

MEDIEVAL BELLS AND BRONZE BAPTISMAL FONTS OF TRANSYLVANIA

Summary

In writing about collections of old Transylvanian bells and baptismal fonts cast in bronze and originating from the territory of medieval eastern Hungary, the archaeological author sought to reveal a virtually unknown world to the reader, the details of which have yet to be explored. Made public property these numerous historical relics cast with the utmost care are of equal significance both from the standpoint of the church and in epigraphical terms. These objects represent an outstanding accomplishment for the medieval period, and are the pinnacle of craftsmanship, which the community of a village or an agricultural town was able to achieve in the Middle Ages. Since casting in bronze was usually associated with church building or extensions, the historical sources of medieval bell and baptismal font construction are also worthy of attention.

The book's evaluative chapters are based on three catalogues: I) the bells, II) the bronze baptismal fonts, and III) the catalogues with decorative motifs, medallions and plaquettes on them, which contain data for 391 bells, 9 bronze baptismal fonts and 231 decorative elements. The catalogue lists the Hungarian names of settlements in alphabetical order, and the modern Romanian and German versions are listed in the topographical index to assist the reader. The year of recording data in the localities appears under each entry in the catalogue. In many cases it was not possible to find the bells in their original locations and so in these cases we provided the relevant archival data. Bells which have been destroyed are marked by an "+" and pieces with an uncertain location by a "?".

In addition to dealing with written descriptions and the consciously elaborate pictorial documentation – in the form of drawings, and photographs – the author was also occupied by more general questions, such as the examination of epigraphical objects and the written sources pertaining to them (charters, accounts books, tax records), – besides the study of the raw materials and numerous liturgical matters – all of which made it possible to identify founding houses and craftsmen, to discover their technical and cultural relations, and to determine the trading area of the most important workshops. The analysis of the western ties of the Transylvanian German (Saxon) workshops proved to be edifying indeed. The names of the medieval craftsmen associated with casting in bronze are contained in the index.

The scope of our research

While gathering together our data, we did not restrict ourselves to considering only those bells originating from the territory of historical Transylvania, but also looked westwards at the historical relics to be found in the counties of Satu Mare (Szatmár), Bihor (Bihar), Arad and Timișoara (Temes), now all part of Romania. By so doing we were able to determine that the extensive collection of bell material in today's Hungary (Patay 1989) and our present collection are completely intertwined. The collection comprises pieces originating from an extensive period beginning in the 13th century and extending until 1560. The latter period follows a disrupted line in bronze smelting which came about as a result of Transylvania's troubled history when gaining independence and the shock waves of the Reformation.

The later history of the medieval baptismal font and bell collection. Research history

Being made out of bronze the bells were of significant material value in themselves, and this fact made their position a precarious one throughout every period. Times of war therefore presented a particular

danger. The book surveys Transylvanian history from 1538, when at the command of king John Szapolyai bells were placed into requisition, up to the First World War when a massive state purchase was enacted. It was possible to thoroughly elucidate the latter event through the use of numerous unpublished archival sources.

The historical research of the summary studies the 19th century collections and evaluative appraisals of Friedrich Müller and of the numerous bishops and clergymen of the German Evangelical Church (Georg Daniel Teutsch, Karl Fabritius, Johann Michael Salzer, Rudolf Theil, Friedrich Wilhelm Seraphin) as well as the groundbreaking work in regard to Székely land by the Hungarian Balázs Orbán. The most significant figure among the German researchers in Transylvania at the beginning of the 20th century was Victor Roth, who while studying the medieval artistic legacy of Transylvania's Germans also devoted his attention to the ancient relics of bronze craftsmanship. An interesting aspect is added to his writing when he emphasises the continual links which the medieval Transylvanian Saxon master craftsmen and artists had with the Germans.

After World War I and Transylvania becoming part of Romania, several churches instigated fact-finding investigations into the issue of the remaining relics, among them the Transylvanian German Evangelical Church and the Hungarian Reformed Church. However, the advent of World War II prevented research on a proper scale or a detailed publication of the results. The most important finding of the Transylvanian Romanian research (Virgil Vătăşianu) is linked with some embellishments in the Byzantine style with Greek inscriptions appearing on a baptismal font (1438) found in Sibiu (Nagyszeben); it is the author's strong conviction that the plaquettes originate from the metallic plating of a Greek Orthodox gospel and these would indicate that the gold and silversmiths of Sibiu were in receipt of orders from the Romanian territory of Wallachia, possibly for reasons of repair or reproduction.

In recent decades research into bells has with little exception received scant attention at a local level. This is in the context of the mass resettlement of the Transylvanian German population and the decline in the local Hungarian population in tandem with the growing number of abandoned churches, all of which have increasingly endangered church bells and bronze baptismal fonts, a situation made yet worse by sloppy recasting and more recently by the frequently occurring theft of relics and the illegal collection of non-ferrous metals. Conscious of this the author, at the time a Transylvanian museologist, began a comprehensive collection at the beginning of the 1980s which was completed in Budapest at the end of the 1990s.

The raw materials in medieval bronze casting

According to the records of accounts books dating from the first half of the 16th century, ore processed in the Transylvanian Saxon towns was purchased in Buda. Throughout the 16th century copper found its way to Transylvania primarily from the Banská Bystrica (Besztercebánya) ore mines of the Thurzó-Fugger enterprises, as well as from the Spiš-Gemer mountain range (Smolník) in Upper Hungary. Braşov (Brassó) was an important Transylvanian staging post for long distance trade in copper, and it was from here that deliveries were made to other Transylvanian regions and across the Carpathian mountain passes on towards Moldavia and Wallachia. Utilising the records of contemporaneous accounts books it has been possible to make a detailed study of the trade routes of copper, tin and lead deliveries. Moreover, the slowly rising prices of some types of ore throughout the 15th to 16th centuries have been ascertained.

We studied the composition of medieval casting by analysing several different metal samples. The most important result of the analysis was that the material in the *tin-bronze* bells could be clearly differentiated from the alloy with high copper content used in the production of baptismal basins, which is basically the same as *lead-bronze* employed in producing ancient and medieval sculptures being as it was cheaper and easier to mould. The tin content of Transylvanian bells dating from the 13th to 14th centuries was surprisingly high, which significantly decreased the melting point of the alloy, although made the material of the bells all the more fragile.

The casting techniques, shapes and weight of medieval bells

This chapter concerns itself with the casting techniques, shapes and a topological analysis of medieval bells, as well as highlighting the peculiarities of the Transylvanian bells in accordance with the periods and workshops from which they originate. In a separate study we examined the weight of medieval bells in relation to their size, having had fundamental doubts about the applicability of the calculation formulae used in the relevant literature. We were successful in obtaining more certain results on the basis of the weights recorded when bells were requisitioned during World War I – subsequently returned – and the size of those which are presently at our disposal. The weights of the bells are with few exceptions close to being classified as light or very light according to the Limburg scale of measurement.

The history of medieval bells, liturgy and application

The book considers the prehistoric and ancient antecedents of bells and small hand-bells, using early Christian data – post Milanese edict – which along with other indicative tools could possibly refer to bells. In accordance with this the author also studies the questions of etymology and terminology as regards the denominations (*signum, clocca, campana, nola, tintinnabulum*) figuring in medieval Latin sources.

Separate subsections deal with the early use of bells in the Western Church, the archaeological finds in the territory of the Eastern Church, as well as with the medieval rituals of bell consecration. Such rituals are accorded significance since the inscriptions of numerous bells and baptismal fonts can be traced back to liturgical texts related to consecration.

Medieval bell inscriptions from Transylvania

The earliest inscription found on bells in the 13–14th centuries reads *O rex glorie* and without exception fails to refer to the name of the maker or the date. Found in the early Transylvanian collection the inscription *O rex glorie veni cum pace* applied on bells in the workshop in Sibiu (Nagyszeben) can be considered unique in the 14th century. However, from the middle of the 15th century onwards the extended version *O rex glorie veni nobis cum pace* was used consistently. In the 15th century the workshop in Sighișoara (Segesvár) preferred to use the version *O rex glorie Ihesu Criste veni cum pace* and a less common form *O rex glorie veni in pace* is inscribed on bells made in the 40s and 50s of the 16th century apparently in a workshop in Brașov (Brassó). Another form, *Christus rex venit in pace, deus homo factus est*, which evolved at the end of the 15th century came to be used widely in the first half of the 16th century. As the words of this inscription refer to Christ himself, from the end of the 15th century it was extended by the use of the name *Jesus Nazarenus Rex Iudeorum* or its short form *INRI*.

A special form of inscription in which the letters of the *alphabet* are written on the bell's shoulder refer to Christ and the ritual of the wake. The inscriptions on several Transylvanian bells the contents of which are connected to the ritual of the wake emphasise the bell's special power to drive away danger. That was expected of the big bell of Bazna (Bázna) in the 15th century the sound of which was meant to destroy evil tempests by virtue of the power of the Trinity (*Benedictus sit huius campane sonus in nomine Patris et Filii et Spiritus Sancti amen. Campane [sonus] destruatque auras nocivas Sancte Trinitatis virtus*). The same idea is suggested for the bell found in Feldioara (Földvár) originating from the 15th century from a workshop in Sighișoara with an inscription on the bell – named the horn of Christ – reading that it is in the bell's power to drive back a hailstorm, halt a raging storm and dispel a thunderstorm (*Hac Cristi tuba pellatur grandinis turba, turbinis conflictus stringatur fulminis ictus*).

The names of the four evangelists and the Magi were believed to possess special powers against bad weather so they were often used in bell inscriptions. The *Tetragrammaton* inscription – referring to the four letters of the name of Jahve – engraved on bells in our Transylvanian collection appeared only later, in the 15–16th centuries.

The inscription *Ave Maria gracia plena*, which is often seen on bells and refers to the three Hail Marys to be said at the evening toll is connected to church decrees from the 13–14th centuries. This inscription appears at the end of the 14th century on bells in the Transylvanian collection.

A representative type of medieval inscription is found on bells cast in honour of the Virgin Mary or other saints (*ad honorem*) from the 15th century onwards, the circumscription of which is a plea for the intervention of these saints (... *ora pro nobis*). The saints whose names appear on these bells are often the patron saints of these churches; however, there are surprising exceptions.

As bells are a part of the church's paraphernalia it is natural that several inscriptions are taken from the Bible or from liturgy (hymns, responsories, and psalms), which was familiar not only to the clergy but also to the educated members of the congregation. Such examples are the hymn of Saint Ambrose beginning with the *Te Deum* (Bocșița/Magyarbaksa, Jibert/Zsiberk), the Mary responsories (Iștiha-za/Istvánháza, 1498: *regina celi letare*, Vădaș/Vadasd, 1502: a part from *Salve Regina*), the Pentecostal sequence *Sancti spiritus assit nobis gratia* (Rupea/Kőhalom, 1448) and the psalms (Căpușu Mic/Magyar-kiskapus, 1527; Sântana Nirajului/Nyárádszentanna; Aleșd/Élesd).

Apart from several other biblical quotations the scriptural citations that were common in the age of the Reformation are also of significant historical importance. *Soli deo gloria*, and especially *verbum domini manet in aeternum* became the most widespread inscriptions in the protestant Transylvanian churches from the second half of the 16th century.

Another – typically more recent – inscription used from the latter part of the 16th century is *da pacem Domine in diebus nostris* (Copșa Mică/Kiskapus, 1548; Moșna/Muzsna, 1548; Criț/Szászkeresztúr, 1551; Veseuș/Szásznagyvesszős, 1557).

Bronze baptismal fonts

Essential paraphernalia of medieval churches were the baptismal fonts used not only in the administering of the sacrament of baptism but also in two additional religious rituals: the blessing of baptismal water on Easter-eve or Pentecost, and the reacceptance of the repentant on Holy Thursday. The reason why these two types of objects can be dealt with in the same study is that both bells and baptismal fonts were essential paraphernalia of medieval churches and the makers of bells and bronze baptismal fonts were the same; therefore, the two objects are related not only through the similar material they are made of but also through the large number of motifs and the details of the casting technique. In addition to this, their inscriptions were engraved in the same script.

The two earliest bronze baptismal fonts (Medias/Medgyes, Șaeș/Segesd), which are extremely similar to each other, were made in the workshop in Sibiu (Nagyszeben) at the end of the 14th century. There is no written source that would indicate who their craftsman might have been. We could mention a certain *Craftsman L and his circle* provided the letter L hidden among the grape leaves of the lined ornament on the baptismal font in Șaeș is an initial. The assumed initial does not reveal either the origin of this craftsman, or his education, which was definitely not a local one. However, the relics at our disposal suggest that the workshop operated on a commercial basis and used a standard technique. The craftsman of early Transylvanian baptismal fonts was primarily a bell-maker who managed to simplify complicated forms in order to adapt them to the lower level facilities bell-makers had. He consciously avoided complex forms and carefully left out every detail that would have required figurative moulding or more sophisticated mounting. The fine but radically simplified chalice-shape of the basin was balanced by the ample ornamentation of the surface: the phylacteries which were (also) intended as ornamentation – for example the most widespread medieval bell inscription, *O rex glorie veni cum pace*, and the friezes consisting of thin grape leaves were also characteristic of the early bells made in this workshop. The craftsman's technical skill which did not surpass that of an average bell-maker and the consequently inevitable formal and ornamental reduction are the apparent reasons for the indirect analogy that can be seen between the medieval Transylvanian baptismal fonts and their western counterparts if – after not taking into account unrealised details – we concentrate only on the basic shapes.

Baptismal fonts were also cast in Sibiu during the 15th century as well as in the workshop in Sighișoara (Segesvár). All of the Transylvanian baptismal fonts are moulded in the shape of a chalice divided by a nodus. Looking at the baptismal fonts cast in Sibiu and Sighișoara – two Transylvanian towns that were relatively close to each other – the dissimilarity is striking. It can be assumed that in the first half of the 15th century the makers learnt their craft in different areas. This explanation is supported by some Saxon baptismal fonts from the 14–15th centuries the only similarities between which are their material, bronze, and their chalice shape divided by a nodus the details of which, however, suggest different workshops in the wider region of Magdeburg, the famous bronze workshop centre. Studying them and identifying the origins of the nodal type in Saxony and the neighbouring provinces was limited by the insufficiency of our research: we failed to discover the analogies pertaining to the Sibiu font type, and at the same time the numerous German variations of form were a constant reminder of the possible development of local types. We realised that different variations were normally represented by few, or at times only one find, therefore the analogies might well have been eradicated without trace by the destruction and remoulding in the middle ages and the modern age. Nevertheless, the analogies outlined a wider area where Saxon craftsmen may have gained their skills. Besides the years of apprenticeship spent abroad and the different traditions in various workshops we must attach major significance to some outstandingly talented bell-makers' taste and acute eye for proportion enabling them to become founders of their own schools, and the draughtsmanship of – as we assume – primarily local gold and silversmiths and craftsmen. The caster's expertise, taste and sense of proportion played a greater part in the duplication of individually cast pieces which were not produced in significant quantities in Transylvania than in the case of routine-like bell-casting. Based on our collection we can ascertain that the casting of bronze baptismal fonts was undertaken only by the most notable workshops and best-trained bell-casters.

The formal analogies of the characteristic chalice-shaped baptismal fonts were found in a wider region: in the territory of the old Upper Hungary, in Silesia, and – primarily – in the East German provinces, Saxony and Brandenburg. As regards present day Slovakia the most appropriate – yet not in the strictest sense of the word – analogy in the Carpathian Basin is represented by the products of a workshop, possibly in Košice (Kassa), the activity and casts of which have not been paid enough attention to in academic literature; therefore, their processing has barely surpassed the point of reference.

Quality and expensive casts were exclusively made in the most prominent Saxon workshops of Transylvania and ordered by privileged members of the Saxon Transylvanian community.

Unlike the bells that were blessed only once, baptismal fonts – or rather the water they contained – were blessed every year. The oration used at the blessing of the baptismal fonts from the early Middle Ages to the Modern Age, being part of church tradition, is taken from Saint Gelasius's (492–496) *Sacramentarium Gelasianum*, holds special significance being one of the main sources of inscriptions on baptismal fonts.

The stone baptismal fonts of the Lutheran churches in Transylvania that preserved the traditions of the late Middle Ages are located almost without exception in the western part of the choir, in front of the altar. However, research proves that this arrangement is not of medieval origin. Both older and more recent literature assume that these baptismal fonts were placed in the western end of the nave near the entrance symbolising that the new-born child can enter the church only through the first sacrament, i.e. baptism. Placing the baptismal fonts in the western part of the choir in today's Lutheran churches is a clear indication of the teachings of the Lutheran reformation according to which having accepted two sacraments (namely baptism and the Lord's Supper) the place of baptism and therefore of the baptismal font has been designated in the central location of the church, to be exact before the altar at the level of one or two steps.

Workshops in Transylvania and Partium

SIBIU (NAGYSZEBEN) / The most prominent workshop in medieval Transylvania was set up in Sibiu. Its significance is confirmed by the high number of casts produced here, the extensive network of workshops and the high quality and variety of ornamentation used on better quality casts. The workshops in Sibiu – including the short-lived workshops as well as family-run businesses extending across several generations and lasting over a hundred years – are representative of the time-span of our research, from the 13–14 centuries to the first half of the 16th.

When assessing the activities of the bell workshop in Sibiu, we must not fail to mention the central importance of the town in the Middle Ages. Sibiu was the main settlement for German speaking settlers, the centre of the provostry established by Béla III comprising the privileged territory, *provincia Cibiniensis* and later – by the time of King Sigismund it had become the most prominent commercial Saxon town in Transylvania. Its pre-Tartar importance is underlined by the fact that in the charter issued by Andrew II for the Saxons (*Andreanum*, 1224) there was a reference to the so-called Sibiu mark. The town's 14th century development is documented in the issue of the privilege by Louis the Great according to which privilege so far given only to Cracow, Košice (Kassa) and Levoca (Lőcse) is granted to the merchants of Sibiu trading with Poland.

In connection with the processing of non-ferrous metals we must mention that Sibiu had a mint as well as a chamber; therefore, in addition to the local gold and silversmiths, minters and stamp-engravers could also participate in the moulding and casting of various reliefs that decorated the bronze casts.

The Viisoara-Avrămești (Domáld-Szentábrám) assemblage: 13–14th centuries Southern Transylvanian bells / During our research in the wider area around Sibiu we found several bells that were cast a lot earlier than had previously been assumed. As the pieces in question belong to an extensive series of Southern Transylvanian bells our theory that they are not sporadic imported pieces but rather the products of a permanent local – but so far unknown – workshop seems justified. This early workshop was discovered in Sibiu which – as suggested by written sources and inscriptions on bells and baptismal fonts – might have been the earliest workshop located in a town. The same reference to Christ is inscribed on all the bells: *O rex glorie veni cum pace* – King of glory, come in peace. If we have a closer look at the script which seems identical at first sight, especially at the relative proportion of the letters of Roman and uncial type as well as the shaping of the uncials, we can classify different variants within this assemblage. As the classification is primarily based on the peculiarities of the inscription, we can say with certainty that the differences merely result from the unique writing of the modeller as opposed to the simultaneous existence of several workshops. That might also explain the slight time difference between the pieces.

The above outlined earliest group of bells made in the workshop in Sibiu also contain some bells without inscriptions sending an important message to the researcher: during the study of the links of our earliest bells and workshops – besides the peculiarities of the inscription – we must reckon with other factors as well. It is not enough to merely rely on the peculiarities of the inscriptions.

The activity of the workshop of the Viisoara-Avrămești bells abruptly ceased in the 14th century.

The bell of Petrești and related pieces (14th century) / The long hiatus lasting several decades that exists between the finds typical of the Viisoara-Avrămești group and the baptismal fonts and bells made in Sibiu in the 14th century with the characteristic inscription also seen on the baptismal font cast in Mediaș can mainly be bridged by some bells with a majuscular inscription, the date of origin of which cannot be ascertained. Such items are the bell of Petrești and some other related relics. The bell of Petrești (Péterfalva) represents a new shape, i.e. that of the classical Gothic bell type. The script used on the Petrești bell family is a similarly important peculiarity: as opposed to the letters manually formed from wax sticks in the Transylvanian collection at our disposal the capital letters are cast from a mould and applied to the mock-bell. Besides the new shapes and the cast letters the Transylvanian collection

introduces the alphabetical inscription that surrounds the bell's shoulder. The fragmented, occasionally uneven alphabets run from right to left and the letters themselves are often reversed, which suggests to us that the caster(s) were only semi-literate or even that the letters ordered by someone else were merely applied by the illiterate craftsmen, often erroneously.

The workshop in Sibiu at the end of the 14th century / We could only estimate the Sibiu origin of the bells reviewed so far. Now we will outline a group whose proliferation into southern Transylvania is the same; however, the pieces themselves have manifold links with the bronzes of definite Sibiu origin dating from the first half of the 15th century. Therefore, their Sibiu origin does not seem to be in doubt. The two fundamental pillars, which support the detailed study and analysis, are the baptismal fonts of Mediaş (Medgyes) and Şaeş (Segesd). This short-lived workshop closed down at the end of the 14th century.

The period marked by the master craftsman Leonardus (1420s–1430s) / Bronze casts with a proven Sibiu origin reappear from the 1420s after a quarter of a century long hiatus. Old Saxon research had established that in the Sibiu area seven 15th century bells as well as the baptismal font of Sibiu (1438) itself were marked with the name of the caster Leonardus (*Leonbardus*). These signed and at times dated relics served as the starting point for our research to which we added more as we progressed.

If we place the products made by Leonardus on a map we can say that his scope of activities can be clearly outlined within a relatively small area; namely, the table-lands stretching from north of Sibiu to the river Târnava Mare (Nagy-Küküllő) streaked with valleys the distance between Sibiu and the upper villages which almost never exceed 40 km.

The Leonardus products which in comparison with the Mediaş group dating from the end of 14th century included a limited area implying that another workshop was set up in southern Transylvania at the same time. Below we will see that the establishment and development of the workshop in Sighişoara (Segesvár) can be dated to this period, namely the first half of the 15th century.

We could not find references to the master craftsman Leonardus in written sources. All we know about his life and work is based on his inscriptions and the casts found in Sibiu and its environs. When he cast the bell of Haşag/Hásság (1429) he called himself *magister* so he would not have been regarded as a young man according to the prevailing notions of his time. His earliest work is the bell of Mănărade (Monora) made in 1424, providing that we correctly interpreted the ambiguous date. If we think about the great hiatus in the first quarter of the 15th century between the Mediaş type bells dating from the end of the 14th century and the products made in Sibiu in the 15th century, the master craftsman with a German name who appeared in the 1420s could only be identified as a caster who – having studied abroad – settled in or returned to his home. This assumption is exemplified by the use of little bracteate dividing signs known as Leonardus-rosettes after their user, which – similarly to the medaillon impressions found on similar western pieces – were arranged in playful patterns by the master craftsman of Sibiu. The embellishments applied by Leonardus indicate that he learned his trade where the decoration of bells and baptismal fonts with various figural reliefs was a major feature, as well as an outstanding number of works made by gold and silversmiths for secular use, foremost among these being belt mounts and costume jewellery. When surveying the European collection it turned out that this primarily included the areas within the northern and eastern German territories (Lower-Saxony, Saxony, Brandenburg, Tübingia). It is scarcely a coincidence therefore that chalice shaped baptismal basin parallel forms are also found here. However, Leonardus' elaborated baptismal fonts in the chalice shape constitute an independently arrived at ingenuity. After his death his workshop continued to work with the same unaltered letter types and to use numerous old casts.

The second half of the 15th century / A quarter century after the master craftsman Leonardus' last known work new Sibiu bell craftsmen crop up. *Andreas Clockengeysser's* name was recorded for posterity in 1462 in the local tailors' guild book. Unfortunately, further data on Andreas or any other work indicating his handiwork is not at our disposal.

From the third quarter of the 15th century another piece of data related to casting comes to our attention, which appears to be contemporaneous or from just a little earlier. In a tax register which does not provide detailed dates the caster Michael's widow (*Relicta Michaelis Gisseren*) paid a significant amount of tax, which would imply that she took over her deceased husband's workshop. The subsequent invoices not having any other caster's name on them support this assumption.

All of this leaves us totally uncertain as to which of the two casters mentioned above could be that Sibiu master craftsman who throughout the 1470's manufactured a great many bells, along with their dates, as well as an outstandingly well constructed and completed baptismal font, (Șeica Mică/Kisselyk, 1477). What can definitely be established about the caster's work is that it is of German origin (his favourite inscription being: *Ihesus Cristus hilf uns*), and moreover a close link to the workshop of Leonardus can be ascertained. The latter assumption is proven to be the case by the similar shapes of the bells, the related minuscule, the identical dividing signs, the outstandingly clear similarities to the baptismal font of Sibiu as regards shape as well as to the embellishments used at an earlier date in the Sibiu workshops. We assume that the son of the unknown master craftsman was the same Peter or *Petrus Fusoris de Cibinio* respectively, who cropped up at the university of Vienna in 1463, and in referring to his father's occupation cited the name *Petrus Clokengisser*. We again come across the son in Vienna between 1476 and 1477 as a member of the *natio Hungarorum* under the name of *Petrus Giesser de Cibinio*. It was here that he was awarded the degree *baccalaureatus artium* in 1479, which indicates that his father must have been quite advanced in years when he cast his chief work of art, the Șeica Mică baptismal font here in 1477. The large scale plaque embracing the rim of the baptismal font stems from the first half or the middle of the 15th century (for instance, the relief depicting Saint Bernard of Siena was only made after his 1450 canonisation) presumably in the Rhineland. Their surprisingly early appearance in Transylvania probably has some connection with the son who studied abroad.

The bells of the master craftsman Wolfgang / In each period work can be traced to one workshop and although the Sibiu casting was no exception to this we have noticed – for instance in the case of the bells and baptismal fonts made by the Mediaș type – that within one workshop several different hands were at work. In the period starting from the end of the 15th century our research has for the first time encountered several workshops which worked parallel with each other. One such product of these workshops is the Mediaș Franciscan bell, cast in 1501, which according to its inscription (*per magistrum Wolfgangum Cibiny*) was manufactured in Sibiu in 1501. It was not possible to identify the craftsman although the written data for this period is especially plentiful, which is quite a shame since this Mediaș bell is not the private work of some itinerant craftsman, but rather a work of art that we can link up with a series of similar relics.

Sibiu bell casting at the end of the 15th century and at the beginning of the 16th / The most significant Sibiu caster at the end of the 15th century was the master craftsman Martin (*Martin Clackengisser*), who when his name appeared in the tax register was presumably no longer especially young, or at least his role in public life and title of *providus vir dominus* would suggest as much. The data available for the period between 1485 and 1487 refer to him as being a municipal judge (*villicus*) and in such a capacity he was present in 1485 as a witness to the drawing up of the last will and testament of Thomas Altemberger the mayor of Sibiu. His name was last mentioned in 1492. A brief outline of the course of his life proves that the bell casters cited were for generations the offsprings of families enjoying the benefits of civic rights and major prestige – based on the taxes they paid – and with this solid financial background behind them were able to send their children abroad for tutoring. In connection with this we may mention that in the university town of Vienna – traditionally favoured by the Transylvanian Saxons – *Thomas Glockengiesser de Cibinio*, the son of a Transylvanian bell caster appeared in the register of students in 1494. Unfortunately, our sources do not give us the opportunity to link him to any contemporaneous master craftsmen although, based on the historical data it would be fair to assume that he was the son of Martin.

The series of works by the master craftsman which remain to us and the circulation of bell sketches are together a strong indication of Martin's unparalleled good fortune, something which the Sibiu bell caster carefully exploited. It is of no small significance that his greatest rival, the Sighișoara workshop, discontinued – or at least significantly reduced its activities – during the 1480s as the above family of bells and those to be later discussed. The areas serviced by their workshops were taken over by the Sibiu workshops. Accordingly, orders arrived in Sibiu from even more distant countries, namely from the villages of Székely land. In order to satisfy the demands of these less well-off regions the workshops of the master craftsman Martin made ready to manufacture bells which were pleasing but nonetheless of small dimensions and therefore cheaper and easier to transport.

The last reference to the Sibiu Saxon *Martin Glockengiesser* in a written source was made in the spring of 1492. This concurs with the fact that the latest pieces of the bell families tied to his name, which can be traced from the 1480s, were made in 1493.

After the disappearance or presumably the death of Martin, who can be identified as a member of a prestigious casting family with a history stretching back several generations, we come across two more individuals calling themselves bell casters the activities of whom we were able to follow with the assistance of the accounts books and the tax registers until the 1510s. Since the embellishments from the Leonardus workshop – among them the characteristic dividing signs and belt mount impressions – are demonstrably evident on the bells originating in Sibiu, we are left in little doubt that between the two casters at least one was a member of the Martin family, and quite possibly a son of Martin.

The first of the two, which we come across, is *Steffanus Clockengiesser*, who paid a huge tax in 1494. Indeed, a whole mark was levied on him. In 1500 *Paul Clockengiesser* appeared similarly paying a significant amount of three forints in tax. Published sources have the two of them playing a role until 1515. We also discovered from contemporaneous municipal accounts books that *Steffan Clockengeyesser* made frequent trips to other regions where he carried out work in towers, which is not possible to define in detail. We would not be straying too far from the truth if we assume that all of this was in connection with the bells. However, what is more important than this is that the above data can be utilised to make the following generalisations: the bell casters in the villages actively receiving orders, or more precisely the master craftsmen supervising the suspension and operation of the bells were not necessarily “itinerant bell casters”, but were probably municipal master craftsmen some of whose work was obviously completed locally.

It is noteworthy that in comparison with the 1510s from which time numerous bells have remained to us the following decade is represented by only one single relic. All this indicates a sharp decline and then cessation of activities following an earlier period of intensive production in the workshops. However, those bells from the 1530s have no connection whatsoever with any of the aforementioned bells which are left to us.

Copper and cannon casters in Sibiu (15th–16th centuries) / Based on the written data and utilising the help of the supplementary sets of relics outlined by stylistic and formal criteria we are able to date a significant proportion of the bells found in the environs of Sibiu and to link them up with specific master craftsmen and workshops. Of no less interest are those, which we could not study in the same way as the above being, as they were separate pieces. All that can be said about them is based on their brief inscriptions and their less impressive shape and workmanship. However, these relics draw our attention to those Sibiu master craftsmen who worked with copper, and although not bell casters, did in all probability pursue such work. Among those who were not bell casters by trade the ones who worked with cannon master craftsmen were most likely to have been involved in bell casting. Around the 15th century in Transylvania numerous cannon casters were already active. Among them was the renegade caster known by the name of Urban (*genere Dacus*), who became prosperous working for the Byzantine emperor and later for the Turkish Sultan who promised a far higher fee. The same Turkish sultan who had never before seen such large cannons used them to deal a decisive blow at the siege of Constantinople in 1453. Both German and Hungarian scholars have tried to claim a stake in Urban's dubious fame. According to the Hungarians his name (*Orbán*) indicates that he was a Hungarian master craftsman from the Székely land, while according to German literature he is *Stückgiesser Urban*, a Transylvanian Saxon.

We are able to follow the trail of the cannon master craftsmen as well as the casters among them from the 1470s utilising the detailed data available. Their main tasks – apart from casting cannons – were to equip the arsenal, maintain and supervise the firearms, deliver salutes at prominent occasions, conduct gunnery practise with wall piece guns, and to deal with firearms as well as direct defensive operations in the event of war. It was inevitable that their activities would develop into a specialised field. Our sources allow us to identify those artillerymen whose chief duty was to operate gunpowder-grinding mills. At the same time the expert who carried out the cannon casting itself crops up in our data. The prestige of the copper caster (*Rotgiesser*) dwindles in comparison to that of the cannon master craftsman whose responsibility was to plan and direct, even although his task was the actual casting. In the accounts books the copper caster's name was not always mentioned and his pay was significantly less than that of the cannon master craftsman.

As opposed to the bell casters of the late 15th century who as descendants of several generations of Sibiu citizens followed the traditions of local workshops the cannon master craftsmen employed by the municipalities were far more versatile. Based on their names, many were German and in all probability Transylvanian Saxons. A great many of them, however, were from abroad or came to Sibiu from other regions of medieval Hungary but apart from the first years of service no further records are preserved in the sources we have available to us. In 1494, for example, *Vdalricus pixidarius* and *magister Bernbardus pixidarius* emerged alongside *Hanns* and a *Michel Puxenmester*, who appeared in previous records, while a Hungarian master craftsman, the equally unknown *pixidarius novus Vngarus*, replaced the “new gunner” who was dismissed following his probationary period. Yet, the anonymous *Rodtgysser* seems to have retained his position. In 1495 the Hungarian master craftsman also disappeared, his place being taken by *Jeronimus Rynke de Wradislavia pixidarius* the Wroclaw expert, who we find no more trace of in Sibiu after 1496. In these latter years we come across the hitherto nameless copper caster, as his name – *Magister Symon Rotgiesser* – finally appears among items of payment.

In lucky cases we are able to determine the reason for itineration and temporary disappearance. For example, in 1492 the Wallachian voivode Vlad wrote to the council of Sibiu asking for advice and requesting that they dispatch to him an expert who would cast a candelabrum modelled after the one in the Cozia monastery. While on the trail of similar invitations the Sibiu cannon caster Michael emerged in Bucharest in 1494, in the same year therefore that we could not find his name in the Sibiu tax register. It seems likely that for a significant part of this period Moldavian and Wallachian bells were made by a caster in the employ of a Romanian voivode, unless we reckon with a product directly imported from Transylvania. Such a theory can definitely be applied in the latter case of an order from one Moldavian customer. This time, however, the ordered product remained in Transylvania, a fact substantiated by the Cyrillic inscription on this particular Dâmbău (Küküllődombó) bell. The bell shape alone is enough to imply the work of a Transylvanian master craftsman from the second half of the 15th century.

The last cannon master craftsman in the period of our survey was *Conrad Haas* of Bavarian origin, who arrived in the town in the 1550s, where he amended a 15th century artillery codex (*Kunstbuch*) with his own notes and illustrations, some of cannons. He finished this work in 1570. We did not find any bell inscriptions referring to this master craftsman in the period we researched.

THE SIGHIȘOARA (SEGESVÁR) WORKSHOP / Our research into the history of medieval bell casting in Sighișoara is one of the most exciting and at the same time one of the most mysterious chapters. It concentrates on a 15th century workshop the industrious activities of which span several generations, and which stamped its genius on a continuous flow of products of strikingly high quantity and of a superb standard. Alongside the production of numerous richly embellished bells, the Sighișoara casters – similarly to their Sibiu (Nagyszeben) colleagues – undertook the production of beautifully cast baptismal fonts, which totally differed in form from those of the Sibiu casters. We know little else about some of the master craftsmen than their names, origins and functions and what can be read off the relics, which are rarely dated and even less frequently signed. Only on rare occasions have we been able to support the data using written sources.

The early years of the Sighișoara bell casters prior to the first half of the 15th century – if indeed we need to study such an early period – are to all intents and purposes formed on assumptions, since we have no significant or easily definable collection of relics, nor historical sources to base them on. The period, which can be verified stretches right back to the beginning of the 15th century.

The workshop which made the Mediaș (Medgyes) baptismal font and the other related relics ceased its activities at the end of the 14th century, and local bronze casting was only resumed in the 1420s, the time of the master craftsman Leonardus. We regard this Sibiu hiatus which spanned a lifetime to be of vital importance, the reason being that the few casts dating from this time may be regarded as the direct antecedents of the later Sighișoara bronze casting activities. The first among them we can cite is the Sibiu bell, cast in 1411, which according to its inscription was cast by a certain John master craftsman. The minuscular inscription also records for posterity the master craftsman's place of origin, which since the German Translyvanian historical research of the 18th century was consistently read as *Wertheim*, and tracing this leads us to the German tradesman *magister Iohannes de Wertheim*, who settled in southern Translyvanian Saxony from his distant homeland. However, this otherwise logical assumption came to nothing at the hatching of the inscription when it turned out that the questionable place name was not *Wertheim*, but *Werthelm*. Recognising this, however, offered new possible explanations since in our contemporaneous sources the nearby agricultural town of Biertan (Berethalom) played a role under the name *Wierhelm* (1397) or *Wirthalm* (1410), as well as with other changes to its name. It is also conspicuous that the slanted Latin cross at the beginning of the Sibiu bell inscription and the characteristically drawn minuscule can also be seen on the baptismal font cast in Alțina (Alcina) in 1404, a relic which is the direct antecedent of a baptismal font without doubt cast later in Sighișoara, and including supplementary pieced nodus on it. What is more, the conspicuous embellishments on the Alțina baptismal font remained the “leitmotifs” of the Sighișoara workshops for decades after. Through documentary evidence we were successfully able to substantiate that the master craftsman John actually came to Sighișoara from Biertan. Later, as a distinguished citizen of Sighișoara, he acted as witness to a noble's last will and testament. Unfortunately, we cannot ascertain when and under what circumstances master craftsman John made his way to Sighișoara. According to the Sibiu bell inscription the move most probably took place after 1411 and definitely before 1430, as in this year the great Bistrița (Beszterce) bell already names our master craftsman as a citizen of Sighișoara (*magister Joannes de Segisvar*). By this time John of Sighișoara already had at least a quarter of a century of practice behind him, and was perceived across a wide region as a man of great learning and a master craftsman of bell casting, who after his enterprise in Sibiu (1411) also made the bell for the Moldavian Cotmeana monastery (1413), provided its inscription in Old Slav allows us to identify our master craftsman in the role of *Hanos Maistor*. He received his most well known commission in 1430, when the town of Bistrița – located far from the region of his Sighișoara workshop – turned to him to transact the manufacture of two bells of significant proportions, the 36 centner Susanna as well as a second 24 centner bell.

At some point during the 1430s John of Sighișoara ceased his activities of 30 years, and his successor – who might have been his son Jacob (*Iacobus fusor campanarum*) – took over the running of his workshop, and with it the moulds for the earlier embellishments – all of which is clearly readable from the inscriptions and decorative reliefs on the baptismal fonts cast in Sighișoara in 1440. This aforementioned work proves that he had close ties to the local gold and silversmiths as well as engravers from whom or through whom he obtained impressions of the most outstanding quality, among which – based on its style – was a recent work such as the Veronica plaquette, which appears several times on the nodus of the font.

Lacking more data for the middle of the 15th century we can only draw a sketchy and uncertain picture of Sighișoara bell casting. However, it seems unquestionable that production in the middle of the century was continuous, and it is most likely that during this period it was not so much the masters who changed but rather those Sighișoara literate individuals who dealt with the inscriptions.

The key to determining the later works of the Sighișoara workshop was the baptismal basin cast in Brașov (Brassó) in 1472. Although the Brașov baptismal font was the „sibling” of the Sighișoara basin of three decades earlier, the epigraphical features of its long inscription represent a later period.

In the 1490s the 15th century history of Sighișoara bell casting comes to an abrupt end.

BISTRIȚA (BESZTERCE) WORKSHOPS / Until recent years research had revealed almost nothing about the Bistrița workshops the data referring to them not coming primarily from the inscriptions on casts which have remained to us, but rather in the majority of cases in an indirect way from later medieval tax registers, accounts books and registries, as well as from local history publications which were relatively inaccessible.

The academic literature tends to make a connection between the copper mines of the Bistrița region and the start of local bronze casting. However, this apparently correct assumption is based on two very tenuous points. It is a fact that in the Árpád era one of the most important silver mines of Hungary was in Rodna (Radna) located to the north-east of Bistrița, although we know of no noteworthy copper production from here. What is more, the local mines had begun to decline at the start of the 14th century hence by the 15–16th centuries – for which we have definite sources at our disposal for local metal founding – our sources provide data on lead and copper delivered from Baia Mare (Nagybánya). In any case, the fact that a mint was in operation in Bistrița at the end of the 13th century, and the Bistrița mark is often mentioned in the 14th century as a measure of weight indicating that the beginning of processing non-ferrous metals locally predates the second half of the 15th century, although there is no significant sign of bronze casting.

The evolution of Bistrița bell and later cannon casting proves that this industry was not primarily based on raw material available to the local industry, but rather the town development of one of the most important settlements – located along one of the trade routes leading out of medieval Hungary – which was given a series of privileges and remained significant throughout the 14th to 15th centuries. In the areas we have researched it is generally the case that local bell casting and large scale bronze processing was not indicated by the local stratum of ore but rather by the advances in town development.

We have no direct data on the beginning of the Bistrița bell casting period, and our first encounter with a local bell caster is in the tax register for the years 1460–70. (1461–1462: *Hannes Glockengyesser*).

The city walls of Bistrița with its towers and gates had been built up by 1484, but from earlier data we know that in order to protect the town most effectively the inhabitants took the appropriate steps to manufacture and maintain firearms. Just as in Sibiu (Nagyszében) and Brașov (Brassó) cannon master craftsmen were to be found in the service of the town, their task being the on-going manufacture and maintenance of the bronze cannons. In addition, they were responsible for producing gunpowder, as well as for supplying and storing guns. Thanks to the relatively low fees, which they charged, they also received orders for bells from time to time. According to our sources it would seem that in the first half of the 16th century this type of *bombardarius* casting group completely came to dominate bell making in the environs of Bistrița. It is a relevant detail, however, that the cannon casters coming as they did from different places and having received varying tutelage nevertheless failed to establish their own casting school with its own valuable inheritable moulds, unlike for example the local dynasties of bell casters in Sibiu or Sighișoara (Segesvár). In any case, at the beginning of the 16th century Bistrița and Sibiu had close ties with each other in regard to their cannon master craftsmen and armaments.

In Bistrița as in Sibiu the pay of the leading cannon master craftsman was higher than the non-local fairly itinerant *bombardarii* whose tasks were to assist the cannon caster in maintenance and gunpowder production. However, the bells cast by the *bombardarii* did not have the actual caster's name on them, but rather that of the leading cannon master craftsman. Dates and letters occasionally applied in reverse or upside down is a sign that writing was not the otherwise dextrous master craftsman's strong point.

A good example of master craftsmen frequently changing their place of work and for cannon casters of different origins working in the same town is a *Georg Hörel Rotschmidt vnd püchssen giesser* of Nürnberg, who after his Wallachian or Moldavian activities (*bey dem Wallachen*) offered his services to the town of Bistrița in 1561.

BRAȘOV (BRASSÓ) WORKSHOPS (15–16TH CENTURY) / If we consider the history of bell casting in Brașov, a town of outstanding significance in Transylvania, we are guided back to the Middle Ages, although the level of work carried out here fails to come up to the standard of other workshops

especially in comparison to those of Sibiu (Nagyszeben) and Sighișoara (Segesvár). One of the antecedents we should mention is that from the time of Wladislaus I (1440–1444) Brașov had a mint, meaning that the circulation and processing of non-ferrous metals had a beneficial effect, just as in other regions. Others are connected to Brașov's geographical location. This German town in the south-east of Transylvania being located at the meeting point of most important roads and connected to the mountain passes of the Carpathian bend had the position of being an important gateway from medieval Hungary to the Balkans and the Near East. Through this gateway – as we shall see – arrived the raw materials and master craftsmen for the bronze casting industry. And it was through this route that Brașov received commissions, from abroad, but primarily from the Romanian voivodes.

Based on our present knowledge neither the written sources on the history of Brașov bell and cannon casting nor the finds we have are able to shed light on anything earlier than the middle of the 15th century. Here too, just as in Bistrița, the manufacture of bells and cannons was closely intertwined, since the greater part of the products were not made by traditional bell casting dynasties, but rather by ever changing bombardiers and cannon master craftsmen from different workshops, as well as by coppersmiths working in close collaboration with them. Besides the arsenals, which were set up in conjunction with the construction of Brașov's defensive works during the 15–16th centuries, the workshops also pursued their activities in the vicinity of the more important gates.

The only bell families in the area of Brașov which we are able to call homogeneous with any degree of certainty are those originating from the 1490s when – according to one source from 1491 – one cannon master craftsman had to be employed at each gate. The round medallion appearing on these early pieces is illustrated with the title of Nürnberg, which presumably refers to the place of origin of the unknown caster.

The name of the Brașov master craftsman Andrew, who was active over a long period, is extant on the bell of Valea Crișului (Sepsiköröspatak) cast in 1512. The German inscription – *meister endres cv kron* – leaves no doubt as to the nationality of the caster. The bell inscription was made with a type of late Gothic minuscule, but its dividing signs and the belt mount impressions as well as the friezes decorating the bells' side are unambiguous signs of the Renaissance. The conservative style of the master craftsman Andrew's bell inscriptions is shown on his last work, the Brașov Saint Martin church's bell, dated to 1521 but by now destroyed, on which he still employed the Gothic minuscular inscription. The master craftsman Andrew, who was active in Brașov for at least a decade, can be identified as the cannon caster who in the rendering of accounts for 1520–1521 went under the name of *bombardarius Andrew*, and indeed was the town's cannon caster.

In the time of the master craftsman Andrew the Brașov council appointed Stanislaus – who had earlier been in the service of the Wallachian voivode Neagoe Basarab – as the town's standing master craftsman (*magister Ztanislaus bombardarius*). His cannon casting is preserved for posterity in great detail in the Brașov accounts book. A noteworthy factor which affects our studies is that the inscriptions on master craftsman Stanislaus's cannons were not made by his own hand, but by *Dominicus pictor*.

Brașov's cannon caster for the second quarter of the 16th century was *Martinus bombardarius*, who according to the 16th century account books also cast bells. In 1534, acting as a proxy for the town, he made bells for the voivode Radu Paisie in Wallachia, although when the need arose he also cast other copper objects. For example, in 1547 he made the copper pipes for the fountain of a town, and in 1550 he cast some standard measuring weights. His contemporary was Wolfgang Klein (*Wolff Klain, Wolfgangus bombadarius*), who presumably arrived in Brașov from some northern Hungarian town.

It was a cause of difficulty in our research that in the majority of cases we could not link the Brașov bell families not mentioning the names of the casters and master craftsmen cited in the accounts books with any degree of certainty.

The exceptionally abundant and detailed entries in the accounts books for the first half of the 16th century recording the Brașov cannon casters for posterity are not only edifying because of the paraphernalia and work processes we learn about – which represent an indispensable part of bell casting- but also because they provide many outstanding examples of the collaboration between crafts and craftsmen in the process of each casting.

The Brașov workshop(s) continued their activities beyond the scope of the period we studied.

THE ORADEA (NAGYVÁRAD) WORKSHOPS / The medieval history of Oradea bronze casting was of significant importance from the point of view of research done in art history provided there was a need to undertake a detailed study of the activity carried out in Oradea by the two sculptor and bronze caster brothers Martin and George of Cluj (Kolozsvár), who reached the peak performance of art in the times of Louis the Great. The research prerequisites for this were in no way satisfactory. Because the greater part of the bronze relics have been lost or destroyed, past and present research has had to entertain numerous unproven hypothesis based on several incompatible bells and scant written data.

In his extensive Várad (Oradea) paper Jolán Balogh postulated that in the second half of the 14th century in Oradea Martin and George directed a productive foundry over a period of several decades, where they moulded and cast the Oradea royal statues, according to description only, the Saint Stephen, the Emery and Ladislás foot soldier and standing bronze statues (1360s), the Saint Ladislás knight statue (1360) as well as the Saint George statue (1373) which is now preserved in Prague, all of which were probably made utilising local Bihar copper. Based on data relating to 15th century bells and bell casting Jolán Balogh's assumed that bronze casting in Oradea continued after Martin and George's work ended, which is a direct antecedent to the 15th century local foundry documented by the names of its master craftsmen.

The rise of Oradea can be traced back to the times of St. Ladislás when -simultaneously with the growing importance of the road leading to Transylvania along the River Crişul Repede (Sebes-Körös) – the king established a cathedral with 24 canons, to where he later also moved the episcopate of Bihar (Bihar). The cathedral which had towers and of course several bells was completed by the 12th century. Other churches were built besides the cathedral and many monasteries were founded in the town's vicinity. This is all significant from the point of view of our research because as a consequence of the concentration of religious establishments -which was significantly greater here than in other parts of Transylvania at the time- we have to reckon with a high number of bells and other paraphernalia. This obviously infers that early on in this rich episcopal centre -which employed several craftsmen- a foundry with the capacity for regular bronze production was set up. Moreover, areas supplying raw material had been discovered in the territory of the Várad Episcopate in the Middle Ages yielding a regular income to the bishop and the chapter.

All these findings provide the theoretical background to the processing of non-ferrous metals in the 13th and 14th centuries. However, since the bells around Oradea have been almost entirely destroyed, there is no group of correlating finds to support the above theory so we must wait for new finds to surface. The only surviving contemporaneous relic is the bell of Borla (Szilágyballa) on the shoulder of which we can recognise the anchor-shaped cross a well-known characteristic at the 13th and 14th century Viişoara-Avrămeşti (Domáld-Szentábrahám) type. Yet, the relationship is merely chronological as the unprofessional casting and the unsophisticated pot shape of the small bell from county Sălaj (Szilágy) can hardly establish a correlation with contemporaneous pieces from Sibiu (Nagyszeben). It cannot be proven, nor excluded, that this find is an example for the early bell casting work done in Oradea.

Considering the large scale destruction among the village bells it is not the least surprising that we have another negative result: the period marked by the work of Martin and George from Cluj cannot be illustrated with bells found around Oradea either. Since we have no material or written sources referring to bell casting in the first half of the 15th century at our disposal, we cannot confirm that the foundry set up in the 14th century continued its work after the death of the two outstanding master craftsmen.

Magister Albertus, the caster of one of the, by now ruined, 15th century bells of the Cathedral in Oradea and whose monogram is recognisable on the medieval bell of Carastelec (Kárásztelek) may well have been a caster from Oradea.

The key to identifying the surviving relics of late medieval casting in Oradea is the great bell (1491) in the reformed church of Valea lui Mihai (Érmihályfalva). The dated minuscular inscription above the rim of the bell clearly indicates the caster's name as Imre of Oradea (*per manus Emerici de Waradino*). The importance of the signed and dated bell of Valea lui Mihai is enhanced by the simultaneous use of

the Gothic minuscular style (where the Roman capitals appearing between the Gothic minuscule are a sign of the Renaissance) and Gothic majuscule. The bell's majuscular writing, which should certainly not be confused with the capitals used in the early humanist era used at the end of the 15th century and the very beginning of the 16th century, had the status of a scholarly, heightened and more solemn writing. With its help we can attach other relics to the bell of Valea lui Mihai and to the work of the master craftsman Imre.

The bells discussed above be found in the territory north-east or east of Oradea, and the medieval counties of Bihar and Bereg as well as in the counties of Middle-Szolnok and Kraszna. The Barabas bell of county Bereg was the most distant being 130 kilometres away from Várád. These bells outline the north-eastern region of the Oradea foundry's market area which was the least devastated by the Turks; no relics remain to us which have their origins in the destroyed part of the market area.

Some other relics make us think that the history of Oradea bell making did not come to an end in the 1510s. We can only make an assumption since the correlating bells can be found in the wider surroundings of Oradea, however, their Oradea origin is not confirmed by any hard facts except that the minuscular inscription mixed with capitals on the bell of Recea/Kraszna (1524?) can be well compared with the long inscription indicating the master craftsman Imre's name and Oradea (*Warad*) on the rim of the bell of Valea lui Mihai. Looking at it from the point of view of the history of graphology the bell of Șimleul Silvaniei (Szilágysomlyó) made in 1525 constitutes a turning point, as at this time antiqua typefaces emerge alongside the minuscule. The monogram *Gr[egorius]* placed at the end of the inscription refers to the bell's caster who cannot be clearly identified.

UNKNOWN OR POSSIBLE FOUNDRIES. IMPORTED BELLS / In this summarising chapter we examine bells whose origin could not be clearly linked to foundries in Transylvania or Partium. Such bells include the products of the possible foundry in Cluj (Kolozsvár) at the end of the 15th and at the beginning of the 16th centuries, as well as the so-called "imported bells". The inverted commas indicate the fact that we could not establish whether the bells in question are imported or the craftsmen themselves.

The array of embellishments used in medieval foundries and their relationships with other relics and embellishments

The great number of embellishments surviving on medieval bells and baptismal fonts are not simple "reliefs" but the imprint of a specific object (the detail of a gold or silversmith's work, the mounts of a belt, an item of clothing or a book, a pilger-badge, or a medal). These object were too special and valuable to be buried in the ground as other archaeological relics. Their fate, exactly because of their precious material, was to be melted down but their imprint fortunately survived. This chapter gives a detailed analysis of imprints, a hitherto unpublished treasure of finds.

THE EMBELLISHMENTS USED IN THE WORKSHOP OF SIBIU (NAGYSZEBEN) / The appearance and rapid proliferation of figural decorative motifs can be followed from the 14th century starting with the bells and baptismal fonts of the Mediaș (Medgyes) type. In the latter category -on the font of Mediaș and Șaeș (Segesd)- we can notice embellishments which are the imprints of mountings of belts and items of clothing.

The collection of embellishments used by the master craftsman Leonardus of Sibiu in the first half of the 15th century is best preserved on the baptismal font of Sibiu (1438). This is such a rich and complex material that we could not decide whether this was his own collection used by him regularly or he received help from the local gold and silversmiths as well as engravers on the work for the great church of Sibiu which obviously received support from its prominent customers. The imprints of several pieces made by gold and silversmiths lead to a significant rise in the number of embellishments. In some cases, however, the original pieces originate from a century before the time of Leonardus attesting to the extended connections of the Transylvanian Saxons for whom the gold and silversmiths of Sibiu worked in the 13th

and 14th centuries as well as to their elegant attires and sophisticated demands. There are imprints to be found on bell mounts, and quality decorative discs and plates of various sizes which could be sewn on textile objects (antependia, items of clothing, textile belts, etc.). We managed to identify the mounts on a belt the original of which research on gold and silversmith's art dated to the beginning, more precisely to the 40s, of the 14th century, and linked it with good reason to a gold or silversmith's workshop in Paris.

Looking at the Gothic ornaments of the baptismal font in Sibiu we can instantly distinguish the plaquettes representing Byzantine style reliefs with Greek inscriptions which -according to our reconstruction experiment- originate from two arched metal book plates; the front plate illustrated with scenes from Jesus' life and the back silver plate with the scene depicting the death of Mary. Without doubt this underlines the connections the people of Sibiu had with the Transalpine Romanian territories. The commercial significance of these connections have been referred to by previous research just as the links between bronze casting (the Transcarpathian export of master craftsmen and bells) and the work of gold and silversmiths (Romanian commissions).

The rim of the baptismal font of Șeica Mică (Kisselyk) (1477) made 40 years later in the same foundry is decorated with a more modern series of medallions. These considerably large reliefs depicting religious themes bear witness to the 15th century trend towards a growing and unprecedented need for the private possession and use of cultic objects and pictures as a result of a renewed and intense religious fervour especially among the urban dwelling middle classes. At the same time this intensified demand gave rise to the development of moulding techniques necessitated by the need for mass production. A characteristic element of the assortment of mass produced religious products (home altars, icons, medals, and pilgrim's badges to be discussed in detail later) are the 6–11 cm diameter figural medallions considered as large in our material. The original models were made by stamp or medal engravers from fine grained stone or extremely well washed clay to produce bronze plaquettes, ceramic copies as well as mass-produced coloured papier-mâché discs applicable to home altars, relic holders and small decorative boxes, but the moulds might also have been used to decorate various biscuits (gingerbread). According to the relics at our disposal these reliefs were frequently used as embellishments by bell-makers as well as by craftsmen producing metal dishes and crockery. Most moulds were discovered in the towns of the Middle-Rhine region; their local origin is also confirmed by the Middle High German minuscular inscriptions. The relief series of the baptismal font of Șeica Mică also represents an early and rich collection of relics in a wider European context.

THE EMBELLISHMENTS USED IN THE WORKSHOP OF SIGHIȘOARA (SEGESVÁR) / The embellishments used in the second largest medieval foundry is markedly different from that of Sibiu (Nagyszeben) since neither the shapes – most conspicuously in the case of baptismal fonts – nor the applied letter types can be derived from each other. Craftsmen here belonged to a different school and had different connections.

The earliest group of motifs used in the foundry of Sighișoara in the 15th century appearing on the baptismal font of Alțina/Alcina (1404) includes four medallions closely related to each other in terms of both size and style. They are round reliefs one depicting a king sitting on a throne, two of them a reading and writing evangelist and one the Lamb of God. The first three can also be found on the 1439 bell of Biertan (Berethalom), the 1440 and 1472 baptismal fonts of Sighișoara and Brașov (Brassó) respectively. Unfortunately, the latest Agnus Dei plaquettes (Sâncraiu de Mureș/Marosszentkirály, Târcești/Tarcsafalva) are not dated although the latter one was without doubt made in the second half of the 15th century. In this way, all the four motifs had a later history of almost seventy-five years. In view of this, it is especially remarkable that the reliefs used as embellishments on bells and baptismal fonts were not counted as new even at the beginning of the 15th century. We can take two approaches to establish their time and place of origin: by looking at the close connection between the figure of the king sitting on the throne and similar on royal seals or by examining the analogy between the figures of the evangelists and pieces made by gold and silversmiths depicting the same figures. As far as royal seals are concerned we could not identify a direct antitype in the Hungarian or the European sphragistical material. The fact that the Transylvanian relief depicts the sides of the throne fretted with pointed

arches in such an unusual open perspective which cannot be seen on original stamps is a very telling sign. The misinterpretation of the throne's architecture and the lack of obvious antecedents suggest that the imprint is not original but a decorative relief recast after a 13th–14th century royal stamp the origin of which cannot be ascertained. Therefore, it is not surprising that the best analogy of the relief of Sighișoara is not to be found among the original royal stamps but on a southern German bell, depicting a king in the manner of royal seals, which was cast in 1483, the work of *Jakob Anbosmaister* who moved from an unidentified place to Augsburg in 1458. The origin of this piece has not been identified by German researchers except that it is the adaptation of a 13th century royal seal.

According to the analogies at our disposal we can say that the evangelist reliefs of the foundry in Sighișoara were not individual pieces but together embellished larger works made by gold and silversmiths, 13th–14th century metal-covered bookplates, reliquaries and bigger crosses.

The medallion depicting Veronica, which appeared only once, among the reliefs of the baptismal font of Sighișoara, is a refreshing contrast to the high standard but rather antique set of embellishments used in the Sighișoara foundry. Its stylistic features suggest that its original was made not long before the casting of the Sighișoara font (1440), possibly at the beginning of the century.

Besides the above described high standard reliefs there are some mid–15th century bells with plaquettes the strongly provincial nature of which links them to the style and technique of folk wood-carving. They are three square reliefs, one of them depicting Samson fighting with the lion, the other two showing deer one stepping to the right and one to the left respectively. Two of them appear on the bell of Mediaș (Medgyes) cast in 1449 dating their use to the middle of the 15th century. These reliefs do not appear on the pieces from the second half and end of the 15th century. Their local origin is confirmed by one of the deer's close analogy; a similar, square clay relief applicable to a pot appeared in Cristuru Secuiesc (Székelykeresztúr) during the excavation of a potter's furnace from the beginning of the 15th century.

Lacking hard facts we cannot decide if the dynasty of casters in Sighișoara gained their embellishments from old works made by gold and silversmiths, or collected them from gold and silversmiths working with a conservative set of embellishments. It is also possible that the metal moulds or their negatives reached the collection of embellishments inherited from generation to generation from outside the territory of historical Hungary. It is without doubt, however, that close connections were established with gold and silversmiths; it seems this is a characteristic shared by the most notable 15th century Transylvanian foundries.

PILGER BADGES ON TRANSYLVANIAN BELLS / We devote an entire chapter to the pilger badges which survived on Transylvanian bells. Our approach is partly explained by the fact that this is a unique collection of relics the origin of which is much easier to determine than in the case of imprints examined so far. However, a more significant aspect is that only a few foundries used pilger badges as embellishments, therefore their rare appearance links them to specific foundries, primarily to the north Transylvanian foundry of Bistrița (Beszterce). This group could possibly be extended with some reliefs from Cluj (Kolozsvár) and Brașov (Brassó).

Despite their being produced in incredibly large quantities pilger badges are considered rare finds by archaeological research mainly because of their fragile material which turns to dust in the ground very fast. This is the reason why their imprints that survived on medieval bells are all the more valuable for us, and we regard them as the evidence for great European journeys, and the links between distant locations.

Based on their formal characteristics the earliest Transylvanian bells embellished with pilger badges seem to originate from Bistrița. On the two opposing sides of the Voiniceni (Mezőszabad) bell cast in 1492 two high quality impressions can be found under the minuscular circumscription one of which depicts Christ's face (Vera Icon) with the apostles St Peter and Paul on the sides. Based on its workmanship and theme it is without doubt a Roman pilger badge which, according to the analogies at our disposal, originates from the 14th century therefore can be considered an early Transylvanian relic related to pilgrimages to Rome. The other pilger badge of the bell of Voiniceni depicts the bust of a

canonised bishop. Its 15th century analogy is in good condition and is assumed by research to be the pilgrger badge of Maastricht depicting bishop St Servatius, who was martyred in 384.

The lily embellishment closing the inscription of the bell of Sânmartin (Szépkenyerűszentmárton) cast in 1461 is likely to be the fragment of a pilgrger badge. The embellishment seems to be the fragment made of the tin and lead alloy strips that could be bent into a diadem, and on which among the lilies the image of the Three Magi, the Madonna or angels were placed.

The 15th century bell of Dumbrăvioara (Sáromberke) – also assumed to be of Bistrița origin – preserved a whole array of pilgrger badges from Rome, Maastricht and Cologne. Out of the five finds three were of Roman origin, which is a clear indication of Rome having been one of the major destinations of medieval pilgrimages. The 15th century bells with pilgrger badges were not exclusively made in the north Transylvanian foundry we assume to be in Bistrița. A large fragmented pilgrger badge from Aachen adorns the bell cast in an unknown foundry in 1481 that made its way from an unknown place to Sâncraiu (Kalotaszentkirály) after the revolution of 1848. In the study of pilgrger badges the mysterious bell of Geoagiu (Algyógy) is an outstanding relic. At the present stage of our research we cannot ascertain whether it has been destroyed or still exists. However, based on its unusual details of shape and elongated proportions compared with other pieces in our collection it may possibly originate from a foundry from outside Transylvania. Its best analogies can be found among the Italian bells in the northern Adriatic coastal area.

The written sources which are in line with the badges that survived also attest to Rome as the main destination for Transylvanian pilgrims (*ad limina beatorum Petri et Pauli apostolorum*) but there is also mention of pilgrimages to Aachen and there were some who wished to visit the Saint Blood relic in Bâta. Written sources and facts suggest that only a tiny portion of Transylvanian society could afford to undertake such a costly enterprise. The ones that could go on the pilgrimages were the wealthy members of towns and the aristocracy. The imprints of badges that survived on bells significantly raised the number of visited shrines.

The reliefs that have remained to us on bells and baptismal fonts, although examined as embellishments used on medieval bronze casts, had a much deeper meaning in their original form. Worn as ornaments made by gold and silversmiths they emphasised their wearer's personality and social status, but they were also an indication of the individual faith of medieval man. They bore testimony to whatever distant shrine people had visited or to which religious group they belonged. In addition, they demonstrated the private religion which manifested itself in the possession of rosaries embellished with medallions and crosses as well as – primarily among the wealthier classes of urban dwellers – icons, or statuettes, home altars and reliquaries. Their well-known themes of their depiction is identical to the imagery satisfying the basic requirements of late medieval religion.

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The preparation and production of the book was made possible by the support of the Hungarian Ministry for Cultural Heritage, the Hungarian Academy of Science, the National Scientific Research Foundation Programs (OTKA) and the Düsseldorf Gerda Henkel Stiftung.