” due to insufficient funds and the presence of unrenovated laboratory premises (Grebenchuk, 1923, p. 226).

Despite the fact that at KPI on January 1, 1926, there were eight research departments of the Holovnauky of the NKO of the UkrSSR (Bieliakov, Vasylenko, Vilkov & Havrysh, 1995, p. 54), another one under the title “Agricultural Mechanics” was established at KSHI in 1926, headed by Professor P. F. Vovk. In its structure, there were three sections: Mechanical Engineering, Mechanical Research and General Issues. The main goal of its activity was “... comprehensive research of agricultural machines and development of issues of a rational design and their use under the conditions of the UkrSSR” (Naukovo-doslidcha kafedra, 1930, pp. 50–51). Especially since in the UkrSSR at the time “... the majority of the agricultural machines in the Union were produced ...”, and “... about 40% of this number was used in Ukraine ...” along with a significant amount of equipment from abroad at a significant growth rate of domestic production, which in the mid-20s of the 20th century. “... exceeded the pre-war norm” (CSAHAU, f. 166, d. 6, c. 609, p. 19). As evidenced by the decisions of the joint meetings of the Department of Science of the People’s Commissariat of Education of the Ukrainian SSR and the Ukrainian Academy of Sciences, a huge problem remained the decrease in the quality of manufactured products compared to the pre-revolutionary period, as well as practical absence of an appropriate level of specialists. For this purpose, a decision was made to quantitatively strengthen the new Department of Agricultural Mechanics at KSHI, as well as “... to gather around it scientific and practical specialists of this field” (CSAHAU, f. 166, d. 6, c. 609, p. 19). In addition, during the period of 1926 – 1927, it was planned to create the Ukrainian Institute of Agricultural Mechanics with branches and specialized research stations on its base. In addition, it was decided that “... all agricultural machines produced and consumed in Ukraine must be comprehensively examined ...” (CSAHAU, f. 166, d. 6, c. 609, p. 19). Kyiv Agricultural Machinery and Tools Testing Station, which was reformed into the Kyiv Machine Research Station by Professor P. F. Vovk, began to perform this function. The issues

of theory, methodology and methodical support of agricultural mechanical science were dealt with employees and graduate students of the scientific research Department of Agricultural Mechanics of the NKO of the Ukrainian SSR in a close cooperation with colleagues of the corresponding educational Department of KSHI.

Academicians K. K. Syminsky (1879 – 1932) and M. M. Krylov (1879 – 1955) of the Ukrainian National Academy of Sciences, as well as Professor L. P. Kramarenko, became active members of the Research Department of Agricultural Mechanics of Ukrholovnauky NKO of the Ukrainian SSR at the KSHI. Its employees included engineers V. Kh. Chaly and future academician of the Academy of Sciences of the Ukrainian SSR O. A. Vasylenko (1891 – 1963). By the way, L. P. Kramarenko headed the Department Agricultural Engineering Section “... until the beginning of 1930, when in connection with the transfer to Kharkiv he had to quit this position” (APNASU, f. 251, d. 3, c. 744, p. 47). The results of their research are published by the members of the Scientific Research Department of Agricultural Mechanics of the NKO UkrSRR at KSHI on the pages of the leading industry journals: “Scientific and Technical Bulletin of the Ukrainian Scientific Society”, “Bulletin of Agricultural Science”, “Bulletin of the Institute of Technical Mechanics”, etc. (Naukovo-doslidcha kafedra, 1930, p. 51). In 1927–1928 under the leadership of P. F. Vovk, the research Department of Agricultural Mechanics of Ukrholovnauka NKO UkrSRR at KSHI tested such agricultural machines as “... dumpers, beet-combined and universal-combined planters and hay-mowers ...”, primarily for the needs of standardization of such equipment (CSAHAU, f. 166, d. 12, c. 1212, p. 30). The results of the research were published in the “Notes of the Ukrainian Commission on Standardization of Agricultural Machines”, and the relevant developed standards were sent to the manufacturing plants.

In many respects, the Department became one of the basic departments after its closure on June 22, 1930, in order to implement the decisions of the July (1928) Plenum of the Central Committee of the All-Union Communist Party of Ukraine (b) – KSHI during the establishment of a separate educational Kyiv Institute of Mechanization and Electrification of Agriculture in 1930. It seems that some part of the Department staff personally participated in the formation of Kyiv Agricultural Engineering Institute of Sugar Industry, established that year, and also remained at Kyiv Agronomic Institute. In the 1920s, Professor L. P. Kramarenko successfully and creatively worked as a Professor at the Department of Agricultural Machine Science of KSHI, in addition to fulfilling his duties at KPI, conducting lectures on “Agricultural Engineering, Theory and Calculation of Agricultural Machines” (Kramarenko Leonid Petrovich, 1928, p. 193). In September of 1929, before the arrest, the Department was headed by Professor P. F. Vovk.

First personally, and then systematically, the Department staff joined the development of activities in the field of agricultural engineering created on October 1, 1918, headed (from October 16, 1918) by academician V. I. Vernadsky, the organizational predecessor of the National Academy of Agrarian Sciences of Ukraine in the form of Agricultural (later from 1920 – scientific) Committee of Ukraine. In accordance with the new “Statute of the SHNKU” approved by the National Committee of the Ukrainian SSR on August 9, 1923, a technical section headed by D. M. Diachenko functioned in its structure, consisting of three sections: agricultural engineering, agricultural construction and agricultural industry. First of all, through the first of them, the cooperation of the Department in the field of branch science was established. There is every reason to believe that since 1919, L. P. Kramarenko had been one of the 12 members of the Plenum of the CHVKU from Kyiv Polytechnic

Institute (CSAHAU, f. 1230, d. 1, c. 2, p. 16). The technical section as "... the centre of all technical sciences related to agriculture ..." was responsible for ensuring the development of agricultural mechanical engineering and "... testing of freely available mechanisms ..." regarding "... relevant requirements of agriculture and sanitary equipment" (CSAHAU, f. 1230, d. 1, c. 2, p. 11). For these purposes, since 1919, the capabilities of Kyiv Station for Testing Agricultural Machines and Tools began to be involved. With the organization of the Research Commission of the CHVKU on December 2, 1922, first of all, by two representatives of the technical section, K. Obremsky and N. Prybylsky, the Department participated in the development of a strategic plan for the experimentation development for the needs of agricultural engineering and mechanical engineering (Moskvichev, 1923, p. 58).

Certain difficulties in cooperation arose after the relocation of the SHNKU from Kyiv to Kharkiv at the end of 1923. Despite the fact that the main staff of the Committee moved to a new capital of the UkrSSR, since 1924, the cooperation of the Department had taken place through the subsection of agricultural engineering and mechanical engineering of Kyiv branch of the technical section of the SHNKU. The cooperation was embodied in the preparation of "... the first album of drawings of agricultural machines, the most widespread in Ukraine" (Yanata & Petrenko, 1924, pp. 16–17). In addition, the staff of the Department joined the work of another subsection, namely the Terminological and Translation Section, which dealt with the translation of Lauenstein's "Mechanics" and de-Rochefort's "Lesson Regulations" in order to organize technical definitions. The Department also took part in the development of the organization project of the Research Tractor Station at the SHNKU.

The gap in the implementation of powerful research projects between Kyiv and Kharkiv led to the fact that, in accordance with the new "Statute of the SHNKU" dated February 2, 1925, the Technical Section ceased its centralized activities (CSAHAU, f. 166, d. 6, c. 1220, p. 50), and its functions in the sub-section of agricultural mechanistic science, the Presidium of the SHNKU decided to transfer it to the Research Department of Agricultural Mechanistic Science or Mechanics at KSHI, which operated in the structure of the NKO of the UkrSSR (CSAHAU, f. 166, d. 6, c. 1270, p. 176). However, the NKZS of the UkrSSR decided, in accordance with order No. 111/2100 of 09/30/1927, to transfer it to its Tractor Committee initially (CSAHAU, f. 1230, d. 1, c. 1, p. 2).

According to the resolution of the NKZS of the UkrSSR dated September 16, 1927, Professors P. F. Vovk, O. O. Alov and I. F. Vasylenko, were among the first members of the Scientific Advisory Council in the field of "Agricultural Mechanical Engineering" (CSAHAU, f. 1230, d. 1, c. 1, p. 6), thereby proving that they were the most authoritative experts in this field of knowledge and skills in the UkrSSR in the 20s of the 20th century. On July 23, 1928, under the chairmanship of P. F. Vovk, a meeting of the Bureau of the NKR of the NKZS of the UkrSSR was held, where it was decided to convene the second session of the NKR of the NkrKZS of the UkrSSR in December of 1928. Professor P. F. Vovk was assigned to deliver a plenary report on it "Forms of Contact of Research Institutions of the NKZS and NKO (principle provisions)". At the same meeting, he suggested creating two instead of one Ukrainian Research Institute of Machine Science and Machine Building: the Institute of Machine Science in Kharkiv and the Institute of Machine Research and Machine Economy in Kyiv (CSAHAU, f. 27, d. 9, c. 502, pp. 298–299). The latter was planned on the basis of the scientific-research Department of Agricultural Mechanics of the NKO of UkrSSR at KSHI.

The issue was brought up to date by the fact that, according to the letter of the Administration of the Affairs of the RNK of the Ukrainian SSR No. 1522 dated June 19, 1928, it was

planned to establish two Ukrainian Agricultural Academies in the Republic: one scientific “... as an associative top, which would unite existing research institutions under the People’s Commissariat of Production in Kharkiv ...” and another – “of an educational type, in Kyiv ...” (CSAHAU, f. 27, d. 9, c. 502, p. 330). On August 31, 1928, Deputy People’s Commissar of Land Affairs of the Ukrainian SSR K. Ya. Fedotov sent the appropriate appeal-substantiation to the the RNK of the Ukrainian SSR and the Economic Council of the Ukrainian SSR. In it, he emphasized that the NKO of the Ukrainian SSR worked on the creation of the USHA in “... Holiivtsi, near Kyiv ...” as “... a special higher scientific and educational institution, into which the currently existing Kyiv Agricultural Institute will merge with Kyiv Veterinary and Zootechnical Institute and some other higher educational institutions of the city of Kyiv” (CSAHAU, f. 27, d. 9, c. 501, p. 155). The establishment of the USAA in Kyiv was foreseen by the resolutions of the Ukrainian conference on the study of production forces, held under the Ukrderzhplan on March 11–13, 1927.

In accordance with the Resolution of the RNK of the Ukrainian SSR dated October 9, 1928, Professor P. F. Vovk became a member of the special Commission of Non-governmental Organizations of the Ukrainian SSR with the participation of “... representatives of the NKZS, VRNH, S.H. Cooperation and other interested institutions and organizations” along the lines of “... Ukrainian S. H. Academy and S. H. Ukrainian Academy” (CSAHAU, f. 27, d. 9, c. 502, p. 363).

In 1928, the Kyiv Station for Testing Agricultural Machines and Tools of KSGI, which had been operating since 1900 at the Department, continued to carry out its activities under the new name: Kyiv Machine Research Station of KSHI. Its head, Professor P. F. Vovk, confirmed this fact. Among the research objectives of the Station there were the following ones: “1. Development of research methods of rural and urban areas. machines and construction of precise instruments for research; 2. Transfer of laboratory and field studies of agricultural machines in order to test the existing theories of the operation of individual mechanisms and machines in general; 3. Drawing up programmes for the transfer of machine research; 4. Development of accounting methods for the economic factors of work of agricultural machines – passporting, study of agricultural machines and their operation; 5. Study of issues related to the operation of living engines”, and as for the issue of the connection of the results of scientific developments with practice, the following was carried out: “1. A comprehensive study of the operation of tractors and their trailers in agriculture; 2. Research and designing machines that would make it possible to mechanize sugar beet cultivation; 3. Research on machines for the culture of clover and legumes in general; 4. Research on machines of new production of the Soviet factories and foreign ones; 5. Development and research on bread harvesting tools” (Vovk, 1927, p. 111). The Station carried out all these studies together with the Department through its organizational structure, namely: 1. Museum of agricultural machines. 2. Dynamometric laboratory. 3. Laboratory of soil science. 4. Laboratory of precise tools. By the way, this type of Museum was the best in the UkrSSR.

The decision of the Bureau of the NKR NKZS of the UkrSSR dated February 21, 1929 on “... handover to the ... Scientific and Technical Bureau at the Department of Industrialization ... Ukrainian Scientific Research Institute of Economics and the Organization of Rural Economy ... of the sums that were foreseen in the estimate of the National Council of the People’s Republic of Ukraine for the development of problems of mechanization of agriculture in the amount of 6,480 kr. actually destroyed the possibilities of establishing a corresponding All-Ukrainian Research Institute on the basis of the Research Department of

Agricultural Mechanics of the Ukrainian Head of Science of the National Organization of the Ukrainian SSR at the KSHI (CSAHAU, f. 27, d. 9, c. 502, p. 474). After consideration at the NKR of NKZS of the UkrSSR on 28.06.1929 and the approval of a new organizational structure of the experimental department of the NKZS of the UkrSSR into a scientific Research Department and its establishment "... of the scientific and public organization... Scientific council... which now included the directors of research institutes and regional research stations of the UkrSSR, P. F. Vovk becomes only a member of its Section 8, namely: Agricultural Machinery and Agricultural Mechanization" (CSAHAU, f. 27, d. 10, c. 72, p. 9). But his arrest in September of 1929, caused by the denunciation of one of the employees of the Department with charges for conducting lectures at which Professor P. F. Vovk seemed to mention preference of horse-drawn to tractor-drawn agricultural machines, and who was involved in the "Union for the Liberation of Ukraine", and the case was fabricated by the DPU, the NKVD authorities in 1930, actually ended the outstanding state-building feats of the Department headed by him, as well as the Faculty of Agricultural Engineering at KSHI in the difficult 20s of the previous century. A new stage of exclusively "Soviet existence" on a "democratic" planned basis began.

**The Conclusion.** Modern Academician P. M. Vasylenko Department of Agricultural Machinery and System Engineering of the NUBiP of Ukraine has a long, but rather difficult history of formation and development, especially during the period of 1898 – 1929. It owes its appearance, as well as Kyiv Station for Testing Agricultural Machines and Tools, to the "Regulations" and "Statutes" of the KPI, and especially to Professor K. H. Schindler. As a result, as of 1911, at almost all the leading factories producing agricultural implements in the country, the relevant departments were headed by students of Professor K. H. Schindler. Further development of the Department, – under the title "Applied Mechanics" and united since September 1, 1899 – "Mechanics" at the Agricultural Department and "Agricultural Engineering and Machine Science" at the Mechanical Department, and, most importantly, – the preservation of its potential during the period of 1911 – 1912 should be owed to O. O. Khokhriakov, and later, in 1912 – 1915, to Professor P. R. Sliozkin. Later, during the Ukrainian Revolution of 1917 – 1921, its development was associated with the future corresponding member of the Academy of Sciences of the Ukrainian SSR L. P. Kramarenko. Together with another student of Academician V. P. Horiachkin (1868 – 1935) – Professor P. F. Vovk, he ensured the Department's legal succession in the field of research and education during the ambiguous transformation of spiritual values in the 20s of the 20th century. Among other things, there should be highlighted the state-building cooperation of the Department with the forerunner of the National Academy of Agrarian Sciences of Ukraine in the form of the Agricultural Scientific Committee of Ukraine and, especially, – by the Scientific and Advisory Council under the specialized People's Commissariat (ministry) – respectively during the years of 1919 – 1927 and 1927 – 1929. The lack of reliable archival documents does not make it possible to comprehensively and carefully reproduce the contextual picture of the course of all events and facts with a full personalized content in the Department's records for the sake of the future of one of the most effective and innovative directions of branch research of the second half of the 19th – the beginning of the 20th centuries – domestic agricultural engineering and testing of agricultural machinery for its needs.

**Acknowledgement.** I express my sincere gratitude to all members of the editorial board for consultations provided during the preparation of the article for publishing.

**Funding.** The author did not receive any financial support for the research, authorship and / or publication of this article.

## BIBLIOGRAPHY

*Arkhiv Prezydii Natsionalnoi akademii nauk Ukrainy* Kyiv State Archive [Archives of the Presidium of the National Academy of Sciences of Ukraine – AP NASU]

**Bieliakov, H. F., Vasylenko, Ye. S., Vilkov, M. F. & Havrysh, S. A.** (1995). *Kyivskiy politekhnichnyi instytut. Narys istorii* [Kyiv Polytechnic Institute. Essay of History]. Kyiv: Naukova dumka [in Ukrainian]

**Bogoyavlenskij Sergej Nikolaevich.** (1908). *Bogoyavlenskij Sergej Nikolaevich. Lichnyj sostav Kievskogo Politekhnicheskogo Instituta Imperatora Aleksandra II v Kieve na 1908 – 1909 akad. god.* [Bogoyavlensky Sergey Nikolaevich. The personnel of the Kyiv Polytechnic Institute of Emperor Alexander II in Kyiv for 1908 – 1909 acad. year]. Kyiv: Tip. S. V. Kul'zhenka. [in Russian]

**Bulgakov, V. M.** (1998). Kafedra selhozmashin Natsionalnogo agrarnogo universiteta Ukrainyi – 100 let [Department of Agricultural Machinery of the National Agrarian University of Ukraine – 100 years]. *Traktory i sel'skohozyaystvennyie mashiny – Tractors and agricultural machines*, 12, 42. [in Russian].

*Derzhavnyi arkhiv Kyivskoi oblasti* [State archive of the Kyiv region – **SAKR**]

*Derzhavnyi arkhiv m. Kyiv* [Kyiv State Archive – **KSA**]

**Grebenchuk.** (1923). Mashynovprobuvalna stantsiia ta dosvidne pole K. s.-h. i. (nyi "Khutir "Hrushky" K. s.-h. i.) [Machine testing station and experimental field of the Kyiv Agricultural Institute (now "Grushki" Farm of the Kyiv Agricultural Institute)]. In *Kyivskiy politekhnichnyi i Kyivskiy silskohospodarskyi instytuty. XXV rokiv. 1898 – 1923: yuvileinyi zbirnyk – Kyiv Polytechnic and Kyiv Agricultural Institutes. XXV years. 1898 – 1923: jubilee collection*, (p. 226). Kyiv: Derzhavnyi trest "Kyivdruk" [in Ukrainian].

**Izvestiya Stancii.** (1907). *1900 – 1901 gg. Izvestiya Stancii ispytaniya zemledel'cheskih mashin i orudij pri Kievskom politekhnicheskome institute Imperatora Aleksandra II.* [1900 – 1901. News of the Station for testing agricultural machinery and tools at the Kiev Polytechnic Institute of Emperor Alexander II]. Issue I. Kiev: Tip. V. Kul'zhenka [in Russian].

**Kafedra silskohospodarskykh mashyn.** (2018). Kafedra silskohospodarskykh mashyn ta systemotekhniki im. akademika P. M. Vasylenka [Department of agricultural machinery and system engineering named after Academician P. M. Vasylenko]. In *Natsionalnyi universytet bioresursiv i pryrodokorystuvannia Ukrainy do 120-richchia: istoriko-prezentatsiine vydannia* [To the 120th anniversary National University of Life and Environmental Sciences of Ukraine: historical and presentation publication], head of the editorial team S. M. Nikolayenko. Kyiv: TOV Vydavn. tsentr "Lohos Ukrainy". [in Ukrainian]

**Kramarenko Leonid Petrovich.** (1928). Kramarenko Leonid Petrovich [Kramarenko Leonid Petrovich]. In *Nauchnyie rabotniki SSSR bez Moskvy i Leningrada – Scientific workers of the USSR without Moscow and Leningrad*, (part VI, p. 193). Leningrad: Izd-vo AN SSSR. [in Russian]

**Kramarenko, L. P.** (1923). Dosvidna stantsiia dlia vyprovuvannia silskohospodarskykh mashyn pry K.P.I. [Experimental station for testing agricultural machines at the Kyiv Polytechnic Institute]. In *Kyivskiy politekhnichnyi i Kyivskiy silskohospodarskyi instytuty. XXV rokiv. 1898 – 1923: yuvileinyi zbirnyk* [Kyiv Polytechnic and Kyiv Agricultural Institutes. XXV years. 1898 – 1923: jubilee collection]. Kyiv: Derzhavnyi trest "Kyivdruk". [in Ukrainian]

**Kyivskiy silskohospodarskyi instytut.** (1922). Kyivskiy silskohospodarskyi instytut [Kyiv Agricultural Institute]. *Visnyk silskohospodarskoi nauky – Bulletin of Agricultural Science*, 1(2, zhovten), 89. [in Ukrainian]

**Moskvicev, S.** (1923). Komisiia s.-h. dosvidnoi spravy pry S.-H. Naukovomu komiteti [Agricultural Research Commission under the Agricultural Scientific Committee]. *Visnyk silskohospodarskoi nauky – Bulletin of Agricultural Science*, II(1–2), 58. [in Ukrainian]

**Naukovo-doslidcha kafedra.** (1930). Naukovo-doslidcha kafedra silskohospodarskoi mekhaniky pry Kyivskomu silskohospodarskomu instytuti [Research Department of Agricultural Mechanics at the Kyiv Agricultural Institute]. In book: *Naukovi ustanovy, ta orhanizatsii USRR – Scientific institutions and organizations of the Ukrainian SSR*, (pp. 50–51). Kharkiv: Vydannia Derzh. planovi komisii USRR. [in Ukrainian]

**Naukovo-orhanizatsiini zasady.** (2016). *Naukovo-orhanizatsiini zasady funktsionuvannia Natsionalnoi akademii ahrarynykh nauk Ukrainy: peredumovy poiavy, holovni zdobutky ta innovatsiini perspektyvy (do 85-richchia NAAN): naukova dopovid* [Scientific and organizational principles of the functioning of the National Academy of Agrarian Sciences of Ukraine: prerequisites for the emergence, main achievements and innovative perspectives (to the 85th anniversary of the National Academy of Sciences of Ukraine): scientific report]. V. A. Verhunov (Ed.). Vinnytsia: TOV “Nilan-LTD”. [in Ukrainian]

**Otchet o deyatelnosti.** (1912). *Otchet o deyatelnosti Kievskogo Politehnicheskogo obschestva inzhenerov i agronomov za 1911 god* [Report on the activities of the Kyiv Polytechnic Society of Engineers and Agronomists for 1911]. [Without place and year of publication]. Kyiv. [in Russian]

**Pavlenko, Yu. V., Ruda, S. P., Khorosheva, S. A. & Khramov, Yu. O.** (2001). *Pryrodoznnavstvo v Ukraini do pochatku XX st. v istorychnomu kulturnomu ta osvithnomu konteksti* [Natural science in Ukraine until the beginning of the 20th century in the historical, cultural and educational context]. Kyiv: Vydavnychiy dim “Akademperiodyka” [in Ukrainian]

**Polozhenie i Ustav.** (1898). *Polozhenie i Ustav Politehnicheskogo Instituta Imperatora Aleksandra II v Kieve* [Regulations and Charter of the Polytechnic Institute of Emperor Alexander II in Kyiv]. Kyiv: Tipografiya V. Kirshbauma. [in Russian]

**Protokol 2-go.** (1912). *Protokol 2-go Obschego sobraniya Kievskogo Agronomicheskogo obschestva, sostoyavshegosya 9-go fevralya 1911 g. Doklady i protokolyi obschih sobraniiy Kievskogo Agronomicheskogo obschestva* [Minutes of the 2nd General Meeting of the Kyiv Agronomic Society, held on February 9, 1911. Reports and minutes of general meetings of the Kyiv Agronomic Society]. Kyiv: Tip. T. G. Litnavdera. [in Russian].

**Shchoholiv, I.** (1929). Kyivskiy silskohospodarskiy instytut [Kyiv Agricultural Institute]. *Zapysky silskohospodarskoho instytutu – Notes of the Agricultural Institute*, 4, 20–21. [in Ukrainian]

*Tsentralnyi derzhavnyi arkhiv vyshchykh orhaniv vlady Ukrainy [Central State Archive of the Higher Authorities of Ukraine – CSAHAU]*

**Verhunov, V.** (2005). Z istorii stanovlennia vyshchoi ahrarynoi osvity v Ukraini abo pro proekt zakonu UNR “Kyivska silskohospodarska akademiia” [On the history of the establishment of higher agricultural education in Ukraine or on the draft law of the UPR titled “Kyiv Agricultural Academy”]. *Reformuvannia systemy ahrarynoi vyshchoi osvity v Ukraini: dosvid i perspektyvy: materialy Vseukr. nauk.-prakt. konf., 21 kvit. 2005 r.* [Reforming the system of agricultural higher education in Ukraine: experience and prospects: materials of the All-Ukrainian Scientific and Practical Conference, April 21, 2005], (part 1, pp. 48–51). Kyiv. [in Ukrainian]

**Verhunov, V.** (2021). Contribution of Professor K. G. Schindler (1869 – 1940) in formation of agricultural mechanics, theory and practice of testing of the agricultural machines and tools in Ukraine. *History of science and technology*, 11(1), 172–191. doi: <https://doi.org/10.32703/2415-7422-2021-11-1>. [in English]

**Verhunov, V. A.** (2007). *Profesor Slozkin Petro Radionovych (1862 – 1927)* [Professor Petro Radionovich Slozkin (1862 – 1927)]. Kyiv: Ahraryna nauka. [in Ukrainian]

**Verhunov, V. A.** (2019). *Profesor Shyndler Kamill Havrylovych (1869 – 1940): hromadianyn Shveitsarii, shcho proslavyyv naukovo-osvithniu skladovu Ukrainy: naukova dopovid* [Professor Kamil Havrylovich Schindler (1869 – 1940): Swiss citizen who glorified the scientific and educational component of Ukraine: scientific report]. Kyiv: FOP Yachynskiy O. V. [in Ukrainian]

**Verhunov, V. A.** (2022). M. Kahan – uchen ta spodvyzhnyk fundatora Kyivskoi stantsii po vyprobuvanniu zemlerobskykh mashyn ta znariad profesora K. H. Shyndlera [M. M. Kagan – a student and associate of the founder of the Kyiv Station for Testing Agricultural Machines and Tools Professor K. G. Schindler]. *Naukovo-innovatsiinyi rozvytok ahrovyrobnytstva yak zaporuka prodovolchoi bezpeky Ukrainy: vchora, sohodni, zavtra: materialy Vseukrainskoi naukovo-praktychnoi konferentsii. Kyiv, 20-21 zhovtnia 2022 r.*, (pp. 140–143). Vinnytsia: TVORY. [in Ukrainian]

**Verhunov, V. A.** (2023a). Chlen-korespondent AN URSP. P. Kramarenko (1881 – 1960): zhyttieva ta tvorcha dolia, vnesok v orhanizatsiiu naukovo-osvithnoho zabezpechennia silskohospodarskoho mashynobuduvannia [Corresponding member of the Academy of Sciences of the Ukrainian SSR

L. P. Kramarenko (1881 – 1960): life and creative fate, contribution to the organization of scientific and educational support for agricultural engineering]. *Likarski roslyny: tradytsii ta perspektyvy doslidzhen: materialy VI Mizhnar. nauk. konf. (Berezotocha, 25 bereznia 2023 roku)* [Medicinal plants: traditions and perspectives of research: materials of the VI International Scientific Conference (Berezotocha, March 25, 2023)], (pp. 6–9). Lubny: VKF “Inter Park”. [in Ukrainian]

**Verhunov, V. A.** (2023b). Profesor O. O. Khokhriakov (1877–?) – zabute imia v istorii Natsionalnogo tekhnichnogo universytetu Ukrainy “Kyivskiy politekhnichnyi instytut imeni Ihoria Sikorskoho” ta natsionalnogo universytetu bioresursiv i pryrodokorystuvannia Ukrainy [Professor O. O. Khokhryakov (1877 – ?) – a forgotten name in the history of the National Technical University of Ukraine “Ihor Sikorsky Kyiv Polytechnic Institute” and the National University of Life and Environmental Sciences of Ukraine]. *Zbirnyk prats XXI Mizhnarodnoi molodizhnoi naukovo-praktychnoi konferentsii “Istoriia rozvytku nauky, tekhniky ta osvity”, prysviachenoj 125-richchiu KPI im. Ihoria Sikorskoho. Kyiv, 13 kvitnia 2023 r.* [Proceedings of the XXI International Youth Scientific and Practical Conference “History of the Development of Science, Technology and Education” dedicated to the 125th anniversary of Igor Sikorsky KPI. Kyiv, April 13, 2023], (pp. 11–14). Kyiv. [in Ukrainian]

**Verhunov, V. A.** (2023c). Profesor P. F. Vovk (1887 – 1943) – vydatnyi orhanizator naukovo-osvitnoho zabezpechennia napriamu zemlerobskoi mekhaniky v Ukraini u 10–20 rr. XX stolittia [Professor P. F. Vovk (1887 – 1943) – an outstanding organizer of scientific and educational provision of agricultural mechanics in Ukraine in the 10–20s of the 20th century]. *Istoriia osvity, nauky i tekhniky v Ukraini: materialy XVIII Vseukrainskoi naukovo konferentsii molodykh uchenykh ta spetsialistiv, m. Kyiv, 17-18 travnia 2023 r.* [History of education, science and technology in Ukraine: materials of the XVIII All-Ukrainian scientific conference of young scientists and specialists, Kyiv, May 17–18, 2023], (pp. 45–48). Vinnytsia: TOV “TVORY”. [in Ukrainian]

**Verhunov, V. A.** (2023d). S. M. Bohoiavlenskyi (1876 – ?): povnennia v istoriiu ahrarnoi nauky ta osvity v Ukraini [S. M. Bogoyavlenskyi (1876 – ?): a return to the history of agricultural science and education in Ukraine]. *Zelene povoienne vidnovlennia prodovolchyykh system v Ukraini: zbirnyk materialiv Mizhnarodnoi naukovo-praktychnoi konferentsii (m. Odesa, 26 sichnia 2023 roku)* [Green post-war restoration of food systems in Ukraine: collection of materials of the International Scientific and Practical Conference (Odesa, January 26, 2023)], (pp. 11–14). Odesa: Oldi+. [in Ukrainian]

**Vovk, P.** (1927). Doslidzhennia silsko-hospodarskykh mashyn na Ukraini. Stan silsko-hospodarskykh mashynodoslidzhen na Ukraini v mynulomu. Kyivska, Adzhanska ta Akymivska Stantsii [Research of agricultural machines in Ukraine. The state of agricultural machinery research in Ukraine in the past. Kyiv, Adzhan and Akymov Stations]. *Silskohospodarska mashyna – Agricultural machine*, 1–6 [in Ukrainian]

**Vstupitelnoe slovo.** (1913). *Vstupitelnoe slovo prof. V. G. Bazhaeva pri otkrytii pervogo ocherednogo zasedaniya Agronomicheskogo kruzhka. Agronomicheskii kruzhok pri Kievskom politekhnichskom institute* [Opening speech by Prof. V. G. Bazhaev at the opening of the first regular meeting of the Agronomic group. Agronomic group at the Kiev Polytechnic Institute]. Kyiv: Tip. S. V. Kulzhenko. [in Russian]

**Yanata, O. & Petrenko, Ya.** (1924). Korotke spravozdannia pro diialnist Silsko-Hospodarskoho naukovo komitetu Ukrainy za 1923 – 1924 operatsiinyi rik [Brief report on the activities of the Agricultural and Economic Scientific Committee of Ukraine for the 1923 – 1924 operational year]. *Visnyk silskohospodarskoi nauky – Bulletin of Agricultural Science*, 7–9, 16–17. [in Ukrainian]

*The article was received November 29, 2022.  
Article recommended for publishing 14/11/2023.*