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"Essay on the history of fossil ungulates" by Academician M. V. Pavlova as phenomenon in the world palaeozoological science (end of the nineteenth and early twentieth centuries)

***Abstract.** The objective of the research is to reveal the main areas of research of Academician M. V. Pavlova in scientific works "Essay on the history of fossil ungulates" in the late nineteenth and early twentieth centuries, to show the contribution of these works to the world of palaeozoological science. The scientific novelty is that the life path and academic heritage of academician M. V. Pavlova was investigated in complex in the context of the development of Palaeozoology for the first time in Ukrainian historiography, and her scientific biography was reconstructed; the history of domestic palaeozoology is presented through the prism of M. V. Pavlova work and her scientific school; the published and handwritten works of the scientist were analyzed, which enabled to deepen the knowledge about the history of the national palaeozoological science and its influence on the development of world science. She demonstrated the importance of fossil mammal research for stratigraphic constructions. The founder of paleontology, as a scholarly discipline, is considered a prominent George Cuvier. Also, Paleontology and its section of Palaeozoology were created, such world-renowned scholars as Albert Godry, Otniel Marsh, Edward Cop, Volodymyr Kovalevsky, Melchior Neumire, Louis Dollo, Henry Osbourne, and others. To this galaxy of scientists-paleozoologist belongs also our compatriot, academician M. V. Pavlova (1854-1938). It was established that Maria Vasylivna Pavlova (in the girlhood M. V. Gortynskaya) is an entire era in the development of Palaeozoology. She is an outstanding specialist in the study of fossil mammals, the organizer and promoter of Palaeozoology Science. Maria Vasylivna is a world-class paleozoologist, a well-known specialist in scientific circles who was personally familiar with many prominent paleo scientists, for example, Albert Godri, who was her teacher at the Sorbonne, and with Henry Osbourne she studied together at the same university, supported the connections with him all her life. The first woman-paleontologist, woman-professor, female academician in the Russian Empire, thanks to whom the domestic paleontology was allocated to independent biological science and which, with its research, laid the*



foundation for the development of paleontology (palaeozoology) in Ukraine. Works on the history of a large number of groups of fossil ungulates ended one of the cycles of M. V. Pavlova works, that showed the monophyletic development of most of the ungulates, the number of Tertiary and Quaternary faunas in the territory of the Russian Empire and in general in Ukraine.

Keywords: *palaeozoology; paleontology; science; evolution; ungulates; fossil mammals*

Introduction

During the last decade there have been some changes in the mastering of the scientific work of M. V. Pavlova. This was manifested in the article by R. O. Chaurin (Chaurin, 2000), in the articles by Z. A. Bessudnova (Bessudnova, 2004; Bessudnova, 2009), the manual "Paleozoology" B. K. Kotti (Kotti, 2011), Biographical information of the archivist of the Russian Academy of Sciences in Moscow V. M. Zagrebayeva (Zagrebayeva, IS ARAN) and in the general works of the author of this study (Deforz, 2011; Deforz, 2015a; Deforz, 2015b). Unfortunately, in the scientific literature there were few examples of the reprinting of M. V. Pavlova works in the current time, insufficiently highlighted her epistolary heritage, little analytical publications about her scientific achievements. The author of this study carried out the classification of the entire complex of sources used in the work in 4 groups: 1) scientific works of M. V. Pavlova; 2) documentary sources; 3) materials of personal origin: autobiography, form list and epistolary inheritance; 4) scientific and journalistic literature about M. V. Pavlova.

In the process of studying the literature about the life and work of M. V. Pavlova three periods should be distinguished. The first is the literature on the so-called "period of the Russian Empire" (1886-1917) that covers 31 years, the second is from the Soviet period, which is the largest – 74 years, the third is in the modern period of development of a problem that spans only 24 years.

The purpose of the publication to reveal the main directions of research of Academician M. V. Pavlova in scientific works "Essays on the history of fossil ungulates" at the end of the nineteenth and early twentieth centuries, to show the contribution of these works to the world of palaeozoological science.

Research methods

The methodology of the research is based on the use of chronological, typological, comparative, personological methods of historical knowledge, classification and systematization of historical sources, which made it possible to highlight the main point in the study of this topic (Deforz, 2019).

Results and Discussions

Maria Vasylivna Pavlova is an outstanding scientist-paleozoologist, a geologist and paleontologist, a doctor of geology, a professor (1910), an honored professor, an academician of the Academy of Sciences of the USSR (1925), Honorary

Academician of the USSR Academy of Sciences (1930), Honored Worker Science of the RSFSR (1928), Honorary Member of the Paleontological Society, Director of the Geological Paleontological Museum and the Head of the Department of Paleontology of the Moscow University (1919-1930). The wife of one of the most prominent Russian geologists in the late nineteenth and early twentieth centuries Aleksii Pavlov (1854–1929).

Half a century scientific activity of M. V. Pavlova laid a solid foundation not only for domestic evolution paleontology (paleozoology), which is now being developed by a large number of researchers (Smirnov, 2013). It contributed to the paleontological foundation of stratigraphy of the Continental Neogene and Quaternary deposits of Western Europe. M. V. Pavlova created a school of paleozoology, paleontologists-stratigraphs. Among her students there are well-known scientists as V. V. Menner, M. O. Bolkhovitinova, V. V. Teriaiev, M. I. Shulga-Nesterenko and others.

M. V. Pavlova had a wonderful ability to attract people. Her kindness, the desire to help, exceptional goodwill and light humor attracted people of different specialties to her. This led to widespread popularity of Maria Vasylivna both in the USSR and abroad. M. V. Pavlova was elected as a member of the French Zoological Society, the Geological Society of France, the Geological Society of London and the Linnaeus Society in Lyon (France). In 1926 M. V. Pavlova and O. P. Pavlov became the laureates of the highest award of the Geological Society of France – the prize of Albert Godry.

Maria Vasylivna always sought to find something new in all the many directions of Paleozoic Science, which she had to deal with, tried to look at them from an unusual side. She had always been looking for new factual material without regretting her time for it. Owning a huge amount of diverse data allowed her to make the right conclusions, which still remain relevant today. Maria Vasylivna as a patriot of science of Paleozoic always sought to enhance her prestige.

An analysis of the scientific heritage of Academician M. V. Pavlova, a prominent domestic paleo-scientist, a specialist in the field of evolutionary theory, an organizer of Paleozoic Science and a teacher, makes it possible to understand the processes of development of domestic biological science. She holds one of the honorary places in the world of paleontological science. Her name is associated with the development of Paleozoic Science at the end of the nineteenth – first third of the twentieth century and the scientific outlook on the development of various palaeozoological concepts, laws and ideas.

The first work of M. V. Pavlova, dedicated to fossil mammals (ungulates), saw the world in 1887. In fact, with this work, Maria Vasylivna launched the production of the famous series of works "Essays on the history of fossil ungulates" from America and Europe. Having chosen such a direction of palaeozoological research, M. V. Pavlova decided to highlight the development of the main groups of fossil ungulates in this series. She has steadily continued her research on this issue for 20 years. She has systematically published separate essays of this series in the "Bulletins

of the Moscow Society of Testers of Nature". From 1887 to 1906 there were 8 issues of this series in "Bulletins ...", and the last, 9th issue, in "Notes from the Petersburg Academy of Sciences".

Maria Vasylivna began publishing her research with a report "On the History of Fossil Ungulate Mammals" at a meeting of the Moscow Society of Naturalists in 1888. Her report was based on V. O. Kovalevsky representations about the evolution of ungulates.

"Essays on the history of fossil ungulates" with a special brightness reveal the main features of scientific creativity of M. V. Pavlova, those goals and tasks that she set before her in the first stage of their scientific activities. As can be seen from the contents of the whole series, the purpose of M. V. Pavlova was not only to cover the general history of the development of the most important groups of ungulates on the basis of already well-known materials of Western Europe and America, but above all on the basis of such coverage of the development of the organic world on the territory of Russia and Ukraine. Data on this before the beginning of research M. V. Pavlova was practically absent. This explains the proposed division of the series into four parts: "History of the ancient ungulates", "Development of horses", "Development of rhinos and tapirs" and "History of development of falcon Tertiary and Quaternary periods". Each of these parts, except for the first one, which is based only on American and Western European materials, consists of: a) review of the development of forms known from Western Europe and America based on a critical revision of literature and materials; and b) a description of the remains found on the territory of the Russian Empire, which are divided in fecundity and non-pernicious species by age, with a focus on the development of Tertiary and Quaternary groups mammals.

For writing the first articles M. V. Pavlova worked in all the great museums of Western Europe and America, using for this purpose his stay at the International Geological Congresses (she and her husband O. P. Pavlov visited almost all foreign congresses and congresses). In her work she had to rely on the materials already described and even on the materials repeatedly reconsidered by her by many prominent paleontologists of the world, and one can only be surprised by the exceptional observation and persistence of the young scientist who was able to obtain such results on the fossil material that immediately put it on a leading place in the world of Paleozoic Science.

Series "Essays on the history of fossil ungulates" M. V. Pavlova divided into 9 issues. The first one examines the history of the development of the ancient ungulates, and in subsequent editions the history of the development of equine, rhinoceros, tapirs and the history of the evolution of larvae is covered. Maria Vasylivna began each issue with an overview of the literature and the development of Western European and American forms. These reviews of M. V. Pavlova were written as a result of a personal study of materials stored in foreign museums and a critical review of literature. The text below is a description of the remains discovered on the territory of the Russian Empire. In each part, in close connection with the

material described, Maria Vasylivna considered a certain theoretical issues of general significance.

The first essay series of M. V. Pavlova's "Essays on the history of ancient fossil ungulates" is devoted to a group of primitive antiquity (Eocene) ungulates (Pavlow, 1887). In this work, Maria Vasylivna pointed to the proximity of European and American Paleogene neoprene and emphasizes their origin from one trunk. She analyzed the scientific articles of the American paleo-scientist E. Cope, in particular, compared the fossil remains of the ancient ungulates of America with the European ones and denies the conclusion of E. Cop, who pointed to the polyphyletic origin of the Eocene ungulates. Such a comparison allowed M. V. Pavlova to persuade Palaeozoologists that a peculiar long-term group of condylartrum is very close to the pedigree barrow of the equestrian. The presence of certain forms of condylartrum attributes that approximate them to predatory and insectivorous animals, Maria Vasylivna considered as evidence of their primitiveness and the kinship of the initial forms of all rows of placental mammals. In general, in this first Paleozoic Labor, M. V. Pavlova clearly manifested her idea of the monophyletic development of the entire group of ungulates. This conclusion contradicts the statement of American Paleozoicologists and, as it turned out later, was confirmed by further research.

In the following, 1888 the second article of M. V. Pavlova "Development of the Horses" appeared (Pavlow, 1888 a). Maria Vasylivna classical review was based on the data of the classic monograph V. O. Kovalevsky "On anchor and paleontological history of equines" (Kovalevsky, 1948). In her article, Maria Vasylivna demonstrated how important it was to study the development of a family of equidae (Equidae), and also pointed to the interest that constitutes the study of the genealogy of the horse. She stressed that among vertebrates the family of horses is the most favorable object for phylogenetic constructions as ammonites among invertebrates.

Maria Vasylivna, although based on the monograph V. O. Kovalevsky, however, used for her constructs and conclusions much more material, compared with that which was at the disposal of V. O. Kovalevsky In the essay "Development of Horses," she reasonedly confirmed the monophyletic origin of the horse. It is extremely important for her statement about the location of the long-haired late-breeder horse-hipparion in the horse's development line (Pavlow, 1889 b). Before the research of Maria Vasylivna, the hippoparion was considered to be the ancestor of horses. And she convincingly showed that he was a lateral branch, which should be excluded from the direct trunk of the development of the horse. After all, gipparions are more primitive horses, they have triple limbs, more complex structure of teeth and many other different morphological differences. Everything testifies to the fact that the hipparions could not be direct ancestors of the horse. Of course, this statement of Maria Vasylivna contrasted with the generally accepted at that time point of view. However, she, like her husband O. P. Pavlov, attached great importance to the identification of lateral branches in the history of the development of certain groups of animals. Scientists believed that these branches were one of the proofs of the course of the evolutionary process in difficult natural conditions, where adaptation to

certain conditions did not always go in one definite way. That is why Maria Vasylivna repeatedly returns to the discussion of the place of the gipparion in the line of the horse. She devoted a few articles to this issue: "Etudes sur l'histoire Paléontologique des ongles en Amerique et en Europe. IV Hipparion de la Russie" (1889); "Etudes sur l'histoire Paleontologique des ongles en Amerique et en Europe. V. Notice to the Hipparion crassum du Rodssillon (1891); "Etudes sur l'histoire Paleontologique des ongles en Amerique et en Europe. VI. Qu'est ce que c'est que l'Hipparion (1891) (Pavlow, 1889a; Pavlow, 1891a; Pavlow, 1891b).

Thus, in the 4th, 5th and 6th issues of the specified series, M. V. Pavlova described gipparions and horses found in the sediments of southern Ukraine. And already on the basis of this new material, she checked the conclusions of her first work. This material allowed Maria Vasylivna to convincingly substantiate the monophyletic origin of horses from the American form of protogippus and highlight the conditions for the emergence of individual parts of this chain (Pavlow, 1903).

Point of view M. V. Pavlova to the location of the hipparion and palaeotera in the evolutionary series of horses became dominant in the early twentieth century. It was developed by G. Osborne and other researchers in the work on the development of horses in America. True, there were attempts to return to the old ideas about the origin of the horse from the hypoparion, but detailed revisions of this issue, which were held in the 1940s and 1950s, on our domestic material (V. I. Gromov), on American material, etc., are confirmed by M. V. Pavlova about the monophyletic origin of horses and about the specialization of the dental system of the hippopionus, which does not allow it to be attributed to the direct ancestors of the horse (Pavlow, 1925, p. 103).

The third issue of the series "Essays", which appeared in 1888, was devoted to the development of ancient rhinos and tapirs (Pavlow, 1888 b). Investigating these animals, M. V. Pavlova made some conclusions, which sharply differentiated from the generally accepted views at that time, and therefore initially objected. But his conclusions Maria Vasylivna reasonably and convincingly argued that after some time they were confirmed by prominent paleontologists (K. Kittel, L. Ruthieheimer, R. Lidecker, etc.). This scientific work of Maria Vasylivna on fossil rhinos and tapirs was highly praised by the American paleontologist E. Kop, although his own M. V. Pavlova has repeatedly criticized.

In 1903, Maria Vasylivna published the 6th issue of his Essays on the history of rhinoceros, using domestic material and involving data on fossil rhinos in Europe and America (Pavlow, 1890). In this work, special attention should be paid to the construction of genetic series based on a detailed study of teeth and extremities and their detailed changes during evolutionary development. In this publication, Maria Vasylivna seeks to give a biological assessment of these traits and necessarily relies on the law of irreversible evolution and criticizes the views of E. Kop and other supporters of neolamarckism.

In his phylogenetic constructions M. V. Pavlova removed a number of large groups from direct genealogical lines. A considerable attention in these works was

paid to the assessment of the biological significance of individual features, and to tracing their changes in the course of the development of the rhinoceros group. The irreversibility of the evolution process M. V. Pavlova considered this as one of the most important criteria.

In 1901–1906, M. V. Pavlova studied the main trends in the development of falconry (Pavlov, 1901a; Pavlov, 1901b; Pavlov, 1906). In accordance with the views of V. O. Kovalevsky, she considered the role of the adaptive and nonadaptive reduction of limbs in the development of fecundity, on the origin of pig and ruminant forms of four-cylindrical teeth. She critically criticized the views of E. Cope on the development of ferns from forms with five-pointed teeth, and proved the affiliation of such forms to blind specialized branches with nonadaptive reduction of the limbs, and not to simple primitive middle groups. Such studies of M. V. Pavlova reproduced a general picture of the development of larvae in time. She later was supported by her researches by outstanding Russian paleontologists K. Flerov, V. Trofimov and others.

Simultaneously with the works concerning parsnip and rhinoceros, in her individual works M.V. Pavlova described a group of camels (Pavlov, 1903). At the beginning of the 20th century the point of view on the position of the horse line of the hippopionus and palaeotera became dominant. Lull and partly Matthew and Osborne shared the point of view of Maria Vasylyvna and clearly demonstrated this in their writings on the development of equine animals in America. Unfortunate attempt was made Antonius and Abel to revive in the 20 years of the twentieth century an idea of the hypoparion origin of the horse. Although many Soviet paleontologists have joined it before, the last detailed review of this issue is not one but a few researchers (for example, V. I. Gromova – on domestic materials, Sefwe – on the American and many others who carried out their research in the 40-50s of the twentieth century), did not leave doubts as to the correctness of the conclusions about the monophyletic origin of horses and the significant specialization of the hippopionus. M. V. Pavlova convincingly proved that the latter are not just primitive ancient groups, but blind, specialized branches with nonadaptive reduction of extremities.

In general, works of M. V. Pavlova, who were devoted to ungulates, were highly praised by biologists. So, Academician O. M. Severstsov, considering them from the point of view of evolutionary morphology, pointed out that they give a lot to clarify the issues of monophyletic and polyphylactic evolution and for the question of convergence and divergence (Deforz, 2012).

Together with the large and labor intensive work on the study of ungulates, M. V. Pavlova, starting in 1893, has launched a study of the development of proboscis. In her first scientific articles on this problem, she provided almost complete summary of all the materials known at that time about the mastodonts of the Russian Empire, and thus published articles about dinotrices, about the mammoth found near Yaroslavl, about new discoveries of mastodonts and elephants. At the same time, she constantly emphasized their stratigraphic position and significance.

However, particular importance in this series of articles about the proboscis was its fundamental work "Fossil elephants" (1899) (Pavlova, 1899.). It describes the

remnants of Quaternary elephants from different locations, and it has established a new species – the elephant Wust (*Elephas Wusti*). In this work, Maria Vasylivna, based on monophyletic positions, characterizes three stages of elephant development in the Quaternary period and lays the foundations for the use of their remains in the paleontological substantiation of the stratigraphy of the Quaternary deposits.

Significant contribution of M. V. Pavlova made in solving evolutionary problems. She paid the most attention to such problems: the reasons for the extinction of animals in the past geological epochs, the history of the study of the development of tertiary and post-tetan fossil mammals, the history of the development of fossil founes.

Many of the reasons for the extinction of species were written. Very many extinctions appeared and still remain a mystery: how could the forms and groups of forms that once were ordinary inhabitants of our planet disappear from the face of the earth? Thousands of researchers have met this phenomenon in their work, and it is not surprising that almost every one of them would like to find an explanation for it. Therefore, the causes of extinction of organic forms are affected in many works of nature researchers, who usually put forward certain explanations of this phenomenon. Quite often these phenomena are considered one-sided or even incorrect. Therefore M. V. Pavlova is considered to be expedient to devote a special study to the problem of extinction of species in order to comprehensively cover it on the basis of modern science.

The work of professor M. V. Pavlova was called "Causes of extinction of animals in the past geological epochs" (1924) (Pavlova, 1924). Small volume of a book by M. V. Pavlova (88 pp.) Completes the article by O. P. Pavlova "On some, little studied factors of extinction" (42 p.) (Pavlov, 1924).

The reasons for the extinction of organisms in past epochs – one of the issues on which expressed a lot of idealistic and metaphysical judgments, and many people were considered to be no explanation. Immediately emphasize M. V. Pavlova was in Darwin's position on this issue. Strongly rejecting the idea of a predetermined, limited period of existence of species, the "exhaustion of vitality" and the like, such idealistic fabrications, M. V. Pavlova saw the causes of extinction in those natural processes, which caused the evolution of the concept of Darwin. Maria Vasylivna contributed to the problem of extinction of animals in past geological epochs. She concluded that extinction depended both on external causes and on the organisms themselves, on the possibility or impossibility of adapting to constantly changing environmental conditions.

Regarding the study of M. V. Pavlova the third terrestrial mammals, it concludes that the most ancient tertiary fauna is the Sevastopol fauna of the middle Sarmatian. From the upper Sarmatian is known dinotherapy and procamulus from the outskirts of Kryvyi Rih. The meiotic layers gave an extremely large number of mammalian remains from different parts of Ukraine. Finally, from the Pontic deposits, we know several separate forms and the Russellian fauna of the middle and upper Pliocene (the

name comes from the name of the city of Russillion, France), which was described by I. P. Khomenko (Khomenko, 1915).

O. O. Borisyak refers to the ancient representatives of the gipparions to the upper middle of Sarmatian. However, he does not indicate certain differences for these forms, considering them as a kind of European hippopionus. He points only to their smaller size. But this sign is not permanent, because the forms from Kyucuron (southern France) are smaller than Sevastopol. Among the gipparions from Grebinnikov (Odesa region.) And Chobryushiv (Transnistria, Moldova), most of these sizes are Sevastopol. The variety of both the size and complexity of the enamel on the teeth varies greatly. About this says and O. O. Borisyak Maria Vasylivna believed that these data allow Sarmatian forms to be closely related and closely related to the meiotic. Regarding the Russellian forms, about which I. P. Khomenko, then this will be more distant forms that have been preserved in the Pliocene. And they belong to earlier forms, as an option with shortened limbs, and ended their existence in the Pliocene of Russia, as well as Europe as a whole.

Conclusions

Contribution of M. V. Pavlova's history of development of fossil faunas is special. Undoubtedly, Maria Vasylivna realized that solving the problems of taxonomy and phylogeny of fossil mammals is based on the understanding of evolution as an adaptive process. That is why in her scientific works she came from the understanding that the refinement of the animal world system should be carried out taking into account morphological and adaptive features, as well as phylogenetic mutual relationships based on paleontological and modern (neontologic) data. In her scientific works, the main place occupied the morphological direction, which combines the data of classical phylogenetics with the doctrine of adaptation. Indeed, in her studies, the role of determining the essential significance of certain features in taxonomy has increased significantly, she paid considerable attention to the sum of those features that revealed morphological adaptations and probably covered the directions of evolutionary changes in organisms.

Of course, the development of these issues forms the basis of the scientific work of M. V. Pavlova. Her main scientific works are devoted to the study of mammals fauna of Eastern Europe, Siberia and the Far East. Particular attention, first of all, deserves the work of Maria Vasylivna, devoted to the gipparionous fauna, which lasted about 10 million years - from the end of the late Miocene to the middle Pliocene. She was also interested in the fauna of gazelles, deer, mastodon, ellacouries, dinotheria, fox bears, camels, and the like.

Introduction to the scientific heritage of M. V. Pavlova convinces us that she is not only an outstanding domestic paleozoologist, but also a biologist.

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«Нариси з історії викопних копитних» академіка М. В. Павлової як феномен у світовій палеозоологічній науці (кінець XIX – поч. XX століть)

Анотація. Мета дослідження – розкрити основні напрямки досліджень академіка М. В. Павлової у наукових працях «Нариси з історії викопних копитних» в кінці XIX на початку XX століть, показати внесок цих робіт у світову палеозоологічну науку. Наукова новизна полягає в тому, що вперше в українській історіографії комплексно досліджено життєвий шлях та наукову спадщину академіка М. В. Павлової в контексті розвитку палеозоології та

реконструйовано її наукову біографію; подано історію вітчизняної палеозоології крізь призму діяльності М. В. Павлової та її наукової школи; проаналізовано опубліковані та рукописні праці вченої, що дало змогу поглибити знання щодо історії вітчизняної палеозоологічної науки та її вплив на розвиток світової науки. Засновником палеонтології, як наукової дисципліни вважається видатний Жорж Кюв'є. Також творили палеонтологію та її розділ палеозоологію, такі всесвітньовідомі вчені, як Альбер Годрі, Отніел Марш, Едвард Коп, Володимир Ковалевський, Мельхіор Неймайр, Луї Долло, Генрі Осборн та інші. До цієї плеяди вчених-палеозоологів належить і наша співвітчизниця, академік Всеукраїнської академії наук М. В. Павлова (1854-1938). Встановлено, що Марія Василівна Павлова (у дівочтві М. В. Гортинська) – це ціла епоха в розвитку палеозоології. Адже вона – видатний фахівець із вивчення викопних ссавців, організатор та популяризатор палеозоологічної науки. Марія Василівна – палеозоолог світового рівня, знаний фахівець в наукових колах, яка була особисто знайома з багатьма видатними палеозоологами, наприклад, Альбером Годрі, який був її учителем в Сорбонні, а з Генрі Осборном вона вчилася разом в цьому ж університеті, підтримувала з ним зв'язок і листувалась все життя. Перша в Російській імперії жінка-палеонтолог, жінка-професор, жінка-академік, завдяки якій вітчизняна палеонтологія виділилась у самостійну біологічну науку і яка своїми дослідженнями заклала фундамент розвитку палеонтології (палеозоології) в Україні. Працями з історії великої кількості груп викопних копитних завершився один із циклів робіт М. В. Павлової, який показав монофілетичний розвиток більшості груп копитних, численність третинних і четвертинних фаун на території Російської імперії та загалом України. Вона засвідчила значущість досліджень викопних ссавців для стратиграфічних побудов.

Ключові слова: палеозоологія; палеонтологія; наука; еволюція; копитні; викопні ссавці

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«Очерки по истории ископаемых копытных» академика М.В. Павловой как феномен в мировой палеозоологической науке (конец XIX – нач. XX века)

Аннотація. Цель исследования – раскрыть основные направления исследований академика М. В. Павловой в научных трудах "Очерки по истории ископаемых копытных" в конце XIX начале XX веков, показать вклад этих работ в мировую палеозоологическую науку. Научная новизна заключается в том, что впервые в украинской историографии комплексно исследованы

жизненный путь и научное наследие академика М. В. Павловой в контексте развития палеозоологии и реконструировано ее научную биографию; подано историю отечественной палеозоологии сквозь призму деятельности М. В. Павловой и ее научной школы; проанализированы опубликованные и рукописные труды ученой, что позволило углубить знания по истории отечественной палеозоологической науки и ее влияние на развитие мировой науки. Основателем палеонтологии как научной дисциплины считается выдающийся Жорж Кювье. Также творили палеонтологию и ее раздел палеозоологию, такие всемирно известные ученые, как Альбер Годри, Отниел Марш, Эдвард Коп, Владимир Ковалевский, Мельхиор Неймайр, Луи Долло, Генри Осборн и другие. К этой плеяде ученых-палеозологов относится и наша соотечественница, академик Всеукраинской академии наук М. В. Павлова (1854-1938). Установлено, что Мария Васильевна Павлова (в девичестве М. В. Гортынская) – это целая эпоха в развитии палеозоологии. Ведь она – выдающийся специалист по изучению ископаемых млекопитающих, организатор и популяризатор палеозоологической науки. Мария Васильевна – палеозолог мирового уровня, известный специалист в научных кругах, которая была лично знакома со многими выдающимися палеозологами, например, Альбером Годри, который был ее учителем в Сорбонне, а с Генри Осборном она училась вместе в этом же университете, поддерживала с ним связь и переписывалась всю жизнь. Первая в Российской империи женщина-палеонтолог, женщина-профессор, женщина-академик, благодаря которой отечественная палеонтология выделилась в самостоятельную биологическую науку и которая своими исследованиями заложила фундамент развития палеонтологии (палеозоологии) в Украине. Работами по истории большого количества групп ископаемых копытных завершился один из циклов работ М. В. Павловой, который показал монофилетическое развитие большинства групп копытных, многочисленность третичных и четвертичных фаун на территории Российской империи и в целом Украины. Она показала значимость исследований ископаемых млекопитающих для стратиграфических построений.

Ключевые слова: палеозоология; палеонтология; наука; эволюция; копытные; ископаемые млекопитающие

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