

ABSTRACTS
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President's Welcome



Welcome to the 29th Baltic Conference on the History of Science. This conference carries on the tradition of rotating conferences in the Baltic countries (now including Finland) which was begun in the summer of 1958. This year it is part of Vilnius University's celebration of its 440th anniversary, and thus the theme *Science and the University*. The lectures in our plenary session will explore in greater depth the founding during the interwar period of the major national universities in the Baltic States and Finland. The presentations in our general sessions are divided into five sections: medicine, biological sciences, physical sciences, science and technology, and philosophy. In addition to presenters from the Baltic States and Finland, there will be representatives from Poland, Russia, Ukraine and the United States.

I would like to thank the members of the organizing and local arrangements committees for their help, and especially Birutė Railienė, the secretary-treasurer of the Lithuanian Association of the History and Philosophy of Science, and Barbara Omelčenko, the Vilnius University Museum administrator. We are very grateful for support from Vilnius University which has provided the facilities for our conference and the very generous financial contribution from Thermo Fisher Scientific Baltics.

The organization of this conference in Lithuania began under the very able leadership of Prof. Juozapas Algimantas Krikštopaitis, who was the heart and soul and long-time head of the Lithuanian Association of the History and Philosophy of Science. Unfortunately, he died last year and passed the baton onto me. An *In Memoriam* for Prof. Krikštopaitis can be found in the front of the abstract booklet. In the name of us all, I would like to dedicate this conference in his memory.

Dr. Ramūnas Kondratas

President, Baltic Association of the History and Philosophy of Science

President, Lithuanian Association of the History and Philosophy of Science

IN MEMORIAM



Photo by G. Zemickas

The Lithuanian chemist, historian of science and philosopher, Professor Juozas Algimantas Krikštopaitis, died in Vilnius on 10 November 2018. He was born in Kaunas on 13 March 1931. Krikštopaitis began his scientific career at the Semiconductor Physics Institute in Vilnius, where he worked from 1965–1978 doing important research on the chemistry of semiconductors.

In the early 1970s, he became interested in the history and philosophy of science and began to collaborate with the Vilnius University professor of astronomy and historian of Lithuanian science Paulius Slavėnas as well as other well-known researchers in that field. From 1978, he worked at the Lithuanian Science Academy's Institute of Philosophy, Sociology and Law, which reorganized and changed its name in 2011 to the Lithuanian Culture Research Institute.

Krikštopaitis was a charter member of the Senate (1989–1998) of the re-established Vytautas Magnus University in Kaunas. He taught at Vytautas Magnus University, the Kaunas University of Technology and the Lithuanian University of Educational Sciences in Vilnius. He lectured and gave talks at universities and other academic institutions in Europe, Asia, and the Americas. After 1990, he was able to publish his work in the West – the United States, Italy, Finland, Sweden and Germany – and to participate in international congresses and conferences.

Krikštopaitis was head of the Lithuanian Association of the History and Philosophy of Science from 1991, and on a rotating basis was elected chair or vice-chair of the Baltic Association of the History and Philosophy of Science. He organized many national and international scholarly conferences.

Krikštopaitis was the author of about twenty books in the fields of the history of science, philosophy, and culture studies, as well as of over 500 scientific, scholarly, and popular articles and reviews. In one of his latest books, *Išmintis, atsiverianti pažinimo kelyje* [Wisdom gained on the path to knowledge; Vilnius, 2013], he summarized his research and some of the greatest achievements in world science, positively evaluating scientific knowledge and its role in the development of civilization.

Juozas Algimantas Krikštopaitis was a public man who fostered Lithuanian culture, actively participated in cultural events and programs, wrote a great deal for the cultural journal *Naujoji Romuva* and other cultural publications, and engaged with both the Lithuanian cultural elite and ordinary people in the regions. His public appearances and lectures were met with heartfelt gratitude and appreciation by his colleagues and his listeners, who admired his very sharp mind and depth of knowledge.

Four Centuries of Science at Vilnius University

RAMŪNAS KONDRATAS

Vilnius University

Science played an important role in all of the different historical periods of Vilnius University: mathematics, physics and astronomy at the Jesuit Vilnius University (1579–1773); the natural sciences and medicine during the Age of Enlightenment at the Main School of the Grand Duchy of Lithuania (1773–1803) and at the Imperial Vilnius University (1803–1832); astronomy, physics, mathematics and medicine at the Polish Stephen Bathory University (1919–1939); mathematics, physics and medicine at the Soviet-era Vilnius University; and physics, medicine and the life sciences today at Vilnius University (1990 –). Many well-known scientists and physicians worked and taught at the University, and made significant contributions to the development of science, medicine and technology. All had ties with other European universities. This overview will highlight the most important personalities and their contributions.

The Establishment and Development of the University of Lithuania (Vytautas Magnus) in Kaunas 1922–1940

ASTA LIGNUGARIENĖ

Lithuanian University of the Health Sciences

On 16 February 1922 the University of Lithuania was opened. The President of the Republic of Lithuania Aleksandras Stulginskis appointed the deans of the faculties and the first five members of the teaching staff for each faculty. In the beginning, the University had five faculties: Theology and Philosophy, Social Sciences, Mathematics and Natural Sciences, Medicine and Engineering. The University of Lithuania was the only school of higher education in Lithuania during the interwar period.

The foundation for the establishment of a university was laid in 1920 with the establishment in Kaunas of a Higher Courses of Study. The infrastructure and inventory of this program were transferred to the newly established University of Lithuania. Prof. Jonas Šimkus (1873–1944) was appointed the first rector of the University. The Dean's Council worked so quickly and efficiently that they were able to process the admission of students and begin the first semester on 6 March 1922. The number of students admitted was 493. According to the University Statute published on the 22nd of April, the Faculty of Social Sciences was divided into two faculties: Humanities and Law. In 1925, the Protestant Theology Faculty was established.

The faculty councils continually invited or selected through competition new faculty members. The many foreign scientists and scholars working at the University created a liberal and multicultural atmosphere. Beside their scientific and educational work, the teaching staff had to organize laboratories, libraries, clinics, cabinets and so forth.

Several buildings in Kaunas were assigned to the University but they were insufficient. In the interwar period, new modern buildings for the Institute of Physics and Chemistry, the Faculty of Medicine, and the university clinics were built.

In 1930, a new statute of the University was passed, which changed the University's name to the Vytautas Magnus University in honor of the Grand Duke Vytautas the Great whose 500th death anniversary was celebrated that year. The University's broad autonomy was somewhat curtailed and greater powers were granted to the minister of education and the president of Lithuania. The number of departments and units also decreased.

During the first Soviet occupation in 1940, the Faculties of Humanities and Law and of Mathematics and Natural Sciences were transferred to Vilnius University, and the University was named the University of Kaunas. The Soviet government closed down the University in 1950.

Plenary lecture

The Formative Years of Latvian National Higher Education: Management, Research and Studies at the University of Latvia in the 1920s – 1930s

ANDRIS ŠNĒ

University of Latvia

The first Latvian national higher educational establishment, the University of Latvia, was founded in Riga in 1919 and was officially opened on September 28 (the Academy of Art and the Latvian State Conservatory were also established that year). But the beginnings of higher education and research in science and technology in the territory of present-day Latvia go back to the Riga Polytechnical Institute (the Riga Polytechnicum) which was established as a private high school in 1862. It was the first polytechnic institute in Imperial Russia and some of its researchers in chemistry, mathematics and engineering achieved international recognition. The working languages at the institute were German and Russian, and only a limited number of Latvian students were enrolled there.

The earliest ideas about a Latvian national university, which would include all research subjects and where studies would be conducted in Latvian, were formulated during the First World War among the organizations of Latvian refugees in Moscow. Their realization became possible with the establishment of an independent Latvian state in 1918. Preparations for the founding of a national higher education establishment took place throughout 1919. They were made more difficult by the battles in the Latvian War of Independence. There was an unsuccessful attempt to revive the Polytechnical Institute as the Baltic Technical Higher School and another to found a Soviet Latvian university in the first half of 1919.

The infrastructure and material foundations for the newly formed University of Latvia were taken over from the Polytechnical Institute, which had been evacuated to Moscow in 1915. The Organizing Committee of the university hoped that the world renowned chemist, Professor Paul Walden (1863–1957), would become the first rector, but he preferred to move to Germany. The University of Latvia was initially named the Higher School of Latvia. It received its current name in 1923 when its constitution was approved. The main persons leading the organizational process and activities of the university during its early years were the architect Eižens Laube and the agronomist Paulis Lejiņš. The academic staff of the university included several Baltic German researchers.

The University of Latvia was the main institution of higher education and research in the sciences and the humanities in Latvia until the Soviet occupation in 1940. In 1921, the first volume of the *Scientific Proceedings of the University of Latvia* was published, thus starting a long-lasting tradition of research publications of the university. Among the key issues that were heavily discussed in the 1920s and the 1930s were: financing of research, requirements for academic positions, language of research publications and study materials, international contacts and recognition, and so forth. Studies and research went side by side. During the interwar period, most leading Latvian scholars and scientists were somehow connected to the University of Latvia.

Plenary lecture

To be National or International: That is the Question. One Hundred Years of the Estonian University in Tartu

ERKI TAMMIKSAAAR and KEN KALLING

University of Tartu

The University of Tartu which was established in 1632 operated as a Swedish university until the 19th century when it became a university of the Russian Empire. After the establishment of an independent Estonian state (1918), the aim of the university which was reopened in Tartu in 1919 was to start educating the nationally minded Estonian intellectual and scientific community, that is, to serve the Estonian state. Nevertheless, foreign lecturers had to be employed as there were only a few Estonians with a doctoral degree at that time. During the period of Estonia's independence (until 1940), efforts were made both in the university as well as on the political level to guarantee the prevalence of Estonian as the study language and the language of scientific research. The preservation of Estonian at the University of Tartu was prioritized also in the times of the German (1941–1944) and the Soviet occupations (1940–1991).

During the 1920s, priority was given to research in the humanities: Estonian language, literature, history and ethnography. This differed from the 19th century when the natural sciences prospered and prevailed. In the 1950s, the focus shifted back to the natural sciences, which was a priority for Soviet research. The following twenty years saw the University of Tartu become one of the leading universities in the Soviet Union with an increasing level of international cooperation with universities and research institutions both in the USSR and Western countries.

The idea of the University of Tartu as an Estonia-centered university prioritizing research on topics connected with Estonia and Estoni-

ans regained some popularity after the restoration of Estonia's independence in 1991. In reality, the internationally proven research grant application system which was introduced in Estonia in the 1990s lead the University of Tartu to further internationalization. The turbulent development of science over the last three decades proves this was the right choice because the quality of education in an Estonian-language university can only be based on world-class research.



Convergence as a Sign of Progress in Science and Philosophy

In this paper, we will discuss the question of progress in science as compared to progress in philosophy. Since philosophy is often accused of not making progress, our aim is to suggest an alternative to this accusation by analyzing the different ways of understanding progress. We will do this mostly from metaphilosophical and metahistorical perspectives.

By opposing David Chalmers' view that we (philosophers) rarely find any convergence around a certain proposition, therefore we cannot agree with the statements regarding truth, we will argue that it is misleading to evaluate convergence as the main sign of progress in philosophy. Consensus is a legitimate requirement in science when trying to evaluate scientific progress regarding a certain topic which requires verification, and its results are usually totally dependent on this verification. Philosophy, on the other hand, does not require consensual verification in the same way that science does. This leads to our challenging the accusation that there is no progress in philosophy by contrasting progress in science to progress in philosophy, and arguing for the position that progress in philosophy is driven by 'dis-sensus' rather than consensus.

The Scientific Work and Private Practice of Professor Pāvils Mucenieks

Early in 2018, the Pauls Stradiņš Museum of the History of Medicine received the personal effects, documents and photographs of Professor Pāvils Mucenieks (1891–1940) – some 200 items in all. Mucenieks was an important medical person in Latvia because of the scholarly research that he conducted in various areas of medicine. He was the first in Latvia to perform a thoracoplasty (1928) and a lung lobectomy (1932). Mucenieks was a member of the Medical Faculty at the University of Latvia from 1921 until 1940. In 1940, he was elected to a professorship and became the director of the 3rd Surgical Diseases Clinic. Mucenieks was also the senior physician at the 2nd Surgery Department of the 1st Rīga Hospital from 1928 until 1940. He also had a private practice. The Pauls Stradiņš Museum of the History of Medicine used to have only six items related to Mucenieks, and now the new collection includes 110 documents, including 12 scholarly papers, 29 personal documents, 18 patient records, nine lists of operations, his doctoral dissertation, five patient registers from his private practice, and 36 other documents. Among the most important ones are drafts of scholarly papers, finished publications, and Mucenieks's dissertation with appendices. He began to receive patients on 3 January 1924, and the last ones visited his private practice on 6 May 1940. The last patient was examined one day before Professor Mucenieks's death. During his career, he was visited by 54,388 patients.

These new documents substantially expand the museum's collections and offer a much more thorough understanding of one of Latvia's most important surgeons during the interwar period. His professionalism was appreciated by patients, clients and colleagues alike.

Jurgis Elisonas (1889–1946): Fosterer of Lithuanian Natural and Educational Sciences and Culture

This year we celebrate the 130th birth anniversary of Jurgis Elisonas (1889–1946), a prominent teacher, zoologist, ethnographer and public figure in Lithuania.

In 1919–1944, Elisonas worked as a teacher at the Panevėžys and Kėdainiai gymnasiums, delivered lectures at the Panevėžys Teachers Seminary and Academy of Agriculture, lectured at the University of Lithuania, and prepared textbooks. His main textbooks include: *Zoology of Vertebrate Animals* (1920), *Textbook of Zoology for Vocational Schools* (1925), *Mammals of Our Country* (3 parts, 1932), *Dictionary of Systematic Zoology* (1920), *Zoology for Secondary Schools* (1938) and others (all in Lithuanian). In 1925, Elisonas was awarded the academic title of Docent (Associate Professor) at the Lithuanian University in Kaunas.

Elisonas wrote over 200 articles on zoology and biology (including ornithology, entomology and parasitology). He collected bibliographical materials on forestry, bee-keeping, veterinary, fishery, and animal folklore. Elisonas left a large collection of zoological manuscripts, such as dictionaries of anatomical terms, zoology, vertebrate animals and comparative anatomy and fishing (all in Lithuanian), which are now stored at the Wroblewski Library of the Lithuanian Academy of Sciences (F–95).

Elisonas was born on 4 August 1889 in Aukštadvaris, presently Kupiškis district. His family history is interesting. His grandfather was of Swedish descent and lived in tsarist Russia. His father was born in Latvia, then moved to Lithuania and married there. Elisonas was a big patriot, undoubtedly the influence of his mother Elžbieta Vyšniauskaitė, whose grandfather Mykolas Vyšniauskas participated in the 1863 Up-

rising of Poland and Lithuania against Russian rule. After graduating from the Saint Petersburg University in 1915–1917, Elisonas served in the tsarist army. In 1918–1919, he volunteered for the Lithuanian armed forces. Elisonas took an active part in the Lithuanian national movement. He received a number of awards.

In 1944, he attempted to escape from the USSR by a small boat to Sweden, but was caught by the Germans and taken into custody in Riga (Latvia) prison. After his release, he moved to Germany and died in Wiesbaden on 4 January 1946. He is buried there.

Jurgis Elisonas's contributions to science have not yet been fully assessed.

Stalinist Vision of Science at a Polish University: Theory and Reality

The transformation of the old bourgeois order into a classless society according to Marx was one of main goals of the communists in the Soviet Union and their satellite states in Eastern Europe. This transformation was not only to affect the economy and industry but all areas of social life including science and the universities.

In Poland, the Polish Workers' Party (after 1948, the Polish United Workers' Party) seized power in 1947, and began a complex reform program in higher education. This program was a mix of the Soviet model, Polish tradition and new concepts resulting from the current needs of the state. The communists advocated a utilitarian role for the university: more support for the sciences over the humanities and for applied research over theoretical work. In secondary education, they wanted to "produce" a large number of specialists necessary for industry. Thus, in Poland, there were two levels of studies. Most students completed only the first level (3 years). The second level (2 years) was intended for a smaller number of more talented students as preparation for an academic career. In practice, three years was too short a period to educate a specialist.

In this paper, I will describe the Stalinist vision of science at a university and the difficulties in realizing that vision in the Polish People's Republic between 1947 and 1956. Research for this paper was done in several state and university archives. Use was also made of diaries, newspapers and ideological texts.

Faculty Members of the Department of Medicine at the University of Latvia during World War I

A great many people who would go on to become medical faculty members at the University of Latvia were drafted into the army during World War I. The university was established in 1919, which means that before then most of these people worked either in private practice, hospitals, private clinics or as physicians for various organizations. Some, like Mārtiņš Zile (1863–1945) and Roberts Krimbergs (1874–1941), taught at other universities, medical institutes or institutions in the Russian Empire. Some were still children or elementary or high school students – Pauls Stradiņš (1896–1958) and Aleksandrs Bieziņš (1897–1975). There have been no major studies of the work of the medical faculty during World War I. Most studies of the medical faculty members have focused on their research and scholarly work as instructors at various universities, institutes or institutions. Medical historian Arnis Viksna (1942–2018) has written that more than 150 faculty members who had worked at the University of Latvia between 1919 and 1950 were drafted into the army as doctors or medical students. More than 50 individuals, including Ksenija Skulme (1893–1967) and Austra Bebre (1892–1965) were mobilized as nurses. The Pauls Stradiņš Museum of the History of Medicine and several other institutions has memoirs, correspondence and other materials from the faculty members. These offer a look into the work of these people in field hospitals, treatment facilities or refugee hospitals of the Russian military during World War I. Particularly unique and seldom analyzed has been the correspondence of Kārlis Barons (1865–1944) and his family members between 1914 and 1917, when he was a doctor at a military hospital in Grodno. Professor Jēkabs Alksnis (1870–1958) and several other faculty members wrote memoirs about their work during the war.

RŪTA DUBAKIENĖ

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History of Allergology at Lithuanian Universities

Allergology as a separate branch of medicine was established in Lithuania in 1926 with the publication by the physician, and later academician, Vladas Lašas (1892–1966) of his monograph *Anafilaksija* [Anaphylaxis]. He defended it at the University of Lithuania in Kaunas as a doctoral thesis. From the beginning in 1926 until 1980, the Kaunas Medical Institute was the leading center of allergy and immunology in Lithuania and Vladas Lašas, as the founder of experimental allergology in Lithuania, was its leading figure

After 1980, leadership in the field of allergology shifted to the Vilnius University medical faculty. Other research institutions in Vilnius were also involved. The Institute of Experimental Medicine of the Lithuanian Academy of Sciences carried out investigations in allergy research from 1960 until 1990. Every research institution made valuable contributions to the development of allergology and clinical immunology. An historical analysis of research, conferences, publications, and doctoral theses from 1926 until today shows their great input. The number of specialists trained, the doctoral theses defended and the scientific articles written has greatly increased in number. In 1963, the first out-patient allergy consulting room was opened. In 1969, the Allergy Centre of the Vilnius University Antakalnis Hospital was founded (closed in 1990 and then re-opened in 1992).

Currently allergy services are concentrated in the biggest cities of Lithuania: Vilnius, Kaunas, and Šiauliai. Allergology and clinical immunology as a separate specialty in Lithuania was established in 1970. In 1996, specialty standards were approved by Lithuania's Ministry of Health. These standards were revised in 2006 according to the requirements of the European Academy of Allergy and Clinical Immunology (EAACI) and the European Union of Medical Specialists (UEMS).

Since 1993, residency training for allergologists and clinical immunologists takes place at Vilnius University and the Lithuanian University of Health Sciences in Kaunas. The first Lithuanian textbook on allergy was published in 2002 by Prof. Ruta Dubakiene. In 1998, a Lithuanian website on allergies was created. The on-line scientific journal *Allergologija ir klinikinė imunologija* was launched in 1999. Since 1996, scientific issues concerning allergology have been coordinated by the Allergology Commission of the Lithuanian Academy of Sciences.

Laser Science at Vilnius University: Past, Present and Future

The invention of the laser in 1960 has set important scientific and technological landmarks in many areas of modern science. Remarkable progress in laser technology was facilitated by the invention of the chirped pulse amplification (CPA) technique by D. Strickland and G. Mourou, which was awarded the Nobel Prize in Physics in 2018. This ground-breaking invention made ultrashort, high peak-power optical pulses routinely available, opening new areas of fundamental and applied research in chemistry, biology, medicine, material science and physics.

The development of laser science in Lithuania is considered a success story thanks to the unique synergy between fundamental research and the Lithuanian laser industry, which has become a source of national pride in the area of high technology. Laser science at Vilnius University has deep historical roots and has made a number of important contributions to the field, which have been recognized internationally. In particular, Vilnius University is the birthplace of ultrafast optical parametric amplifiers, the so-called multi-color lasers, which have become indispensable tools in many areas of modern science. Vilnius University owns the invention of the optical parametric chirped pulse amplification (OPCPA) technique in 1992, which was recognized as an important off-spring of the CPA technique, as outlined in the scientific background on the Nobel Prize in Physics 2018. These scientific breakthroughs provided a background to the inception of new directions of fundamental and applied research at the Laser Research Center: ultrafast nonlinear optics and spectroscopy, laser material processing and laser nanophotonics, which allowed establishing long-standing collaborations with leading research groups worldwide. These collaborative activities yielded greater international

visibility to the Laser Research Center, which became a member of the Integrated Initiative of European Laser Research Infrastructures (Laserlab–Europe) in 2004. In the near future, Lithuania will become a member of the Extreme Light Infrastructure (ELI), a European project for the investigation of light-matter interactions at highest intensities and shortest time scales.

In this presentation, I will overview the progress of laser science at Vilnius University with a particular emphasis on the period after the restitution of independence in 1990. Finally, I will discuss the current state of the art and the challenges of laser science at the Vilnius University's Laser Research Center with a look towards the future.

Knowledge and Technology Transfer in the Age of the Enlightenment: The Scientific Correspondence between Franciszek Bieliński (1683–1766) and Henri Louis Duhamel du Monceau (1700–1782)

Scientific life in Europe in the middle of the 17th century was characterised by numerous academies of sciences and scientific associations whose aim was to propagate the development of the sciences, art and literature. Some called it “the new Age of Academies all over Europe”. They gathered together not only educated professionals but also a large number of amateur scientists. They called for the deliberate abandonment of verbal dispute in favor of visual demonstration/experimentation, and for the creation of salaried scientific professionals who would devote their full time to the enterprise. These scientists conducted numerous experiments whose results were demonstrated at academic sessions.

Franciszek Bieliński became Grand Marshal of the Crown in 1742. During the many years of his public service, he aimed to improve the well-being of Warsaw inhabitants, especially by paving the streets and creating a modern sewer system. In light of recent scholarly studies, Franciszek Bieliński is perceived as a figure of very wide horizons, striving to join the Parisian academic scientific discourse in order to transfer knowledge and technology to Poland. Bieliński exchanged letters with the eminent member and three-time president of the Paris Academy of Sciences (1666–1803), Henri Louis Duhamel du Monceau, who among numerous other projects tested new methods of horticulture, agriculture and forestry.

The aim of this presentation is to discuss the scientific research undertaken by Bieliński in regards to technology transfer in the area of agriculture, on the basis of unanalyzed documents. Recently found

correspondence shows that Marshal Bieliński was involved in experimental research supervised by Duhamel du Monceau, under the aegis of the Paris Academy of Sciences. It pertained to modern agricultural crops and the application of new technologies. The agricultural experiments conducted for many years by Bieliński on his private lands in Otwock were focused on improving and increasing agricultural production in accordance with the instructions given by Duhamel du Monceau. An interesting research finding was the detailed description of one of the earliest transfers of advanced technology in the field of agricultural machinery. Reports of work conducted in Poland, which were sent to Duhamel du Monceau, proved to be so useful and important that they were mentioned by him in the proceedings of the Paris Academy of Sciences.

Historical Review of the Development of Pathology at the University of Latvia's Medical Faculty

Several bright personalities mark the centenary of the history of pathology at the University of Latvia. One of the most vivid personalities in pathology and in Latvia's medical history is the Baltic German Roman August Adelheim (1881–1938). In 1919, when the University of Latvia was founded, R. Adelheim was entrusted by the Faculty of Medicine with the task of establishing the Department of Pathological Anatomy. This marked the beginning of the development of pathological anatomy as a pedagogical discipline and science in Latvia. Adelheim's scientific heritage is 94 publications in Latvian, German, English, Russian and Estonian medical journals. The Museum of Human Pathology which he helped found is still open to benefit students and other interested parties.

Following the sudden and premature death of Adelheim in 1938, his former student Max Brant, whose studies focused mainly on cancer pathology, took over the chairmanship of the Department of Pathological Anatomy. While working at the University of Latvia, Brant actively recruited young students who were enthusiastic about pathology into extracurricular activities at the museum.

The next chairman was Janis Alfreds Kaktins (1892–1955), who was also a former student of Adelheim. Kaktins studied the pathogenesis of fungal diseases of the skin and the pathology of acne vulgaris, as well as conducted studies about anaphylactic shock.

In 1997, the Faculty of Medicine was revived at the University of Latvia, and in 2001 the Latvian University Museum of Human Pathology officially resumed its activities. It participates in the European Night of Museums and Science Nights. Young medical students, who are particularly interested in pathology, are actively involved in the life

of the museum. The museum also participates in the *Latvian University School of Young Medics* program, which tries to introduce school children to the study of medicine. Courses in pathology at the medical faculty use the museum's pathological-anatomical collections as visual study material.

One hundred years have passed since Professor R. Adelheim established the Department of Pathology and the Museum of Pathology. His heritage is still part of our everyday life and the importance of the Latvian University Museum of Human Pathology is continuing to increase.

ALGIMANTAS GRIGELIS

Lithuanian Academy of Sciences, Vilnius (Lithuania)

BIRUTĖ RAILIENĖ

*Wroblewski Library of the Lithuanian Academy of Sciences,
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Carol Eduard von Eichwald (1795–1876): An Early Pre-Evolutionist at Vilnius University

Carol Eduard von Eichwald earned his international scientific fame in geology and palaeontology for his discoveries of Jurassic system deposits and his early pre-evolutionist investigations of the chronology of organic life. He organized the first Vilnius University natural sciences expedition around Lithuania, Volhynia and Podolia, and discovered deposits of the Jurassic system at Papilė, a town near the Venta River in Lithuania. The results of the expedition were published in 1830. Eichwald's idea of evolutionism was clearly presented in the so-called "Eichwald's tree of life" (1829).

Carol Eduard von Eichwald (1795–1876) was born in Mitau (now Jelgava, Latvia) into a noble family. After graduating from Mitau gymnasium he studied medicine in Berlin and natural history in Paris, and then toured Europe making the acquaintance of leading naturalists. Eichwald earned his doctorate in philosophy degree at Vilnius University in 1819 with a dissertation on a sea fish – *Selachis Aristotelis*. In order to teach at Dorpat (Tartu) University, he had to get his habilitated doctor degree. He did so in 1821 by writing a dissertation about the animal kingdom's boundaries and its evolutionary stages.

Eichwald first worked as a physician in Aispute (Latvia) from 1819–1821; lectured at the University of Dorpat (Tartu) from 1821–1823; at the University of Kazan from 1823–1829; at Vilnius University and the Vilnius Medical-Surgical Academy from 1829–1837; and finally at the St. Petersburg Medical-Surgical Academy from 1838–1851. During his stay in Vilnius, he organized expeditions in Lithuania, Belarus, and

Ukraine to collect flora, fauna and fossils and published several indexes of the natural resources of those countries. His most important work is the *Zoologia specialis quam expositus animalibus...* (Vilnae, 1829–1831). There he describes the animal kingdom in an ascending order from the lowest (*Heterozoa*) to the highest (*Mammalia*). He represents this biodiversity as a "tree of life", with a human on the top. This figure demonstrated some pre-evolutionary ideas in biology that appeared 30-years prior to Darwin.

The paper will present several episodes from the scientific life of Eichwald: as curator of the Museum of Zootomy at the Imperial Vilnius Medical-Surgical Academy and as author of a catalogue of that museum (Vilnius, 1835).

Comparative Analysis of Pharmaceutical Recipes Registered at the Vilnius University Pharmacy in 1801–1802

Prescription registry books are one of the most reliable sources of information about medical therapeutics. In the Vilnius University Library, there is a prescription book dating back to 1801–1802. It contains recipes written by 22 doctors, including prominent figures such as Joannes Lobenwein (1758–1820), the dean of the Faculty of Medicine; a famous chemistry professor and clinician Jędrzej Śniadecki (1768–1838) and a popular Vilnius doctor Jacob Liboschitz (1741–1827).

The aim of this study was to assess the similarities and differences between the medicines prescribed by Lobenwein, Śniadecki and Liboschitz; to evaluate whether the chemistry professor Śniadecki was more likely to treat his patients with more chemical drugs than his colleagues; and to see which medical doctrine they followed.

The following were our results. In all, 129 prescriptions by Śniadecki, 121 by Lobenwein, and 74 by Liboschitz were analyzed. To all of their patients the doctors prescribed precisely measured doses of medications, mostly pills and powders, which the patients themselves took in teaspoons or cups. Many medications contained strong alkaloids and other chemicals, therefore, inaccurate dosing could have been dangerous. All of the doctors still used alchemical signs in their recipes. Lobenwein and Liboschitz still prescribed *Theriaca Andromachi*, a legendary medicine known since ancient times, but which was being viewed more and more sceptically by other physicians. Chemical ingredients made up about 20 % of the recipes prescribed by chemistry professor Śniadecki. This percentage was similar to that of the other two physicians, and only differed in the variety of chemicals prescribed. Śniadecki mentioned mercury in 6 prescriptions. Loben-

wein did not prescribe any mercury to his patients and Liboschitz prescribed it only once. Every fifth recipe by Śniadecki and Lobenwein contained opium. Liboschitz prescribed it even more often – in every fourth recipe. However, Śniadecki prescribed more stronger medications together with opium than his colleagues.

We can conclude that the youngest of the doctors, Śniadecki, seemed to be the most modern in his practice. He used a wider range of chemicals and refused to prescribe medicines that were already being removed from European pharmacopoeias. It is known from the literature that Liboschitz was a supporter of the iatromechanical doctrine, whereas Śniadecki was a follower of the Brunonian medical doctrine. This is also confirmed by the medicines they prescribed, which, according to K. Sprengel's classification, often had a stimulating effect.

Solidism Doctrine and the Perception of Nervous System Diseases in the First Half of the 19th Century at Vilnius University

Vilnius University (VU) was founded in 1579 by the Jesuits in the city of Vilnius in the Grand Duchy of Lithuania. The Faculty of Medicine was founded in 1781, and special attention was paid to the promotion of natural sciences in accordance with the ideals of the Age of Enlightenment. The number of departments was doubled and foreign professors were invited to lecture at the University. Prominent scientists from Austria, Germany, Italy, England, and France began to travel in increasing numbers to Vilnius.

The aim of this study is to show how the doctrine of solidism was received and how it changed the perception, diagnosis, and treatment methods of nervous system (NS) diseases in the first half of the 19th century in Vilnius.

We first analysed 25 doctoral dissertations written in Latin on the subject of NS diseases and defended at VU. Then, we turned to the textbook *Praxeos medicae universae praecepta... continens doctrinam de morbis systematis nervosi in genere et de iis cerebri in specie* ('Practical Textbook of General Medicine ... Containing the Doctrine of Nervous System Diseases and the Special Diseases of the Cerebrum'), written by Joseph Frank (1771–1842) in Latin in Vilnius and published in 1818 in Leipzig.

This study is a historical–medical analysis and synthesis of the primary sources. It also uses comparative analysis, analogy, and descriptive methods.

The doctrine of humoralism, attributing all diseases to the imbalance of the four humors, was gradually replaced by the new doctrine of solidism (suggesting that fibers are the most important building

units of the body) at the beginning of the 18th century in Europe. However, humoralism was the most popular system of medicine in the 19th century in Vilnius. During this time, antiphlogistic treatment methods were widely used at the VU clinics. Bloodletting, the use of purgatives, leeches, cupping therapy, and diet adjustments were frequently employed as treatment options for patients with apoplexy, myelitis, St. Vitus' dance, epilepsy, encephalitis, tetanus, hydrophobia, and other NS diseases. Even though in Vilnius, as well as in other European clinics, the causes of NS diseases were usually sought in the cerebrum and spinal cord, using autopsy findings as an essential part of the anatomo–clinical method (the influence of solidism doctrine), autopsy findings usually revealed brain and spinal cord congestion with blood, confirming the inflammation theory of the nervous system.

Healing Sparks: Mickiewicz, Stubielewicz, and Medical Electricity in Late Eighteenth– and Early Nineteenth–Century Vilnius

In eighteenth-century Europe, spectacular electrical performances were especially popular as a form of entertainment among the upper classes. However, soon a more useful utilitarian purpose for electricity was found in its therapeutic uses. The first electrical machines appeared in the Grand Duchy of Lithuania in the mid-eighteenth century, when Professor Tomasz Żebrowski established the Mathematical Museum in Vilnius University and initiated the construction of such apparatuses. At first, the electrical machine (Latin: *machina electrica*) was used only for the entertainment of local nobles and for experiments. However, later, professors of physics Józef Mickiewicz (1744–1817) and Stefan Stubielewicz (1762–1814) taught about the uses of electricity (Latin: *galvanismus, electricitas*) in medicine and even experimented with patients. In 1819, Stubielewicz's theoretical insights concerning electrical healing were posthumously published in a separate treatise *The Influence of Electricity on the Animal Economy* (Polish: *Wpływ elektryczności na ekonomię zwierzęcą*).

The topic of medical electricity has already been studied in great depth by European and American historians of science and medicine, primarily Paola Bertucci, Roy Porter and others. However, this topic remains on the margins of Lithuanian historiography of science and medicine. Thus, the proposed paper aims to present the ideas and influences of local advocates of medical electricity, with a particular focus on Stubielewicz's treatise. It also aims to evaluate the significance of electrical healing in Enlightenment Lithuania as well as its relationship with other theories of medicine, such as vitalism.

Clocks by English Makers in the Vilnius University Astronomical Observatory

In the Vilnius University Astronomical Observatory, which was established in 1753, the average time of stars and the Sun was measured using two separate clocks-regulators made by the London makers William Hardy and John Shelton. How did these devices made by world famous clockmakers end up at Vilnius University?

Thomas Żebrowski (1714–1758), the first director of the observatory, not only found donors for the observatory's telescopes, but also made efforts to acquire a good astronomical clock. On 30 September 1756 he wrote to his teacher Professor Joseph Stepling in Prague: "Our observatory, considered a famous one, is awaiting its equipment. Meanwhile, I bought a clock, made by an English master and paid for by one of our colleagues. This wonderful creation was made by Mr. Ellicott, a resident of London, currently the best mechanic in this field".

During the time when the famous astronomer Marcin Odlanicki-Poczobutt (1728–1810) headed the observatory, there were already three clocks with second hands in the observatory. During his visit to London in 1768 Poczobutt, with the help of the director of the Greenwich Observatory Nevil Maskelyne, acquired Shelton's clock and Jesse Ramsden's transit device. Shelton, an apprentice to the famous clockmaker George Graham, specialized in the making of astronomical clocks.

In the beginning of the 19th century, with the rapid advances in scientific equipment manufacture, many of the astronomical devices in the observatory became obsolete. The new director of the observatory Jan Sniadecki (1756–1830) sent his assistant Piotr Sławiński (1795–1881) abroad in 1819 to find out about innovations in technology and also gave him the task of acquiring a new clock. In Greenwich,

Sławiński became acquainted with a device made by the clockmaker W. Hardy. This clock had a pendulum filled with mercury and a new construction anchor. In 1880, it was brought to Vilnius and set up in the White Hall of the observatory. After almost 50 years Hardy's clock was working very precisely as determined during a Struve Geodetic Arc measurement expedition.

It is a pity that of all the old astronomical clocks made by English makers, and which were valuable as monuments of science history, only Shelton's masterpiece survived until the present day. It is now in the Lithuanian National Museum. It was given to the telegraph station in the tower of Gediminas Castle when the Vilnius University observatory was closed in 1882.

EGLĖ PAŠKEVIČIŪTĖ-KUNDROTIENĖ

*The Wroblewski Library of the Lithuanian Academy of Sciences,
Department of Scholarly Information, Vilnius (Lithuania)*

From the Lithuanian Scientific Society to the Lithuanian Academy of Sciences: Lithuanian Sources for the History of Science in the Manuscript Department of the Wroblewski Library of the Lithuanian Academy of Sciences (1907–1941)

A wide range of manuscripts, iconographic and printed materials held at the Wroblewski Library of the Lithuanian Academy of Sciences serve researchers in various scholarly fields.

The purpose of this presentation is to review the sources available to science historians. It is limited to Lithuanian sources from the first half of the 20th century (1907–1941): from the establishment of the Lithuanian Scientific Society (1907–1940) until the establishment of the Lithuanian Academy of Sciences (since 1941). An inventory listing of the fonds in the Manuscript Department facilitates the search. It shows whether the information is only available in the card catalogue, or that it is also available in the electronic catalogue. However, the catalogue entry is only a guide. It's one thing to preserve a document and another to find it. Due to the very large number of documents being preserved and the rather slow rate of digitization, there is room for new discoveries, such as the discovery in 2015 of the 1915 founding documents of the first Lithuanian gymnasium in Vilnius.

For science historians, there are many materials in personal fonds, which make up about 66 percent of all fonds. A large number of these personalities were scholars and scientists, and many of them were important for twentieth century history of science. Here you can see the development of the scientist himself, the work he has done, its dissemination, and valuable correspondence, often with feedback about his work.

Other valuable materials for science historians are the archives of institutions: scientific institutions, organizations, and societies. Science historians of the first half of the 20th century may be particularly interested in the collection of the University of Kaunas Library (F12). There are important collections related to the history of Vilnius University and the formation of the Lithuanian Academy of Sciences. An especially important collection is that of the Lithuanian Scientific Society (F255). Many materials can be found about other scholarly organizations of the first half of the 20th century: the Lithuanian Language Society, the Lithuanian History Society, the Lithuanian Association of Women with Higher Education, the Lithuanian Society of Librarians, the Vilnius Friends of Science Society and others.

The Library preserves many important materials. But the problem of accessibility and dissemination remains. Very often today, users assume that if something is not found in virtual space, then it does not exist. This is not true. We invite researchers to use our open stacks, which are expanding and becoming more accessible, as well as our digital collections. Virtual exhibitions also provide useful information.

LILIAN LANGSEPP

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The Monochord Experiment Considered within Rom Harré's Typology of Scientific Experiments

In his book *Great Scientific Experiments: Twenty Experiments that changed our View of the World* (1981) Rom Harré divides all the experiments discussed in this book into three large groups, which are further subdivided into twelve kinds or types. I propose to show that the monochord experiment could fit well into the kind *Use of Models* to simulate otherwise *Unresearchable Processes*.

The monochord is one of the oldest, and at the same time one of the simplest, devices constructed to explore musical intervals. In music theory, an interval refers to the distance between two sounds, which may sound either simultaneously or sequentially.

The invention of a one-stringed instrument that consists of a wooden soundbox and one movable bridge under the string is attributed to Pythagoras (6th century BC), but its first appearance in Greek literature according to David Creese was much later – in the treatise *The Division of the Monochord* (c.300 BC). The monochord entered Western medieval musical culture through Boëthius's treatise *De institutione musica*, written in the beginning of 6th century AD. Since then, numerous treatises have appeared describing the monochord experiment and its results. The mathematically expressed relationships of musical intervals supported the division of intervals into consonances and dissonances. These rules, based on the connections between numerical ratios and the audible intervals, had a profound effect on the formation of Western polyphony, and aesthetic decisions on the use of harmony in musical compositions.

Why should we try to fit the monochord case study into a category of scientific experiments? If the monochord is classified as a scientific instrument, then it should be accepted as a scientific experiment, even

if it is a simple one. If we follow the Pythagorean legend described in treatises, then we can see that the monochord has all the features of a scientific experiment. Consider the following sequences: problem – event – observation – experiments with various materials – invention – rational explanation, based on mathematical ratios, of the interrelations between two sounds. The experiments on the monochord are repeatable. Taking into account its great influence on aesthetic judgements, allows me to propose to consider this case as one of the great Western scientific experiments.

LEA LEPPIK

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How Much Science Can a University Hold?

Over its history, the University of Tartu has found different ways of combining pure science and the practical needs of society. As an early 19th– century Russian university, it tried to satisfy the state's practical needs and offer useful knowledge by providing top quality education and making its professors “Priests of the Enlightenment”, who were responsible for educating the young of all school levels, free from economic concerns and without fear for their future. Teaching had to be connected to scientific research. In 1802, when the University of Tartu was reopened as Dorpat University, it became a research university with clear administrative functions in the form of censorship of all literature (books, calendars, journals, etc.) before it was printed in the Tartu education district (Estland, Livland, Courland) as well as the supervision of all the schools in that district.

In 1919, when the University of Tartu started its activity as the national university of Estonia, the attitude was that the university must first develop national sciences – those necessary for the Estonian state. As there were many foreigners among the professors, this did not mean isolation from world science, and there is reason to be proud of what has been done.

When Estonia restored its independence in 1991, it was again the sciences that would support the idea of a self-sustaining Estonia. Metrics in the form of international publications (in English) drove researchers quickly in the direction of basic science with an international focus. However, the drive to be an internationally recognized science or research university is not very compatible with the function of developing national sciences. The University of Tartu has so far boldly tried to develop both, which is a rather unique case considering our small population.

Publish or Perish: Traces of Undocumented Medical Studies of the 1920s Captured in the Anatomical Collection of the Rīga Stradiņš University

In 1920, the Medical Faculty of the Higher School of Latvia (from 1923 – University of Latvia) was established. That same year the Museum of Anatomy was opened at the Institute of Anatomy. The aim of the museum was to collect and display anatomical specimens for teaching and scientific purposes. Several studies based on the museum specimens were published during the 1920s and 1930s by the staff of the Institute of Anatomy. Inevitably, some studies that were carried out never made their way to print, thus leaving the anatomical collection today as a unique (and sometimes the only) evidence of scientific interest, practice and the general mindset of anatomists of that time.

The published scientific works dealt mostly with anatomical variations and questions of anthropology. However, the content of the collection testifies to the fact that the interests of the anatomists sometimes went beyond anatomy and anthropology. For example, the museum holds examples of tattooed skin and a substantial collection of life-casts of anomalies such as polydactyly, syndactyly, supernumerary nipples, etc. The aim of this study is to investigate one of these unpublished side-shows: a small, but telling collection of “hermaphrodites” (today – intersex individuals).

The collection consists of ten monochrome plaster casts and three wet specimens of ambiguous genitalia. These are accompanied by 27 black-and-white photographic glass plate negatives and glass diapositives. This photographic evidence was intended for slide lectures and documents the face, complexion and genitals of the photographed individuals. Photographs and casts were taken from five individuals,

some alive and some dead. Three of these individuals are identifiable and one of them is the best-known “hermaphrodite” of the 1920s and 1930s in Latvia whose whereabouts were widely discussed in the popular press of the time. All of the intersex objects in the museum collection seem to have originated between 1920 and 1925 when the institute was led by Swedish professor Gaston Backman (1883–1964). Although Backman did not publish on intersex individuals in scientific periodicals, he did comment on the types and origins of this problem in popular periodicals. Today, we can just speculate whether this collection was started for scientific reasons or out of common curiosity about this unusual phenomenon.

Problems with Medical Studies at the University of Lithuania (Vytautas Magnus University) in 1922–1940

At the beginning of the independence period 1918–1940, Lithuania lacked educated staff in all fields. A Statute of the Vilnius University was prepared and passed in December 1918. On 5 January 1919, the Bolsheviks occupied Vilnius and the Lithuanian government was forced to move to Kaunas. During the interwar war period, Kaunas was the capital of Lithuania. Students returned from Russia to independent Lithuania, but they had no opportunity to study. In 1920, the Medical Section of the Lithuanian Higher Courses officially started its activity, and in 1922 the University of Lithuania in Kaunas was formally established.

From the beginning, the medical faculty at the University of Lithuania faced numerous problems with space. Starting in 1922, the collaboration with the Health Department of the Ministry of Internal Affairs was quite successful: three clinical departments were housed at the Kaunas State Hospital. In 1924, the Clinic of Pediatric Diseases was housed in the Childrens State Hospital. In 1923, the Faculty made a legal agreement with the Lithuanian Red Cross Society that set specifications for university clinical activities at the Lithuanian Red Cross Society Hospital. However, communication with the Ministry of National Defense was not so successful.

The Faculty of Medicine also lacked teaching staff. Only a few Lithuanian physicians at that time had doctoral degrees. The Faculty Council had to invite foreign professors. Most of them did not stay long in Lithuania, did not learn Lithuanian and also were not able to create Lithuanian medical terminology. Shortly afterwards though, Lithuanians took the positions of many foreign professors.

The newly established Faculty of Medicine Council set up a study program. According to the Faculty Regula and study plans, during the first two years of studies medical students were taught mainly the natural sciences. During the third and fourth years, the basic subjects of clinical medicine were introduced, and were continued throughout the fifth year. However, in 1937, the study program became the subject of a sharp debate in the medical press. After finishing their degree work, the medical graduates had to complete a compulsory one-year practice at the university clinics.

Interdisciplinary Research at Contemporary Universities

Universities today face the growing need for interdisciplinary research as truly socially relevant problems require interdisciplinary solutions. At the same time, teaching has been organized discipline-wise and young researchers' training occurs in disciplinary cultures. When employed by interdisciplinary projects, scientists experience communication difficulties and often feel that their contributions are not valued enough. Many such formal 'interdisciplinary groups' produce results that still remain disciplinary rather than integrated and interdisciplinary.

The paper is based on semi-structured qualitative interviews with 16 researchers in such interdisciplinary areas as language technology, bio- and geoinformatics, archaeogenetics and biochemistry collected in a research project in Estonia in 2015–2018. I will focus on institutional measures taken by the universities and research funding bodies to promote interdisciplinarity as perceived by the researchers we interviewed. Thus, I compare the descriptions of the institutional measures with the reflections and comments by the researchers and try to evaluate the success of the measures.

Retrospective Bibliographical Data in Periodicals: Development of the *Bibliography of Lithuania, Series C*

Many countries register their scholarly publications in national bibliographical registries. This facilitates the dissemination of scholarly information, and from a retrospective view, creates bibliographical sources for historians, such as those of the history of science.

The decision to register printed output from 1547–1940 was made in 1960 in Lithuania. Information on books in Lithuanian was issued in series A; on Lithuanian serials – in series B; and on articles from periodicals in series C. The Series A index, covering bibliographical data from 1574–1861, was published in 1969.

Articles, notes, and reviews from the Lithuanian periodical press (starting from 1832) are indexed in Series C. The task of creating this index was divided among the main libraries. The Wroblewski Library of the Lithuanian Academy of Sciences (WLLAS) joined the national bibliographical indexing project in 1979. WLLAS has a lot of experience in bibliographical indexing. Its first bibliographical index was published in 1953. The library has published bibliographical indexes of the Lithuanian Academy of Sciences, subject and personal bibliographies.

The first volume of the *Lithuanian Bibliography, Series C* was published in 2000, covering a period of 1898–1900. The second volume (1901–1903) was published in 2003.

Since the traditional format for creating bibliographies did not meet the latest information requirements, digital solutions were considered. MARC formats were adopted. At the present time, MARC21 is being used.

In this paper, we will share our experiences at the WLLAS in compiling the *Bibliography of Lithuania, Series C*, and will describe how it can be used as a finding aid for the history of science, medicine and technology not only in Lithuania, but also in the neighboring countries of Latvia, Estonia, Belarus, Poland, and Russia.

Astronomer Piotr Sławiński (1795–1881) and his Scientific Journey to London in 1819

Under the regulations of 1803, Vilnius University was able to send adjuncts and professors on scientific journeys. Jan Śniadecki chose Piotr Sławiński as his successor to the Vilnius University Astronomical Observatory, and sent him to London in 1819–1820 in order to prepare him for scientific work at the university. Like other scientists who were sent abroad, Piotr Sławiński received instructions with tasks that he had to accomplish and to inform the university about his progress. During the time that the young astronomer was abroad, he made a useful acquaintance and joined scientific societies. This was one of the reasons why his works were published at an international level and reached a wide range of scientists. Piotr Sławiński also gained scientific knowledge and prestige, which allowed him to make a good career at the university. Thus the young assistant professor of astronomy from Vilnius University joined the ranks of world famous scientists. This paper will examine how Piotr Sławiński and his works appeared in the context of the early 19th-century European scientific community and what was the role of Vilnius University in this matter.

One Hundred Years of Technical Education in Tallinn

The official beginning of technical education in Tallinn was the start of special courses in technical disciplines on 17 September 1918, when Estonia was still under German occupation. These courses were developed into a technical school and eventually into a university by 1936. In the pre-WWII period there was a long debate whether technical education should be moved to Tartu. In the end, it was decided that the place to develop technical education and science in Estonia was in Tallinn.

For most of the Soviet era, the university was called Tallinn Polytechnic Institute, according to the Soviet tradition. Despite the troubled political times, the university grew and developed steadily throughout the Soviet period. In 1989, the name Tallinn University of Technology (TUT) was reintroduced and the design of study programs according to Western traditions began. However, there was a more important issue to resolve. During the tenure of the Rectors Andres Keevallik and Peep Sürje, Massachusetts Institute of Technology became the role model for TUT. Both rectors supported the increase of the role of social sciences at the university.

In 2008, the International University Audentes (IUA), a really international private university specializing in social sciences, was merged with TUT and, in this way, TUT obtained a law school and a school of international relations. Several programs taught in English came over from the IUA, together with a large body of international students. For several years after 2008, most of the international students who were admitted to TUT, enrolled in the former IUA programs. Today, the university is truly international. Another important recent development is the change in strategy concerning picking the model to follow. During the tenure of the current Rector Jaak Aaviksoo, who was former Rector

of the University of Tartu and Chairperson of the Estonian Association of the History and Philosophy of Science, Scandinavian universities of technology have now become the models for the Tallinn University of Technology. The acronym TUT cannot be used at this point any longer as it has been changed to TalTech. The role of scientific research has been growing throughout the history of the university. Earlier, it was predominantly oil shale studies. Today, it is very much more, including high level business and governance studies, information communication technology, and the natural sciences, in addition to engineering that remains the core discipline for the university.

EVELI NEEMRE

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Value Recognition through Value Conflicts

In my presentation I will bring into focus a problem of recognizing values influencing science and propose that in the instances of value conflicts we are more acutely aware of the values influencing us. Although, it is generally agreed that values have a role to play in science, the exact nature of this role or which values should be allowed in science is debatable. The value-free science ideal proposes that only epistemic values should be allowed to influence the core epistemic practices of science. Inclusion of non-epistemic values is seen as problematic for scientific objectivity. Advocates of values in science have made a case for the necessity of non-epistemic values in science. Underneath these discussions there is, however, a broader topic that has not been discussed so intensely. This topic is value recognition. Since value recognition is important to both parties of the value debate it merits some discussion. Proponents of value-free science need to recognize and distinguish between epistemic and non-epistemic values as well as to pay attention to the possible interference of non-epistemic values in science. Similarly, proponents of values in science need to be aware of all the relevant values in science and to identify their proper roles. However, it seems that it is taken for granted that scientists are always aware of the values that potentially influence them. In practice this does not seem to be the case. There are many examples from the history of science to indicate that scientists are not always aware of the values influencing them, illegitimately or otherwise. Scientists, as all humans, seem to remain generally blind to the influence of values. The premise of my presentation is that values influencing science come through more vividly in the context of different value conflicts. Therefore, value conflicts can serve as value indicators and investigating value conflicts might uncover valuable information about values influencing science.

ARVYDAS PACEVIČIUS

Vilnius University, Faculty of Communication (Lithuania)

VINCAS BŪDA

Nature Research Centre, Vilnius (Lithuania)

Autobiography of Mykolas Girdvainis as a Document of Scholarly Communication in Europe at the Turn of the 20th Century

A manuscript entitled *Autobiography*, written by fisheries specialist, ichthyologist and entomologist Mykolas Girdvainis (1841–1924), is used to discuss his research work. Girdvainis's autobiography is compared with other similar texts, such as those of the Vilnius University professor of pharmacy Johann Friedrich Wolfgang (1775–1859), in the context of ego-documents studies. In this presentation, the most significant routes of his travels in Europe as well as places of study and work will be traced and described. A geographic map of his scientific research activity will be reconstructed, and his innovations and findings as well as research technologies in fisheries science discussed in the context of European science. One of the practical purposes of the current undertaking is to compile a bibliography of Girdvainis's works that would allow for bibliometrics-based evaluation of his research activity and reasoning.

ARNAUD PARENT

Mykolas Romeris University, Vilnius (Lithuania)

From Vitalism to Animal Magnetism: the Mesmerist Experiments of Jean-Emmanuel Gilibert

In 1766, a German physician, Franz-Anton Mesmer (1734–1815), presented at the faculty of medicine in Vienna his doctoral thesis *On the Influence of the Planets on the Human Body* (*De planetarum influxu in corpus humanum*), which was inspired by the *De imperio solis ac lunae* (1704), a work written by Richard Mead, a disciple of Newton. In it Mesmer asserted that the cosmos and bodies were bathed in a universal fluid, which he named “animal magnetism”. Hence, diseases resulted from disorders of animal magnetism within individuals, and he proposed brand new treatments to cure these disorders. Around 1775, Mesmer sent his small monograph to different academies of science in Europe and to selected scientists. Only the Berlin Academy answered, but dismissively. In February of 1778, he arrived in Paris, where he began to treat patients.

A French physician from Lyon, Jean-Emmanuel Gilibert (1741–1814), started to show interest in this mesmerist doctrine. Gilibert was a renowned physician and botanist. In 1775, he went to the Grand Duchy of Lithuania where he founded a medical school and a hospital in the town of Grodno (today in Belarus), where he worked from 1775 until 1781. He then moved to Vilnius to teach natural history at the Main School of the Grand Duchy of Lithuania (today Vilnius University), before going back to France in 1783. Gilibert was a strong believer in medical vitalism, a medical doctrine which stated that the physician should intervene as least as possible in healing the sick and letting nature do the healing. In animal magnetism he saw an expression of vitalism and carried out numerous experiments, which he described in letters addressed to his friend Antoine-François Prost de Royer. In 1784, Gilibert published these letters in his *Outline on animal magnetism*, or

*findings of the observations made in Lyon about this new agent (Ap-
perçu sur le magnétisme animal, ou résultat des observations faites
à Lyon sur ce nouvel agent).* These letters are of utmost interest be-
cause they show how a scientist of the last quarter of the 18th century
regarded science and scientific research, at a time when science and
pseudoscience were still intermingled. This paper will present the way
in which Gilibert devised his mesmerist experiments, carried them out,
and the conclusions he reached.

LAIMA PETRAUSKIENĖ & VINCAS BŪDA

Nature Research Centre, Vilnius (Lithuania)

The Documentary Film Recordings by Biologist Pranciškus Baltrus Šivickis

The famous Lithuanian and Filipino zoologist Pranciškus Baltrus Šivickis (1882–1968) was a many-sided person. He was interested in various fields of zoology and was involved in many other activities as well: one of his hobbies was filming. In this presentation, we will survey his documentary film recordings from 1928–1934 and show some clips from them. Judging by the captures, it is clear that Šivickis purchased a recording camera right before leaving the Philippines in the spring of 1928 because there is little footage from his stay in the Philippines and quite a bit of footage from the port of Manila when he was leaving for Lithuania. If Šivickis had bought the camera earlier, there would have been more shots of the Philippines; even perhaps images of Puerto Galera where he had founded the Marine Biology Station of the University of the Philippines. He filmed sights on his cruise from the Philippines to Europe. In Lithuania, he filmed many places and famous people. Many of the persons filmed have been identified. They are famous Lithuanian scientists, professors of Vytautas Magnus University – the chemist and politician Jonas Šimkus, the philosopher Stasys Šalkauskis, the hydrologist Steponas Kolupaila, the geophysicist Kazys Sleževičius, Šivickis himself, as well as his students, future researchers and teachers – Juozas Maniukas, Teklė Kiselytė, K. Jasiukėnaitė, Sara Goldmanaitė (later Finkelbrandienė), Irena Babuškinaitė, Natalija Kristijanovaitė (later Likevičienė); artists – Antanas Žmuidzinavičius with his wife and daughter, the vocalist Antanas Sodeika with his family, the family of the Italian opera singer Oreste Marini, and the writer Petras Cvirka; political and public figures – the lawyer Mykolas Sleževičius with his family, the attorney Mečys Mackevičius, and Emilija Putvinskienė with her family. The film recordings also include footage of Lithuanian places – Kaunas, Palanga, Kretinga, Klaipėda,

Šventoji, Šiauliai, the Graužikai estate, Žuvintas Lake, the Plungė stud farm, and so forth. Footage also includes some interesting means of transportation of those times, such as the “konkė” (a horse-drawn streetcar) captured on Laisvės Avenue in Kaunas. Though some of the films are of poor quality, they nevertheless are valuable from the historical point of view. There are some unique shots of the philosopher Stasys Šalkauskis (during the Soviet years, filmed material about him was purposely destroyed) and three short episodes with Šivickis himself (the only filmed material about him).

MAIJA POZEMKOVSKA

Rīga Stradiņš University, Institute for the History of Medicine (Latvia)

Elizabete Jakovleva: The First Female Latvian Medical Professor in Latvia

This year the University of Latvia is celebrating its centennial. The history of higher education in the field of medicine dates back to 2 February 1920, when the first lecture in anatomy was delivered to students.

Women who wanted to pursue an education in medicine could not do so in the Russian Empire. The first Latvian women to receive medical diplomas did so in 1906 in Switzerland. The first woman to become a professor of medicine was Elizabete Jakovleva (1892–1955). She was born into the family of a working man, Ansis Berzins, in Rīga and grew up in Jelgava. Her parents died young. During World War I, Elizabete worked as a nurse in Vologda, Russia, and later began her medical studies at the State University of Perm in the Ural region. She received her degree in 1922 and found work as a forensic analyst not far from the Latvian border – in Porkhov in the Pskov region (1922–1926) and then in Pskov itself (1926–1937). From 1930 to 1937, Jakovleva was chairwoman of the Pskov Medical Association. During her term in office, she wrote her dissertation on the exhumation of human remains, burying and then exhuming 250 remains. The dissertation was defended in Moscow in 1935, and Jakovleva received her doctorate in 1937. She was sent to the Tomsk Institute of Medicine in Siberia, where she became a professor of forensic science in 1938. After the Soviet occupation of the Baltic States in 1940, Jakovleva moved to Rīga in January 1941 to chair the Department of Forensic Medicine at the University of Latvia. Six months later she moved back to Tomsk. In December 1944, Jakovleva returned to Rīga and worked there until October 1945, when she was arrested for anti-Soviet activism. She spent nine years in prison in Moscow and Kazan until her release after Stalin's death in 1954. After her release, Jakovleva could return to her profession, but

her years in prison had weakened her, and she passed away one year later. Jakovleva was buried at the Rainis Cemetery in Rīga, though her grave has been lost. Her criminal case contained five volumes that remained confidential for many years at the Latvian State Archives. A prosecutor dug up the files in 2001, and ensured Elizabete Jakovleva's rehabilitation nearly 50 years after her death. Such a tragic life for this distinguished Latvian scientist!

ANU RAE

University of Tartu, University of Tartu Museum (Estonia)

YAROSLAV STADNICHENKO

University of Poitiers (France)

Treatment of the 1897 Puka Train Accident Victims at the University of Tartu Hospital

The 19th century was an era of great changes. The 2000 year old theory of humors made way for modern medicine which started to improve diagnostics by using newly invented technologies. Although considered dangerous, trains allowed people to move faster from place to place than ever before. The rail accident near Puka (Bockenhof), Estonia, in 1897 and treatment of the victims can illustrate both. Even though the accident is known in Estonian historiography, it has received rather superficial attention from scholars. This paper aims to provide further insight into the topic by focusing on the treatment of the victims.

On the evening of 1 May 1897, a train consisting of 33 coaches with 745 soldiers and 24 officers drove off the rails due to heavy rain. As a result, 56 soldiers lost their lives, making it the rail accident with the highest death toll in Estonian history, and one of the highest in the history of Imperial Russia. Another 43 soldiers were severely injured, 37 soldiers and 3 officers received minor injuries.

Due to the proximity of the accident to Tartu, physicians and medical students from the University of Tartu were quickly sent to Puka. All victims were treated in Tartu, mainly at the University Hospital. The most severely injured were taken to the university's surgery clinic, where they were diagnosed with the help of X-rays which had only been discovered 1.5 years earlier. This makes Tartu one of the first places in the world where X-rays were used for a purely medical purpose.

The University of Tartu Museum holds patients' medical records from the Internal Medicine Clinic which dates from 1846 until the mid-

20th century. Among them are the records of around 40 Puka patients with less severe injuries. The study of these medical records gives some insight into trauma treatment at the University of Tartu Hospital during the last years of the 19th century.

This paper will explore the accident through the use of patients' case records, archival materials and extensive study of contemporary periodicals, which provide further insight into the medical treatment of the period. Ultimately this paper aims to contribute to the historiography of medical history of late 19th-century Estonia.

BIRUTĖ RAILIENĖ

Wroblewski Library of the Lithuanian Academy of Sciences,
Department of Scholarly Information, Vilnius (Lithuania)

Disseminating the Scholarly Heritage of Vilnius University Professor Jędrzej Śniadecki (1768–1838)

A tradition of commemorating famous personalities and their achievements in science in Lithuania has multiple forms, including annual seminars. Though it has been more common to organize annual events for those in the humanities (such as Marija Gimbutienė, Vaclovas Biržiška, and Jurgis Lebedys), we also have annual seminars for engineers (Kazimieras Šešelgis readings), chemists (*Lectiones Andreae Śniadecki*), among others.

This paper will present a short history of initiatives to preserve and disseminate information about the professor of medicine and chemistry Jędrzej Śniadecki (1768–1838), one of the most outstanding scholars of the old Vilnius University and a famous physician in Vilnius.

Main results:

- Establishing an annual seminar the *Lectiones Andreae Śniadecki*. The first seminar was organized in 2012 by representatives of the Lithuanian Association of the History and Philosophy of Science and the Wroblewski Library of the Lithuanian Academy of Sciences; each year, the seminar is organised in a different historical place associated with the heritage of Jędrzej Śniadecki;
- Translating and publishing famous works by Jędrzej Śniadecki; in 2018, Śniadecki's *Theory of Organic Beings* was translated for the first time into Lithuanian (by Irena Katilienė) and English (by Krzysztof Mazurek). This book presents Śniadecki's ideas about chemical and physiological processes in the living body to a wider audience of contemporary scientists.
- Establishing an annual Jędrzej Śniadecki Scholarship (with a generous grant from Thermo Fisher Scientific Baltics) to encour-

age outstanding students of the life sciences at Vilnius University;

- Gathering together specialists in the history of 19th-century life sciences for a collective monograph on Jędrzej Śniadecki;
- Joining initiatives of neighboring countries (Belarus and Poland) to organize international conferences and studies of Jędrzej Śniadecki's scholarly and literature heritage;
- Creating a Jędrzej Śniadecki website with the generous support of Rūta Baranauskienė and Rimvydas Baranauskas: <https://andrewsniadecki.org/>

MONIKA RAMONAITĖ

Vilnius University, Vilnius University Museum (Lithuania)

The Beginnings of Medical Education at the University of Vilnius: Vision and Challenges of the Commission of National Education

On 21 May 1782, by decree of the Commission of National Education, the name of Vilnius University was changed to the Main School of the Grand Duchy of Lithuania. In his inaugural address of 24 November 1781, the new rector Marcin Poczebutt (1728–1810) announced the faculties that would be formed and that, for the first time in university history, medical sciences would be taught – in the medical college (*Collegium Medicum*). This important date marked not only the beginnings of formal medical education at the university, but also the emergence of modern medicine in the Grand Duchy of Lithuania (GDL). Previous historiography extensively discussed the late start of medical education in the GDL and the possible reasons for it. But little attention has been paid to the circumstances which allowed for the establishment of the medical college and the challenges associated with the introduction of lectures on medical subjects at Vilnius University. These particular issues are going to be the main focus of this presentation. The establishment of the medical college will be discussed within the broader context of scientific development in the Polish-Lithuanian Commonwealth and Western Europe.

After the suppression of the Jesuit Order in 1773, Vilnius University became a secular institution of higher learning under the authority of a Commission of National Education for Poland and Lithuania. This presentation will analyze this commission's vision of how medicine and the natural sciences were to be reformed at Vilnius University. It will also discuss the challenges faced by this commission in establishing the medical college and how those challenges were met. This presentation will also look at the study program for the medical college within the context of Enlightenment-era medical education in Western Europe.

AURIKA RIČKIENĖ

Nature Research Centre, Vilnius (Lithuania)

PIOTR DASZKIEWICZ

National Museum of Natural History, Paris (France)

TOMASZ SAMOJLIK

The Mammal Research Institute of the Polish Academy of Sciences,
Białowieża Primeval Forest (Poland)

ANASTASIA FEDOTOVA

Institute for the History of Science and Technology of
the Russian Academy of Sciences, Moscow (Russia)

Contribution of Vilnius University to the Flora Studies of the 19th-Century Białowieża Primeval Forest

The Białowieża Primeval Forest (BPF), the royal property of the Polish-Lithuanian Commonwealth, and its unique fauna and flora have been attracting attention of poets, artists and scientists since the early modern times. Until the nineteenth century, the BPF was mainly referred to in relation to royal hunts and the European bison. The first more detailed overview of the forest of Białowieża with descriptions of its physiography, flora and fauna was presented in Juliusz Brincken's (1789–1846) book *Mémoire descriptif sur la forêt impériale de Białowieża, en Lithuanie* (1826). It was popularly written and full of mistakes, which, paradoxically, contributed to the development of scientific knowledge on the BPF, as many papers and books were published to correct J. Brincken's mistakes. One of the most prominent papers of this series was written by the pharmacist, botanist and entomologist of the Imperial Vilnius University and the Vilnius Medical-Surgical Academy Stanisław Batys Gorski (1802–1864). In 1823 and 1826, Gorski travelled to investigate the BPF, where he collected plant specimens. Expedition results were published in special reports, one of

which was entitled *O roślinach Zubrom upodobanych, jakoteż innych w puszczy Białowiezkiej* [About the favorite plants of the European bison and other plants from the Białowieża forest] (1829). This paper was the first scientific publication on the BPF's plants. Its importance lies in the fact that Gorski made a critical evaluation of the information about plants presented by Brincken (1826) and falsified the hypothesis on the favorite plants of the European bison, which were believed to be the deciding factor for their survival in this particular forest.

In our presentation, we will discuss the significance of Gorski's expedition to the forest of Białowieża for the historical studies of the common natural heritage of Poland and Lithuania. On the basis of the available manuscripts and the publication *O roślinach Zubrom upodobanych, jakoteż innych w puszczy Białowiezkiej* (1829), we will attempt to critically evaluate the materials collected during Gorski's expeditions to the BPF and will review the collection of plants from the 19th century Białowieża forest, which is stored in Vilnius University's herbarium.

ALEXANDRA RIZHINASHVILI

*St. Petersburg Branch of the S.I. Vavilov Institute for the History
of Science and Technology of the Russian Academy of Sciences (Russia)*

Ernst Haeckel and the Modern Perception of Ecology in Russia

The vast scientific heritage of Ernst Haeckel, evolutionist and thinker, includes ecology as well. It is well known that it was he who in 1866 introduced the term “ecology” for the science on the interaction of the organisms and the environment. Traditionally, it is supposed that Haeckel’s merit in world ecology is just the introduction of its name. However, there are few works devoted to the development of Russian ecology. Actually, analysis of the impact of Haeckel’s ecological views on Russian biologists and the development of ecology in the first half of the last century demonstrates that this widely shared opinion should be corrected. I hypothesize that Haeckel’s influence on Russian biologists was somewhat more than commonly thought.

Such an analysis is very timely. Ecology as a science has grown a great deal in popularity throughout the world over the latter half of the 20th and into the 21st century. In modern Russian society, the notions and perceptions of ecology, nature conservation as well as the ethics/esthetics of nature have tended to become synonymous. This tendency has alarmed leading Russian scientists because ecology is not synonymous with environmentalism, natural history or environmental science. A wrong understanding of the content and tasks of ecology, “erosion” of the boundaries between the science and the practice, can lead to the deformation of the educational process and finally may have a negative impact on the science itself. Thus the sources of perception of the term “ecology” and the subject of this science are of special interest.

Russian biologists in the first half of the 20th century were influenced by Haeckel’s evolutionary approach as well as accepted and highly appreciated his definition of ecology (even in the period of Lysenkoism). Nevertheless, his influence was somewhat limited. In the

first quarter of the 20th century, the term ‘ecology’ appeared rarely in Russian literature. It was often confused with some other science, such as physiology or biogeography. In my opinion, this confusion is one of the roots of the current misunderstanding of ecology as a biological science.

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SVITLANA RUDA & VIRA GAMALIYA

*Kyiv State University of Infrastructure and Technology, Department
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On the Question of the Institutionalization of the History of Technology in Ukraine

In 1928, Viktor Danilevsky founded the first History of Technology Department in Ukraine at the Kharkov Polytechnic Institute. This was in response to the challenges of those times. The Soviet Union was undergoing rapid industrialization during the 1920's, and there was an increased interest in the history of technology.

The process of institutionalizing the teaching of the history of technology has continued in independent Ukraine. In 2004, under the leadership of Leonid Besov, the Department of the History of Science and Technology was established at the National Technical University "Kharkiv Polytechnic Institute". In 2018, it was merged with two other departments (cultural history and political history) into the Department of Ukrainian Studies, Culture Studies and Science History. Courses on the history of science and technology, the history of engineering education and others are taught in this department.

The Department of Philosophy and the History of Science and Technology was established at the Kyiv State University of Infrastructure and Technology in Kiev in 2014. It is headed by Vira Gamaliia. Here, the main special courses are the "Philosophy of Science and Technology" and the "History of the Development of Transport."

In universities of a wider profile, those combining natural and human sciences, separate courses on the history of technology are also taught, but there are no special departments. How can we explain the priority of technical universities in the organization of departments for the study of this discipline? Apparently, now, like a hundred years ago, the challenge of our time is especially acute: technology has permeated into all spheres of social life. Its role in the formation of students' universal humanistic values at a technical university is extremely large. Interdisciplinary and general education in the humani-

ties, including the history and philosophy of science and technology, should contribute to the formation of the personality of a 21st- century engineer – the dominant type in modern industrial society – armed with the experience of past eras and the innovative requirements of modernity.

Witnesses to University History: Collections at the Vilnius University Museum of Geology

There are many unique objects of scientific importance at the Vilnius University Museum of Geology. Exceptional among them is the collection of meteorites. It grips the attention of visitors of any age – schoolchildren or adults. This is natural, since not everyone can brag about seeing an analogue of the Earth's core, something the same age as our planet. This is really a unique heritage that has come to us from outer space.

The concepts of historic and geologic time are explained by using the meteorites in our collection. The 90th anniversary of the fall of the Andrioniškis (Padvarninkai, Lithuania) meteorite is celebrated this year (2019). Even the word 'anniversary' helps our visitors better understand the difference between historic and geologic time. All of the facts that we provide about the history of our meteorites – like the year of their fall, their chemical composition and eyewitness stories – fall into the historic time framework. But the absolute age of some of the meteorites is the same as the age of the Earth (about 4.56 billion years). This latter fact helps us to explain the concept of geologic time. Meteorites are unique because each object embodies both historic and geologic time.

The Geology Museum stores witnesses from the various eras of Vilnius University's 440 year long history. From the Jesuit era (1579–1773), we have collections presented to the university by the nobility. From the time of the Imperial University (1803–1832), we have the large minerology collection of Romanas Simonavičius (Roman Symonowicz, 1763–1813), head of the minerology department and the founder of minerology in Lithuania. After the closing of the university in 1832, the collections were transferred to the Vilnius Medical-Surgical Academy.

After it closed in 1842, most of the rich minerology collections were distributed to other universities in the Russian Empire. Some of the collections remained in Vilnius and became part of the Vilnius Museum of Antiquities established by Eustachijus Tiškevičius (Eustachy Tyszkiewicz, 1814–1873) on 29 April 1855, and later part of the Natural History Museum established in the Vilnius Public Library (1867). The most famous survivor of all these moves was the Zabrodjė meteorite.

The most prominent witnesses of the interwar period and of the Kaunas Vytautas Magnus University are the Andrioniškis (Padvarninkai) and the Žemaitkiemis meteorites, which fell onto the territory of Lithuania. There are also holotypes of new fossils species that have been found and described by Česlovas Pakuckas (1898–1965) and Juozas Dalinkevičius (1893–1980).

JURIS SALAKS

Rīga Stradiņš University, Institute of the History of Medicine (Latvia)

KRISTINE ZIRNE

Pauls Stradiņš Museum of the History of Medicine, Rīga (Latvia)

An Evaluation of Rare Medical Book Collections in Latvia According to the Grolier Club List *One Hundred Books Famous in Medicine*

The Grolier Club is America's oldest and largest society of bibliophiles and book experts. The club was established in New York in 1884 in honor of Jean Grolier, a distinguished 16th-century French bibliophile. Since 1903, the Grolier Club has published lists of "One Hundred Books Famous in..." in various areas of science, also staging exhibitions related to the same.

The list of *One Hundred Books Famous in Medicine* was published in 1994. The exhibition with this identical title was inspired by and modelled after the exhibition of *One Hundred Books Famous in Science* held at the Grolier Club in 1958. It contained the overall opinions of medical bibliophiles and retailers of antique books. The list is also based on the views of former Grolier Club members such as Sir William Osler, Harvey Cushing, Josiah K. Lilly, Jr, and others. According to the curator of the exhibition *One Hundred Books Famous in Medicine* Haskell F. Norman: "A book that is 'famous' need not be one that is most important, nor need it announce the author's major discovery or, for that matter, any discovery at all."

The Pauls Stradiņš Museum of the History of Medicine in Rīga conducted a search for books written by authors who are on the list, yielding up books by 54 authors such as Avicenna, Boerhaave, Celsus, Descartes, Galen, Hippocrates, Laennec, Lister, Morgagni, Pare, Pasteur, Pavlov, Vesalius, and so forth. The museum will look for other rare books in other collections in Latvia. Detailed analysis and application

of the research will be conducted during the summer of 2019, with the results to be presented at the 29th Baltic Conference on the History of Science in Vilnius.

The search for collections of rare medical books can be expanded to Estonia, Lithuania and Scandinavia. The hypothesis is that all of the books mentioned in Grolier's *One Hundred Books Famous in Medicine* are available for researchers in the aforementioned region. Most of these are held by the Pauls Stradiņš Museum.

Growth of Collections at the Vilnius University's Zoology Museum during 1803–1842

In this paper we will present new facts about the contributions of well-known scientists to the growth and development of the collections at the Vilnius University Zoological Museum in the beginning of the 19th century. For a long time, the zoological collection, together with others, were kept in two small dark rooms of the Vilnius University's medical faculty building (*Collegium medicum*) on Pilies Street. During 1803–1832, Vilnius University underwent many transformations. It was reorganized into the Imperial Vilnius University of the Russian Empire. More emphasis was placed on the development of the medical and natural sciences. Well-known European scientists were invited to teach those subjects. New science cabinets (museum study collections) were established in the fields of mineralogy, anatomy, zoology, physics and surgery, among others.

From 1787–1824, the Natural History Cabinet was actively developed by the professor of botany and zoology Stanisław Bonifacy Jundziłł (1761–1847). A large collection of minerals and shells was donated by Count Michał Walicki. In 1823, the entire zoological collection was handed over to the professor of veterinary medicine and comparative anatomy Ludwig Heinrich Bojanus (1776–1827) – to the Cabinet of Zoology and Zootomy, which was based in the Cathedral of Theotokos (Lith. Vilniaus Dievo Motinos Ėmimo į Dangų katedra). Bojanus was a German physician and naturalist who spent most of his active career (1804–1824) teaching at Vilnius University. Under his curatorship the collections continued to grow (about 20,000 specimens) and were widely used in lectures and demonstrations. When in 1827 Carol Eduard von Eichwald (1795–1876) took over the leadership of the

Vilnius University's Department of Zoology and Comparative Anatomy from Bojanus, the zoological collections were known throughout Europe. Eichwald continued to add to the collections and hired new museum staff to take care of them. Unfortunately, these important museum and study collections had a sad fate. The Vilnius Medical-Surgical Academy which housed them was closed by order of the tsar in 1842, and most of these collections were transferred to the newly-opened Imperial Kiev University in Ukraine.

History of Taxonomy and the Principles of Exhibition of the Collection in the Zoological Museum of the Academy of Sciences in St. Petersburg: 300 Years of Change

Systematic exhibitions at the Zoological Museum, as one of the types of scientific publication, aim to reflect current views on the nature of animal diversity. The systematic collection of the Institute was formed over 300 years. The objective of this study is to understand how the exhibition of this collection has reflected the changing views of taxonomists, and what we must do today to transform these exhibitions in light of the revolutionary changes in taxonomy since the 1960s.

There have been several major changes over the last 300 years in the principles of arrangement of the systematic collections at the Zoological Museum. The museum had its origins in the Kunstkamera collections of Peter the Great. In 1724, the museum became a part of the Russian Academy of Sciences. A printed catalogue from 1742 showed that the collections were arranged according to the Aristotelian system. After a fire in the Kunstkammer building in 1747, the collections were moved temporarily to the House of Demidov, where they were arranged in a similar manner (from mammals to insects). When the collection returned to its original building in 1766, it was arranged according to the Linnaean system by Peter Simon Pallas (1741–1811). This arrangement continued into the early 19th century. When the collection moved to the museum wing of the Academy of Sciences in 1832, Johann Friedrich von Brandt (1802–1879) arranged it according to the system of Cuvier. Only when the museum moved to a new building near the Palace Bridge in 1896, was the collection arranged from the lower animals to the higher,

reflecting the influence of evolutionary ideas.

The next permutation occurred during the sovietization of the Academy of Sciences in 1929–1934. The collections were arranged in an evolutionary manner. Tens of thousands of objects were moved to another place. Protostomia were separated from Deuterostomia. Echinodermata were placed at the end of the exposition of the invertebrates. During the Soviet post-war period, under the leadership of V.D. Dubinin, A.I. Ivanov, and D.V. Naumov, the taxonomic structure of the collection assumed its present form. Since 1989, the invertebrate collection has been arranged according to the 7th edition of V.A. Dogel's text *Invertebrate Zoology* (Moscow, 1981).

Since the 1960's, approaches to classification have undergone revolutionary transformations associated with the phylogenetic systematics of Willi Hennig (1913–1976) and with the advent of molecular systematics, which significantly modified the system based on the triad of comparative anatomy, embryology and paleontology.

A Study of Individuals Associated with the 17th-Century Military Engineer Casimir Siemienowicz

Until now, Casimir Siemienowicz has been an enigmatic individual. We do not know when and where he was born, or where and when he died. We do know that he lived in the first half of the 17th century. He provided some information about himself in his notable book *Artis Magnae Artilleriae Pars Prima* [Great Art of Artillery, the First Part], which he published in Amsterdam in 1650. In this presentation, I will examine relevant biographical information about eighteen individuals from the time of Siemienowicz in order to cull some new, probable and significant details about an individual who deserves to be known better.

The eighteen individuals are all associated with the military engineering arts and science. Some of these individuals Siemienowicz knew personally and mentioned in his book. Others were his co-workers in Warsaw from November 1646 through the spring of 1649, when he returned to the Dutch Netherlands to finish and publish his book. A third group of engineers came from abroad.

This comparative analysis can provide some important and starting new biographical information. I will examine three parameters of this group biography – university education, religious affiliation, and marital status – to determine if they may provide new biographical information about Casimir Siemienowicz.

Vascular Medicine at the Old Vilnius University

The objective of this presentation is to describe the origins of angiology in Lithuania by analyzing primary and secondary sources at the Vilnius University Library.

Even in the early 16th–century writings of the surgeon and barbers guild (*Fraternitas chirurgorum et barbitonsororum*) knowledge of blood vessel anatomy is apparent. The early writings of the Vilnius University medical faculty mostly refer to the diagnoses of the diseases of the veins and arteries as well as the lymphatics. The surgeon Jacques Briôtet (1746–1818) lectured on aneurysms (*aneurysma spurium* and *aneurysma verum*) as well as on the amputations of the extremities. The anatomist Joannes Andreas Lobenwein (1758–1820) gave a course of lectures on the arteries, veins and lymphatics. The therapist and clinician Joseph Frank (1771–1842) and the physician Jokūbas Šimkevičius (1775–1818) published an article on the diseases of the aorta and a follow-up method in cases of arterial occlusion. Subsequently, some rather complex surgical procedures were performed on the superficial leg veins as well as the peripheral and carotid arteries. Šimkevičius in his text *Nauka o chirurgii teoretycznej i praktycznej* [The Science of Theoretical and Practical Surgery] (1806) describes diagnostic and treatment principles of venous diseases and aneurysms of peripheral arteries. The surgeon Wacław Pelikan (1790–1873) tried to improve the blood supply in the ischemic leg by ligating the femoral vein.

During a period of ten years until the closing of Vilnius University in 1832, eight graduates completed their dissertations on arterial aneurysms and venous diseases. In 1824, the first dissertation on auscultation, inspired by the French physician and inventor of the stethoscope (1816) René Laennec, was published in Vilnius. This method opened up new possibilities in cardiology and angiology diagnostics.

After the closing of Vilnius University in 1832 and then the closing of the Vilnius Medical-Surgical Academy in 1842, research and practical work in vascular medicine in Lithuania was continued by members of the Vilnius Medical Society. The establishment of this society in 1805 thus played an important role in the development of angiology in Lithuania.

ADAM TYSZKIEWICZ

The Medical University of Warsaw (Poland)

On the Border between Science, Art and Politics: The Traditions of the Faculty of Medicine at the University of Warsaw during 1915–1939

The Faculty of Medicine played an extraordinary role at the University of Warsaw during the years 1915–1939. Many famous scientists from this faculty have become known around the world, for example: Józef Polikarp Brudziński (1874–1917), Antoni Leśniowski (1867–1940) and Franciszek Krzysztalowicz (1868–1931). Brudziński was a pediatrician and neurologist, best known for his work on meningitis. Four eponymous medical signs are named after him. The surgeon Leśniowski was one of the first to report the condition which later became known as Crohn's disease. Krzysztalowicz was a dermatologist and one of the founders of the Polish Dermatological Society. He also served as rector of the University of Warsaw from 1924 to 1925.

Polish statesmen, such as the Marshals Józef Piłsudski and Edward Rydz-Śmigły, were symbolically associated with this faculty. They both received honorary doctorate degrees in recognition of their state service.

Several representatives of the medical faculty were also elected rectors of the University of Warsaw, such as the aforementioned Krzysztalowicz, which allowed them to build up the brand of academic medicine in Poland. The medical faculty was in keeping with the changing times – women were admitted as medical students and as members of the faculty, such as the rheumatologist Eleonora Reicher (1884–1973) and the pediatrician Marta Erlich (1878–1963).

This presentation will also briefly touch on the cooperation between the medical faculties of the University of Warsaw and the Vilnius Stephen Bathory University as well as the founding of university medical museums in Warsaw before World War II.

Inspector of the Imperial Vilnius Medical-Surgical Academy Karl Göhling (1805–1886)

In 1834–1842, Karl Göhling (Rus. Geling) was an inspector at the Medical-Surgical Academy in Vilnius (then Vilna). Karl Göhling senior was a Lutheran and a subject of the Kingdom of Prussia. At the end of the 18th century, he settled in Moscow as a music teacher. He married the teacher Ridiger's daughter. In 1805, a son was born from this marriage and like his father was named Karl. Therefore, in the Russian Empire, he was called Karl Karlovich Göhling (Карл Карлович Гелинг). In 1819, Göhling entered the Medical-Surgical Academy in Moscow and graduated in 1823. He then began his military medical service. In 1826, he was awarded the doctor of medicine degree by the Moscow Medical-Surgical Academy for his thesis on scurvy (*De Scorbuto*). He participated in the Russo-Turkish War (1828–1829).

In 1834, he began his duties as inspector at the Vilnius Medical-Surgical Academy. The rest of his life and work was associated with Vilnius and Lithuania. On 26 March 1835, he was elected member of the Imperial Vilnius Medical Society (from 1885 he was an honorary member of this society). The following year, he became a member of the Warsaw Medical Society. After the closure of the Academy in 1842, he retired and bought the estate of Svirany in the Sventyansky district of Vilnius province (at present Sventyany is Švenčionys, Lithuania). In 1842, Göhling's book *The experience of the medical civil police, with regard to the laws of the Russian Empire* was published in Russian in Vilnius. This work drew the attention of Count Sergey S. Uvarov, the Deputy Minister of National Education. Uvarov offered Göhling a position in the Department of Public Medicine at the University of Dorpat (now Tartu, Estonia), but domestic circumstances forced Göhling to refuse the professorship. In addition to his work on medical police,

Göhling published in Russian a medical textbook entitled *Instructions for common people on how to prevent disease and how to cure with simple treatments in the absence of a physician* (Vilnius, 1856). Göhling died in Vilnius on 20 November 1886.

University of Tartu Graduate E.M. Kagan (1887–1948) and his Role in the Development of Occupational Health as a Science and Academic Discipline in Ukraine

In 1938, E.M. Kagan was repressed and only in 1989 rehabilitated. Therefore, publications about him began to appear only in the post-Soviet period. However, archive materials related to him have not yet been opened for scholarly research. The purpose of this presentation is to fill in the existing gap.

Erzo Moiseevich (Movshovich) Kagan was born in Riga on July 12/24, 1887. His father was a tradesman Movsha Kagan, and his mother was Elka Kagan. Since 1903, he was a member of the Jewish Socialist Party (Bund). He participated in the Russian revolution of 1905. In 1904, for his revolutionary activities, he was arrested and was in prison for about a month. After his release he emigrated to Geneva. In 1905, he returned to Russia, where he became a professional revolutionary. In 1908, he left active political party work. That year he married Brian Vulfovna Grubin, and the following year his daughter Dina was born. In 1911, he enrolled in the Faculty of Physics and Mathematics of Tartu (then Yuryevsky) University. In 1912, he transferred to the second year of the medical faculty of the same university and graduated in 1916 with a medical degree. It should be noted here that he passed the hygiene course of Professor E.A. Shepilevsky (1857–1920). He began his medical activities in Orel. In 1919, he moved to Kharkov. In 1923, he organized and headed the Department of Occupational Health at Kharkov Medical Institute and continued to lead it until the day of his arrest in 1938. This was the first department of occupational health in Ukraine. Also in 1923, he organized and became director of the Ukrainian Central Institute of Occupational Hygiene and Occupational Diseases. In Ukraine, Professor Kagan was one of the founders of occu-

pational medicine. His scientific publications were devoted to a wide range of problems associated with occupational health. On 19 February 1938, he was arrested and sentenced to 5 years in labor camps. He served his sentence in Vyatlag, one of the biggest concentrations of forced labor camps in the Gulag system (in the north of the Kirov Oblast, 1,000 km. northeast of Moscow). On 3 September 1942 he was released on parole. In 1945, he received permission to move to Omsk and work in the Department of Occupational Health at Omsk Medical Institute. He died on 1 August 1948.

Kārlis Barons' Service in the Russian Empire Army in Šiauliai in 1892

Professor Kārlis Barons (1865–1944) was the director of the Dentistry Department and the Dentistry Institute of the University of Latvia's Faculty of Medicine from 1921 until 1944. Barons' professional work and contribution to the development of dentistry have been researched and analyzed more extensively than his early work. The collection of the Literature and Music Museum in Riga contains extensive correspondence between Barons and his family members. This offers a look at the life of the Barons family, as well as Latvian society between the 1860s and 1920s.

Of importance are letters written by Barons to his father, folklorist and social activist Krišjānis Barons (1835–1923). The letters were written between 1891 and 1893, with Barons describing the beginning of his professional career in Riga and his military service in Šiauliai (Lithuania). Kārlis Barons graduated from the Faculty of Medicine of the University of Moscow in 1891 and moved to Riga in June 1892 to open a private practice. In July of that year he was drafted into the army of the Russian Empire as a reserve physician. From August 1892 until 3 October 1892, he served in a field hospital in Šiauliai. Three letters in which Barons described his job at the field hospital, military duties and everyday life have survived. While in the army, Barons received a salary, as well as money to buy his uniform. He was also provided with other necessary things. Barons also wrote about a cholera epidemic in Riga and elsewhere in the Russian Empire, as well as about the possibility that he might continue to be a doctor in the army. Letters from Professor Kārlis Barons offer key evidence about the era in which he lived, reflecting the start of the young doctor's work and his everyday life in and around Riga. They also offer information about poorly studied issues related to the work and service of doctors in the armed forces of the Russian Empire.

University Staff without Diplomas: Exceptional Cases in the History of the University of Latvia

Today it is impossible to imagine that staff without university diplomas could teach at a university, but after the First World War things were different. When the University of Latvia was founded in 1919, there was a lack of teachers with university diplomas, and so those without were allowed to teach until the university found someone with all the necessary exams. Thus Kārlis Dēķens only taught courses in 1919/1920 and Voldemārs Miežitis in 1920/1921. They were teachers who taught courses in the Department of Pedagogy at the University of Latvia.

The lecturer Friedrich Kuegler, who had studied at the Forest Academy in Eberswalde (Germany), did not have an academic degree. He taught from 1920 to 1922 until the University of Latvia found out that he had no academic exams.

Another case was Indriķis Saule–Sleinis. He taught methods of geography from 1940 to 1944. He became a university teacher during the Second World War and worked during the Soviet era. After the war he studied Marxism–Leninism at a so-called evening university. Saule–Sleinis was dean of the Faculty of Geography from 1947 to 1948. Authorities in Moscow found out that he didn't have any university exams. In order to get permission from Moscow to stay at his post in Latvia, he received good references from the University of Latvia. In 1950, they wrote to the Minister of Higher Education of the USSR to get permission for Saule–Sleinis to take his exams, and if successful, to defend his dissertation as a candidate. But this was not granted, and so Saule–Sleinis decided to leave the University of Latvia.

In all of these cases the teachers were characterized as professionals and specialists. They had studied at universities but didn't get their diplomas, which would have given them the right to be university teachers. They only had these posts as long as there were no others with the necessary diplomas.

Physical Health and Pronatalism in Jędrzej Śniadecki's *On the Physical Education of Children*

Jędrzej Śniadecki (1768–1838) was one of the first Polish-Lithuanian anthropologists. Śniadecki was a professor of chemistry and medicine at the University of Vilnius and the Vilnius Medical-Surgical Academy. Śniadecki was a scientist with many talents. In 1800, he published the first textbook of chemistry in the Polish language in Vilnius. One of his most famous works was the three-volume *Theory of Organic Beings* (Vilnius, 1838), which is considered one of the earliest works on physiological chemistry.

One of Śniadecki's fields of scientific interest was the hygiene and physical education of children. In 1840, thanks to M. Baliński, his *On the Physical Education of Children* was published posthumously in Warsaw. This nearly 90-page monograph presented Śniadecki's concept of physical education. It included many aspects that contributed to the overall education of a child. He believed that the main purpose of education was to create a healthy and happy individual. In order to reach that goal, education should be organized and based on both the correct interpretation of human physiology and moral needs, and not just on morals. In this way, a population of healthy people would create healthy families and a healthy, strong nation.

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