

Hydrology and Environment in the Southern Basin of Lake Fertő/Neusiedler Lake in the Late Middle Ages

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After Lake Balaton, Lake Fertő/Neusiedler Lake is the second largest natural lake of the Carpathian Basin, located in the border region of Austria and Hungary. Moreover, it is a very shallow, salt lake with a comparatively large, extensive water surface. Thus, the lake is very sensitive to changes in hydrology and precipitation; in dry years it could almost totally dry up, while in wet years practically the whole basin of the lake was filled up with water. This is perhaps one of the main reasons why – on the basis of the existing legends – many historians even at the end of the 19th century strongly believed that certain villages had "sunk" into the lake. Therefore, research on the past environment of such a changeable lake is of special importance.

In this study, the late medieval situation of the lake and its close vicinity will be discussed on the basis of written sources and the available archeological evidence. Most data concerning the medieval environment refer to the southern parts of the lake and its immediate neighborhood. Thus, this is an area which can be discussed in detail.¹ Although the present study concentrates on late medieval (namely 14th-early 16th-century) conditions, in some cases, earlier (12th-13th century) sources, if available, were used as well. Moreover, in other cases it was necessary to employ modern (16th-19th-century) parallels. As an analogy, these sources may help us to understand some details of the late medieval ecosystem of the lake. While a significantly high number of medieval

¹ This study is a revised and extended version of a previous article: A. Kiss, "A Fertővel kapcsolatos vitás földrajzi kérdések középkori okleveleinkben" (Unsolved geographical questions in connection with Lake Fertő in medieval charters), *Soproni Szemle*, 53/1 (1999), 53-62.

In some points the article contains more details concerning the database (e.g. on the problem of *tributum Fertew*), while in the present study rather an overall picture is given on present research possibilities and latest results.

documents from this area have been preserved, there is a relative paucity of direct contemporary written information that would refer to lake conditions (connected mainly to Sopron and the area of the manors of Sárvár and Kapuvár belonging to the Kanizsai family).² In addition, due to its location at the Austrian-Hungarian border, few archeological surveys or excavations were carried out in the region in the twentieth century. Therefore, it has become necessary to examine the available indirect evidence in more detail.

Source material and environmental conditions

The lake and its near surroundings are special from both the historical and geographical points of view. All the salt lakes, including the most westerly one, are especially sensitive to environmental changes, both human and natural.³ At present, the water supply of the lake comes predominantly from precipitation falling directly onto the surface of the water. However, before regulation works, it was part of a much larger hydrological system (Fig. 14). Through the swampy area of the Hanság/Wasen, located east of the lake, the lake was connected to the Rába/Raab-Rábca/Rabnitz river-system, and, therefore, indirectly to the Danube. When the waterlevel of the Danube was very high, the basin of the Fertő-Hanság acted as its natural reservoir. Not only did the system cease to exist because of the regulation works, especially from the mid-19th century, but the changes influenced the waterlevel, extent and ecological conditions (e. g. rapid growth of the reed belt until recent decades). This also means that the lake has only an artificial outflow, and at present – due to the dramatic changes of waterlevel – only half of the basin of the lake is filled with water. Most probably, the changing environmental conditions have caused fundamental changes in the basin morphology of the lake, too.

² From the mid-16th century, the property complex of the Kanizsai family passed to the hands of Tamás Nádasdy. Some letters of the Nádasdy-collection were published, but most of the collection (thousands of letters from the 1520s up to the 1670s) is still unpublished and should be investigated in detail (MOL, Magyar Országos Levéltár/Hungarian National Archives), Microfilm Collection: 6876-6926).

³ To the question of historical waterlevel changes see: F. Kopf, "Wasserwirtschaftliche Probleme des Neusiedler Sees und des Seewinkels," *Österreichische Wasserwirtschaft*, 15 (1963), 190-203; A. Kiss, "Changing Environmental Conditions and the Waterlevel of Lake Fertő (Neusiedler See) Before the Drainage Work (13th-18th Centuries)," *Annual of Medieval Studies at CEU 1997-1998* (1999), 241-248..

⁴ MOL, S12 Div. XIII. No. I.

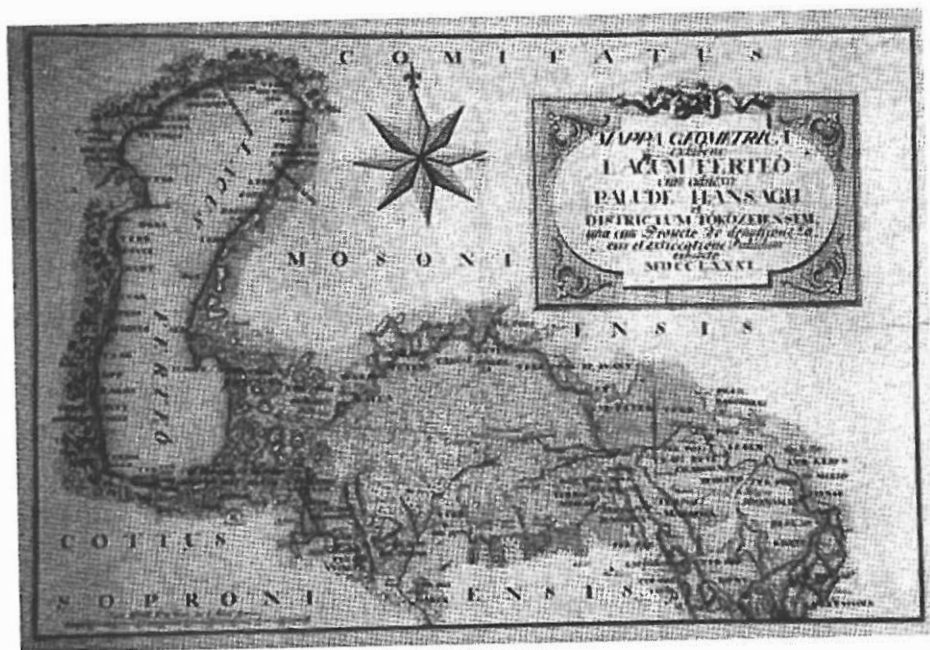


Fig. 1. Map presentation of the Fertő-Hanság system in 1781, before the regulation works

From a historical point of view, the Fertő area is also significant: it has one of the richest original collections of historical sources in Hungary. This wealth of material is the result of the early appearance of written material and the fact that the Ottomans never occupied the area which in other parts of medieval Hungary caused a significant (in some cases almost total) destruction of charter evidence. Therefore, most of the original sources have been preserved to the present day. Over the centuries there have been several debates around the historical changes in the extent of the lake. One of the most critical of these discussions at the end of the 19th century was related to the disappearance of some settlements that had existed by the shoreline of the lake.⁵ On the basis of certain legends, attempts were made to find medieval settlements which had „sunk into the water” as the result of rising waterlevels.⁶ Moreover, another interesting question of historical environmental changes arose: the low waterlevel of the lake was in many cases connected with the still uncertain „Fertő river” phenomena, mentioned in some medieval charters. This strong interest with regards to the lake is partly caused by its importance in the area.

Descriptive names given to the lake

The Hungarian name of the lake, *fertő*, is descriptive. As a geographical term, it describes the condition of a (shallow) lake with a more or less extensive reed cover in some parts, and probably with some swamps at the edge.⁷ Lake Velence, the third largest lake in the Transdanubian region, located northeast of Székesfehérvár, had the same

⁵ For some significant milestones of the late 19th-century debate, see for example: I. Nagy, "A Fertő régi áradásai" (Former floods of Lake Fertő), *Századok*, 9 (1883), 690-709; idem, "Sopron múltja" (The past of Sopron), *Századok*, 2/17 (1869), 12-57; F. Pesty, "Elsüllyedt falvak a Fertő mentén" (Sunk villages at the shore of Fertő). *Vasárnapi Újság*, 1865, 8-11.

⁶ Examples of the legends of the region: I. Szentmihályi, "Történeti események tükröződése a Fertő vidéki néphagyományokban" (The appearance of historical events in the legends of the Fertő area) *Arrabona*, 16 (1974), 213-30; A. Mailly, A. Parr and E. Löger, *Sagen aus dem Burgenland* (Vienna: n. p., 1931).

⁷ In one of the earliest Hungarian-Latin dictionaries *stagnum* was translated simply to the word "lake". See: F. Pápai Páriz, *Dictionarium Latino-Hungaricum et Hungarico-Latino-Germanicum*, 1708, 2nd ed. (Budapest: Universitas Könyvkiadó, 1995), 526.

name in medieval times. The word *fertő* itself was a frequently used word even for smaller wetland areas of the same type.⁸

Most probably the Hungarian name of the lake is already mentioned as *Vertowe* in a German source in 1074.⁹ In 1199, it appeared as *Ferteutu* in a Hungarian charter.¹⁰ It can, therefore, be presumed that this name was used as a proper name for the lake at least from the end of the 12th century, but – as the German name suggests – perhaps as early as the 11th century. The name of the lake frequently appears without an attribute, as *Ferth(e)w*, *Fertew*, *Fertou*, *Fertoe* or *Ferteu*.¹¹ However, in most medieval charters, the lake is described as *lacus*¹² (lake) or

⁸ T. Ortway, *Magyarország régi vízrajza a XIII. század végéig* (The old hydrology of Hungary until the end of the thirteenth century), vol. 1 (Budapest: Magyar Tudományos Akadémia Könyvtár Hivatala, 1882), 306-310. See also: I. Szamota and Gy. Zolnai, *Magyar oklevélszótár* (Hungarian charter-dictionary) (Budapest: Hornyánszky Viktor könyvkereskedése, 1902-6), 242-243.

⁹ I. Lindeck-Pozza et al., *Urkundenbuch des Burgenlandes Urkundenbuch des Burgenlandes und der angrenzenden Gebiete der Komitate Wieselburg, Ödenburg und Eisenburg*, 4 vols. (Vienna: Hermann Böhlau Nachf., 1955-1985) (see later Bgl.), 1/16-17 (1074, Regensburg). See also: Gy. Györfly, *Diplomata Hungariae Antiquissima*, vol. 1 (Budapest: Akadémiai Kiadó, 1992), 197.

¹⁰ Bgl. 1/36 (1199).

¹¹ See, for example: Bgl. 1/16-17 (1074); Bgl. 1/281 (1262); Bgl. 1/304-305 (1264); Bgl. 2/153-154 (1281); Bgl. 2/307 (1297); Bgl. 2/325-327 (1299); Bgl. 4/364-365 (1299); Bgl. 3/89 (1316); Bgl. 3/94-95 (1317); Bgl. 4/186 (1335); Bgl. 4/158-159 (1335). I. Nagy, *Sopron vármegye története: oklevéltár* (History of Sopron county: archival collection), 2 vols. (Sopron: Litfass Károly Könyvnyomdája), 1889 (see later Nagy), 1/240-241 (1353); 1/293-296 (1358). J. Házi, *Sopron szabad királyi város története. Oklevéltár* (History of the free royal town of Sopron. Archival Collection), vols. I/1-6, II/1-5 (Sopron: Székely és Társa Könyvnyomdája, 1924-1943) (see later Házi), 1/4/242-243 (1457).

¹² For the frequency of the appearance of *Fertő lacus* see, for example: Bgl. 1/35-36 (1199); Bgl. 1/68-70 (1217); Bgl. 1/196 (1240); Bgl. 1/233-234 (1254); Bgl. 1/257-259 (1257); Bgl. 3/75 (1314); Bgl. 3/97-98 (1317); Bgl. 3/130-1 (1321); Bgl. 3/140-141 (1322); Bgl. 3/213 (1326); Bgl. 4/92 (1331); Bgl. 4/112-113 (1332); Bgl. 4/246 (1338). I. Nagy, I. Páur et al., *Hazai okmánytár/Codex Diplomaticus Patrius*, 8 vols. (Győr and Budapest: Akadémiai Kiadó, 1865-1891) (see later Hazai), 1/187-188 (1344); Nagy 1/194-195 (1347); Nagy 1/237-238 (1352); Házi 1/1/100 (1353); Nagy 1/338-351 (1363); DL 5234 (1371); Házi 1/1/180-3 (1380); Nagy 1/516-517 (1393); Nagy 1/517-518 (1393); Nagy 1/617-618 (1410); Nagy 1/646-648 (1411); Nagy 2/48-49 (1420); Nagy 2/136-140 (1429); Nagy 2/214-225 (1434); Nagy 2/228-234 (1435); Nagy 2/306-308 (1441); Házi 1/4/5 (1453); Házi 4/4/193-194 (1457); Házi 1/4/242-243 (1457); Nagy 2/476-479 (1472); Nagy 2/576-577 (1498). In the charters written in German, no such types of differentiation were observed; in them the only form of *See* appears.

*stagnum*¹³ (a stagnant body of water) or both. Moreover, in some cases, Fertő was described as *aqua* (water),¹⁴ *locus*,¹⁵ or even *fluvius* (river!).¹⁶

The word *aqua* can appear with the proper name of Fertő in its singular form. Where one has the name of a settlement in a source, near the lake, it obviously must refer to the "large" lake (*magnus Fertew*). Nevertheless, occasionally other *aque fertő* are mentioned beyond the large lake in connection with properties belonging to the village of Illmitz, at the eastern edge of the lake. In medieval times, these were apparently already separate lakes or fishponds.¹⁷ On the other hand, in 1363, only one Fertő *aqua seu lacus Ferteu* was mentioned in a charter referring to the same area.¹⁸ These names both describe the environment and provide clues to the maximum average waterlevels present in a particular area.

The swamps of the Fertő lake (*paludes aque Fertew*) are mentioned in a charter from 1365: fifty horses were driven by the serfs of Szergény to the swamp – most probably around Agyagos and Szergény southeast of the lake – where all of the horses drowned. This event confirms the idea that even in the 14th century the most westerly parts of the Hanság were swampy.¹⁹ Additionally, we can presume that the proper name of Fertő extended far beyond the boundaries of the basin of the lake. The most westerly area of the Hanság swamps would have been included within this name. This hypothesis can be supported by other late medieval charters referring to the same area southeast of the lake

¹³ See *stagnum* Fertő, for example, in: Bgl. 1/72-74 (1217); Bgl. 1/233-234 (1254); Bgl. 3/95-96 (1317); Nagy 2/87-101 (1425); Nagy 2/136-140 (1429); Nagy 2/214-225 (1434); Házi 4/4/193-194 (1457).

¹⁴ For *aqua* Fertő see, for example: Bgl. 3/325-327 (1299); Nagy 1/338-351 (1363); Nagy 1/355-356 (1365); Nagy 1/402-404 (1373); Nagy 2/48-49 (1420).

¹⁵ Bgl. 3/109-110 (1318). Here, *locus Ferteu* most probably means the fishing place in the lake.

¹⁶ See references in the next chapter.

¹⁷ Bgl. 2/325-327 (1299). Here, *Zyktou* (Zyk lake), *piscina Buur* and *piscina Hemfeu/Homfeu* are mentioned and the *Ferteu magnum* as well. It is also interesting that the Zyk lake (most probably the same as the present Zicklacke), was used as a fishpond even in medieval times which fact refers to its contemporary hydrological conditions as well.

¹⁸ Nagy 1/338-51 (1363).

¹⁹ On the basis of the content of another perambulation charter, more details appear; namely that the above mentioned „part” of the Fertő, the area of Agyagos, Szergény, (both at the edge of the northwestern and southwestern ends of the Hanság swamps) close to the ford between Sarród and Pomogy, similarly to the conditions seen in 1365 (in case of Pomogy and Sarród), was already swampy in 1265. For more details see Bgl. 1/345-346 (referring to the year 1265).

(Szergény,²⁰ Valla/Wallern²¹ and Urkony²²). The name of Hanság clearly emerges only in the 16th century as a frequently used proper name of a specific extended swampy area east of the lake.²³

Fertő river?

In the late 19th century, some of the Hungarian historians suggested that during the periods in which the waterlevels of the lake were very low, there was a waterflow between the separate northern and southern basins of the lake. Some eighty years later, the hydrologist Zoltán Károlyi studied the same question. He located *fluvius* Fertő – though he did not study the charters themselves in detail – in the only hydrologically possible place: the ford between Fertő and Hanság (fig. 2).²⁴

To date, we know of the existence of eleven charters and some early 16th-century *urbaria* in which the *fluvius* Fertő was mentioned. The question arises as to whether it is a real geographical name or perhaps simply a mistake or generalization (*fluvius* instead, or in the meaning of *lacus* or *stagnum*).²⁵

²⁰ Nagy 1/402-402 (1373): "*possessio ... Zergen iuxta aquam Fertew.*"

²¹ Nagy 1/ 617-618 (1410); Nagy 1/646-648 (1411).

²² Hazai 1/187-188 (1344); Nagy 1/325-326 (1360).

²³ To date, only two charters are known regarding the medieval name of the Hanság. The earlier, issued in 1299 (Bgl. 2/326), refers to the Illmiz area, while the later one, issued in 1478 (available only in its 1589-transcription: MOL, DL 81803), refers to the swamps and wet meadows belonging to the monastery of Lébény. While in the late 13th-century charter *piscina Hemfeu/Homfeu* appears, perhaps in connection with the word *hon/hom*, the word "*hon*" clearly appears in 1478 as the name of certain wet-swampy areas in the neighborhood of Lébény (in the 18th century, one part of the eastern Hanság was also called the "Lébényi-hany"). Later, this name frequently appears as *hon*, *han*, *hani* or *hany* in sources from the mid-16th century. See, for example, Nagy 2/628-648 (1558); in the *inventaria* and *urbaria* of Kapuvár, see, for example, MOL, 1584: U. et C. Fasc. 56. No. 33–36.; 1587: U. et C. Fasc. 12. No. 42/II. Süttör; S. Mikó, "Az 1597. évi kapuvári urbárium" (The *urbarium* of Kapuvár, 1597), I–III, *Soproni Szemle*, 46 (1992), 126-146, 213-230, 333-355.

²⁴ Z. Károlyi, "A Fertő és Hanság vízügyi kérdéseinek mai állása" (Present stage of the hydrological questions of the Fertő-Hanság), in *Beszámoló a Vizgazdálkodási Tudományos Kutató Intézet 1964. évi munkájából* (Annual of the Hungarian Research Institute of Hydrology, 1964), ed. K. Stelczer, (Budapest: VITUKI, 1966), 170-187.

²⁵ Although in Hungary several attempts were made in the last few decades to clarify the medieval meaning and usage of certain terms concerning former hydrology, many questions are still open; one of them is the appearance of the word *fluvius* in

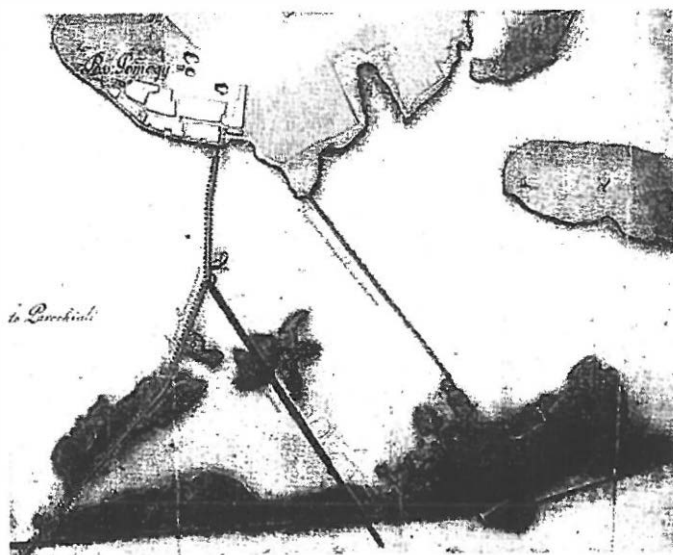


Fig. 2: The ford between Pomogy and Sarród
at the end of the 18th century (1791) ²⁶

This question can be answered partly by the great number of charters mentioning *fluvius*. For example, in case of Lake Balaton, which is otherwise even richer in medieval charter references, the same *fluvius* Balaton problem occurs, although only twice, in 1261 and 1347.²⁷ Although some small streams flowed into Lake Fertő, all the other rivers (e. g. Ikva/Spittelbach, Kis-Rába, Répce) arrived at the swamps of the Hanság, reaching the lake only indirectly, through the above mentioned ford, which acted from time to time as the outflow of the lake. The

clearly lake or swamp environments. Here, an attempt is made to clarify this point in one particular area where a significant number of contemporary charters are available.

²⁶ E. Bencze and D. Olay, *Mappa Pratorum, ac elevationum Locorum in Lacu Pomogyensi existentium, Situm et extensionem repraesans*, 1791-1794. MOL, Esterházy Collection: S16/ 355.

²⁷ L. Bendefy and I. V. Nagy, *A Balaton évszázados partvonalváltozásai* (Century-old changes of the waterlevel of Lake Balaton) (Budapest, 1969), 39-41. It is interesting that the second *fluvius* Balaton charter (1347) was issued almost at the same time as one of the *fluvius* Fertő charters (1346). However, it has to be mentioned that there is a possibility finding more *fluvius* Balaton references in the unpublished medieval charters which have not been examined yet from this point of view.

charters in which *fluvi*us Fertő appears were written predominantly in the 14th century, two in 1318²⁸ and in 1324²⁹ as well as one in 1338.³⁰ One charter from 1324 was renewed in 1330 and 1339, connected to the tribute (*tributum*) on Fertő.³¹ While the latter charters can be geographically connected to Vitézfölde (H-Bánfalva, A-Apetlon) and Mönchhof, the Fertő tribute of Sopron was mainly discussed in 1324, 1330 and 1339.

The last two *fluvi*us Fertew charters of the century were written in connection with Pomogy village (A-Pamhagen) in 1346,³² and in 1360 relating to the later deserted medieval village of Urkony³³ at the ford between Fertő and the swamps of Hanság. In the first half of the 15th century, the *fluvi*us Fertew form was retained in two charters (in 1435 and 1439), again in connection with tolls and fishing rights in the Fertő.³⁴ Nevertheless, at the same time other charters were issued by neighboring chapters, the royal town of Sopron or by the king, in which the *lacus* or *stagnum* form were used. It is also interesting to note that in 1435 (again in connection to Pomogy), the lake was referred to as *fluvi*us seu *lacus*.³⁵

Thus, morphological conditions³⁶ and the location of the settlements mentioned in the charters do not confirm the low-waterlevel

²⁸ Bgl. 3/109-110 (1318 – Vitézfölde): ".....et exceptis tribus locis piscature in fluvio seu loco Fertou in ipsa possessione Vytezfelde a parte orientali existentibus.....". Bgl. 3/114-115 (1318 – connected to Mönchhof).

²⁹ Bgl. 3/167 [1324 – Vitézfölde (Bánfalva/Apetlon)]. Bgl. 3/175-176 (1324 – connected to Macskád/Katzendorf and Mönchhof).

³⁰ Bgl. 3/245 (1338 – referring to Sopron).

³¹ Bgl. 4/261-262 (1339: included the transcription, issued originally 10 June, 1330 – in connection to Sopron).

³² Nagy 1/186-189 (1346 – Pomogy/Pamhagen). Although here *Praytumprun* (Breitenbrunn), a village located by the northwestern shore of the lake, was also mentioned together with Pomogy.

³³ Nagy 1/325-326 (1360 – connected to Urkony).

³⁴ With the exception of two charters: 1324: Bgl. 3/175-176. – chapter of Győr and the one from the Esztergom chapter, written in 1346: Nagy 1/186-189.

³⁵ Nagy 2/228-234 (1435). However, the 15th-century cases differ from those of the 14th century. All of them are transcriptions of earlier charters, or else the 15th-century charters were clearly modelled on earlier charters. However, they do not help in the localisation of the "river". Moreover, in the known 15th-century cases, *fluvi*us Fertő refers to the whole lake. This idea can be supported by the fact that in 1435 the term *lacus* (*fluvi*us seu *lacus*) was even added to the text. Therefore, in these particular cases, they already used the word *fluvi*us very generally, to refer to the whole lake.

³⁶ To the present morphological conditions, see: L. Bácsatyai, E. Csaplovics, I. Márkus and A. Sindhuber, *Digitale Geländemodelle des Neusiedler Seebeckens*. Wissenschaftliche Arbeiten aus dem Burgenland, vol. 97 (Eisenstadt: Burgenländisches

theory. The *fluvius* Fertő might refer to an area which can be defined by the location of the settlements. Geographically, the charters can be divided into three groups. Almost all of them are connected to the southeastern edge of the lake, close to the ford between the lake and the swamp. Here, the only river is the Ikva, which flowed into the swamps at the southeastern edge of the lake.³⁷ The name of this river appears quite constant throughout the whole medieval period. The second group refers to the center of the Cistercian land complex, Mönchhof, while the third group related to the tributes (mainly fishing rights) exacted on the Fertő, in connection with Sopron.

There are two charters in the first group which are especially interesting concerning settlements located close to the Fertő river (*iuxta fluvium Ferthew*). These two charters refer partly to the vicinity of the ford (Pomogy/Pamhagen-Bánfalva/Apetion-Valla/Wallern-Urkony³⁸),³⁹ and partly to the eastern shore of the lake: Macskád/Katzendorf (a deserted medieval village) and Mönchhof.⁴⁰ The location of these settlements, therefore, supports the hypothesis of Zoltán Károlyi. The special importance of the fishing industry is confirmed by a later charter, written in 1558,⁴¹ where the fishery on the ford between Sarród and Pomogy was especially emphasised. The *Registra* from the domain of Kapuvár (and Sárvár), written in 1522, contain the name *fluvius*

Landesmuseum, 1997). The morphology of the basin may have differed in the 14th and 15th centuries (caused by the increasing rate of sedimentation of the last few centuries).

³⁷ The Rába and Rábca/Répcerivers should not be considered either because of their distance from those areas. Furthermore, their medieval names can be clearly followed throughout the late Middle Ages.

³⁸ For the localisation of the deserted medieval village, see: A. Kiss and I. Paszternák, "Hol volt Urkony? Történeti földrajzi és régészeti adalékok egy középkori falu topográfiájához" (Where was Urkony located? Historical geographical and archeological data on the topography of a deserted medieval village), *Soproni Szemle*, 52/4 (2000), 402-419.

³⁹ It seems that Macskád/Katzendorf and Mönchhof, both of which belonged to a Cistercian property-complex, do not "fit" this concept, since both villages were located east of the lake, far from the ford. On the other hand, Cistercians possessed extended rights over the fishing industry of the lake from the 12th century onwards. This may also mean that their fishermen had access to the fishing on all parts of the lake.

⁴⁰ 1318: Bgl. 3/114-115; 1324: Bgl. 3/175-176.

⁴¹ 1558: Nagy 2/640.: "...necnon vadi in fine eiusdem possessionis Sarrod super stagnum Ferthew versus possessionem Pamagh tendentis, piscaturarumque eiusdem stagni Ferthew ad eandem porcionem pertinencium...."

ferthw/ferthev, without mentioning the exact location of the "river".⁴² Thus, these data are of no help in finding out whether the *fluvius ferthev* was being referred to in its general or specific meaning.

On the basis of all this information, the Fertő river can probably be identified with the ford between the lake and the swamps of Hanság, if we accept the theory that the *fluvius Fertew* form was not written by mistake or because of a different meaning of the *fluvius* in late medieval times. The ford could probably have acted as a waterflow between the two basins (the Fertő and the Hanság). Thus, the ford would have been an important place for fishing as well.⁴³ On the other hand, the great number of charters referring to *fluvius Fertő* in a more general context might suggest that this term was from time to time used also in the general meaning of the entire Fertő lake as well.

The "incomes", rights of exploitation and other features in *Ferteu*

Since the income derived from the lake strongly depended on its actual waterlevel, the changes in the extent of the lake strongly influenced many aspects in the life of the inhabitants of the area. Thus, these changes may even have had some effects reaching as far as the markets of Vienna.⁴⁴ In the royal town of Sopron, from the mid-15th century on, the names of fisher masters appeared several times,⁴⁵ while the first letter of a fisherman's guild⁴⁶ as well as the existence of a

⁴²MOL, DL 26231 (p. 13): "*Registrum super fluvium ferthev pertinens ad Sarwar 1522 ...*," and (p. 30): "*Registrum de fluvio ferthw ad festum Sancti Georgii Martiris Anno 1522 ...*." On this question, see also MOL, DL 26222 referring to the year 1520 on the incomes of Fertő. In another *urbarium* of Kapuvár, written in 1514 (MOL, DL 36992), the Fertő is mentioned as *stagnum*; in this case, it is possible that the source refers again to the *fluvius* part of the Fertő, though there is a probability that the word *stagnum* was used in general (for the whole lake), too.

⁴³ This statement can also be supported by a legal case: one member of the Nagymartoni family and his men crossed the ford from Pomogy and destroyed the village of Sarród, in 1356 (Nagy 1/250-261): the serfs of this relatively small village owned at least two hundred fish baskets (*varsa*) which shows the importance and extent of fishing activities in the area of the ford in the mid-14th century.

⁴⁴ J. Bárdosi, *A magyar Fertő halászata* (Fishery of the Hungarian Fertő) (Sopron, 1994), 22-23.

⁴⁵ For example: *magister rethium* ("Master of nets"): Házi 1/4/5 (1453); Házi 2/5/90 (1498); fishermen: Házi 2/3/408 (1453-1455); 2/5/157, 159 (1504); fishery: Házi 1/6/147-148 (1496); Házi 1/6/179-181 (1499); fisher guild: Házi 2/1/194 (1480); Házi 2/1/274 (1501); Házi 2/1/286 (1503); Házi 2/2/51 (1531); "fishing waters" (*vischwasser*): Házi 2/4/284 (1468).

⁴⁶ E. Póda, *Sopron Monographiája* (Monography of Sopron) (Sopron: Székely és Tsa, 1890), vol. 2, 18-19. See also: E. Winkler, *A soproni céhek története a XV-XIX.*

separate fishmarket⁴⁷ and a street of fisherman⁴⁸ also show the significance of this profession in the late 15th and early 16th centuries.⁴⁹ Nevertheless, the importance of fishing in the lake is difficult to estimate, since fish could be collected not only from several fishponds and the lake itself, but also from the waters of Hanság and the important rivers of the area. Although fish in general as well as particular fish types are frequently mentioned in the registers, bills and charters of the citizens of Sopron, the origin of this fish is uncertain.⁵⁰ Further references appear in the letters and registers of the Kanizsai and then the Nádasdy families; however, in the case of these sources, fishponds (especially the Barbacs lake) have special importance.⁵¹

Moreover, fishing was also important for some villages along the shore of the lake. One of the earliest examples for the evidence of fishing „equipment” and the importance of fishing is related, as it has been already mentioned, to the village of Sarród. In a charter from 1365, the Hungarian word *"worsa"* or *"vorsa"* meaning fish basket appears (200 pieces) which indicates the importance of fishing in the village, close to the ford of the Fertő.⁵² As another example, the *urbarium* of Sárvár and Kapuvár, written in 1492, notes the payment of the fishers from Hegykő (south of the lake) using a special type of net, the *"por(...)* halo".⁵³ The

században (History of the guilds of Sopron in the 15th-19th centuries) (Sopron: Székely és Tsa, 1921), 8.

⁴⁷ See, for example: K. Mollay (ed.), *Első telekkönyv / Erstes Grundbuch 1480-1553*. Sopron város történeti forrásai / Quellen zur Geschichte der Stadt Ödenburg A/Sorozat, I. Vol. – Reihe A, Band I (Sopron: Soproni Levéltár–Soproni Múzeum, 1993), 61. (no. 418, 1525), 75 (no. 498, 1528), 91 (no. 572, 1533) and 156 (no. 826, 1546).

⁴⁸ See, for example: Mollay, 28 (no. 186, 1497), 35 (no. 234, 1500), 50 (no. 343, 1512), 61 (no. 415, 1524), etc.

⁴⁹ On the other hand, besides the "large lake", several fishponds existed in the surroundings of the lake, especially in the Sopron area. These lakes were also actively "exploited" throughout the late medieval period.

⁵⁰ In several cases they mentioned sea-fish types, and, in other cases, fish of clear Danube-origin is also present.

⁵¹ To the late medieval-early modern importance of Lake Barbacs, see: K. Takács, "Egy elfeledett halgazdálkodási mód a Barbacsi-tavon" (A forgotten fishing method on the Barbacs lake), *Soproni Szemle*, 4 (1999), 390-402.

⁵² Nagy 1/253, 256: ", ut iamdictus magister Nyklinus theutonicus, de possessione sua Pomogh vocata cum suis complicitibus egrediendo, ad possessionem ipsius Petri Saruld vocatam potencialiter veniens, centum sagenas sive gulgustra iobagionum eiusdem Petri vulgo vorsa dicta concremaverit, et alia centum gulgustra vorsa nominate destrui et permactari, fecerit,"

⁵³ "Item quicumque cum retibus piscaverint quod vocatum por(...)halo super lacum ex eo solvet Flor. quatuor duas libras piperi et pis(...)*XXXXX*" (MOL, DL 36992).

great amount (two pounds) of pepper they paid for certain rights on the lake in 1492 is also interesting. In addition, in the case of Homok village, another payment was mentioned for those who used nets while fishing on the lake.⁵⁴ Some early 16th-century *Registra* (1522) for the domain of Kapuvár contain more data, namely the payment of *halo ber(th)* (net rent) and *horogh penz(th)* (hook money), paid by a single person (*Gerghel, filius Calman*).⁵⁵ The same *Registrum de fluvio ferthw* and the payment appear again with the same name (*Gregorius Calman de Hegkew*), an inhabitant of Hegykő (south of the lake), paid partly in cash and partly in pepper.⁵⁶

Other evidence for the importance of the lake can be found in a lawsuit between the royal town of Sopron and the powerful Kanizsai family and their successors. It lasted for several centuries through the late Middle Ages and early modern times and concerned tribute on the lake.⁵⁷ In specific cases, the „*tributum* in Fertő” may be connected to the *tributum* of a harbour⁵⁸ or a meadow in the Fertő.⁵⁹ In some other cases, the *tributum* for fishery may concern one special part of the Fertő.⁶⁰ However, in most cases (without any specification), it was connected to all of the rights over the whole (basin of the) lake, among which the right of fishery would have been the most important.⁶¹ As a mid-15th-century account book from Sopron suggests, many citizens of the town paid "tax"

For this question, see also: K. Lukács, "Adatok a Fertő és a Rábaköz halászatának történetéhez" (Data on the history of fishery on the Fertő and in the Rábaköz region), *Ethnografia*, 64 (1953), 282-283.

⁵⁴ MOL, DL 36992.

⁵⁵ MOL, DL 26231 (p. 13).

⁵⁶ MOL, DL 26231 (p. 30).

⁵⁷ To this question, see for example: L. Belitzky, *Sopron megye története*. (History of Sopron county) (Sopron: n.p., 1936), 640-1. See examples to the referring charters in: A. Kiss, "A Fertővel kapcsolatos vitás földrajzi kérdések középkori okleveleinkben" (Unsolved geographical questions in connection with Lake Fertő in medieval charters), *Soproni Szemle*, 53/1 (1999), 53-62.

⁵⁸ For example, the harbour of Rákos: Nagy 2/136-140 [(1244-1333)-1429].

⁵⁹ Nagy 1/132 (1335).

⁶⁰ Nagy 1/81 (1318 – Vitézfölde), Bgl. 3/114-115 (1318 – *Neunaugn-Mönchhof*), Házi 1/1/73-174 [1324-(1330)-1339] – *tributum*], Nagy 1/186-189 (1346 – Pomogy), Nagy 2/228-234 (1435 – Pomogy), Nagy 2/136-140 [(1244-1333)-1429].

⁶¹ To the early importance of fishery see, for example: Házi 1/1/7-8 (1277), Házi 1/1/15 (1297), Házi 1/1/13 (1291), Házi 1/1/26-27 (1317), Nagy 1/81 (1318), Házi 1/1/53-54 (1327), Bgl. 3/245 (1338), Házi 1/1/73-74 [(1330)-1339], Bgl. 3/288-289 (1340), Házi 1/1/98 (1352), Házi 1/1/100 (1353), Házi 1/1/105-106 (1354), Házi 1/1/135-136 (1366), Házi 1/1/136 (1366), Házi 1/1/136-137 (1366), Házi 414/6/5 (1453), Házi 1/4/193-194 (1457), Házi 1/4/242-243 (1457), Nagy 2/628-649 (1558).

for fishing on the lake.⁶² Although the lake certainly must have played a key role in the fishery of the region, most mentions of fishing or fish are found in the extant account books from Sopron without mentioning the origin of the fish.⁶³

The environmental conditions of the lake basin can also be described by the extension of the reed belt⁶⁴ around the shoreline and by the appearance of islands in the lake or its close surroundings. Three charters mention the medieval existence of significant reed-covered areas in the basin of the lake; two of them are connected to the area of Illmitz, east of the lake (1299),⁶⁵ and another charter refers to the boundary between Balf and Boz, southwest of the lake (1429).⁶⁶ In these two areas, not only is the existence of reed attested, but also its extent in the lake can be approximated. An island is mentioned only in one charter (in 1264), probably in the basin of the lake, near Széplak, south of the lake.⁶⁷

Another important point, which also refers to the contemporary environmental conditions in the southern basin of the lake, are the features exploited by individuals in the basin of the lake. There is an interesting description in a charter (written in 1281) dealing with the process of *reambulatio* along a boundary between two villages by the

⁶² See, for example, Házi 2/5/20, Házi 2/5/79 (1498), Házi 2/5/120 (1503), Házi 2/5/142 (1504). See also: MOL, DL 26264: *Registrum super lacum ferthew* ... – referring to the year of 1523.

⁶³ For the mentions of several fish names (such as carp, pike, trout, herring, eel! etc.), see: Házi 2/3/316-320 (1441), Házi 2/4/260 (1466), Házi 2/5/79 (1498), Házi 2/5/143 (1504), etc. Although the most frequent mentions of particular fish types refer to carp and pike, which were both common fish types of the lake, the origin of these fishes is uncertain. Moreover, many of the fish types were certainly not common in the lake. On the other hand, some fishponds and lakes used for fishing were mentioned more frequently in charters, registers and account books, although from later times, especially from the mid-16th century; the most important of this kind was the Barbacsi lake, along the Rába river. See Takács, 390-402.

⁶⁴ In the early 18th century, the reed production around Lake Fertő was especially emphasised in case of several villages; the inhabitants of the villages could use reed and other plants of the lake mostly without tax payment. To this question see, for example: *Conscriptiones regnicolaris* (Sopron Archives IV/A/14.; 1715-20, 1727-1728).

⁶⁵ In 1299 it is mentioned twice: Bgl. 2/325-7 and Bgl. 3/292.

⁶⁶ Házi 1/2/398-403 (1429).

⁶⁷ Bgl. 1/304 (1264): " ..., in possessione autem Churna nuncupata porcio, que ipsos contingit, cum omnibus utilitatibus suis et pertinenciis et villa de Belind similiter cum pertinenciis et villa de Sceplak ipsos contingens cum turri in eadem constructa et insula quedam Halaz vocata sita iuxta Ferteu... " It is interesting that even the name of the island is descriptive (the Hungarian word "halász" means fisherman).

southern shore (Homok and Hidegség).⁶⁸ On the basis of this description we can presume that the basin of the lake had a rather high economic value for the mentioned villages. In parallel, this part of the lake basin also suffered temporary inundations at the end of the 18th and 19th centuries.

Thus, the higher areas were under cultivation most of the time with the remainder of the land, while a temporarily inundated wetland area was used for fishery (presumably small lakes remained after inundations) and for mowing. Unfortunately, on the basis of the available sources it is not possible to follow any traces of the possible man-made features of late medieval times. The description, however, allows for the understanding of the *magna via* as a feature in the basin, although the road might have been located outside of the basin.⁶⁹

According to a late 18th-century description of the lake, which mentions the same area, waterlevel changes in the lake occasionally (with low waterlevels) permitted the usage of the road in the basin of the lake.⁷⁰ This clearly corresponds to the information content of the above-mentioned charter, written in 1281. Smaller lakes appear in the same area on a late 19th-century map and other late 18th-century⁷¹ and early 19th-century descriptions and contracts (at the time of high waterlevels).⁷²

In 1335, the Osl family mortgaged some meadows in the basin of the lake belonging to Széplak, in the vicinity of the afore-mentioned villages.⁷³ In comparison, the late 18th-century conditions were described. When waterlevels were low, large numbers of noble horses

⁶⁸ Bgl. 2/153-4 (1281).

⁶⁹ ".... *alia terre Tothcenk; inde transeundo directe ad Ferteu in magna silva venit ad quandam convallem ad duas metas, quarum una ab occidente est terre Bozyas, ab oriente terre Hydegse, abinde directe venit et intrat transeundo magnam viam ducentem in Suprunium, in Ferteu (!) ubi habent iura dicte possessiones in piscinis, fenetis, aquis et aliis utilitatibus, que eisdem possessionibus competunt ab antiquo*" As we know the medieval existence of a road through the villages along the shoreline, it is more probable that the charter referred to this road as *magna via*. However, still there is a chance that a road existed in the area of temporary inundations as well, which would have been, actually, much shorter than the road through the above-mentioned villages.

⁷⁰ J. Kis, "A Fertő tavának geographiai, historiai és természeti leírása 1797-ben" (The geographical, historical and natural description of Lake Fertő from 1797), in K. Gy. Rummy, *Monumenta Hungarica*, vol. 1 (Pest, 1816), 229-424.

⁷¹ See, for example: Kis, 351-352.

⁷² MOL, Széchényi family: P623, Boz II. köt. 5. sz. 1. cs. – referring to the fishing rights of the fishers of Sarród in the *Gatyás* lake which belonged to the village of Hidegség.

⁷³ Nagy 1/132 (1335).

grazed on the same meadows, while with high waterlevels small lakes (ponds) as well as sandy bits of lands appeared, and many lands were covered by reedy swamps or water.⁷⁴ Also, for example, in 1727, when the waterlevels of the lake were low but rising, in the economic descriptions from the same village we find the emphasis on the especially nice hayfields of the village.⁷⁵ Therefore, in 1335 and 1281 the waterlevel of the lake could not have been either too high or low.

All this information suggests that, in general, the basin of the lake provided fairly high incomes in late medieval times. Changes can be specified only from the late 16th century. This is also true for mentions of other features used over longer periods. In all these cases, the source material suggests that a general picture rather than the actual conditions at the time of specific dates of issue were described in contemporary charters.

In comparison, there is a change in the late 16th century, when references for the times of high and low waterlevels are always emphasised in the detailed inventories and *urbaria* from the manor of Kapuvár. Naturally, this is also related to differences in the available sources. Until the end of the 15th century, the main sources are charters and rarely contracts, whereas, in the late 16th century, most of the information referring to the environmental conditions of the basin of the lake is available in *inventaria*, *urbaria*⁷⁶ (sometimes in private letters of mainly the Nádasdy family), and later the *conscriptio*⁷⁷ and legal cases.⁷⁸ However, in these sources, from the late 16th century onwards, we can already follow a complex system of economic exploitation of the lake basin, which differs according to the actual waterlevel of the lake. Unfortunately, this unique complexity can only partly be followed in medieval sources.

⁷⁴ See, for example: Kis, 352.

⁷⁵ For the rising waterlevels of 1727-8, see the notes in: *Conscriptio regnicolaris Districtus Superioris Incliti Comitatus Soproniensis de Anno 1728*, vols. 1-2. (Sopron Archives: IV/A/14); see also: Széchényi family, P623/124. cs., vol. 2., fol. 11-12. See also: Kis, 350.

⁷⁶ See, for example: S. Mikó, I-III.; MOL, U. et C. Fasc. 156. No. 1-2/I.; No. 42/II. Süttör: 1587, No. 42/III.; Süttör: 1597, No. 42/VII.; Süttör: 1660, 1663, "A kapuvári uradalom összeírása" (Inventory of Kapuvár), 1584.; U. et C. 56/33-6.

⁷⁷ See, for example: *Conscriptio regnicolaris* (Sopron Archives; 1715-20, 1727-1728, 1752, 1828. IV/A/14). *Localis conscriptiones* (MOL, Széchényi family P623. II. 5.: 1767, 1792).

⁷⁸ One of the most interesting and precious of these legal cases is the one which gives a fairly detailed overview on the rough waterlevel changes and ever changing environmental conditions of the lake from the last decades of the 17th century until the mid-18th century. To this question, see: MOL, Széchényi Collection P623, 124. cs.

Summary

Although there were no sunk villages around or in Fertő, due to its sensitivity the lake acted as a good indicator of changes in the environmental conditions of the area. The economy was very much dependent on the waterlevels of the lake which changed mainly according to the climate changes and variabilities in the catchment area of the Rába-Rábca-Hanság-Fertő system. In medieval sources, a standard waterlevel appears which was approximately equivalent to the mid-waterlevel of the 18th century, and some aspects of a complex utilisation can be followed as well. Moreover, terminology also has to be considered as an important and accurate source of the medieval environmental conditions of the lake.

On the basis of the available sources only a mosaic picture can be drawn; however, the described medieval conditions are quite similar to the ones in the 18th century. In addition, some connections can be demonstrated which – due to fundamental changes in the former hydrological system in the early 19th century – can no longer be observed *in situ*.

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44

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VON GERHARD JARITZ

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*From the Latrine, through the Woods, and into the Lake:
Ecological Samples from Medieval East-Central Europe*

An Introduction

Recycling is nowadays a decisive issue in ecology. This holds true for historical ecology in East-Central Europe as well, albeit in a very different sense. Whereas reusing old material is doubtlessly valuable in environmental protection, the same is rather questionable, if the old material comprises historical sources. The reason to put together and present the following four essays was to help, as far as the authors could, recycling be back where it truly belongs.

Historical ecology is a well-established discipline in Western Europe. In East-Central Europe, much progress has been made recently, and now many scholarly publications appear on the subject. In other words, the *methodology* is understood and applied. However, it is only in exceptional cases, such as the climatology research in Brno, Czech Republic, or the excavations of the medieval royal garden at Visegrád, Hungary that the methods are applied on sources, be them written or archaeological that are freshly gathered for the topic. Historical ecology is an essentially *quantitative* field of research. Before the writing process commences, a large amount of data must be collected. Furthermore, the type of data we use is atypical for former research. A chance mention of heavy rains in a charter, or pieces of seeds in a latrine did not use to be considered significant. This may well be true if they stand alone; but *all* occurrences of heavy rains for a hundred years, or *all* plant remains in a latrine carry otherwise unreachable information. The task, then, is twofold: we have to collect as much data as we can, and we have to look for the type of data that has not yet been searched for.

Many learned articles on the historical ecology of East-Central Europe fail to perform this task. They take what was published before and examine it from a different angle, which, although an inevitable step, does not suffice alone.

The connection between the otherwise rather diverse essays presented here is that they all try to analyse sources hitherto unexplored. We hope that we live up to the requirement of introducing essentially new data to the common knowledge. Whether our analyses may also stand the test of time is for the reader to decide.

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