

# **Weather and Weather-Related Natural Hazards in Medieval Hungary II: Documentary Evidence on the 13<sup>th</sup> Century**

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## **Introduction**

This paper is the second part of the series on weather events and weather-related phenomena in medieval Hungary.<sup>1</sup> As noted in the title, not only direct weather references but also any information that might have been a consequence of specific weather conditions (e.g., fire, hunger) are discussed here. Due to the fact that flood-related information will soon be published elsewhere,<sup>2</sup> in the present study floods are included only in those cases where weather-related conditions can also be detected. After the scarcity of source evidence for the 11<sup>th</sup>-12<sup>th</sup> centuries, the 13<sup>th</sup> century shows a transitional picture: despite the increasing number of reports, the 13<sup>th</sup>-century evidence is still rather patchy compared to the relative abundance of source material available from the first decades of the 14<sup>th</sup> century onwards.

The majority of documentary evidence analysed here, similar to the 11<sup>th</sup>-12<sup>th</sup> centuries, is out of foreign narratives: mainly from the German territories and partly from the Czech and Polish areas. In addition, Russian narratives sometimes also contain references on weather events that occurred in Hungary. Compared to the earlier centuries, contemporary domestic source evidence plays a more pronounced role: important new (and unique) elements are, for example, the weather events described in the canonisation protocols of Princess Margit as well as an early example of a charter reporting on snowy winter conditions.

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<sup>1</sup> See the first part in “Weather and Weather-Related Natural Hazards in Medieval Hungary I: Documentary Evidence on the 11<sup>th</sup> and 12<sup>th</sup> Centuries,” *Medium Aevum Quotidianum* 66 (2013): 5-37.

<sup>2</sup> Andrea Kiss, *Floods and long-term water-level changes in medieval Hungary* (Heidelberg-New York: Springer, 2015, in prep).

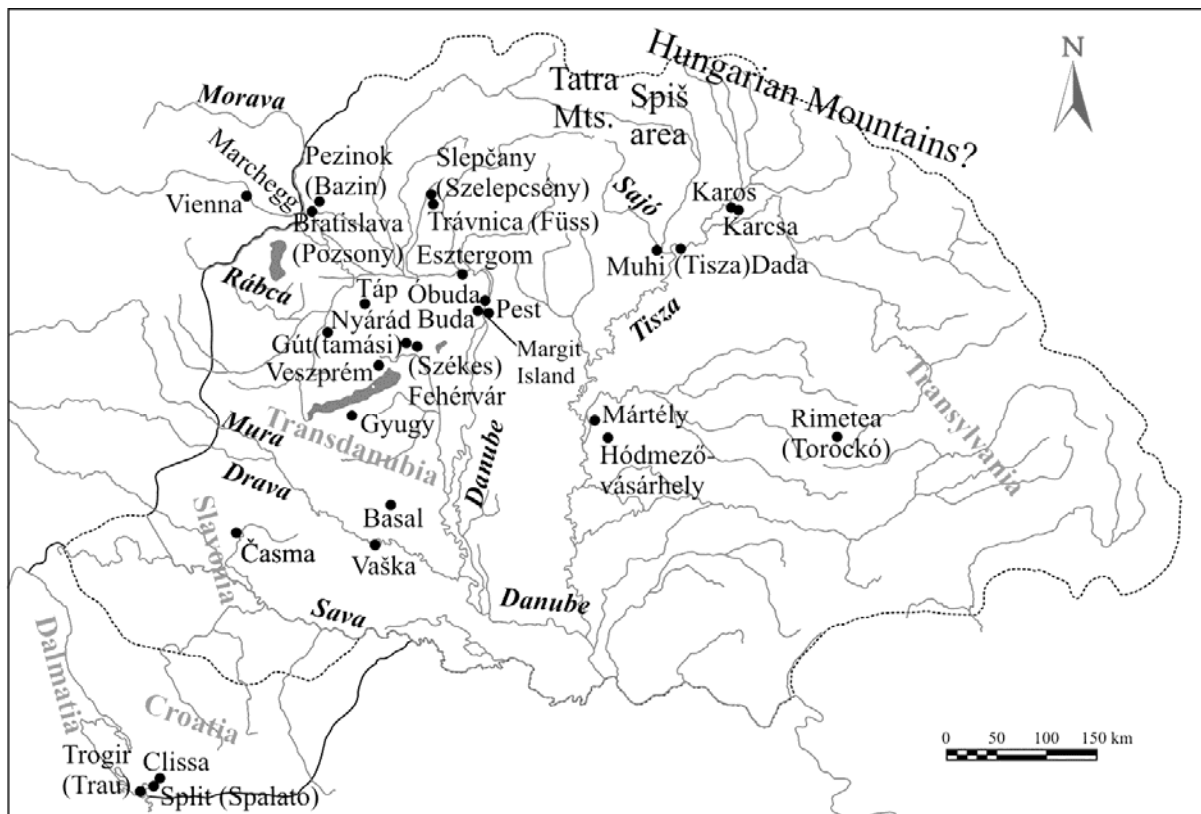


Fig. 1: Locations in high medieval Hungary, mentioned in the present paper

As for the temporal and spatial distribution of source evidence, the majority of the available sources refer to the period from the 1240s onwards, whereas only a few sources are available concerning the weather in the first decades of the century. Most of the contemporary sources are available for the early 1240s, the 1260s and the mid-1280s. While the latter are largely (domestic and foreign) narratives and charters related to the Mongol invasions, weather evidence concerning the 1260s predominantly originates from the canonisation protocols of Princess (Saint) Margit containing testimonies of contemporary eye-witnesses. The weather events and weather-related phenomena reported have an uneven distribution within the country: most of the evidence refers to the central and western parts of the country, while only a small amount of information is available for the northern, notheastern and eastern parts.

### **Late medieval evidence concerning the 1210s: Was there a famine in 1217?**

The arrival of a comet and a great famine were documented in the Bavarian *Annales Sancti Stephani Frisingenses* in the year 1217. Although some parts of the texts could be contemporary, it is a problematic source, written by many different persons and restructured in the 14<sup>th</sup> century.<sup>3</sup> This information

<sup>3</sup> *Monumenta Germaniae Historica, Scriptores*, vol. 13 (Hannover: Hahn, 1881) (hereafter MGH SS 13), 56 (*Annales S. Stephani Frisingenses*): 1217. *Stella comes visa est. Fames valida per totam Bawariam et Austriam et Marchiam et Ungariam. Rex Ungarie, dux*

was also again taken over by a later author: it appears in the *Chronicon Baioariorum*, a late fifteenth-century compilation written by *Vitus Arnpeckhius* referring to Bavaria, Moravia, Austria and Hungary.<sup>4</sup> Taking all the uncertainties into consideration, if we give some credit to the above-mentioned evidence, then it seems that a famine would have occurred in the country probably in the same year when the Hungarian king led a military campaign to the Holy Land. However, it should again be mentioned that this data comes from sources compiled in the 14<sup>th</sup> and 15<sup>th</sup> centuries, and no contemporary evidence is available to confirm the reliability of this information.

## Evidence from the 1220s<sup>5</sup>

### *Esztergom and (Ó)Buda burnt down in 1223*

According to the *Chronica Albrici Monachi Trium Fontium*, in 1223 fire destroyed *Strigonium* and *Boduaria*. No further information is available on the reasons (or the season) of these fires.<sup>6</sup> As for the two locations, the first one is rather clear in referring to the town of Esztergom. The localisation of the second place name is a bit more complicated: although Budavár (Buda castle) would offer an easy solution, Buda castle was built up after the first Mongol invasion and thus did not exist in the 1220s. However, the town centre of Buda (what is called Óbuda today) was mainly built up in the early 13<sup>th</sup> century, together with its new royal castle:<sup>7</sup> this could be a possible location for the above-mentioned

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*Austrie et multi alii principes ex omni Romano imperio Ierosolimitanum iter arriunt, insuper ex aliis regnis, ex Anglia, Hispania, Dania reges et principes et innumerabilis multitudo crucem acceperunt.*

<sup>4</sup> Georg Leidinger (ed.), *Veit Arnpeck, Sämtliche Chroniken, Quellen und Erörterungen zur Bayerischen und Deutschen Geschichte, Neue Folge*, vol. 3 (Munich: M. Rieger'sche Universitäts-Buchhandlung, 1915), 222: *Anno Christi 1217 cometa visus est et fames valida per totam Bavariam, Austriam, Moraviam et Hungariam invaluit.*

<sup>5</sup> The cattle plague (in 1222-1226; later combined with human disease in the West) that passed through Hungary from the Byzantine Empire towards Central and Western Europe is not included here due to its doubtful connection with the weather conditions of the Carpathian Basin. For its sources and duration see, for example, Tamás Körmendi, “Az Imre, III. László és II. András magyar királyok uralkodására vonatkozó nyugati elbeszélő források kritikája” (Critical evaluation of western narratives in the periods of the Kings Imre, László III and András II), Diss. (Budapest: Eötvös Loránd University, 2008), 11-12, 129. Available online: <http://doktori.btk.elte.hu/hist/kormendi/diss.pdf> (last accessed November 30, 2014).

<sup>6</sup> *Monumenta Germaniae Historica. Scriptores*, vol. 23 (Hannover: Hahn, 1874) (hereafter *MGH SS* 23), 913 (*Chronica Albrici Monachi Trium Fontium*): *A. 1223 In Hungaria ignis casualis Strigonium et Boduariam devastavit.* See also: Körmendi, “Az Imre,” 8.

<sup>7</sup> See, for instance, Gyula Kristó (chief ed.), *Korai magyar történeti lexikon* (Lexicon of early Hungarian history) (Budapest: Akadémiai Kiadó, 1994), 130. See also: László Gerevich (chief ed.), *Budapest története*, vol. 1 (History of Budapest) (Budapest: Akadémiai Kiadó, 1973), 280.

*Bodvaria* (see fig. 1).

### *The effects of rain on the military campaign of Prince Béla through the Carpathians in 1229*

Although the southern group of Russian chronicles – especially concerning military campaigns – sometimes mention the physical conditions of rivers or other circumstances obstructing armies, the authors usually concentrated on areas over the Carpathians, and only in exceptional cases did these narratives mention events that occurred in Hungary (or along the borders). In the *Halič-Volodimer annals*, however, an event is reported that occurred in the ‘Hungarian Mountains:’ in 1229 Prince Béla (in the source he is called “king”) started a military campaign to Halič; during this campaign the army crossed the ‘Hungarian Mountains’ (Carpathians; for a probable location, see fig. 1) where – due to the great rainfall (downpour) – their horses drowned and the army had to escape to a higher place.<sup>8</sup> The exact date of the event, which occurred in 1229, is unknown. Nevertheless, in the *Halič-Volodimer annals* it is also reported that at the beginning of the same year “Prince” András (in fact he was the king at that time) had a battle on the ice of the Dnjester at Halič and then he returned to Hungary. The above-mentioned military campaign of Prince Béla took place after this event, but still in the same year of 1229.<sup>9</sup>

### **Evidence from the 1230s: Incessant rains in Austria and Hungary caused floods in 1235**

The great Danube flood in 1235, described by contemporary authors, was caused by incessant rains:<sup>10</sup> according to the *Continuatio Sancti Crispini*, con-

<sup>8</sup> Antal Hodinka, *Az orosz évkönyvek magyar vonatkozásai* (Hungarian references in Russian annals) (Budapest: Magyar Tudományos Akadémia, 1916), 366 (*Halič-Volodimer annals*): ... изииде же Была риксъ рекъмыи король Оугорьскыи в силы тяжъцы рекию емоу, яко не имать остатй градъ Галичь, ны кто избавляя и о роукоу моею. вшедьшоу же емоу во горы Оугорьскыи, посла на ны Бъ архангла Михаила отворити хляби нбйи. конем же потопающимъ и самымъ возбигающимъ на высокая мыста, ономоу же одико оустремисихся прияти гра и землю, ...

<sup>9</sup> Gyula Kristó, *Az Árpád-kor háborúi* (Wars of the Arpadian Period) (Budapest: Zrínyi Kiadó, 1986), 108-09.

<sup>10</sup> Christian Rohr, *Extreme Naturereignisse im Ostalpenraum. Naturerfahrung im Spätmittelalter und am Beginn der Neuzeit* (Cologne: Böhlau, 2007), 219-20; Körmendi, “Az Imre,” 10; Andrea Kiss, “Dunai árvizek Magyarországon a középkori írott források tükrében: 1000-1500. Esettanulmányok, forráskritika és elemzési problémák” (Danube floods in Hungary in medieval documentary evidence: 1000-1500. Case studies, source critics and analysis problems), in *Középkortörténeti tanulmányok 7* (Research in medieval studies 7), ed. P.A. Kiss, F. Piti and Gy. Szabados (Szeged: Középkorász Műhely, 2012), 341 and passim. It has to be noted that in Austria there was a destructive (ice jam) flood in the previous year, in 1234, too: for sources and analysis, see Rohr, *Extreme Naturereignisse*, 219. This flood most probably also reached Hungary, but – similar to the other Danube

tinuous rainfall lasted for three days and nights, and this occurred both in Austria and Hungary.<sup>11</sup> Referred to the year 1236 (together with the death of András I, who died in 1235), the same flood is mentioned by the non-contemporary *Anonymi Chronicon Austriacarum*<sup>12</sup> and the *Anonymus Zwetlensis*.<sup>13</sup>

Although the season of the incessant rains and that of the flood event is unknown, based on these brief descriptions it seems that the rains and the flood event occurred in the summer half-year (or in the summer itself), and – similar to the floods of 1899, 2002 or 2013<sup>14</sup> – might have been connected with an atmospheric blocking event with a frontal line over the (northern) alpine and (western) Carpathian area.<sup>15</sup> Due to the fact that the spatial extension of Austria was at that time geographically more restricted to the eastern half of its present-day territories, the heavy rainfall, mentioned in 1235, probably occurred more to the east compared to, for example, the 1899, 1954, 2002 and 2013 events: in the high-medieval case the eastern part of the northern alpine catchment, and the area of the West-Carpathians would have been primarily affected.

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flood reported for Austria in 1210 (see Rohr, *Extreme Naturereignisse*, 218) – no source is available that refers to this event.

<sup>11</sup> *Monumenta Germaniae Historica. Scriptores*, vol. 9 (Hannover: Hahn, 1851) (hereafter MGH SS 9), 638 (*Continuatio Sancti Crucensis II*): *A. 1235 ... Interea rex Bohemie et altera parte Danubii vastavit Austriam rapina et incendio usque Stadelowe, ubi dum moraretur, tanta inundatio pluvie erupit, fere per tres dies et noctes per Austriam et Ungariam, quod ante per multos annos non est visum vel auditum. Item Danubius ex habundantia aquarum terminos suos excedens, agros, villas, segetes vastans, homines quoque, qui in insulas confugerant, cum iumentalis suis et aliis rebus extinxit. Andreas rex Ungarie obiit.*

<sup>12</sup> With exactly the same text, referred under the year 1236, see Hieronymus Pez, *Scriptores rerum Austriacarum veteres ac genuini*, 2 vols. (Leipzig 1721-1725) (hereafter SRA), vol. 2, 240 (*Anonymi Chronicon Austriacarum*). See also Rudolf Brázdil and Oldřich Kotyza, *History of Weather and Climate in the Czech Lands I (Period 1000-1500)*, Zürcher Geographische Schriften 62 (Zurich: ETH, 1995), 102; Rohr, *Extreme Naturereignisse*, 219-20.

<sup>13</sup> SRA 1, 979 (*Anonymus Zwetlensis*): *A. 1236 Tanto inundatio pluviae erupit fere per tres dies et noctes per Austriam et Ungariam, quod antea per multos annos non est visum vel auditum. Item eodem anno rex Ungariae obiit.*

<sup>14</sup> For a comparative, hydrometeorological analysis of these major flood events see G. Blöschl, Th. Nester, J. Komma, J. Parajka and R.A.P. Perdigão, “The June 2013 flood in the Upper Danube basin, and comparisons with the 2002, 1954 and 1899 floods,” *Hydrology and Earth System Sciences* 17 (2013): 5197-212.

<sup>15</sup> For such blocking events in the Carpathian Basin and their background conditions see, for example, György Gyuró and Tamás Tóth, “Blokkoló anticiklonok szerepe nagy csapadékmennyiséggel járó időjárási helyzetek kialakulásában” (The significance of blocking anticyclones in the development of weather situations with great precipitation event), *Léghör* 53/3 (2008): 14-18.

## Evidence from the 1240s

### *Weather circumstances of late winter and early spring of 1241: the swift Mongol attack*<sup>16</sup>

The first or great Mongol invasion in Hungary commenced in March 1241. The Mongols came through the passes of the Carpathian Mountains rather quickly from early March onwards; Batu, the older prince, was already in Pest around mid-March.<sup>17</sup> This fact suggests that neither Batu nor Caydan (the younger prince, cousin of Batu) – using different passes while crossing the mountains to enter Hungary – had to face any major difficulties caused by unfavourable weather conditions. These circumstances may indirectly suggest dry conditions (either cold or mild) in the eastern sections of the Carpathians. As for a possible parallel, R. Glaser mentioned in his analysis concerning the German territories that the end of the winter in 1241 was very cold.<sup>18</sup> Thus, the cold character of late winter–early spring time might also have helped the Mongols in crossing the Carpathians.

Related to the rest of the spring, one contemporary source, *Rogierius*<sup>19</sup> (in the *Carmen miserabile*) reported on the heat in the Hungarian camp during the

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<sup>16</sup> For previous, more detailed discussions on the weather events and related environmental hazards of the first Mongol invasion in Hungary, see Andrea Kiss, “Weather events during the first Tatar invasion in Hungary (1241-42),” *Acta Geographica Universitatis Szegediensis* 37 (2000): 149-56; eadem, “Ecce, in hyemis nivis et glaciei habundantia supervenit – Időjárás, környezeti krízis és a tatárjárás” (Weather, environmental crisis and the Mongol invasion), in *Tatárjárás* (The Mongol invasion), ed. Balazs Nagy (Budapest: Osiris, 2003), 439-52.

<sup>17</sup> Circumstances (and related sources) were discussed by Lajos Négyesi, “A muhi csata” (The battle at Muhi), in *Tatárjárás*, ed. Nagy, 394-405;

<sup>18</sup> Rüdiger Glaser, *Klimageschichte Mitteleuropas: 1200 Jahre Wetter, Klima, Katastrophen* (Darmstadt: Primus Verlag, 2008), 75.

<sup>19</sup> The cleric of Italian origin was archdeacon of (Nagy)Várad (today Oradea in Romania) at that time, and later became the archbishop of Spalato (today Split in Croatia). He wrote the *Carmen miserabile* around 1243, based on his own experiences. For more information on the author and the manuscript see, for example, Tibor Almási, “The Carmen Miserabile: The transmission of the text and its problems,” *Chronica* 3 (2003): 51-57; idem, “Megjegyzések Rogerius magyarországi méltóságviseléséhez” (Comments on Rogerius’ hierarchic position in Hungary), *Acta Historica Universitatis Szegediensis* 86 (1988): 9-14. His letter, under the title ‘*Rogerii miserabile carmen super destructione Hungariae*’ was also published in *Monumenta Germaniae Historica, Scriptores*, vol. 29 (Hannover: Hahn, 1892) (hereafter *MGH SS* 29), 547-67. Thomas Spalatensis, his later successor in the seat of the archbishopric of Spalato, presumably as well may have had information about those years from Rogerius and from reports of others and their accounts. Thomas himself mentioned the great number of refugees who arrived from Hungary and were put up in the houses of Spalato (including the royal family for a while) during the invasion (*MGH SS* 29, 593). Thus, while Rogerius’ letter is a personal and subjective description ‘on the spot,’ written just after the ‘disaster,’ by the time Thomas wrote his work the information ‘settled,’ and was interpreted more, also from the viewpoint of the clergy in Spalato.

battle of Muhi at the Sajó river, on 11 (GC: 18<sup>20</sup>) April 1241.<sup>21</sup> No other information is available concerning this event; hence it would be difficult to draw any conclusions concerning the weather conditions around that time. An interesting piece of information on the environmental conditions is that, apart from the existing bridge located near the Hungarian camp, Mongols built a bridge over the Sajó River at its lower sections where it would have been impossible to find a ford for safely crossing at that time. Moreover, another part of the Mongol army crossed the Sajó at a ford on the upper river sections where the river was still narrow.<sup>22</sup>

### *The hard (and long) winter of 1242*

No information is known about the summer and autumn weather of 1241 in Hungary. However, it is known that a full solar eclipse occurred on 6 October 1241: an omen of a forthcoming disaster.<sup>23</sup> Even if we have no direct weather-related evidence concerning the Carpathian Basin, perhaps not just the early-mid winter but also the late autumn was colder than expected. For example, the king of Bohemia attacked Austria, but due to the extreme cold he returned home.<sup>24</sup>

During this winter, it seems that even the weather conditions were on the side of the Mongols. As an important contemporary eye-witness (Rogerius)

<sup>20</sup> Dates in this paper are provided according to the dating of the sources in Julian calendar. In specific cases dates in the Gregorian calendar ('GC' for short) are also provided in brackets (in the 13<sup>th</sup> century this means a seven-day difference between the two calendars).

<sup>21</sup> Imre Szentpétery, *Scriptores rerum Hungaricarum. Tempore ducum regumque stirpis Arpadianae gestarum*, 2 vols, new ed. (Budapest: Nap Kiadó, 1999) (hereafter *SRH*), vol. 2, 570 (*Carmen miserabile*): *Et, si mixtim ex quacunque parte ibant Hungari ad pugnam, illi eis cum sagittis obviam venientes ipsos infra exercitum retrocedere faciebant ita, quod ipsi ex calore nimio et angustia maxima ad tantam lascitudinem venerant, quod rex et Colocensis archiepiscopus, qui anxii formidabant, nec minis neque adulationibus ac monitionibus iam ad pugnam poterant aliquos destinare ab aurora usque ad meridiem in tali angustia existentes.*

<sup>22</sup> For the circumstances of the battle, including a detailed analysis of how the Mongols crossed the river, see Négyesi, "A muhi csata," 394-405. This also means that the fords were unpassable only at the lower (and middle) sections of the river, but Mongols could find place(s) for crossing the river at its upper sections. See also: Kiss, "Ecce," 442.

<sup>23</sup> For example *MGH SS* 29, 585 (*Thomas Spalatensis*): *Eo autem tempore, anno videlicet incarnationis millesimo 241. sexto die intrante Octubri, die dominica, iterum factus est solis deffectus, totusque aer obscuratus est, fuitque orror magnus in omnibus, velud in ea ecclesi, que facta est tercio anno precedente, ut supra tetigimus. Monumenta Germaniae Historica. Scriptores*, vol. 17 (Hannover: Hahn, 1861) (hereafter *MGH SS* 17), 344 (*Annales Scheftlariensis minores*): *A.D. 1241. sol obscuratus est in meridie, et nox facta est per longam horam, et stelle vise sunt. Item Sarraceni dicti Tartari, gens crudelis, exierunt potenti manu, et intrantes Ungariam et Austriam vastaverunt.*

<sup>24</sup> *MGH SS* 9, 639-40 (*Continuatio Sanctrucensis II*): *1241. Obscuratus est sol in quibusdam locis, et facte sunt tenebre, ita ut stelle viderentur in celo circa festum sancti Michaelis hora nona. .... Item rex manu valida intravit fines Austrie ad depopulandam terram; sed propter frigus et clamorem pauperum reversus est ad propria.*

emphasised, there was such a great abundance of snow and ice as had not happened for a long time.<sup>25</sup> Furthermore, Thomas of Spalato mentioned that, due to the unusually severe winter conditions in January, all the rivers froze over and became passable.<sup>26</sup> Apart from the fact that frozen rivers made crossing easier and quicker for the Mongols, another bad consequence of this great cold snap could be (in the areas east to the Danube) that swamps and lakes became frozen solid, and people whose only chance for survival on the Great Hungarian Plain was to escape to the swamps, became accessible through the frozen water surface. Furthermore, deep snow made it even more difficult to find food both for the animals and humans, while long-lasting severe frosts with weeks of low temperature (below 0 °C) greatly reduced their chances of survival.

*When the Danube froze over: deep frosts in (December and) January (1241-) 1242*

The most detailed information, however, is available on the conditions of the solidly frozen Danube. When and for how long did the Danube remain frozen? As for the massive freezing of the Danube we know that it had to have happened before the Mongols crossed the river, namely when the ice was already strong enough to hold a larger number of animals (and people). According to the letter written by Felix, the abbot of the Schottenstift in Vienna on 4 January 1242, the Danube would already have been frozen from Christmas (in Hungary), and hence the Mongols could have crossed the river and attacked territories outside of Hungary such as the Czech Lands and Austria.<sup>27</sup> In reality, however, the legion of Mongol troops attacking Moravia, Bohemia and Austria came from the direction of Poland through Silesia and Northwest-Hungary (today's Western Slovakia), without crossing the Danube.<sup>28</sup>

<sup>25</sup> SRH 2, 583 (*Carmen miserabile*): *Ecce, in hyeme nivis et glaciei habundanti supervenit ita, quod Danubius, quod non acciderat a multis retroactis temporibus, gelabatur. ... Tamen, cum dire glacies advenerunt, totum Danubium congelatum est, sed isti transire cum equis nullatenus attentabant.*

<sup>26</sup> MGH SS 29, 592 (*Thomas Spalatensis*): *Itaque transacto Ianuario hyemalis asperitas solito magis inorruit, omnisque aquarum cursus glaciali frigore constrictus liberam viam hostibus patefecit.*

<sup>27</sup> György Fejér, *Codex diplomaticus Hungariae ecclesiasticus et civilis*, 11 vols. (Buda: Typis Typogr. Regiae Universitatis Hungariae, 1829-1844) (hereafter Fejér CD), vol. 4/1, 235-37: *Deinde proficiscentes ad fines nobilis ducis Austrie, Styriae, Marchiae Taruisiae, Moraviae et Boemiae, in Natali Domini, Danubio congelato, cum magna fortitudine ad alteram partem fluminis transmearunt; praedictorum Principium terras vastando, Omnia-que feraliter per circuitum exterminando: nulli parcentes sexui, innarrabilia perpetrant imprudenter. ... Datum Viennae Anno gratiae MCCXLII. pridie nonas Ianuarii.*

<sup>28</sup> See, for example, Katalin Szende, "Magyarország külpolitikája 1242-1246 között" (The foreign politics of Hungary between 1242 and 1246), in *Tatárjárás*, ed Nagy, 553. For related further literature with some interesting comments: John Joseph Saunders, *The history of the Mongol conquests* (London: Routledge & Kegan Paul Ltd., 1971), 87; Peter Jackson, *The Mongols and the West, 1221-1410* (Harlow: Pearson Education Ltd., 2005), 64.



Contemporary Hungarian sources, right ‘from the frontline’ tell a somewhat different story: other important information appears in two letters asking for help, written by Hungarians to the pope. The letter of Béla IV, king of Hungary, contains probably the most significant information: on 19 (GC: 26) January the king, at that time staying in Slavonia (letter written near Časma), reported on the fact that Mongols had not yet crossed the river.<sup>29</sup> Another letter, written two weeks later on 2 (GC: 9) February by Hungarians (clergymen), gave a description on the fact that Mongols had already crossed the frozen Danube and commenced the invasion in the northwestern parts of Transdanubia (see fig. 1). It is presumed that some time between these two dates Mongols crossed over the solidly frozen Danube, the first time perhaps near (Ó)Buda (*portus Danubii*).<sup>30</sup> Since the king was some distance away from the Danube, news took a couple of days to reach him. Clergymen in Transdanubia mentioned only the devastation that occurred on the east side of the Danube, and stated that Mongols had crossed the Danube (no news on the destruction of Transdanubia).

Furthermore, some other circumstances have to be taken into account while trying to determine the most probable time of the massive freeze-over. For example, some days before the Mongols crossed the river, the Hungarians had individual skirmishes with the Mongols on the ice every day. Although the ice cover of the river was probably already quite thick in some places days before the Mongols’ crossing, Hungarians frequently (and successfully) broke up the ice in order to make crossing impossible.<sup>31</sup> According to the same contemporary narrative (Rogerius), due to constant guarding and ice-breaking, Mongols could not be sure whether or not safe crossing was possible, and therefore they sent a large number of horses (and other animals) who then were wandering around over the ice, and when Hungarian soldiers drove them over to the other side, the Mongols were able to discover the safe way of crossing.<sup>32</sup>

<sup>29</sup> See, for example, Imre Szentpétery, *Az Árpád-házi királyok okleveleinek kritikai jegyzéke / Regesta regum stirpis Arpadianae critico-diplomatica*, vol. 1 (Budapest: Akadémiai Kiadó, 1923), 214. See also György Györffy, “Újabb adatok a tatárjárás történetéhez” (New data to the history of the Mongol invasion), *Történelmi Szemle* 33 (1991): 84-88; and Nagy (ed.), *Tatárjárás*, 177-78.

<sup>30</sup> *Congellato tandem Danubio transeundi ad nos liber eis aditus ubique patuit et facultas; denique transeuntes discurrunt per provincias pleni iniqua cogitatione, malitie sue complere propositum cupientes*. In: Fedor Schneider, “Ein Schreiben der Ungarn an die Kurie aus der letzten Zeit des Tatareneinfalles (2. Februar 1242),” *Mitteilungen des Instituts für Österreichische Geschichtsforschung* 36 (1915): 661-70. See also: Györffy, “Újabb adatok,” 87.

<sup>31</sup> *SRH* 2, 583 (*Carmen miserabile*): *Sed Hungari ex ipsorum parte singulis diebus frangebant glacies et custodiebant Danubium ita, quod assidue fiebat pugna peditum super gelu*. See also: Attila Zsoldos, “A királyi várszervezet és a tatárjárás” (The royal castle system and the Mongol invasion), in *Tatárjárás*, ed. Nagy, 531.

<sup>32</sup> *SRH* 2, 584 (*Carmen miserabile*): *Tunc Hungari credentes Tartaros recessisse, subito transierunt et omnia illa animalia per glacies transduxerunt. Quod Tartari advertentes cogitarunt posse in equis transire libere super gelu*.

How could we utilise and conclude all this partially contradictory information from a weather-reconstruction point of view? Based on the knowledge gained from the Viennese abbot, Mongols would have already crossed the frozen Danube around Christmas time. According to the Hungarian letters, this crossing took place some time between 19 January and 2 February. In both cases, crossing required the firm ice cover of the Danube at the crossing place. This firm ice cover, however, could have developed – without the ‘intervention’ of the Hungarian soldiers – at least a couple of days earlier. Although the crossing took place in late January and thus the Danube surely had firm ice cover by this time (but more likely several days before) in the Buda area, the information from Vienna was probably based on the local observations of the abbot: possibly the Danube had already frozen over in the Vienna area before Christmas.

The Viennese information, if we can give some credit to the abbot's letter, would suggest long-lasting frosts for December. The evidence concerning Central Hungary indicates (as Thomas of Spalato also notes) weeks of hard frosts in January, or even from December in Hungary and probably also on the upper Danube sections. While we can provide a relatively well-defined timing of the massive freeze-over of the Danube in Central Hungary, little is known about when the ice broke up. Nevertheless, data is available about the end (or a mild interruption) of the long-lasting frosts: this case is described in the next section.

### *End of deep frost: thaw in February 1242 – the Mongol invasion of Transdanubia*

As described in a letter written of 2 February to the pope, by that time the Mongols had crossed the Danube over the ice and attacked (Ó)Buda and Esztergom – and probably soon after 2 February the coronation town of (Székes)Fehérvár.<sup>33</sup> In Fehérvár, the Mongols completely destroyed the sub-urban areas (the *civitas Latinorum*) located on the plain practically without significant protection against intruders. However, they could not even approach the fortified downtown located on an island, in the swamps (*paludes*) of the Sárret. According to the contemporary narratives, due to rapid melting, the swamps around the island became impassable and, thus, Mongols could not harm the ‘historical’ inner city.<sup>34</sup> Based on this information, the end of the

<sup>33</sup> MGH SS 29, 592 (Thomas Spalatensis): *Primo ergo concremata Budalia, Strigonium accessit, ... Inde descendens, recto cursu devenit ad urbem Albensem....* For the detailed description of the sieges of Esztergom and Székesfehérvár see SRH 2, 582-588 (*Carmen miserabile*).

<sup>34</sup> SRH 2, 585 (*Carmen miserabile*): *Et, cum ad Albam Regiam civitatem accederent, que est paludibus circumsepta, cum esset in dissolutione nivis et glaciei, nequiverunt eam occupare.* MGH SS 29, 592 (Thomas Spalatensis): *Inde discedens, recto cursu devenit ad urbem Albensem et continuo cuncta suburbane habitacionis domicilia concremavit, civitatem vero aliquot diebus obsessam factis insultibus invadere satagebat; sed quia locus circumfusa*

freezing period (or a mild interruption of hard winter conditions) occurred some time in early(-mid) February. As we will see later on, even though there is no direct information available until spring, the winter had not yet ended with this important period of melting, and winter weather conditions might have also prevailed in early spring.

### *Frosty (early) March 1242 in Croatia*

After crossing the Danube, one of the primary aims of the Mongols was to capture the king of Hungary who – together with his family (including the queen pregnant with the later Princess Margit) – quickly escaped to Dalmatia: first to Spalato (today Split in Croatia) and then to the island-town called Trau (today Trogir in Croatia; see fig. 1). Caydan, the younger prince of the Mongols, got the noble task of catching the king. Thomas of Spalato provides us with a vivid description of Caydan's trip and stay in Dalmatia: the younger prince of the Mongols led his troops through Transdanubia, Slavonia and Croatia, all the way to the Dalmatian coast. Thinking that the king and his family were staying there, Caydan with a part of his army came to the town of Spalato, then turned against Clissa, and finally (unsuccessfully) besieged Trau. And since the beginning of March there was severe cold (*erat enim principium Marcii asperis frigoribus inhorescens*) along the Dalmatian coastline in the Spalato(-Trau) area in 1242, and there was insufficient green vegetation for their horses, Caydan with his Mongol warriors gave up chasing the king, and left Dalmatia (towards Bosnia).<sup>35</sup>

### *The Great Famine in (1241-)1243: main causes and weather conditions*

#### The Great Famine: literary tradition and dating

Contemporary narratives as well as the medieval source tradition kept the

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*palustrium aquarum copia satis erat munitus, quem optima Latinorum presidia erectis undique machinis tuebantur, dux impius, vano frustratus labore, discessit.*

The thaw is mentioned only by Rogerius. The other source, Thomas of Spalato, mentioned that the swamp around the island played a significant role in the defence. As the swamp could only have protected the island if it was impassable (so not deeply frozen), this description indirectly supports Rogerius' report. It should also be mentioned that in the 18<sup>th</sup> century the most devastating ice jam floods (e.g., the one in 1712, 1732, 1775, 1789 and 1799) often occurred in the second – third week of February or at the latest in early March (see, for instance, Kiss, "Suburbia").

<sup>35</sup> MGH SS 29, 594 (*Thomas Spalatensis*): *Spalatenses autem ceperunt fabricare machinas et eas per oportuna erigere loca. Ecce autem, paucis diebus elapsis venit Caydanus cum aliquanta parte sui exercitus, quia non erant erbe pro toto equitatu sufficientes; erat enim principium Marcii asperis frigoribus inhorescens.* It has to be also mentioned that, according to Rogerius, Ugrin (archbishop of Kalocsa) was driven into the swamps around Pest on 17 March: this information indirectly suggests that the swamps in that area were not (heavily) frozen by that time. See *SRH* 2, 565.

memory of the Great Famine as a side effect of the Mongol invasion. As (amongst others) Thomas of Spalato and the *Continuatio Sancrucensis* also said, the famine was so severe that – after all the miseries – one had to expect a great depopulation of extensive areas.<sup>36</sup> According to Thomas of Spalato and other contemporary domestic sources,<sup>37</sup> as well as to the written tradition preserved in the 14<sup>th</sup>-century chronicle composition and the *Continuatio Sancrucensis*, probably even more people died during the three years of hunger than those killed directly by the people called the Mongols or Tatars.<sup>38</sup> Several sources suggest that cannibalism also occurred around that time.<sup>39</sup> Furthermore, a large group of 14<sup>th</sup>- and 15<sup>th</sup>-century narratives included information based on the

<sup>36</sup> MGH SS 9, 640 (*Continuatio Sancrucensis* II): 1243. ....*In quindecim dietis in longitudine et latitudine homo non inveniebatur in regno illo; a nativitate Christi non est tanta plaga et miseria vise et audita in aliquo regno, sicut in Ungaria propter peccata eorum. In plaga et post plagam tales erant quales ante fuerunt.* This opinion also appears in the domestic charter testimony; see, e.g., 1248 (issued by the king): Fejér CD 4/2, 455. Depopulation was the most severe in the eastern and central, lowland areas of the country, where in some cases 40-50% of the settlements remained deserted after the invasion. On the different opinions see, for example, György Györffy, “Magyarország népessége a tatárjárástól a XIV. század közepéig” (The population of Hungary from the Mongol invasion to the mid-14<sup>th</sup> century), in *Tatárjárás*, ed. Nagy, 487-92; István Szabó, “A tatárjárás okozta veszteségekről” (Losses caused by the Mongol invasion), in *ibidem*, 493-97; Gyula Kristó, “A tatárjárás korának demográfiai viszonyai” (Demographic conditions of the Mongol invasion), in *ibidem*, 499-504.

<sup>37</sup> MGH SS 29, 595: *Licet autem barbarica rabies totum regnum Hungaricum immoderato gladio attrivisset, e vestigio tamen famis subsecuta pernicies miserabilem plebem tabo inedia devastavit. Instante namque furore Tartarico non licuit colonis miseris arvis semina tradere, non valere preterite messonis recoligere fruges; sic ergo, non exstantibus alimentorum subsidiis, cadebant infelicium corpora clade famis absorta. lacebant per campos, per vias innumera vulgi cadavera, ut non minus credatur hec acerba lues inedia gentem Hungaricam devastasse quam pestilens immanitas Tartarorum.* For an analysis of Thomas of Spalato's view: James R. Sweeney, “Thomas of Spalato and the Mongols: A thirteenth-century Dalmatian view of Mongol customs,” *Florilegium* 4 (1982): 156-83.

<sup>38</sup> MGH SS 9, 640 (*Continuatio Sancrucensis* II): 1243. .... *Interea fames horribilis et inaudita invasit terram Ungarie, et plures perierunt fame quam antea a paganis.* See also: SRH 1, 467-68 (*Chronici Hungarici compositio saeculi XIV*): (S) *Tempore autem istius Bele regis anno Domini millesimo CCXL primo Mangali sive (S+V) Tartari cum quinquies centenis millibus armatorum regnum Hungarie invaserunt. ... Manserunt enim ipsi Tartari in regno Hungarie tribus annis. Et quia seminare illius temporis non poterunt Hungari, ideo multo plures post exitum illorum fame perierunt, quam illi, qui in captivitate ducti sunt et gladio ceciderunt.*

<sup>39</sup> On the one hand, neither Rogerius nor Thomas of Spalato or the 14<sup>th</sup>-century chronicle composition mentioned cannibalism in their descriptions. On the other hand, other contemporary domestic sources such as the poem about the Mongol invasion and the great famine (*Plantus destructionis regni Hungariae per Tartaros*; see SRH 2, 597) indeed mentioned cannibalism. Moreover, foreign narratives such as *Guillelmus de Nangiaco* or *Martinus Oppaviensis* (see Nagy (ed.), *Tatárjárás*, 47-48), and following the latter text even the *Georgenberger Chronik* (SRH 2, 282) reported on people eating the flesh of human corpses.

14<sup>th</sup>-century chronicle composition and the *Continuatio Sancrucensis*, while referring to the Great Famine.<sup>40</sup> As for the main causes, both contemporary and later narratives referred to the uncertain situation (fearing the Mongols). Even when the Mongols had left in 1242 (mid-, late spring), there was no food (and probably no seed to sow or animals to do the ploughing). In most areas sowing was not done in 1242 and hence the situation grew worse by 1243.<sup>41</sup>

The king himself only crossed the Danube in August 1242: according to Rogerius, for example, up to this time people did not dare leave the places of refuge and could not start any normal life in the central and eastern parts of the country, east to the Danube.<sup>42</sup> Moreover, it seems that even in 1243 there were basic security problems in the country: for example, a magnate with his troops was sent by the king to the areas ‘over (east to) the Tisza’ against criminals and robbers who still ruled there.<sup>43</sup> And even if Mongols only ‘ran through’ the areas west to the Danube, and both Caydan and Batu had left Hungary by spring 1242, based on charters and the narrative tradition, it seems that the uncertainties strongly affected Transdanubia (and even Slavonia), and caused major difficulties in food supply in 1242 and 1243. All in all, the 15<sup>th</sup>-century Długosz gives a good ‘literary’ summary on the events:<sup>44</sup> the Mongols devastated the

<sup>40</sup> For example *SRH* 2, 42-43 (*Chronicon Poseniense*); *SRH* 2, 82 (*Chronicon Monacense*); *SRH* 2, 207 (*Chronicon Henrici de Müggeln*); “Iohannis de Vtino: Brevis narratio de regibvs Hvngariae,” in Ferenc Toldy (ed.), *Analecta monumentorum Hungariae historicorum literariorum maximum inedita*, vol. 1 (Pesthini: Typis exscriptis et venndat Gvstavvs Emich Acad. Hvng. typographus, 1862) (hereafter *AMH*), 75-86; or the well-informed, 15<sup>th</sup>-century Polish chronicler, Jan Długosz: I. Długossi, *Historiae Polonicae libri XII*, vol. 7 (Leipzig: sumptibus Ioannis Ludovici Gleditschii et Mauritii Georgii Weidmanni, 1711) (hereafter Długosz 7), 686 (*Historia Poloniae*). According to these reports, Mongols would have stayed in the country for three years (thus, also accounting with the famine period as part of the Mongol invasion); this latter remark also appears in other, more contemporary foreign sources such as Russian (Holič-Volodimer annals and the Moscow annals) and some western narratives (e.g., *Continuatio Sancrucensis*). See Antal Hodinka, *Az orosz évkönyvek magyar vonatkozásai* (Hungarian references in Russian annals) (Budapest: Magyar Tudományos Akadémia, 1916), 409: Holič-Volodimer annals, Ipatius manuscript; and Hodinka, *Az orosz*, 457: Moscow annals, Nikon-manuscript. See also: *Continuatio Sancrucensis* II, *MGH* SS 9, 641. Sources taking account of the information like *Anonymi Chronicon Austriacum*, in Adrian Rauch, *Rerum Austriacarum Scriptores*, vol. 2 (Vienna: apud Josephum Stahel, 1793), 245.

<sup>41</sup> For a detailed overview see, e. g., Lodomér Zichy, *A tatárjárás Magyarországon* (The Tatar invasion in Hungary) (Pécs: Dunántúl pécsi egyetemi könyvkiadó és nyomda R.-T., 1934), 104-109.

<sup>42</sup> *SRH* 2, 588.

<sup>43</sup> For more details see, e. g., Jenő Szűcs, “A tatárjárásról és következményeiről” (About the Mongol invasion and its consequences), in *Tatárjárás*, ed. Nagy, 516.

<sup>44</sup> Długosz 7, 692 (*Historia Poloniae*): *Bela Rex ab exploratoribus certior factus, Tartaros ex Hungaria decessisse, in Hungariam cum suis reuersus est. Sed cladem Tartaricam biennalem, mox fames horrida in annum tertium, famem vero luporum rabies cateruatim discurrentium, & obvios quosque etiam armatos & repugnantes inuadentium & deuorantium secuta. Qui cadauerum, quae Tartarica immanitas occiderat sollicitati illecebra,*

country for (almost) two years (when there was already want and hunger), and famine (with wolf attacks and cannibalism) occurred afterwards (and) in the third year; he (in good agreement with contemporary narratives) also referred to the great difficulties in ploughing and sowing due to the lack of domestic animals (and people).

### The Great Famine: spatial distribution

Many charters – issued by the Hungarian king in the next years and decades – refer to ‘the’ Great Famine in Hungary, and provide information on the possible spatial extension (as well as main causes) of the famine. A charter issued in 1255 gives testimony on a former land purchase concerning Szelep-csény (today Slepčany in Central Slovakia) near the town of Nitra (see fig. 1). In the time of the famine (*famis tempore*) lands had changed ownership and later this transaction was accepted and corroborated by the king.<sup>45</sup> In another charter from the same area and time (Füss: today Trávnica in Slovakia; 1255), a land purchase is mentioned that occurred “*post recessum Tatharorum, tempore famis.*”<sup>46</sup> Similar transactions that were later proven by the king, occurred during the famine after the Mongols had left the country, for example in 1254 (Gút in Fejér; Dad in Szabolcs; *Garabsa*, *Budilo*, Karos and Karacs in Zemplén counties – see fig. 1).<sup>47</sup> Important information is provided in the charter issued by the convent of Székesfehérvár Crusaders in 1264, referring back to the time of a transaction related to a landed possession in *Lyula* (Gyugy, Central Transdanubia): the famine times occurred shortly after the Mongols had left (“*paulo post recessum Thatharice gentis in famis tempore*”).<sup>48</sup> In 1258, the chapter of Győr, in a charter connected to the landed possession of *Tapan* (today Táp) located in northern Transdanubia, added the important detail that this famine was widespread in Hungary (“*quia tamen iidem homines eandem terram tempore famis, que in Hungaria generaliter acciderat*”).<sup>49</sup> Some legal debates around the transactions that had occurred during the famine in the time of the Mongol invasion like the lawsuit related to Nyárád (North-Central Transdanubia) were settled only decades later (“*quia tempore irruptionis Tartarorum Poka per pressuram ualide famis in magne inopie et miserie articulum*

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*esuriem suam cadaueribus non extantibus per viuos homines explebant. Sicque integro triennio Hungarorum regiones ferro, fame, & luporum rictu vehementissime attritae sunt, & in eam necessitatem adductae, vt bobus, equis, caeterisque pecoribus deficientibus, aratri iugo se homines subiicerent, & sic agriculturam exercerent.*

<sup>45</sup> 1255: Gusztáv Wenzel, *Árpád-kori új okmánytár / Codex Diplomaticus Arpadianus Continuatus*, 12 vols. (Pest: Magyar Tudományos Akadémia, 1860-1874) (hereafter *ÁUO*), vol. 9, 405-06.

<sup>46</sup> Fejér CD Vol. 4/2, 363.

<sup>47</sup> A. Ipolyi, I. Nagy and D. Véghely, *Hazai okmánytár / Codex diplomaticus patrius Hungaricus*, vol. 7 (Budapest: Kocsi Sándor, 1880), 43-45 (issued on 23 April in 1254).

<sup>48</sup> 1264: *ÁUO* 8, 119.

<sup>49</sup> 1258: *ÁUO* 2, 306-07.

*deuenerat*").<sup>50</sup> Perhaps the same famine ("*tunc temporis*") is mentioned in a 1279-charter, referring to *Cozolyn* in Slavonia, in the mountains near *Chasma* (today Časma in Croatia). In this case, however, they also talk about the infertile times caused by the uncertainties ("*quod cum famis inedia et periculo propter instantem temporis sterilitatem laboraret*").<sup>51</sup>

As we can see, concerning the spatial distribution of the famine, apart from the rather general country references in narrative sources, charters are able to supply more precise information. The landed possessions, mentioned in charters in relation to land purchases during the famine, are located both in the southern, central and northern parts of Transdanubia, but we also know of cases from Slavonia, from the north (today's central Slovakia), and from the north-eastern part of the Great Hungarian Plain. Together with the areas most devastated by the Mongols (most of the Great Hungarian Plain and large parts of Transylvania) from where no land purchase is known, we may conclude that the charter evidence on the local impact of the famine is available from all major regions of the country.<sup>52</sup>

The Great Famine: is any weather-related information available?

Besides the Mongols and related uncertainties, there could be other weather-related difficulties which might also have exacerbated the terrible situation then. As we saw earlier, an important weather-related problem was the hard winter of 1241-1242. In the areas east to the Danube, in addition to the absent harvests and food shortage, the long-lasting cold period and snowy winter probably severely affected the already threatened population who were starving far from their home.<sup>53</sup> Another important question is the access to animal

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<sup>50</sup> Referring to Nyárád (Naragh, Naraph) and 1292 (1260): *ÁUO* 12, 537-40.

<sup>51</sup> 1279: *ÁUO* 12, 264-65. Although 36 years after the Great Famine we cannot completely exclude the possibility of a later great famine, no other sources (or the political circumstances) suggest that there would have been another severe famine during the reign of Béla IV.

<sup>52</sup> In some cases transactions probably took place far from the actual lands: for example, an important buyer of lands (located in the Transdanubia and the northeast Great Hungarian Plain) was the duke of Slavonia - just in the way for those (in this case magnates) probably escaping from Hungary to the Dalmatian coast. Other, clearer cases are the ones where Transdanubian landed properties (Táp in the north, Gyugy in the south) were bought by Transdanubian people: in these cases there is more chance that, since both parties are from the same broader region, the great need described in the charter similarly referred to the their own region (and the place where they stayed during the famine). It is especially clear in the case of Nyárád in Veszprém county, where one neighbouring landowner gave money to the other being in great need "*per pressuram valida famis*"; similar cases occurred in the north, in Bars county (Szelepcsény and Füss) where neighbours and relatives helped out each other in the times of the famine. And probably the Slavonian case (near Časma) also belongs to this category: here similar transaction took place between local owners (the buyer was actually the church) during the infertility caused by the uncertain times.

<sup>53</sup> A parallel case is known, for example, from the Czech Lands where, during the severe and

products, and the survival of domestic animals in these troubled times: part of the livestock was driven away by the Mongols, or simply left to wander about (and die) on their own. Since during the winter of 1242 there was much ice, deep snow and severe frost, similar to people, the remaining domestic animals along with the wild animals in the occupied areas (east to the Danube) might have had great difficulty in finding food. Moreover, a cold early spring may have prolonged the winter period without green vegetation: this might have caused further difficulties for both people and animals. So, even if the onset of the famine can be attributed to the Mongol invasion, the hard and long winter would have certainly caused distress among the human and animal populations.

Another problem arose when – as for example the *Continuatio San-crucensis* remarks – even in those areas where people did sow, locusts (whose mass appearance is usually associated with dry conditions) ate the harvest.<sup>54</sup> Since the maturation of grain seeds takes place usually before the locusts can fly, the harvest among normal weather conditions can be damaged only around the nesting place of locusts, which is usually restricted to an area of a few square kilometres. In these troubled years locusts probably even had a better chance to spread than in normal circumstances. Moreover, further widespread damage in the grain harvest may occur when – due to a warm early spring – the breeding of locusts begins earlier.<sup>55</sup> As for further Hungarian weather evidence, there is not much information available directly related to the weather of spring and summer in 1241-1243 from there or the neighbouring areas. Neither is there anything available for the winter of 1242-1243.

The scientific literature in Central Europe is also mostly silent about the character of the weather in these years. The only weather-related evidence in the immediate neighbourhood is described for Austria (by the *Continuatio*

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snowy winter of 1281, due to war conditions masses of refugees spent the winter in the forest: a huge number of people were hunted down by the enemy and/or died in the frosty conditions. See Brázdil and Kotyza, *History of Weather*, 108.

<sup>54</sup> MGH SS 9, 641 (*Continuatio Sancti Crucensis* II): 1243. .... *Deinde locusta id quod seminatum erat corrosit.*

<sup>55</sup> It is worth pointing out that locust invasions would have had the biggest effect in those areas (i.e., Transylvania, Great Hungarian Plain especially in the south) which were already devastated and depopulated by the first Mongol invasion. Moreover, a larger scale locust invasion (affecting larger parts of the country) might have lasted for at least three years; if locusts were already in 1342 in Austria, then (presuming that they came through the Carpathian Basin) they had to be in Hungary in a larger number already in 1241. And if they had caused significant damage in 1343 in Hungary, then most probably they were still present (to some extent) in the country in the following year. For a short overview of historical locust invasions see Andrea Kiss, “A sáskajárások néhány területi és tájtörténeti vonatkozása a Kárpát-medencében” (Some regional and areal consequences of historical locust invasions in the Carpathian Basin), in *A táj változásai a Kárpát-medencében. Történeti emlékek a tájban* (Landscape changes in the Carpathian Basin. Historical monuments/memorial places in the landscape), ed. György Füleký (Gödöllő: Szent István Egyetem, 2012), 123-32.



*Sancrucensis*):<sup>56</sup> there were notable frosts in October 1242. Concerning the German territories (in the Mainz area), Glaser mentions prevailing dry conditions for the spring of 1242; the summer of 1241 was predominantly dry, and the summer of the following year (1242) was presumably also dry until July when rainy weather commenced.<sup>57</sup> Furthermore, it seems that the years before and after the invasion were vicissitudinous in the close neighbourhood: according to the *Continuatio Sancrucensis* – for a variety of reasons – in 1240 there were high prices (also of wine) and a famine in Vienna, while for 1244 the same source reported on drought, infertility and (domestic) fires in many towns, without mentioning actual locations.<sup>58</sup>

### *Invasion of wolves, foxes, eagles – 1241(-1243?)*

During the Mongol invasion and the great famine, frequent attacks of wolf-packs against humans are also described, and in some sources foxes and eagles are also reported. According to the *Annales Polonorum* (I) referring to the year of 1241, wolves, foxes, and eagles killed people in Hungary.<sup>59</sup> Concerning the wolf attacks, very interesting information is available in the description of the contemporary Dalmatian cleric, Thomas of Spalato: wolves appeared after the famine in great numbers and openly attacked people in their houses.<sup>60</sup> For 1243, the *Continuatio Sancrucensis* mentioned the same case, namely that wolves ran into houses, attacked and took away people.<sup>61</sup> Animal attacks against people were more frequent when their ordinary food, namely herbivores, decreased sharply in numbers: in medieval and early modern evidence wolf attacks (with casualties) are especially associated with hard winters;<sup>62</sup> the severe cold, a snowy and enduring winter, and also probably the uncertainties had a

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<sup>56</sup> *Continuatio Sancrucensis*: MGH SS 9, 640. See also Brázdil and Kotyza, *History of Weather*, 102.

<sup>57</sup> Glaser, *Klimageschichte*, 63, 84 (without source reference).

<sup>58</sup> MGH SS 9, 639-640 (*Continuatio Sancrucensis* II). See also Rohr, *Extreme Naturereignisse*, 443-44.

<sup>59</sup> MGH SS 19, 55 (*Annales Polonorum* I): 1241. *Thartari devastaverunt Poloniam et ducem Henricum occiderunt. Eo tempore in Ungaria lupi, vulpes, aquile occiderunt homines*. See also: August Bielowsky, *Monumenta Poloniae Historica*, 6 vols. (Warsaw: Nakladem Własnym, 1864-1893), vol. 2, 838 (*Rocznik Traski*), vol. 3, 167 (*Rocznik Malopolski*). Following these sources, Długosz also includes this information (vol. 7, 686).

<sup>60</sup> Thomas of Spalato (MGH SS 29, 595): *Post hec vero rabidorum luporum multitudo quasi de diaboli caverna emersit, qui non nisi humanum sanguinem sicientes, non iam occultis insidiis, sed palam irrumpebant in domos et de matrum gremiis parvulos rapiebant, nec solum parvulos, sed ipsos eciam armatos viros facto agmine invadentes, sevis dentibus lacerabant*.

<sup>61</sup> See, for example, MGH SS 9, 640 (*Continuatio Sancrucensis* II): 1243. .... *Deinde lupi rapaces et infesti, nemini parcentes, prevaluerunt in terra, ita quod vix aliquis auderet de domo sua inermis procedere*.

<sup>62</sup> See, for example, Rohr *Extreme Naturereignisse*, 455-56.

dramatic impact on the wild animals.<sup>63</sup> Although the winter of 1241-1242 was hard and snowy, contemporary descriptions, such as those from Thomas of Spalato and the *Continuatio Sanctrucensis*, did not refer to the hard winter as the cause; they rather mentioned that these attacks had followed the chaotic conditions and the famine, when corpses were left unburied and the carnivores had ‘got used to’ eating them.

#### *Locust invasion: only in 1243?*

According to some Austrian sources, locusts also appeared in great quantities around the years of the Mongol invasion.<sup>64</sup> The *Continuatio Sanctrucensis* (II) dated animal attacks as well as the locust invasion for 1243: locusts contributed to the prolongation of the famine by destroying the harvest.<sup>65</sup> Concerning literary tradition, it is interesting to note that the late 15<sup>th</sup>-century Polish chronicler Długosz – while mentioning the attacks of beasts – did include wolves, foxes and eagles, but did not include locusts at all.<sup>66</sup> Since authors usually mentioned locusts in a rather generalised manner, it is reasonable to ask whether there was a locust invasion at all – or was it only a (copying or interpretation) mistake of some of the authors?

On the one hand, based merely on these generalised texts describing the horrors of the Mongol invasion and the subsequent famine, no safe conclusions can be drawn about whether there was a locust invasion at all in those days. On the other hand, an independent source from Salzburg, the *Annales Sancti Rudberti*, mention specifically the locust invasion itself: the contemporary author dated an invasion of “locusts with large body” to 1242. As the author described in brief, the event occurred in Austria and caused damage in vineyards and orchards.<sup>67</sup> Thus, according to this report, around the years of the Mongol

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<sup>63</sup> Several cases can be mentioned from the modern period when – due to severe winter conditions (and snow) – even in peaceful times wolves came close to settlements or even entered them. For example, there were great frosts and very low temperatures in December 1812 (the Danube froze over on 15 December): in the great cold, wolves and other animals appeared close to the town of Buda, and they even entered villages. Notes of a Buda citizen from 1811-1812 were published in Antal Réthly, *Időjárási események és elemi csapások Magyarországon 1801-1900-ig* (Weather events and natural hazards in Hungary, 1801-1900), vol. 2 (Budapest: Országos Meteorológiai Szolgálat, 1999), 665.

<sup>64</sup> See, for example, SRA 1, 245 (*Anonymi Chronicon Austriacarum*).

<sup>65</sup> MGH SS 9, 641.

<sup>66</sup> Długosz 7, 686 (*Historia Poloniae*): (1241) *Ad Tartarorum rabiem, etiam bestiarum rabies accessit; aquilae, lupi, & vulpes in Hungaria grege facto homines solitarios gradientes inuadunt, & victos crudelibus rictibus deuorant, & discernunt.*

<sup>67</sup> MGH SS 9, 788 (*Annales Sancti Rudberti Salisburgenses*): 1242. .... *Locuste magna corporis quantitate Austriam intrantes in tanta multitudine, quod vineta et pomeria plurima consumpserunt, insuper equos et animalia in campis pascentia corroserunt.* Rohr (*Extreme Naturereignisse*, 467) mentions this report as the first known evidence in Austria concerning locust invasions.

invasion there was indeed a locust invasion in the direct vicinity of Hungary. Taking this information into account, the locust invasion reported concerning Hungary in relation to the Mongol invasion and the famine is probably based on real fact.

Overall, from the available information, we can say that locusts were present in Austria in 1242; they were present in Hungary during the great famine and also in 1243. Taking into consideration the generality of information placed in the year 1243 in the *Continuatio Sanctrucensis*, and also the fact that locusts usually come from the east through Hungary to Austria, it seems likely that the locust invasion in Hungary started at least in 1241, and locusts were still present and caused significant damage (probably in the first sowing in years) in 1243.

### *A hot day in early June of 1246*

When the king of Halič called Danilo came to help the Hungarian King Béla IV in the military campaign against the Germans (Austrians), he met the Hungarian king at *Požeg* (either Pozsony/today Bratislava or Bazin: today Pezinok in Slovakia) on a hot day.<sup>68</sup> Since they together attacked Austria in June 1246 (main battle on 15 June),<sup>69</sup> this hot day probably occurred in early June.

### *Princess Margit the Blessed (successfully) prays for rain: autumn day of 1249 in Veszprém?*

In the Inquisition Protocols of the royal Princess Margit (born during the Mongol invasion<sup>70</sup>) *Domina Eliana*, a 60-year old nun in the Dominican monastery on the Island of Rabbits (today the Margit Island in Budapest) mentioned in 1276 the shower or cloudburst which occurred in the monastery of Saint Catherine in Veszprém when Margit was a little girl, before the age of ten (before 1252). Little Margit did not want to let their two guests (Dominican friars) leave, and she prayed for rain. The date of the event is unknown; but it occurred after breakfast (*post prandium*) on an autumn day when the weather was otherwise very clear.<sup>71</sup>

<sup>68</sup> Hodinka, *Az orosz*, 434-36: 1252 ... *Присла король Оугорьскы к Данилоу прося его на помощь. Бы бо имы рать на бои с Нымци. иде емоу на помощь и приде к Пожгоу. .... и просия оу него въ станъ, зане знои бы великъ дне того.*

<sup>69</sup> Kristó, *Az Árpád-kor háborúi*, 134. See, e. g., MGH SS 9, 559 (*Continuatio Lambacensis*).

<sup>70</sup> Due to the fact that many Margaretas are mentioned in the texts of the Inquisition Protocol, as a clear separation, I use the Hungarian name (Margit) for Princess Margaret.

<sup>71</sup> József Lukcsics, *Monumenta Romana Episcopatus Vesprimiensis*, vol. 1: 1103-1276 (Budapest: Franklin Társulat, 1896) (hereafter MREV 1), 173-74 (*Inquisitio super vita*): *Interrogata, si recordatur, quod aliquo tempore, dum esset in dicto monasterio de Vesprimio, duo fratres predicatorum venirent illuc, qui vellent recedere, respondit: «Sic, et bene recordor, quando volebant recedere, quid virgo Margaretha rogabat eos, quod non recederent, et ipsi dixerunt, quod non poterant stare; et ipsa dixit: 'Ego rogabo Deum, quod faciat pluiere tam fortiter, quod non possitis recedere,' et ipsi dixerunt: 'Nulla pluvia posset non tenere,' et*

Some additional information appears in the testimony of another nun, *Domina Jolent*, who was 40 years old in 1276. Similar to *Domina Eliana*, *Jolent* lived together with Margit from early childhood (when entering the convent, *Jolent* was 3.5 years old) first in the Saint Catherine convent in Veszprém, and later in the Dominican convent on Rabbit Island. Apart from the names of nuns and a friar who were present at the miracle, she remembered the time of the rain in a more precise way, which happened immediately after breakfast (*statim post prandium*). Here another important piece of information appears, namely that Margit was roughly ten at that time (although *Jolent* was not sure about this, and could not tell the exact year either); so the event might have happened some time before they left Veszprém for the Rabbit Island.<sup>72</sup> This would mean an autumn day in 1251 (or perhaps earlier). According to the mother superior of the convent in Veszprém, *Domina Olimpiades*, this miraculous rain occurred when Margit was 7 years old, which most probably means 1249.<sup>73</sup>

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*recesserunt, et ipsa beata Margaretha, que tunc poterat esse decem annorum, intravit ecclesiam, et rogavit Deum quod plueret, et facte sunt pluvie tam magne, quod ipsi fratres redierunt, et non potuerunt recedere, et steterunt nocte illa in illa civitate, sed nescio ubi». / Interrogata, quot anni sunt, respondit: «Non recordor». / Interrogata de die respondit: «Nescio.» / Interrogata de hora diei, respondit: «Post prandium cito». / Interrogata de presentibus, respondit: «Catharina, que est priorissa modo et Olimpiades, de aliis non recordor». / Interrogata, in quo loco erant tunc, quando sic rogavit fratres quod non recederent, respondit: «In domo capituli». / Interrogata, quale tempus erat, quando rogavit fratres, quod non recederent, respondit: «Serenum tempus multum». / Interrogata, quomodo scit, quod dicti fratres redierunt, respondit: «Thomas presbyter noster nobis dixit». / Interrogata si fuit docta, vel rogata, respondit simpliciter: «Non».*

<sup>72</sup> MREV 1, 179-80 (*Inquisitio super vita*): *Interrogata, si recordatur, quod duo fratres predicatorum venissent ad monasterium Vesprimiense, quando ibi erant, et dum ipsi recedere vellent et recedere incepissent, pluit fortiter, et non potuerunt tunc recedere, respondit: «Scio, quod semel venerunt duo fratres predicatorum, et unus frater habebat nomen Herbart, sed nomen alterius non scio, et ipsa beata Margaretha rogabat eos, quod non recederent, et ipsi dixerunt: 'Ego rogabo Deum, quod pluat sic fortiter, quod non possitis recedere,' et ipsi dixerunt: 'Pluvia non posset nos retinere,' et recedebant, et ipsa beata Margaretha, que habebat forte decem annos, sed nescio pro certo, intravit ecclesiam, et rogavit Deum, quod faceret pluvie tam fortiter, quod ipsi fratres non possent recedere, et venti pluvia incontinenti tam magna, quod dictum fuit nobis, quod steterunt in civitate illa de Vesprimio». / Interrogata, quot anni sunt, quod hoc fuit, respondit: «Non recordor». / Interrogata de mense, respondit: «Nescio pro certo, sed bene scio, quod fuit in autumno». / Interrogata de die respondit: «Nescio». / Interrogata de hora diei, respondit: «Statim post prandium». / Interrogata de presentibus, respondit: «Multi erant, et bene recordor quod ibi erat soror Olimpiades (et) soror Catharina que modo est priorissa». / Interrogata, quomodo scit, quod oravit in ecclesia, ut dixit, respondit: «Vidimus eam orare et flere ante nos, et intravit ecclesiam, et credo, quod ibi oravit similiter». / Interrogata, a quibus audivit, quod dicti fratres redierunt et steterunt in civitate illa, respondit: «Presbyter Thomas, qui stabat in ecclesia nostra, hoc dixit nobis».*

<sup>73</sup> MREV 1, 221-22 (*Inquisitio super vita*): *Die lune sequenti rediit dicta soror Olimpiades et dixit: «Quadam die venerant duo fratres predicatorum ad predictum monasterium sancte Catherine Vesprimiensis, quos ipsa virgo Margaretha rogavit, quod starent, et cum ipsi vellent recedere, ista sancta Margaretha rogavit Deum, ut plueret, quod non possent*

## Evidence from the 1250s

### *Famine in Western Europe – mass immigration to Hungary: 1259*

Another famine is mentioned in some western (German) sources referring to 1259. Due to this famine, a massive immigration (from many areas like Bavaria) occurred towards Hungary which indirectly suggests that this crisis probably did not affect Hungary so much.<sup>74</sup> In the Czech Lands the winter of 1257-1258 was severe and long, while the summer of 1259 was very hot and dry in Austria. This very hot and dry summer was followed by a hard winter in Poland, when Mongols crossed the solidly frozen rivers and attacked the country.<sup>75</sup>

The fact of mentioning this immigration of westerners is also interesting because of the beginnings of intensified clearances, for example, in the

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*recedere, et statim magna pluvia facta est, quod non potuerint recedere». / Interrogata de nominibus fratrum illorum predicatorum, respondit: «Unus vocabatur Hembrath, qui est mortuus, de alio non recordor». / Interrogata, que erant presentes, quando rogavit fratres et oravit et pluit, ut dixit, respondit: «Soror Elena et soror Lohalenth, de aliis non recordor». / Interrogata, cuiusmodi tempus erat, quando oravit ut dixit, respondit: «Valde serenum». / Interrogata, quot annos habebat ista virgo Margaretha, quando oravit, ut dixit, respondit: «Septem annos». / Interrogata, in quo loco monasterii erat, quando oravit, ut dixit, et pluit, respondit: «In ecclesia ipsius monasterii, ut credo». / Interrogata, quot anni sunt, quod hoc fuit, respondit: «Non recordor». / Interrogata de mense, respondit: «Non habeo in mente». / Interrogata de die, respondit: «Non recordor». / Interrogata de hora diei, respondit: «Ante vespas».*

<sup>74</sup> MGH SS 13, 57 (*Annales Sancti Stephani Frisingenses*): 1259. Hoc anno fuit maxima fames, et homines de diversis terris exulaverunt euntes ad partes Ungarie. MGH SS 17, 345 (*Annales Scheftlarienses minores*): A. D. 1259. fames valida fuit, et multitudo hominum in Ungariam profecta est. Late 14<sup>th</sup>-century compilation, applying previous evidence: Andreas Felix von Oefele, *Rerum Boicarum Scriptores*, vol. 2 (Augsburg: Veith, 1763), 338 (*Anonymi Monachi Bavari Compilatio*): 1259. Fames validissima est facta et morticinium grande nimis et innumerabilis multitudo hominum in Ungariam est profecta.

<sup>75</sup> MGH SS 9, 560 (*Continuatio Lambacensis*): 1259. Tartari Gracoviensem provinciam devastaverunt. Stephanus rex Ungarie Karinthiam ferro et igne invasit. Estas valida et sicca. See also: Brázdil-Kotyza, *History of Weather*, 104-05. Concerning the winter attack, see also: Długosz 7, 757 (*Historia Poloniae*): (1259.) ... Aduenit enim in illas, statim post festum Beati Andreae Apostoli, Tartarorum ingens exercitus, plures de solis Tartaris, quorum Nogai & Thelebuga erant Duces, continens legiones, hunc Ruthenorum & Lithuanorum Duces, gentes, & copiae, ingentiolem fecerant. Qui dum Vislam & caeteros fluuios, gelida hyeme & glaciebus induratos facile transissent, subito Sandomiriam perueniunt, & oppido Sandomiriensi incenso, Ecclesiisque conglagatis, Sandomiriense castrum, in quod fere vniuersa Sandomiriensis regio, cum coniugibus, pignoribus, & fortunis, Tartarorum aduentu vulgato, confugerat, corona cingunt, & nec ad quiescendum auut colligendum animos, ex subito pauore, spatio dato, illud nocte & interdiu oppugnant. Note that according to the dating of Długosz cold conditions (strong frosts) would have already prevailed from late autumn-early winter onwards.

mountain valleys of North-Hungary (today Slovakia) can be detected from the second half of the 13<sup>th</sup> century onwards.<sup>76</sup> Another interesting question is related to the possible atmospheric causes of bad harvests, resulting in great famine in (West-Central) Europe: one of the greatest (or the greatest) volcanic eruptions of the last millennium, with global atmospheric effects, occurred around 1258 in the tropics (probably the El Chicon eruption in Mexico).<sup>77</sup>

## Evidence from the 1260s

### *A famine in 1263?*

Several European, but no Hungarian sources mention some years later another famine, dated to 1263: the *Continuatio Sanctrucensis* (II),<sup>78</sup> and then *Paltramus*<sup>79</sup> as well as the *Anonymus Leobensis* report on the same event,<sup>80</sup>

<sup>76</sup> For an analysis of the settling process see, e.g., Adrienne Körmeny, *Melioratio terrae. Vergleichende Untersuchungen über die Siedlungsbewegung im östlichen Mitteleuropa im 13.-14. Jahrhundert* (Poznań: Wydawnictwo Poznańskiego Towarzystwa Przyjaciół Nauk, 1995).

<sup>77</sup> See, e.g., Richard B. Stothers, "Volcanic dry fogs, volcanic cooling, and plague pandemics," *Climatic Change* 42 (1999): 713-23. This eruption, concerning the detected volcanic sulphate depositions (and therefore, emissions) was presumed to be much greater than the Tambora eruption in 1815, and in some of the studies only the 1454 (or 1453?) eruption is known to be similar or greater in magnitude and importance. For comparisons see, for example, C.T. Plummer, M.A.J. Curran, T.D. van Ommen, S.O. Rasnussen, A.D. Moy, T.R. Vance, H.B. Clausen, B.M. Vinther and P.A. Mayewski, "An independently dated 2000-yr volcanic record from Law Dome, East Antarctica, including a new perspective on the dating of the 1450s CE eruption of Luwae, Vanuatu," *Climate of the Past* 8 (2012): 1929-40. Ch. Gao, A. Robock, C. Ammann, "Volcanic forcing of climate over the past 1500 years: An improved ice core-based index for climate models," *Journal of Geophysical Research* 113 (2008): D23111, 1-15.

<sup>78</sup> MGH SS 9, 645 (*Continuatio Sanctrucensis* II): 1263. *Facta est eclipsis lune 6. Kalendas Martii, post ortum lune cum adhuc pars diei superesset. Hoc anno fuit maxima fames per totam Austriam et Ungariam et Boemiam et Moraviam, qualis ante raro visa fuit, et duravit usque ad messem.*

<sup>79</sup> SRA 1, 715 (*Paltramus seu Vatzio*): 1263. *Hoc anno fuit maxima fames per totam Austriam et Ungariam et Bohemiam et Moraviam, qualis antea raro visa fuit, et duravit, usque ad messem.*

<sup>80</sup> Similarly to the *Continuatio Sanctrucensis* (II), the text is included in the *Anonymus Leobensis* (SRA 1, 827): 1263. *Hoc anno fuit maxima fames per totam Austriam et Hungariam et Bohemiam et Moraviam, qualis ante raro visa fuit, et duravit usque ad messem.* Nevertheless, more information is as well added: SRA 1, 833 (*Anonymus Leobensis*): 1263. ... *Eodem vero anno rex Bohemiae prae nimia hyemis saevitia adhaec nihil valens facere, distulit bellum usque ad proximum pasca. In eadem vero hyeme quaedam societas nobilium, quorum capitaneus erat Syfridus Wehingarius, consanguineus Orphanorum, volens per rapinam Ungariam intrare, et frigus erat maximum; et cum lacum quendam transire vellent congelatum, ex equorum vero totque virorum armatorum glacies confracta (fuisset), submersi sunt ibidem; qui erant noti, nobilium 40, aliorum fere fortium numero 300.*

referring to Austria, Bohemia, Moravia and Hungary. It is interesting to add, however, that the *Anonymus Leobensis* concerning the description of military events clearly applies the text of the 1270 Czech campaign on the 1263 campaign. The *Anonymus Zwetlense* dates the same event to 1264.<sup>81</sup> The *Continuatio Lambacensis* also refers to the famine of 1263, but only mentions Austria.<sup>82</sup> Thus a famine, which occurred most likely in the year of 1263 in the Central European region, might have affected (some parts of) Hungary as well.

*Princess Margit cleaned fish in a great frost: year unknown*

*Domina Margaretha* (Duchess of the Cumans), a distant relative of Margit, spent a lot of time with the princess. *Margaretha* was only 28 years old in 1276, roughly 7 years younger than the princess. Although without mentioning the year, *Margaretha* described hard weather conditions when the princess was cleaning fish in great frost and coldness.<sup>83</sup> Similarly without providing any information on dates, the same event was described by another nun, *Domina Elisabeth*, niece of Princess Margit.<sup>84</sup> A cousin of the princess, *Domina Margaretha*, the 36 year-old duchess of Macsó (today Mačov, N-Bosnia), at that time nun in the same convent, was present as well and remembered the event in the same way.<sup>85</sup> Other nuns, such as the 38 year-old *Domina Benedicta*<sup>86</sup> and the

<sup>81</sup> SRA 1, 979 (*Anonymus Zwetlensis*): 1264. *Fames maxima per totam Austriam fuit et Vngariam, Moraviam et Bohemiam, et caeteris quibusdam provinciis oriebatur, qualis ante raro visa est, et duravit usque ad messem.*

<sup>82</sup> MGH SS 9, 560 (*Continuatio Lambacensis*): 1263. *Fames facta est in Austria.*

<sup>83</sup> MREV 1, 181-82 (*Inquisitio super vita*): *Domina Margaretha, filia domine Anne, sororis coniugis regis Stephani, sororet monialis dicti monasterii virginis gloriose de insula Danubii .... Interrogata, quomodo scit hoc, respondit: «Quia videbam et lectus meus erat iuxta lectum suum». Item dixit, quod predicta virgo Margaretha in septimana sue lavabat scutellas et pignatas, et aliquando erat tam magnum frigus, quod quando squaminabat pisces et lavabat, manus sue tremebant ex nimio frigore, propter glaciem et frigus magnum. Item dixit, quod super totum hoc serviebat infirmis, faciendo coquinam earum, dando eis bibere et comedere, lavando eis capita, et radendo et portando et iuvando eas ire ad necessarium.*

<sup>84</sup> MREV 1, 185 (*Inquisitio super vita*): *Item dixit, quod ipsa soror Margaretha faciebat coquinam per septimanam suam, sicut aliqua alia, lavando scutellas et ollas, scopando domum, et aliquando parando pisces cum tanto gelu, quod pellis manuum crepabat, et inde sanguis exibat.*

<sup>85</sup> MREV 1, 189-90 (*Inquisitio super vita*): *Domina Margaretha quondam filia domini Gulielmi ducis de Maconia, soror et monialis dicti monasterii virginis gloriose de insula Danubii .... Item dixit, quod dicta virgo Margaretha, quando veniebat sua septimana, faciebat coquinam, lavabat scutellas et tollas, et quandoque squaliabat pisces in tanto frigore et glacie, quod manus sue crepabant, ita quod sanguis exibat.*

<sup>86</sup> MREV 1, 195 (*Inquisitio super vita*): *Item dixit, quod quadam die in hyeme, dum esset magnum frigus, ipsa virgo Margaretha, que tunc faciebat septimanam suam in refectorio, vocavit sororem Chingam, ut iuvaret eam portare extra refectorium et evacuare quoddam magnum vas aque, super quo lavabant sibi manus sorores, et illa nolebat ire, et ipsa iterum vocavit eam, et quasi irata fuit, et dum evacuaarent illud vas, dicta soror Chinga*

32 year-old *Domina Stephana*<sup>87</sup> also remembered the extreme cold which was in the wintertime, but did not mention the year either. Another *Domina Margaretha*, daughter of *Dris de Betama*, also mentioned this case.<sup>88</sup>

*Margit did dirty (kitchen) jobs in the cold winter time: was it the winter of 1266/1267?*

Maybe the same, or perhaps another case is described by *Domina Margaretha*, the 51 year-old mother of the Transylvanian duke: Margit washed dishes in severe cold weather.<sup>89</sup> Some important information is available in the testimony of the 44-year old daughter of the late palatine, *Domina Judith*: by mid-1276 she had already been at the monastery for 11 years. She mentioned the case where Margit was able to carry a big bucket (*tina*) over the mud of water (*per lutum aquam*) to the sick nuns. And then *Judith* continued narrating that Margit was washing wool in the bitter cold, she put her feet into the bucket (*tina*), and the water became frozen on her robe; and her hand, because of the bitter cold, was sore and bled.<sup>90</sup> Since *Judith* had already stayed there for 11 years by 1276, and (as she said) she had not yet spent much time in the convent when all these events happened, it seems likely (by counting back with 1276 as year 1) that the event occurred some time around or during the winter of

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*sparsit aquam suer pectus dicte sororis Margarethe, et ipsa cepit ridere, dicens: «Bona soror quare fecisti hoc?» et tunc illa soror Chinga recessit ab ea. / Interrogata, quomodo scit, respondit: «Qui fui presens».*

<sup>87</sup> MREV 1, 209 (*Inquisitio super vita*): *Item dixit, quod ita libenter serviebat servitilibus infirmis sicut sororibus, et non separabat se eundo per lutum et per pluviam et portando aquam per crucem ad domum servitilium, ad faciendum balnea eis, et aliquando erat tam magnum frigus, quando faciebat hoc, quod sanguis exibat de manibus suis.*

<sup>88</sup> MREV 1, 259 (*Inquisitio super vita*): *Item dixit, quod septimanam suam faciebat in coquina conventus, sicut alie de sororibus, et quod lavabat scutellas et tollas, et pisces purgabat in maximo frigore. / Interrogata, quomodo scit predicta, respondit: «Vidi, et secum fui in illo servitio».*

<sup>89</sup> MREV 1, 248 (*Inquisitio super vita*): *Item dixit, quod libenter serviebat infirmis parvis et magnis in faciendo coquinam, in magno frigore nudis pedibus lavabat scutellas, scopabat casam, et in aliis, in quibus poterat, serviebant eis cum magna humilitate.*

<sup>90</sup> MREV 1, 250 (*Inquisitio super vita*): *Item dixit: «Vidi, quod ipsa portavit per lutum aquam pro infirmis, et portabat ita magnam tinam, quod mirabamur, qualiter poterat portare». Item dixit: «Vidi quod ipsa lavabat lanam in maximo frigore, et faciebant compostam cum manibus suis, et calcabat pedibus suis in tina in maximo frigore, ita quod vestimenta sua congelabantur ab illa aqua, et manus sue propter magnum frigus crepabant et sanguinebant». Item dixit, quod soror Olimpiades, magistra sua, quando ipsa Margaretha orabat prostrata in terra, aliquando reprehendebat illam, dicens: 'Tu queris Deum in terra cum naso et facie, sicut esses porcus, quare facis hoc, quare destruis te?' Et ipsa omnia sustinebat in pace. / Interrogata, quomodo scit predicta, respondit: «Quia vidi». / Interrogata, si vult plus dicere, respondit: «Non fui per longum tempus in isto monasterio, et propterea non possum multum dicerem et que sciivi dixi». / Interrogata, quot annos habet, respondit: «Quadraginta quatuor». / Interrogata, per quot annos stetit in isto monasterio, respondit: «Per undecim annos».*



1266/1267. Clearly hard winter conditions are described (from the viewpoint of human comfort), although the water in the bucket was not completely frozen if she could step into it, and earlier *Judith* talked about the mud of water, which might suggest that the temperature was not much below freezing point, although the water on Margit's dress/robe froze. Both cases were also mentioned in the testimony of the 28 year-old *Domina Candida*.<sup>91</sup> The circumstances of carrying (some sort of) liquid to the sick nuns will be seen in a somewhat different light in the next case.

*Margit brought (hot) soup to the sick nuns in deep snow: year unknown*

According to *Domina Benedicta*, Margit – while carrying “hen-food” for the sick nuns to the infirmary – fell down in the deep snow and poured soup on her dress/robe, but still she continued and brought the pot of food to the infirmary.<sup>92</sup> Without further details, *Domina Benedicta* also mentioned that other events had occurred.<sup>93</sup> The 44 year-old *Domina Margaretha*, daughter of a *Dris de Betama*, talked about the unfavourable weather conditions, bitter cold and great mud (!) when Margit had served the sick nuns.<sup>94</sup>

It may be that this event is the same or occurred around the same time as the above-mentioned cold-winter cases, especially if we take into account some clear similarities in the descriptions. However, due to the very limited information on dating the event, firm conclusions cannot be drawn.

*Margit prays for sunshine on a gloomy day: date unknown*

According to *Domina Stephana*, one day princess Margit made the sun appear in the gloomy weather, while praying to God.<sup>95</sup> One of the (at that time

<sup>91</sup> MREV 1, 258-59 (*Inquisitio super vita*): Item dixit: «Libenter serviebat conventui et in luto et frigore, aliquando habebat vestimenta sua affangata usque ad genta, et quando peius tempus erat, petebat a priorissa, quod tunc daret sibi sepimanam suam ad serviendum, et aliquando manus habebat per servitium, quod faciebat in magno frigore, crepatas usque ad sanguinem». / Interrogo, quomodo scit predicta, respondit: «Omnia vidi oculis meis».

<sup>92</sup> MREV 1, 247 (*Inquisitio super vita*): Item dixit: «Ista sancta Margaretha quadam die portabat unam ollam plenam de posslastris in scapolario suo, et cum per magnam nivem de coquina ad infirmariam iret, cecidit in nivem, et parum de brodio sparsum fuit super brachia sua, et postea portabam dictam ollam infirmis».

<sup>93</sup> MREV 1, 247 (*Inquisitio super vita*): Interrogata, si vult plus dicere, respondit: «Quod scivi melius dixi, et plura scirem, sed non possum dicere». It is an interesting addition that, although she was a *Domina*, she could not tell how old she is, not even approximately, although knew that she spent 20 years in that convent.

<sup>94</sup> MREV 1, 257 (*Inquisitio super vita*): Item dixit, quod in quolibet tempore serviebat libenter infirmis, et quod in obedientiam querebat a priorissa, quando erat malum tempus et magnum frigus et magnum lutum, septimanam sua ad serviendum infirmis. / Interrogata, quomodo scit predicta, respondit: «Qui presens fui et vidi».

<sup>95</sup> MREV 1, 210 (*Inquisitio super vita*): Item dixit: «Quando puella eram, et cum aliis puellis luderem, quadam die, in quo erat tempus multum obscurum, ipsa virgo Margaretha venit

little) girls (*Domina Elisabeth*) also remembered this event in much the same way.<sup>96</sup>

*Ice jam floods may refer to preceding hard winter conditions: the winter of 1267-1268*<sup>97</sup>

The miracle which gained probably the greatest interest and publicity among the eye-witnesses is related to two Danube flood events, occurred in winter three years before Margit's death (18 January, 1270). In the inquisition protocols about Margit's holy life many details concerning the weather background of these two events can be detected:<sup>98</sup> in relation to the first flood event two eye-witnesses (Alexandra and Margareta) suggested that it occurred eight days before the second flood, while others (Elisabeth, Benedicta, Olimpiades) only mentioned that the second flood event was some days or some time after the first one.

Somewhat more is known about the timing of the second flood: it occurred when *frater Marcellus* and two other brothers arrived to the convent;

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*ad nos (et dixit): 'Vultis, quod ego faciam vobis apparere solem?' Ipse puelle responderunt: 'Quomodo posses hoc facere?' Et tunc ipsa respondit: 'Bene', et incepit orare, et statim sol apparuit». Interrogata de nominibus puellarum, que tunc erant ibi, respondit: «Soror Margaretha, filia domini Gulielmi, soror Elisabeth, filia domini comitis Thome; de aliis non recordor». / Interrogata, in quo loco fuit hoc, respondit: «In infirmaria». / Interrogata, quot anni sunt, respondit: «Non recordor». / Interrogata de mense, respondit: «Non habeo in mente». / Interrogata de die, respondit: «Nescio». / Interrogata de hora diei, respondit: «Post prandium ante nonam».*

<sup>96</sup> MREV 1, 214-15 (*Inquisitio super vita*): *Item dixit: «Dum ego luderem cum quibusdam sociis meis, que scholares erant, et cum essemus puelle, et cum ipsa virgo Margaretha esset puella nobiscum, et ita obscura erat dies, quod sol non apparebat, ipsa virgo Margaretha dixit: 'Vultis, ut faciam, quod sol appareat?' Et nos respondimus: 'Sic'. Et tunc ipsa dixit: 'Antequam vadam ad locum illum, monstrabo vobis certum locum, et revertar ad vos, videbitis solem,' et oravit, et ivit ad ipsum locum, et antequam rediret ad nos, sol apparuit». / Interrogata, que erant ille sorores, cum quibus tunc ludebat, respondit: «Soror Stephana, filia Pausse, de aliis non recordor». / Interrogata, que verba dicebat, quando oravit, ut dixit, respondit: «Domine Deus, fac, ut appareat sol». / Interrogata, quot anni sunt, quod fuerunt predicta, respondit: «Non recordor». / Interrogata, de quo mense fuit hoc, respondit: «Non recordor». / Interrogata de die, respondit: «Non habeo in mente». / Interrogata de hora diei, respondit: «Nescio». / Interrogata, in quantum distat locus ille in quo erant, ab illo loco, quem ostendit eis tunc, respondit: «Non recordor». / Interrogata, quomodo scit, quod dixit: 'Domine Deus, fac, sol appareat,' respondit: «Qui presens fui et hoc audiui». / Interrogata, quot annorum erat tunc ipsa testis, respondit: «Non recordor».*

<sup>97</sup> For all related text references and a more detailed analysis, see Andrea Kiss, "Floods and long-term water-level changes in medieval Hungary," Dissertation (Budapest: Central European University, 2011), 229-33.

<sup>98</sup> MREV 1 (*Inquisitio super vita*), 183-87, 191-92, 196-97, 242-43, 280-81: The testimonies of Domina Alexandra, Benedicta, Elisabeth, Margareta(1), Margareta(2), Olimpiades and frater Marcellus. See also: Kiss, "Dunai árvizek," 342-43.

according to four eye-witnesses (the two Margaretas, Alexandra, and Benedicta) this happened after Epiphany (6 January; GC: 13 January) and before Lent (21 February in 1268; GC: 28 February in 1268). *Domina Olimpiades* mentioned a(n unspecified) date before the start of the Lent. Only *frater Marcellus* named a very different timing (April), just because he did not remember exactly, so he merely guessed that it had happened when the rivers were usually in flood.

According to *Domina Elisabeth* the first flood lasted for three days, and reached the yard of the servant sisters and the infirmary of the convent. *Domina Margaretha*(2) also remembered that the first flood had lasted for days. The second flood probably lasted only for some hours: after a sudden increase of the water level, the water rapidly entered the convent so that it even reached the chapter hall (thus, probably it was higher than the first one). This event was followed by a sudden decrease of water (mentioned by the two Margarethas, Olimpiades and Elisabeth). A cracking sound (*cum magno sonitu*) was also mentioned by *Domina Alexandra*. Based on all this information the second flood event was probably an ice jam flood. From a weather point of view this is an important fact because the development of an ice jam flood requires long-lasting frosts when a firm ice cover develops on the river (in the Budapest area and on the upper section), interrupted by the arrival of mild humid western air masses, causing rapid melting and ice break-up, first on the upper sections.

Compared to the second flood event, less direct information is available concerning the type of the first flood. Some important circumstances, however, may be of help in identifying the likely type of the flood event. For example, *frater Marcellus* had to cross the Danube when visiting the nuns on the Island; thus, the river had to be passable for a while between the two flood events. According to some of the testimonies, not very long time passed between the two flood events (eight days or less). This fact would suggest that if the second flood was an ice jam flood (therefore, there were great amounts of large ice pieces that had accumulated and obstructed the flow of the river), then there also had to be ice on the Danube at least during the previous two weeks (or more); and this also implies that there was ice on the upper sections of the Danube. This indirectly points to the fact that there were strong frosts in the weeks before the second flood and around/before the time of the first flood event as well.

Based on the available information, the first flood event reached some parts of the convent, lasted only for three days (thus, it was a relatively quick flood) and the water had to reach a significant height in the middle of the winter. Being usually the coldest months of the year, we also have to consider the fact that (normal) floods very rarely occur between early/mid-January and late February, due to the usually very low water levels of the Danube at this time. Taking into consideration the flood behaviour of the Danube before water regulation works at Pest and Buda and also the season, there is relatively little chance for the development of a relatively quick flood wave with considerable height without any intervention of ice, especially if there was an ice jam flood

some days (or a week) afterwards.<sup>99</sup> Thus, while the second flood event was most likely an ice jam flood, there is a good chance that the first flood event also belonged to the same type.

Although we have no more information for Hungary about the character of this winter, data can be found in the neighbouring areas. We are in the fortunate position that, due to the exceptionally good source coverage and a detailed analysis work available for these years, an almost regular series on main weather features is available for the period from the 1250s to the 1280s in the Czech Lands and its neighbourhood. While the winter of 1266-1267 was cold and dry in Thuringia, it is known that the Bavarian campaign of the Czech king was obstructed by strong frosts some time after 30 November (maybe in early December) 1266. As for the winter 1267-1268, the Czech king led a military campaign to Prussia from 11 December 1267. Due to the fact that he already reached Chelm on 3 January, Brázdil and Kotyza suggested constant cold freezing, when swamps and probably also lakes were firmly frozen. At the end of January there was a thaw which made further progress difficult, and the king returned home.<sup>100</sup>

Concerning the instrumental period and based on some parallels in the last 500 years, the long-term winter temperature fluctuations of the Czech Lands (e.g., Prague) correlates well with the winter temperature fluctuations of the Budapest and also that of the Vienna area. This relationship is still highly significant, but somewhat weaker between the Carpathian Basin and the Polish areas.<sup>101</sup> Based on this information there is high probability that, similar to the presumed Czech-(south)Polish conditions, weather probably induced a cold, freezing character during the (first part of the) winter of 1268 in the broader region, including the Hungarian area of study. If the 1267-1268 winter dating is correct, then this further effects our understanding on the first flood event reported in the inquisition protocols: the Czech parallel increases the chance that in December and January considerable ice cover developed on the Danube, and already the first flood event was not a ‘simple’ flood event but a flood in-

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<sup>99</sup> For the ice conditions of the Danube before water regulation works, see Sándor Horváth, *A Duna jégviszonyai* (Conditions of the Danube ice) (Budapest: VITUKI, 1979), 45. As for some parallels in the same area, in Pest-Buda the greatest ice jam flood event of the 18<sup>th</sup> century occurred in February 1775, lasted for three days; a much less severe ice jam flood, for example, occurred in early March 1784, similarly lasting around three days. For the development (and background) of the ice jam floods in the late 18<sup>th</sup> century in the Pest-Buda area, see Andrea Kiss, “Suburbia autem maxima in parte videntur esse deleta – Danube icefloods and the pitfalls of urban planning: Pest and its suburbs in 1768-1799,” in *From Villages to Cyberspace*, ed. Cs. Kovács (Szeged: University Press, 2007), 271-82.

<sup>100</sup> Brázdil and Kotyza, *History of Weather*, 106, with source references.

<sup>101</sup> For a 500-year comparison in more detail, see P. Dobrovolný, A. Moberg, R. Brázdil, Ch. Pfister, R. Glaser, R. Wilson, A. van Engelen, D. Limanówka, A. Kiss, M. Haličková, J. Macková, D. Riemann, J. Luterbacher and R. Böhm, “Monthly and seasonal temperature reconstructions for Central Europe derived from documentary evidence and instrumental records since AD 1500,” *Climatic Change* 101/1-2 (2010): 69-107.

fluenced by ice.<sup>102</sup> In addition, the late January thaw might also ‘fit’ the picture: it is in the interval suggested by the Hungarian eye-witnesses. If this late January thaw had also been responsible for the ice break up on the Danube, then the two flood events would have occurred around or after this time, i.e., in late January–early February. This means early-mid February in the Gregorian calendar. Otherwise, this period was the time, when in the 18<sup>th</sup> century some of the greatest ice jam floods occurred in the Pest-Buda area (e.g. 1712, 1775).

#### *Margit and the great wind (storm) in 1268?*

The twenty-seventh witness, *Domina Anna*, mentioned a certain day when a memorable strong wind occurred, which destroyed the roof (*coopertura*) of the chapter in the convent and transported it to the ‘*pomerium*’. But they prayed seven ‘*psalmus penitentialis*,’ and the wind ceased to blow.<sup>103</sup> As for the year of the event, the nun suggested that it occurred two years before the death of the princess. Since the princess most probably died in 1270 (18 January), there is a chance that the strong wind occurred in 1268.

#### *Margit rescued the servant sister, Agnes, on a gloomy, rainy day in 1268 (or*

<sup>102</sup> It is interesting to mention the parallel of the 1783-1784 flood events: although during this hard winter there were significant mild interruptions when significant floods developed in Central (and Western) Europe, in the Polish areas in most cases no significant floods are known. See, e.g., R. Brázdil, G.R. Demarée, M. Deutsch, E. Garnier, A. Kiss, J. Luterbacher, N. Macdonald, Ch. Rohr, P. Dobrovolný, P. Kolář and K. Chromá, “European floods of the winter 1783/84: scenarios of an extreme event during the Little Ice Age,” *Theoretical and Applied Climatology* 100/1-2 (2010): 163-89.

<sup>103</sup> *MREV* 1, 251-52 (*Inquisitio super vita*): *Interrogata super miraculis dixit: «Ista sancta quadam die, in qua erat ita magnus ventus, quod portaverat cooperturam domus capituli in pomerium, portabat unam assidem plenam de terris (?) ad furnum coopertam de una toalida, et tunc ego que iuvabam ipsam, dixi sibi: ‘Domina, quo vadimus, ventus iste destruet istas terras, et noli facere malum;’ et tunc ista sancta respondit: ‘Quomodo non nocebit nobis, quia destruxit cooperturam calituli nostri,’ et tunc ventus cessavit omnino ita, quod nobis nihil nocuit».* / *Interrogata, quot anni sunt, quod hoc fuit, respondit: «Per duos annos ante mortem ipsius».* / *Interrogata de mense, respondit: «In quadragesima tertia die post festum sancti Georgii».* / *Interrogata de die, respondit: «Non recordor».* / *Interrogata de hora diei, respondit: «Circa nonam».* / *Interrogata, qui erant presentes, respondit: «Nullus».* / *Interrogata, quomodo scit, quod ventus portavit cooperturam capituli in pomerium, ut dixit, respondit: «Quia vidi».* / *Interrogata, in quo loco erant tunc, quando ipse steterunt, ut dixit: respondit: «In curia servitium ad celum apertum», et dixit: «Nolo aliquid aliud plus dicere, et ea que dixi, vidi et vera sunt».* / *Interrogata, quot annos habet, respondit: «Non recordor».* / *Interrogata, per quot annos stetit in monasterio, respondit: «Per viginti annos».* / *Interrogata, quot anni sunt, quod mortua est dicta virgo Margaretha, respondit: «Septem anni».* / *Interrogata, si fuit docta, vel rogata hoc testimonium, respondit: «Non».* / *Frater Andreas, prior eremitanorum de Buda et frater Martinus, prior ecclesie sancti Michaelis de insula et Martinus Rubini interpretes fuerunt modo predicto in depositionibus sororis Lucie, Catherine, Alexandrie, Benedicte, Margarethe, Judith et domine Anne.*

1269)?

*Domina Margaretha*, the duchess of *Macho* (Mačov), remembered a memorable event, when the princess helped a sister called Agnes who had fallen into a pit on the day of the resurrection. The weather was very gloomy (*multum obscurum*) and it was raining (*pluebat*).<sup>104</sup> According to *Domina Elisabeth*, there was heavy rainfall, very gloomy weather, and the event happened on “*die resurrectione domini post completorium*”, without mentioning the year.<sup>105</sup> *Domina Olimpiades* described the weather in the same way: it was gloomy with heavy rain.<sup>106</sup> The most detailed description of this particular event was pro-

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<sup>104</sup> MREV 1, 192 (*Inquisitio super vita*): *Interrogata, si est aliqua servitialis, que vocaretur Agnes, respondit: «Sic, quedam que cecidit in quemdam puteum istius claustrum, in die resurrectionis domini, in sero, et erat multum obscurum tempus et pluebat, dum dicta virgo Margaretha mitteret pro quadam sua tunica, et cum dicti servitialis non reverteretur, et quedam puella clamaret, quod illa ceciderat in puteum, tunc sorores et dicta virgo Margaretha iverunt ad puteum, et soror Olimpiades, magistra ipsius virginis Margarethe incepit multum reprehendere ipsam et dicere: ‘Tu occidisti istam servitalem, quia tu mittebas illam tali tempore,’ et ipsa virgo Margaretha tunc flexit genua et orabat ad dominum et ad sanctam Mariam, quod iuaret ipsam servitalem, et quod ipsam libaret de tanto periculo, et dicebata magistre sue. ‘Non timetatis, qui servitialis non erit mortua,’ et ipsa servitialis, que iam per tres vices iverat ad fundum dicti putei, extracta fuit superius per dictas sorores cum fune et hidria putei». / Interrogata, quomodo scit predicta, respondit. «Quia presens fui». / Interrogata, quot anni sunt, quod hoc fuit, respondit: «Non recordor». ...*

<sup>105</sup> MREV 1, 210 (*Inquisitio super vita*): *Item dixit: «Quadam die in resurrectione domini post completorium, cum plueret fortiter, et esset obscurum multum, beata Margaretha vocavit Agnetem, servitalem suam, et dixit, quod portaret sibi tunicam suam, et dum iret cito, cecidit in puteum, qui est ante coquinam claustrum, et tunc ipsa virgo Margaretha audivit eam, quando in puteum cecidit, et pulsavit ad fenestram refectorii, ut alie domine hoc scirent, et iverunt ad puteum, et mater mea, soror Olimpiades, magistra ipsius sancte Margarethe dixit eidem: ‘Quia misisti sic istam bonam feminam, tu perdidisti corpus et animam,’ et illa dixit: ‘O Jesu Christe, tu scis, quia servivi tibi a pueritia mea, et (si) placuit tibi servitium meum, facias, ne moriatur ista bona femina;’ et postea traxerunt eam de puteo, et non habebat aliquod malum». / Interrogata, quot anni sunt, quod hoc fuit, respondit: «Non recordor». / Interrogata, quomodo scit, quod ipsa virgo Margaretha sic dixerit dicte servitiali sue, quod adportaret sibi tunicam suam, ut dixit, respondit: «Quia tunc fui presens». / Interrogata, quomodo scit, quod erat obscurum tempus, respondit: «Quia vidi». / Interrogata, quomodo scit, quod ita oravit, ut dixit, respondit: «Quia presens fui et audivi».*

<sup>106</sup> MREV 1, 222-23 (*Inquisitio super vita*): *Item dixit, quod in quodam festo resurrectionis in sero cum plueret fortiter, ipsa virgo Margaretha dixit cuidam servitiali, quod iret et portaret sibi tunicam suam, et dum illa servitialis iret ad portandum illam tunicam, cecidit in puteum, «et quando ego audivi dicere, quod servitialis ceciderat in puteum, ivi ad illam virginem Margaretham, et cepi eam reprehendere, et dixi: ‘Domina, male fecisti, perdisti corpus et animam,’ (et) respondit: ‘Non timeas mater, quia ista non morietur,’ et sic oravit: ‘O domine Deus, si aliquantulum placet tibi meum servitium, fac, ut ista servitialis non moriatur;’ et dixit, quod illa servitialis tantum stetit in dicto puteo, donec claves claustrum invente fuerunt, et aperuerunt ostium, et ipsa virgo Margaretha «et ego et alie*

vided by the ‘subject’ of the accident, the servant sister (Agnes), who not only confirmed the statements of the previous nuns, but remembered that the event happened nine years ago, “*In die resurrectionis domini*” (Easter Sunday in 1268: 8 April).<sup>107</sup>

## Evidence from the 1270s

*Hard, winter conditions of late 1270? (late autumn- early winter of 1270-1271)*

The *Continuatio Vindobonensis* refers to the hard winter of 1270 in Bohemia, and also describes the military campaign led by captain *Sifrid(us) Waehingar* to Hungary: the army of Sifrid proceeded in great frost. While crossing over a frozen lake (*lacus*) on horseback, the ice broke and 40 noblemen with 300 other armed soldiers became submerged there.<sup>108</sup> Another Viennese

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*sorores ivimus ad puteum, et traximus ipsam servitalem vivam superius, et sine aliqua lesione». ... Interrota de nomine illius servitialis, que cecidit in puteum, ut dixit, respondit: «Agnes». / Interrogata, si vivit, respondit: «Sic». / Interrogata, quot anni sunt, quod predicta fuerunt, respondit: «Non recordor». / Interrogata de mense, respondit: «Non habeo in mente». / Interrogata, si erat clarum tempus, vel obscurum, respondit: «Pluvia erat et obscurum tempus». / Interrogata, in quo loco est ille puteus (respondit): «In curia servitium ante conquinam».*

<sup>107</sup> *MREV 1, 229 (Inquisitio super vita): Agnes servitialis istius monasterii iuravit, ut supra. ... / Interrogata, quomodo scit predicta, respondit: «Quia videbam». Item dixit: «Quodam die post completorium pluebat fortiter, et erat multum obscurum, et tunc ipsa domina mea vocavit me, et veni cum una socia ad eam, et ipsa dixit mihi, quod ego apportarem sibi tunicam suam, et multum mihi displicuit cum ibam pro dicta tunica, credens quod ipsa socia mea esset mecum, sed eam non videbam, quia erat ita obscurum tempus, quod si aliquis me percussisset ad faciem ego non vidissem eum, et sic cecidi in quemdam puteum, et postquam ivissem ad fondum putei tertia vice, cepi me ad parietem muri, et domine que accurrerant extraxerunt me superius». / Interrogata, in quo loco erat tunc virgo Margaretha, quando hoc sibi dixit, respondit: «In quodam domo de petris, nescio aliud nomen». / Interrogata, quot anni sunt, quod hoc fuit, respondit: «Credo quod sunt novem anni.» / Interrogata de mense, respondit: «Non recordor». / Interrogata de die, respondit: «In die resurrectionis domini». / Interrogata, si alie erant presentes quam socia sua, quando dicta Margaretha hoc dixit sibi, respondit: «Sic soror Sapientia, que mortua est». / Interrogata de nomine dicte socie sue, respondit: «Elvit». / Interrogata, que fuerunt ille, que traxerunt illam de puteo, respondit: «Agata servitialis». / Interrogata de aliis, respondit: «Non recordor». / Interrogata, ubi est ille puteus, in quem cecidit, respondit: «In claustro de foris ante coquinam». / Interrogata, si aliquid erat tunc in circuitu dicti putei, respondit: «Non, et erat discoopertus». / Interrogata, si aliquid aliud vult dicere, respondit: «Dic quod scio, et alie domine dixerunt que sciunt».*

<sup>108</sup> *MGH SS 9, 703 (Continuatio Vindobonensis): 1270. ... Rex vero Bochemie per nimia yemis sevicia ad hec nichil valens facere, distulit bellum usque ad proximum pasca. In eadem vero yeme quedam societas nobilium, quorum capitaneus erat Sifridus Waehingarius consanguineus Orphanorum, volens per rapinam Ungariam intrare, et frigus erat maximum, et cum lacum quendam transire vellent coagulatum vero equorum totque virorum armatorum confracta submersi sunt ibidem qui erant noti nobilium 40, aliorum vero fortium numerato 300.*

source, namely the *Continuatio praedicatorum Vindobonensium* referred to the frozen lake, the one that the *Waehingar* army crossed in November 1270, as a *fossa congelata* located close to the (Moravian) border.<sup>109</sup> The same and some other sources, such as the *Historia Annorum* remark that the army of the Czech king, Otakar, also commenced a military campaign in Austria, but he had to postpone it due to the bad winter conditions.<sup>110</sup>

#### *Early 1271 – disease, an impassable river and food shortage: Czech troops in Hungary*

According to the description of a Czech military campaign (with Polish and partly Austrian troops) to northwestern Hungary, presumably after the hard winter of 1270-1271, hunger and disease arose in Austria and Hungary. As the *Historia Annorum* and later the *Anonymi Chronicon Leobensis* remarked, the disease was unusually bad and both animals and humans were affected (“*Eiusdem tempore anno tam inaudita facta est pestilentia in Austria et Ungaria, ut ex tam vehementi pestilentie plaga in fossatis maximis simul et semel mortui homines tamquam peccora infoderentur*”).<sup>111</sup>

Moreover, according to the description, at this time not the invaders but defenders made an unsuccessful attempt to cross the river, and several soldiers (Hungarians) became submerged in the waters of the Rábca river.<sup>112</sup> Similar to

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<sup>109</sup> MGH SS 9, 728-29 (*Continuatio praedicatorum Vindobonensium*): 1270. *Bela rex Ungarie et regina Maria moriuntur, quibus successit Stephanus filius eorum. ... Tunc Comani et Ungari multos captivos de Austria abduxerunt mense Novembri. Eodem tempore Sifridus Wehinger cum aliis trecentis qui Ungariam nocte secesserunt, dum transirent quandam fossam congelatam, confractis glaciebus prope Marchiam sunt submersi. .... 1271. Stephanus rex Ungarie tyrannus congregatis Comanis et Ungaris terras regis Boemie, ut hactenus sepius pater fecerat, nititur perturbare. Cui rex Bohemie cupiens resistere, tota autem hyeme fatigatus ab Ungaris et Comanis.* This information was also applied by the *Anonymi Chronicon Austriacarum* as well as the *Anonymus Zwetlense*. See SRA 2, 256 (*Anonymi Chronicon Austriacarum*); SRA 1, 983-84 (*Anonymus Zwetlensis*).

<sup>110</sup> MGH SS 9, 651 (*Historia annorum*): 1270. .... *Iuraverat namque regi Boemie se cum ipso pacem firmissimam habiturum, set clam hyberno tempore misso exercitu invadit Austriam fradulenter, multosque interficiens, set multo plures innodatos vinculis secum captivos abduxit.* Brázdil and Kotyza, *History of Weather*, 107, dated the event for around 1 November (1270), and connected it to the military campaign of Přemysl Otakar II in Austria.

<sup>111</sup> MGH SS 9, 651-52 (*Historia Annorum*). See also: SRA vol. 1, 838 (*Anonymi Chronicon Leobensis*).

<sup>112</sup> MGH SS 9, 703-04 (*Continuatio Vindobonensis*): 1271. *Rex Bochemie multis principibus in unum collectis, inter quos erat marchio de Pronswich et duces Polonie et alii quam plures, et cum maxima multitudine armatorum, bene ad nonaginte milia, intravit Ungariam ponte pulcherrimo per Danubium preparato; et in primo ipsius regis Bochemie ingressu Posonium, quod vulgariter dicitur Prespurch, potenter expugnavit, quod factum est infra hora prima et tercia. Rex vero Bochemie cives Wiennensis cum mille et quingentis equis predicti castrum fecit esse custodes. Postea vero aliud castrum dictum aput Sanctum Georium, et castrum dictum Poesinge, et Piberspurch, et civitatem dictam Tirna,*



the domestic 14<sup>th</sup>-century chronicle composition, the *Chronicon Monacense* has a slightly different recollection about what happened at the Rábca river, and does not mention hunger or disease afterwards.<sup>113</sup> As successful the campaign seemed to be based on the description of the *Continuatio Vindobonensis*, the combined (Czech-Polish-Austrian) army could not proceed to the areas over the Rábca river, and left Hungary. The main reason for this prompt return was, according to the same source, a shortage of food supplies that occurred (in the area) by harvest time and thus the army could not stay there any longer.<sup>114</sup>

*Two campaigns of Otakar to Hungary in 1273 – returning in ‘winterly weather’*

According to the *Continuatio Claustroneuburgensis*, the Czech king together with Austrians led another campaign to Hungary, when the two armies attacked Transdanubia, the Czechs proceeded to Győr (Raab) and occupied the town of Sopron. All that Otakar gained in Hungary, however, was taken back by the Hungarians soon afterwards.<sup>115</sup> But Otakar had not given up for this year. He started another, much larger campaign in August when he occupied areas and towns of key importance such as Pozsony (Bratislava), Nagyszombat (Trnava in Slovakia), Győr and Sopron, on both sides of the Danube.<sup>116</sup> However, he had to

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*hec omnia in illo loco existentia viriliter expugnavit. Postmodum vero per pontem, quem per Danubium fieri iussit, cum omnibus suis transiens, ad aliam partem Ungarie se recepit, quedam, castrum dictum Cherfullenburch, et Wart, et Altenburch, potenter expugnavit, et civitatem Misenburch cum castro totaliter devastavit. Rex vero Bochemie valida manu nullo sibi resistente per duos menses in eisdem partibus Ungarie potenter manebat. Interea rex Stephanus Ungarie, maxima multitudine Comanorum tam Ungarorum collecta in oppositum regi Bochemie venit, in aquam dictam Rebintz se locavit. Sed contra regem Bochemie nichil facere potuerint, tam ex ipsis scilicet Ungaris qui predictam occulte transierunt, plurimi submergebantur, et ab adversariis sunt occisi. Item vero rex Bochemie videns quod pre nimia fame que tantum invaluit, et usque ad messem plenarie perduravit, diucius cum tanta multitudine stare non posset, scessit inde, et in Wiennam suam civitatem se recepit, et alii vero omnes ad propria sunt reversi. See also MGH SS 9, 744 (Continuatio Claustroneoburgensis VI).*

<sup>113</sup> SRH 1, 470 (*Chronici Hungarici Compositio Saeculi XIV.*; *Chronicon Budense*): *Qui Othacarum regem Bohemorum in Hungariam cum Bohemis, Australibus, Brandenburgensibus ac ceteris mixtis gentibus cum potentia venientem ante fluvium Rapcha devicit viriliter et fugavit.* See also: SRH vol. 2, 83 (*Chronicon Monacense*): 63. *Stephanus coronatur. Post Belam filius eius, Stephanus regnavit super totam Hungariam. Qui Othocarum regem Bohemorum in Hungariam cum Bohemis, Australibus, Brandenburgensibus ac ceteris mixtis gentibus cum potencia venientem ante fluvium Rapcha devicit viriliter et fugavit.*

<sup>114</sup> According to the analysis of Brázdil and Kotyza, *History of Weather*, 106-07, in this year the weather was unfavourable for the crops, and bad harvests occurred not only in Bohemia but also in German areas and the Low Countries.

<sup>115</sup> Kristó, *Az Árpád-kor háborúi*, 141-42.

<sup>116</sup> MGH SS 9, 704 (*Continuatio Vindobonensis*); SRA vol. 2, 258-59 (*Anonymi Chronicon Austriacarum*).

return ‘in October, due to cold winter weather conditions.’<sup>117</sup>

### *15<sup>th</sup>-century chronicle reports on great coldness and snowfall in the Carpathian Mountains: early October of 1276*

According to the 15<sup>th</sup>-century Polish chronicler, Długosz, immense coldness appeared in the Cracow area at the end of September, and on 6 (GC: 13) October great snowfall occurred in the ‘Sarmatian Alps’ dividing Poland from Hungary (Carpathian Mountains) which is called Tatra at *Kezmark* (H-Késmárk; Kežmarok today in Slovakia: see fig. 1). Wintry weather conditions were described for mid-autumn.<sup>118</sup> The report should be treated with great care due to the fact that only a 15<sup>th</sup>-century compilation preserved its memory.

### **Evidence from the 1280s**

#### *Battle with great rainfall at Lake Hód: autumn 1280 or 1282?*

In the area of what is today called Hódmezővásárhely, in the 13<sup>th</sup> century an extensive lake was situated which was up to the late 19<sup>th</sup> century directly connected to the large rivers of the east-central Great Hungarian Plain. Hód was the name of this lake (located at the medieval village of Hód) where either in 1280 or 1282 László IV had his important battle against ‘his own’ Cumans, which was clearly a turning point in the relationship of the state and the very problematic (semi-)nomadic ‘guest-population’ (which King László’s mother also belonged to). According to the 14<sup>th</sup>-century chronicle composition, the sudden intense rainfall greatly influenced the direction and the final outcome of the battle: it resulted in a phenomenon described by chronicles as Cumans looking like the ‘mud of the earth’.<sup>119</sup> Similar to the German 14<sup>th</sup>-century chronicle of Henrik Mügeln,<sup>120</sup> the *Chronicon Posoniense* also mentioned this

<sup>117</sup> MGH SS 9, 744: (*Continuatio Claustroneoburgensis* VI): 1273. .... *Hinc usque Rab perveniens, postruam requieverat exercitus, remeando castra Ordeinstorf et alia plura funditus destruxit, Odenburch capiens suis munivit, et frigore yemali coactus ad propria remeavit.*

<sup>118</sup> Długosz 7, 807 (*Historia Poloniae*): (1276.) *Frigor immenso & sine exemplo Cracouiensem Prouinciam in fine Septembris premente, sexta deninde Octobris die tanta niuium congeries descendit, Alpibus Sarmaticis, qui Poloniam & Hungariam diuidunt, & aliis quos Tatri appellamus de Kezmark sitis insolitum coeli rigorem augmentibus, vt omnem regionem spissitudine grossa vestiret, & pro autumno gelidam hyemem induceret.*

<sup>119</sup> SRH 1, 472 (*Chronici Hungarici Compositio Saeculi XIV.*; *Chronicon Budense*): .... *propter ymbrium densitatem iuxta propheticum ‘facto sunt ut stercus terre’ .....*

<sup>120</sup> SRH 2, 219 (*Chronicon Henrici de Mügeln*): *Do waz der Comanen herczog Oldumar (sic) genant, und samment ein grosz her und kam zu dem see Hood genant und wolt ddaz vngerische land betwingen. Do czoh er kunig Lasla gen den Haiden und strait mit in. Do kom*

event and stated that from God's mercy great rain fell into the face of the 'pagans' (Cumans), who only trusted their bows and arrows, and (after mentioning the 'mud of the earth' allegory) then declared that King László had gained a victory.<sup>121</sup>

In conclusion, heavy rainfall was clearly unfortunate for the fighting strategy of the Cumans: in the heavy rain (downpour?) Cumans could not use their arrows.<sup>122</sup> No further information is available concerning the exact date of the battle. Presumably taking details from the 14<sup>th</sup>-century chronicle composition,<sup>123</sup> 15<sup>th</sup>-century narratives such as Vtino (although briefly connected to the later second Mongol invasion) and Długosz also dated the battle of Hód Lake to 1282.<sup>124</sup> According to Szabó,<sup>125</sup> and later to Kristó, taking all known contemporary domestic documentary evidence (both narratives and charter evidence, providing the itinerary of the king) into account, the battle probably occurred in mid-or late autumn (late October–early November) 1280, while 1282 is a less likely date.<sup>126</sup> Following the argumentation of some previous studies, recent

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*ein grosser regen under verderbt den Haiden ir geschosz, alt gotes genade wolt, und den streit verlurn.*

<sup>121</sup> SRH 2, 44 (*Chronicon Posoniense*): (1282) ... *Postea cum prelium committeretur inter partes, subito ex divina clementia pluvia grandis exoritur contra facie paganorum, et qui in arcubus sperabant et sagittas (sic), propter ymbrium densitatem iuxta propheticum 'facti sunt ut stercus terre.'* Et sic Ladizlaus victoriam obtinuit divino fretus auxilio.

<sup>122</sup> For the fighting strategy (rather similar to other steppe peoples) of the Cumans and for the importance of the arrows, see, e.g., István Gyárfás, *A Jász-kunok története* (History of the Jaso-Cumans), vol. 3 (Szolnok: privately printed, 1883), 136-44.

<sup>123</sup> SRH 1, 471-72 (*Chronici Hungarici Compositio Saeculi XIV*; *Chronicon Budense*): *Postea cum anno Domini M-o CC. LXXX II-o Oldamir dux Cumanie congregato exercitu Cumanorum circa lacum Hood vocatum volens subiugaret, contra eum rex Ladizlaus, 'ut foris Iosue' pro gente sua et regno pugnaturus accessit. In cuius exercitu Lorandus filius Thoma, iles strennuus contra Cumanos lanceavit cum impetu virtutis sue et laudabiliter percussit plurimos et prostravit. Postea cum prelium committeretur inter partes fortissimum, subito et inopinate ex divina clementia pluvia grandis exoritur contra faciem paganorum, et qui in arcubus sperabant et sagitta, propter ymbrium densitatem iuxta propheticum 'facto sunt ut stercus terre'.* Et sic rex Ladizlaus victoriam obtinuit divino fretus auxilio.

<sup>124</sup> AMH 1, 82-83 (*Brevis narratio*): *Postea anno domini 1282 Cuni voluerunt sibi regnum subiugare, quos Rex prostravit, et Cuni fugientes ad Tartaros, et cum eis secunda vice usque ad Peschtt universa combusserunt.* Długosz 7, 827-28 (*Historia Poloniae*): *Oldamir Cumanorum Dux, in superbam iactantiam eleuatus, & credens se vniuersum Hungariae Regnum, propter Wladislai Regis prauos & leues mores, subacturum, Hungariam inuadit. Cui Wladislaus Hungariae Rex circa lacum Hood occurrens, secum confligit. Et praelio acri inter vtrosque durante, tempestas ingenst coorta, ora & vultus Comanorum verberans & obcoecans, magno adiumento Hungaris fuit, vt vincerent. Victus tanem est ab Hungaris Oldamir, & omnis suus exercitus, paucis, qui fugiendo ad Tartaros euaserant, exceptis, deletus.*

<sup>125</sup> Károly Szabó, *Kun László* (Ladislaus the Cuman) (Budapest: Magyar Történeti Társulat, 1886), 99-104.

<sup>126</sup> Kristó, *Az Árpád-kor háborúi*, 147-48.

investigations again suggest that 1282 might have been the year of the battle. According to this opinion, the king indeed led a military campaign to ‘regulate’ the Cumans in 1280: this fight resulted in the (unsuccessful) emigration efforts of the Cumans towards Cumania (territory of the Golden Horde). Nevertheless, the final battle that settled the later history (and slow integration) of Cumans in Hungary, namely the battle of Hód took place in 1282. Even if the year of the battle is still debated, the battle clearly took place near the village of Hód (and/or along the shoreline of the Hód lake):<sup>127</sup> the former Hód Lake ceased to exist due to 19<sup>th</sup>-century water regulation works (today it is part of Hódmezővásárhely near Mártyély – for the location see fig. 1). However, if the dating is the autumn of 1280, this would be in good agreement with parallel Czech evidence suggesting an unusually warm autumn for 1280.<sup>128</sup>

### *Winter of 1281 in Slavonia: deep snow and severe frosts*

After the examination on 14 March Nicolaus, the Duke of Slavonia and his brother, Count Henrik were excommunicated by the bishop of Zagreb, because in the (preceding) winter they attacked and robbed the village of *Waska* in Verőce county (today Vaška in N-Croatia), located near the Drava river. Moreover, out of the villagers expelled, five women froze to death in the bitter cold. And since there was great snow (*propter impedimenta nivium*) it was not possible to drive the sheep and goats with them, so they simply skinned the animals for their fur.<sup>129</sup> As a clear parallel, the winter of 1281 was severe, snowy and long-lasting in the Czech areas, and similar weather was reconstructed for the German territories as well.<sup>130</sup>

### *Great famine in Cracow – mass migration to Hungary*

<sup>127</sup> For a recent synthesis, a detailed overview and analysis of scientific literature as well as sources see Gyöngyi Nagy, “Kun László király és a Hód-tavi csata” (King László the Cuman and the battle of Lake Hód), in *A hódmezővásárhelyi Szeremlei társaság évkönyve 2012* (Hódmezővásárhely: Városi Levéltár, 2012), 69-89.

<sup>128</sup> Brázdil and Kotyza, *History of Weather*, 108.

<sup>129</sup> *ÁUO* vol. 12, 336-38: *Noverit vestra paternitas, quod quinta feria proxima ante dominicam Oculi Mei, post nostrum recessum de curia venerabilis patris domini Philippi, Dei gracia Episcopi Firmani, et Apostolice Sedis Legati, ad quandam possessionem Episcopatus nostri, Wasca vocatam, venissemus, propter depredaciones Nicoali Bani tocius Sclauonie, et Comitis Henrici, filiorum Henrici Bani, ac eorum complicum et sequacium violentos descensus, destrucciones et depredaciones manifestas, sic invenimus eandem desolatam et destructam, quod non solum res vel bona illic residencium fuerunt ablata, verum eciam vix pauci homines propter destrucciones huiusmodi remanserunt in eadem; ubi eciam quinque mulieres expulse de suis domibus per eosdem, algore frigoris spiritum exalarunt. Pecudes eciam, scilicet oves et capras, quas pellere propter impedimenta nivium non potuerunt, scorticaverunt et scorticari fecerunt propter pelles.* See also: Szabó, *Kun László*, 106.

<sup>130</sup> Brázdil and Kotyza, *History of Weather*, 108; Glaser, *Klimageschichte*, 75.

According to the *Annales Polonorum*, in 1282 there was a great famine in the Cracow area. This famine resulted in a mass emigration from these areas; the targetted lands were the Russian areas and Hungary.<sup>131</sup> This fact might also suggest that the situation was not so severe in Hungary compared to that in South Poland.

### *Bad luck with weather? Torrential rains and the second Mongol invasion in 1285*

In 1285 Tatars/Mongols returned to Hungary: according to the *Continuatio Vindobonensis*, a huge number of Cumans and Mongols entered Transylvania; they caused untold damage and killed many people. Nevertheless, treated as a miracle from God, clouds appeared and a lot of snow and rain fell. This snow and cloudburst caused flooding in which almost everyone drowned.<sup>132</sup> The *Continuatio Claustroneoburgensis* (VI)<sup>133</sup> and the *Annales Polonorum* (I)<sup>134</sup> referred to this event in 1284, while it was dated to 1285 by the *Annales Sancti Rudberti*<sup>135</sup> and the *Annales S. Stephani Frisingenses* as well.<sup>136</sup> Although dated to 1276, probably the same 1285 event appears in the *Anonymus*

<sup>131</sup> MGH SS 19 (*Annales Polonorum* III-IV), 647: *Eodem anno fuit maxima fames in terra Cracoviensi, per quam famem infinita millia hominum iverunt alii in Russiam, alii in Ungariam.*

<sup>132</sup> MGH SS 9, 713 (*Continuatio Vindobonensis*): *Anno Domini 1285 Comani et Tartari cum innumerabili multitudine intraverunt Ungariam, et vastaverunt eam, et occiderunt et deduxerunt ex ea innumerabiles viros et mulieres et parvulos eorum; tandem vero ab incolis terre circa Septem castra turpiter sunt de terra fugati, occisis ex eis innumerabili multitudine. Reliqui evaserunt, quamvis pauci, fugientes inter montes et valles nemorosas, divino iudicio ibidem fere omnes perierunt. Nam Dominus qui ubique est protector in se sperantium, misit super eos nives et pluvias ingentes, confractisque nubibus super eos tanta inundatio aquarum irrupit, quod fere omnibus submersis pauci ex eis evaserunt.*

<sup>133</sup> MGH SS 9, 746 (*Continuatio Claustroneoburgensis* VI): 1284. (1285!) ... *Item Tartari devastaverunt Ungariam, sed in ea sunt occisi, et frigore perierunt multi.*

<sup>134</sup> MGH *Scriptores rerum Germanicarum in usum scholarum*, vol. 11 (Hannover: Hahn, 1866) (hereafter MGH SS rer. Germ. 11), 69-70 (*Annales Polonorum* I): 1284. ... *Eodem anno Tarthari terram Ungarie, que dicitur de Septemcastris, intraverunt et multos christianos captivaverunt et occiderunt. Christus autem tutor christianorum, magnam famem in eos et pestilenciam inmisit; quod audientes Septemcastrenses Deo victoriam commiserunt, dicentes: Melius est gladio perire quam fame in castris et in civitatibus propter Tartharos interire. Vota complent opere. ...*

<sup>135</sup> MGH SS 9, 809 (*Annales Sancti Rudberti Salisburgenses*): 1285. ... *Gens barbara, videlicet Tartari, Ungariam intrant hostiliter iam altera vice cum tanta multitudine, quod castra meciuntur ad longitudinem 10 rastarum et in latitudine 6; quorum pavor irrui. ... Tartari maxima eorum multitudine interfecta retrocedunt.*

<sup>136</sup> MGH SS 17, 57 (*Annales S. Stephani Frisingenses*): 1285. *Hoc anno innumerabilis multitudo Tartarorum erupit per Meotida paludem, et Ungariam cede, incendiis et rapinis incredibiliter vastarunt, ad ultimum a septem castellensibus conclusi, superati, interfecti sunt, vix tante cladis nuncii paucissimi vix ad propria remearunt.*

*Leobensis*.<sup>137</sup>

According to the 14<sup>th</sup>-century chronicle composition and other domestic chronicles, the second invasion caused lots of damage, and Mongols destroyed and burnt areas ‘up’ to Pest.<sup>138</sup> It is also known that around Easter (25 March in 1285) the ferry between Pest and Buda was very busy and full of refugees, whose situation was greatly exploited by some of the ferrymen and other people – but Mongols apparently did not cross the river at this time.<sup>139</sup>

Some time in early or mid spring, the Mongols descended towards southern Transylvania where they planned to leave the country. While the *Continuatio Claustroneoburgensis* (VI) mentioned that many Mongols had died in the great frost, others emphasised that great rainfall and a flood (torrential rain?) occurred, in which Mongols became submerged.<sup>140</sup> The *Hermanni Altahensis Annales* and its copies also mention that natural conditions were unfavourable for the Mongols: ice, snow and rain fell in great quantity.<sup>141</sup> The *Österreichische Reimchronik* described a snow-rain storm, followed by frosty

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<sup>137</sup> SRA 1, 861 (*Anonymus Leobensis*).

<sup>138</sup> SRH 1, 472 (*Chronici Hungarici Compositio Saeculi XIV; Chronicon Budense*): 182. *Tandem postea pauci de ipsis Cumanis, qui evaserant, ad Tartaros fugientes, quorum instinctu Tartari anno Domini M-o CC-o LXXX-o V-o secunda vice in Hungariam advennerunt et usque Pesth universa miserabiliter combusserunt.* See also (following the text of the 14<sup>th</sup>-century chronicle composition): SRH 1, 213 (*Chronicon Zagrabienne*), SRH 2, 44 (*Chronicon Posoniense*) and SRH 2, 83 (*Chronicon Monacense*). For a detailed overview of the different scientific opinions, see György Székely, “Egy elfeledett rettenés: a második tatárjárás a magyar történeti hagyományokban és az egyetemes összefüggésekben” (A forgotten fear: the second Mongol invasion in the Hungarian historical tradition and in general context), *Századok* 122 (1988): 52-88.

<sup>139</sup> Johannes Simor and Nándor Knauz, *Monumenta ecclesiae Strigoniensis*, vol. 2 (Esztergom: Horák, 1882) (hereafter MES 2), 196-198: letter of the queen written on 14 June 1285. See also Fejér CD 5/3, 285. For more detailed information, see Székely, “Egy elfeledett rettenés,” 52-88.

<sup>140</sup> SRA 1, 720-721 (*Paltramus seu Vatzio*): MCCLXXXV. *Post Nativitatem Domini Chumani & Thartari cum innumerabili multitudo intraverunt Ungariam, & vastaverant eam, & occiderunt & abduxerunt ex ea innumerabiles viros, mulieres & parvulos eorum. Tandem vero ab incolis terrae circa septem castra turpiter sunt de terra fugati, occisis ex eis multitudo innumerabili; reliqui vero qui evaserant, quamvis pauci, fugientes latitantes inter montes & valles memorosas Divino iudicio ibidem fere omnes perierunt. Nam Dominu, qui ubique protector omnium sperantium in se, misit super eos nubes & pluvias ingentes: confractisque nubibus super eos, tanta inundatio aquarum irrupit, quod fere omnibus submersis, pauci ex eis evaserunt.*

<sup>141</sup> MGH SS 17, 414 (*Herimanni Altahensis Annales*): 1285. ... *Preterito anno hoc est anno 1280, tempore Ladizlai regis Ungarie, filii regis Stephani, Tartari in tanta multitudo intraverunt Ungariam, quod dicebantur cum exercitu suo undecim miliaria occupare. Qui tandem non humano auxilio, set divino iudicio perierunt. Supervenit enim grando, nix et pluvia in tanta quantitate, quod se de loco movere non poterant; et sic a christianis in circuitu positus sunt occisi, et iusti tulerunt spolia impiorum.* See also: MGH SS Vol. 17, p. 595 (*Eberhardi Archidiaconi Ratisponensis Annales*); MGH SS 9, 810 (*Weichardus de Polhaim*).

weather that caused great devastation among the Mongols.<sup>142</sup> Dated to 1284 but clearly referring to the second Mongol invasion, the *Annales Polonorum* IV, mentioned that Christ sent famine and disease on Mongols,<sup>143</sup> whereas the 15<sup>th</sup>-century chronicle of Długosz discussed the timing and spatial distribution of the event (which occurred between Epiphany and Easter; up to Buda and Pest), along with the great devastation.<sup>144</sup>

Without dating, a very important charter provides some information concerning the location of the battle. The resulting Hungarian-Secler victory over the Mongols, the battle took place in Transylvania, in the vicinity of the castle of *Turuskou* (H-Torockó; today Rimetea in Romania), where thousands of captives were freed.<sup>145</sup> In conclusion, the Mongols (and others like the Cumans) entered the country through Transylvania around or some time after Christmas, and left the country by the end of May when the king had already issued charters with regards to the past invasion, even if according to other evidence some Mongols may have stayed a little longer, and were still around in June.<sup>146</sup>

<sup>142</sup> J. Seemüller, *Monumenta Germaniae Historica. Scriptores. Deutsche Chroniken*, vol 5/1 (Hannover: Hahn, 1890), 313 (*Ottokars Österreichische Reimchronik*): CCLIII. nû wurden si gedanchaft, / wie si gewonnen die kraft, / dâmit si sich gefristen. / swâ si werlich liute wisten, / die besanden si sâ / beidiu verre unde nâ. / di Tâteraer si riten sân / an dm vordern orte an. / dishalp des Snêberg si lâgen. / die welde wâren in verslagen, / sô daz si mit gedrenghe / muosten durch die enge / in daz lant ze Ungern riten. / den hindern wart der voren strîten / wol zwên tac verswigen: / sô lanc sach man si ligen. / si ahten in ir sinne, / dô si des wurden inne, / daz in was verhamit / der selben strâzen wit, / sô daz ir grôzez her / moht niht komen ze wer / an die Unger mit schocken, / die als die snêflocken / wâren unzellich, / do vereinten si sich kurzlich / ûf ein widerreise / und liezen in der freise, / mit den man hezlichen vaht. / ein ganzen tac und eîn naht / mit strîte wâren si gequelt. / si belîbent ungezelt, / die dâ tât beliben. / die aber hinder sich triben, / dô die komen wâr / an den Snêbere mit scharn, / dô erzeugte got der guote, / der in sîner huote / het die kristenheit, / swer an im niht verzeit / und sich sîner helfe trôst, / daz er den schiere hât erlöst / ûz aller nôt bitter. / ez kom ein solich ungewitter / von schûre und von snê, / daz die Tâtraer niht mê / geluste her wider. / si sluoc der schûr dar nider, / darzuo der frost ir verderbte / sô vil und ersterbte, / daz man daz wol aht, / die si heten ûz brâht, / der kom hin wider mit unheil / kûm der hundertist teil. / die Unger dancten sêre / got, der in die êre / und di gnâde het getân.

<sup>143</sup> MGH SS 19, 648 (*Annales Polonorum* IV): 1284. Eodem anno Thartari terram Ungarie, que dicitur de Septemcastris, intraverunt et multos christianos captivaverunt et occiderunt. Christus autem tutor christianorum, magnam famem in eos et pestilenciam inmisit; quod audientes Septemcastrenses Deo victoriam commiserunt, dicentes: 'Melius est gladio perire quam fame in castris et in civitatibus propter Thartaros interire.' Vota complent opere.

<sup>144</sup> Długosz 7, 840-41 (*Historia Poloniae*).

<sup>145</sup> Károly Szabó, *Székely oklevéltár*, vol. 1 (Székely/Sekler chartulary) (Kolozsvár [Cluj Napoca]: K. Papp Miklós Nyomdája, 1872), 21-22: Donation charter issued on 18 September, 1289.

<sup>146</sup> 'in praesenti persecucione Tartarorum' - mentioned in the charter issued on 14 June in 1285 (published in: MES 2, 197). See Jackson, *The Mongols*, 205.

## Evidence from the 1290s

### *Great snow in January: uncertain year in the 1290s*

Due to the deep snow, a perambulation had to be postponed in the village of *Bosol* in Somogy county (Basal, S-Transdanubia). Unfortunately, the last number of the year cannot be reconstructed (that part of the parchment is missing), and thus, the only information available is that the perambulation would have taken place on 26 January, in an uncertain year of the 1290s.<sup>147</sup> Still, it is clear that one winter in the 1290s was rich in snow in the southern Transdanubia. There was such a great abundance of snow that perambulators could not recognise the boundaries (and landmarks), so the perambulations were not even initiated.

### *Lightning struck the son of the hated lord in the year 1297*

According to the *Continuatio Vindobonensis* as well as to *Paltramus*, in summer of 1297 several lightning bolts struck and killed several people. One such lightning bolt struck and killed the son of *Iwani*, the count of Kőszeg, who was one of the most powerful magnates of Hungary at that time. Due to his great notoriety in Austria, this event gained special interest among annalists.<sup>148</sup>

## Overview

Similar to the conditions of the 11<sup>th</sup>-12<sup>th</sup> centuries,<sup>149</sup> only a few weather related sources can be detected concerning 13th-century Hungary: due to

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<sup>147</sup> *ÁUO* 10, 432-33: *Nos Capitulum Quinqueecclesiense memorie comendamus, quod cum iuxta formam litterarum Judicis Curie domini Regis octauo die ante festum Purificacionis Beate Virginis terram Bosol uocatam, super qua inter Magistrum Corlardum et Abbatem Monasterij Sancti Jacobi de Zelyz ab una parte, et inter Paulum et Gurgh filios Iwahun de Wynzlov ab altera contenditur ....., propter habundanciamque niuium cursus metarum eiusdem terre continencium in prefato priuilegio minime reperientes perambulare nequiissent, prout hoc noster cum hominibus ambarum parcium ad nos reuersus (homo) nobis dixit. .... Datum in crastino Beati Blasij.*

<sup>148</sup> *MGH SS* 9, 719 (*Continuatio Vindobonensis*): 1297. ... *Eodem anno in estate multo plures homines in diversis locis fulmine perierunt, quam prius antea in multis annis auditum sit, ita quod in messe in uno campo octo fulminati interierunt. ... Nam filius cuiusdam Ungari comitis Ywani, homo malus, predo pessimus, sicut multis annis exstitit pater eius, divina ultione ictu fulminis mortuus est. Sic Austria liberata est ab eo.* *SRA* 1, 723 (*Paltramus seu Vatz*): *MCCXCVII. Multi homines fulmine perierunt, quod prius inauditum erat: quia in uno campo octo fulminati interierunt, insuper filius comitis Virbani (Ibani=Yvani) Ungari fulmine mortuus est.*

<sup>149</sup> For the evidence available concerning the 11<sup>th</sup>-12<sup>th</sup> centuries see Andrea Kiss, "Weather and Weather-Related Environmental Phenomena Including Natural Hazards in Medieval Hungary I: Documentary Evidence on the 11<sup>th</sup> and 12<sup>th</sup> Centuries," *Medium Aevum Quotidianum* 66 (2013): 5-37.



specific historical events, the evidence is centered to the early 1240s, the late 1260s and the mid-1280s. Another similarity is that foreign and domestic narratives still play a most important role in our search for weather-related information. Furthermore, the growing importance of charters, and the particular significance of two less-frequent source types, namely official and private letters and canonisation protocols – preserving the testimonies of contemporary eye-witnesses – should be mentioned. The available direct and indirect information can be grouped as follows:

- 1) Temperature related weather information:
  - a) The cold winter of 1241-1242 in Hungary
  - b) The (massive) freezing over of the Danube and other waterflows in (late) January
  - c) A thawing from early(-mid) February 1242: Székesfehérvár area (Central Hungary)
  - d) Cold, frosty weather in (early) March 1242 in the Split area (Dalmatia)
  - e) A hot day reported in early June, 1246: West-Hungary
  - f) Great heat from late June along the Morava river: 1260
  - g) Probably some time in the winter of 1267, cold weather conditions in the Buda area
  - h) Ice jam floods suggesting a hard winter with mild spell(s): the winter of 1268(Buda)
  - i) In late autumn-early winter in 1270, a freezing spell in Northwest-Hungary,
  - j) Cold winter conditions in 1281 in North-Slavonia,
  - (k) Probably mid-autumn in 1276, a bitter cold spell in the Tatra Mts.).
- 2) Evidence on precipitation events:
  - a) A sudden great rainfall in the "Hungarian Mountains" (NE-Carpathians) in 1229
  - b) Incessant rain for 3 days in Austria and Hungary; a great Danube flood in 1235
  - c) The winter of 1241-1242 was rich in snow
  - d) A rainy autumn day in Veszprém (Central-Transdanubia) in 1249
  - e) Heavy rainfall (mixed with snow?) in the mountains in Transylvania in spring 1285
  - f) A large amount of snow in a winter in the 1290s in S-Transdanubia
  - g) Undated (between 1266-1269?) data on deep snow and a rainy day in the Buda area
  - h) Great snow in (late?) winter along the Drava river in N-Slavonia
  - i) A great downpour(?) at the Hód Lake, SE Great Plain in the autumn of 1280(?).
  - (j) Probable mid-autumn 1276 great snowfall in the Tatra Mts.
- 3) Other weather phenomena:
  - a) A (wind)storm in the Buda area in 1268?
  - b) Lightning struck and caused loss of life in West-Hungary in 1297

- 4) Environmental phenomena indirectly related to weather:
- a) Esztergom and (Ó)Buda burnt down in 1223
  - b) The great famine years of 1241-1243 in Hungary (caused by the Mongol invasion)
  - c) Wolf packs, foxes and eagles attacking humans in Hungary in 1241-1243
  - d) A locust invasion in Hungary in 1242-1243
  - (e) Probable famines in 1217 and 1263; probable hunger/food shortage in early 1271).

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VON GERHARD JARITZ

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DES AMTES DER NIEDERÖSTERREICHISCHEN LANDESREGIERUNG

**niederösterreich kultur**

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## Vorwort

*Medium Aevum Quotidianum* 68 widmet sich neuen Analyseergebnissen aus der ungarischen und tschechischen historischen Forschung, die wichtige Bereiche des mittelalterlichen und frühneuzeitlichen Alltags betreffen. Die Fortsetzung der Studie zu den Wetterverhältnissen im mittelalterlichen Ungarn durch Andrea Kiss behandelt im vorliegenden Heft nun den Zeitraum des 13. Jahrhunderts.<sup>1</sup> Eine weitere Fortsetzung zum 14. Jahrhundert ist für Heft 70 (2015) geplant.

Michaela Antonín Malaníková analysiert spätmittelalterliche Testamente aus der südmährischen Stadt Znojmo in Bezug auf ihre Aussagen zu Kindheit und Jugend aus genderspezifischer Perspektive. Sie präsentiert dabei Ergebnisse, die auch für die internationale Forschung zu letztwilligen Verfügungen und ihrem Aussagegehalt von besonderer Relevanz erscheinen.

Tamás Kiss behandelt ein Phänomen, das natürlich starke politikgeschichtliche Bezüge aufweist, jedoch auch besonders alltagsbeeinflussend wirken konnte: die Kriegspropaganda, hier bezogen auf den Tuniskrieg Kaiser Karls V. von 1535. Er kann dabei feststellen, dass das Propagandapotential des Krieges genauso wichtig war wie den Krieg letztendlich zu gewinnen.

Gerhard Jaritz

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<sup>1</sup> Vgl. Andrea Kiss, Weather and Weather-Related Natural Hazards in Medieval Hungary I: Documentary Evidence on the 11<sup>th</sup> and 12<sup>th</sup> Century, *Medium Aevum Quotidianum* 66 (2013): 5-37.