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## Mathematicians of Polish origin in Ukraine: Scientific and pedagogical activities of A.P. Psheborskiy in Kharkov Mathematical Society (1898–1922)

AT THE END OF THE 19<sup>TH</sup> CENTURY Ukraine had three fruitfully functioning Universities: Kharkiv (1805), Kyiv (Saint Volodymyr University, 1834), Novorossiysky University (Odessa, 1865). Appearance of these scientific centers in Kharkiv, Kyiv and Odessa served as an undoubted impetus for the vigorous development of the scientific thought in Ukraine. The barest necessity in subject communication and exchange of ideas on significant accomplishments in science was the reason for establishing various scientific societies aimed at the promotion of development and spread of scientific knowledge. The historical conditions of emergence, analysis of activity and estimation of the role of social and scientific amalgamations and societies in the pre-Revolutionary Russia are observed in the works by T.P. Korzhykhina, V.S. Savchuk, O.V. Sobolyeva, O.D. Stepansky, M.G. Filippov *et al.* <sup>1</sup>

One of these societies was Kharkiv Society of Mathematics (KhSM) set up in 1879 under Emperial Kharkiv University by the initiative of professor V.G. Imshenetsky. Organizational, scientific, pedagogical, publishing and social activity of KhSM are elucidated in the works by M.I. Akhiyezer, Ye.Ya. Bakhmutska, D.Z. Gordevsky, N.N. Kushlakova, M.M. Marchevsky, A.P. Psheborsky, V.S. Savchuk, D.M. Syntsov, M.A. Tykhomandrytsky.<sup>2</sup>

The first work on the mentioned topic was "Society for Mathematics under Kharkiv University" by A. P. Psheborsky who was a KhSM member for over 20 years and all throughout that time belonged to the Administrative Board of Society.

It is the study of scientific and pedagogical activity of Psheborsky in KhSM that our article is devoted to.

Basing on the materials from the State Archives of Kharkiv Region we can trace the most important moments of life and activity of the scientist from his birth till 1905.

Doctor of Physics and Mathematics, professor Antony-Bonifacy Pavlovich Psheborsky was born May 14, 1871, in the village of Khoroshe of Lypetsk district of Kyiv province. <sup>3</sup>

His father Pavlo Antonovych Psheborsky had been born in a poor Polish family. In 1862 he graduated from the Medical Department of Saint-Volodymyr University with the degree of doctor and was appointed to serve as a junior doctor. Over the course of service he was awarded with numerous

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<sup>&</sup>lt;sup>1</sup> For more details, see Korzhykhina T.P., Social Organizations in the USSR in 1917 – 1936, (M., 1981); Savchuk V.S., Natural Science Societies of the South of the Russian Empire: Second Part of the XIX – Beginning of the XX cent (Dnipropetrovsk,1994); Sobolyeva Ye.V., Organization of Science if After-Reform Russia. (L., 1983), p.142–160; Stepansky A.D., (M., 1987); Filippov N.G., Scientific and Technical Societies in Russia (1866–1917) (M., 1976).

<sup>&</sup>lt;sup>2</sup> See Akhiyeaer N.I, "Kharkiv Society for Mathematics", *Zapiski matem. otdeleniya fiz-mat f-ta GU im. A.M. Gorkogo i HMO*. T. XXVI (1956), p. 31–39; Bakhmutskaya E. Ya., "Mathematics in Kharkiv University. Kharkiv Society for Mathematics", *Istoriya otechestvennoy matematiki*, T.2. (Kharkiv, 1967), p. 460–472; Gordyevsky D.Z., "Pedagogical Activity of Kharkiv Society for Mathematics over the 90 years of its Existence (1879 – 1969)", *Voprosi metodologii i metodiki prepodavaniya v vysshey shkole* (Harkov: HU, 1973), Vyp. 2., p. 107–115; Marchevsky M.N., "Kharkiv Society for Mathematics over the first 75 years of its existence (1879 – 1954)", *Istoriko-matematicheckie issledovaniya*, Vyp. IX. (M., 1956), p. 613–666, Psheborsky A.P., *Society for Mathematics under Kharkiv university* (Harkov: HU, 1911), pp. 26.

<sup>&</sup>lt;sup>3</sup> For more details, see The State Archives of Kharkiv Region. F. № R-1682, op. 2, od. zb. 265 (letter 3).

battle awards including insignia, medals, crosses and resigned for the reason of disease in the rank of Counselor of State.

The mother Marianna Milenovska, had been born in a noble family and was rather an educated woman. She devoted herself to running the house and bringing up the children: son Antony and daughters Julie, Mykhalina, Yadviga, Mariya and Hanna.

In Mykolayiv the Psheborskies had three stone houses and two stone shops. <sup>4</sup>

From 1889 through 1898 A.P. Psheborsky was studying and working in Saint-Volodymyr University. This period of his life is connected with the name of an outstanding scientist Pokrovsky who involved his student into the researches on the theory of transcendent functions. When studying Psheborsky revealed exceptional abilities for mathematics and in 1894 he took part in the University contest of students' works. The first scientific work of the scientist-to-be "To investigate Weierstrass' methods in the theory of elliptic function and reveal the connection between the indications of Yacoby and Weierstrass" was awarded the gold medal at this contest. On graduating from Saint-Volodymyr University in 1849 A.P.Psheborsky stayed at University for training to be a professor.

Psheborsky's work of 1895 "About the Methods of Abel, Yacoby, Liouville and Weierstrass in the Theory of Analytical Functions" brought him the award of an honored professor I.I.Rakhmaninov. In 1896 - 1897 he passed oral examinations for the Master's degree in abstract mathematics and having delivered two trial lectures was awarded the status of assistant professor with the issuance of the relevant certificate. Conducting the scientific research in the Kharkiv Regional Archives we came across this certificate registered as  $N_2$  144 dated 19.11.1897 issued by the Department for Physics and Mathematics of Saint-Volodymyr University:

"Master of abstract mathematics A.-B. P. Psheborsky who completed university courses in 1894, delivered two trial lectures at the meetings of Department for Physics and Mathematics: October 16, 1897 on topic "Major Tasks of the Theory of Differential Equations" and October 24, 1897 "On the Curvature of Curves in Space". Accepting the lectures as satisfactory the Department for Physics and Mathematics at the meeting of October 24, 1897 resolved the following: on the grounds of Article 109, sub-Article c) ... to award undergraduate Psheborsky with the Certificate authorizing him to teach higher mathematics in the academic status of assistant professor.

Over the Kyiv period of Pseborsky's life the following works were published: "About the methods of Abel, Yacoby, Liouville and Weierstrass in the Theory of Analytical Functions", "About the Functions of One Argument Which Subordinate to the Algebraic Theorem of Summation", "About Lacunary Functions", "Abel's Theory".

Regardless high level of preparation, gift for mathematics, scientific degree and recognition among the colleagues and mathematicians Psheborsky did not obtain the place of a lecturer in Saint-Volodymyr University. But owing to the petitions by professor P.M.Pokrovsky who introduced associate professor Psheborsky to the Rector of Kharkiv Technological Institute (KhTI) as a person of exceptional talent and an eligible applicant for the post of lecturer and tutor of mathematics Pshebosrky was appointed a staff lecturer in KhTI by the Order № 8997 dated 23.11.1898.

In the course of analysis of extracts from the minutes, annual reports and extracts from annual reports on the work of KhSM our attention was drawn to the minutes of meeting dated October 11, 1898 which records the admittance of Psheborsky into KhSM without holding election. This fact is interesting is we compare the last two dates – Anton Pavlovich Psheborsky started his life on the new location with entering the scientific society.

Having moved from Kyiv to Kharkiv Psheborsky became to be involved into communication with the lecturers of Kharkiv Technological Institute which at that time did not have the Department for Mathematics. Mathematical disciplines were taught by V.P. Alyeksiyevsky, K.O. Andryeyev, O.M. Lyapunov, V.A. Styeklov, M.A. Tykhomandrytsky who worked in Kharkiv University and were members of KhSM. By the way, all of them but V.P. Alyeksiyevsky formed the Administrative Board of KhSM which by that time had gained world-wide popularity.

<sup>6</sup> In the same place (letter 5).

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<sup>&</sup>lt;sup>4</sup> See *The State Archives of Kharkiv Region*. F. № R-1682, op. 2, od. zb. 265 (letter 10).

<sup>&</sup>lt;sup>5</sup> *Ibidem*, (letter 17).

<sup>&</sup>lt;sup>7</sup> *Ibidem*, (letter 17).

In its membership we can find professors of Kharkiv University and Kharkiv technological Institute as well as professors of many Russian universities F.O. Bredikhin, M.V. Bugayev, G.F. Voronoy, V.P. Yermakov, M.Ye. Zhukovsky, A.A. Markov, etc. Later on Psheborsky wrote: "The society has won its honored position in the world of mathematics; membership in the society and participation in its works is highly esteemed among the outstanding mathematicians of nowadays; propositions on the exchange of editions have been and keep reaching Society both from academies, scientific societies and editorial boards of scientific magazines...".

In the process of investigation we analyzed extracts from minutes of meetings and annual reports on the activity of KhSM for the period 1898 through 1922. The results of this analysis are given in Table 1.

Table 1.
A.P.Psheborsky's activity in the Kharkiv Society for Mathematics
In the period 1898 through 1922.

Years	KhSM member	Secretary	Vice- Chairman	Proper reports	Participation in debates, other reports	Proposi- tions
1898	11.10			4.12		
1899		29.10				
1900		8.10 am		11.02,		8.10
				27.10,		
				15.12		
1901		23.09 am		16.02,		
				16.11		
1902		1.10 am				1.10
1903		12.10 am				
1904		3.10 am				4.12
1905		24.11 am				
1906		12.11 am				12.11
1907	14.10			12.01	6.10, 5.11	
1908	Annual					17.12
1909	report	25.10 am			21.01, 2.02	
1909		Annual			5.02, 27.03	27.03
1910					3.02, 27.03	27.03
1911		report 5.10 am				
1911		Annual				
1912		report				
1913		Тероп	29.09 am		1.02, 1.03, 18.10,	
1913			29.09 aiii		24.10, 22.11	
1914			21.09 am		19.01, 12.02	
1915			16.10 am	27.02	17.04, 16.10	
1915			15.09 am	27.02	25.03, 29.04,	
1710			13.07 aiii		14.05, 6.10, 6.11	
1917						
1922	26.03				26.03	

- am – annual meeting

First we shall study the membership of Psheborsky in KhSM in the indicated period. Buts in his article represents A.Psheborsky as "a permanent secretary of Kharkiv Society for Mathematics

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 $<sup>^{8}</sup>$  For more details, see Psheborsky A.P., *Society for Mathematics under Kharkiv university* (Harkov: HU, 1911),  $-26 \, p$ .

throughout a twenty-years period". <sup>9</sup> The statistical data suggest the following: after a one-year membership in the society at the meeting of October 29, 1899Psheborsky was elected the Secretary. During the next eight years he occupies this position.

Prior to the election at October, 10 1907 meeting Psheborsky asked not to be balloted for secretary post for the reason of lack of free time. The society accepted and followed the scientist's request but recognizing his diligence and extraordinary capacity for work the society expressed gratitude to A.P. Psheborsky for performing duties of secretary for 8 years. What pushed the scientist for such an action? What was the origin of his excessive occupancy? There are many possible explanations. The father's resignation caused by health problems could be one of them. At that time Psheborsky was simultaneously working at Kharkiv university, Technological Institute and at higher courses for women. The tightness of their financial position is confirmed by the information from the private correspondence between Psheborsky and V.A.Steklov: "It makes me feel uneasy that I am still unable to repay the debt to you but the reason for that is my desperate financial condition..." (letter dated August 27, 1906), "...I can only send 85 karbovantsiv. I will send the rest of the money at the earliest possibility" (a tear-off coupon for money transfer sated October 14, 1906). "I have just received the fee and I am hurrying to send you my debt (40 karbovantsiv), which has been a real burden for me" (a tear-off coupon for money transfer sated 12.12.1906).

After A.P Psheborsky the duties of KhSM secretary were performed by M.M. Saltykov who was acting as secretary for two years while V.A. Syntsov was the Chairman of society and as for this Syntsov made the following observation in his letter to V.A. Steklov dated October 27, 1908: "At the meeting I was elected the Head again, and Saltykov was elected the secretary again; I am not happy about that, as he is rather sluggish unless he finds a kind of respect or profit for himself". <sup>11</sup>

It is for this reason or for a different one – now one can not know for sure – but at the annual meeting of October 25, 1909 A.Psheborsky was re-elected the KhSM secretary for four more years. Afterwards, starting September 29, 1913 he acted as the KhSM Vice-Chairman in the Administrative Board till 1916. Due to unavailability of minutes of KhSM meetings and other relevant information on the activity of KhSM in the period till 1922 it is difficult to indicate the exact membership of Administrative Board in particular. We only have brief accounts on the society's activity printed in "Science in Ukraine" magazine, 12 in which we wind the following information in support of the fact of A.P. Psheborsky's membership in KhSM: "Prof. A.P.Psheborsky took the floor with the speech in the memory of honored member of the Society Prof. of Kyiv University and Politechnic Institute V.P. Yermakov ...". 13

Being the member of Administrative Board throughout the whole period under consideration A.P. Psheborsky devotes much time to this membership: writes minutes of meetings, prepares financial reports and annual reports on the activity of KhSM, keeps account of the society's proper funds, corresponds on behalf of KhSM with different scientific establishments and societies, reviews scientific articles submitted to the society, reports on his own scientific researches and on articles received from corresponding members and honored members of Society, takes an active part in the meetings.

Let us study in detail the different aspects of scientist's activity in KhSM. From the analysis of meetings minutes we know that A.P. Psheborsky:

1) read to Society the articles of his collegues: S.N. Bernstein, D.D. Mordukhai-Boltovsky, K.A. Posse, Ya.V. Uspensky, A.A. Freedman, V.I. Smirnov;

<sup>&</sup>lt;sup>9</sup> See Buts O.M., "A.–B. P. Psheborsky and his contribution into the development of theory of nearest approximation", *Vihy Rozvytku matematychnogo pryrodoznavstva*, 36. *nauk. Prac* – *K.* (1994), p. 44–58.

<sup>&</sup>lt;sup>10</sup> See Saint-Petersburg Section of the Archives of The Russian Academy of Sciences. – F. 162, op. 2, col. 365 (letter 16).

<sup>&</sup>lt;sup>11</sup> *Ibidem*, op. 2, col. 433 (letter 17).

<sup>&</sup>lt;sup>12</sup> For more details, see "Kharkiv Society for Mathematics", *Science in Ukraine* (1922), №1, p. 85–88, "Kharkiv Society for Mathematics", *Science in Ukraine* (1922), №2, p. 152.

<sup>&</sup>lt;sup>13</sup> See "Kharkiv Society for Mathematics", *Science in Ukraine* (1922), №1, p. 85–88.

- 2) participated actively in the debates on the account of reports by M.M. Marchevsky, I.S. Chernyshenko, N.F. Fon-Ditmar, S.N. Bernstein, G.A. Gruzintsev, I. Kurylko;
- 3) advanced remarks of material significance when discussing articles and reports of S.V. Novosyltsev, G.A. Gruzintsev, D.M. Syntsov, S.N. Bernstein "About Inequations of V.A. Markov" (October 24, 1913), P.M. Yerokhin;
- 4) gave talks about life, activity and scientific accomplishments of outstanding scientists with reviews for articles sent to KhSM;
  - 5) gave 9 reports about the results of his own scientific researches.

As we can see, during the 25 years spent in Kharkiv till leaving for Poland A.P. Psheborsky, besides performing the corresponding duties of Society Administrative Board member was an active member of KhSM.

The research area of reports and speeches at society meetings demonstrate the breadth of his scientific interests among which there are the theory of higher transcendental function, methods of elliptic function theory, theory of analytical functions, calculus of variations, differentiated geometry, theoretical mechanics, theory of probability, methodology of teaching mathematics, etc.

Besides the scientific work A.P. Psheborsky paid much attention to pedagogical activity too, working both in higher educational establishments and at courses. Professor's lectures were of peculiar and original character and aroused interest in the students as the lecturer always cited the results of his own researches concerning the problems discussed during the classes. He was also interested in the issues of methodology of teaching mathematical disciplines, in compiling handbooks for secondary schools and higher educational establishments. Thus, in the minutes of January 21, 1909 meeting we read: "I.A. Kir'yakov pointed that one should elucidate the particulars of bounds of error in logarithmic calculations which are not clearly elaborated in common handbooks in algebra. At the request of meetings A.P. Psheborsky agreed to report "On Approximate Calculi" at some of the next meetings; and at the meeting of March 27, 1910 "at the suggestion of Prof. Psheborsky a committee was elected for the development of a questionnaire for secondary school teachers on the issues of introducing higher mathematics into secondary school" and at May 7, 1910 meeting the head of this committee reported on the results of committee's work. With the aim of improving methodological bases of teaching mathematical disciplines A.P. Psheborsky himself compiled and published textbooks and teaching aids among them a handbook on fundamentals of arithmetic, lithographic course of theory of finite difference, "Introduction into Analysis". Being a lecturer of Technological Institute he prepared a textbook Analytical Geometry. The author's estimate of this textbook made 1200 karbovantsiv, 400 out of which at the order of Guardian of Kharkiv Educational District were assigned from the special funds of Institute. 15

In 1904 A.P. Psheborsky was sent on a business trip to Gettingen University to study the prominent scientists' experience and methodology of teaching which were fundamentally different from the system of teaching existing in the universities of the Russian Empire. In Gettingen Psheborsky listened to lectures by famous mathematicians D. Guilbert, F. Klein, G. Minkovsky which stroke him as brilliant and which could not help influencing on the quality of his further teaching work. New acquaintances and creative communication were not discontinued after the business trip was over. Having returned to Kharkiv, at the meeting of December 4, 1904 Psheborsky introduced a motion on establishing connections with the Mathematics Reading Room in Gettingen. The meeting resolved to "send to the Mathematics Reading Room in Gettingen the second series of *Reports of Kharkiv Society for Mathematics* and some specimen of the first series". <sup>16</sup>

When speaking about the activity of Psheborsky in KhSM it is worth noting that by the end of 1906 Society had gain world-wide fame and had been cooperating with various scientific establishments and societies including 40 national and 35 foreign ones. Owing to this exchange,

<sup>16</sup> See "Extracts from meetings minutes", Reports of Kharkiv Society for Mathematics for 1888–1917.

<sup>&</sup>lt;sup>14</sup> For more details, see "Extracts from meetings minutes", *Reports of Kharkiv Society for Mathematics for 1888–1917*.

<sup>&</sup>lt;sup>15</sup> See *The State Archives of Kharkiv Region*. F. № P – 1682, opus 2, col. 265 (letter 78, 80).

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proper editions and works given to KhSM as a gift, Kharkiv Society for Mathematics had almost the best mathematical library with Pedagogy section. The Society had the most prominent national and foreign scientists as its members. Taking into considerations these facts at November 12, 1906 meeting a committee was created to develop the general provisions of Institute Statute. A.P. Psheborsky was among the committee members together with M.M. Saltykov and D.M. Syntsov. But these dreams we not to come true. It is only in 30-th years when after numerous restructures the Institute for Mathematics was detached from the Institute for Physics and Mathematics and "obtained an excellent scientific library for its own disposal..., which was replenished not only due to the new acquisitions of national and foreign literature, but also as a result of joining the library of KhSM..." [10, p. 22]. And throughout this way we always meet the name of A. P. Psheborsky: 1919 – Rector of Kharkiv university; 1920 – rector of Academy of Theoretical Knowledge created on the basis of Historical-Philological and Physical-Mathematical Departments of Kharkiv University; 1921 – Rector of Institute for People's Education which appeared after the restructuring of Academy.

Over the Kharkiv period of Psheborsky's life activity the following works by this scientist were published in "Reports of Kharkiv Society for Mathematics": "For the Issue of Infinitesimal Deformation of Services" (1900), "Some Applications of Theory of Linear Congruations" (1900), "Society for Mathematics (1879–1904)" (1912), "About Some Polynomials, the Least Distant from Zero in the Assigned Interval" (1913), "Note on Calculus of Variations" (1915), "Mykhaylo Mykhailovych Lagutynsky. Obituary Notice" (1915), "Sum on the Extremum of Integral  $\int f(x,y,y')dx$  with Variable Final Points" (1924).

According to the statute of KhSM the authors should submit the manuscripts of their reports for Administrative Board's approval to be published in "Reports of Kharkiv Society for Mathematics", that is only the reports which had been reported at meetings could be published. The comparison of list of reports made at KhSM with the list of published works shows some "discrepancies" of the mentioned regulation of Statute. What was the reason for that? Was it a mistake of some member of Administrative Board who was responsible for the publishing activity of Society? Now it is difficult to say. An explication which seems probable to us can be found in a letter of D.M. Syntsov to V.A. Steklov dated May 8, 1910 noting that the ready proof-sheets had been taken to a publishing house but not of all members of society (meaning A.P. Pseborsky and M.M. Saltykov's works), "both sometimes find the meetings on the first week inconvenient that is why the[ir] articles ... were sent for publishing house without having been reported..." <sup>17</sup> [18, letter 59–60]. Maybe for this very reason in the meetings minutes we do not find reports on the topic of publications "Society for Mathematics (1879–1904)" (1912), "About Some Polynomials the Least Distant from Zero in the Assigned Interval" (1913), "Mykhaylo Mykhailovych Lagutynsky. Obituary notice" (1915).

Sketch "Society for Mathematics (1879–1904)" was written by Psheborsky on the occasion of the 25<sup>th</sup> anniversary of KhSM. As the secretary of Society he carried out a painstaking and voluminous work, having summarized all the reports, statistical data and meetings minutes for all the years of Society's existence. The addenda to the article comprise:

- 1. Directory of articles contained in the first series and in volumes 1–9 of "Reports of Kharkiv Society for Mathematics".
  - 2. Membership of administrative board.
  - 3. Founding members of Society for mathematics (list).
  - 4. List of companies and institutions receiving the publications of Society as a gift or in exchange.
  - 5. Number of members, reports and reporters from 1879 through 1904.

This was the first work on the KhSM historiography. Later on, at December 17, 1908 Society meeting the decision was adopted to address A. P. Psheborsky with the request to expand his sketch on the history of KhSM with its accomplishments for the recent 5 years. This work might have remained unwritten for the reasons mentioned above.

<sup>&</sup>lt;sup>17</sup> See Saint-Petersburg Section of the Archives of The Russian Academy of Sciences, F. 162, op. 2, col. 433.

The published works of Psheborsky can be grouped according to his scientific interests during different periods of life. Thus, in the early Kharkiv period the attention of Psheborsky is concentrated on researching problems of differentiated geometry, therefore the works of this period (1900 – 1901) are devoted to elucidation of these questions. Later on (1908–1913) the scientist returns to the researches of issues in theory of function, and the following works (1915 –1924) were devoted to the solution of problems of calculus of variation. The result of his researches in the field of differentiated geometry, summarizing all the accomplishments of the scientist was his Master's thesis defended in Moscow University in 1902. In the preface to this work the author gives the historical overview of the history of linear congruences, that is of system of lines in space the equation of which depends on two parameters and gives a short summary of his work, pointing out the advantages of method of perimorphias used by him. In conclusion A. P. Psheborsky writes: "I think it necessary to express sincere gratitude to the Kharkiv Society for Mathematics which provided me with the possibility to have this work published".

Researching the problems of differentiated geometry A. P. Psheborsky reveals the physical sense of mathematical characteristics which he had obtained in the work "To the Issue on Infinitesimal Deformations of Surfaces", in which he himself accentuates that "the article is aimed to give the kinematic interpretation of infinitesimal deformations of surfaces and to reveal the kinematic importance of Weingarten functions  $\varphi$ ". 18

Studying problems in the theory of analytical functions A. P. Psheborsky writes and in 1908 successfully defends Doctor's thesis "Researches on the Theory of Functions, Sum on the Prolongation of Tailor series". And in 1913 in "Reports of Kharkiv Society for Mathematics" the scientist's article "On Some Polynomials the Least Deviating from Zero in the Assigned Interval" was published in which he investigates problems connected with the building of polynomials of the nearest approximation.

The history of development of theory of the nearest approximation of functions with polynomials and the analysis of A.P. Psheborsky's mentioned work can be found in the article by O.M. Buts.<sup>19</sup>

During the business trip to Gettingen University A.P. Psheborsky gets acquainted with problems and methodology of teaching calculus of variations. Investigating these problems it is only in 1915 when he publishes a small "Note on Calculus of Variations" in the *Reports of Kharkiv Society for Mathematics*, which marks the new direction of his scientific researches. More thoroughly and comprehensively this topic is covered in article "Sum on Extremum of Integral  $\int f(x,y,y')dx$  with Variable Final Points" which was written in Warsaw and sent to KhSM to be published in *Reports of Kharkiv Society for Mathematics*.

The work mentioned above was the first one in a number of works devoted to calculus of variations and the methods for calculus of variations which found their wide application in the theoretical mechanics were developed by A.P. Psheborsky later.

As we can see, A.P. Psheborsky was and all-roundly gifted person, a brilliant scientist and a talented mathematician. His contribution into the development of activity and extension of KhSM links can hardly be overestimated. Owing to his painstaking work the detailed information on the appearance and first years of KhSM activity have preserved up till the present moment.<sup>20</sup>

Membership and work in KhSM, communication with Kharkiv mathematicians inspired A. P. Psheborsky for researches in various fields of scientific knowledge. The support of his friends among whom we see V.A. Steklov for many years was the inspiration and strength to stand all the difficulties of life. But the ruin of the University system in Ukraine which was accompanied by persecution of the staff of old professors depressed Psheborsky. And his correspondence testified to that. As a result he was forced to move to Poland in 1922. In Poland he headed the Department of Theoretical Mechanics of Warsaw University, on the basis of which he established the Institute of Theoretical Mechanics later on.

<sup>&</sup>lt;sup>18</sup> See Psheborsky., "To the issue of infinitesimal deformations of surface", *Reports of Kharkiv Society for Mathematics*, Series 2 (1902), V. Vii. – p. 30.

<sup>&</sup>lt;sup>19</sup> For more details, see Buts O.M. A., "B. P. Psheborsky and his contribution into the development of theory of nearest approximation", *Milestones of the Development of Mathematical Natural Science: Collection of Scientific Works* (K., 1994), p. 44–58.

<sup>&</sup>lt;sup>20</sup> See Marchevsky M.N., "Kharkiv Society for Mathematics over the first 75 years of its existence (1879–1954)", *Historical and Mathematical Researches*, Issue IX (M., 1956), p. 613–666.

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Calculus of variations and Theoretical Mechanics in particular became the main lines of Psheborsky's scientific activity in Poland. This talented scientist was a member of Warsaw Academy of Technical Sciences and of many other scientific societies: Polish Physical one, Moscow, Kharkiv, Kazan, Kiiv Mathematical and Berlin Mathematical Technical society. I hope that my research will open new details of Psheborsky's life which could be of interest to both Polish researches of Mathematics History and those who research the development of Mathematics Societies in Europe.