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A 355th Anniversary Tribute to the Eminent Russian Pedagogue L.F. Magnitsky (1669–1739): A Biography of His Life and Work

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Abstract

This work celebrates the 355th anniversary of the birth of the eminent Russian pedagogue Leonty Filippovich Magnitsky (1669–1739).

The principal sources for this work are biographical studies focusing on the scholar's life and work. In terms of methodology, use was made of content analysis, the biographical method, the historical-systems method, and synthesis.

The study's findings revealed that this preeminent Russian pedagogue and educationist owed his fame largely to his book 'Arithmetic' (to use the shortened title), Russia's first formal mathematics textbook. An expert in the methodology of teaching mathematics, a highly erudite specialist, and a solid philologist, L.F. Magnitsky devoted a significant portion of his career to teaching at the School of Mathematics and Navigation in Moscow, which he headed up in the latter years of his life.

Descended from an unprivileged social background, L.F. Magnitsky achieved everything in life through his own talent and hard work. Not only did his innate passion for learning and science earn him wealth and honors but it also garnered him his catchy surname. The scholar was expertly competent in mathematics, astronomy, navigation, and geodesy and had a command of several languages – Latin, Greek, Dutch, German, French, and Italian.

Keywords: Leonty Filippovich Magnitsky, period 1669–1739, biography, 'Arithmetic', pedagogy, Russian pedagogy, mathematics, Russian culture.

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1. Introduction

Leonty Filippovich Magnitsky (1669–1739) was one of Russia's first teacher-educationists, who rose to fame as the creator of the nation's first mathematics textbook. He was well-liked by Peter the Great – above all, owing to his erudition and ability to self-educate. L.F. Magnitsky's career path vividly reflected the approach to social policy pursued by the Czar, which placed a premium on people achieving recognition, career success, and financial prosperity based not on their social background but on their talents and service to the country and their hard work, integrity, and diligence.

The present work is dedicated to the 355th anniversary of the scholar's birth.

2. Materials and methods

The principal sources for this work are biographical studies focusing on the scholar's life and work during the reign of Peter the Great. These include the prerevolutionary monograph by D.D. Galanin, 'Magnitsky and His Arithmetic' (Galanin, 1914), the biographical collection by A.P. Schickman, 'Prominent Figures in National History: A Biographical Reference Book' (Shikman, 1997), the article 'Magnitsky, Leonty Filippovich' in *The Brockhaus and Efron Encyclopedic Dictionary* (Brokgauz-Efron, 1907), the article by T.N. Kameneva, 'Revisiting the History of the Publication of Magnitsky's 'Arithmetic'', which is part of a collection of scholarly articles concerned with history (Kameneva, 1984), the monograph by V.V. Zyablitsky and K.A. Balashova, 'Leonty Filippovich Magnitsky (300 Years)', dedicated to the 300th anniversary of his birth (Zyablitskii, Balashova, 1969), and the articles by I.K. Andronov, 'Leonty Filippovich Magnitsky, Russian Youth's First Mathematics Guru' (Andronov, 1969), and B.V. Gnedenko and I.B. Pogrebyssky, 'Leonty Magnitsky and His 'Arithmetic'' (Gnedenko, Pogrebysskii, 1969), both published in the journal *Matematika v Shkole*.

In addition, use was made of articles that are not devoted to Magnitsky specifically but analyze certain historical aspects and mention the scholar in passing. These include the articles by O.A. Savvina, 'The Spiritual-Moral Potential of the First Russian Mathematics Textbook' (Savvina, 2016), K.Ye. Kozlova, 'Education and Science Under Peter the Great' (Kozlova, 2022), and O.V. Golovina, 'Revisiting the History of Higher Mathematical Education in Russia' (Golovina, 2015). Special mention must also be made of 'A History of Russia From the Earliest Times', written by the eminent Russian historian S.M. Solov'yev (Solov'ev, 1879).

In terms of methodology, use was made of content analysis, the biographical method, the historical-systems method, and synthesis.

3. Discussion

There are relatively very few works that focus on L.F. Magnitsky specifically. The scholar's biography was researched with particular interest by prerevolutionary authors. Of particular note is the monograph by D.D. Galanin, 'Magnitsky and His Arithmetic' (Galanin, 1914), which provides an in-depth insight into the scholar's life, following it from his young years to the time he became nationally famous. It describes his career, exploring the key aspects of his teaching at the School of Mathematics and Navigation, tracing the history of the creation of his chief opus, 'Arithmetic, That Is to Say the Science of Numerals, Translated Into Slavic From Various Dialects and Collected Into One, and Divided Into Two Volumes', and discussing the actual book.

Also, there is some fairly extensive material on the scholar in the article 'Magnitsky, Leonty Filippovich' in *The Brockhaus and Efron Encyclopedic Dictionary* (Brokgauz-Efron, 1907), which provides a fairly detailed account of his life and career and touches upon the history of the creation of his 'Arithmetic', which is covered in a separate article in the encyclopedic dictionary. Many of the modern-day biographical articles on L.F. Magnitsky rely, to one degree or another, on the information from that encyclopedic dictionary.

Among the prerevolutionary works mentioning L.F. Magnitsky, of particular note is the fundamental opus by the eminent Russian historian S.M. Solov'yev, 'A History of Russia From the Earliest Times' (Solov'ev, 1879). Its Volume 15, which explores the reforms of Peter the Great and early-18th-century Russia as a whole, devotes some attention to the Czar's educational transformations as well – that is where L.F. Magnitsky is brought into focus.

A major contribution to the study of L.F. Magnitsky's life and work is the one made by Soviet historian-biographers. The Soviet pedagogical journal *Matematika v Shkole* carried several articles devoted to that. Specifically, I.K. Andronov focuses in the article 'Leonty Filippovich Magnitsky,

Russian Youth's First Mathematics Guru' (Andronov, 1969) on his biography's teaching aspect, dwelling upon the scholar's pedagogical activity at the School of Mathematics and Navigation. B.V. Gnedenko and I.B. Pogrebyssky, on the contrary, explore in the article 'Leonty Magnitsky and His 'Arithmetic'' L.F. Magnitsky's creative output – namely, his work 'Arithmetic' (Gnedenko, Pogrebysskii, 1969). It is worth noting that the above-mentioned articles are practically devoid of the ideological component of socialist propaganda and give high appraisal to the pedagogue for his role in the development of education in prerevolutionary Russia. Also worthy of mention is the article by T.N. Kameneva, 'Revisiting the History of the Publication of Magnitsky's 'Arithmetic'', published in the 48th issue of the collection of scholarly articles on pedagogy *Issledovaniya i Materialy* (Kameneva, 1984), which explores the process of creation of Russia's first formal mathematics textbook.

'Leonty Filippovich Magnitsky (300 Years)' by V.V. Zyablitsky and K.A. Balashova represents an insightful biographical study (Zyablitskii, Balashova, 1969). A tribute to the 300th anniversary of L.F. Magnitsky's birth, this fundamental study was published by the Kalinin City Branch of the All-Russian Society for the Protection of Monuments of History and Culture and explores the scholar's youth, the origination and evolution of his pedagogical and educational ideas, the process of creation of 'Arithmetic', and much more. Unfortunately, the monograph is not devoid of the ideological component. Nevertheless, it is a highly valuable source from a historical standpoint.

No modern-day fundamental biographical works on L.F. Magnitsky have been found, with only a few scholarly articles on him currently available (compared with publications geared to non-specialist readers that are available on the Internet). Of particular note is the monograph by A.P. Schickman, 'Prominent Figures in National History: A Biographical Reference Book' (Shikman, 1997), which analyzes the biographies of prominent figures in Russian history, including L.F. Magnitsky.

The article by O.A. Savvina explores the spiritual-moral potential of 'Arithmetic' (Savvina, 2016). The one by K.Ye. Kozlova, which analyzes education and science under Peter the Great, devotes some attention to the work of L.F. Magnitsky as well (Kozlova, 2022). O.V. Golovina mentions the scholar in her paper, focused on the history and evolution of higher mathematical education in Russia, presented at the 34th International Scholarly Seminar for Mathematics and Computer Science Teachers of Universities and Pedagogical Colleges (held in 2015 in Kaluga, Russia) (Golovina, 2015).

4. Results

L.F. Magnitsky's origins are shrouded in discrepancy, a fact pointed out by S.M. Solov'yev back in the 19th century. Some believe he was descended from peasants – and thus engaged in self-education while having to partake in agricultural chores and hunting. Others maintain he was descended from clergy and spent most of his childhood at the Nilov Monastery, where he was exposed to ecclesiastical literature.

Whatever the case, L.F. Magnitsky is known to have embarked on his career ladder via the ecclesiastical domain – a fairly literate person, he began service at the Joseph Volokolamsk Monastery (Malykh, Danilova, 2010: 85), and later served at the Simonov Monastery, preparing to be a priest.

The ecclesiastical leadership eventually sent the talented young man to the Slavic-Greek-Latin Academy (Malykh, Danilova, 2010: 85-86). Accustomed to gaining knowledge independently and driven by a predilection for mathematics, he was a zealous student and continued to self-educate.

According to his biographers, when L.F. Magnitsky met Peter the Great, the young monarch was so impressed with his talents (Baranskaya i dr., 2016: 125) that he gave him the surname Magnitsky for his ability to draw people to himself as a person of remarkable natural intellectual capacity with a penchant for self-education – drawing a parallel to the ability of magnets to attract iron.

In the 1690s, L.F. Magnitsky moved to Moscow, where he would make a living tutoring privately and continue to self-educate. In 1701, Peter the Great set up the School of Mathematics and Navigation, where L.F. Magnitsky was appointed as a full-time teacher – a step prompted by the desire to have a committed and well-qualified teaching staff at an institution of higher learning.

L.F. Magnitsky had worked as a mathematics teacher's assistant and later as a mathematics teacher himself, when he was approached with a request to create a textbook on mathematics and navigation (Malykh, Danilova, 2010: 87). The result was the book 'Arithmetic, That Is to Say the Science of Numerals, Translated Into Slavic From Various Dialects and Collected Into One, and

Divided Into Two Volumes', also known in short as 'Magnitsky's Arithmetic' (Malykh, Danilova, 2010: 92), which came out in 1703 and was published with a circulation of 2,400, an enormous figure for those times (Baranskaya i dr., 2016: 125). The first formal mathematics textbook in Russian history, the book was used as the main textbook for students of mathematical sciences up until the mid-18th century. Written in lively and easy-to-understand language, it, nevertheless, contained cutting-edge methodology, which the author largely engaged intuitively as someone highly erudite with a wide spectrum of knowledge (Ausheva, 2013: 112).

L.F. Magnitsky's accomplishments did not go unnoticed – and the following year Peter the Great ennobled him, granted him several villages in areas neighboring Moscow, and provided him with a personal home in the former capital. (Although Saint Petersburg became the country's new capital, Moscow would still remain at the heart of high-level political and economic decision-making in Russia.)

After setting up in Saint Petersburg in 1715 the Naval Academy, an industry-specific educational institution that was higher than the School of Navigation, the Czar kept Magnitsky in the school, where he would work as a senior lecturer and academic director (Malykh, Danilova, 2010: 90). In 1732, Anna Ioannovna would put him in charge of the school, and L.F. Magnitsky would remain in that position until his death in 1739.

L.F. Magnitsky was not a fan of leaving Moscow (not much of a traveler in general, unlike his patron, Peter the Great), focusing on his self-education instead (Kondrat'eva, Kondrat'eva, 2019). He had a working command of several languages: Greek, Latin, French (these three were taught at the Slavic-Greek-Latin Academy), Italian, German, and Dutch (these three he mastered on his own). He also mastered all by himself the following sciences: mathematics, navigation, astronomy, and geodesy. By way of translation from foreign languages, L.F. Magnitsky introduced into general circulation in Russia the following terms: multiplier, divisor, product, extraction of a root, million, billion, trillion, quadrillion, denominator, and fraction. Besides 'Arithmetic', L.F. Magnitsky wrote a few other scholarly works, including 'Tables of Logarithms and Sines, Tangents and Secants' (1703), 'Drawings and Designs for the Development Plan for an Earthwork in the City of Velikiye Luki' (1704), and 'Horizontal Tables for the Northern and Southern Latitudes' (1722).

The scholar is known to have been actively engaged in translating books into Russian.

5. Conclusion

This preeminent Russian pedagogue and educationist owed his fame largely to his book 'Arithmetic', Russia's first formal mathematics textbook.

An expert in the methodology of teaching mathematics, a highly erudite specialist, and a solid philologist, L.F. Magnitsky devoted a significant portion of his career to teaching at the School of Mathematics and Navigation in Moscow, which he headed up in the latter years of his life.

Descended from an unprivileged social background, L.F. Magnitsky achieved everything in life through his own talent and hard work. Not only did his innate passion for learning and science earn him wealth and honors but it also garnered him his catchy surname. The scholar was expertly competent in mathematics, astronomy, navigation, and geodesy and had a command of several languages – Latin, Greek, Dutch, German, French, and Italian.

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