Physical Description of Manuscripts

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The description method, composition, and description parts and the level of detail have developed in the course of time. Often, the only tool available for codices in Prague libraries are catalogues dating back to early 1900s. Description in these catalogues frequently consists of just a few lines, whereas manuscript descriptions in modern catalogues can be tens of pages long. When describing a manuscript, the purpose of the description should be considered. Information can be added and descriptions improved infinitely. However, there comes a point when adding further information is not worth the time it takes. Even a description of just one more manuscript will require diverse approaches when entered in a new, enlarged edition.

Individual countries have their rules for describing manuscripts, and these generally differ only in particulars. (Different, more detailed guidelines for specifically defined lists usually exist.) As for nearby countries, let us mention German guidelines; compared to Czech guidelines, formal instructions differ slightly and cataloguers prefer briefer descriptions (http://bilder.manuscripta-mediaevalia.de/hs//kataloge/HSKRICH.htm, quoted on April 30, 2017). Compliance with the guidelines depends mainly on quantity of extant material. In extreme cases, one country may treasure in all its libraries less manuscripts than another country has in just one library.

The following sections and the description method used works on principles applied in the Czech Republic. The rules were published (J. Pražák – F. Hoffmann – J. Kejř – I. Zachová: Zásady popisu rukopisů, Sborník Národního muzea – řada C, literární historie 27, 1983, s. 49–95; Rules for Describing Manuscripts; National Museum Collection – C Series, Literary History 27, 1983, pp. 49–95) and they are available online at (https://www.mua.cas.cz/cs/zasady-
popisu-rukopisu-a-dalsi-teoreticka-prace-463, quoted on April 30, 2017). The rules “assume” that the records created will be published in a catalogue format. This is reflected in certain formal requirements, such as specific heading format rules. (Headings in newer Czech catalogues sometimes include a summary of the manuscript content.) However it is unnecessary to repeat the formal requirements here.

The description rules apply to codices of literary nature, i.e. those that are not a product of administration. Of course, the rules can be applied to charter-descriptions, however it is usually no problem to identify a charter’s time a place of origin, which are usually exactly the questions we aim to solve when describing and analysing literary manuscripts.

**Form of sources**

Manuscripts exist mainly in a form of codices, studied by codicology, but there are also other forms. Apart from diplomatic materials in a form of official books and charters, also found in manuscript collections of individual libraries, there is another text format – scrolls. Scrolls, however, are rather rare in Czech libraries with medieval manuscripts. Leaving Hebrew manuscripts (the Torah) aside, this form is absolutely exceptional. However, it was sometimes used for certain types of documents – not only the diplomatic ones (e.g. information on decease of monastic community members were passed on this way).

**Material**

Two types of material were used for medieval manuscripts: parchment and paper. Papyrus was very exceptional in Bohemian and the documented cases have nothing to do with codices: it is assumed that the non-extant original charter by Pope John XV for the Břevnov Monastery was written on papyrus.

In Bohemia, only parchment was used for manuscripts until early 1300s. Around 1270, paper-making became established in Italy and from there, it spread around Europe. The first documented and dated manuscript written on paper in Bohemia was the municipal book of rights for the Old Town of Prague with records starting in 1310. As of 1300s, the proportion of paper manuscripts continued to grow relative to those written on parchment. This was largely a result of the lower cost of paper. In the 14th century, paper was about four times
cheaper than parchment, and its price kept dropping. However, parchment was not abandoned entirely – it continued to be used for more exclusive, richly decorated manuscripts and for illuminations, parchment was a better material. Thus, even if only exceptionally, parchment has remained in use till the present day. Parchment was often recycled because of its cost. After scraping the original text off, it could be written on once more (so-called palimpsest). Description should mention this and if possible, the original text should be identified. However, this is usually true only of individual sheets. (Manuscript Prague, National library of the Czech Republic (hereafter NK) XVII G 5 is rather exceptional in this regard as the entire work is written on reused sheets of parchment; the original, scraped-off text was probably of an administrative nature).

Some manuscripts were written on a combination of parchment and paper (this was not only true of binder’s volumes – sometimes it was done deliberately). In such cases, the more heavy-duty parchment was used for inner and/or outer double sheets to protect the less durable paper inside.

To some extent, one look at the writing material can reveal the place and time of manuscript’s origin. Parchment manuscript folios were usually arranged so that when the manuscript was opened, the two pages facing each other matched – grain side opposite grain side and flesh side opposite flesh side (the so-called Gregory’s Law). However, in Southern Europe, they used to prepare one side of a parchment sheet more carefully than the other and thus one can see immediately lighter and darker folios taking turns. As for paper, finer and finer screens were used to produce paper. Thicker horizontal mesh and not very fine screens are typical still in the second half of the 14th century.

**Watermarks**

Watermarks in paper are a very important feature for dating codices written on it. Paper mills used them as their trademarks. Watermarks were created by weaving a design into the wires in the mould; after covering mesh with pulp, pressing and drying, a watermark remained impressed in each sheet. Watermarks were positioned in the middle of half of a folio, which determines their position in a manuscript (depending on its size). In case of folio manuscripts (i.e. codices approx. 30 × 21 cm) with text usually arranged in two
columns, part of watermark is usually visible between the two columns. In case of quarto codices, we find the watermark in the manuscript spine; the thicker the manuscript, the less visible and measurable the watermark. Should the manuscript size be even smaller, parts of watermarks disappear as if a sheet is folded more than twice, watermarks move to an area that is usually trimmed.

Registers of watermarks that had been found in dated manuscripts or in archives have been used to produce printed and digital collections of watermarks. (A specific watermark can serve to identify the time and place of use of a specific paper; connecting a specific paper mills with a specific watermarks is rather rare in the Middle Ages). Identification is based on two presumptions. Firstly, a wire design woven in the mesh survived only a few years. Owing to tear and wear, it had to be replaced with a new one, different both in shape and in size. Secondly, the paper that the paper mills produced was consumed fairly quickly, usually within a few years. Exceptionally, the second presumption would not apply, however if other indicia do not conflict the watermark-based dating, identifying the watermark is the most important clue to date the written text. Not all watermarks from all regions are available, of course, and unfortunately it is not uncommon that researchers fail to identify the watermark, or to find a version that would be similar enough. When identifying watermarks, the ideal case is to find other versions that are identical both in visual aspect and in size, however even similar versions (similar in visual aspect and varying in size by ± 2–3 mm) help a lot date texts.

When identifying watermarks, it is most important to identify first the pattern and the size. Some watermarks characteristic of a particular period – e.g. the so-called Greek cross (a cross with three widening arms, ending in globules, on a stand) occurs frequently and, so far, its incidence appears to have been limited to the years between 1450 and 1479. In most cases, however, it is necessary to identify the size of a watermark both as a whole and also of its smaller sections to be able to date it more precisely. (The size, in particular, is indispensable when searching the watermark databases available on the Internet). Identifying the pattern might seem easy, however it is very often the exact opposite. Even in folio codices, only parts of the watermark will be clear because of ink. It is not rare to find that not only is the pattern as a whole unclear but also that it is difficult to determine its contours so as to measure its
size. The ideal case — blank manuscript leaves — is unusual and the various imaging methods that make it possible to highlight the watermark, are not commonly available. The first option is to hold the sheet of paper against a light source or to use special filters to shine light through the paper to show the watermark. Another method, where no special equipment is required, is placing the sheet on a hard underlay (e.g. a plate of glass), covering the watermark area with tracing paper and rubbing it gently with soft pencil — the watermark pattern contours will come up light against dark background. However, this method works only with undamaged manuscripts and benevolent curators. (A better result is achieved if one rubs the side that was touching the screen when the paper was made). Another perfectly legitimate method is to reconstruct the watermark from those parts that are visible on the various folios of the book. However, it must be kept in mind that, in order to identify the watermark correctly, one must not combine dimensions of various versions, even if they look similar. There are special imaging techniques that provide better results, such as using radiation with a different frequency than that of visible light. These methods are not, however, freely available, let alone for routine description of manuscripts. (An interesting work for Czech materials: M. Benešová – K. Boldan: Metody vizualizace filigránů a využití filigranologie pro datování nejstarších českých tisků na příkladu tzv. Nového zákona se signetem, Metodika a dokumentace stavu poškození fondů, konzervátorské průzkumy (Watermark Visualisation Methods and Using Watermark Science for Dating the Oldest Czech Prints Using so-called New Testament with Printer’s Mark as an Example; Methodology and Documentation of Damage in Collections, Conservator Surveys) [online], 2011, s. 99–114, wwwold.nkp.cz/restauratori/2011/Benesova_Boldan_2011.pdf, citováno 30. 4. 2017).

Several basic resources are available to identify watermarks. The oldest printed work is Ch. Briquet’s: Les filigrans. Dictionnaire historique des marques du papier des leur apparition vers 1282 jusqu’en 1600, vol. 1–4, Genève 1907, reprint 1968; (at the moment, only parts are available also online at http://www.ksbm.oeaw.ac.at/_scripts/php/BR.php, quoted on April 30, 2017; however, one can only search by the description in the original work and in French). For most medieval watermarks, this founding work has lost its
importance as it clusters many watermarks varying in size in one type and thus
dating is rather unspecific. Still, the work does include some watermarks that
are not described anywhere else and it also covers periods other than just the
Middle Ages.

Another important collection was compiled by Gerhard Piccard and it is in
Württembergisches Landesarchiv in Stuttgart. The collection was used to publish
seventeen printed volumes, classified into groups by individual patterns (G.
Piccard: Wasserzeichen. Veröffentlichungen der Staatlichen Archivverwaltung
Baden-Württemberg. Sonderreihe, Die Wasserzeichentskartei Piccard im
collections is also being digitized and may be searched online (www.piccard-
online.de, quoted on April 30, 2017). The printed and electronic versions are not
identical though. The printed versions, especially the older volumes, tend to
catalogue watermarks differing in size as one type and thus, dating is less
precise (in other words, identifying a specific version using the electronic
database may result in more precise dating). On the other hand, the artificially
created clustered types in the printed version may provide at least approximate
dating for watermarks that are not listed in the electronic version at all. If
possible, the best approach, especially in case of older books, is to combine
search both in the electronic database and in the printed source. The electronic
database also includes patterns that have never been published. Having chosen
a specific motif (including various accessories as it is not possible to search large
basic categories), more detailed search criteria should follow. These are: the
height, the width and the chain line width. It is possible to select an allowance
for the measure mistake that will be applied to all the three dimensions. The
height and width specify the maximum size of a watermark, even if the shape is
irregular. The third dimension specifies the distance between two (if the
watermark is between two chain lines or overlaps slightly on each side
symmetrically) or three chain lines (if the middle chain line serves as an axis).
Searching motifs visually does not always work intuitively (especially if there are
more accessories above or below the basic motif) and sometimes one succeeds
only through a process of trial and error. Some watermarks are segmented to
such an extent that visual differences are not obvious and it is necessary to read
the description that displays after moving the cursor over the picture.
Piccard’s collection is a part of a larger system Wasserzeichen-Informationssystem (WZIS, https://www.wasserzeichen-online.de/wzis/index.php, quoted on April 4, 2017). The database is updated continually to reflect the latest watermarks discovered in German book collections. The navigation of the catalogue is different from that of Piccard’s collection. After selecting a specific watermark, several search criteria are available; dimensions remain the key criterion to succeed in finding an identical or similar version. The structure of Wasserzeichen des Mittelalters watermark database, reproduced from codices in Austrian libraries (WZMA, http://www.wzma.at/, quoted on April 4, 2017) is very similar.

An interface within a project called Memory of Paper (http://www.memoryofpaper.eu/BernsteinPortal/appl_start.disp, quoted on April 30, 2017) can be used for aggregated search of these and of other online collections of watermarks. Other databases are (at least for the time being) rather small and one can only search by key words, which is rather impractical as it means that it is not possible to differentiate between the main motif and other, additional motifs that watermarks may include.

As for the description of medieval codices, modern watermarks are only of limited importance – they may be found e.g. on lifted pastedowns of younger bindings or in newer additions to manuscripts. The registration of newer watermarks remains incomplete: a set of works by František Zuman are the basic source for basic orientation in Czech watermarks. The first indubitable mention of paper production in Bohemia comes from as late as 1499 and Zuman described the industry in particular regions and during particular centuries (F. Zuman: České filigrány XVI. století, Památky archeologické 33, 1922–1923, s. 277–286, tab. XXIII–XXVII; týž: České filigrány XVII. století, Památky archeologické 35, 1926–1927, s. 442–463, tab. CXXXVI–CLXVI, týž: České filigrány XVIII. století, Praha 1932) (F. Zuman: Czech watermarks of the 16th century, Archeologic relics 33, 1922–1923, pp. 277–286, tab. XXIII–XXVII; the same author: Czech watermarks of the 17th century, Archeologic relics 35, 1926–1927, pp. 442–463, tab. CXXXVI–CLXVI, the same author: Czech watermarks of the 18th century, Praha 1932). For former Austro-Hungarian territories, there is G. Eineder: The ancient paper-mills of the former Austro-Hungarian Empire and
their watermarks (Monumenta chartae papyraceae historiam illustrantia VIII), Hilversum 1960.

When describing codices, all watermarks, whether wholly visible or which can only be tentatively discerned, need to be registered; if a watermark cannot be identified in a repertory, it can be described in words. It is also fundamental to record the incidence of individual watermarks: a particular watermark is often limited to just one of a manuscript’s gatherings. This (especially when accompanied by a change in scribe’s hand) would indicate that the gathering was created independently and became a part of an aggregate manuscript later on. If various watermarks from various gatherings within one codex can be positively assigned to the same period, it makes dating of the entire codex more convincing. If, on the other hand, time of origin of individual watermarks differs (by more than 20 years), other indicia need to be considered to date the codex.

Structure

A manuscript consists of gatherings. Gatherings are made of bifolios, i.e. sheets of parchment or paper, folded in half and arranged in short stacks. Individual gatherings, joined side-by-side, are sewn at the book spine and attached to covers. Gatherings made of four to six bifolios are most common but the size of a gathering also depends on size of a manuscript and to certain extent also on the time of its origin. Gatherings are named according to the on the number of bifolios they contain: a gathering of two bifolios is called a binion, a gathering of three bifolios is called a ternion, of four is called quaternion, of five is called quinternion, of six sexternion, etc. In order to identify the type of gathering, one needs to identify the centres sewn together with thread or string to hold the bifolios together. Sometimes, strips of parchment are used to prevent the gathering centres being damaged by the thread. Waste paper from older manuscripts was usually used for this purpose. Ideally, this waste paper can be studied to discover and identify the remains of older manuscripts. In any case, these reinforcement strips should also be registered and documented (mention whether there is a legible text on them and any other details available; in the description, this information falls under another section called Binding). Other indicia that will help determine the size of gatherings are mentioned below and are of use mainly in case of large manuscripts as they open only to certain angle
and one does not get to the manuscript spine, unless certain degree of force is used.

Gatherings belonging to one manuscript created at the same time are usually of the same, or similar, size. Describing the gatherings verbally would make the description too long and national guidelines therefore define systems for describing gathering sizes; however national practices may differ. In Czech system, Roman numerals specify number of bifolios in a given gathering (II for binion, III for ternion, etc.); symbols “-” and “+” followed by a number of folios (less frequently bifolios) provide information on missing – or added – leaves. Arabic numerals are used for leaves, Roman numerals are used for bifolios (the same as gathering size). If there are several gatherings of the same size, this is expressed by an Arabic numeral in front of the Roman numeral. To double-check, last folio (or page) number is mentioned after each registered gathering. The Czech formula for a manuscript consisting of two full sexternions, one sexternion with one leaf missing and one quinternion with two leaves added would be: 2. VI (fol. 24) + (VI-1, fol. 35) + (V+2, fol. 47).

Different systems may be used by various countries and in various catalogues. In Germany, the last folio check digit is displayed as an upper index. Anglo-Saxon catalogues often use gathering order number with a number of leaves in it, and any irregularities are mentioned right in the given gathering. Using this system, the same manuscript would be recorded as 1-212 (ff. 1–24), 312 (ff. 25–35), 410 (ff. 36-47), where the added or missing leaves are indicated right in the given gathering by specifying the number of leaves in it.

The original location of missing or added leaves also needs to be identified and registered. (Extra leaves were usually added by binding or pasting them in, exceptionally they were sewn on older leaves.) The specific cases where extra leaves are added by pasting them onto a strip of an original bifolios are recorded verbally; this would typically happen in cases where in the second half of a gathering, text was written on wrong pages of given bifolios. If this happened, the leaves in question were cut and pasted to the right place not to disturb the text stream.

Sometimes, missing or added leaves are not easy to determine. If leaves disappeared after a manuscript had been finished, and thus the text flow is disrupted, there are no question. Questions arise in cases where there is no text
disruption. In general we can say that as for parchment manuscripts, only individual leaves would be added (parchment was an expensive material and also, some sizes were not large enough for bifolios). Paper, on the other hand, was produced in unified-size leaves, which makes cutting a leaf out after the gathering had been bound more likely. We must also consider position of irregular gatherings and of leaves in a part of them. Gatherings of a different number of leaves are more frequent towards the end of manuscripts or in case gatherings were produced in one go, because sometimes the end of the text would be shorter, hence a smaller gathering. Sometimes though we see a slightly larger last gathering – in these cases individual leaves were more likely to be added (these are then found in the second half of the gathering when it was already clear how much space was needed for the remaining text). There are usually fine traces of a missing leaf in the gathering – whatever the cause of the loss. A thin strip was necessary to attach a leaf by sewing it in. The watermark position, in case of paper manuscripts, also helps to detect missing leaves. In case of folio manuscripts, there is a watermark only on one leaf of the folded folio. Therefore if there are watermarks on the leaves in the first half of the gathering, there will be no watermarks on the complementary halves in the second half of the gathering. Quarto manuscripts usually have watermarks in the spine; thus one folio in the gathering either has no watermark at all or it is in parts of one folio in the first and second half of the gathering, in its upper or lower section, respectively. Foliation of individual folios in the gathering can also say a lot. Only leaves in the first half of a gathering were usually foliated. Marks were usually placed either in outer bottom corner or in the middle of the bottom of recto pages of individual leaves. Marking takes various forms: the most common are Arabic or Roman numerals. However, there are also letters starting from “a” or the corresponding number of vertical lines. Exceptionally, foliation also includes a sequence number of a given gathering, and thus we find a combination of a letter (identifying the gathering) and a number (identifying the folio).

Another aid to identify individual gatherings would be information that was meant to help binders order the pages and sections in the correct order. There were two such tools – so-called signature marks and catchwords (these terms are used also for prints but have a different meaning). Catchwords are
usually located at the bottom of the final leaf of a gathering, towards the inner margin (sometimes they are in the middle of the lower margin, sometimes even within the decorative border, exceptionally also in the inner bottom corner, perpendicular to the manuscript text). A catchword anticipates the first word of the following gathering. Sometimes it is just one word, sometimes it is several words. Sometimes, if bifolios were not bound in the correct order or if a copyist did not copy the leaves in the second half of the gathering in the correct order, catchwords can indicate the right order even within one gathering.

Signature marks are sequence numbers of gatherings, and they were placed at various places. The most common option would be at the end of a gathering, at bottom margin centre. It is no exception though to find signatures at the bottom or outside top margin of a leaf. Signatures found within one manuscript do not necessarily form a continuous sequence; we find signatures starting from 1 that indicate that individual sections were created at different times or places, and we also find signatures that indicate “simply” a copy of individual parts, sometimes by the same copyist. Roman or Arabic numerals are used as signature marks. However sometimes we see numbers written in words (and sometimes there are numbers written in words first, and when the number gets too long, numerals are used). In any case, it is necessary to document all occurrences of signatures (place and method used) and any irregularities. (E.g. “Two signature sequences: first in Arabic numerals 1–6, final folio, bottom centre, ff. 1–72, second in Roman numerals XIII–XV, first folio, bottom outside corner, ff. 73–102.” Such description suggests that the second half of the manuscript belonged originally to another, larger codex, and it was added only secondarily.) After binding, these signatures became irrelevant and were usually trimmed or at least damaged not to interfere aesthetically.

In case of rebound books, it is more difficult to identify the structure. Damage would often be the reason for rebinding a manuscript and in the process of restoring the book, sometimes more folios were added, and thus the restored book comprised a different type of gatherings. In these cases, it is desirable to indicate this fact and if indicia allow, try to identify what changes were made to the original manuscript.

Layout
Layout descriptions reflect, in most cases, what it obvious at first sight. The purpose of stating the facts is important for getting an idea how much care was put in copying the manuscript as this can tell who the manuscript was intended for. The visual aspect of two identical manuscripts can reveal whether it was copied just casually, for somebody’s personal use, or very carefully, for a monastery library.

Layout description records above all number of columns, layout size and how it was prepared. Number of columns correlates with manuscript size, and to certain extent also with its contents. Larger manuscripts usually have a two-column layout. More-columns layout is specific to certain types of texts (e.g. Bible concordances or other indices that can be listed in columns, unlike common text). Number of columns also correlates with the script size: on one hand, even large graduals and other codices with similar content written in large script have a one-column layout, on the other hand, relatively small manuscripts have a two-column layout but they would be written in small, or even miniature, script (e.g. small carry-around Bibles comprising entire Scriptures).

The layout size (or rather marginal space size) depended on the manuscript purpose. Large margins primarily reveal representative nature of a manuscript. However, certain texts were expected to be commented – and these had a lot of marginal space, too. In these cases certain amount of blank margins was left as the extent of commentary to be added was often prepared up front. Some legal manuscripts (that often came to Bohemia from Southern Europe) are of specific appearance: the core text is usually in two columns, the layout is variable, and the script size is larger; around the core text, runs the gloss in smaller script. These manuscripts that have a basic layer or layers of explanatory glosses usually also have same blank space left in bottom margin for adding more commentaries.

The care put in ruling lines on the pages also reveals a lot. While layout margins, and individual column margins, were prepared on regular basis, line ruling is found only in considerably lower percentage of manuscripts. The method used for ruling depends on writing material used: until the 12th century, either a hardpoint (for blind ruling) or a leadpoint were used to rule lines on the parchment pages. As of the 13th century, ink ruling becomes more frequent and prevails soon. Blind ruling is far less frequent in paper manuscripts as with
hardpoints, the risk of damaging the writing material was rather significant. Sometimes we see pricking on margins as remains of ruling preparations — the marks were then connected with guiding lines. Sometimes the pricking was trimmed not to interfere with overall visual aspect of a page, but it was not a rule. As for the above mentioned commentaries, sometimes only the core text is ruled and the commentary itself is located in the outer margin of a page. Sometimes, however, the core text and commentaries take turns. Sometimes homilies have this structure — the Scripture text uses the ruled part of a page, and the homily text has either no lines ruled or there are smaller line spaces. The simplest method, seen most frequently in commentaries on philosophical works, would be that of a single word or a short section of the core text written in meticulous script, sometimes underlined in red, and the commentary written in smaller, more ordinary script.

Layout description includes number of columns, layout size, layout preparation method, (width of individual columns and the width of the vacant space between them, sc. “spatium”), and a number of lines per column. For standard manuscripts written in two columns, the width of one column is 7 to 10 cm, spatium width is 1 to 2 cm. Dimensions can tell us a lot in case of fragments where it may be unclear whether the blank space it a spatium or whether it used to be the original manuscript’s spine; (should it be the latter case, the vacant space is usual wider). Should there be scripts of different sizes (the core text and the gloss), information for both sets needs to be recorded. Also, if number of lines in each manuscript text differs significantly, this needs to be recorded. Should the script size change gradually, only the sizes at the beginning and at the end are recorded, and a note of gradual change in type of script is recorded.

Foliation, Pagination, Running Heads

Foliation, or pagination less frequently, is the nowadays method for navigating manuscripts and for referencing them. Unlike the less frequently used pagination, foliation has been used for the same purpose since the Middle Ages. However, there were also other navigating and referencing systems.

First of all, the medieval foliation usually used a different basic unit. Nowadays, the recto page of one leaf has a sequence number followed by r
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Resources for Editing Medieval Texts (Paleography, Codicology, Philology)

(recto), the verso page has the same sequence number followed by v (verso). Medieval foliation, however, was based on the aperture system, i.e. aperture (an opened bifolios) was the reference unit. It consisted of the verso page of one leaf and the recto page of the next leaf. The most common referencing system is based on this perception – it consists of a folio followed by letters a-d, referencing one of four text columns (or letters a-b in case of manuscripts that had a one-column layout; however, columns are usually specified only in codices that have a two-column layout per page). The system of column marking developed in a system of bookmarks – which were special marks placed either on a capital, or in movable version, attached to a wooden stick. (Both types survived mainly in Roudnice monastery manuscripts.) These are rotating disks or crosses, with the numbers 1-4 on them (either in words or in numerals) that would mark the column where a reader wished to resume reading. However, the downside of the foliation-based system would be that it was not possible to use it in other copies – it was practically impossible for copies to have identical volumes of text (or even columns). Thus the more frequently used referencing system was based on text, not codex, features. Often certain text units (sections, homilies, etc.) were numbered, and individual letters were used to make the marking more specific. When such a manuscript was copied, these bookmarks were placed on margins, at the relevant section of a text. Sequence numbers of smaller units were usually placed in headers, as a type of running heads. These references, however, provided only less detailed information, typically e.g. name of a given biblical book or a sequence number of a book belonging to a larger collection. They did not include information referencing a specific folio in a manuscript. Running heads are recorded in the section describing layout preparation.

Except for continuous numbering of folios, other systems were also used, even if less frequently. The most frequent other option was a combination of a letter and an Arabic or Roman numeral, most frequently from one to twenty. This system was used mainly in liturgical codices, typically e.g. in serial production of manuscripts in the 16th century.

Descriptions need to record older foliations in a manuscript. (It is no exception to find medieval foliations where each individual work in one codex had its own numbering, while this does not mean necessarily that they were
each created in rather different periods of time). If the foliations are used for reference purposes, the fact is also good to be documented. Modern foliations, including errors, are documented, too. (In some collections, numbering intentionally skips blank leaves). The missing folio is the folio that is immediately before the numbered leave (if there are folios numbered 110 and 115 in a manuscript, and only three more leaves between them, 114 is the missing folio). Analogically, a multiple folio would be a folio immediately before the numbered leave (if we use the previous example with folios numbered 110 and 115 with six leave between them, the folios after fol. 114 will be documented as 114 bis and 114 ter). Using new foliation is useful only on rare occasions: older systems, including the errors, had usually been used in older catalogues and manuscript descriptions.

**Damage**

Documenting damages to a manuscript or to its parts helps scholars in research, and sometimes it helps uncover a manuscript’s “life” story. Missing leaves, fallen out gatherings etc. should be mentioned already in the Structure section. Thus just a reference to this will suffice in this (Damage) section. More heavily stained outer leaves of a gathering, or of groups of gatherings reveal that the manuscript may have been collated from individual sections (that sometimes had existed independently for some time). Newly bound manuscripts with leaves damaged by corrosion may indicate that the original binding had metal ornaments and clasps. This section should also mention damage caused by insects, humidity, etc. It should also make a mention of illegible or disrupted text or parts of text.

**Script**

The basic purpose of scripts and scribes’ hands description is twofold: to identify the number of scribes creating the manuscript, and to characterize the script they used. Both the tasks are uneasy.

Visual appearance of one scribe’s hand can vary relatively significantly even within one manuscript. If a scribe worked on a codex continually, the hand would change continually, too. More questions arise, though, when another
copyist took over, or when the first scribe took a longer break and resumed copying the manuscript in a more calligraphic style. As calligraphy tends to suppress individual style, it makes it more complicated to identify different hands. Sometimes a scribe wrote the core text carefully in calligraphy, and in *margine*, he used casual italic script (e.g. for notes to the rubricator). In such cases the dramatic difference between the two scripts by one hand is obvious at first sight. The scripts are so different that without knowing the general context, it would not occur to anyone to match the two scripts with one hand. Volumes of text written by individual scribes’ hands are measured by foliation. If a scribe’s hand does not change within a gathering (or an individual text), they can be measured by gatherings. Corrections, especially if by a different hand, and at least total number of marginals are documented, too. Should rubrication be made by a different hand, this should also be mentioned.

Script terminology used has not been unified, and various publications may use slightly different terms. The least problematic, from identification and terminological point of view, are the oldest scripts: Caroline (Carolingian minuscule) and Roman square capital (majuscule). These scripts, however, are rather scarce in extant materials; after 1250, Caroline was not used anymore and Romanesque manuscripts used Roman capitals only exceptionally, as a highlighting script (for rubrics, incipits, etc.). We may also mention uncials, or more precisely the round uncial shapes of letters that were also used in the Middle Ages, and even in the 14th century, to highlight incipits and running heads.

Most medieval codices in Czech libraries are written in Gothic scripts. Different sources sometimes list different criteria characterising Gothic scripts, especially in case of its early forms. However, for the calligraphic form, characteristics would include: pointed bows, broken tops and bottoms of vertical stems, stems ending in the same style on the base line, and conjoining letters (shared bows and vertical stems). After the transitional period of Carolina getting outdated, the most calligraphic form of this script (known as Gothic blackletter or Gothic bookhand) got in use from 1300s, it was used almost exclusively for calligraphic manuscripts in 1400s, and later on was replaced by bastarda. Gothic blackletter, however, was still used in the 16th century for
liturgical books, such as large graduals or hymn-books. In bastarda, individual letters are created in several disconnected strokes.

Gothic cursiva is the other Gothic script, its first use dating back to mid-14th century. The script allowed scribes to write faster, hence it is less tidy. Faster writing, binding letters together, made it possible use some new shapes (mainly sc. single-bowed “a” and loops on ascender tops of letters “b, d, l”, that allowed binding the next letter). The script spread fast due to growing manuscript production, both at universities and elsewhere. Descriptions often use the term Gothic semi-cursive – more neatly written form of Gothic cursiva, however some terminology systems do not use the term.

The last type of Gothic script is bastarda – it uses the same letters as Gothic cursiva, however letters do not bind – they are usually written in several separate strokes. Bastarda partially omits the non-functional loops at tops of ascenders. In the 15th century, bastarda was the prevailing calligraphic script, except for the above-mentioned liturgical manuscripts. Except from these basic types, Bohemian libraries sometimes offer region-specific scripts in imported codices. The one more frequently used script would be Italian Gothic, or Gothic Rotunda – with more rounded shapes of letters.

Humanistic minuscule, developed from Carolina, did not spread around Bohemia until the 15th century, and its spreading was rather uneven. It was introduced mainly by students who had studied at universities in Italy, however they could use the new script in their autographs only partially or not at all, maybe also due to language of texts they were copying.

While one scribe’s hand may change over the time, only one script type is usually used within one manuscript. Commentaries would be an exception – usually the core text is written in calligraphic hand, commentary itself in more cursory cursive.

From the terminological point of view, the most complicated situation is in defining cursory bastarda and neat Gothic cursiva. Individual researchers have “their own” criteria to put a script into one of these two categories and these criteria may differ. The prevailing terminological system is that based on the following works: J. Pražák (Názvosloví knižních pišem v českých zemích I. 11.–13. století a II. 13.–15. století (Terminology for book scripts in Bohemia I. 11th–13th century and II. 13th–15th century) reprinted in: J. Pražák: Výbor kodikologických a
Decoration

The purpose of recording and documenting decorations in regular catalogues is not to categorize illuminations by style. The purpose is rather to record information that can be used in further research. Some collections (KNM, Strahov) offer specialized catalogues of illuminated manuscripts, including art history bibliographies. Usually it is possible only to copy the information but it is not a rule. (Other collections have their catalogues of decorated manuscripts, too, however these are usually just selective lists.) Of course, literature often lists codices belonging to collections with no continuous catalogues, however the rule is that attention is paid especially to manuscripts with good-quality decorations.

For record-keeping purposes, decorations should be categorized as illuminations in form of figures, ornamental initials, drolleries (amusing decorations on borders of individual pages, not related to the text), illustration drawings (e.g. for texts on astronomy), or larger initials decorated with floral ornaments (fleuron), created either by a calligrapher or a scribe himself. The description should give the folia the decorations are on within the manuscript. Catalogue entries should also include the information on whether the manuscript is illuminated (abbrev. as “illum.”), however for the last category, the border is rather unclear. Just a summary mention will suffice in case of larger rubricated initials opening individual texts or sections, rubrication (titles of works or sections written in different-colour ink, usually red), elaborated capitals in colour, and underlined parts of texts. All this information, character of hand and care put in layout preparation indicate how much attention was paid to creating the manuscript. Rubricated captions were meant to help users
navigate the manuscript, however autographs copied by university students often lacked this basic highlighting.

Almost without exception, manuscript decorations illustrate the manuscript text; therefore description of reproducible images is text-depandant. Illustrations of a saint with no clear personal attributes in a set of legends will therefore be identified as the saint the legends are about. The scribe at the beginning of the text will be identified as the author of the given work. Analogical approach is used to identify iconographically non-specific biblical tableaus or those dealing with Canon law (judicial tableaus may be found in *Decretum Gratianum* or in other books on Canon law). Iconographic repertory of illuminations for individual books of the Bible or for the most significant holidays in liturgical codices was rather monotonous and one learns rather quickly to identify individual tableaus. Only minority of tableaus are difficult to identify. In such cases it is necessary that the catalogue describe the tableau. The same applies to drolleries – these usually depict scenes from normal life, or animals imitating humans. When describing initials, with figural or ornamental decorations, it is possible to enter whole word or prepositional phase with the decorated initial. For example, in case of liturgical manuscripts, the word often reveals the office the initial opens.

Scribes and illuminators had to work together sometimes more and sometimes less closely when producing an illuminated manuscript. Save for few exceptions, text was written first, and then the work was decorated. However, sometimes decorations remained unfinished or were less rich than originally intended. As a result, we find remains of instructions left for illuminators: guide letters (small letters placed in the vacant space left for the illuminated initial, sometimes including abbreviations instructing the illuminator on what colours he should use) or verbal instructions describing the required tableau (they were usually scraped away or cover by colour later on).

**Musical Notation**

Catalogues mention music notation in a manuscript mainly for the purposes of further specialised research – the word “notation” is written down in the catalogue entry heading. Unlike illuminations, notation is almost exclusively limited to liturgical codices and to religious hymn-books; (in comparison with
sacred music, only a minimum number of manuscripts with secular music has survived).

We find several prevailing types of notation in manuscripts originating in Bohemia. These are categorized depending on the system used. The oldest system used was the no-staff neumatic notation used till early 1300s. Neume markings were placed above the chant texts, indicating not the exact pitch, but rather direction of pitch movement, i.e. whether the melody line goes up or down in pitch. Neumatic notation also used letter abbreviation indicating changes in rhythm and melody. Chronologically younger type of notation was the sc. Metz (Messine) notation – originally staff-less but in Bohemia used with staff and documented from late 12th century.

Another form of notation used was the Metz-Gothic notation (older term was virga system of chorale notation). However, it was the Bohemian chant notation that became the most commonly used system (older terminology uses the term rhombic chant notation – *nota choralis-rhombica*). From mid-14th century, it was the prevailing system, used till Modern Ages. In monasteries (Friars Minor Conventual, Cistercians and others), they used square chant notation. A square was the basic note shape and it was used to form other symbols.

Evolutionally younger type of notation is the mensural notation. Unlike the older systems, this one was able to describe measured rhythmic durations using visually different notes. Black notation is the older type, created already in the 13th century but used on larger scale in Bohemia only from the beginning of the 15th century. Younger, white notation developed in the 15th century (and came into use in Bohemia a bit later, again). Notes shapes are identical in both the black and white mensural notations, the difference is that in black notation, all notes are filled in, while in white notation, there are both, hollow and filled in notes, the solid (black) ones being reserved for the smallest values.

sources of Utraquist provenance, but there are also sources from historically older periods. Specialised lists of manuscripts with notations are available for the NK collections (V. Plocek: Catalogus codicum notis musicis instructorum, qui in Bibliotheca publica rei publicae Bohemicae socialisticae in Bibliotheca universitatis Pragensis servantur, Pragae 1973) and for the collections in Museum východních Čech in Hradec Králové, however the collection includes mostly Modern Age works (J. Černý: Soupis hudebních rukopisů muzea v Hradci Králové (List of musical manuscripts in the Hradec Králové museum), Miscellanea musicologica 19, Praha 1966). Specific type of codices was documented by B. F. H. Graham: Bohemian and Moravian Graduals 1420–1620, Turnhout 2006. Unfortunately there are many inaccuracies.

**Binding**

A manuscript binding was above all of practical function. It was to protect the manuscript and to make it easier to handle it. In medieval libraries, there were also loose, not bound gatherings, but these were more prone to get damaged or even lost. They usually got bound when they became part of nowadays collections to be used for research.

Binding could also be of aesthetic function. However, incidence of bindings richly decorated with embossed and stamped decorations, (with incisions, precious stones, gems, moulded figurines, enamels, containers for holy relics etc.) is rather exceptional in Czech collections. There are for example the Strahov Evangeliary (Strahov DF III 3; its binding as it is now is a result of continuous additions throughout the Middle Ages until the 17th century, and of modern restauration) or the Prague chapter library evangeliary (Cim 2, Cim 3). There are two basic types of typical medieval binding. The first would be a less frequent soft parchment binding (it is sometimes referenced to as coopertorium, but it can also mean just covers, not binding). The other, more common type, would be wooden boards covered in leather, sometimes decorated (referenced to as in asseribus, however the term coopertorium may probably be used in this case, too).

Binding description should above all specify time correlation between the binding and the manuscript itself (contemporary, i.e. the binding from the same time as the manuscript; period, i.e. from the same period – in case of medieval
manuscripts, bindings made still in the Middle Ages but not at the same time as the codex; younger). Next it should identify materials used – both the boards material and the cover material. If decorated, decorations description should be included. As already mentioned, we have only a few richly decorated bindings – individual elements of decorations need to be just described, their style or time categorization is a question of specialized research. Description of (especially decorated) later bindings should be an analogy of describing the medieval bindings. Bindings of later periods though can be described in less detail as they are usually plainer, with no decorations.

Soft parchment bindings have, for functional reasons, reinforcement (most usually) leather slips on the back of the book, sometimes with incision decorations. Sometimes the back cover was wider than the book-block, the excess cover forming a flap wrapping around the codex to protect its fore-edge. These manuscripts usually do not have any clasps; sometimes there is a thread or a thin leather strap to wrap around the manuscript, or around a button fixed to the front cover board. This type of binding is frequent (but not exclusive) in case of work manuscripts, written casually, found e.g. in NK collections often relating to the University of Prague.

Wooden boards used for medieval bindings are usually covered in leather, they often have metal corners and a metal boss, and they almost always have fastening straps. The leather overlay was plain, not decorated at first, from the 14th century, simple lines were used to decorate the binding. First blind-stamped decorations are documented in Bohemian in early 1400s, they became more common after 1450. Various designs were used to decorate bindings, by using individual stamps or sets of stamps and impressing them in slightly damped leather covering the boards. Stamps identified by specific motifs and sizes found on bindings help identify periods and locations of individual bookbinding workshops. However they can only rarely be used to identify individual persons; (these can be sometimes identified by initials or names on stamps, but sometimes, the initials/names identify saints). Incision decorations are generally less usual, used exceptionally in the 14th century, a bit more often in the 15th century. Sometimes the leather covers only a section of boards, by the spine and the spine itself, but this type, too, does not emerge until the 15th century. There were also somewhat specific binding types – namely wrapped binding and
yapp-edges binding. In case of wrapped binding, leather overlay was attached to the outside cover board, but instead of folding in to be attached to pastedown, there were loose overlaps covering the manuscript edges. As for the yapp-edge binding, the overlapping parts of the cover could be tied up to form a bag and the book could be transported. In majority of cases, the overlapping sections of books covers were cut off and did not survive, however loose cover edges indicate this type of binding. Blind-stamp or other type of decoration needs to be verbally described so that readers can get at least a rough idea of the style and stamps used. In order to identify individual bindings, researchers use E. Kyriss: Verzierte gotische Einbände im alten deutschen Sprachgebiet, parts 1–4, Stuttgart 1951–1958. Another source continually gathering a categorizing materials from other libraries, including the Czech ones is available at http://www.hist-einband.de/ (quoted on May 30, 2017). It can be used to compare individual stamps, to view and search by motif, or identify specific workshops. Other materials, used rather exceptionally for binding in the Middle Ages, would be textiles or parchment.

Brass was usually the material used for metal edges (corner-pieces) and metal bosses, but we encounter also iron and wood, and even more precious metals in case of de luxe manuscripts. Most frequently we see bosses of a round shape, but there are also studs in a shape of a flower or a Gugelhupf. More sophisticated metal work decorated with cut holes, engravings and using other methods are less frequent. Such metal work needs to be described. It is no exception that metal edges and bosses did not survive, but the binding often bears traces that reveal at least the basic shape of the original element. The larger the metal work and the manuscript, the more decorative it usually gets. Sometimes it is even somehow connected to the person who had ordered it (coats of arms of the town of Kolín on manuscripts KNM XII A 21 and XII A 22, ordered by the town for its parish church).

The type of straps and clasps used also indicates the manuscript age. In Bohemia, for manuscripts dating back to the 14th century, a clasp hooked with a locking pin in the middle of the cover was the prevailing type of fastening mechanism. Clasps hooked with locking pins attached at the side of the book appeared in Bohemia at early modern period. In the 15th century, locking pins were replaced by hooks locking with catch plates at the side of the book front
cover. Catch plates were sometimes decorated with floral or animal figures, or with words and letters (sometimes with no meaning and used purely as a decoration). The straps would usually fasten from the back cover to the front cover; should it be the other way round, it needs to be mentioned. Folio-size manuscripts usually have two straps, smaller codices one, or two. There are also manuscripts that have two straps over the fore edge, and one strap over the top edge and another one over the lower edge. Modern period brought variety to ways used to keep book covers firmly together: tying with laces or binding with no clasps. Lockable books with a lock and a key were rather rare, mostly the case of municipal books of rights. The mechanism was used to prevent contents altering.

A chain attaching a manuscript to the bookcase would be a specific element, rather rare in Bohemia. The purpose was to prevent theft. The term used for these codices is *libri catenati*, i.e. “chained books”. One end of the chain was fitted to the back cover of the manuscript and the other to a reading desk or a bookcase. In Western Europe, the practice was usual at university libraries that served as reference libraries and was used for frequently used codices. No such codices showing traces of chains were found in the Prague university library. However, traces of attaching by chain are rather frequent on manuscripts belonging to St. James parish church library in Brno. Chain traces are also sporadically found on individual books belonging to other collections. (Manuscripts from the Weissenau monastery bear rather frequent traces of chaining, but the books got to Bohemia and to the National Library only with the Prague Lobkowitz library). Remains of chains or traces of them are abundant in Jáchymov burgher library and in Cheb Greyfriars monastery; however these book collections consist almost entirely of printed books. Chains as such or at least several links from them survived only exceptionally; it is usually a hole in the back cover that indicates *liber catenatus*.

Identifying bookbinder’s shop can assist in identifying not only the territory of origin, but also the time of origin. At the moment, we are able to identify blind-stamped bindings. In case of other types of bindings, we are able to tell e.g. identical metal elements and thus conclude that in the 14th century, Roudnice monastery used a certain shop (or maybe had its own shop?). Identical metal elements were identified on certain types of books bound for Třeboň.
monastery during 1365-1400. A homogenous collection of bindings from the aforementioned Weissenau monastery dates back to the turn of the 15th and the 16th centuries; the manuscripts were rebound for purely aesthetic reasons. Otherwise, rebounding a larger number of books to create a unified visual aspect became a common practice only in modern period.

The latest treatise on terminology and typology of metal components of bookbinding was written by K. Sojková: Kovové prvky v knižní vazbě (terminologie, vývoj, výroba, restaurování a konzervace) (Metal components of bookbinding (terminology, evolution, manufacture, restauration and conservation), Pardubice 2011. P. Hamanová also deals with medieval bookbinding in her book: Z dějin knižní vazby od nejstarších dob do konce XIX. stol. (History of Bookbinding, from the earliest times to the end of the 19th century), Praha, 1959.

Bookbinding description should also include description of pastedowns (inside of book covers) and flyleaves (front/back endpapers preceding/following the manuscript text). Flyleaves were not a rule, however pastedowns were a common element of medieval manuscripts. We do find “naked” inside covers, however this is usually because the original pastedown was removed for some reason later on. Blank paper or parchment leaves, or waste paper from older codices was used for pastedowns and flyleaves. In case of waste paper it is necessary to identify the text written on it. (Sometimes waste paper was used because the original manuscript got damaged, which can make the original text identification difficult.) There can be later additions written on the originally blank leaves showing that the text was used actively (e.g. excerpts or comments written by book owners). All this should be documented. (Call numbers and information on ownership are dealt with in the next section). However, even blank leaves can reveal information. Watermarks in paper leaves can reveal binding age, and possibly tell how much time elapsed between writing and binding the codex (should the time elapsed be rather long). Binding description should also mention strips reinforcing sewing at central folds of individual gatherings (see Structure) and readers’ markers – tabs pasted against leaves edges, sticking out of the fore edge. These were made from both the waste paper and blank parchment, sometimes bearing relevant headwords.
Ownership Notes and Manuscript Provenance History

“Life” of a manuscript started with its writing. Once written, it was read, used, stored at different places. There are various approaches to reconstructing where manuscripts moved and how they were received, but the options are rather limited. A certain type of changes is reflected by visual changes (typically rebinding). However, written records – readers’ notes, call numbers and ownership notes – usually tell more. As for readers’ additions and comments, they usually do not reveal much, as these are almost exclusively anonymous and thus we can identify authors only if they intentionally provided enough identification data or if the comments and additions were written by someone whose scribal style is so characteristic that we can identify the author. As for library entries, the written records tell more.

However, this would not be the case of call numbers. Medieval Bohemian libraries usually used almost identical systems of call numbers consisting of a letter and a numeral (sometimes a given library used only Roman or only Arabic numerals, but sometimes both were used, especially if there were several persons registering the books). It is important to document call numbers when describing manuscripts, however as long as there is no database that would make it possible to compare new call numbers with those that have already been identified or are identifiable, researchers have little use for call numbers. Access to call number images, however, does not seem to be a question of near future. Call numbers using a different system are easier to identify: e.g. manuscripts from Zlatá Koruna monastery usually had a plate on the front cover, with majuscule letters; should there be a larger number of books, majuscules were doubled; no numerals were used. Manuscripts belonging to the Charles College of Prague University had a plate on the front cover bearing the usual-format call number consisting of a letter and an Arabic numeral, usually followed by the letter K. The letter-numeral combination denoted the manuscript position: letters denoted shelves, numerals serial numbers. Some call number reveal more complex systems of arranging books in the library. Codices from chaplain library in Český Krumlov bear call numbers consisting of the letter C. (abbreviation of capsa, bookcase); each bookcase had two vertical compartments and thus the letter C. is followed by Roman I or II; next is or. followed by an Arabic numeral 1-4. (ordo, shelf) and the position in the shelf
identified by a letter. Call numbers primarily served record-keeping and location-indicating purposes and were therefore placed in immediately visible places. First they were most commonly placed on the front cover, then on the spines. However, some libraries placed call numbers on cover insides, flyleaves and even fore-edge (in the Middle Ages, manuscripts were usually stacked horizontally and the fore-edge was therefore visible). Sometimes we find call numbers inside the book block. This would be the case of separate texts, with nothing to do with other texts in the codex. This probably indicates that originally, the section was kept separately and was bound into the codex later on.

Content records were another element making it easier to locate codices. Content records were usually written on the front cover, cover insides or first flyleaf, but we also find them on edges. Our options to match contents and titles written by the same scribe’s hand are limited, though. The trouble is the same as in case of call numbers: all we can use at the moment to make the identification are ownership notes, our visual memory and comparison of records with digitalized codices. Some bigger libraries used their own ways to record titles. One way, generally less frequent, would be placing them directly on the board overlay. Labels, however, were more common. Labels were pasted to the board, covered with horn and nailed down or held in place by a metal frame. However, the practise used by the library could change over the course of its existence. It is important that manuscript descriptions quote labels in extenso: labels often state (real or presumed) authors of individual works and also, some labels are quoted (sometimes word for word, sometimes less verbatim) in contemporary catalogues (if they exist) and thus this can help identify them in older library tools.

Ownership notes, on the other hand, usually specify manuscript owner accurately (but sometimes, when the manuscript changed hands, the original note got damaged or removed). Forms of the notes vary. Some notes simply state the name of the person or institution owning the codex. Some notes are more detailed and describe details of how the book came to its owner (year, donator, etc.). Some owners labelled their books with identical decorative labels that can be perceived as ex-libris: e.g. Václav Hněvsín z Krumlova used a yellow dragon on a blue field; Václav Koranda Jr. used varying combinations of letters
VKM – VK for his first name and surname, M for magister. There was no need for ownership notes to be immediately noticeable, thus they are usually to be found inside the book. Inside of the front cover board, front free endpaper or first flyleaf would be the most common locations to place ex-libris. Some institutions, however, placed them at characteristic places: some Roudnice manuscripts have the ownership note inscribed on the last leaf, at a right angle to the spine; codices belonging to Sáská monastery had the ownership note inscribed on the third aperture from the codex front and back and also roughly in the middle of the book. The bottom line is to track and document all ownership notes and call numbers, not just the medieval ones: thanks to documenting history of medieval collections, we can track down codices with identical “life stories” and thus identify them, even if there is no record of previous or original owner.

So far, ownership notes were recorded and used to identify typical call numbers only in case of research in specific libraries. The Provenio project aims to encompass a larger scope (www.provenio.net, quoted on April 30, 2017). It maps owners of individual collections in the National Museum Library (KNM), but medieval manuscripts form just a small part of the KNM collection.

The information in the manuscript texts as such and the information describing its physical appearance should appear in that part of the codex description that summarizes information about the codex place and time of origin, and about other identified or likely owners and locations.

**Fragments**

The obvious difficulty in describing manuscript fragments is their condition. Some libraries call fragments not only the genuine fragments but also manuscripts that survived as a whole but are very small. Another group relatively frequently categorized as fragments are diplomatic materials, whether they survived as a whole or as a torso.

Manuscript fragments come mainly from codices or other manuscript materials that for some reason lost its original purpose and were used secondarily for other purposes. Old manuscripts were usually used for newer books, depending on what the original manuscript was written on. Parchment codices were usually used as cover material in binding newer books. Old
parchment was also sometimes cut to narrow thongs and used to reinforce central folds to protect them from getting damaged by binding sewing. Paper manuscripts were usually torn and used as book marks. Both parchment and paper leaves were used as pastedown material for newer manuscripts.

Certain types of damage are typical of individual materials and types of secondary use. Parchment used as cover material for new books is dirty, text is rubbed off on the outer side and inaccessible on the inner side. Reinforcing thongs can be in most cases studied only if removed from the codex. In optimistic scenarios, individual strips can be reassembled to form a bigger section of text. However, there are numerous gaps in most cases. Text on pieces of paper used as bookmarks is usually legible as mostly just the part sticking out from the book is obscured by dirt. On the other hand, bookmarks are usually very small fragments and the chance to find more fragments of the same origin is very little. As for pastedowns, these are sometimes covered by later alterations, but in general parchment fragments used this way survived in good condition.

There are two important reasons to identify and study fragments. The first reason is that manuscript fragments are often the oldest extant specimen of manuscripts in the given collection. The second reason is that if we manage to trace down fragments coming from the same original manuscript and used for binding new books, we can tell that these new books come from the same library or at least from the same bindery.

The rules for describing fragments are the same as for describing manuscripts. Damage is usually described in more detail as this is related to secondary use of the original material. The description usually includes the title and the call number of the book the fragment was used in. However, as the extant material is usually very fragmentary, it is usually impossible to identify the text, let alone the genre. In such cases, anything that can be deciphered from the text should be recorded.

**Content Description**

Physical description is necessary to determine time of origin of a given manuscript. (From the viewpoint of written down texts, the only clue of this type would be the *post quem* date for works with exactly specified dates of
origin, however it is relevant only for some manuscripts from the High and Late Middle Ages.) Most researchers are, however, interested above all in the manuscript content. Content description should include identification of individual texts in the codex. Accuracy of identification may vary, despite sparing no effort. This applies to all works, from those where it is no problem to identify the author to collections of shorter texts or notes, where both structure and description method are arbitrary. Description of individual text units should always include (if all parts of the text are present):
– Author’s name if known or names of all authors ever mentioned, or generally accepted and used designation of the author the text is attributed to (in this case using “Pseudo-“ in front of the name).
– Title used in series in use or generated as part of the description. It is possible to use information from the manuscript itself to generate the title, however it should be obvious what is the cataloguer’s input (usually in quotation marks) and what comes directly from the source.

The least complicated approach would be to put both author’s name and work title in square brackets (the usual practice for added, editorial information). This could lead to catalogues growing slightly larger, should the same information be contained in the opening heading, however if the same text appears repeatedly, this practice makes it easier to generate e.g. indices.
– Opening heading (work title that is not directly contained in the text, individual sections – prologue, chapters, etc., author’s name etc.), incipit (the opening of a textual unit), explicit (the closing of a textual unit) and closing heading – provided, of course, the text does have all these parts.

Rubrics should be quoted in full. Incipit and explicit quotations need to be only long enough to identify the work accurately. It is therefore possible and desirable to shorten e.g. biblical quotations – three dots (...) mark the ellipsis. On the other hand, in case of texts with very frequent or even stereotypic wording (such as homilies opening lines: “In isto sermone tanguntur trio”) the description should quote the stereotypic part and end only when something new appears. When describing Bible manuscripts, where sometimes only opening headings differ, and the usual types of liturgical codices, there is no need to describe individual parts. “///” at the beginning or at the end mark mechanically
destroyed text; it is advisable to quote the incipit (or the explicit) of the first (or the last) larger block of extant text.

– Colophon is usually a part of annotation that follows the quoted text itself.

Some definitions see a colophon as just an addition recording information relating to the circumstances of the production of a given codex (scribe’s name, donator’s name, the place and date of making the copy, etc.). However, colophons may contain other notes made by scribes: prayers and thanks for help in course of writing the text, threats to those who might want to steal the manuscript, pleas for spiritual or material reward or childish outbursts of joy by scribes over finishing the work. Published catalogues served as a source to compile a comprehensive work: Bénédictins du Bouveret: Colophons de manuscrits occidentaux des origines au XVIe siècle, Tome I–V, Fribourg 1965–1979.

Colophons are the most common part of a manuscript where scribes would write in secret code, but their encryption was not very sophisticated. Writing backwards was the most frequent encryption method. Another method would be splitting names into syllables and scattering the syllables in a longer text to encrypt scribes’ names; the text, however, usually provided decrypting instructions. Scribes also used simple substitution ciphers, very often replacing only some letters: usually only vowels were replaced, frequently by the next letter in the alphabet, i.e. “a” was replaced with “b”, “e” was replaced with “f”, “i” with k, etc.

Next element in the description of textual parts (and colophon, if present) is usually the annotation. The annotation provides additional information of various kinds, mainly on content and bibliography, it also supplies information on editions, presence of the work in catalogues and in other manuscripts (based on what other catalogue say, of course), etc.

A growing number of secondary literature, such as monographs, catalogues and lists, are available to identify authors and texts. What is more important though is that texts are being processed and linked up to enable full-text or otherwise structured search. (At the same time, internet sources can be easily modified and thus information may become invalid or even completely disappear.)
As for number of records and relevance for Czech research, the *Manuscripta Mediaevalia* database is by far the most important one (www.manuscripta-mediaevalia.de, quoted on April 30, 2017). There are catalogues to manuscript collections in Germany, and to collections in other countries, too (mainly Austria, Jagiellonian Library in Krakow or Uppsala University catalogue, which is also relevant for Czech research; as for Czech collections, the Research Library in Olomouc catalogue is available and the database also contains records of library collections compiled by Berlin Academy of Science workers, but many of those manuscripts are currently missing or unidentifiable).

Quality of descriptions of individual manuscripts differs, depending on catalogues time of origin. Most of them, however, comply with modern standards for manuscript description. Classic Latin orthography is used for searching in manuscript texts. Records are very often structured at individual incipits level, which makes search very efficient (unlike the *Manuscriptorium* further below). Bible quotations in incipits are all reduced to two or three opening words. Images of incipits (or codices in case of older catalogues) usually have a link to display a scanned page from the printed catalogue describing the given manuscript (this does not apply to Olomouc and Krakow library catalogues). Sometimes, some printed catalogues have detailed descriptions of content of manuscripts only in the index – in these cases, too, there are links to the description. Slowly, more and more direct links to digitalized manuscripts appear; these descriptions, however, are not structured in such detail and thus e.g. there are several search results for the searched words in incipits in different parts of the codex. The “Materialien” section with references is a useful tool.

Austrian collections are also very important in the Czech context. The central website for manuscript descriptions is available at www.manuscripta.at (quoted on April 30, 2017). The search is very detailed (if you use the “Detailsuche” option); when searching an incipit from an unknown work, which is usually the case, or when searching for its other occurrences, there is no need for such a detail. Classic Latin was used to transliterate passages from codices. Lists of manuscripts in individual libraries are also available, sometimes links to catalogues and to digitalised manuscripts are available, too. In case of the most
significant collection, the collection belonging to Österreichische Nationalbibliothek Wien, individual codex records have direct links to more detailed ÖNB site (if more detailed records are available). Nevertheless, the lists show that the approach to digitalization of individual collections is less systematic than the one adopted in Germany.

It is a sad fact that there is no such website in the Czech Republic. Thus, all we have when describing manuscripts in Czech libraries is just a very limited comparison base.

The website at https://www.mua.cas.cz/node/400 (quoted on April 30, 2017) offers a growing database of manuscripts described by workers of the Department for the Cataloguing and Study of Manuscripts (part of the Czech Academy of Science). The department suggested long ago to create a union catalogue of bohemica manuscripts, however the electronic database created from existing descriptions of manuscripts represents only a certain section; (apart from catalogues of entire collections, there are also some special catalogues, such as catalogue of illuminated manuscripts). The database includes description of manuscripts in Czech collections (i.e. not only of manuscripts described in the catalogues), and also codicology literature. Overviews of codicology literature are otherwise published in the Manuscript Studies journal.

The digital library Manuscriptorium (www.manuscriptorium.com, quoted on April 30, 2017) is another online source, with a broader scope. It provides access to a number of catalogues of manuscripts in Czech collections, to digital copies of the manuscripts created in VISK 6, and it also aggregates documents from other projects (e.g. codices digitalized in the National Museum Library (KNM in Prague) and in Moravian Library (MZK in Brno), provides access to Swiss e-codices at http://www.e-codices.unifr.ch/de, quoted on April 30, 2017, and to digitalized old prints from the National Library (NK) collections). Printed versions of the catalogues mentioned above have no index (National Museum Library catalogue by F.M. Bartoš) or no index of incipits (catalogues of Latin and Czech codices in the National Library by J. Truhlář), which means that Manuscriptorium can be used to full-text search these catalogues. Access to large quantities of heterogeneous data has both its advantages (access to digitalized images) and drawbacks. The reason is that currently, manuscripts represent just a small part
of documents presented, the search cannot be simply limited just to manuscripts (not even by selecting chronological search criteria) and as a result, for manuscript studies, efficiency of search can be very low. Also, the database contains descriptions of dramatically different quality and for historical reasons (and also due to different sources of data), there are several records for many manuscripts in Manuscriptorium. Search results are not displayed in a very user-friendly manner (XML file displays and one must use Ctrl+F to find the required text), entire document is searched (i.e. for example in basic search, the words required will not necessarily exist together in one incipit). Orthography depends on the author of the description of the given manuscript; in majority of cases it would be the medieval orthography (but respecting the writing style in the given codex).

In principio is another large and therefore significant online database. It is a database of incipits from various large collections and catalogued sources (i.e. it is not a database of descriptions of entire manuscripts). One can search using both Classic and medieval orthographies of individual words. It is a paid access but the database is available to users registered e.g. in Litterae ante portas. Limited search in integrated databases containing authors, works and manuscripts can be done using a paid website Mirabile –Archivio digitale della cultura medievale (www.mirabileweb.it – quoted on April 30, 2017).

We must not forget search using www.google.com. Using this search engine might seem rather unscholarly, but it can be of great help. It is a great tool to discover unknown websites containing documents one is looking for. Also books.google.com is an excellent service to read not only secondary but also primary sources as many old prints have been digitalized.

Printed compendia also are, of course, of great use. Literature listing works by one author is abundant, however bibliography of such works is in general often to be found in manuscript catalogues or as part of individual catalogue records. Thus, from the viewpoint of scope, works listing details for specific areas, environments, periods, genres etc. are of greater importance. (Overviews and lists for specific fields are addressed further below.)

As for great book collections in the Western Europe, two works should be mentioned: A. G. Schmeller – G. Meyer (edd.): Initia operum scriptorum Latinorum medii potissimum aevi ex codicibus manuscriptis et libris impressis


Other lists deal with texts in verse. H. Walther: Initia carminum ac versuum medii aevi posterioris latinorum, Göttingen 1959; older materials are included in D. Schaller – E. König: Initia carminum Latinorum saeculo undecimo antiquiorum, Göttingen 1977. H. Walther also compiled a list of medieval proverbs (in manuscripts, they are often to be found in colophons, inscribed on pastedowns, etc.). H. Walther: Proverbia sententiaeque latinitatis medii aevi, vol. 1–6, Göttingen 1963–1969.

A list of humanistic text incipits, both in verse and in prose, was compiled by L. Bertalot: Initia humanistica Latina. Initienverzeichnis lateinischer Prosa und Poesie aus der Zeit des 14. bis 16. Jahrhunderts, Bd. 1–2/2, Tübingen 1985–1990 (this by far is not a comprehensive list).

Other overviews list works created in Bohemia, chiefly those having something to do with the University of Prague: P. Spunar: Repertorium auctorum Bohemorum provectum idearum post Universitatem Pragensem conditam illustrans, tomus I (Studia Copernicana 25), Vratislaviae etc. 1985; tomus II (Studia Copernicana 35), Warsaviae, Pragae 1995. The same author wrote a work covering the Podiebradian and Jagiellonian eras: P. Spunar’s: Literární činnost utrakvistů doby poděbradské a jagellonské (Utraquist Writings in the Podiebradian and Jagiellonian Eras). In: Acta reformationem Bohemicam illustrantia – Příspěvky k dějinám utrakvismu (Papers on History of Utraquism) by A. Molnár et al., Praha 1978. J. Tříška dealt with the same era, and some of his lists (in particular e.g. Literární činnost předhusitské university (Writings at Pre-Hussite University), Sbírka pramenů a příruček k dějinám University Karlovy
v Praze 5 (Collection of sources and guides on history of Charles University in Prague), Praha 1967) include writings by members of other university nations.

There are similar works documenting University of Paris output: P. Glorieux: Répertoire des Maîtres en théologie de Paris au XIIIe siècle (Études de philosophie médiévale 17–18), Paris 1933–1934 and the same author: La Faculté des Arts et ses Maîtres au XIIIe siècle (Études de philosophie médiévale 59), Paris 1971. However, some of the texts included in this list spread around Europe and did not remain restricted to their region of origin.


The general principles of listing individual parts of the catalogued text may not always be followed. Approaches differ primarily depending on the language of the given texts.

**Transcription or Transliteration**

It is the transcription that is the general approach to reproducing texts. It is the original language that determines how difficult it will be, and whether it will be necessary to use any special methods. Clarity is the main benefit of transcription, as especially explaining abbreviations in square brackets makes text looking complicated while this does not add more information. Using redundant characters also limits computer search options. To certain extent,
transliteration is easier for cataloguers as especially in case of Czech texts, there is no need to interpret the texts. This is true both for the most simple cases, such as diacritics, and those more difficult, too. However, sticking to diagraphs and to keeping the same boundaries between words as in the original is rather user-unfriendly.

As for Latin, transliterated texts differ from the original only little. Transliteration just eliminates unusual graphic forms (both long and round (short) “s” are transliterated identically; “u” or “v” is determined by the meaning). Phone forms are left as they are in the manuscript, nothing is removed, nor added, even if those forms are not standard in Classic Latin. “W” meaning “vu” is transliterated as “vu”, “w” meaning “uv” is transliterated as “uv”. Where “w” means “v”, “w” is left. As for unusual characters, diphthongs “ae”, “oe” and the “e caudata” found both in the oldest and the humanistic texts remain. Use of capitals and punctuation is governed by contemporary rules. The more detailed practice is described by B. Ryba: Pravidla pro transkripci latinských literárních rukopisných textů (Rules for Transcribing Latin Manuscript Literature) (the work has not been published as a printed book but it is available on line under the Czech name, e.g. at http://is.muni.cz/el/1421/jaro2011/PV2B62/um/Ryba.pdf, quoted on April 30, 2017).

Rules for describing old Czech texts say that they must be transcribed; use of transliteration is limited to philological studies. Diphthongs are transcribed using corresponding phones with punctuation. (It may not always be easy to tell “s” from “š”, as one needs to evaluate also the graphic form in the manuscript). Most frequently, the following ones are subject to transcription: “au” transcribes as “ou”; where “c” is pronounced as “k”, it transcribes as “k”; “ie” meaning “ě” transcribes as “ě”, if it means “í”, “ie” remains. Transcription of “s” or “z” remains the same as in the manuscript, the same applies to “t × d”; use of “i” and “y” is governed by current rules. The principles were published by J. Daňhelka: Směrnice pro vydávání starších českých textů (Guidelines for publishing older Czech texts), Husitský Tábor 8, 1985, pp. 285–301. The guidelines detail transcription of individual phones in specific cases. Apart from printed vocabularies, one can check existence or forms and individual forms

In general, more attention was paid to medieval works in vernacular languages than to Latin texts. This is probably reflected by the fact that they form a separate section in libraries (in the National Library, they have call number XVII), but more importantly, these texts and manuscripts are usually documented in more detail. Staročeský slovník, úvodní stati, soupis pramenů a zkratek (Old Czech Vocabulary, Introductory Articles, List of Sources and Abbreviations), Praha 1968 is structured by works used as sources. It documents individual manuscripts (but some may be missing, which would be mostly the case of the newer copies). Identification of works by their incipits is more complicated. A great part of texts in Czech from the Pre-Hussite period, including prayers and other smaller works has been documented by J. Tříška: Anonymní česká literatura předhusitské reformace (Anonymous Czech Literature of Pre-Hussite Reformation), Acta Universitatis Carolinae – Historia Universitatis Carolinae Pragensis 12/1–2, 1972, pp. 155–207. Czech incipits can also be identified using lists where language is not the criterion.

In case of German manuscripts, Czech guidelines for describing manuscripts recommend modifications, however transliteration is more common. Precise transliteration reflects everything experts need to identify the manuscript’s place of origin – sometimes it even makes it easier (though sometimes the reproduced section is too small). Two great specialized resources are available to researchers studying manuscripts written in German. There is a continually updated overview at http://www.handschriftencensus.de/ (quoted on April 30, 2017). This database references relevant literature, and sometimes provides selective information on physical description, time of origin and language area. The second resource is a collective work Die deutsche Literatur des Mittelalters: Verfasserlexikon. Herausgegeben von K. Ruh zusammen mit G. Keil, W. Schröder, B. Wachinger und F. J. Worstbrock, Band I–XIV, Berlin – New York 1978–2008. Just like in case of Czech works, if only incipits are known, works are more difficult to identify (even though some works by unknown authors have the incipit as their name).
Except for manuscripts written in the three basic languages that people in medieval Bohemia used to speak and to write in, there were also texts in some other languages.

All through the Middle Ages, Bohemia had busy relations with Italy and France. Many manuscripts were imported from abroad – e.g. by students from West European universities, by clerics travelling to the Papal court in Rome or Avignon, by representatives of monastic orders attending general chapter meetings, etc. However, texts in Romance languages represent absolute minority in extant medieval manuscripts and most of them got to Bohemia only later, with larger aristocratic libraries.

Special training is usually necessary to describe codices written in other languages, as not only the language is unusual, but some use alphabets other than the Roman. The poor rate of preservation of written culture reflects persecution against the Jews throughout history. Little Jewish manuscripts coming from Bohemia survived, and only fragments represent any new discoveries of medieval Hebrew manuscripts. Most of extant texts belong to the Jewish Museum of Prague collections. Not all texts written in Hebrew alphabet are necessarily in Hebrew language – some are in Aramaic (mainly translations of the Torah), and also some Czech glosses written in Hebrew alphabet survived. A brief overview of Hebrew manuscripts in Czech collections was written by V. Sadek: Rukopisná sbírka Státního židovského musea a židovské rukopisné umění, Studie o rukopisech 8, 1969, s. 105–122 (Collection of Manuscripts in the National Jewish Museum and Jewish Manuscript Art, Study on Manuscripts 8, 1969, pp. 105–122). Hebrew fragments in Czech libraries were listed for the project Hebrew Fragments in European Libraries, http://www.hebrewmanuscript.com/.

Another alphabet used in the region of Bohemia and Moravia was the Glagolitic used to write down the Old Church Slavonic. The alphabet was invented by St Cyril to translate the Bible into the language of the Great Moravia. The use of the Old Church Slavonic was discontinuous though, as Slavonic rite presbyters had to leave after 886. Some of them fled to Bohemia and the Sázava abbey became the centre of Slavonic written culture. In 1096 however, Slavonic monks had to leave Sázava, too. The so-called Kiev Folios data back to the Great-Moravian period. The so-called Prague Fragments (Kap N 57)
probably come from the Sázava abbey. It is a collection of prayers, or more precisely a fragment of the Good Friday officium. Slavonic written culture was revived in 1347 by Charles IV founding the Emmaus Monastery in the New City of Prague. In 1419 however, the monastery was overran by Hussites. There were Glagolitic manuscripts in the Emmaus library until approx. 1611 when the monastery was plundered as troops led by the Bishop of Passau invaded Prague. Two extant Glagolitic manuscripts of Czech provenience date back to the Emmaus era – the so-called Glagolitic Bible (NK XVII A 1) and the Glagolitic part of the so-called Reims Gospel, written in 1359. There are also many fragments. Some of them are written in the Old Church Slavonic and therefore may have been brought by Croatian monks. Other texts, though, are Czech and exceptionally also Latin. Most Glagolitic fragments belong now to collections of the National Museum Library (KNM), but other Glagolitic monuments collected by 19th century researchers are to be found in other libraries, too.

Even less medieval monuments are written in Cyrillic. To be more precise, the only Cyrillic text in the Emmaus monastery was the other part of the Reims Gospel. This part dates back to the 11th century and it was given to the Benedictines probably by Charles IV. There is evidence of earlier contacts between Bohemia and Kievan Rus’, however the connection between them and other written monuments is not definite. (In particular so-called Hradec Fragment of Evangeliary KNM 1 D c 2/5 was seen as such a piece of evidence).

Special catalogues were usually produced to record Glagolitic and Cyrillic fragments found in individual Czech collections (J. Vašica, J. Vajs: Soupis staroslovanských rukopisů Národního musea (Catalogue of Old Slavonic Manuscripts in the National Museum), Praha 1957; J. Vašica: Z církevněslovanských rukopisů Národní knihovny v Praze a Slovanské knihovny – soupis a popis (From Church Slavonic Manuscripts in the National Library in Prague and in the Slavonic Library – List and Description), Praha 1995).

While small communities in Bohemia used Church Slavonic for writing for certain periods of time, only individual persons knew Greek.Towards the end of the Middle Ages, Czech humanists could, and some of them would, study Greek, too. Reports document that e.g. Bohuslav Hasištějnský z Lobkovic did not hesitate to pay 1000 or 2000 ducats for a Greek manuscript. Still, being able to read and write in Greek was rather rare. (Sources say that Bhuslav’s library was
the only library in medieval Bohemia that could boast of Greek manuscripts.) Greek texts of various types usually had Greek terms transcribed in Roman alphabet; scribes’ attempts to copy Greek letters reveal that they were unfamiliar with the alphabet. Greek manuscripts and fragments in Czech libraries were catalogued by J.-M. Olivier – M.-A. Monégier du Sorbier: Catalogue des manuscrits grecs de Tchécoslovaquie, Paris 1983 and in (the same authors): Manuscrits grecs récemment découverts en République Tchèque, Supplément au Catalogue des manuscrits grecs de Tchécoslovaquie, Paris 2006. The authors are working on another volume.

More or less identical rules apply to describing content of manuscripts, regardless of genre. Still, there may be specific requirements for individual types of works (depending on field or on other criteria), and also specific tools may be used to identify them.

**Grammar and Rhetoric**

Only those familiar with Latin grammar were able to use medieval manuscripts. *Ars minor* by Aelius Donatus and later on also Alexander of Villedieu’s *Doctrinale* were the basic texts. Grammars were often written in verse: on one hand verses are easier to remember, on the other hand they provide more space for different interpretations. For this reasons, these texts often abound in interlinear commentaries (these are either numbers numbering the logical sequence of words or translation equivalents) and in marginal notes explaining the meaning. After mastering grammar, rhetoric instruction followed. Rhetoric focused mainly on the art of composing letters and other documents in prose, not on spoken discourse. Theoretical textbooks specified individual parts letters and other written documents had to comprise of, and offered examples of single phrases and entire texts, too. (There were examples both for personal correspondence and for official dealings.) Grammar textbooks in Europe were catalogued by G. L. Bursill-Hall: A census of medieval Latin grammatical manuscripts (*Grammatica speculativa 4*), Stuttgart – Bad Cannstatt 1981. Manuscripts on rhetoric, and composing letters and forms were documented by E. J. Polak: Medieval and Renaissance letter treatises and form letters: a census

The Bible
The Bible is the most common type of text to have survived from the Middle Ages. Describing the Bible is rather simple, as the text as such is (almost always) the same. Therefore there is no need to include incipits and explicits. Annotations should specify the folio size of individual books. Prologues should by recorded, too (by identification in Repertorium biblicum, http://www.repbib.uni-trier.de/cgi-bin/rebilIndex.tcl, quoted on April 30, 2017, if they can be found there). Other items to be recorded include: summaries of content or lists of chapters that are sometimes placed at the beginning of individual books of the Bible; books that are not included in a biblical canon (in particular this would be the case of 3 Esdras and 4 Esdras (in manuscripts, 4 Esdras is sometimes structured differently from Vulgate) and of Epistle to the Laodiceans); any departures from the usual order of the books of the Bible.

Theology
The broad and sometimes vague term “theology” covers most medieval manuscripts, everything from comprehensive systematic works to short notes. (The term “notae variae theologicae” with no further specification used in catalogues is used for notes of various kinds). Theological works and their incipits are therefore often included in the aforesaid bibliographical tools. Specific tools would include: in particular the aforementioned Repertorium biblicum (it lists not only biblical books, prologues and apocrypha, but also biblical exegeses, commentaries and more comprehensive exegetic homilies); repertory of commentaries on the Sentences, the standard textbook of theology at medieval universities by Peter Lombard: F. Stegmüller: Repertorium Commentariorum in Sententias Petri Lombardi, 1–2, Würzburg 1947 (however, the Repertory includes works that, strictly speaking, are not commentaries on the Sentences); and a catalogue of incipits to works dealing mostly with moral theology (M. W. Bloomfield – B.-G. Guyot – D. R. Howard – T. B. Kabealo: Incipits of Latin Works on the Virtues and Vices 1100–1500, including a section of

**Sermons (homilies)**

Individual sermons and collections of sermons are one of the most frequent types of medieval texts. Sermons can be divided into several types, very different in nature. The homilies recorded in manuscripts would only rarely be the sermons delivered by priests from pulpits. The texts falling under this category would be: collections of homilies that priests used to prepare their sermons; sermons actually delivered by priests during the service and recorded by audience, but mostly only in part. Sometimes these recorded sermons are a combination of the actual oration and the priest’s written preparation – such records would be the most genuine reflection of the actual sermon. Another type are the preparations – sometimes these are just casual notes, sometimes the preparation is very detailed.

Artificial, literary sermons are usually categorized as *de Tempore* (sermons for the movable feasts) and *de Sanctis* (sermons for the fixed feasts). The *de Tempore* sermons offer texts for Sundays and the few movable feasts. Another group of sermons are *de Quadragesima* – sermons for every day in Lent, from the Ash Wednesday to Easter (in Lent, priests would deliver a sermon every day). The *de Sanctis* sermons provided texts for saints’ days, sometimes they offered *commune sanctorum* sermons (sermons for general categories of saints that were easily “customized” by filling in specific details for the given saint). Collections of delivered sermons usually combine the *de tempore* and *de sanctis* categories in one and as the sequence of individual fixed and movable feasts is usually unique for every year, in ideal cases it is possible to determine the year of origin. Apart from the aforesaid basic types of sermons, there were sermons addressing special topics or audience (delivered at a university, in a synod – *ad clericum* sermons, etc.).

Sermons usually explain the particular passage from the Bible, the pericope, they open with. There are certain pericopae assigned to certain movable feasts and thus, it is possible to identify the feast based on the pericope the sermon explains. However, this is not a rock-solid rule, and in case of fixed-feasts sermons, the rule is even less reliable; there were certain
“popular” pericopae for certain saints and feasts, but they were not used exclusively. Other texts different in nature offer comprehensive exposition of biblical books or their parts. This genre includes some patristic works but expository (exegetical) preaching was popular with Hussite preachers, too.

Various approaches are applied to describing preaching manuscripts in existing catalogues. The ideal approach is breaking all extant texts down. However, this is very time-consuming, especially in case of preparations with no rubrics or other methods used to separate individual sections. Earlier works adopt rather general approach to treating similar collections, which, among other things, limits our options to identify the texts or record parallel incidence of identical texts. On the other hand, one day, this identification will be possible if we gradually build a database of more detailed descriptions.

Many sermons by early medieval authors are, of course, available and accessible in *Patrologia Latina*. However, keeping in mind how it was put together, for example authorship attributions are very often inaccurate. In particular the summary works mentioned in the more general introduction – CPL, CPG a CPPM – are significant tools to record newer editions and literature, and to identify authors more accurately. As for other summary works, let us mention e.g. H. Barré: *Les homéliaries Carolingiens de l'ecole d' Auxerre: authenticité, inventaire, tableaux comparatifs, initia*, Città del Vaticano 1962. Many sermons from the School of Auxerre appeared not only in Carolingian homiliaries but were still copied much later. The essential tool for the period of the High Middle Ages is J. B. Schneyer: *Repertorium der lateinischen Sermones des Mittelalters für die Zeit von 1150–1350, Bd. 1–11* (Beiträge zur Geschichte der Philosophie und Theologie des Mittelalters 43), Münster 1969–1990. Based on notes left by Schneyer, L. Hödl and W. Kmoch published sermons from after 1350 on a CD (J. B. Schneyer: *Repertorium der lateinischen Sermones des Mittelalters für die Zeit von 1350–1500*, herausgegeben von L. Hödl und W. Kmoch unter Mitarbeit von R. Hetzler, K. A. Jacobi, T. Schnell, U. Vordermark und S. Wessel, Münster 2001). The sermons after 1350 have been less well-studied, still we must not omit this work.
Historiography

Historiographic sources were among the first sources historians worked with. After all, it was the aim of historiography to relate what has happened. Historiographic works have therefore been catalogued very well and access to them is very good. Many sources of Czech provenience were published in the edition series *Fontes rerum Bohemicarum*, where introductions record known manuscripts, too. Some sources were also published in newer editions; some narrative sources for the Hussite period were edited by Konstantin Höfler (*Fontes rerum Austriacarum, Scriptores 2, 6, 7 – Geschichtschreiber der hussitischen Bewegung in Böhmen 1–3*, Wien 1856–1866). A number of texts from FRB II–V and some other sources are available online at http://www.clavmon.cz/clavis/index.htm, quoted on April 30, 2017. Text search, however, does not work. Sources on the Roman Empire are available online in the repertory of historiographic sources at http://www.geschichtsquellen.de/index.html, quoted on April 30, 2017, including catalogues or lists of manuscripts, editions and basic characteristics. Full-text search of (not only) historiographic sources published in *Monumenta Germaniae Historica* is available at http://www.dmgh.de/, quoted on April 30, 2017. New, unknown historiographic works are very unlikely to be discovered, maybe except for shorter annalistic records. For shorter accounts, cataloguers should record the period of time (from and to dates), and specify the territory if obvious.

Liturical Manuscripts

Liturical manuscripts are a heterogeneous and a very large group of extant medieval manuscripts. They are divided into two basic types: codices for celebrating the Mass (Missal with texts and Gradual with musical items) and codices for liturgy of the hours (Breviary with texts and Antiphonary with music). The development of the basic types of liturgical books took time, and thus various manuscripts that had existed as separate books survived (lectionaries consisting of epistolaries and evangeliaries for reading epistles and gospels). Other types of liturgical codices existing as separate books would be e.g. books of texts for certain rites (*Processionale*) or books of general rules for the clergy (*Rituale*). In liturgical codices, red colour used for writing is of a special function.
In non-liturgical manuscripts red is used to highlight and to make the text structure clearer. In liturgical codices, red is used to instruct priests on how the rite is to be celebrated, while black indicates texts that are said aloud. (There are few codices made with minimum care with no black and red text.) Sometimes scribes wrote the text to be rubricated in wrong colour – in such cases they at least underlined the text in red.

The fundamental parts present in both the missal and the breviary are the *proprium de tempore* (for movable feasts, held on different days every year as they move depending on Easter, and for fixed feasts during Christmastide), the *proprium de sanctis* (for fixed feasts) and the *commune sanctorum* (for feasts that do not have their own, typical proper or a part of it; the feasts are usually grouped into classes, such as feasts of apostles, martyrs, confessors, virgins, etc.). Feasts then follow the liturgical year chronology. The year begins with Advent – in *de tempore*, it is the first Sunday of Advent, in *de sanctis* usually the feast of St Andrew or St Barbara. Larger manuscripts were sometimes divided into a winter section and a summer section, Trinity Sunday demarcating the divide. The *de tempore* and *de sanctis* separated entirely only later on; the sections still take turns by certain stretches of time in some manuscripts dating back to the 14th century. Church and altar dedication officium, usually following the *de tempore* section, would be an independent section. Both types of manuscripts have sometimes a calendar at the beginning, other sections differ.

The basic set of Christian feasts, both movable and fixed, was established by Church lawmakers and codified in the *Decretum Gratiani*. Also, bishops could order other feasts in their dioceses; such feasts were usually established by announcing them in diocesan synods. Typically these would be feasts of saints who had something to do with the diocese – they were born there, lived there, the church had their relics, etc. Church orders also had “their own” saints – usually former members. Differences specific to individual dioceses and orders reflect most manifestly in calendars and propers *de sanctis*. Thus by analysing them, we can identify the place of origin and to some extent also the time of origin (as some feasts were not included in liturgical codices until they had been established as obligatory in the given diocese).

The first part typical of the Missal is the Canon of the Mass (a set of rules for the priest celebrating the Mass). It is usually between the *de tempore* and *de*
sanctis, sometimes it is in \textit{de tempore} (usually before the Trinity Sunday). The Canon’s opening phrase \textit{Teigitur} has (richly) decorated initial “T”, sometimes elaborated into a picture of the crucifixion, some Canons open with the picture of the crucifixion on a separate leaf. Names of the king and the Pope are replaced by a generic character (usually “N”) in the \textit{Teigitur} prayer; exceptionally the actual names are given, which helps identify the time of origin of the codex. The \textit{commune sanctorum} section is usually followed by votive or special masses with prayers for certain days in week, for specific persons or occasions. (Officium \textit{de patronis} is usually the part that helps identify the manuscript’s place of origin by mentioning saints specific to individual regions.) Some Missals include sequences for feasts in the liturgical year. The opening sequence of this section in the Missal would usually be “\textit{Grates nunc omnes reddamus domino deo}”, and individual sequences are usually ordered analogously to the Missal sections: \textit{de tempore} first, followed by \textit{de sanctis} and \textit{commune sanctorum} last. Missal rubrics can also reveal information specific to the diocese or the church the missal was created for: altars dedications, destinations of processions (Břevnov monastery, Strahov monastery or Knights Hospitallers’ monastery in Lesser Town of Prague), church interior information or information on saints buried in a given church. However, it is quite possible that scribes just mechanically copied this information (as would be the case of plentiful mentions of St Wenceslas chapel in the Maundy Thursday officium rubrics).

Rorate hymnal is a specific type of manuscript that did not appear in Bohemia until the 16\textsuperscript{th} century. It was a collection of hymns for Rorate Masses celebrated early in the morning in Advent. It was named by the introit \textit{Rorate coeli} to votive Mass of the Blessed Virgin in Advent. Sometimes the Rorate collection was part of the Gradual. Another type of manuscripts of slightly different content is a hymnbook: it is a collection of religious songs, to be sung both during the liturgy (the Mass) and at other occasions.

The Breviary is a collection of Office-of-the-Hours prayers, i.e. the official set of prayers for the Office, whether said in private or in choir. Based on Psalm 118,164 \textit{Septies in die laudem dixi tibi}, there are seven canonical hours. The Psalter is typically the first section in a breviary because psalms were a stable and a rather big part of the Hours Office. The Breviary text references relevant
psalms by their incipits. The Psalter is often followed by litanies (petitions) that start with Kyrie eleyson, Christe eleyson, Christe audi nos. In petitions, sometimes specific saints are implored, which can be a clue for identifying the manuscript’s place of origin. The commune sanctorum is usually (but not always) followed by the hymnal with hymns for individual feasts; (hymnals, too, have the same structure as the Sequentiale – hymns for movable feasts are first, for fixed feasts second). The Office of the Dead is another section that was a standard part of Breviaries from the Late Middle Ages.

Books of Hours and books of prayers were the private devotional books typical of the High Middle Ages. The line between them is rather fine. Books of Hours (horae, libri horarum) contain Hours of the Virgin, often much shorter Hours of the Cross and Hours of the Holy Spirit, the Seven Penitential Psalms, the Litany and Office of the Dead. Some Books of Hours begin with a calendar. Various sets of prayers follow after the Litany section and they usually reveal personal preferences of the person or the institution that had ordered the book. Books of prayers (libri orationum, precum) are usually of a rather looser structure and they concentrate of prayers as such. For more information on Books of Hours and Books of Prayers go to http://manuscripts.org.uk/chd.dk/gui/index.html, quoted on April 30, 2017. The website also offers external links to other libraries and to other types of manuscripts.

Philosophical Works

First group of works falling under this category are Ancient philosophical works (for the purposes of this overview, we do not count in medieval works on the border between philosophy and theology). Through understanding philosophical works, students gained the argumentation skills and could pursue further studies in the higher faculties. Assorted works by Aristotle served at the University of Prague (and at other Central European universities, too) for instruction. Another group were materials used in instruction: lectures, reading texts and commentaries on them, questions proposed for disputation with materials to prepare the argument. Annual university disputation called *Quodlibet* attended by all artistic faculty masters were a special university event.

These texts are difficult to describe as very often, the extant materials are records of university lectures written down very casually, abounding in untypical abbreviations, unusual vocabulary and eliminated repetitive phrasing. Great part of these texts comes quite understandably from college libraries of the University of Prague and is now deposited in the National Library (NK). Important tools to identify these texts include: a list of Aristotle’s works and commentaries on them (J. B. Korolec: *Repertorium commentariorum medii aevi in Aristotelem Latinorum quae in Bibliotheca olim Universitatis Pragensis nunc Státní knihovna ČSR vocata asservantur*, Wrocław etc. 1977), a general list of this literature (Ch. H. Lohr: Medieval Latin Aristotle Commentaries, Traditio 23–30, 1967–1974, published by sections), and similar catalogues of commentaries in libraries with large collections of *bohemica* (works in Czech, by Czech authors, published in Bohemia or dealing with Bohemia) (M. Markowski for Vienna, M. Markowski and S. Włodek for Krakow). Specifically for the University of Prague, for works by the University teachers and for reception of other texts: F. Šmahel: *Verzeichnis der Quellen zum Prager Universalienstreit 1348–1500* (*Mediaevalia philosophica Polonorum* 25), Wrocław etc. 1980. Philosophical works are also included in a catalogue of incipits by L. Thorndike – P. Kibre (see below).

A list of questions proposed for academic disputation at pre-Hussite *Quodlibets* held by the Arts Faculty of Prague University by J. Kejř: *Kvodlibetní disputace na pražské universitě* (*Quodlibet Disputations at Prague University*), Praha 1971.
Natural Sciences
There is no specific definition for the category of natural science texts; individual branches of natural science were more interconnected in the Middle Ages and many authors dealt with multiple branches (medicine and astronomy or mathematic, in Bohemia, e.g. Křišťan z Prachatic).

The basic tool for these works is L. Thorndike – P. Kibre: A Catalogue of Incipits of Mediaeval Scientific Writings in Latin (The Mediaeval Academy of America 29), London 1963. Astronomic manuscripts are catalogued in E. Zinner: Verzeichnis der astronomischen Handschriften des deutschen Kulturgebietes, München 1925. A catalogue of materials from the Jagiellonian University in Krakow is also a work relevant for our region, as the catalogues is very comprehensive and Krakow very close: G. Rosińska: Scientific Writings and Astronomical Tables in Cracow. XIVth-XVIth Centuries (Studia Copernicana 22), Wroclaw etc. 1984.

Medical codices are specific in two aspects. Firstly, they abound in practical instructions (recipes, in particular) – these are usually summarised in the description. Secondly, as of the Late Middle Ages, they are often written in national languages. The usual inconvenience for cataloguers are unusual vocabulary with many medical terms, and a system of usual abbreviations, mainly for units of weight, used in recipes.

Law
There were several concurrent legal systems in medieval Europe. Certain laws applied to certain parts of the medieval society. Sources for individual legal systems differed, and approaches to recording and passing them on differed, too.

Roman law, codified in the Code of Justinian of Corpus iuris civilis, was the first of the legal systems. University students studied Roman law theoretically, even though its principles reflected, sometimes more, sometimes less, in other legal sectors. Compared to other legal areas, number of codices with Roman law texts was the least numerous. Materials in Czech libraries were summarized by M. Boháček: K rozšíření legistických rukopisů v českých zemích, Studie o rukopisech 10 (On spread of legist manuscripts in Bohemia, Study on manuscripts 10), 1971, pp. 1–63.
The Roman law was a body of laws that remained the same, with no new laws added. The other legal system taught at universities was the Canon law, with more and more canons (rules) added. As a result, theoretical works had to be written, glossators appeared and laws had to be systemized. The first work trying to harmonize and systemize various Canon law rules was *Concordantia discordantium canonum*, compiled around 1150 by a jurist Gratian, and thus commonly known now as *Decretum Gratiani*. Originally, *Decretum* was a private collection, but later on became the first book of a collection of Canon law texts known as *Corpus iuris canonici*. Later on, some popes had other collections published: *Liber Extra* (Gregory IX), *Liber Sextus* (Boniface VIII), *Clementinae* (Clement V), and two *Extravagantes* collections. Gratian’s Decree can be searched online at [http://geschichte.digitale-sammlungen.de/decretum-gratiani/online/angebot](http://geschichte.digitale-sammlungen.de/decretum-gratiani/online/angebot) (quoted on April 30, 2017). A number of other Canon law texts (some as searchable documents, some as scans of old prints) are available at The Medieval Canon Law Virtual Library ([http://web.colby.edu/canonlaw/category/canon-law/](http://web.colby.edu/canonlaw/category/canon-law/), quoted on April 30, 2017).

These norms were of universal legal force in Catholic Church. However, bishops were authorised to legislate in their dioceses. They usually published so-called provincial or diocesan statutes. In Bohemia, the earliest extant statutes come from the beginning of the 14th century. Statutes published in pre-Hussite Prague were catalogued by J. V. Polc – Z. Hledíková: Pražské synody a koncily předhusitské doby (Prague pre-Hussite synods and councils), Praha 2002. Post-Hussite synods were summarised by B. Zílynská: Husitské synody v Čechách 1418–1440 (Hussite synods in Bohemia 1118-1440), Praha 1985 and the same author: Synody v Čechách 1440–1540. Proměny synodální praxe v Čechách v kontextu vývoje synodality v Evropě (Synods in Bohemia 1140-1540. Synodal practice in Bohemian in the context of synodality development in Europe), disertace 2008. Statutes published in Olomouc diocese: P. Krafl: Synody a statuta olomoucké diecéze období středověku (Synods and statutes in Olomouc diocese in the Middle Ages), Praha 2014. There are other medieval texts that cannot be categorized as strictly legal, still they involve legal aspects. So-called *summae confessorum* is a peculiar class of texts both legal and theological. They deal with confession and penance, and served as a manual for confessors.
(Manuscripts in Czech library collections were catalogued by J. Kejř: *Summae confessorum* a jiná díla pro foro interno v rukopisech českých a moravských knihoven (*Summae confessorum* and other works for *foro interno* in manuscripts in Czech and Moravian libraries), Praha 2003). As a bibliographic reference, we should mention J. F. Schulte: *Die canonistischen Handschriften der Bibliotheken: 1) der k. k. Universität, 2) des Böhmischen Museums, 3) des Fürsten Georg Lobkowitz, 4) des Metropolitan-Kapitels von St. Veit in Prag; Prag 1868, available also online at http://reader.digitale-sammlungen.de/, quoted on April 30, 2017). In section *Die Geschichte der Quellen und Literatur des canonischen Rechts von Gratian bis auf die Gegenwart*, Stuttgart 1875–1880, the author documented a lot of medieval canon literature, including incipits and partially also manuscripts in libraries in Prague. Another comprehensive list of incipits, with bibliographical references and references to relevant manuscripts, found mainly in Italian libraries was compiled by Giovanna Murano (http://home.unileipzig.de/jurarom/manuscr/murano/murano.html, quoted on April 30, 2017).

A problem specific to legal manuscripts when describing them is the system used to reference relevant Canon (and Roman) norms. Individual legal codes had a sophisticated structure and specific abbreviations and incipits of relevant constitutions were quoted to reference them. Lawyers, obviously, were familiar with the referencing system, however it posed a great problem to common copyists. As a result, helpful lists of abbreviations used in legal books were compiled, still, citations in newer copies are garbled and sometimes they make no sense at all.

There was no codification of the “non-learned laws” and creating written accounts was not a common practice. Archives are a more likely location to find any written documents, but they can be found in libraries, too. However, these are usually collections of various legal texts, dealing with issues concerning specific environments. There were different laws applying to different groups of people (provincial law, town law, mining law, etc.); however these collections include also provisions from other areas – that were either relevant elsewhere, too, or that were inspirational. Rights of towns in Bohemia and Moravia were patterned on those of Magdeburg and Nurnberg and the collections offered e.g. model decisions, legal advice etc. In the 15th century, collections of theoretical texts, dealing both with town law and provincial law, became more frequent.
Some of these collections may have come into existence as a result of disputes between towns and nobility; such collections include not only theoretical treatises, but also sets of diet provisions and rulers’ decisions.

Many theoretical legal works written in Czech or originating in Bohemia were published in the Corpus iuris Bohemici series and in various monographs; (however not all extant manuscripts have been catalogued). Diet provisions that have become a part of more comprehensive collections are available in the Archiv český and in Reliquiae tabularum terrae. Codex iuris municipalis lists town privileges. As for catalogues of legal manuscripts falling under individual categories of law, the situation is less satisfying: V. Hanka started cataloguing legal works, but following summaries are not very methodical. For example works on town rights catalogue only individual library collections (e.g. F. Hoffmann: Rukopisy městských práv v knihovně Národního muzea v Praze, Studie o rukopisech 15 (Manuscripts on town privileges in the National Museum in Prague Library, Study on Manuscripts 15), 1976, pp. 13–37 ). German law monuments have been catalogued in a more methodical manner (following older lists U.-D. Oppitz: Deutsche Rechtsbücher des Mittelalters, Band 1–3, Köln – Wien 1990–1992).

**Diplomats**

Just like actual legal provisions, diplomatic materials are usually deposited in archives. The type of access to the given monument (registered charters or charters that survived e.g. as flyleaves, pastedowns, etc.) determines the description detail. For charters published in accessible (i.e. modern) editions, it usually suffices to mention whom was the charter issued by, whom it was addressed to, place of issue, and the edition reference. As for the charters that have not been published in (easily) accessible editions, the ideal solution is to replace it with an abstract (charter disposition, names of all persons and locations mentioned in the charter). Lists of series relevant to today’s Czech Republic territory were compiled by H. Krmíčková: Edice středověkého diplomatického materiálu (Medieval diplomatic materials series), Brno 2014 (online:
**Literature of Classical Antiquity**

Unlike other sections, this sections encompasses works across all fields. Medieval cultural heritage picked up threads of Ancient culture, even though Christian authors had to deal with pagan attitudes of Ancient authors. This was less complicated in case of works used in instruction – of grammar (Aelius Donatus), liberal arts taught at faculties of arts (Aristotle), or medicine (Hippocrates, Galen – Ancient medical knowledge got to medieval Europe through Arabic translations). The term Classical Antiquity authors in library inventories usually means belles-lettres authors.

Classical Antiquity works are usually published (repeatedly), thus it usually is not difficult to search them (even though there is no specialized list of incipits). First lists of older manuscripts with Classical works for some libraries were compiled already in the 19th century (J. Kelle: Die klassischen Handschriften bis herauf zum vierzehnten Jahrhundert in Prager Bibliotheken, Prag 1872). A comprehensive work dealing with this topic was written by M. Flodr: Die griechische und römische Literatur in tschechischen Bibliotheken im Mittelalter und der Renaissance (*Opera Universitatis Purkynianae Brunensis, Facultas philosophica* 115), Brno 1966, but it does not include a register of manuscripts.

**Incunabula and Old Prints**

Binders’ volumes, comprising both manuscript and printed parts, appeared between 1470 and early 1500s. At first, printed books looked much alike manuscripts: printing type looked the same as handwritten script, there was free space left for initials or illuminations. Even such a useful element as a title leaf appeared only gradually. For these reasons, the hand-written and printed parts looked alike.

When cataloguing manuscripts it suffices to provide the basic information about the printed parts (author, title, data and place of printing, printer) with reference to the most common lists: Incunabula Short Title Catalogue (ISTC, http://www.bl.uk/catalogues/istc/ – quoted on April 30, 2017) or Gesamtkatalog der Wiegendrucke (GW, http://www.gesamtkatalogderwiegendrucke.de/ –
quoted on April 30, 2017); these give more detailed typographic description and serve as a database of copies in individual libraries or areas.

The basic tool for prints in Czech and Slovak dating back to the 16th century is Knihopis českých a slovenských tisků od doby nejstarší až do konce XVIII. století (Bibliography of Czech and Slovak prints from the oldest times to the end of the 18th century), Praha 1939–1967; it is available also online at http://aleph.nkp.cz/F/?func=file&file_name=find-b&local_base=KPS (quoted on April 30, 2017). Otherwise, binder’s volumes contain mainly prints from German-speaking areas that are catalogued in VD16 (www.vd16.de, quoted on April 30, 2017).