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PHYSICIANS IN SREM IN XVIII AND XIX CENTURY:
DISTINGUISHED BOTANISTS

ABSTRACT: It was necessary for the first physicians to have the knowledge of plants, because phytotherapy was an integral part of medicine from the very beginning. For this reason, botany was a significant part of the curriculum at medical faculties in the XVIII and XIX century. Some professors at these faculties were known in international scientific circles as prominent botanists (Pál Kitaibel, August Kanitz, Giovanni Scopoli, Carl von Linné, etc.). After the liberation from the Turkish rule, flora was insufficiently explored in the territory of today’s Vojvodina, which made it an interesting area for botanical studies undertaken by science professors from the universities in Vienna, Pest, and Cluj. A significant contribution to their scientific work was given by researchers from Srem, who in addition to their medical and pharmaceutical work practiced also botany. Some of them had their results published in publications and some became members of the European scientific natural history societies (Andreas Budai, Georgius Streim, Bartholomäus Emmanuel Godra, Mathias Kirchbaum, and Andreas Wolny).

KEYWORDS: botany, medicine, physicians, Srem, Vojvodina, herbarium

INTRODUCTION

Physicians had knowledge of plants from the distant past. The reason for this was the need for mastering the knowledge of plants which, prepared in a special way, were used for treating patients. Even the ancient physicians Hippocrates, Theophrastus, and Galen wrote in their works about herbal therapy. Dioscorides’s work on medicines De materia medica represents an encyclopaedia of ancient botany, pharmacognosy and pharmacology.

Medieval medical schools of Salerno and Montpellier had a significant impact on Serbian medieval monastic medicine. For pharmacological manuscript of Hilandarski medicinski kodeks (Hilandar Medical Codex), Relja V.

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Katić, our famous historian of medicine, using comparative analysis proved that it was written under the strong influence of Matthaeus Platearius’s *Circa Instans* and *Antidotarius* by Nicolaus Praepositus. *Hilandarski medicinski kodeks* deals mainly with herbal drugs, their composition, pharmacodynamic properties and method of use. For pharmacotherapeutic part of *Hodoški zbornik* (Hodoch Code) was determined to represent an adapted version of *Practica Brevis* by Johannes II Platearius, a well-known professor at medical school of Salerno. In 1749, protomedicus of Austria and the personal physician of Empress Maria Theresa issued a letters patent which initiated reforms of Medical faculty in Vienna. He founded new institutions and departments, as well as botanical garden, acquired various collections and raised the reputation of the faculty to the leading position in Europe (Maksimović 1995). At that time, rationalist and educational work of Zaharija Orfelin was of particular importance for familiarizing uneducated Serbian people with the basics of natural sciences. To this end, in 1768 he launched *Slavenoserbskiij magazin* (Slavonic-Serbian Magazine), the first magazine among the South Slavs in which, in addition to literary contributions, there were also articles in natural sciences. The magazine ceased publication after the first issue, but Orfelin published in 1783 his *Vëcnij kalendar* (Perpetual Calendar) with many articles in physics, geography, astronomy, meteorology and hygiene, as well as *Iskusni podrumar* (The Experienced Wine Cellar Owner) with short list of plants and herbs in Latin and Serbian.

**Zaharija Stefanović** was born in Vukovar in 1726. His education was irregular and he was largely self-educated. He often changed his place of residence and types of jobs. He was a teacher at Illyrian school in Novi Sad, then a clerk (scribe) in the office of Metropolitan Pavle Nenadović in Karlovci, where he founded his copperplate printing shop, and in 1762 he stayed in the Rakovac Monastery. In 1764/65 he worked in Venice in a printing shop for Cyrillic books, then again in Karlovci, where he was engaged in viticulture and where he created his works. As he could not make a living from copper engraving craft he lived for some time in monasteries Beočin, Grgeteg and Velika Remeta, with the monks who were openly hostile to him because of his rationalist enlightenment ideas. In 1783/84 he worked in Vienna as a press corrector in Kurzbeck printing shop. Gravely ill, he returned from Vienna to Novi Sad, and in 1785 on the estate of Bishop Josif Jovanović Šakabenta died of tuberculosis in material poverty. He was buried at the Almaško cemetery in Novi Sad.

For Orfelin’s work *Iskusni podrumar* (published in Vienna, 1783) (Figure 1), Jovan Tucakov believed that, although primarily designed for winegrowers, it was “a real array and plentitude of encyclopedic information about pharmacognosy, pharmacodynamics, pharmacology, galenic pharmacy, ecology and botany”. At the end of the book was added a list with 250 names of herbs, different roots and other plant parts that were used for the preparation of medicinal and other beverages. This was of great importance for the development of Serbian botanical terminology. Orfelin was the first who made a scientific classification of medicinal and related herbs and beside Latin names he gave also traditional, Serbian names. The book had four editions: Vienna 1783, Buda 1808, Pančevo 1874, and Pančevo 1885; and two phototype editions of the original
from 1885: Belgrade 1986 and 2010. Orfelin spent a lot of time in Fruška Gora Mountain, where he studied the floristic diversity, and especially medicinal herbs.

Among Orfelin’s books which were abandoned for many years in the Cathedral Church in Karlovci and transferred to the Patriarchal library at the beginning of the 20th century, Dimitrije Mita Kostić found a herbarium in 1921, which Orfelin himself called Veliki srpski travnik (Great Serbian Book of Herbs). According to Kostić, it is an updated and revised German edition of Elizabeth Blackwell’s Herbarium Blackwellianum (1754–1773), in which Orfelin, beside German and Latin, added Serbian name of each plant. Zaharija Orfelin untied this German-Latin edition with 600 color copper plates and had it bound again in three volumes. He also added Serbian plant names in the top left corner. For the first seven illustrations he gave a description of each plant: genus, characteristics, where it can be found and the way of preparation. Because of all that, Jovan Tucakov considered Orfelin a pioneer of Serbian botany, herbal medicine, pharmacognosy and pharmacology. Kostić and Tucakov agree in opinion that Orfelin intended to revise this famous European Herbarium, which was one of many similar items in scientific circles of Europe at that time. He wanted to publish it as Serbian edition, especially because Orfelin himself was an excellent engraver and possessed in his library extensive botanical literature. That he started to work on it is evidenced by separate numeration of copper plates with Slavonic-Serbian names of plants. What prevented him to finish it has still remained unknown (Maksimović 1995; Tucakov 1971; Kostić 1921) (Figure 2).
By order of Empress Maria Theresa, protomedicus of Austria Dr. Gerard van Swieten organized in 1769 the establishment of the Medical Faculty in Nagyszombat (today Trnava in Slovakia). Classes were organized according to the model of the Medical Faculty in Vienna, and in compliance with the then rationalist and educational tendencies that were more inclined to natural sciences. There were five departments altogether: *Institutiones* (general subjects), *Anatomia*, *Chirurgia*, *Botanica ac Chymia*, and *Praxis medica*. After the Medical Faculty moved from Nagyszombat to Buda and then to Pest, the organization of teaching remained almost the same. The Department of Botany and Chemistry was one of the most important at the mentioned medical faculties in the XVIII and XIX century. The Department of Pharmacy was established in 1772 (Popov and Antić 1975). In order to learn pharmacotherapy properly, which at that time was based on prescribing medicines and making them of medicinal herbs, a compulsory subject was botany. Therefore, there were many medical doctors who, apart from being physicians, were also actively engaged in the study of botany, and some of them dedicated themselves fully to it.
Pál Kitaibel was a Hungarian botanist, chemist and doctor. He was born in Nagymarton (Ger. Mattersburg), in western Hungary (now Austria) on 3 February 1757. He attended grammar school in Sopron (Ger. Ödenburg) and lyceum in Győr. He studied medicine at the University of Buda, after unsuccessful attempts to study law and theology. After medicine, he studied chemistry and botany. He graduated from Medical Faculty in 1785 when he was 28. After the death of his professor Josef Jacob Winterle, Kitaibel took over the professor’s position in 1809 and taught chemistry and botany in Pest. He was also a director of the Botanical garden in Pest. In the period between 1795 and 1815 he carried out 16 research journeys in which he explored the world of plants. Beside plants, he also studied the properties and quality of soil, occupations and illnesses of the local population, minerals, healing mineral waters and economy of the areas that he visited. His biographers speak of him as a botanist, petrographer, and seismologist. Over the two decades, he systematically examined and described 150 mineral springs. He traveled by horse-drawn wagon, carriage, on horseback and on foot. In 1794, he visited Rijeka (Fiume), Trieste and the province of Venice including Piave, and in 1795 he collected a new type of mallow near Vukovar, Beočin and Sremski Karlovci (perhaps together with Budai, author’s note). In Slavonia, the same plant he located in the vicinity of Našice. It was later named after him *Kitaibelia vitifolia* (Kadivka in Serbian). The following animals and plants were named after Kitaibel: *Ablepharus kitaibelii* (European copper skink), *Cardamine Kitaibelii* (bittercress), *Knautia kitaibelii* (dipsacles), and *Aquilegia kitaibelii* (columbine). Kitaibel went round Baranja in 1799, Fruška Gora Mt. in 1800, and stayed in the vicinity of Zemun. He studied plants also in Banat, Deliblatska peščara, and near Vršac and Oraovica. It can be said that he went across almost the entire territory of today’s Vojvodina. In 1802, along with his friend and collaborator Waldstein and cartoonist Schütz, he went on a journey through Croatia, which successfully completed visiting Zagreb, Karlovac, Korenica, Plitvice lakes, and mountains Plješevica and Velebit. They brought a large number of new species of plants, which he planted in the Botanical garden in Pest. He traveled to the High Tatras with Waldstein, and in 1803 spent four months in the Carpathians. In 1798, Kitaibel and Waldstein visited in Berlin Carl Ludwig Willdenow (Berlin, 1765 – Berlin, 1812), a leading botanist of the time. They both sought the advice on a joint scientific botanical work that they were preparing. As a sign of respect to these two researchers, Willdenow introduced in nomenclature new names for the mallow from Srem and the finger-like plant of Mid-Hungarian mountains: *Kitaibelia vitifolia* (chalice flower) and *Waldsteinia geoides* (barren strawberries) (Grmek 1963).

Kitaibel’s friend and patron Franz Adam von Waldstein (Wartenbur, 1759–1823) was an Austrian officer, Knight of Malta, participant in many battles against the Turks, and the royal chamberlain. After the wars, he dealt with the economics and devoted himself to botany. He had good powers of observation
and a private opinion. His extensive herbarium and botanical literature are kept at the Czech National Museum in Prague. Together with Waldstein, Kitaibel published a major work of classical botanical literature in three volumes: *Descriptiones et icones plantarum rario-rum Hungariae* (Wien: M. A. Schmidt, I–III, 1800–1812). The book was written in Latin, modeled on Linné, and could be found in many European bookstores of the time. Kitaibel’s contemporaries in Srem were Andreas Budai and Andreas Wolny. Although Kitaibel did not mention them in his writings, it is very probable that during his travels through Srem he was in contact with them and used their botanical contributions for his herbarium and his books. He died on 13 December 1817 in Budapest (Magyar Lexikon 1885; Javorka, 1957; Both 2009; Österr. Biograph. Lexikon 1965) (Figures 3–6).

*Figure 3. Pál Kitaibel (1757–1817)*

*Figure 4. Stamp representing Pál Kitaibel and chalice flower (Kitaibelia vitifolia)*
August Kanitz was an Austro-Hungarian botanist. He was born in Lugoš, in Banat, on 25 April 1843. At the University of Vienna he studied medicine and natural sciences. He received his Ph.D. degree in 1869 from the University of Tübingen. For a short time he was a science teacher at the Agricultural
High School in Altenburg. For the purpose of establishment of botanical garden and museum at the University he visited Italy in 1871. Already in 1872 he became professor of botany at the newly founded University of Cluj (Klausenburg) where he established botanical garden and herbarium, which was based on a deep knowledge of professional literature, and especially the flora of Romania and Bosnia and Herzegovina. He was the University president (rector) in 1887/88 and the dean of the Faculty twice (1881/82 and 1895/96). He was the first to describe the Hungarian history of botany (*Geschichte der Botanik in Ungarn*, Hannover–Pest 1863). With his friend Josef Armin Knapp, a student of medicine, Kanitz visited the region of Slavonia and Srem in 1864 studying plants. In addition to botanical work, which he presented in one of his publications, Kanitz pointed to the work of prominent physicians, pharmacists and science teachers from Srem and Slavonia and their contribution to botany. Among other things, he said: “Dr. Andreas Budai, a physician in Srem County, for *Plantae sirimienses* in Kitabel’s *Geographia botanica* donated 100 plants collected in the vicinity of Vukovar”. Kanitz especially praised the work of Andreas Wolny, a botanist and director of the Karlovci Grammar School. For the work of Wolny’s successor as the Grammar School director, Andreas Rumi, Kanitz said that his records were like unskilled compilation Wolny’s work. Kanitz died in Cluj, on 13 July 1897 (Schulzer et al., 1866; Neue Deutsche Biographie, 1977; Österr. Biograph. Lexikon, 1965a) (Figure 7).

**Figure 7. August Kanitz (1843–1897)**

Josif Pančić (1814–1888), a prominent Serbian botanist and physician, was born on 5(17) April in the village of Ugrine near Bribir (Croatia). He attended primary school in Gospić, grammar school in Rijeka, and two years of philosophy in Zagreb. He graduated in 1842 from Medical faculty in Pest with doctoral thesis on systematics of plants (“Taxilogia botanica”). At the Univer-
ity of Vienna he attended lectures of a famous botanist Stephan Ladislaus Endlicher. In Vienna he met Vuk Karadžić, who suggested him to go to Serbia and study plants. Pančić arrived in Serbia already in 1846. He studied the flora of the Belgrade area and then put it into the book *Flora u okolini beogradskoj* (Flora of Belgrade surroundings) (Belgrade 1865), which with revisions had several editions in Serbian and Latin. Meanwhile, by order of the ministry he was sent to the glass factory in the village of Belica, Jagodina county, to work as a factory physician and fight against the epidemic of typhoid fever. Soon after that, in 1847, he was appointed a county physician in Jagodina, where he studied the flora of the area in free time. That same year he was transferred to Negotin, and later to Kragujevac, where he also was a county physician. At that time, he was also a spa physician in Bukovačka spa where he began studying mineral waters.

![Figure 8. Josif Pančić (1814‒1888)](image)

After the reform of the lyceum in 1853, the third department was established—for natural and technical sciences. Pančić then left Kragujevac but also medicine. He worked under contract as a professor of zoology, botany, mineralogy with geology, and agronomy at the Department of Natural Sciences. In 1863, when the lyceum was transferred into the Higher School, Pančić became full professor of the same subjects. Pančić founded the first natural science laboratories in the school, as well as the Botanical Garden in Belgrade. His large herbarium was the scientific research base for studying the flora of the Balkan Peninsula. He went across mountains in Serbia, Montenegro and Bulgaria. On his journeys he described about five thousand new plant species whose habitat was in the central parts of the Balkan Peninsula. He became known to a wider international and domestic public after he discovered and

* Engraved by Julius Cherny
described a relict spruce, which was named after him in the botanical literature – Serbian or Pančić spruce (*Picea omorika*).

Pančić published his first scientific papers in international journals in German language, because in Serbia at that time there were few professional journals (“Verzeichniss der in Serbien wildwachsenden Phanerogamen, nebst den Diagnosen einiger neuer Arten”, *Verh. Zool.-Bot. Ges. Wien*, 6, 1856; “Die Flora der Serpentinegebirge in Mittel-Serbien”, Ibid. 9, 1859, etc.). As a professor at the the Higher School he published his most important works: *Flora Kneževine Srbije* (Flora of the Principality of Serbia) (Belgrade, 1872) and later *Dodatak flori Kneževine Srbije* (Supplement to the flora of the Principality of Serbia) (Belgrade, 1884), and the aforementioned *Flora u okolini beogradskoj*.

Josif Pančić was six times elected President of the Higher School, and in 1884 he was appointed member of the State Council. He was respected as a scientist, even after retirement, and he taught botany and managed natural sciences laboratory in the School and the botanical garden near the Danube until 1887. Serbian Royal Academy elected him its first president in 1887. He was twice elected Vice President of the National Assembly of the Kingdom of Serbia, in 1870 and 1871 (Vasić 2012). He was a full member of the Serbian Learned Society, a member of the Serbian Royal Academy, a member of the Matica Srpska in Novi Sad, honorary member of the Bavarian society “Pozychia”, a member of the Education Council, a corresponding member of the Yugoslav Academy of Sciences and Arts, a member of the Hungarian Academy of Sciences in Pest, Institute of Geology and Zoological-Botanical Society in Vienna, Brandenburg Botanical Society, Cherbourg Society of Natural Sciences, and other biological and medical associations. He was a member of the Serbian Medical Society and one of its fifteen founders. After the outbreak of the Serbo-Turkish Wars (1876-1878) and the Serbo-Bulgarian War (1885/86) he assumed the position of manager of the Reserve military hospital of Serbian Red Cross in Belgrade. He was awarded the Order of St. Sava, the Order of the Cross of Takovo of the third degree and the Order of the Serbian Red Cross (Grmek 1951; *Javor* 1888; Stanojević 1972; Živanović 1893; Đorđević 1897).

Josif Pančić often visited Srem and Karlovci. During one visit to Karlovci and Karlovci Grammar School in 1857 Pančić inspected Wolny’s herbarium and corrected some minor errors in determination of plant species. Today, it is known that a part of this herbarium belonged to Pančić including over 400 plant species.

Josif Pančić died in Belgrade in 1888 and was buried in the Old Belgrade Cemetery. Three days before his death, though seriously ill, he sent to the Academy, as its president, his last epistle. In order to fulfill this scientist’s wish, mountaineers in cooperation with the Serbian Academy of Sciences and Arts and the Serbian Geographic Society on 4 July 1951 transferred his remains to a crypt in a mausoleum on the highest peak of Kopaonik, which was then renamed Pančić’s peak (*Planinarski glasnik* 1951).

**Dr. Sava Petrović** was born in Šabac on 14 January 1840. He was a physician and botanist, doctor of medicine and surgery, personal physician of King Milan, and medical corps colonel. He finished elementary school and lower
grammar school in his hometown, and upper grammar school and two years of lyceum in Belgrade. He studied medicine in France. At first, he was a county physician in Kruševac, and then he was appointed a military physician in Belgrade. He became a personal physician of King Milan Obrenović who helped him with studying the flora in the area of Niš. Although he was a physician, he dedicated himself to botany and pharmacognosy. On his initiative, King Milan gave an estate in Palilula to the Higher School to establish the Botanical Garden “Jevremovac”. He is the author of the following books on botany: *Flora okoline Niša* (Flora of the Niš surrounding area) (1882) *Lekovito bilje u Srbiji* (Medicinal herbs in Serbia) (1883), and *Dodatak flori okoline Niša* (Supplement to the flora of the Niš surrounding area) (1885). In 1884, in the vicinity of Niš, he discovered an endemic species *Ramonda nathaliae* (Natalie’s Ramonda or cookie), which he described and named in cooperation with Pančić. He was a full member of the Serbian Learned Society (1869) and corresponding member of the Serbian Royal Academy (1889). He died in Belgrade on 20 January 1889 (Stanojević 1972; Stanojević 1992; Ranđelović 1998).

**PHYSICIANS IN SREM – BOTANISTS**

Throughout the whole XVIII and XIX century the region of today’s Srem was divided into two administrative territories. Srem military district was located along the Sava River and was a part of the Ninth Petrovaradin Border Infantry Regiment based in Sremska Mitrovica, under the direct administration of the Court War Council in Vienna. The other administrative territory, the civil part of Srem (*Provincial*) belonged to the Srem County. The seat of the county was in Vukovar. Each of the two administrative territories had its own special organization of health service. Physicians who worked in the military district graduated from the Josephinum Military Academy of Medicine and Surgery, while in *Provincial* the health service was performed by physicians who graduated from Vienna or Pest Medical Faculty. The seat of the main county physician was in Vukovar (Maksimović 2007).

**Andreas Budai** was born on 30 November 1759, in Garta in Sopron County. He was of Hungarian nationality. He was a medical doctor, and a physician of Srem County for 41 years. He graduated in 1789 from the Pest Medical Faculty, where he gained his veterinary diploma in the same year. He was appointed a county physician in Vukovar in 1789. In the first few years after the appointment of Dr. Budai for county physician, Srem was hit by a severe plague epidemic, which from July 1795 to February 1796 devastated almost the whole county. Budai spent 12 months in Irig, in the center of the epidemic, but did not get sick, probably because he treated himself with acetic solution. His work and commitment greatly contributed to combating this pest, and his observations about patients and history of the illness was taken over by the University of Pest Professor Dr. Franz von Schraud, who was in charge of the anti-epidemic protection measures during this epidemic. He published them in his well-known work *Historia pestis Syrmiensis*. In addition to the fact
that during many years of work he gained sympathy of the common people, especially when providing assistance during the plague epidemic, Dr. Andreas Budai was respected in scientific circles as an excellent botanist. August Kanitz said that Dr. Budai collected and described about 100 medicinal herbs in the area of Vukovar, and that his herbarium entered the collection “Plantae Syrmienisis” in Kitaibel’s Geographia botanica. Later, Sulzer, Kanitz and Knapp, who studied the flora of this area, when mentioning Kitaibel’s fundamental works in this field in their study Die bisher bekannten Pflanzen Slawoniens, pointed to Andreas Budai and Andreas Wolny, Kitaibel’s contemporaries, who were meritorious researchers of the flora of this region. For his merits and his long-time work Budai was awarded the Grand Gold Medal. He died in Vukovar on 4 March 1816. On his tombstone, which is stored in the City Museum in Vukovar, there is the epitaph: “reLiqVIIs anDreae bVDay phisICI De peste CIVIbVs moto grata fILLa ponIt”. When the numerical values of the capitalization on the epitaph are summed up, the year of his death is obtained (Javorka, 1957; Schulzer et al., 1866; Mićić 1968; Mićić 1987; Dorn 1976 Maksimović 2015; Mikić 2004).

Georgius Streim was born in 1803 in Novi Sad, in Bačka County. He was a Catholic. He graduated in 1829 obtaining the title of medical doctor. He moved from Pest to Vukovar in 1829. That same year, the regency demanded that county physicians examined the natural resources of counties in which they were serving (“wild plants, mineral and animal substances, and mainly those that can be used for healing or for technical purposes”). The County entrusted the task to Dr. Georgius Streim, who was then a private physician in Vukovar, “because one physician (Budai) was very old, and the other (Furjaković) suffered from podagra”. Shortly after that, in 1831, Streim was appointed secondary physician, and in 1846 a regular county physician. In 1843 he was elected a member of the Royal Medical Society in Pest, and in 1845, a regular member of the Hungarian Society of Natural Sciences. He successfully organized the defense and prevented the spread of cholera (1831). Among other things, Georgius Streim actively practiced botany. Kanitz mentioned that Streim gave his observations about the flora of Srem to botanists of the time. When counties of Srem and Virovitica were merged in 1855, Dr. Georgius Streim moved from Vukovar to Osijek (Schulzer et al., 1866; Mićić 1968).

Mathias Kirchbaum was a pharmacist in Vukovar. He was a son of Felix Kirchbaum, owner of the first pharmacy in Vukovar. Mathias was born in Vukovar on 4 March 1796. He graduated in pharmacy in Vienna in 1826, but was also interested in botany. There were a large number of professional botanical books in his library. He was a member of the Zoological-Botanical Society in Vienna (Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien) from 1864. He collaborated with a well-known Austrian botanist August Kanitz during his stay in Srem in 1864. Kanitz mentioned him as a renowned pharmacist and a connoisseur of the flora in the area of Vukovar, who informed him about many curiosities and peculiarities of the flora in that area. Mathias died on 19 May 1868 (Schulzer et al., 1866; Mićić 1968).
Andreas Raphael Wolny was born on 10 December 1759 in Chemnitz, in Slovakia. He studied medicine for a short time. In his native town he finished grammar school and then continued his education in Pozsony (Bratislava), where he started medicine, and continued with science and pedagogy. It can be assumed that Wolny started practicing botany during his student days. His older compatriot Stephani Lumnitzer (1749–1806), the author of *Florae Posoniensis* (Leipzig, 1791), advised Wolny on collecting plants. Upon his arrival in Karlovci, Wolny already had quite an extensive herbarium. At the invitation of Metropolitan Stratimirović and recommendation of Professor Kreil, the Patronage of Karlovci Grammar School appointed Wolny in 1794 to the post of the grammar school professor, and soon after that he was appointed director of the school (Figure 9).

*Figure 9. Andreas Wolny (1759–1847)*

During his office in the Grammar School natural sciences had priority. Introducing object-teaching method, he founded natural science laboratories. For two years he compiled a mineralogical collection of 800 pieces of minerals and rocks, and in the area of Karlovci and around Srem he collected plants for his herbaria.

Before Andreas Wolny’s herbarium, for teaching purposes in Karlovci Grammar School was used *Herbarium Blackwellianum* from Nuremberg – the first to contain pressed plants and not drawings as before. Beside this herbarium, Andreas Wolny began with the formation of his own herbarium. Next to each plant he wrote its Latin and German name, and next to some of them

* Oil on canvas: unknown author: about 1815 (City Museum of Novi Sad: Sremski Karlovci Homeland Collection, Inv. no. U-46)
also their Serbian name. There is an opinion that the traditional names of some plants in the herbarium were written by Zaharija Orfelin. In 1797 Wolny compiled the first volume (“centuria”) of his work *Flora*. One herbarium, which was considerably damaged over time, is now part of the natural science collection of Karlovci Grammar School (*Florae Syrmiensis seu Plantarum in Syrmio sponte nascentium anno 1797. Centuria I et III*), and the other two are placed in museum in Budapest (*Notata botanica ad floram Hungariae et Syrmii spectancia et Specimen florae Carloviciensis*). The second centuria from Karlovci was lost during the World War I. In his book *Die bisher bekannten Pflanzen Slavoniens*, August Kanitz, according to Valentin Karl, marked by asterisks all the plants that were in Wolny’s herbarium in Budapest (Figure 10). Beside Wolny’s “centuria”, in Karlovci Botanical Collection there is a large number of plant specimens contributed by scientists outside Sremski Karlovci. As already stated, the greatest contribution was the one of Josif Pančić with about 400 plants. He examined some herbaria, including Wolny’s, during a visit to Karlovci.

![Figure 10. Herbarium Wolnyanum](image)

In scientific circles Andreas Wolny was highly respected as a botanist, chemist and mineralogist. The Regensburg Botanical Society (1803) and the Mineralogical Society of Jena elected him an honorary member. In Buda, he published *Historiae naturalis elementa* (1805).

Because of poor financial situation, but already respected as a chemist, he accepted the position of director of a factory in Muszay in Beres County and moved there. After two strokes, he died on 17 October 1827 in Muszay (Petrović 1991; Perić *et al.*, 2013; Marčetić and Babić 1952 Jacob, 1999; Stojšić 2010).
Some of Wolny’s friends in Karlovci also practiced natural sciences, with a special emphasis on **Joseph Schanc**, a magistracy clerk in Karlovci. He was Wolny’s friend and companion in botanical and mineralogical excursions. He showed great interest in botany, mineralogy and geology and he himself also collected plants for the herbarium. Even today, in the Karlovci Grammar School Botanical Collection there is a herbarium of Joseph Schane. Spreading of industrial plants did him credit, so in 1813 he was appointed lieutenant of economics profession in the Military Frontier.

Zuzana Bunke in one her works raises the question of how, when and where Andreas Wolny and Pál Kitaibel met. One possibility is that it was near Pest and Buda, where Kitaibel was assistant in the botanical garden at the University. It seems, however, that Wolny collected plants on his own, and that Kitaibel studied Wolny’s herbarium later and put his inscriptions on 66 Wolny’s labels and expanded some of them. It is obvious that they were in contact – just by correspondence or personally, it remains unknown.

Studying “Herbarium Wolnyanum” Bunke indicates that for some time Wolny was focused on collecting medicinal herbs, which could be connected with his interest in pharmacognosy, which dates back to his student days, and in medicine, which was evident in introduction of strict hygiene measures and regulations in Karlovci Grammar School at the time of his directorship, concludes further Zuzana Bunke.

Andreas Wolny selflessly helped young researchers and scientists. Bunke cites the example of Joseph Sadler, a young assistant at the Department of Botany at the University of Pest, who defended his dissertation on ferns in 1820. On that occasion, Wolny sent him a multitude of details from his herbarium. For some specimens he even mentioned the place where he had found them, for example: “Ad Carlowitz in Syrmio, in Silva Strazsilovo frequens, item in Slavoniae silvis; in subalpinis AD Erdőd Comitatus szatmariensis” for hart’s-tongue fern (Asplenium scolopendrium), or “in Rimis saxorum Petrovaradini, et eorum qui iter ex Alba Ecclesia ad Moldaviam facientibus ad sinistram Danubii portam assurgent. Septemvri, 1817” for rustyback fern (Asplenium ceterach) (Bunke 1996).

**Karl Georg Rumy** was appointed director of the Karlovci Grammar School after Andreas Wolny left. He was born on 18 November 1780 in Spišská Nová Ves (Slovakia) (Figure 11). He spoke Slovak, German, Hungarian, Latin, Greek and Serbian. He practiced in philology, history and natural sciences. Rumy had the intention to continue the work of Wolny on collecting rare flora of Karlovci and Srem. In 1842 he wrote the work *Szerém éghajlata Szlavoniában. A magyar orvosok és természetvizsgálók nagygyűlésének munkálatai* (On the climate of Srem and Slavonia ...). Kanitz characterized this work as uncritical compilation of Wolny’ work. Rumy had to leave Karlovci and Karlovci Grammar School in 1821. He died in Esztergom on 5 April 1847 (Schulzer et al., 1866; Petrović 1991; Kormošová 1998).
Bartholomäus Emmanuel Godra was a military physician. He was born on 18 June 1834 in Lalić (Lality) in Bačka. His parents were originally from Bohunice in Slovakia. They were teachers at Evangelical school in Lalić, and his father was a director from 1836. After graduating from high school, Bartholomäus studied medicine in Vienna. He graduated from the Josephinum Military Academy of Medicine and Surgery in Vienna in 1867. He was appointed military physician in Sremska Mitrovica, as it was the seat of the Ninth Petrovaradin Border Infantry Regiment in the area of Srem Military Frontier. He was later promoted to senior military physician and the rank of lieutenant colonel. Apart from being a physician, Bartholomäus Godra was actively engaged in biological and botanical studies in particular, and because of it was distinguished in a broader scientific community. He became a member of the Royal Zoological-Botanical Society in Vienna (Mirković 1961; Zbirka Matičnih knjiga…, 1731/32; 1834; Rodokmeň rodu Godrovcov 2016; Segi 2010; Registry of the deceased Roman Catholics, office in Ruma, 1860–1878; Glesinger 1965).

Apart from the natural resources of the area of Petrovaradin Regiment where he lived and worked, he researched, studied and recorded the way of life and the state of health of the population in this region, as well as economic conditions, cultural and historical circumstances. As a result of his efforts, he published in 1873 in Zemun his most important work, a monograph on Srem (Monographie von Syrmien: ethnographisch-topographische, kulturhistorische und statistische Skizze des Peterwaradeiner Grenz-Regimentsbezirkes: mit besonderer Berücksichtigung der in Syrmien kultivirten und wildwachsenden Glumaceen: mit einer Karte) (Figure 12).
In the introduction to this book, which is very important for the history and botany of Srem, the writer explained that as a member of the Imperial Royal Zoological and Botanical Society in Vienna he was asked by the Committee to write a paper on botany for the World Exposition. He chose the field of botany which was still insufficiently explored, and which could be useful not only for the residents of the Regiment, but also for the general public. It was an overeview of the plants from this area, belonging to the grass family – then Glumaceae or Glumiflorae and today Gramineae or Poaceae. Given that this area was unknown from botanical perspective, he added a “drawn” herbarium of Glumaceae. It presented the division and description of grass in general, their vegetation units according to the place of discovery and flowering time chronologically given, then the tables of the harvest for the years 1870 and 1871, comparative tables of the weight of cereals, as well as the tables of the nutritional value of the types of cereals. The names of individual species were given in Latin, and for some species there were also traditional names in German, Hungarian, Czech, Slovak, Serbian (Croatian), French, Italian, English and Russian. At the end of the introductory part of the book the author point-ed out that it was the love of science and culture of the area that motivated him to write this book, so if the esteemed readers received and evaluated the results of his work favorably, he would understand that his endeavou, performed dili-gently and with joy, was successful. Godra’s book is divided into five parts. The first part is devoted to ethnographic, topographical, cultural, historical and statistical description of the area of Regiment. In the second part of the book, entitled “Über Glumaceae in allgemeinen” (On Glumaceae in general), the author describes the main characteristics of these types of plants, their wide dispersion, species richness and importance to human populations. The third chapter is devoted to the influence of different habitats on the vegetative forms.
The fourth chapter shows the flowering time of Glumaceae in Srem (March-May), as well as their systematics in Latin, German, Serbian or Croatian, and Slovakian language. The last, fifth chapter is devoted to the presentation of the results of harvest of cereals and other crops in Srem in 1870 and 1871, their nutritional value, as well as the need for cereals in the coming years (Godra 1873; Bentham and Hooker 1862–1883).

Bartholomäus Godra published his papers on botanics in periodicals Obzor (1870), Österreichische botanische Zeitschrift (1877), etc. (Dítě et al., 2016; Mirković 1961; Glesinger 1965; Dugački 2012). Bartholomäus Godra died on 18 May 1874. He was buried in Ruma (Registry of the deceased Roman Catholics, office in Ruma, 1860-1878).

In the XVIII and XIX century, a large number of Czechs and Slovaks, some of them physicians, inhabited the area of the Military Frontier, as well as the civilian part of the southern Hungarian provinces, the territories of today’s Vojvodina and Croatia. Many of them stayed in these areas and their good work built a great reputation. Some of them, in addition to being physicians, practiced botany as well. One of them was Bohuslav Jiruš. He was born in Prague in 1841. He graduated from Medical Faculty in his hometown in 1865. For a while he worked in the Prague General Hospital, and in 1870 he became an assistant at the Zoochemical institute of Prague. In 1875, Jiruš became a full professor of botany at the newly established University of Zagreb. He organized the Department of Botany and Physiology at the University and donated his herbarium with 10,000 species. He also organized a pharmacy course at the Faculty of Philosophy in 1882 where he taught pharmacognosy. In 1886, he left the position at the University of Zagreb and returned to his hometown, where he became a professor of pharmacology and pharmacognosy at the Czech University. During his stay in Zagreb, he published in professional journals a number of papers on botany and geology, which were results of his research journeys to Dalmatia. He was the editor of Liječnički vjesnik (Medical herald), and in 1883 he became a corresponding member of the Croatian Medical Association (Glesinger 1965).

REFERENCES

Both M (2009): “Pál Kitaibel’s Earth scientific Work with special regard to his description of the use of land economy in the Carpathian Basin“, University of Miscolc, Ph. D. Thesis.


Grmek MD (1951): Inauguralne disertacije hrvatskih, srpskih i slovenačkih liječnika (1660–1865), Starine 43: 175.


Jakovljev J (1999): Značajni primerci biljaka u zaštićenoj herbarskoj zbirci Andrije Volnija, maturski rad, Gymnasium „Stevan Marković“.


Zbirka matičnih knjiga Slovačke evangelističke crkvene opštine Lalic (1731/32): F9, Istorijski arhiv Sombor.


РЕЗИМЕ: Познавање биљног света било је неопходно још првим лекарима, јер је фитотерапија од самог почетка била саставни део медицине. Из тог разлога ботаника је била значајан саставни део програма наставе на медицинским факултетима још у 18. и 19. веку. Поједини професори ових факултета истакли су се у светским научним круговима као познати ботаничари (Пал Китајбел, Аугуст Каниц, Ђовани Скополи, Карл Лине и др.). Територија данашње Војводине након ослобођења од Турака што се биљног света тиче била је недовољно истражена, због чега је била интересантно подручје за ботаничка истраживања, која су предузимали професори природних наука Бечког и Пештанског универзитета и Универзитета у Клужу. Значајан допринос њиховом научном делу дали су и истраживачи из Срема који су се, поред свог лекарског и апотекарског посла бавили и ботаничким истраживањима. Поједини су своје резултате објављивали у публикацијама а поједини су постали чланови европских научних природњачких друштава (Андрија Будаји, Ђура Штрајм, Бартоломеј Годра, Матија Кирхбаум, Андрја Волни).

КЉУЧНЕ РЕЧИ: ботаника, медицина, лекари, Срем, Војводина, хербаријум