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LIVV (LEMBERG) ARTEFACTS OF THEOBALD BÖHM'S FLUTE WORKSHOP

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ABSTRACT

The analysis of artefacts from Theobald Böhm's Second Flute Workshop is crucial for understanding 19th-century music industry developments and craftsmanship. This study aims to analyze the reception of Böhm's reforms and their popularization among specialists and

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intellectuals, particularly in the capital of the Kingdom of Galicia and Lodomeria, part of the Austrian Empire. The main methods include analysis of archival materials, comparison of newly manufactured flutes with previous forms, and retrospective analysis. The study examines Böhm's activities, focusing on his second workshop (1855-1858). The investigation of Lviv artefacts from Böhm's workshop is of significant scientific and cultural interest, enhancing our understanding of flute evolution and Böhm's contributions. The study highlights the importance of Böhm's flute artefacts in the history of flute art, refining and complementing existing knowledge and supporting further research. The early years following Böhm's 1847 reform reveal the shock and varied reactions of industry experts, including rejection, refutation, adaptation, or acceptance of Böhm's inventions. The initial stages of mastering these new instruments in European provincial centers, such as Lviv, provide unique insights into the professional crisis triggered by the reform. The Lviv example illustrates distinct attitudes towards Böhm's innovations and general trends as filtered through Galician consciousness and mentality. This study utilizes previously unpublished archival information and facts, contributing to a comprehensive understanding of this pivotal event in flute history.

Keywords: musical instrumental creativity, history of musical instruments, wind instrument performance, flute construction, retrospective analysis.

THEOBALD BÖHM'ÜN FLÜT ATÖLYESİNE AİT LVIV (LEMBERG) ESERLERİ

ÖZ

Theobald Böhm'ün ikinci flüt atölyesi'nden gelen eserler analizi, XIX. yüzyıl müzik endüstrisi gelişmeleri ve zanaatkarlığını anlamak için çok önemlidir. Bu çalışma, Böhm'ün reformlarının kabulünü ve bunların özellikle Avusturya İmparatorluğu'nun bir parçası olan Galiçya ve Lodomeria Krallığı'nın başkentindeki uzmanlar ve entelektüeller arasında yaygınlaştırılmasını analiz etmeyi amaçlamaktadır. Başlıca yöntemler, arşiv materyallerinin analizi, yeni üretilen flütlerin önceki formlarla karşılaştırılması ve retrospektif analizdir. Çalışma, Böhm'ün faaliyetlerini ve ikinci atölyesini (1855-1858) incelemektedir. Böhm'ün atölyesinden Lviv artefaktlarının incelenmesi, flütün evrimini ve Böhm'ün katkılarını anlamamızı artıran önemli bilimsel ve kültürel ilgi taşımaktadır. Çalışma, Böhm'ün flüt artefaktlarının flüt sanatının tarihinde önemini vurgulamakta, mevcut bilgileri rafine etmekte ve ek araştırmaları desteklemektedir. Böhm'ün 1847 reformunu takip eden ilk yıllar, endüstri uzmanlarının şok ve çeşitli tepkilerini, reddetme, çürütme, uyarılma veya Böhm'ün icatlarını kabul etme dahil olmak üzere, ortaya koymaktadır. Lviv gibi Avrupa'nın taşra merkezlerinde bu yeni enstrümanları ustalaşmanın ilk aşamaları, reformun tetiklediği mesleki krizi anlamak için benzersiz içgörüler sunar. Lviv örneği, Böhm'ün yeniliklerine yönelik belirgin tutumları ve Galiçya bilinci ve zihniyeti prizmasından kırılan genel eğilimleri göstermektedir. Bu

çalışma, daha önce yayımlanmamış arşiv bilgileri ve gerçekleri kullanarak flüt tarihindeki bu önemli olayı kapsamlı bir şekilde anlamaya katkıda bulunmaktadır.

Anahtar Kelimeler: müzikal enstrümantal yaratıcılık, müzik aletleri tarihi, nefes sanatı, flüt yapımı, retrospektif analiz.

INTRODUCTION

T. Böhm is the creator of the modern flute, whose perfection has remained unsurpassed for more than 170 years. The importance of the artist and craftsman and his activity in developing wind performance can generally be compared to the weight and authority of Antonio Stradivari in the history of violin art. Throughout his life, T. Böhm (2011) produced about 800 flutes, 550 of which were made after the extensive reform of 1847. The uniqueness of T. Böhm's professional journey and the development of his creations in performance practice stems from the intricate and protracted phases of adjustment that experts and audiences underwent during the 19th century to embrace the fundamentally new systems and sounds of his instruments. Appreciating the true greatness of the Munich musician's innovation emerges only in contemporary times, following a comprehensive understanding of the intricacies involved in crafting his models and juxtaposing their outcomes with those of his nearest rivals. Now, in the context of growing interest in the history of musical instruments, T. Böhm's activity becomes particularly relevant. This allows for a better understanding of the technical progress in the manufacture of musical instruments and for determining the master's contribution to the formation of the musical heritage.

A number of Ukrainian scientists have dedicated their work to T. Böhm's activity. V. Hromchenko (2018: 105-117) raises the question of revealing the specificity of spiritual artistic individual creativity in the times of romanticism, using T. Böhm's activity as an example. A. Y. Karpyak (2002) devoted a substantial part of his study to T. Böhm's activity. N. A. Ponikarovska and A. S. Ryabukha (2020) dedicated an entire paper to flutes created by T. Böhm. They focused in detail on the specifics of the musical instruments created by the artist and described his life path, calling T. Böhm a reformer and innovator of that time. V. P. Kachmarchik (2009) also noted the substantial role of the artist in shaping the culture of wind instruments in the romantic era in his work. In particular, the researcher noted that thanks to T. Böhm, the components of local and "total" improvement of the mechanical-acoustic system of the flute were determined.

The purpose of this study is to provide a comprehensive overview of flute artefacts crafted by T. Böhm from 1847 to 1858, particularly focusing on specimens that made their way to Lviv between 1855 and 1858. To achieve this purpose, a specific set of objectives was defined: to determine T. Böhm's contribution to the development of flute art; to analyse the innovations and changes he introduced in the construction and sound of flutes; to provide an objective assessment of the master's influence on the development of wind art in the 19th and 20th centuries; to highlight the importance of T. Böhm as a master and innovator; to identify key characteristics of T. Böhm's creativity using analytical methods; to explore the geographical distribution of T. Böhm's instruments across countries and regions during the specified period; to monitor the increasing popularity of the master's instruments among both professionals and amateurs.

METHOD

Analysis is one of the key methods used in examining T. Böhm's contribution to the development of flute art. This method entails a comprehensive examination and analysis of information derived from a multitude of sources throughout the course of the study. These included books, articles, and monographs dedicated to the history of the flute and the life and work of T. Böhm. Analysis was also applied to musical journals and newspapers containing articles about T. Böhm, his innovations, and his influence on flute art. The study benefited immensely from the examination of archival materials: letters, manuscripts, notes, and diaries of T. Böhm, including documents related to his collaboration with workshops and musicians. One of T. Böhm's books (1847), in which he discussed the principles of flute construction as a whole and the possibility of improving the instrument, played an important role in the analytical component of the study. T. Böhm's results were not left without attention. He actively corresponded with other musicians, describing the advantages of the instrument he had improved. For example, this is evident in his letter to Wilhelm Popp, a famous German flutist and composer (Böhm, 2021). However, T. Böhm did not limit himself to personal correspondence. Anything related to flutes, requirements for this instrument, improvement of acoustics, construction, T. Böhm shared with the masses by publishing thematic articles.

During the analysis process, the obtained data were systematised, key facts, quotes, were extracted. All the data obtained were analysed for the assessment of the credibility and reliability of sources, comparison of different points of view, and identification of contradictions. The final stage of the

analysis was the integration of the results with those from other sources and research methods to form a comprehensive understanding of T. Böhm's contribution. The comparative method is one of the key methods used in researching T. Böhm's contribution to the development of flute art. This method involves comparing the constructive and acoustic characteristics of T. Böhm's flutes with flutes by other masters of the 19th and 20th centuries (Şanver, 2023: 53-57). During the research process, parameters and criteria for comparison were chosen. Material, construction, and acoustic characteristics of the musical instrument were considered (Izahar, 2022). Flutes by T. Böhm and other masters were also selected for comparison. All the results of the comparative analysis were summarised, and similarities and differences between the flutes were determined.

The retrospective method of research explores the evolution of the flute in a historical context, considering the musical trends and technological capabilities of the time. This method allows understanding how T. Böhm's flute emerged and developed during the 19th and 20th centuries. During the research process, chronological frameworks were established, the period under study was examined. Musical trends, technological capabilities, cultural, and economic factors of that time, which influenced the development of the flute, were also investigated. The retrospective method provided an understanding of the context in which the evolution of the flute took place, evaluated T. Böhm's contribution to the history of flute development. Additional aspects of the research included identifying factors that influenced the development of the flute and conducting typologization of flutes within chronological frameworks (Kalashnyk et al., 2024: 1421-1427).

The study of T. Böhm's work is a comprehensive and robust approach, but it has limitations. The use of archival sources is challenging due to potential gaps in historical records and Böhm's own writings may exhibit bias due to his advocacy for his innovations. Cross-referencing is used to address this issue, comparing Böhm's statements with those of other musicians and scholars during the same period. However, not all flutes produced by other makers have been preserved or documented as detailed as those created by Böhm, resulting in potential gaps in the analysis. Additionally, technological advancements since Böhm's time make direct comparisons between instruments from different historical periods challenging. Despite these challenges, the research provides a detailed insight into Böhm's lasting impact on the art of the flute. By acknowledging these limitations, the research strengthens and offers a detailed understanding of Böhm's contributions.

RESULTS

This section presents the research findings on the activities of T. Böhm's workshop. The process of creating T. Böhm's innovative instrument can be divided into several stages (Table 1). T. Böhm aimed to create a flute with a wider range, a more convenient key system, and better sound. T. Böhm, a German flutist and inventor, sought to improve the flute. He examined the acoustic principles of the instrument, discussed the experience of previous masters, and based on this, developed a new design (Yenne, 2023; Kachmarchyk and Kachmarchyk, 2022: 49-62; Krutsko, 2021: 121-124).

Stage	Description	Processes	Important moments	Conclusion
Experiment	Research of different materials, constructions, and sizes of the flute	<ol style="list-style-type: none"> 1. Experiments with various silver alloys. 2. Testing different types of keys. 3. Development of a new finger placement system. 	T. Böhm was not only an inventor but also an experienced flutist. T. Böhm personally supervised all stages of production.	T. Böhm not only improved the flute but also laid the foundation for further instrument development.
The new key and bore system of the instrument	Development of a new key system that significantly facilitated flute playing and expanded its range.	<ol style="list-style-type: none"> 1. Development of a new lever system. 2. Application of a cylindrical shape for the sound channel with a parabolic head of the instrument. 	T. Böhm's new key system revolutionised flute manufacturing. This system later became a standard worldwide. Furthermore, the flute's possibilities expanded significantly due to the cylindrical shape of the channel.	T. Böhm created a key and air channel system for the instrument that is still used today.
Manufacturing	Flutes were handmade in T. Böhm's workshop from high-quality materials.	The use of only the highest quality materials and a complex manufacturing process for flutes.	T. Böhm's flutes were characterised by high-quality sound. These flutes were true works of art and were also very expensive.	T. Böhm established the production of high-quality flutes.
Testing	The master personally tested each flute to	T. Böhm asked other musicians to test the flute. T. Böhm made	T. Böhm was very demanding about the quality of his flutes. He did not allow a flute to be	T. Böhm guaranteed the high quality of

guarantee its quality.	design based on the results.	changes based on the test results.	sold if it did not meet his high standards. Thanks to thorough testing, T. Böhm ensured the high quality of each flute.	each flute through control over their manufacture.
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Table 1. Process of Creating the New Format of T. Böhm's Instrument.

T. Böhm experimented with various materials. He used wood, metal, and plastic for flute making. He conducted experiments to determine the optimal size and shape of the holes, the most effective arrangement of the keys, and the most suitable types. T. Böhm created detailed drawings of a new type of flute, including dimensions and placement of all parts, key construction, lever system (Figure 1). T. Böhm's invention had a revolutionary impact on the flute as a phenomenon. The flute's range was significantly expanded, allowing it to perform more complex musical pieces. The flute's timbre became more even and expressive. The new key system greatly facilitated the execution of chromatic passages, which was important for popularising such an instrument (Wasser, 2021: 5).

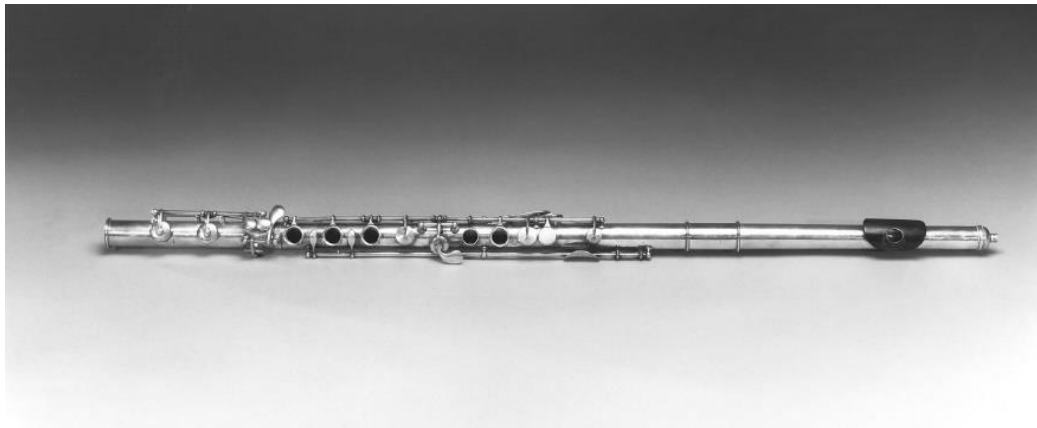


Photo 1. The flute made by T. Böhm in Munich, Germany, in 1848.

Note: This is a Böhm system flute, serial number 4, made of silver with a wooden lip plate and supplemented with an antique case. Identical to instruments available in Lviv.

Source: Theobald Böhm Flute (2024).

Letters, diary entries, and memoirs of contemporaries provide an idea of the atmosphere in T. Böhm. T. Böhm personally controlled the production process. He meticulously monitored all stages of flute manufacturing, ensuring their high quality (Gul, 2023: 246-258). The workshop had a creative atmosphere, with T. Böhm encouraging his employees to experiment and explore new

ideas. T. Böhm's workshop became a gathering place for flutists. Musicians from all over the world gathered to order instruments or to see the master at work. From 1847 to 1859, in the so-called Second workshop of T. Böhm, the master personally made 130 flutes of the latest model, which practically did not differ from modern instruments but contrasted significantly with the usual wooden specimens of the early and mid-19th century. T. Böhm's flutes were sold in various countries worldwide, and his workshop played a crucial role in spreading this new type of flute. The price of the flute was quite high, indicating that T. Böhm's instruments were considered prestigious (Michael, 2022: 89-97).

The geography of instrument distribution during this period was quite wide, as T. Böhm's workshop was known from 1828. Primarily, in Munich, T. Böhm managed to place 18 instruments. Some of them remained in the master's family (for example, the ebony-nickel flute No. 106 was made for T. Böhm Jr.); among other buyers were T. Böhm's students or well-known and respected musicians of the city. The name of C. Wehner (1838-1912) is noteworthy – one of the best students of the master, who soon took the position of a soloist at the Imperial Mariinsky Theatre in St. Petersburg (1867-1884), and later became the leading flutist in New York, a soloist of the Metropolitan Opera orchestra. In September 1857, C. Wehner purchased a standard silver flute No. 119; in March 1858, a new model silver flute No. 123. However, throughout his subsequent professional life, C. Wehner remained faithful to the granadilla flute by T. Böhm, purchased in 1878 (De Lorenzo, 1992).

Among other notable flute buyers, F. Lachner (1803-1890) stands out. From 1829, he held the position of first Kapellmeister of the Vienna Kärntnertor Theatre, court Kapellmeister in Mannheim (1834), and from 1836 was appointed Chief Conductor of the Bavarian Opera (1836-1867). A composer and author of the famous Concerto for Flute and Orchestra in D minor (1832), F. Lachner became the happy owner of a silver flute by T. Böhm No. 59. Among the buyers of five instruments in neighboring Stuttgart, one of T. Böhm's students, K. Krüger (1831-1905), stands out. He later became the first flutist of the Royal Chapel and a professor at the conservatory in Stuttgart (flute made of coconut wood No. 8). Another noteworthy buyer was W. Böhm, the master's son, who acquired flutes No. 75 and No. 97 (De Lorenzo, 1992). In Paris, a single silver flute No. II, weighing 16.5 lot (290.4 g), was sent as a sample for the flute firm "Godfroy & Lot" Hypollite Godfroy and Louis Lot, who acquired a license from T. Böhm to manufacture his silver cylindrical flutes in 1847. Among the buyers in London (12 flutes sold), R. Carte (1808-1891)

deserves special mention – a performer, composer, master, author of “A Complete Course of Instructions for the Böhm Flute” (London, 1845), and secretary of the “London Flute Lover Society” (1866), who purchased flutes No. I, No. 14, No. 23 from T. Böhm’s workshop (Giannini, 1993).

One flute each was purchased in T. Böhm’s workshop at that time by Italian buyers from Florence and Rome. Emanuele Krakamp (1813-1883), after purchasing instrument No. 90, was one of the first in Italy to develop the Method of Playing the T. Böhm Flute (“Metodo per il Flauto Cilindrico Alla Böhm Op.103”, Emanuele Krakamp, Milan 1847), which became the basis in all conservatories in Italy even during the musician’s lifetime, including Naples, where the musician worked as a professor at the conservatory. The renowned flutist and composer G. Briccialdi (No. 4, 1848) was among those who, initially enthusiastic about the creation of the Böhm flute, decided to become famous for his achievements by reforming the conical flute in 1860 and improving the cylindrical metal flute in 1869. Contemporary flutists, performing popular virtuosic pieces by the musician, had to adapt to the unsuccessful proposal of D. Briccialdi to swap the b-h keys on the T. Böhm flute, which was eagerly taken up by musical instrument factories, as well as the inappropriate closed gis key by L. Dorus (Kachmarczyk, 2004: 218-228; 2007: 10-15; Petrucci, 2018).

Six out of nine instruments purchased in the United States were made for the active and prudent professor from New York (No. 83-88, 110, 111) P. Ernst (1792-1868). The teacher purchased five wooden flutes and one silver flute and later added two flutes made of coconut wood. Nine flutes in the Russian Empire were purchased mainly through the efforts of A. Rapp in St. Petersburg (No. 20, 26, 29, 78) and A. Sacchetti, who initially purchased a flute in Odesa (No. 31, 1849) while working as a soloist at the Italian Opera, and later in Tambov (No. 79, 81, 82, 1854, No. 105, 1856) as a teacher at the Tambov Institute (Frolova-Walker, 2018). In the sphere of popularity and influence of Georg Bair’s “Viennese” flute, the Austrian Empire did not warmly welcome the invention of T. Böhm. The only flute in Vienna made of melchior copper-nickel alloy (No. 19) was purchased in 1848 by T. Böhm’s student, H. Heindl (1828-1849). In a letter to the master dated May 20, 1848, he writes: “Thank you for the wonderful flute. I feel endless joy from the instrument and will undoubtedly honour your invention in my playing”. Unfortunately, H. Heindl tragically passed away shortly thereafter at the age of 21.

Quite unexpectedly, considering the fierce competition in Austria for the preeminence of reverse-conical models, Lviv residents showed significant interest in the latest technology and ordered as many as five instruments from T. Böhm, covering practically the entire spectrum of the master's offerings from silver flutes with "do" (No. 115) and "si" (No. 93 and 98) keys to a grenadilla flute with silver keys (No. 126) and the first of T. Böhm's alto flutes (No. 120) (Ventzke, 1966). In the first half of the 19th century, many professional flutists operated in Lviv: A. Borowski, K. Brunnhofer, J. Baschny, F. K. Pollak, as well as amateurs: G. E. Aslan, M. Ciemirski, Dr. Krobshoffer, and others (Schreiner et al., 2009). In addition to progressive steps and instrument updates by Galician flutists, who were satisfied with simple flute models at the crossroads of eras, such changes usually came from outside and required lengthy absorption. In the first half of the 19th century, the city did not lack attention from touring flutists from all corners of Europe. Chevalier der Poligny – L. Vogel from Paris (1809), J. Wolfram from Vienna (1825), C. aus Böhmen from Prague (1832), J. G. Vledder from Amsterdam (1838) gladly performed in Lviv.

The arrival of J. Wolfram in 1825 had a significant resonance in the city, influencing not only the aesthetic tastes of music lovers but also defining new instrumental preferences among Lviv residents. The event was covered extensively in the press for a long time. Even before the artist's arrival, newspapers, including the "Warsaw Courier" (February 8), informed about the significant achievements of the flautist and his extensive concert tour, which included cities in Russia, Warsaw, Lublin, and Lviv. Throughout several issues: No. 11, No. 13, No. 16, No. 20, the Galician publication "Mnemoszina" convinced readers of the exceptional mission of Joseph Wolfram, who decided to share with Lviv residents the latest discoveries of flute masters and brought with him a progressive model – the improved "Panaulon" flute. The artist stayed in the city for more than two weeks to give an additional concert on March 3 and to acquaint a large circle of interested parties with the previously unknown instrument model in more detail (Truyèn, 2023: 57-70).

In the 1820s, flutes with an extended lower joint reaching G became popular in Austria, and they were manufactured in Vienna (Dikicigiller, 2014: 21-25). These instruments were called Panaulons. Some of these flutes had a U-shaped, bassoon-like lower knee, while others remained straight. Determining the source of the instrument's invention remains somewhat difficult today. In 1813, G. Bayr announced the creation of a flute capable of covering the range from G small octave and later published the methodology "Praktische Flötenschule" in 1823. According to

another version, the 17-key Panaulons were created by Trexler and Koch in 1815. At the time of J. Wolfram's arrival in Lviv and the first appearance of the "Panaulon" model in the city by the Doppler brothers, tasked with glorifying the unique generation of "Viennese" flute in their immortal works, they were still too young (Powell, 2002).

Therefore, over the next decades, Lviv's flute instrumentarium was in the stream of improvements of "Viennese" flute prototypes, among which the precedence was subsequently attributed to Viennese master J. J. Ziegler (1795-1858). The successes of F. Doppler and K. Doppler only reinforced the conviction of the instrument's system's perfection. The flute, at least externally, reached the capabilities of the violin range. Prominent representatives of classical and romantic art Ludwig van Beethoven and Franz Schubert used the sound of the "Viennese" flute in their compositions without hesitation. Panaulon equally wonderfully and uniquely illuminated the themes of F. Schubert's tragic love, and the fiery Hungarian folk motifs of the Doppler brothers' works. However, the distinctiveness of the flute, which was always considered its strength in the restless era of instrumental reform, began to contradict the demands for universality and cold calculation of general instrument unification. From such a rigid perspective, several shortcomings were revealed: the "folk-original" tuning of the flute conflicted with the evenly tempered demands of ensemble and orchestral practices, the deceptive width of the range was limited to achieving individual sound effects in the lower register and was not provided with convenience in terms of technique and motor skills, complicating already quite inconvenient fingering sequences, the large weight complicated the performance process, and the significant number of holes, valves, and the metallic base of the head led to the rapid appearance of cracks in the wooden base of the instrument and much more (Łoza and Charczuk, 2016; Pustlauk, 2016). The sophisticated progressive audience, intellectuals, and some young artists subconsciously and consciously awaited quick and radical changes, trying to promote the acceleration of the process.

In 1855, T. Böhm first released flutes that immediately gained recognition among musicians (Böhm, 1871). Over the next three years, until 1858, his workshop continued to improve the design and increase the quality of its instruments. Flutes by T. Böhm had a significant impact on the musical culture of the 19th century. With their help, musicians gained new technical capabilities and expanded the musical range of performance, which influenced the development of the performing arts. The musical community responded to T. Böhm's flutes with interest and enthusiasm. Their high quality and exceptional design made them popular among both professional

musicians and amateurs. His technical innovations, most notably the introduction of a cylindrical bore and a groundbreaking key system, had a profound impact on the pedagogical approaches to flute education. The instrument's ease of handling, increased range and improved intonation were not only appealing to professional musicians but also necessitated updates to the flute curriculum in conservatories across Europe. Educators began integrating advanced techniques made possible by the T. Böhm flute, thereby restructuring the methodology employed in the training of prospective flutists (Hasanov et al., 2018: 749-759). T. Böhm's craftsmanship in flute design proved to be not only technically advanced but also a creative contribution to the world of music. His instruments became a symbol of a new era in the development of 19th-century musical culture, changing the standards of quality and opening up new possibilities for musicians and composers. Based on the analysis of narrative materials and official information, it can be concluded that T. Böhm's workshop was an important center for manufacturing flutes of a new type. Here, instruments were made that significantly expanded the capabilities of the flute and enriched the musical world. T. Böhm's workshop was one of the most modern enterprises of its time. It was a time of real trial for the inventor. The recognition of his talent, efforts, and achievements depended on the success of the new flutes. T. Böhm worked diligently and carefully, refining every detail. He did not employ assistants, which became common in later periods of his workshop's operation, when he collaborated, in particular, with K. Mendler (1833-1914). The situation was complicated by the high price of T. Böhm. Their cost sometimes doubled that of conventional models. Recently invented metallic cylindrical flutes were so expensive that initially, only wealthy people could afford them.

Among such buyers, the name M. Ciemirski from Lviv stands out. The most interesting order placed by M. Ciemirski, the third in line, was his request to T. Böhm to make him an alto flute, which turned out to be the first instrument of this model made by the master. This event, despite M. Ciemirski's amateur activities, allowed the botanist's name to be included in various professional flute studies (Rees, 2013; Kachmarczyk, 2005: 218-231; 2008). In January 1858, the alto flute No. 120 made of a nickel-silver alloy was purchased by the customer for 156 florins. Thus, the quality samples of T. Böhm's instruments only fuelled M. Ciemirski's enthusiasm. In early autumn, he purchased a granadilla flute, No. 126, with silver keys from the master for 170 florins. According to the great-grandson of T. Böhm, Mr. L. Böhm, it is quite plausible to assume that M. Ciemirski's purchases did not end there, as the workshop records end in February 1859 and

are partially restored only for the period 1876-1879. T. Böhm's invention of a new type of flute had a significant impact on the musical sphere. In 1850, he was awarded a silver medal at the industrial exhibition in Leipzig; in 1851 – the highest medal at the industrial exhibition in London; in 1854 – the highest medal at the industrial exhibition in Munich; and in 1855 – a gold medal at the World Exhibition in Paris.

The T. Böhm flute had a more uniform tone across its entire range. This made the flute's sound more expressive and richer. Flutists were able to use new sound production techniques that were previously impossible. This led to the flute being used in a wider range of musical genres. The new key system of the T. Böhm flute significantly facilitated the execution of chromatic passages. This allowed flutists to play more complex musical pieces. The flute became a more accessible instrument for beginner musicians, significantly increasing the number of flutists worldwide. The invention of the T. Böhm flute stimulated composers to write new compositions for this instrument. Many new concerts, sonatas, chamber works, and opera parts for the flute appeared. The flute became one of the most popular solo instruments in the world. The key system of the T. Böhm flute was borrowed from other wind instruments, such as the oboe, clarinet, and bassoon. This led to the modernisation of these instruments and expanded their capabilities.

DISCUSSION

The data on T. Böhm's flute artefacts indicate his decisive influence on the development of flute-making and musical culture. His innovative approaches to creating and improving instruments found resonance in the community of experts and musicians of that time. Observations from a retrospective perspective show that T. Böhm's reforms were crucial for the evolution of flute making. His decisions and instrument models set a precedent in the development of musical technologies that influenced the further development of wind instruments. Analysing the tasks and purposes of the most active customers of T. Böhm's workshop during 1847-1859, one cannot fail to notice the distinctive character of the mentality of Lviv patrons. Among the regular customers of the master who purchased four or more instruments from T. Böhm, the following benefactors stand out: P. Ernst (New York), A. Rapp (St. Petersburg), A. Sacchetti (Odesa, Tambov), and M. Ciemirski (Lviv). With the exception of the Lviv amateur, all other proposed names belong to well-known artists, professional educators who had a clear and understandable goal to master the new instrumentation and pass on knowledge to the next generation of specialists.

In the Lviv artistic environment of the mid-19th century, vibrant progressive tendencies are observed: an interest in scientific and technological achievements, in constant renewal, a desire to move in harmony with the times, not to lag behind the advanced ideas of the era, and to be modern and versatile. However, what appears peculiar and specific is that such aspirations were not formed in the pursuits, efforts, or work of professional flutists but in the circles of amateur movements and hobbies, in the work of intellectuals often not directly related to the musical profession. The activities of direct specialists were in no hurry to go beyond the existing tradition, gradually provincialising and playing only a role as instruments in the hands of successful and wealthy art enthusiasts. It was too dependent on existing norms, authorities and sluggish. In the 1850s, the Doppler brothers' career peaked. They periodically visited Lviv with concerts and remained devoted to traditional instrumentation, giving local experts no reason to worry about the future (Karpyak, 2002; 2013; 2018).

Despite T. Böhm's groundbreaking innovations, not all musicians were able to flourish in the evolving professional landscape. A case in point is that of J. Pappius, a young artist based in Lviv, who found it challenging to integrate into the professional music community. This protracted struggle exemplified the resistance encountered by some musicians when adapting to Böhm's instruments, resulting in a missed opportunity for Lviv to retain its position at the vanguard of European flute performance (Afonina and Karpov, 2023: 76-81).

Y. Yaroslavenko, a prominent composer in the 1920s, advocated for the continued use of flutes with 8, 10, and 12 keys in Lviv's ensembles. In his publication "How to Establish a Wind Orchestra" he emphasised the longevity and craftsmanship of these earlier models, which were crafted from grenadilla, ebony, and boxwood. This illustrates the cultural attachment to traditional instruments despite the innovations introduced by Böhm (Kozlin and Hryshchenko, 2023: 88-100). In the 1930s, the Lviv music magazine "Orkiestra" played a significant role in the promotion of various flute models. For example, advertisements from a wind instrument factory in Przemyśl exhibited both the Böhm system flutes and the Schwedler-Kruspe system flutes, reflecting the competitive atmosphere that pervaded flute design during this era (Kuryshch, 2023: 107-112).

Even in the 1950s, flutes of the H. F. Meyer system remained popular in Galicia, as evidenced by the surviving artefacts in the Y. Biletsky collection and the numerous photographs of local ensembles. The continued use of these older systems indicates that the region was reluctant to adopt Böhm's designs, despite their technical superiority (Boonrod, 2024: 25-40).

Due to the lack of powerful competitors of T. Böhm's workshop and uncompromising traditionalist authorities (including J. L. Tulou, G. Briccialdi, H. Mayer, M. Schwedler) on the periphery, in the outskirts of the Austrian Empire, the provincial world absorbed all the latest developments much easier and more organically, often peacefully combining the use of instruments of invincible antagonists (Berry, 2017). It seemed that Lviv's acquaintance with the new wind instrumentation, the transition of specialists to the use of flutes of a fundamentally new generation, proceeded quite calmly and peacefully, without encountering sharp resistance or denial, rejection of certain constructive principles of the inventor and his instrument system as a whole, characteristic of major musical centres. However, the phenomenon of embracing flute reform in Lviv, despite the initial progressive response, unfolded in a spontaneous, chaotic, unfocused, and weak manner. Obviously, even according to the contents of T. Böhm's office books, Lvivians possessed sufficient financial resources to provide themselves with instrumental novelties and, as a result, professional growth, but only an intellectual and first-year student responded to the challenge of modernity. Experts who were obliged to take the organisation of notification and advertising into their own hands in a timely manner (actions that can be observed in many other cities that joined the popularisation of the master's latest technology through the efforts of H. Godfroy and L. Lot, G. Briccialdi, B. Koch, P. Camus, L. Buffet, "Rudall and Rose" firm), agitation to provide younger colleagues, students, and apprentices with the latest instrumentation (P. Ernst, A. Rapp, A. Sacchetti, G. Rudall), clarification of the advantages of changes, creation of guidelines, textbooks for mastering new instrumentation (R. Carte, E. Krakamp, P. Camus, H. Altès), showed overt conservatism and lack of understanding, unprofessionalism in Galicia (Cardoso, 2023).

Regarding the comparison of this study with the works of other authors, commonalities in effectiveness have been identified. In particular, other studies confirm the influence of T. Böhm on the evolution of flute-making and recognise him as a key figure in the development of musical instruments. The similarity of conclusions may serve as a basis for further attempts to detail and expand the scope of research. On the other hand, differences in effectiveness may highlight new areas or overlooked aspects of T. Böhm's activities that could be the subject of further research. For example, common aspects of this study and the work of J. Benevento can be noted. Both studies have similarities in that historical sources and archival data were used in the process of work. However, this study is more focused on the influence of T. Böhm's personality and his activities in the provincial music and art world. Meanwhile, the aforementioned study explores issues within

a broader context of flute art (Benevento, 2021). Both sources describe the life and work of T. Böhm. Both the book and the study analyse the impact of T. Böhm's flute on the musical sphere. Comparing the study with the work of R. Bigio and E. Nugent (2022: 1-5), it can be concluded that both sources describe the development of the flute in the 19th century. The importance of T. Böhm's invention – the flute of a new type can be emphasised. The impact of T. Böhm's flute on performance practice and playing technique was analysed. However, the authors of the work focus on the personal flute of the artist Vern K. Powell, making him the central figure of their study.

Similarly, to this study, M. De Palma (2022: 103-113) emphasised the importance of T. Böhm's contribution to the development of wind music in the 19th century in his article. However, unlike the study, more attention was paid to comparing musical instruments. Information about T. Böhm's concerns about the imperfect construction of the flute, as well as the long path to creating the ideal instrument, can be found in both this study and the paper of C. H. Klein (2020). While in this study T. Böhm is portrayed as an inventor who influenced changing musical tastes in the regions of European countries, in the opponent's work more attention is paid to T. Böhm's relationships with other artists of the time. R. J. Brown et al. (2023) highlight T. Böhm as an innovator and talented inventor in the world of 19th-century wind instruments. This echoes the present study, which also recognises T. Böhm's significant contribution to the development of musical art. However, a difference can be found here as well. While this study is built around T. Böhm's activities and inventions, in the opponent's paper, the focus is on common terms related to the music industry.

Comparing the obtained results, several key aspects defining the uniqueness and significance of the research can be identified (de Almeida Ribeiro, 2023). The analysis of this subject highlights the great contribution of the master to the development of the instrument. Considering the obtained results and comparing them with the findings of other authors, a number of commonalities and differences are revealed, which should be considered in analysing the evolution of flute art. One of the key aspects that appeared common in most studies is the emphasis on T. Böhm's role as a reformer and innovator in the field of flute art. In particular, the work of J. H. Rindel (2021) extensively illuminated T. Böhm's activities, covering a broader period of his life. This study focused on the period from 1855 to 1858. Other studies that cover a longer period or focus on different aspects of his activities complement the research, expanding the overall context. Agreeing with the study of S. J. Clark (2023), a need for further research on the influence of T. Böhm can be

indicated, as the researcher noted the influence of T. Böhm on the development of wind music in other European countries.

Today, the T. Böhm flute is the most popular type of flute worldwide. It is used both in orchestras and in solo performances. T. Böhm made a significant contribution to the development of the flute, and his work will continue to influence musicians worldwide. The obtained results concern the flute artefacts created by T. Böhm for Lviv between 1855 and 1858. The main task of the discussion was to determine the importance of the obtained data and their context in the broad field of research on the history of musical art.

CONCLUSIONS

This study systematised and analysed the data on flute artefacts created by T. Böhm for Lviv during 1855-1858. The study focused on analytical, comparative, and retrospective analyses of these artefacts and their influence on the development of Lviv's musical culture in the specified period. T. Böhm created a new flute model, which significantly differed from previous instruments. T. Böhm improved the flute mechanism by adding valves to all tone holes, changing their placement and shape, applying a new lever system, and giving the instrument a cylindrical bore. These innovations significantly expanded the flute's range, improved its intonation, and facilitated the performance of complex musical compositions.

The mastery of the Böhm flute in Lviv, which was created in the mid-19th century by M. Czernirski, was not always accessible in famous musical centers. J. Pappius, a young artist, struggled in the professional environment, leading to a prolonged struggle over many decades. This missed an opportunity to remain in the modern and ambitious European professional environment, achieved through the efforts of previous generations of Lviv flutists. Composer Y. Yaroslavenko, who directed Lviv wind orchestras in the 1920s, highlighted the use of flutes with 8, 10, and 12 keys in Lviv musical ensembles. Even in the 1930s, Lviv music magazine "Orkiestra" advertised from a wind instrument factory in Przemyśl, which offered an early instrument of the Schwedler-Kruspe system. Flutes of the H. F. Meyer system, 1814-1897, remained actively used in Galicia even in the 1950s.

This study opened up new horizons in understanding the development of flute art in the provincial world of the 19th century. T. Böhm's innovative approach to construction and the refined sound of his instruments highlight his uniqueness among the masters of that time. T. Böhm's influence on

the world music scene and active role in shaping the flute repertoire make him a key figure in the history of musical instrument making, which became evident only in the 20th century. This study contributed to a better understanding of his legacy and has opened up new perspectives for future research in musical archaeology. An analysis of sources, a comparison of T. Böhm's flutes with the work of other masters, and a retrospective analysis of the subject were conducted. Given the above, the purpose of the study has been fulfilled.

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GENİŞLETİLMİŞ ÖZET

Theobald Böhm'ün ikinci flüt atölyesinden elde edilen eserlerin analizi, XIX. yy. müzik endüstrisinin ve zanaatkarlığın gelişimini anlamada büyük tarihi öneme sahiptir. Bu eserlerin ortaya çıkarılması ve analizi, dönemin teknolojik ilerlemeleri ile müzik enstrümanlarının özelliklerinin daha iyi anlaşılmasını sağlar. Bu çalışmanın amacı, T. Böhm'ün reform sonuçlarına verilen tepkilerin ve bu icatların uzmanlar ve entelektüeller arasında, özellikle de Avusturya İmparatorluğu'nun bir bölgesi olan Galiçya ve Lodomeria Krallığı'nın başkentinde nasıl yaygınlaştırıldığına analizidir.

Bu bağlamda, kullanılan ana yöntemler şunlardır: arşiv malzemelerinin analizi, yeni üretilen flütlerin önceki formlarla karşılaştırılması ve retrospektif yöntem. Çalışma, T. Böhm'ün faaliyetlerini çeşitli açılardan incelemektedir. Ayrıca, bu çalışmanın önemli bir kısmı, mucidin 1855-1858 yılları arasında faaliyet gösteren ikinci atölyesinin incelenmesine ayrılmıştır. T. Böhm'ün Lviv'deki flüt atölyesinden elde edilen eserlerin incelenmesi, flütün evrimi ve T. Böhm'ün bu enstrümanın gelişimine olan katkısını daha derinlemesine anlamak açısından özel bilimsel ve kültürel bir öneme sahiptir. Bu araştırmanın sonuçları, T. Böhm'ün flüt eserlerinin tarihsel

bağlamda önemini ve flüt sanatının gelişimi üzerindeki etkilerini daha geniş bir perspektifte değerlendirmemizi sağlamaktadır.

Çalışma sırasında elde edilen veriler, genel olarak flüt sanatına ilişkin bilgileri derinleştirip tamamlamakta ve bu konudaki gelecekteki araştırmalara katkı sunabilecek niteliktedir. T. Böhm'ün 1847 reformunun ardından geçen ilk yıllar, endüstrinin önde gelen uzmanlarının yaşadığı şok durumunu, bu icatları reddetme, çürütme, abartma, kullanma, “modernleştirme” çabalarını veya yeni profesyonel hayata uyum sağlama girişimlerini en canlı ve ikna edici biçimde yansıtmaktadır. Araştırmacılar, Avrupa'nın taşra merkezlerinde bu yeni enstrümanların benimsenmesinin ilk aşamalarına çok az dikkat göstermiştir. Bu yerlerdeki deneyimler, reformun yol açtığı profesyonel krizinin bireysel aşamalarını analiz etmek için sıra dışı ve özgün veriler sunabilir ve bu fenomenal olayın bütüncül bir resmini oluşturmaya yardımcı olabilir.

Lviv örneği, bir yandan profesyonel ve amatör flüt dünyasında Münih'teki bu gelişmeye karşı olan tutumların özgün yansımalarını, diğer yandan Galisya bilinci ve mentalitesi prizmasından kırılarak genel eğilimlerin bazı özelliklerini canlı bir şekilde ortaya koymaktadır. Çalışma, ilk kez yayınlanan arşiv bilgileri ve veriler kullanılarak gerçekleştirilmiştir. Lviv'deki arşiv materyallerinin detaylı bir şekilde incelenmesi, yerel zanaatkarların T. Böhm'ün yeniliklerine olan tepkilerini ve bu yeniliklerin müzik dünyasına olan etkilerini daha derinlemesine analiz etmemizi sağlamaktadır. Ayrıca, Galiçya ve Lodomeria Krallığı'nın başkentinde yer alan flüt atölyelerinin, bu yenilikleri nasıl benimsediği ve uyguladığı konusunda kapsamlı bir inceleme yapılmıştır. T. Böhm'ün yeniliklerinin yayılma sürecinin incelenmesi, sadece yerel bir olay olarak değil, aynı zamanda Avrupa müzik endüstrisinin daha geniş bir çerçevede nasıl şekillendiğini anlamak açısından da büyük önem taşımaktadır. Böhm'ün flüt reformu, sadece bir müzik enstrümanı inovasyonu olarak kalmamış, aynı zamanda dönemin zanaatkarlık anlayışını da derinden etkilemiştir.

Çalışmanın bir diğer önemli yönü, bu yeniliklerin dönemin entelektüel ve kültürel yaşamına olan etkilerinin analiz edilmesidir. Özellikle Lviv gibi kültürel merkezlerde, Böhm'ün icatlarının nasıl karşılandığı ve bu yeniliklerin yerel müzik kültürünü nasıl şekillendirdiği üzerine yapılan incelemeler, reformun geniş çaplı etkilerini anlamak için kritik bir rol oynamaktadır. T. Böhm'ün reformlarının yerel zanaatkarlar ve müzisyenler tarafından nasıl algılandığı ve uygulandığı, Avrupa müzik tarihinin bu dönemi hakkında daha derin bir anlayış kazanmamıza olanak tanır.

Sonuç olarak, bu çalışma, T. Böhm'ün flüt atölyesinden elde edilen eserlerin incelenmesi yoluyla, müzik enstrümanlarının evrimi ve bu enstrümanların müzik dünyası üzerindeki etkileri hakkında

daha geniş bir perspektif sunmaktadır. Böhm'ün yeniliklerinin yerel ve uluslararası düzeyde nasıl algılandığı ve uygulandığı, Avrupa müzik tarihinin bu önemli dönemini daha iyi anlamamıza yardımcı olmaktadır.

Bu çalışmanın bulguları, T. Böhm'ün reformlarının yalnızca flüt yapımında değil, aynı zamanda genel müzik aletleri yapımında da önemli bir dönüm noktası olduğunu göstermektedir. Reformların Lviv gibi bir şehirdeki yankıları, yerel zanaatkârların ve müzisyenlerin yenilikleri benimseme ve bu yenilikleri kendi bağlamlarında nasıl uyarladıklarına dair benzersiz bir bakış açısı sunmaktadır. Lviv'in dönemin kültürel ve entelektüel merkezi olarak rolü, Böhm'ün yeniliklerinin bu şehirde nasıl algılandığı ve uygulandığını incelemek için ideal bir örnek teşkil etmektedir.

Bu analiz, Böhm'ün flüt reformunun, müzik dünyasında geniş çaplı bir etkiye sahip olmasının yanı sıra, dönemin sosyo-kültürel dinamiklerini nasıl şekillendirdiğini de gözler önüne sermektedir. Reformlar sadece teknik yenilikler olarak kalmamış, aynı zamanda müzikal ifade biçimlerini ve performans pratiklerini de derinden etkilemiştir. Özellikle, flüt sanatındaki bu radikal değişikliklerin, diğer müzik aletlerinin yapımında ve çalınışında da benzer dönüşümlere yol açtığı gözlemlenmiştir.

Çalışmanın bir diğer kritik noktası, T. Böhm'ün reformlarının, dönemin müzik eğitimindeki etkileridir. Bu yeniliklerin müzik eğitim kurumlarında nasıl kabul gördüğü ve öğretildiği, reformların kalıcılığı ve yaygınlığı hakkında önemli ipuçları sunmaktadır. Böhm'ün reformlarının, müzik eğitimi alanındaki geleneksel metodolojiler üzerinde nasıl bir etki yarattığı ve bu reformların, eğitim programlarına entegrasyonu, müzik eğitiminin evrimi açısından dikkate değerdir.

Lviv'deki arşiv belgeleri ve elde edilen eserler, T. Böhm'ün yeniliklerinin sadece müzikal değil, aynı zamanda kültürel bir fenomen olarak da nasıl benimsendiğine dair zengin bir bilgi kaynağı sunmaktadır. Özellikle, reformların yerel müzik kültürü üzerindeki etkisi, Lviv'deki müzikal faaliyetlerin incelenmesi yoluyla daha iyi anlaşılabilir. Bu tür belgeler ve eserler, reformların sadece müzik enstrümanları yapımında değil, aynı zamanda müzik kültüründe de köklü değişikliklere yol açtığını ortaya koymaktadır.

Bu bağlamda, Böhm'ün reformlarının, müzik enstrümanlarının estetik ve akustik niteliklerini nasıl dönüştürdüğü üzerine yapılan incelemeler, enstrüman yapımı sanatındaki değişimlerin anlaşılmasında kritik bir rol oynamaktadır. Flüt yapımında gerçekleştirilen bu yeniliklerin, diğer

enstrüman yapımcıları üzerindeki etkileri ve bu yeniliklerin farklı müzik türlerinde nasıl bir etki yarattığı da çalışmanın bir diğer önemli boyutunu oluşturmaktadır.

Araştırmanın sonuçları, T. Böhm'ün reformlarının, sadece flüt sanatında değil, genel olarak müzik sanatında bir devrim yarattığını göstermektedir. Bu reformların etkileri, flüt sanatının ötesine geçmiş ve müzik dünyasında geniş çaplı bir dönüşüm başlatmıştır. Böhm'ün yeniliklerinin, Avrupa'nın çeşitli kültürel ve entelektüel merkezlerinde nasıl algılandığı ve uygulandığı, müzik tarihindeki bu önemli dönemi daha iyi anlamak için zengin bir kaynak sunmaktadır.