THE CHANNELS NAMED "FOK" AND FOK-HUSBANDING ALONG THE BANK OF THE HUNGARIAN SECTION OF THE TISZA RIVER

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Abstract

The channels that lead off high water on to areas with low water are frequently called by the name "fok" in Hungarian areas. Before its regulation, the Tisza River could overflow its flood basins from two main directions. Relative to the direction of flow, the basins could be overflowed by the channels at their upper and lower reaches. According to the theory of fok-husbanding, in the Middle Ages the Hungarian people's flood control was based mainly upon the damming up the upper foks, and upon the establishing and the maintenance of lower foks. The lower foks could lead out and carried off the flood in a controlled manner. Historical sources indicate more than four hundred fok names along the bank of the Tisza River. Bodies of water indicated as foks on manuscript maps from the 18^{th} - 19^{th} centuries can be divided into three groups. In the first group are 88 channels, which flood the basins from above. 126 channels inundated the river flats below. In the case of 46 foks, the direction of flooding could not be established. Different ratio had been found among these three groups in case of foks with a name related to a person or a family. 6 channels flooded the basin from above, 15 from below and 2 were unclassifiable. Ten fok names contain a marking word like "digging" or "mineral", which indicate the man-made origin of those foks. The clues of maintenance cannot be found on the maps surveyed, but a fisherman's memoirs dated from the end of the 19th century inform about it. Some elements of fok-husbandry can be observed among the uncovered characteristics, but the whole system of fok-husbandry in the investigated time and area is not general.

1 THEORIES CONCERNING "FOKS"

In Hungarian-speaking areas the geographical name "fok" may indicate a channel leading off the high waters of a river branch or a lake, and is also used or a cape, or bank-fringe. The difference between channels named "fok" and the creeks and brooks is that the "foks" do no have their own source. According to Andrásfalvy Bertalan, the two meanings are connected, because they can be interpreted as opposites. Firstly the word "fok" could mean a little stream, a constriction, a narrow slit closely bordered by ground. This sense could extend and get the meaning of a cape, a land-part projecting into water or air, which is surrounded by water or air (1975, p. 18). Before the river regulation works of the 19th century, the first meaning of "fok" was frequently, while the second was only rarely used along the Tisza River. Three theories have emerged to explain the origin and the function of the foks indicating a channel in the scientific literature.

1.1 THEORY OF THE ARTIFICIAL ORIGIN OF "FOKS"

On the basis of his ethnological and historical research carried out on the Danube's river flats in Tolna and Baranya County, ANDRÁSFALVY postulates the artificial origin of those foks. The water-usage based on these foks, emerging in the Middle Ages and traceable up to the Danube's regulation in the $18^{th} - 19^{th}$ century, is called "fok-husbanding" by ANDRÁSFALVY. The river-ridges formed by the settling gravel along the Danube's bank separated the lower flood basins from the river-bed. Relative to the direction of flow, the foks always had broken through the river-ridges at the lowest reaches of the flood basins.

Therefore, the flood penetrated into the wash-lands slowly, smoothly, without destruction and gravel-settling, and at the time of falling most of water could return to the river-bed (1975, p. 15-18). MOLNÁR Géza found similar signs of fok-husbanding in Borsod county along the Tisza River. He also pointed out that because of the changing patterns of agricultural cultivation, the fok-husbanding could not have been able to be operative in its original unified system along the Tisza River since the turn of the 14th-15th century (1991-1994. VII., p. 52-55, 58-59).

1.2 THEORY OF THE NATURAL ORIGIN AND ARTIFICAL MODIFI-CATION OF "FOKS"

KÁROLYI Zsigmond (1975, p. 63), Nemes Gerzson, Dóka Klára (1982, p. 281), and Frisnyák Sándor (1995, p. 145) argue that the foks along the Tisza River are natural formations that were only modified and maintained in the interest of consequent flooding from below by the inhabitants. The channels overflowing the basins at their upper and lower reaches are both called "foks" by Nemes. He pointed out that the damming up the upper channels and the deepening of lower channels were an essential condition of the economical usage of the wash-lands (Károlyi – Nemes 1975, p. 16). Molnár, a proponent of the previous theory, argues that in case of operating fok-husbanding there were no upper water burstings in the flood basins, because the human intervention terminates the existing ones and prevent the river from forming new ones (1992, p. 26).

1.3 THEORY OF THE NATURAL ORIGIN AND UNMODIFIED AGENCY OF "FOKS"

Lászlófffy Woldemár (1982, p. 161), Vágás István (1989, p. 387) and Deák Antal András (2001, p. 39) argue a third theory, according to which the foks were only natural formations. The flood basins had been overflowed from their upper reaches downwards with the stream through these foks. As Szigyártó Zoltán argues, the emergence of foks is caused directly by the characteristics of water streaming, and there is no need to suppose any human intervention in explaining their shaping. The flood basins generally were overflowed and the flood had flown down through different foks by the reason of the inclination of the river flats (1991, p. 16, 18).

2 "FOKS" ALONG THE BANK OF THE HUNGARIAN SEC-TION OF THE TISZA RIVER

The theories above are based on different sources. The first was founded upon the survey of the Danubes's, while the other two upon the Tisza River's wash-lands. The first two approaches describe the principle of "flooding from below" as the essential characteristics of fok-husbanding. We have to make a survey on the earlier foks along the Hungarian section of Tisza River in order to understand the causes of difference between the three approaches.

2.1 THE HISTORICAL SOURCES OF THE FORMER FOKS

Manuscript maps had been made before and at the time of river-controlling and historical sources on toponyms indicate more than four hundred foks with an individual name along the Hungarian section of Tisza River. The most important manuscript maps describing the surveyed area can be found in the collection of the National Archives of Hungary and in the Archive of Heves County. Copies of the first and the second military mapping of Hungary can be found in the Map Documentation Department of the Museum of Military History. The map-sections of the two military mapping are precise, but they are scanty in the relation of toponyms. The frequency of fok-names on the surveyed area is not evenly distributed. There are few between Tiszabecs and Tokaj. This could be caused by the fact that we have the fewest surviving manuscript maps from this area. The frequency of the fok-names is the highest on the wash-lands of the earlier Borsod and Heves counties; there are less along the lower river section. The most frequent name was "sebes fok" (Fast-Flowing Fok), twenty-one cases had been compiled.

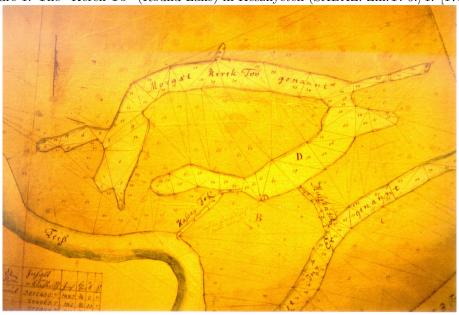


Figure 1: The "Kerek Tó" (Round Lake) in Kesznyéten (SABAZ. Zm.T. 6./1. [1787])

2.2 CATEGORIES OF THE FOKS

2.2.1 The main groups by the direction of flooding

2.2.1.1 Foks inundating the river flats below

Foks flooding from below generally could be found between the Tisza and the biggest mortlakes, as in Rakamaz, Tiszacsege, Poroszló, and Tiszahalász. On the manuscript map describing the great oxbowlake in Rakamaz the lowest corner of the mortlake can not be seen, as the fok is joined with the upper corner of the mortlake (NAH. S.11. 830./7. [S.a.]). Related to the streaming in the river bed at the oxbow-lake's upper corner the flood could flow backwards because of the strong bend of the mortlake. This fok "flooding from below" was formed by the separation of the oxbow-lake and led through the silted neck. In this case only the maintenance could have been artificial. The foks connected with a mortlake's lower corner in Tiszacsege (AHB. Szm.T. 12. [1787]) and in Tiszahalász (AH. T. 117./1, 11. [1783-1790]) are similar. "Kassay Fok" of "Kerek tó" (Round Lake) in Kesznyéten probably had a similar origin as well (SABAZ. Sú. Zm.T. 6./1. [1787]) (Fig. 1).

The fok "flooding from below" of "Nagy Morotva" (Big Mortlake) in Poroszló (AH. T. 117./11. [1783-1790]) had certainly not formed at the separating mortlake's neck (Fig 2).

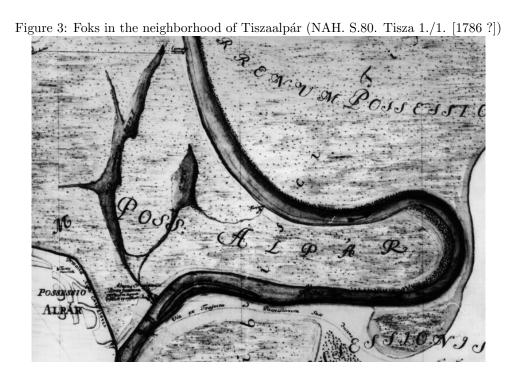
Some maps indicate the alternating directions of flow depending on the level of water in the foks. Balla Antal's map indicates bidirectional streaming in case of the "Foks" in Tiszakürt, "Csurgó" (Running), "Szikra Fok" (Spark Fok) and "Nagy Fok" (Big Fok) in Tiszaalpár. In case of this latest fok the map-maker remarked the alternating streaming of water in a written form as well (NAH. S.80. Tisza 1./1. [1786?]) (Fig 3).

The map-series of LITZNER and SÁNDOR indicate similar bidirectional water-streaming at the "Sebes Nágy Fok" (Big Fast-Flow Fok) and the "Nagy Körös Folyása" in Tiszajenő, at the delineated part of the "Holt Tisza" (Dead Tisza) in Tiszakécske and at the separating backwater in Tiszaug (AH. T. 118./11., 15., 26. [1783-1790]) (Fig 4).

The same mark can be found at the "Tinóka Folyása" (AH. T. 117./71. [1783-1790]) or "Tinóka Fok" (AH. T. 119./8., 9., 12. [1833-1844]), which was connected with the Tisza River at Szajol and with the "Fehér tó" (White Lake) and "Nagy Morotva" (Big Mortlake) in Törökszentmiklós. In case

Figure 2: The "Nagy Morotva" (Big Mortlake) and its surrounding in Poroszló (AH. T. 117./11. [1783-1790])





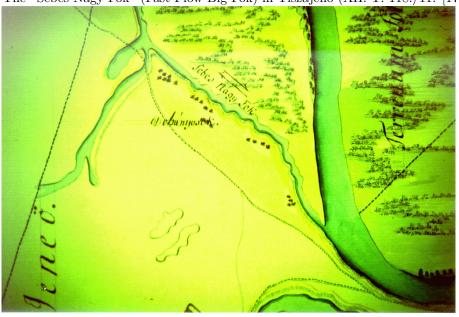


Figure 4: The "Sebes Nagy Fok" (Fast-Flow Big Fok) in Tiszajenő (AH. T. 118./11. [1783-1790])

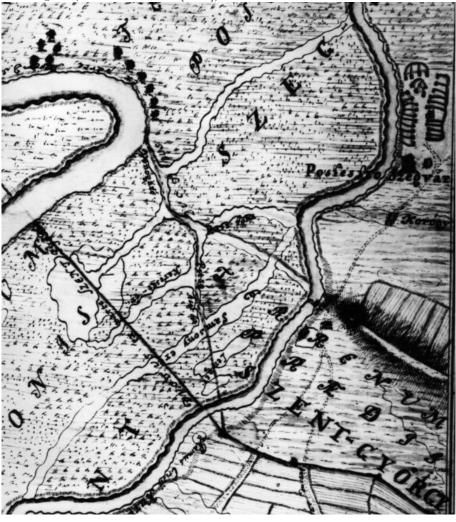
of channels this double-mark of streaming indicates the "flooding from below" function. Ten fok names had been found containing a marking word like "digging" or "mineral". They were in Tiszakeszi (ABAZ. Bm.U. 682. [1854]), Tiszaszőlős (BOGNÁR 1978, p. 137), Tiszafüred (AH. U. 371./1. [1859]), Tiszasüly (AJNSZ. T. 131. [1863]), Tiszaroff (AH. T. 117./47. [1783-1790]), between Tiszaroff and Tiszagyenda (AH. T. 119./6. [1833-1844]), in Tiszapüspöki (AH. T. 117./71. [1783-1790]), Törökszentmiklós (NAH. S.80. Körös 39./16. [1822]), Tiszakécske (AJNSZ. T. 322. [1853]) and Szegvár (NAH. S.82. 153. [1755]) each (Fig 5).

The human agency in the forming of these foks is indubitable. The fok in Tiszafüred probably emerged at the time of river regulation in the 19^{th} century, as it can be found only on maps made after the damming. The map of Tiszasüly indicates no channel bed, but only the name. The fok in Tiszakécske had been connected with the "Fehér tó" (White Lake) and the Tisza River. The "Karacsa tó" on the left bank had been flooded through a bended bed from below in Tiszakeszi. The "Ásvány Fok" (Mineral Fok) in Tiszaroff had been linked with the parish meadow, the "Ásás Fok" (Digging Fok) between Tiszaroff and Tiszagyenda had been attached to the "Gyantai Tó" through the "Határ Ér" (Border Creek). The "ásott fok" (Digged Fok) in Tiszapüspöki was attached to wahs-lands as well. The "Ásott fok" in Törökszentmiklós was the principal section of the channel flooding the "Kis Morotva" (Little Mortlake). This "Kis Morotva" had been connected with the "Nagy Morotva" (Big Mortlake) in Törökszentmilós as well, which had been attached to the Tisza River through the Tinóka fok. The "ásott fok" in Tiszaszőlős cannot be found on maps, only in the local place-name collection of PESTY from the turn of 1850-1860s. Because of the parallel ground ridges flanking the foks on many Danube's maps, ANDRÁSFALVY claims that these channels had been systematically maintained and cleaned, and the ridges were formed from the ground had been thrown out from the channels (1973, p. 22). The same opinion can be read in a description written by a fisher-master named DANICSKA József of Mindszent. In his memoirs, acquired by the Hungarian Ethnographic Museum in 1896, he writes that at the beginning of the 19th century there were fishing-ponds along the Tisza, which were attached to the river with manmade channels named "fok" leading in and out the flood. The banks of these foks had been elevated in several places indicating systematic maintenance (S.a., p. 3).

2.2.1.2 Foks overfloating from above

According to Molnár, the name of the burstings inundating the flood basins from above could have been "kicsapó" (bursting out) along the Tisza River (1991-1994. II., p. 41). The "Kicsapó" examined by Molnár was in the surroundings of Hejőkürt and inundated the flood basin of Tiszatartján (ABAZ. U. 684. [1864]). On the area surveyed there were further "kicsapó"-names only in Tiszaszőlős (AH. T. 119./3. [1833-1844]), Kőtelek (AH. T. 119./9.) and Hódmezővásárhely (Bodnár 1928, p. 37). The

Figure 5: Beds with the "Ásott fok" (Digging Fok) between the Tisza and the Kurca River in the neighborhood of Szegvár (NAH. S.82. 153. [1755])



most similar to Molnár's example is the "Kicsapó" below Kőtelek. It flooded that "Nagy Rét" (Big Meadow), which was inundated by "N. Fok lapossa" (Big Fok's Flat) from below. The "kicsapó" in the surrounding of Hódmezővásárhely was a short, tight creek, which led water only at time of flooding. The "Kicsapó fok" towards southwest from Tiszaszőlős was a stream flooding from above.

The last case shows that there are channels flooding from above indicated with the name "fok" on the maps surveyed as well. This is related to the fact that the word "fok" was not used in the entirely same meaning at that time along the bank of the Danube in Tolna and Baranya County and along the actual Hungarian section of the Tisza River. For example, the "Ortó fok", the "Szégye fok", the "Sebes fok" (Fast-Flowing Fok), the "Pap tava foka" (Priest's Lake's Fok) in Tiszatarján (ABAZ. Bm.T. 137./1. [S.a.]), the "Palocsa fok" and the "fontos fokja" (Important Fok) in Tiszadorogma (ABAZ. Bm.T. 34./2. [S.a.]), the "Panyita Fok" leading water of "Kis Tisza" (Little Tisza) to the "Panyita lapos" (Panyita Flat) in the surrounding of Sarud, the "Orsós Fok" below Tiszahalász nearby the main river bed (AH. T. 117./1., 6., 18. [1783-1790]) were channels flooding from above. The upper corner of the mortlake was attached by the "N. Fok" (Big Fok), the lower by the "Szűts Fok" (Furrier Fok) to the Tisza in Tiszaszőlős (AH. S.12. Div. XI. No. 61./2. [1830]). The basin between Tiszaderzs and Abádszalók was inundated by the "Kis Márton fokja" (Little Martin's Fok) from above, but the biggest stream of the area was the "Abádi Fok" (Fok of Abád), which filled the "Pap tava" (Priest's Lake) situated in the center of the river flat from below (AH. S.21. No. 2. [1777.]). A map delineated after the damming describes the short, outleading sections of "Darnyi Fok", "Görbe Fok" (Curved Fok) and "Sebes Fok" (Fast-Flow Fok) at the upper reach of the basin encircled by the river bend of Tiszanána. The "Telek Fok" indicated at the lower reach in a similar way could carry off the flood (AH. U. 374. [1861]). As the map-maker indicated in a written form, the "Tökös Fok" below Tiszaalpár only led out the flood to the "Tökös Toó" and to the surrounding areas in Csongrád, but it did not carry off water back to the Tisza (NAH. S.80. Tisza 1./1. [1786?]). The "Repas" situated in the "Mámai Rét" in Csongrád was overflowed by the "Répás Fok" (Beet Fok). The "Bodonyi-rét" lying on the southern part of the neighborhood of Szeged was flooded by the "Bodonyi Kapuja fok" (Bodonyi's Gate Fok) from above, but the "Bodonyi Fok" opening the lower reach of the basin was bigger in size (NAH. S.12. Div. XI. No. 126./6./r., b. [1790]). Generally true, that in case of basins having foks at their upper and lower reaches as well, the lowest is the biggest relating to importance and size.

2.2.1.3 Foks with indeterminable direction of flooding

It is necessary to establish a separate group for foks with an unclassifiable direction of flooding. For example, in case of the "Falu fokja" (Parish's Fok) in Palkonya (NAH. S.12. Div. XI. No. 61./1 [1830]), the "Kuttai" or "Kútas Fok" (ASZSZB. T. 434. [1823]) joining to the moltlake in Tiszacsege, the "Bakó fok" in Tiszafüred (AH. U. 363. [1824-1825]), the "Kisfok" in Tiszaszőlős (AH. U. 393. [1865]), the "Nagy" and the "Kis Sámágy fok" (Little and Big Sámágy Fok) in Tiszanána (AH. T. 136. [S.a.]), the "Dinnyes tóó fokja" in Csongrád, the "Sebes Fok" (Fast-Flow Fok) and "Dögös Fok" situated on the meadow over the Tisza of Tápé and Szeged (NAH. S.12. Div. XI. No. 126./6./ny., c. [1790]) the direction of overfloating could not be determined.

2.2.2 The frequency of foks indicated with a personal name in the three main groups

A family or personal name relating to a fok could indicate the establisher or the user of the channel. There are more than forty fok names of this kind. Among the foks flooding from below there are for example the "Bencze fok" (Benet Fok) and the "Kovács fok" (Smith Fok) in Panyola (AP. Pm.T. 93. [1774]), the "Fekete győgy foka" (Geo'ge Black's Fok) in Tiszatarján (NAH. S.11. 830./17. [S.a.]), the "Kis Miska Fok" (Micky Little Fok) in Ároktő (ABAZ. Bm.U. 83. [1847]), the "K. Mihály Fokja" (Michael K.'s Fok) in Tiszahalász (NAH. S.80. Körös 39./3. [1822]), the "N. Mihály Fok" (Michael N.'s Fok) in Sarud (NAH. S.12. Div. XI. No. 61./2. [1830]), the "Rátz Gyuró Fok" (Georgie Serb Fok) in Rákóczifalva (AH. T. 119./11. [1833-1844]). Among the foks flooding from above there is the "Kis Márton fokja" (Martin Little's Fok) in Abádszalók (NAH. S.21. No. 2. [1777]), among the foks with dual or unclassifiable direction of flooding there are the "Paladiné Fokja" (Mrs Paladi's Fok) in Tiszabura (AH. T. 117./41. [1783-1790]) and the "Varga János Fokja" (John Bootmaker's Fok) in Hódmezővásárhely (NAH. S.80. Körös 39./60. [1822]). Amongst the bodies of water described as foks on manuscript maps there are 126 channels, which flooded the basins from below. 88 channels inundated the river flats from above. In case of 46 foks, the direction of flooding could not be established. Different ratio had been found amongst these three groups in case of foks related to a person or a family. 15 channels flooded the basin from below, 6 from above and 2 were unclassifiable.

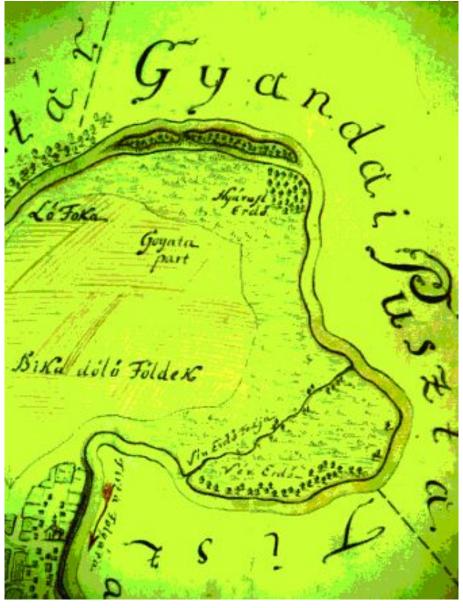


Figure 6: The "Vén Erdő Fokja" (Old Wood's Fok) in Kőtelek (AH. T. 192. [1768])

2.2.3 Foks taking a shortcut across a bend

In the examination of direction of flooding that channels named "fok" had not been considered, which were taking a shortcut across a river bend. The river bend below the mortlake in Tiszacsege was crossed by "Ó fok" (Old Fok) (ASZSZB. T. 434. [1782]). The "Fok" crossed the bend of the "Zsegete-forduló" in Tiszahalász (AH. U. 404. [1865]). A section of the bend between Tiszanána and Tiszaszőlős was cut by the "Tőrős Fok" (AH. T. 117./18. [1783-1790]). The bend between Abádszalók and Pusztataskony was shorten by the "Nagy fok" (Big Fok) (NAH. S.80. Tisza 84. [1777]). The "Kis Keresztes Fok" (Little Cross Fok) was a section of bodies of water crossing the bend's neck at Tiszabura (AH. T. 117./41. [1783-1790]). The "Vén Erdő Fokja" (Old Wood's Fok) shortened the way of water streaming in Kőtelek (AH. T.192. [1768]) (Fig 6).

At the earlier neck of the actual oxbow-lake in Tiszaalpár are indicated two parallel channels called "Sebes Fokok" (Fast-Flowing Foks) crossing the neck. The earlier bend was cut across eastwards to these channels at the time of river-controlling in the 19^{th} century (NAH. S.80. Körös 39./36. [1822]). The next river neck below of Tiszasas was crossed by "Becső fokja" (NAH. S.12. Div. XI. No. 126./6./s. [1790]).

There are some similar shortcuts indicated with another name. The "Nagy Árok" (Big Canal), which was taking a shortcut across the bend's neck in Tiszavezseny, on the basis of its name and its straight tracing had a man-made origin (AH. T. 118./18. [1783-1790]). The "Kiss Tisza" (Little Tisza) cutting the neck of "Sár Őrvény" in Szegvár probably had a natural origin (NAH. S.12. Div. XI. No. 126./6./n. [1790]).

2.3 THE PROCESS OF ALTERING THE FOKS

It is difficult to evaluate the changes in time of the certain foks and the groups of foks differing in the direction of flooding. Nearly 70 years passed between the first and the second military mappings, covering the whole surveyed area in detail. The second mapping was made after the regulation works on the Tisza commenced. On the basis of the maps delineating shorter river sections, the river flats could have considerably changed time by time depending on the amount of rainfall in the given year. The size of the certain bodies of water could have been modified. The clues surveyed on the maps of Tiszaalpár have some significance beyond the effect of rainy weather. A map was made in a humid year in the 18th century by Balla Antal. The "Sulymos Toó" (Saligot Lake) joining to the stagnant water of "Bika Ér" (Bull Creek) was situated in the meadow of Tiszaalpár. The "Sulymos Toó" was flooded from below through "Nagy Fok" (Big Fok). The "Bika Ér" could be flooded through the channel named "Huzogato" (Pulling). In case of this bed the map indicates a one-way water streaming (NAH. S.80. Tisza 1./1. [1786 ?]) (Fig 3).

The map-section of the second military mapping was made on a larger scale and it was delineated in a drier year. It displays a lake with a smaller surface called "Nagy tó" (Big Lake) in the place of "Sulymos Toó". The relicts of "Bika Ér" cannot be found. The first section of "Huzogato" leading out from the Tisza and the "Tarfok" (Bare Fok) are the same. Towards northwest from this place there are three burstings, amongst them those named "Határ fok" (Border Fok) and "Mezesfok" (Honey Fok), which had not been described on Balla's map (IInd mil. XXXVI./56. [1861]) (Fig 7).

The upper shore of "Nagy Tó" in Csépa was joined with the river bend of Tiszasas through "Tó fok" (Lake Fok), while its lower shore was linked with the Tisza by the "Kányó fok" (Π^{nd} mil. XXXVII./56. [1861]). On the map made at the end of the previous century only the lower shore was connected with the Tisza through two channels (AH. T. 118./1. [1783-1790]). The appearance of the new burstings could be connected with the starting of the Tisza-controlling. The damming and the shortening of the river caused the rise of the level of the flooding water. This rise could create new burstings. One could verify an accidental changing of burstings in case of the river sections with low reaches between Rakamaz and Polgár or between Abádszalók and Tiszabura. There were situated the burstings filling up the channels flooding the "Hortobágy" and the "Nagykunság". Because the damming had been started at these bank sections, new burstings had not been able to form at these places.

3 FOKS ALONG THE BANK OF THE TISZA RIVER AND FOK-HUSBANDING

As the maps surveyed show, the majority of the channels named "fok" flooded the river flats from below. A quarter of these foks, however certainly flooded from above. As NEMES and MOLNÁR point out, in case of fok-husbandry these burstings named "fok" would have been dammed. The man-made foks probably created only the basis of the economical usage of the river flats, but they were not able to solve the problems of food-control and to carry off all stagnant water from the wash-lands at that time. On the basis of these observations, the existence of channels named "fok" and the existence of fok-husbanding in function are not the same. Because the fok-husbanding along the actual Hungarian section of Tisza River generally was not in function in the 18^{th} and 19^{th} centuries, it is better to speak in case of this area about wash-land utilization or partial wash-land utilization, featuring some elements of fok-husbanding.

References

[1] Andrásfalvy Bertalan (1973): A Sárköz és a környező Duna-menti területek ősi ártéri gazdálkodása és vízhasználatai a folyószabályozás előtt. [VIZDOK], Budapest. (Vízügyi Történeti Füzetek 6.)

Figure 7: The surroundings of Tiszaalpár on the map-section of the second military mapping (XXXVI./56. [1861]) Π^{nd} mil. The second military mapping of Hungary, Map Documentation Department of Museum of Military History, Budapest.

Abbreviations

ABAZ. Archives of Borsod-Abaúj-Zemplén County, Miskolc.

AH. Archives of Heves County, Eger.

AHB. Archives of Hajdú-Bihar County, Debrecen.

AJNSZ. Archives of Jász-Nagykun-Szolnok County, Szolnok.

AP. Archives of Pest County, Budapest.

ASZSZB. Archives of Szabolcs-Szatmár-Bereg County, Nyíregyháza.

NAH. National Archives of Hungary, Budapest.

S.a. Sine anno.

SABAZ. Sub-Archive of Borsod-Abaúj-Zemplén County, Sátoraljaújhely.

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