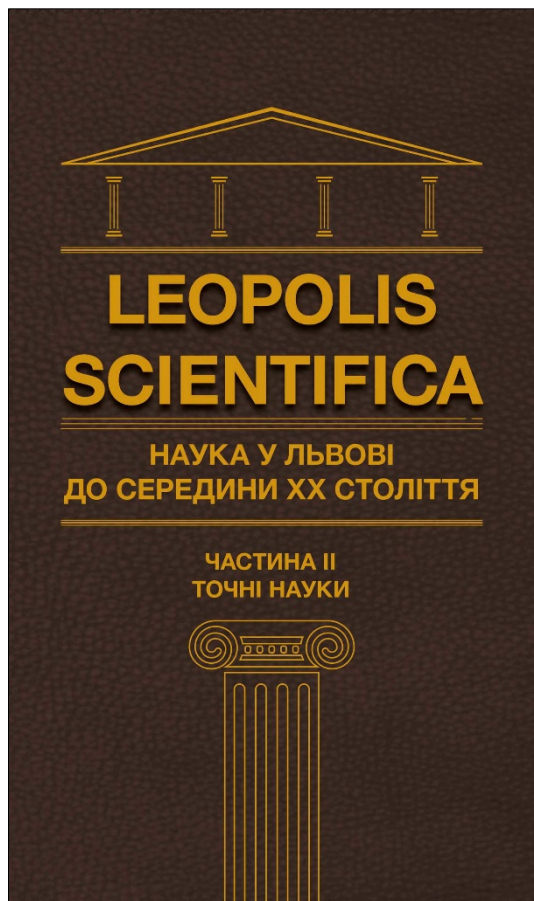


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Leopolis Scientifica. Science in Lviv till the Middle of XX Century. Two Volumes, edited by Oleh Petruk. (Lviv, Artos, 2020). Volume 1: pp. 336. ISBN 978-617-642-492-5 (hardback); Volume 2: pp. 412. ISBN 978-617-642-493-2 (hardback). 200 × 290 mm.

The city of Leopolis (other spellings are Lemberg in German, Lwów in Polish and Lviv in Ukrainian) was founded in the thirteenth century by the Ukrainian ruler Daniel of Galicia (Danylo Halytskyi), the King of Ruthenia. The city and the region were taken by the Polish king in the next century. Galicia became a part of the Habsburg Monarchy in



1772, and of Poland after the World War I. At present, the eastern part of Galicia including Lviv is in Ukraine, and the western part is in Poland. The city is located at an important cross-roads; it was always a multinational city, with dominance of Catholic and Orthodox Christians, as well as Jews. The regions around the city were dominated by Ukrainians.

Lviv University was founded in 1661 when the Polish King John II Casimir gave the title of University to the Jesuit College that had been established in 1608. Thus, the middle of the seventeenth century is assumed as the beginning of science in Lviv. The two-volume book *Leopolis Scientifica* is devoted to an analysis of history of science in the city from that time up till World War II. The edition is a collection of papers written by prominent scholars. The first volume is devoted to history of the state scientific centers, the University and Polytechnic. At the same time, considerable attention is paid to activities of the underground Ukrainian University and Ukrainian scientific societies. (These non-Governmental institutions arose as a result of efforts by Ukrainians in the late nineteenth and early twentieth centuries to have an opportunity for the highest education; this was almost impossible at that time.)

The second volume deals with development of Mathematics, Physics and Astronomy. The book is of the large format, with more than 800 illustrations in both volumes. This review is devoted to the second volume. Its table of contents is as follows: Mathematics in Lviv (Yaroslav Prytula, pp. 3–182), Ukrainian Mathematical Trinity (Bohdan Ptashnyk, pp. 183–218), Physics in Lviv educational institutions since seventeenth century (Andriy Rovenchak, pp. 219–286), Physics and Physicists in Shevchenko Scientific Society in Lviv (Yurij Holovatch, Yulian Honchar, Marjana Krasnytska, pp. 287–338), Astronomical Observatory in Lviv University (Stepan Apunevych, Bohdan Novosyadlyj, pp. 339–356), Astronomy in Lviv Polytechnic (Stepan Savchuk, Liubov Yankiv-Vitkovska, pp. 357–380), Astronomy in Ukrainian Scientific Societies (Oleh Petruk, pp.381–406).

As one can see, three papers in this volume are devoted to astronomy. The first explores evidence about scientific astronomical observations performed in Lviv, and is related to the year 1764 when the priest Dominik Lysogorski studied a solar eclipse. Astronomical education at that time was already at a high level as one can see from the programs of public exams for students of the two-years mathematical courses in the Lviv Jesuit College during 1745–1749. The specialized institution, Astronomical Observatory, was opened in Lviv on 15 May 1771, i.e. 250 years ago. Therefore, it is amongst the oldest observatories in Europe. It was created by the efforts and funding of the Jesuits, in particular Sebastian Sierakowski, who prepared the project of the tower (Sierakowski was later the Rector of Jagiellonian University in Cracow).

Lviv Observatory hosted in the last decades of eighteenth century a number of famous scientists, including Josef Lies-ganig and Franz von Zach. Actually, the paper by Apunevych and Novosyadlyj introduces the reader to the history of astronomical education and research at Lviv University. During the twentieth century, the Directors of the Observatory were Marcin Ernst (the most notable writer of popular astronomical books in Poland) and Eugeniusz Rybka (after the World War II, he was a Director of astronomical observatories in Cracow and Wroclaw, and in 1952 was elected as the Vice-president of International Astronomical Union).

One of the prominent achievements in astronomy at Lviv University involved Lies-ganig and his collaborators, who created the first topographic map of Galicia in 1790; then Marian Smoluchowski applied his kinetic theory to the atmospheres of planets (1900 and 1901); and Samuil Kaplan discovered the unstable circular orbits in the Schwarzschild field (1949), created a theory of white dwarf cooling (1950), and contributed to the theory of the interstellar medium. The first vertical solar telescope with a double-reflection spectrograph in eastern Europe was established at Lviv University Observatory.

In the next study, Savchuk and Yankiv-Vitkovska describe the second Observatory in Lviv, which was built in the 1870s. This institution was operated mostly for the needs of geodesy and education. Three prominent scientists need to be mentioned in relation to this Observatory: Dominik Zbrożek, Vaclav Laska and Lucjan Grabowski.

Ukrainians in Lviv had very limited access to high schools. Even those who obtained PhD degrees, as a rule, could only work in gymnasiums. Therefore, the Shevchenko Scientific Society (founded in 1873), in which one Section was devoted to Natural Sciences, Mathematics and Medicine, played an important role. The Chief of this Section for a few decades was Volodymyr Levytsky. He and other members of this Section published scientific papers in the fields of mathematics, physics and astronomy. They also actively promoted science (including astronomy) among Ukrainians by publishing articles and giving public lectures.

Essays in the two-volume set are thorough, with many facts found and published for the first time. Most of the authors have made significant achievements in the history of various branches of science. Their studies are based on a careful study of the archival sources and propose a deep understanding of

the complex processes that accompany the progress of science. The authors create a systematic panoramic picture, which is extremely interesting to read, not only for scholars but for anyone who wants to learn about the history of culture in this part of Eastern Europe. Although the focus of the book is on the various stages of research and education in Lviv, it also objectively highlights important international and state-building processes.

Special attention should be paid to the illustrations, which include many unique photographs and copies of documents. The authors went to considerable effort to find them, many of which are published for the first time. Each of the papers in this book contains a detailed bibliography that will be useful for future researchers. Without doubt, this large-scale project will be greatly appreciated by the scientific community.

This book, in the Ukrainian language, was published under the auspices of the Institute for Applied Problems in Mechanics and Mathematics of the Ukrainian National Academy of Sciences. The papers were collected and scientifically edited by Oleh Petruk. An elegant edition of the book was prepared and published by the Artos publishing house. The publication appeared thanks to the good will of the sponsors, who are co-founders of the IT company SoftServe, which is now the largest employer of talented young people in Lviv with a good mathematics and physics education.

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***The Light Ages: The Surprising Story of Medieval Science*, by Seb Falk (New York, W.W. Norton and Company, 2020) Pp. 391, ISBN 9781324002932 (hardcover), 160 × 230 mm. US \$30.00.**

The Light Ages: The Surprising Story of Medieval Science is by Cambridge historian and lecturer Seb Falk who specializes in the history of astronomy, navigation and mathematics from their early development through the Middle Ages into the contemporary period. Falk puts to rest the obsolete and long-discredited notion that referred to the medieval period as 'The Dark Ages' and illuminates the advancements in scientific knowledge as well as the spirit of experimentation that actually existed. To illustrate his survey of astronomical theories and advances, Falk researched