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"Heritage of Polish Music in Open Access": digitalising and cataloguing Wawel music collection

In 2019, the process of digitising and cataloguing the collection of music literature in Wawel began as ensconced in a contract between the Pontifical University of John Paul II, the Archive of the Kraków Cathedral Chapter and the Chopin Institute. The work is conducted as part of the "Heritage of Polish music in open access" project conducted by the Chopin Institute.[1] It certainly is a breakthrough project of historical significance for that precious collection of music, perhaps the most valuable in Poland. For the first time in its turbulent history, the collection was fully digitised and catalogued in an effort of extreme significance for protection and broad access for the researchers and aficionados of music to the collection of fundamental significance for the Polish musical culture. That is why it is a valid point to provide a brief explanation of the scope and methods of the works conducted.

The music collection in Wawel consists of manuscripts, prints, and early music prints that are the output of the music ensembles operating at Wawel Cathedral. The core of the collection are the works that were used by the three principal ensembles: the Rorantist College, the Angelist College of the Tomb of St. Stanislaus, and the Cathedral Ensemble. Currently, the collection consists of over 700 manuscripts and just over 300 musical prints. It is worth emphasising that the project succeeded in the preliminary cataloguing and digitalisation of a part of the collection that had never before been included in a catalogue and had not been more generally known. This makes it possible to expand the previously known collection by over 500 items, some of which are manuscripts, while the majority are prints and copies made in other techniques. This part of the collection is most

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probably mostly inherited from cathedral organists, although it also includes music works that belong to the cathedral ensembles. As much as, compared to the core collection, they are much later works, they also include extremely valuable records, to mention 19th-century sources on an unknown composition most probably written by Grzegorz Gerwazy Gorczycki himself, and the especially emotional scores from the tragic period of the Second World War that are a proof of the heroic attempts at maintaining even the most rudimentary elements of the music life in such difficult and dangerous circumstances.

The Chopin Institute undertook to provide a complex catalogue and digitalisation of the entire music legacy of the cathedral ensembles. The project encompassing works in the Archives of the Cathedral Chapter intends to promote the knowledge of the Polish musical heritage by providing broad access to the key sources important for the Polish musical culture in 16th–19th centuries to researchers and musicians (and all the other interested parties). Thanks to the cooperation with key Polish music archives, a database and portal providing access to all the works in question will be available at a single location.[2] What then are the details of the process known under the broad-brush name of "digitalisation"?

The first query aims at ascertaining the contents of the collection and selecting specific items for cataloguing. The project follows the principle that entire collections are digitised, with the exception of the items whose degree of preservation does not allow working without the intervention of conservation officers. Conservation work that will make it possible to include items preserved in poorer condition at a later stage is also performed under the project for selected collections. The following step is the digitalisation as such, that is scanning of the materials. This process meets the highest standards, notably the requirements of the National Institute for Museums and Public Collections (NIMOZ). The Chopin Institute also requires that the contractors of digitalisation works meet the FADGI guidelines,[3] which guarantees the highest quality of rendering colours and sharpness of image. The following stage starts while digitalisation is still underway, as, after a detailed technical and quality control by the staff of Chopin Institute, the

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[2] The project covers research of the collections of the following institutions: the Archive of the Kraków Cathedral Chapter, Czartoryski Library (the National Museum in Kraków), the Library of the Warsaw Music Society, the Gdańsk Library of the Polish Academy of Sciences, the Library of the Fryderyk Chopin University of Music in Warsaw, the Library of the Zamoyski Museum in Kozłówka, the Archives of Jasna Góra, the Library of the Abbey of St Adalbert of the Benedictine Sisters in Staniątki, and the non-Chopin Collection of the Chopin Institute Library.

[3] Federal Agencies Digitization Guidelines Initiative, www.digitizationguidelines.gov (14.03.2021).

scans are passed on to musicologists for research. The music works are catalogued in the largest international database of musical sources, namely RISM.[4] Each of the collections included in the project is studied by a group of musicologists under the supervision of researchers and academics specialising in studying the given type of sources. All these works are coordinated by the RISM unit operating in the Chopin Institute. The fact that nearly 20,000 records have been entered into the RISM database thanks to the projects conducted by the unit since its establishment in 2016 certainly deserves emphasising, as that amounts nearly to 20% of all the data catalogued in Poland so far. Entering the metadata of the Wawel music scores to the RISM database is of key importance for the further studies of the repertoire, as it will not only make it possible to take a holistic look at the collection for the first time and to promote the knowledge of its content in a more extensive, international, environment, but it will also help to determine the concordances and study the attribution of anonymously imparted sources.

A highly significant and most innovative element of the works conducted by the Chopin Institute is the digital transcription of selected music works. This part of the works is possible thanks to the Institute's collaboration with researchers from Stanford University, and especially the Center for Computer Assisted Research in the Humanities (CCARH)[5] operating there. The works are transcribed to contemporary music notation in Humdrum format: a text format reminding of a spreadsheet, where the successive columns include the records of the melodic layer of the individual voices of a piece, and the consecutive lines make it possible to read the consonances. The pitches of sounds are denoted by letters, and the duration by numbers. Humdrum is a format that makes it possible to record nearly all the aspects of the source record.

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[4] Repertoire International se Sources Musicales, https://opac.rism.info (14.03.2021).
[5] One of the main goal is behind the centre, established in 1984, is to create big data music databases and develop tools for computer-assisted music analysis, http://www.ccarh.org (14.03.2021).

Example 1. A cadence in A minor in Humdrum format[6]

**kern	**kern	**kern	**kern
*clefF4	*clefG2	*clefG2	*clefG2
*M4/4	*M4/4	*M4/4	*M4/4
4A	4c	4e	4a
4D	4d	4f	4a
4E	4B	4e	4g#
4A	4c	4e	4a
==	==	==	==
*-	*-	*-	*-

Thanks to the software developed at w CCARH, such a record can be displayed with Verovio[7] an application for rendering scores in web browsers. However, the greatest benefit from creating digital scores in Humdrum format is the possibility of their subsequent computer analysis. This allows complex analysis of a music work in many aspects, to mention melody, harmony, rhythm, etc. It is especially important that the use of the tools will make it possible to browse through and analyse the entire corpus is of music. This will allow conducting critical research on styles, with the use of statistical tools, and also the creation of databases accessible for music browsers to let the users find to specific melodies, rhythmical patterns, and other elements of a music work in large collections.

Digitalisation, cataloguing, and the digital editing of the Wawel repertoire will contribute to a more detailed research of this invaluable collection in future, and will open an entirely new, previously inaccessible options for research. However, it is most important that access to the sources themselves will be much easier for

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[6] In Humdrum, successive voices are recorded from the right, therefore the lowest voice is entered into the first column, the following into the second and so on. Octaves are designated by the use of repeated or non-repeated upper- and lower-case letters, for example the sound "d" in various octaves can be recorded as (from lowest to highest): DD, D, d, dd, and ddd. the sound represented in the Polish notation as "h" is recorded in Humdrum like in the English system as "b", and the sound represented in the Polish notation as "b" as "b flat", where the flat is indicated by a minus sign. The full documentation can be found here: www.humdrum.org (15.03.2021).

[7] Verovio is a viewer that makes it possible to have the score listed in a web browser without the need to install any additional software. See: https://www.verovio.org (15.03.2021).

both researchers and musicians. For the essence of the activities undertaken by the Chopin Institute is the dissemination of information about the most valuable constituents of the Polish music heritage. It is material that the activities undertaken result not only in new scientific works but also contribute to the inclusion of the works from that collection in the repertoires of Polish and foreign musicians. Only then will the priceless Wawel music collection find its proper place in the minds of musicians, researchers, and music lovers.

Abstract

"Heritage of Polish Music in Open Access": Digitalising and Cataloguing Wawel Music Collection

In 2019, the process of digitising and cataloguing the collection of music literature in Wawel began on the power of a contract between the John Paul II pontifical University, the archive of the Kraków Cathedral Chapter and the Chopin Institute. The work conducted as part of the "Heritage of Polish Music in Open Access" project consists in the digitalisation of the collection, cataloguing it in the RISM database, and creation of the digital editions of selected pieces. The digitalisation, cataloguing, and digital editing of the Wawel repertoire will not only allow a more precise future insight into that invaluable collection but will also open entirely new research options that have previously been unavailable.

Keywords: digital humanities, computer-assisted music analysis, Humdrum

Abstrakt

„Dziedzictwo muzyki polskiej w otwartym dostępie" – digitalizacja i katalogowanie muzykaliów wawelskich

W 2019 roku dzięki umowie o współpracy pomiędzy Uniwersytetem Papieskim Jana Pawła II, Archiwum Krakowskiej Kapituły Katedralnej oraz Narodowym Instytutem Fryderyka Chopina został rozpoczęty proces digitalizacji oraz opracowania kolekcji muzykaliów wawelskich. W ramach projektu „Dziedzictwo muzyki polskiej w otwartym

dostępie" wykonywana jest digitalizacja kolekcji, jej opracowanie w bazie RISM oraz two-
rzone są cyfrowe edycje wybranych utworów. Digitalizacja, katalogowanie oraz wykonanie
edycji cyfrowych repertuaru wawelskiego pozwoli w przyszłości nie tylko na dokładniejsze
poznanie tej bezcennej kolekcji, ale otworzy zupełnie nowe, niedostępne wcześniej moż-
liwości badawcze.

Słowa kluczowe: humanistyka cyfrowa, skomputeryzowana analiza muzyczna, Hum-
drum