

## Ljubljansko barje, problemi razlage virov

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### Izvleček

V prispevku je prikazana problematična razlaga podatkov raziskav na Ljubljanskem barju Mihaela Budje in Dimitrija Mlekuža.

**Ključne besede:** Ljubljansko barje, kolišča, metodološki problemi, okolje

V znanosti je vsekakor dobro, da se strokovna problematika razčiščuje in da se raziskovalcem omogoči, da na podlagi znanstvene metodologije predstavijo svoja mnenja, pa čeprav so sporna. V tej luči bom poskušal dati odgovor na nekatere trditve, ki jih v diskusiji o Ljubljanskem barju navajata Mihael Budja in Dimitrij Mlekuž.<sup>1</sup>

Budja in Mlekuž (2008b) na str. 366 pišeta: “ocena o neznanem razvoju pokrajine pa posledica pojasnjevanja fragmentarnih in nekontekstualiziranih podatkovnih nizov, pridobljenih z neustreznim raziskovalnim pristopom.”

Da bi lahko razumeli to, moram spomniti na monografijo o izsledkih arheološko-dendrokronoloških raziskav na Resnikovem prekopu<sup>2</sup> ter jih primerjati z ugotovitvami, do katerih je prišel Budja leta 1994.<sup>3</sup> Menim to, da se Budji in Mlekužu ne zdi vredno, da svoje trditve konfrontirata z ugotovitvami v naši objavi, temveč da iz nje navajata zgolj dva iztrgana citata, in sicer prvega iz

### Abstract

This paper critically evaluates data and interpretations regarding researches conducted at the Ljubljansko barje, presented by Mihael Budja and Dimitrij Mlekuž.

**Keywords:** Ljubljansko barje, pile-dwellings, methodological problems, environment

poglavja *Spremna beseda in zahvala*,<sup>4</sup> drugega pa iz poglavja o interpretaciji palinološkega profila,<sup>5</sup> ter tako nekorektno, popolnoma iz konteksta iztrgano postavljata zgoraj omenjeno trditev.

Dejstvo je, da je sondiranje na Resnikovem prekopu potekalo povsem po načrtih projekta *Arheološke in dendrokronološke raziskave na Ljubljanskem barju*. Pričakovani rezultat pa žal ni bil povsem dosežen, ker dendrokronologom ni uspelo sestaviti ustrezne kronologije. Za slednje pa ne gre kriviti njih, temveč da je bilo lesa za analizo premalo oz. ni bil primeren.<sup>6</sup> Kljub temu smo prišli do več pomembnih ugotovitev, ki jih je odslej treba upoštevati pri vseh raziskavah na Ljubljanskem barju oz. v podobnih okoljih, pa tudi širše. To sta kmalu zatem potrdili raziskavi na mezolitskem najdišču Zalog pri Verdu<sup>7</sup> in bronastodobnem kolišču Mali Otavnik pri Bistri,<sup>8</sup> kjer

<sup>1</sup> Budja, Mlekuž 2008b, 359–370; prim. z Velušček 2007, 429–430.

<sup>2</sup> Velušček 2006a.

<sup>3</sup> Budja 1994, 167–169.

<sup>4</sup> Budja, Mlekuž 2008b, 361; prim. z Velušček 2006a, 9.

<sup>5</sup> Budja, Mlekuž 2008b, 366; prim. z Andrič 2006, 109.

<sup>6</sup> Čufar, Korenčič 2006, 123–127.

<sup>7</sup> Gaspari 2006.

<sup>8</sup> Gaspari 2008.

smo se srečali s podobnim problemom odplavljanja kulturnih plasti. Neizpodbitno ostaja tudi dejstvo, da palinolog, ki opisuje profil in v njem naleti na sedimentacijski hiatus, o okoljskih razmerah iz obdobja, ki ga hiatus pokriva, zgolj na podlagi proučevanega profila ne more razpravljati nič več kot toliko, kot je zapisala Maja Andrič.<sup>9</sup>

O trditvi, da so izsledki raziskav inštitutske<sup>10</sup> raziskovalne skupine “*posledica pojasnjevanja fragmentarnih in nekontekstualiziranih podatkovnih nizov*”,<sup>11</sup> pa naslednje. Najprej bi pričakoval z argumenti podkrepljeno trditev, ki pa žal ostaja brez njih. Zato moram spomniti na naslednje: leta 1994 Budja predstavi “*ново*”<sup>12</sup> teorijo o dogajanju na Ljubljanskem barju v bakreni dobi. Kot eno ključnih najdišč je v razlago vključil tudi Maharski prekop, ki ga je med letoma 1970 in 1977 raziskovala Tatjana Bregant.

Budja<sup>13</sup> je na Maharskem prekoku prepoznal tri naselbinske faze: starejši dve opredeljuje kot plani naselbini ob reki, tretjo fazo pa kot kolišče na poplavnem področju. Na sicer pomanjkljivem načrtu iz obdobja 1970–1974, kvadranti iz izkopavalnih let 1976 in 1977 niso upoštevani, niti v študijo zajeti, Budja<sup>14</sup> označi le območji, kjer je prepoznal strukture, karakteristične za mlajši dve fazi.

O dveh, v pomenu “več”, kulturno razvojnih fazah naj bi bil pisal tudi Hermann Parzinger,<sup>15</sup> vendar Budja ne opozori, da Parzinger dejansko ugotavlja dva kulturna horizonta, ki ju uvršča v obdobje badenske kulture,<sup>16</sup> torej okvirno v 2. polovico 4. tisočletja pr. Kr.<sup>17</sup>

O nesmiselnosti podajanja argumentov na takšen način se lahko prepričamo v nadaljevanju, ko Budja<sup>18</sup> razvije tezo o treh naselbinskih fazah, a le zadnja bi lahko sovpadala z omenjenima Parzingerjevima horizontoma, prvi dve pa zagotovo ne.

Prvo fazo, ki je kronološko blizu Resnikovem prekoku Budja<sup>19</sup> utemeljuje na sledeč način: “*Nada-*

*ljevanje poselitve, dokumentirano v arheološki stratigrafski sekvenci ob Maharskem prekoku, povezuje s površjem plasti, ki je prekrila naselbinske strukture na Resnikovem prekoku. V masi stratifikacije je dokumentirana kot ‘gyttja pred gradnjo kolišč’, v kateri je razpršena keramika, tipološko primerljiva s keramiko ob Resnikovem prekoku. S površjem omenjene plasti in artefaktnim zbirom objektiviramo prvo naselbinsko fazo (Sl.7-8. št.2-4).” Pri tem je treba omeniti, da je angleška verzija besedila nekoliko drugačna.<sup>20</sup> Bolj pomembna pa se zdi opomba<sup>3,21</sup> kjer avtor nazorno pokaže, kaj pomeni “nefragmentarnost pojasnitve” in “kontekstualiziranost podatkovnih nizov”: “*Naša rekonstrukcija temelji na podatkih, dokumentiranih v izkopnih poljih 17, 18 in 20 (Bregant 1975.43).*”*

Avtor pri citiranju ni natančen. Bregantova kvadranta 17 na str. 43 ne omenja, podatek za t. i. izkopno polje (oz. kvadrant) 20 pa ne ustreza zgornji razlagi (glej v nadaljevanju),<sup>22</sup> kajti ni jasno, zakaj so navedeni le ti trije kvadranti. Ni morda iskati razlog v tem, da v primeru, če bi se navedlo vse, kar o t. i. resniških najdbah z Maharskega prekopa piše Bregantova, ne bi bilo mogoče trditi, da je keramika iz navedenih treh kvadrantov eden izmed argumentov za naselbino resniške oz. tako visoke starosti?

Podobno je tudi z navedkom iz opombe 8 v prispevku iz leta 2006,<sup>23</sup> kjer preberemo: “*The scatters of Resnikov prekop pottery type were found in this stratigraphical position (directly on the pre-settlement surface) on the site (Bregant 1974a.52; 1975.41; Velušček 2001.Sl. 29).*” Ob tem je pri sklicevanju na dva različna avtorja opaziti nekaj nedoslednosti. Avtor diskusije<sup>24</sup> o t. i. resniški keramiki piše na str. 93, kjer natančno predstavi vertikalnostratigrafsko lego posameznih fragmentov. Citirana sl. 29 pa v okviru obravnavane problematike prikazuje horizontalnostratigrafsko razporeditev teh najdb po najdišču. Bregantova omenjene najdbe navaja na str. 52,<sup>25</sup> kjer omenja en fragment, ki je bil najden

<sup>9</sup> Andrič 2006, 109; prim. z Budja, Mlekuž 2008b, 366.

<sup>10</sup> Gre za Inštitut za arheologijo ZRC SAZU iz Ljubljane (op. avtorja).

<sup>11</sup> Budja, Mlekuž 2008b, 366.

<sup>12</sup> Prim. s Stritar, Lobnik 1985, 70.

<sup>13</sup> 1994, 167–175.

<sup>14</sup> 1994, sl. 9.

<sup>15</sup> Po Budja 1994, 169.

<sup>16</sup> Glej Parzinger 1984, 36–40.

<sup>17</sup> Glej npr. Raetzl-Fabian, Furholt 2006, sl. 4.

<sup>18</sup> 1994, 169–175.

<sup>19</sup> 1994, 169–170.

<sup>20</sup> Glej Budja 1994, 177 – zadnji stavek: “*The surface ... (Fig.7-8. Nr.3-6)*” in prim. s str. 170 – prvi stavek: “*S površjem ... (Sl.7-8. št.2-4).*”

<sup>21</sup> Budja 1994, 170.

<sup>22</sup> Tudi sicer je sklicevanje na podatke o t. i. resniški keramiki iz kv. 20 problematično. Bregant (1975) na str. 43 dejansko navaja t. i. resniški fragment iz kv. XX (t. IX: 6), v katalogu na str. 91 pa piše, da najdba izvira iz kv. XXI, kar se je kasneje, pri reviziji, izkazalo kot pravilno (glej Velušček 2001, 93, op. 51).

<sup>23</sup> Mlekuž, Budja, Ogrinc 2006, 261, op. 8.

<sup>24</sup> Velušček 2001.

<sup>25</sup> Bregant 1974b.

nad kulturno plastjo (!) v kvadrantu XIV, na str. 41<sup>26</sup> piše o ornamentu, **na navedeni** str. 43<sup>27</sup> pa podaja veliko pomembnejše stratigrafske podatke.

Zdi se pomembno, da ponovno citiram odlomek iz besedila Bregantove: "Omenjena je bila že najdba nekaj kosov, ki tako po oblikovni kot po dekorativni in tehnični plati sodijo k alpskemu faciesu lengyelske kulture"<sup>28</sup> (T. IX, 3, 4, 5, 6; T. XII, 11; T. XIII, 6). Ti kosi se tudi po svoji stratigrafski legi oddvajajo od ostalega gradiva<sup>37</sup> [besedilo opombe 37: "Enako kot fragment istih značilnosti najden 1972. leta – Poročilo III (B), 52."], tako da ležijo na plasti s kulturnimi ostalinami ali pod njo. Tako primera T. IX, 3 in T. XII, 11 ležita na dnu plasti svetlo sivo rumenkaste mastne gline, ki je izrazit naplavinski sediment. Prvi je iz kvadranta XIX in iz globine 50 cm, drugi pa iz kvadranta XXXIV in iz globine 40 cm. Isto lego ima fragment T. IX, 6, ki je iz kvadranta XX<sup>29</sup> in globine 50 cm, ter prav tako iz naplavljenе plasti, ki je na tem delu kolišča bolj rumena glina. Za ta fragment je še bolj značilna stratigrafsko ločena lega, saj ta fragment na tem mestu oddvaja od plasti s kulturnimi ostalinami debela plast gyttje. Dva fragmenta T. IX, 4, 5<sup>30</sup> pa sta bila najdena na dnu kulturne plasti, in sicer v plasti gyttje izpred gradnje kolišča, prvi v kvadrantu XVIII na globini 110 cm, drugi pa je iz kvadranta XIX in iz globine 100 cm. Le za šesti fragment T. XIII, 6, ki je iz kvadranta XXVII, nimamo točne lege, ..."<sup>31</sup>

Skratka, na Maharskem prekopu se pojavlja majhno število fragmentov t. i. resniške keramike, ki so zelo razpršeni po najdišču.<sup>32</sup> Če upoštevam še podatke, ki jih v letu 1974 navaja Bregantova<sup>33</sup> in kasneje tudi avtor te diskusije,<sup>34</sup> lahko zapišem, da je bilo vsaj pet fragmentov t. i. resniške keramike najdenih nad kulturno plastjo, do največ dva pa pod oz. na dnu kulturne plasti. Glede na število in stratigrafsko lego omenjene najdbe verjetno

ne kažejo na naselbino resniške starosti, ki bi naj obstajala na tem mestu, temveč je njihov izvor iskati drugje. Bregantova<sup>35</sup> meni, da so naplavljene z območja neke naselbine resniške starosti, morda z Resnikovega prekopa ali pa s kakšne še neodkrite naselbine iste starosti, ki bi se naj nahajala bliže Maharskemu prekopu (sl. 1). Gre za logično sklepanje, ki se je kasneje izkazalo kot povsem realno. Pred kratkim smo namreč ugotovili, da je v prazgodovini čez arheološko najdišče Resnikov prekop nekaj časa tekla tekoča voda in odplavila koliščarsko kulturno plast.<sup>36</sup> Pri tem je treba poudariti, da se Maharski prekop nahaja nizvodno od Resnikovega prekopa (sl. 1).

Zanimivo je, da se Budja s takšno razlago očitno ne strinja. V njegovih besedilih ni najti pojasnila, zakaj ne. Morda dvomi o moči barjanskih rek in potokov? Sklepam, da ne, saj skupaj s soavtorjema predpostavlja, da so bile reke na Ljubljanskem barju celo tako erozivne, da bi lahko odnesle vertikalne kole (tiste, ki so zabiti v tla; op. avtorja) (sic), in da je iskati razloge za odsotnost najstarejših naselbinskih struktur na poplavnem območju Ižice (oz. Iščice) v tem, ker so uničene (domnevam, da odplavljene; op. avtorja) ali zakopane.<sup>37</sup>

Leta 2006 Mlekuž, Budja in Ogrinčeva ponovno obravnavajo Maharski prekop. Tokratna razlaga sloni na radiokarbonskih datacijah. Poleg zelo razpršenih radiokarbonskih datumov iz zagrebškega laboratorija,<sup>38</sup> nizu 5 datumov, ki kažejo na radiokarbonski čas okoli 4700 BP, povsem izstopa datacija kosti 6570 ± 40 BP iz kvadranta 34. Slednji datum, pa je bil, poleg ostalih argumentov,<sup>39</sup> ključen za sledečo trditev: "However, a radiocarbon datum for bone from grid square 34 obviously document earlier settlement of the area. The existence of earlier phase settlement was proposed on the basis of pottery scatters deposited on the pre-settlement surface (Budja 1995<sup>40</sup>.170; 1997.82)."<sup>41</sup> Pri tem niti besede, da se v citiranih prispevkih piše o keramiki resniškega tipa, ki je posredno preko Resnikovega prekopa datirana

<sup>26</sup> Bregant 1975.

<sup>27</sup> Bregant 1975.

<sup>28</sup> Gre za kulturo, v katero se je sprva uvrščalo naselbino Resnikov prekop (glej npr. Parzinger 1984, 31–33) (op. avtorja).

<sup>29</sup> Glej op. 22 (op. avtorja).

<sup>30</sup> Parzinger (1984, 37, t. 2: 7) omenjeni fragment povezuje z boleraško stopnjo badenske kulture in ga ne uvršča v skupino t. i. resniške keramike (op. avtorja).

<sup>31</sup> Bregant 1975, 43.

<sup>32</sup> Glej Bregant 1975, 43; Velušček 2001, 93, sl. 29.

<sup>33</sup> 1974b, 52.

<sup>34</sup> Glej Velušček 2001, 93, op. 51, kjer so navedeni stratigrafski podatki o t. i. resniških najdbah tudi za izkopavalni sezoni 1976 in 1977.

<sup>35</sup> 1974b, 52; 1975, 43.

<sup>36</sup> Velušček 2006b, 26; prim. s Turk 2006, 93–97; Toškan, Dirjec 2006, 148.

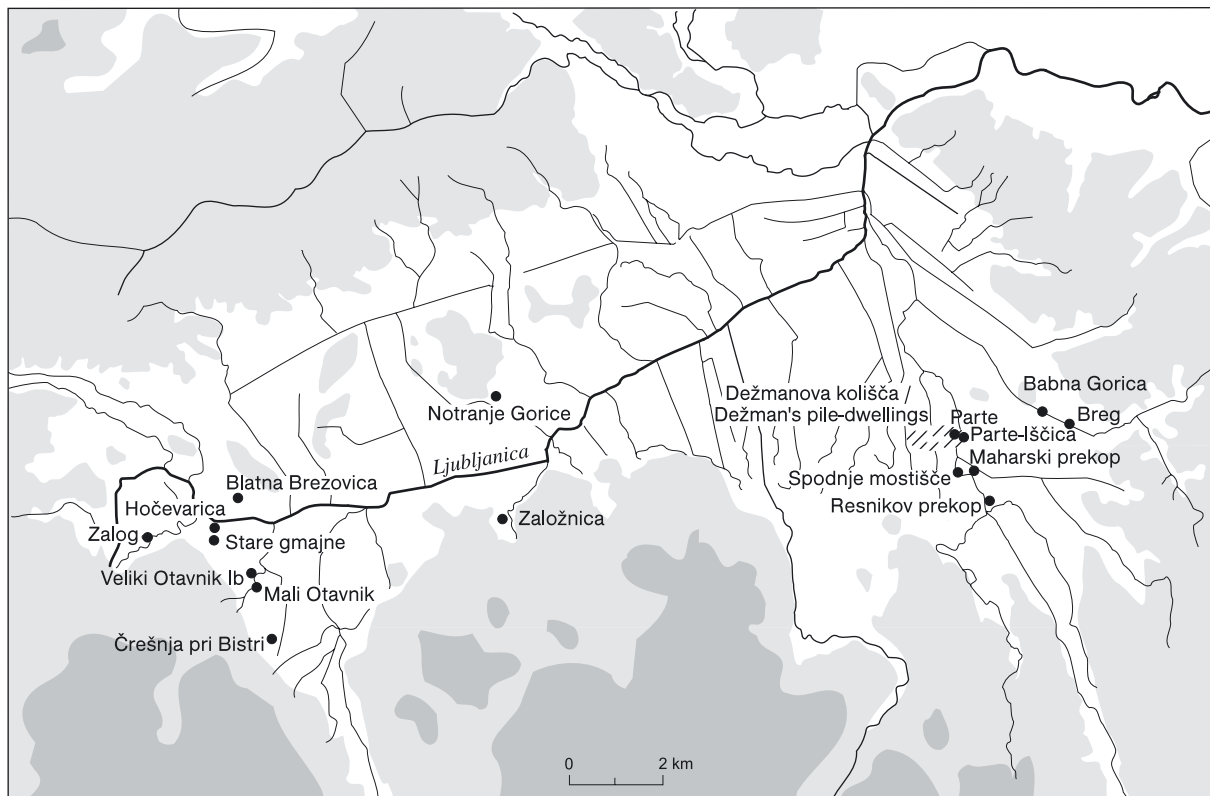
<sup>37</sup> Mlekuž, Budja, Ogrinc 2006, 257; prim. z Mlekuž 2001, 50.

<sup>38</sup> Kritično mnenje o interpretativni vrednosti zagrebških datumov sta podala Velušček in Čufar 2008, 39–40.

<sup>39</sup> Glej *Documenta Praehistorica* 33, 260–261 in prim. z Budja 1994, 169–170.

<sup>40</sup> Gre za prispevek iz letnika 1994, ki ga navajam kot Budja 1994, izšel pa je leta 1995 (op. avtorja).

<sup>41</sup> Mlekuž, Budja, Ogrinc 2006, 261.



Sl. 1: Karta Ljubljanskega barja s koliščarskimi naselbinami in nekaterimi drugimi najdišči, ki so omenjena v besedilu.  
Fig. 1: Map of the Ljubljansko barje with pile-dwelling settlements and some other sites, mentioned in text.

v radiokarbonski čas okoli 5700 BP<sup>42</sup> in ne v čas okoli 6600 BP, kot je datirana omenjena kost!

Še skrivnostnejša pa je druga naselbinska faza Maharskega prekopa.<sup>43</sup> Poleg številnih "argumentov", ki naj bi fazo opredeljevali, naj bi bila zanjo karakteristična tudi velika količina lončenine oz. keramike,<sup>44</sup> ki v angleškem besedilu niti ni omenjena.<sup>45</sup> Zanimivo je predvsem to, da moremo *terminus ante quem* za drugo naselbinsko fazo postaviti v radiokarbonsko leto 5080 BP,<sup>46</sup> torej v obdobje med naselbino na Resnikovem prekopu in badensko kulturo. Zato menim, da gre najbrž za keramiko, ki spominja na najdbe iz t. i. prve eneolitske naselbinske faze v Moverni vasi,<sup>47</sup> ali iz druge naselbinske faze na Gradcu pri Mirni,<sup>48</sup> morda celo za keramiko z analogijami v obdobju pokopov v Ajdovski jami<sup>49</sup> itd. Maharski prekop pa

takšne vrste keramike ne pozna.<sup>50</sup> Morda se motim in je znana le Budji in Mlekužu? Zato je umestno pričakovati, da jo bosta objavila, če seveda obstaja. Podobno usodo je namreč doživelo arheološko najdišče Resnikov prekop in jo še danes doživljajo najdišča koliščarskih naselbin ob Iščici in Bistri, a keramične najdbe, vsaj večina, ostajajo.<sup>51</sup>

V prispevku iz leta 2006 na str. 258 avtorji v zvezi z Maharskim prekopom ugotavljajo: "Therefore, we can imagine Maharski prekop as a dispersed settlement with several settlement foci located on the channel levees and surrounded by fields. Some foci were settled for a very short time – less than 100 years in the case of Spodnje mostišče (Čufar et al. 1998:85–86) – but some (Maharski prekop) were occupied continuously for almost a millennium, or even two millennia, as recent radiocarbon data demonstrate (Tab. 1)." O kolišču ni več govora. Nekoč kvadratne hiše<sup>52</sup> so postale pravokotne.<sup>53</sup>

<sup>42</sup> Glej Velušček 2006b, 36.

<sup>43</sup> Glej Budja 1994, 170–171.

<sup>44</sup> Budja 1994, 170.

<sup>45</sup> Budja 1994, 177–178.

<sup>46</sup> Budja 1994, 174.

<sup>47</sup> Glej Budja 1992, 104, sl. 4: faza 7; 1993, 20, sl. 5.

<sup>48</sup> Dular et al. 1991, 89.

<sup>49</sup> Horvat 1989; Bonsall et al. 2007, 727–740.

<sup>50</sup> Glej Parzinger 1984, 18–21; Velušček 2001, 52–72; 2004a, 184–212 in tam navedena literatura.

<sup>51</sup> Npr. Velušček 2006b, 26.

<sup>52</sup> Glej Budja 1994, sl. 9.

<sup>53</sup> Mlekuž, Budja, Ogrinc 2006, 259–260, sl. 7 in 8.

Zanimiv je način, kako utemeljujejo slednjo ugotovitev, in sicer na podlagi izsledkov raziskav inštitutske raziskovalne skupine in dendrokronologov na najdišču Parte-Iščica, enako torej kot avtor tega prispevka, le da on prvokrat pet let pred njimi in tudi še večkrat pred letom 2006.<sup>54</sup> Izgovor, da sta Budja in Mlekuž ugotovitev avtorja tega prispevka preprosto prezrla, pač ne vzdrži, ker je bil Budja član komisije na avtorjevi obrambi doktorske disertacije. V prispevku iz leta 2006 pa je avtorjeva disertacija<sup>55</sup> najmanj dvakrat citirana. Enkrat je citirana celo str. 77 iz poglavja, kjer je na str. 76 najti tudi odlomek posvečen tlorisom kolib na Maharskem prekopu.<sup>56</sup> Nekorektno je tudi zajemanje podatkov iz avtorjeve magistrske naloge<sup>57</sup> brez navajanja vira.

Da ne bo pomote, z razlagami, v katerih je najti natančno rekonstruirane tlorise kolib ter da na Maharskem prekopu pravokotni tlorisi predstavljajo kolibe, postavljene na suhem, z glinastim podom neposredno na tleh,<sup>58</sup> se pač ne morem strinjati.<sup>59</sup> Menim, da je šlo za kolišče. Argumentov je veliko, a o tem več v nadaljevanju.

Stalnica Budje in Mlekuža je tudi teza, da v holocenu na Ljubljanskem barju ni bilo (**trajnega** (?) jezera. Seveda, tudi pri tem obstaja cel niz različnih interpretacij. Pri tem se avtorja sklicujeta na geografa in geomorfologa Milana Šifrerja, ki je objavil zelo problematičen članek o geomorfološkem razvoju Ljubljanskega barja v *Geografskem zborniku* za leto 1983.

Naj spomnim, da Šifrer<sup>60</sup> med zadnjo ledeno dobo in holocenom na Ljubljanskem barju ne predvideva nekega trajnega, obsežnejšega jezera. Še več, iz prispevka je razbrati, da jezerska kreda oz. ljudsko polžarica z Ljubljanskega barja ni sediment, ki bi se naj odlagal na jezerskem dnu, temveč da gre za sediment fluvialnega izvora (sic).<sup>61</sup> Šifrer<sup>62</sup> tudi meni, da naj bi do prvega zamočvirjanja na

Ljubljanskem barju bila prvotno bolj suha tla in da se je to začelo dogajati šele v času mostiščarjev (oz. koliščarjev).

Dejstvo je, da najdemo jezersko kreda (polžarico), ki je dokaz za obstoj jezera, pod arheološkimi ostanki na Resnikovem prekopu (5. tisočletje pr. Kr.), enako na Maharskem prekopu (4. tisočletje), na območju prvih Dežmanovih kolišč (3. in morda tudi 2. tisočletje) in tudi na drugem koncu Ljubljanskega barja pod ostanki koliščarskih naselbin Hočevarica, Stare gmajne in Blatna Brezovica (vse iz 4. tisočletja) ter tudi pod Malim Otavnikom (2. tisočletje) in celo pod ostanki mezolitskega lovskega tabora Zalog pri Verdu itd. (glej *sl. 1*).

Polžarico je npr. precej podrobno preučil Rudi Tancik,<sup>63</sup> ki ga seveda Šifrer ne citira. Če pa Šifrerja vendarle povzamem, si lahko laično predstavljam približen razvoj Ljubljanskega barja v holocenu na sledeč način:

1. V obdobju po ledeni dobi so na Ljubljansko barje reke prinašale sediment sive oz. svetlosive barve, t. i. polžarico. Lahko je prišlo do občasnih ojezeritev (tj. zastajanja poplavnih voda), a je bilo večinoma bolj suho. Rastlinje, ki je na bolj suhih tleh Barja najbrž dobro uspevalo, je po odmrtnju očitno sproti razpadalo, tako da njenih sledi v spodnjih razdelkih holocenskih profilov v glavnem ni najti (prim. s *sl. 2*).

2. Proces samosvojega rečnega nasipavanja površja Ljubljanskega barja pa se je očitno zaključil približno v koliščarski dobi (ki je trajala skoraj 3.000 let!), ko se reke in potoki zaradi takšnih ali drugačnih razlogov "odločijo", da na Barje ne bodo več prinašali polžarice in je boljše, da se območje zamočvirira (sic) itd.

Kakor koli že, leta 1994 to izredno problematično Šifrerjevo tezo o geomorfološkem razvoju Ljubljanskega barja v arheološke študije vpelje Budja,<sup>64</sup> ki povzema, da je bilo Ljubljansko barje sprva veliko bolj suho, zato tudi naselbine na suhem ob rekah,<sup>65</sup> kasneje pa veliko bolj vlažno in nestabilno, zato pride do gradnje kolišč.<sup>66</sup> Na podlagi te razlage nato sledijo druge, ki se med seboj delno razlikujejo. Pomenljivo je tudi, da čeprav se Budja, kasneje tudi Mlekuž, na Šifrerja vseskozi naslanja,<sup>67</sup> se od

<sup>54</sup> Velušček 2001, 76, sl. 23; 2004b, 77; 2005a, 202; zloženska in razstava *Dediščina Ostrorogega Jelena*, ki je bila odprta junija 2005; glej še Greif 1997, 23.

<sup>55</sup> Velušček 2001.

<sup>56</sup> Glej Mlekuž, Budja, Ogrinc 2006, 260–261.

<sup>57</sup> Velušček 1997a; 1997b; prim. z Mlekuž 2001; Mlekuž, Budja, Ogrinc 2006.

<sup>58</sup> Glej Mlekuž, Budja, Ogrinc 2006, 259–261, sl. 7 in 8.

<sup>59</sup> Glej še Greif 1997, 23.

<sup>60</sup> 1983, 43.

<sup>61</sup> Šifrer 1983, 41, 49; glej še Lovrenčak, Orožen Adamič 2001, 382.

<sup>62</sup> 1983, 49.

<sup>63</sup> Tancik 1965, 67–69.

<sup>64</sup> 1994, 163–181.

<sup>65</sup> Resnikov prekop in zgodnji naselbinski fazi Maharskega prekopa.

<sup>66</sup> Pozni Maharski prekop in Parte oz. na Partih.

<sup>67</sup> Glej npr. Mlekuž, Budja, Ogrinc 2006, 256; Budja, Mlekuž 2008b, 361.



Sl. 2: Arheološko najdišče Resnikov prekop. Profil segmenta holocenskih plasti z jugovzhodnega dela Ljubljanskega barja. Dobro je vidna kompaktna plast jezerske krede oz. polžarice (debela več kot 160 cm), ki dokazuje, da je bilo v obdobju pred pribl. 7400 BP območje kar nekaj časa stalno ojezerjeno. To je v nasprotju s tezo, ki jo zagovarja M. Šifrer. Organski ogljik iz zgornjega nivoja polžarice je datiran v radiokarbonsko leto  $7430 \pm 40$  BP, datacija pribl. 10 cm globlje je  $8330 \pm 50$  BP (Andrič 2006, 105, sl. 1). (Foto: M. Turk)

Fig. 2: Archaeological site Resnikov prekop. Cross-section of a segment of the Holocene layers from the south-eastern part of the Ljubljansko barje with a well visible, more than 160 cm thick compact layer of lake marl, which confirms that the area was incessantly submerged for quite some time in a period before c. 7400 BP (organic carbon from the upper level of lake marl was dated to radiocarbon year  $7430 \pm 40$  BP; c. 10 cm deeper it was dated to  $8330 \pm 50$  BP (Andrič 2006, 112, Fig. 1)), which does not support the thesis advocated by M. Šifrer. (Photo: M. Turk)

njegove teze postopoma vedno bolj odmika (glej v nadaljevanju).

Leta 2001 Mlekuž predstavi poizkusni profil, ki je bil zastavljen pri Babni Gorici na vzhodnem robu Ljubljanskega barja približno 2 km severovzhodno od kolišča Maharski prekop. Iz profila je razvidno, da je v obdobju okoli 6200 BP za kratek čas prišlo

do regresije jezera, kot on piše, poplavnega jezera oz. jezera na poplavni ravnici, in nato do ponovne transgresije, ki pa je trajala le malo časa, saj sledi sekvenca naplavinjskih sedimentov.<sup>68</sup>

V prispevku iz leta 2006 je interpretacija očitno nekega drugega profila iz okolice Babne Gorice nekoliko drugačna: “*The sequence demonstrates intensive and complex fluvial and flood activity before 6700 cal BP, with a sequence of ‘wet’ and ‘dry’ episodes. In this case, even the presence of ‘lacustrine’ calcareous silt, traditionally an indicator of a stable lake, can be interpreted as a result of erosion and deposition by fluvial activity.*”<sup>69</sup>

V naslednjem prispevku<sup>70</sup> o Ljubljanskem barju pa lahko preberemo: “*Radiocarbon dates place the first phase of the palaeochannels before 5725 calBP. Thus, at the latest at 3776 calBC this part of Ljubljana Marshes was an active floodplain and not a shallow lake, as the traditional view suggests,*”<sup>71</sup> kar daje slutiti, da je bil jugovzhodni del Ljubljanskega barja vendarle, vsaj občasno (?), lahko tudi ojezerjen.

Podobno razlago najdemo tudi v poljudnem prispevku, ki ga je Budja napisal za časnik *Delo*, 8. maja 2008. Na str. 23 je v okviru tematike *Sodobne arheološke raziskave na Ljubljanskem barju* najti velik naslov *Mit o koliščarskem jezeru*, na podlagi katerega je mogoče razbrati, da t. i. mostiščarskega oz. koliščarskega (trajnega) jezera na Ljubljanskem barju nikoli ni bilo. Pri tem se avtor sklicuje na Šifrerja: “*Geograf Milan Šifrer je sredi osemdesetih let objavil študijo o geomorfološkem razvoju Ljubljanskega barja, kjer je prostor tektonske depresije na stiku med Alpami in Dinaridi predstavil kot holocensko poplavno ravnico, v katero so se ob pogostih poplavah in dolgotrajnih zastajanjih vode odlagali fluvialni sedimenti. Dotoki voda so bili pogojeni s količinami padavin in dinamikami hidrografskih mrež v Alpskem predgorju in na Dinarski kraški planoti. Da so nekatera naselja stala na suhih ali le malo zamočvirjenih tleh so v tem času opozarjali tudi paleobotaniki.*”

V zadnjem prispevku pa se celo dopušča možnost, da je neko, verjetno trajnejše jezero dejansko

<sup>68</sup> Mlekuž 2001, 44, sl. 3.

<sup>69</sup> Mlekuž, Budja, Ogrinc 2006, 257–258.

<sup>70</sup> Prispevek je bil predstavljen na 15. neolitskem seminarju, ki je v drugi polovici leta 2007 potekal na Oddelku za arheologijo Filozofske fakultete Univerze v Ljubljani (glej *Documenta Praehistorica* 35, str. III).

<sup>71</sup> Budja, Mlekuž 2008a, 48; podobno tudi pri Budja, Mlekuž 2008b, 364.

obstajalo. Budja in Mlekuž<sup>72</sup> z “*veliko gotovostjo*” namreč trdita, “*da vsaj v času poselitve najdišča Maharski prekop ta del Ljubljanskega barja ni prekrivalo jezero*”, in še, “*Ljubljansko barje je bilo v prazgodovini kompleksen in dinamičen mozaik različnih okolij, ki je vključeval tako poplavne ravnice kot večja območja stoječih voda*.”<sup>73</sup> Spreminjal se je v okviru letnega cikla in v kontekstu daljših ciklov globalnih klimatskih anomalij v holocenu (Budja, Mlekuž 2008<sup>74</sup>).”

Pustimo ob strani besedno igro, iz katere ni povsem razvidno, kaj naj bi na primeru Ljubljanskega barja lahko pomenili opisni izrazi, kot so: večje območje stoječe vode, dolgotrajno zastajanje vode itd., in se ustavimo pri naslednjem problemu, pri razlagi paleostrug, predvsem pri njihovem datiranju.<sup>75</sup> Moje mnenje je, da je pri tem predstavljen vzorčni primer nesmotrne uporabe sicer nedvomno koristne tehnologije, t. i. lidarja. Kot rečeno pa se bomo v nadaljevanju osredotočili na radiokarbonske datacije, ki jih tudi Budja in Mlekuž<sup>76</sup> štejeta za ključne.

Najprej pa se ustavimo pri fragmentu keramike, na katerega se je naletelo pri vrtanju 6. vrtine: “*To oceno potrjuje tudi fragment prazgodovinske lončenine, ki smo ga našli v globini 110 cm. Tako menimo, da datum 5110 ± 40 BP datira površino starejše terase*.”<sup>77</sup> Kot je razvidno, ponovno govorimo o obdobju, ki se približuje Budjevi t. i. drugi naselbinski fazi Maharskega prekopa,<sup>78</sup> ki smo jo na podlagi radiokarbonskega datuma 5080 BP, ki naj bi predstavljal *terminus ante quem*, korelirali s prvo eneolitsko fazo v Moverni vasi, z Gradcem pri Mirni in Ajdovsko jamo (glej zgoraj).

Iz tega sledi nedvoumen sklep. Na Ljubljanskem barju imamo opravka s še nepoznano naselbinsko fazo. Objava takšnega fragmenta je zato več kot nujna! Morda pa gre le za eno izmed novih besednih iger, na katere smo v študijah o Ljubljanskem barju že naleteli. Ena izmed najzanimivejših govori o še **neobjavljenih** fragmentih keramike iz mezolitskega konteksta na najdišču Breg pri Škofljici, ki bi naj bili

tipološko primerljivi z **najzgodnejšo linearnotrakasto keramiko (sic)**.<sup>79</sup> Vredna omemba je tudi opomba 1,<sup>80</sup> s katero se ugotovitev zaključí: “*Field surveys at known mesolithic sites have also revealed fragments of pottery, but there has been a general tendency to ignore them*.” Temeljni vprašanji pa seveda ostajata: za katera najdišča gre in kakšna je omenjena keramika, ki naj bi trditev utemeljevala?<sup>81</sup>

V oči bode tudi dejstvo, da avtorja na območju, ki pokriva več kot 7 hektarjev (**več kot 70.000 m<sup>2</sup>**), operirata s petimi radiokarbonskimi datumi, ki naj bi, razen v primeru datuma iz 6. vrtine, predstavljali *terminus ante quem* za posamezno fazo aktivnosti paleostrug.

Za primerjavo vzemimo samo še primer najdišča Resnikov prekop,<sup>82</sup> kjer smo se srečali s podobnim problemom paleostruge, njenim zapolnjevanjem in datiranjem. Bistveno pa je, da gre za neprimerljivo manjšo površino, ki je obsegala **vsega 33 m<sup>2</sup>**. S tega območja izvirajo tudi vsi radiokarbonsko datirani vzorci, **ki bi jih potencialno lahko pridobili z vrtanjem**. Skratka, z Resnikovega prekopa je iz plasti tik nad polžarico na razpolago 5 radiokarbonskih datumov:<sup>83</sup>

1. dva vzorca organskega ogljika iz sedimenta: 2120 ± 40 BP in 2220 ± 40 BP;<sup>84</sup>
2. dva makrorastlinska vzorca: 1587 ± 30 BP in 1250 ± 30 BP;<sup>85</sup>
3. vertikalni kol št. 33, katerega vrh je segel v plast tik nad polžarico: 5718 ± 23 BP.<sup>86</sup>

Sklep je nedvoumen. Pet (5!) radiokarbonsko datiranih vzorcev z relativno majhnega območja izkazuje večtisočletni časovni razpon, kar daje dvomiti v interpretativno vrednost petih (5!), dejansko samo štirih (4!), radiokarbonskih datumov, pridobljenih na podlagi vzorcev z obsežnega območja severno od Resnikovega prekopa, kot to predlagata Budja in Mlekuž.<sup>87</sup> Nenavadno je tudi, da avtorji

<sup>72</sup> Budja, Mlekuž 2008b, 366.

<sup>73</sup> V zadnjem času podobno tezo zagovarja tudi Andrej Gaspari (2009, 37), čeprav zanjo, enako kot Budja in Mlekuž, nima dokazov (primerjaj Verbič, Horvat 2009, 13–19 z Velušček 2009b, 49–52 in Gaspari 2009, 36–41).

<sup>74</sup> Gre za prispevek Budja, Mlekuž 2008a (op. avtorja).

<sup>75</sup> Glej Budja, Mlekuž 2008a; 2008b.

<sup>76</sup> Prim. z Budja, Mlekuž 2008b, 362–364.

<sup>77</sup> Budja, Mlekuž 2008b, 364.

<sup>78</sup> Glej Budja 1994, 170.

<sup>79</sup> Mlekuž 2001, 47.

<sup>80</sup> Mlekuž 2001, 47, op. 1.

<sup>81</sup> Primerljiva diskusija je v slovenski arheologiji že potekala, in sicer na primeru keramike iz “mezolitskega konteksta” v spodmolu Pod Črmukljo (Brodar 1992, 25; Velušček 1995, 331; 2007, 429–430, sl. 2–5; Budja 1996, 326; Mlekuž 2005, 22 itd.).

<sup>82</sup> Velušček 2006a.

<sup>83</sup> Podatek velja za najdiščno območje, kjer je potekalo sondiranje leta 2002 (glej Velušček 2006b) (op. avtorja).

<sup>84</sup> Andrič 2006, 105, tab. 2.

<sup>85</sup> Culiberg 2006, 131, tab. 2.

<sup>86</sup> Čufar, Korenčič 2006, tab. 2; glej še Velušček 2006b, sl. 5: kol št. 33.

<sup>87</sup> 2008a; 2008b.

na primeru Male Triglavce zagovarjajo diametralno nasprotno mnenje o radiokarbonskih datacijah in njihovi razlagi.<sup>88</sup> Kar velja za Malo Triglavco, torej naj bi ne veljalo za Ljubljansko barje!

Preden zaključim, opozarjam še na nekaj neskladij. Budja in Mlekuž, še posebno v zadnjih prispevkih, pišeta o naselbinah na suhih tleh postavljenih, na terasah ali neke vrste otokih ob rekah oz. ob strugah s tekočo vodo. Nekatere naselbine naj bi živele dolgo časa, celo eno tisočletje ali še več. V neposredni bližini naselbin pa so se nahajale tudi njive za poljedelsko dejavnost.

Najprej moti dejstvo, da avtorja s takšno lahkoto iz svojih razlag (po letu 1994 oz. 1999) izločata kolišča kot zastarelo "ikonografijo", ki naj bi jo bil v zadnjih letih ponovno vpeljal Velušček.<sup>89</sup> Vprašujem se namreč, kako je mogoče pojasniti trditev, da je bil npr. na Maharskem prekopu hišni pod iz gline postavljen neposredno na tla, in to v stalno vlažnem okolju, kjer so se organski ostanki odlično ohranili,<sup>90</sup> kar se na suhem zagotovo ne bi bilo zgodilo.<sup>91</sup>

Temelji iz gline in mokro oz. vlažno okolje pač ne gredo skupaj! Z območij, kjer najdemo naselbine na vlažnih tleh, ne govorimo pa o koliščih, so za pode

<sup>88</sup> "The work at Mala Triglavca underlines the fact that any stratigraphic or radiocarbon sequence may be a complex palimpsest, created and recreated through a series of interlinked processes. On the one hand, 'gaps' in the radiocarbon sequence do not necessarily represent periods of abandonment of a cave, but may reflect episodes of postdepositional disturbance and intensive modification and transformation of the cave sediments. They may also be created by having too few radiocarbon samples and by the selectivity of the sampling. Small scale excavation (typical for cave sites), failure to appreciate the effects of postdepositional processes, direct translation of series of radiocarbon dates into cultural sequences, and interpretative models that see the Neolithic as radically different from the Mesolithic, have all contributed to the creation of such gaps" (Mlekuž et al. 2008, 248).

<sup>89</sup> Budja, Mlekuž 2008b, 361.

<sup>90</sup> Tako npr. ugotavljajo tudi Mlekuž, Budja in Ogrinc 2006, 259.

<sup>91</sup> Iz raziskave, ki je bila opravljena na koliščarskem lesu in je trajala manj kot mesec dni (Čufar, Tišler, Gorišek 2002, 69–75), je razvidno, da bi nekajletna osušitev območja, kjer so ohranjeni ostanki koliščarjev, pogubno vplivala na arheološke ostaline organskega izvora.

Na razlike v ohranjenosti gradiva, ki so posledica ležanja v različnem okolju, je na primeru kostnih najdb opozoril tudi Borut Toškan (2005, 94–95). In nenazadnje: največjo grožnjo arheološkemu ostankom na Ljubljanskem barju predstavlja znižanje nivoja podtalnice in izsušitev mokrih tal.

oz. temelje hiš kot izolacijski material uporabljali dolge in ravne oblice, plohe itd. Klasičen primer te vrste gradnje je vsekakor Aichbühl v Nemčiji.<sup>92</sup> Na Ljubljanskem barju česa podobnega (še) ne poznamo. Dvomim, da zato, ker so bili leseni temelji odplavljeni,<sup>93</sup> če pa so ostala npr. žitna zrna<sup>94</sup> in druge drobne najdbe organskega izvora.<sup>95</sup>

Zaradi stalno mokrih tal se zastavlja tudi vprašanje, kje iskati terene, primerne za gojenje več vrst pšenice in ječmena.<sup>96</sup> Na mokrih tleh v neposredni bližini oz. okoli Maharskega prekopa zagotovo ne, kot to trdijo Mlekuž, Budja in Ogrinc.<sup>97</sup> Pač pa jih lahko najdemo na trdinskih (rudninskih) tleh vršaja, pribl. 800 m zahodno od kolišča.<sup>98</sup>

V lanskem prispevku sva s Katarino Čufar<sup>99</sup> nazorno pokazala, da lahko na jugovzhodnem delu Ljubljanskega barja sledimo prestavljanju naselbin skozi čas, in sicer s skrajnega južnega roba v smeri

<sup>92</sup> Schröter 2009; Črešnar 2007, sl. 19.

<sup>93</sup> Prim. z Mlekuž, Budja in Ogrinc (2006, 259).

<sup>94</sup> Podatki veljajo za obravnavano kolišče Maharski prekop (Tjaša Tolar, osebna komunikacija).

<sup>95</sup> Podatki veljajo za obravnavano kolišče Maharski prekop (glej npr. Šercelj 1974, 71).

<sup>96</sup> Na podlagi rezultatov izkopavanj Bregantove je znano, da so se koliščarji z Maharskega prekopa ukvarjali tudi s poljedelstvom, na kar, posredno, kažejo npr. žrmlje (npr. Bregant 1975, sl. 2). Raziskovalci pa so v kulturni plasti naleteli tudi na pelod žita (npr. Šercelj 1981–1982, 103).

Na Maharskem prekopu so bila zoglelena žitna zrna odkrita šele leta 2005 (Tolar, osebna komunikacija). Ker pa ti makrorastlinski ostanki še niso objavljeni, kot argument, ki kaže katere kulturne rastline gre pričakovati tudi na Maharskem prekopu, opozarjam na Hočevarico, ki je kronološko, verjetno manj kot stoletje, starejša od Maharskega prekopa (prim. Čufar, Kromer 2004, 281–285; Velušček, Čufar 2008, 40–41, sl. 7) in kjer je bilo najdenih več vrst pšenice in ječmen (po Jeraj 2004, 58–59).

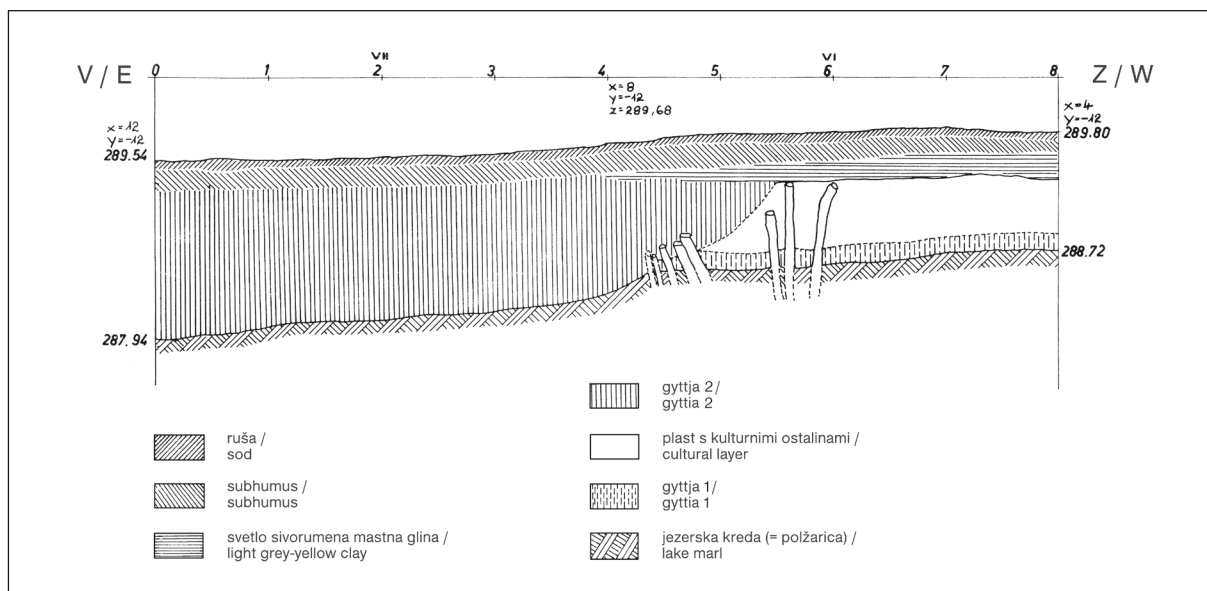
<sup>97</sup> Glej Mlekuž, Budja, Ogrinc 2006, 255–256, 258. Podobnega mnenja kot oni pa je tudi palinologinja Andričeva. V prispevku, kjer opisuje klimatske spremembe in barjansko rastlinstvo s konca pleistocena in v holocenu na Ljubljanskem barju, v odstavku o dogajanju v 5. tisočletju pr. Kr. piše: "Ko se je, domnevno zaradi bolj sušne klime, nivo vode v bazenu znižal, sta na novo izsušene površine, ki so verjetno privlačile prve poljedelce, začela poraščati jelša in hrasti" (Andrič 2009, 21–22; glej še Andrič et al. 2008, 162).

Kakor koli že, gre za zelo nenavadno stališče, če se upošteva ekologija kulturnih rastlin (*Triticum* in *Hordeum*), ki so jih verjetno poznali in gojili koliščarji z Resnikovega prekopa (glej Culiberg 2006). Po Andričevi (glej zgoraj) naj bi očitno uspevale v vlažnem okolju, kjer so bili dobri pogoji za rast jelše in hrasta (prim. s Tancik 1965, 60–62, 78; Prus 2008, sl. 5).

<sup>98</sup> Glej Tancik 1965, 60, 72; Prus 2008, 33–34, sl. 5 in prim. z Budja 1994, sl. 2.

<sup>99</sup> Velušček, Čufar 2008, 31–48.





Sl. 3: Maharski prekop, južni profil kv. VII in VI (po Bregant 1974a, pril. 1). Na levi strani risbe je dobro vidna t. i. paleostruga.

Fig. 3: Maharski prekop, southern cross-section of quadrants VII and VI (after Bregant 1974a, app. 1), with a so-called palaeochannel well visible on the left side of the drawing.

proti severu, v smeri proti središču Ljubljanskega barja. Morda gre za naključje, da je bila najstarejša naselbina odkrita najjužneje, horizontalnostratigrafsko pa se je poselitev nato "nadaljevala" v smeri proti severu, najprej z naselbinami iz 4. tisočletja in nato iz 3. ter morda tudi 2. tisočletja. Ker pa ima vsako jezero svoj razvoj od nastanka do izginotja preko močvirja in barja,<sup>100</sup> sklepam, da so v obdobju, ki je trajalo skoraj tri tisoč let, koliščarji za gradnjo naselbin izbirali najprimernejše lokacije ob jezeru in pri tem pazili, da se niso preveč oddaljili od terenov, ugodnih za poljedelstvo in druge dejavnosti na suhem. V zaledju se je širilo močvirje oz. barje.

V primeru Maharskega prekopa je naselbino varovala dvojna lesena palisada.<sup>101</sup> Za trditev, da gre za valobran oz. neke vrste škarpo,<sup>102</sup> pač ni argumentov. Po 15 letih zato pričakujem **vsaj en citat (!)**, ki ne izhaja iz raziskav na Maharskem prekopolu, ki tezo o valobranu oz. škarpi podpira. Kakor koli že, koliščarji so pred seboj imeli čistino jezera.

Problem predstavljajo reke in potoki. Izgleda, da so se kolišča nahajala v njihovi bližini. V kulturni plasti Starih gmajin in Blatne Brezovice je npr.

zaznati, da se je predhodnica današnje Ljubljanice izlivala v jezero nedaleč proč.<sup>103</sup>

Podobne, morda še bolj zapletene razmere si lahko predstavljamo na območju od Resnikovega prekopa do t. i. Dežmanovih kolišč, ki se nahajajo severno od Iga. Živahno prestavljanje naselbinskih lokacij v 4. tisočletju kaže, da so se lokalne okoljske spremembe očitno dogajale razmeroma hitro in da so se kasneje v 3. tisočletju morda ponovno umirile.<sup>104</sup> Nenazadnje, na pestro dogajanje na Maharskem prekopolu kažejo najdbe tipološko resniške keramike, pa tudi kost iz kvadranta 34, ki je datirana v 6. tisočletje pr. Kr., in so na tem kolišču zagotovo tujek, torej naplavljeni.

Podobno predvidevamo tudi za t. i. paleostrugo, ki obdaja Maharski prekop. Budja<sup>105</sup> jo razlaga kot dokaz, da je naselbina stala ob strugi s tekočo vodo. Pustimo ob strani palisado oz. t. i. valobran, poglejmo, kaj povedo arheološki podatki, predvsem vertikalna stratigrafija. Profili, ki jih objavlja Bregantova,<sup>106</sup> kažejo, da je bila struga aktivna po koncu obstoja naselbine (glej sl. 3). Temu ne nasprotuje niti radiokarbonska

<sup>103</sup> Turk, Horvat 2009a; 2009b.

<sup>104</sup> Prim. z Velušček, Čufar 2008, sl. 5.

<sup>105</sup> 1994, 172–173.

<sup>106</sup> Bregant 1974a, pril. 1: severni profil kv. 8, južni profil kv. 3 in 4 ter južni profil kv. 6 in 7; 1974b, pril. 1: severni in južni profil kv. 9; 1975, pril. 3: severni profil kv. 15.

<sup>100</sup> Pavšič 2008, 12.

<sup>101</sup> Npr. Greif 1997, 26; Velušček 2001, 75–77; 2004b, 77 in tam navedena literatura.

<sup>102</sup> Budja 1994, 172–173 itd.

datacija:  $4020 \pm 40$  BP,<sup>107</sup> pa čeprav je izražen dvom v njeno interpretativno vrednost. Glede na objavljene profile lahko celo sklepam, da se je struga s tekočo vodo premaknila bližje k naselbini v obdobju, ko je naselbina morda še živela in je bila nato zaradi preteče nevarnosti tudi zapuščena. Kaže, da gre v zvezi z Maharskim prekopom za problematiko, ki jo bo težko zadovoljivo pojasniti, vsekakor težje kot v primeru Resnikovega prekopa.<sup>108</sup>

Problem seveda ostaja tudi lega kolišč. Analiza, ki smo jo opravili na Starih gmajnah, kaže, da je kolišče stalo v barjanskem oz. v močvirnatem okolju, in to pribl. 700 m od trdinskega sveta, zato sklepamo, da je jezero moralo biti zelo blizu, če že ne tik ob naselbini oz. sondi, iz katere izvirajo preučevani vzorci.<sup>109</sup> Teza, da bi se koliščarji podali 700 m v notranjost močvirja oz. na barje, da bi živeli ob reki, se v tem trenutku namreč zdi nelogična. V prvi vrsti zaradi tega, ker na osrednjem delu Ljubljanskega barja, tj. na sredini jezera, ostankov kolišč (še) nismo našli. Po drugi strani pa tudi ugotavljamo, da se je po koliščarski dobi, ko se je območje Ljubljanskega barja v celoti zamočvirilo, poselitev premaknila na trdinsko obrobje.<sup>110</sup> Kot smo videli, lahko na podoben način razložimo tudi dogajanje v okolici Maharskega prekopa.<sup>111</sup>

<sup>107</sup> Budja, Mlekuž 2008b, 363, sl. 2.

<sup>108</sup> Glej Velušček 2006a.

<sup>109</sup> Velušček 2009a; Turk, Horvat 2009a.

<sup>110</sup> Glej npr. Velušček 2005b.

<sup>111</sup> Prim. z Velušček, Čufar 2008, 31–48.

Za konec pa še nekaj besed o trajanju naselbin. Tezo o dolgem trajanju naselbin, ki jo na primeru Maharskega prekopa zagovarjata Budja in Mlekuž, je danes mogoče ovreči z dobrimi argumenti. Po desetletju in pol dendrokronoloških raziskav lahko namreč nekaj besed rečemo tudi o tej tematiki, še več, zdi se, da postajajo glede na ugotovitve inštitutske raziskave primerljive z izsledki na švicarskih, nemških in francoskih jezerih.<sup>112</sup> Kot je videti, so naselbine na Ljubljanskem barju živele razmeroma kratek čas, večinoma nekaj desetletij do največ stoletje,<sup>113</sup> nekatere pa celo še manj.<sup>114</sup> Ugotavljamo tudi, da je bilo Ljubljansko barje istočasno poseljeno na več koncih hkrati.<sup>115</sup> Ne nazadnje, ugotovljeno je bilo, da so bile nekatere naselbinske lokacije večkrat poseljene v različnih obdobjih<sup>116</sup> in da, kar se zdi tudi pomembno, v koliščarski dobi območje Ljubljanskega barja ni bilo kontinuirano poseljeno.<sup>117</sup>

<sup>112</sup> Glej npr. Menotti 2004a, 207–217; Schlichtherle 2004, 22–35; Pétrequin, Bailly 2004, 36–49.

<sup>113</sup> Npr. Spodnje mostišče, Stare gmajne in Založnica.

<sup>114</sup> Maharski prekop in Resnikov prekop.

<sup>115</sup> Npr. Spodnje mostišče in Črešnja pri Bistri, Stare gmajne in Veliki Otavnik Ib, Založnica in Parte.

<sup>116</sup> Npr. Stare gmajne, Notranje Gorice, sosednji najdišči Parte-Iščica in Parte.

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## The Ljubljansko barje, problems of interpretation

### Translation

It is definitely positive that professional problems be clarified in science, and that researchers are able to form their opinions based on scientific methodology, even if they are questionable. Consequently, I will try to provide an answer regarding certain statements presented in a discussion on the topic of the Ljubljansko barje, as noted by Mihael Budja and Dimitrij Mlekuž.<sup>1</sup>

Budja and Mlekuž (2008b) on p. 369 state: “*and the hypothesised ‘unknown’ development of the site, its environs and landscape is an outcome of fragmentary and uncontextualized datasets that have been acquired within the unsuitable research approach.*”

In order to understand this argument, I suggest that we consider the monograph presenting the findings from archaeological-dendrochronological investigations at Resnikov prekop,<sup>2</sup> and compare and contrast them with the findings presented by Budja.<sup>3</sup> In my opinion, there is nothing to add here, with the only possible remark being that it does not seem Budja and Mlekuž consider it to be worth confronting their own statements with the findings, which are discussed in several chapters of this monograph. Instead, they only list two quotations; the first from the chapter *Preface and Acknowledgements*,<sup>4</sup> and the second from the chapter regarding interpretation of the palynological profile.<sup>5</sup> They therefore inaccurately present the above argument, which, in addition, has been taken completely out of context.

It is a fact that the sample excavation at Resnikov prekop precisely followed the strategy of the *Archaeological and dendrochronological investigations in the Ljubljansko barje*. The expected result was unfortunately not entirely met, as the dendrochronologists did not manage to construct a useful chronology. The researchers, however, cannot be blamed for this. Moreover, little of the wood was suitable for analysis.<sup>6</sup> Nevertheless, we achieved many valuable conclusions, which are now essential to consider as a part of all the research into the Ljubljansko barje or analogous environments, and beyond. This was soon confirmed, for example, by investigations into the Mesolithic site of Zalog near Verd<sup>7</sup> and the Bronze Age pile-dwelling settlement of Mali Otavnik near Bistra,<sup>8</sup> where we came upon an analogous problem of eroded cultural layers. Moreover, it is conclusive that any palynologist, when describing a profile and coming across a sedimentation hiatus, cannot, based on the investigated profile, discuss the environmental circumstances during a period covered by a hiatus, and

cannot give more information than that already given by Maja Andrič.<sup>9</sup>

The statement that the findings of the Institute’s<sup>10</sup> research group are “*an outcome of fragmentary and uncontextualized datasets*,”<sup>11</sup> is discussed below.

First of all, I would expect the claim to be supported by evidence. In 1994 Budja, for example, introduced a “new”<sup>12</sup> theory about activities in the Ljubljansko barje during the Copper Age. The site of Maharski prekop, investigated by Tatjana Bregant between 1970 and 1977, is one of the key sites of his discussion.

Budja recognized three settlement phases at Maharski prekop:<sup>13</sup> the earlier two were open settlements, located next to a river, and the latest one was a pile-dwelling settlement, situated on a floodplain. Budja marked areas with recognizable structures that are typical for the later two phases on an otherwise scant plan from 1970–1974 and without consideration of quadrants from the excavations in 1976 and 1977.<sup>14</sup>

Hermann Parzinger also discussed two phases (in fact meaning “several”) of development.<sup>15</sup> However, Budja does not indicate that Parzinger actually discussed two cultural horizons, classified to a period of the Baden culture,<sup>16</sup> i.e. the second half of the 4<sup>th</sup> millennium BC.<sup>17</sup>

The absurdity of discussing evidence in such a manner continued when Budja developed a thesis about three settlement phases of development.<sup>18</sup> However, only the latest phase could be contemporary with Parzinger’s horizons; the earliest two definitely date to a different period.

The first phase, which is chronologically close to Resnikov prekop, is set forth by Budja as follows:<sup>19</sup> “*A continuation of settlement, documented in archaeological stratigraphic sequences by Maharski prekop, can be connected with the surface layer that covered settlement structures at Resnikov prekop. It is documented in the stratification as ‘gyttia prior to construction of pile-dwellings’, containing scattered pottery, and typologically comparable with pottery from Resnikov prekop.<sup>3</sup> With the surface of the mentioned layer and the artefact set we define the first settlement phase (Fig.7-8, nos.2-4).*” [translation A. V.]

<sup>9</sup> Andrič 2006, 113; cf. Budja, Mlekuž 2008b, 369.

<sup>10</sup> The Institute of Archaeology, Scientific Research Centre, Slovenian Academy of Science and Art, Ljubljana (author’s note).

<sup>11</sup> Budja, Mlekuž 2008b, 369.

<sup>12</sup> Cf. Stritar, Lobnik 1985, 72–73.

<sup>13</sup> Budja 1994, 177–179.

<sup>14</sup> Budja 1994, fig. 9.

<sup>15</sup> After Budja 1994, 177.

<sup>16</sup> See Parzinger 1984, 36–40.

<sup>17</sup> See e.g. Raetzl-Fabian, Furholt 2006, fig. 4.

<sup>18</sup> 1994, 177–179.

<sup>19</sup> 1994, 169–170; see also Budja 1994, 177.

<sup>1</sup> Budja, Mlekuž 2008b, 359–370; cf. Velušček 2007, 434.

<sup>2</sup> Velušček 2006a.

<sup>3</sup> Budja 1994, 177.

<sup>4</sup> Budja, Mlekuž 2008b, 368; cf. Velušček 2006a, 12.

<sup>5</sup> Budja, Mlekuž 2008b, 369; cf. Andrič 2006, 113.

<sup>6</sup> Čufar, Korenčič 2006, 123–127.

<sup>7</sup> Gaspari 2006.

<sup>8</sup> Gaspari 2008.

We have to mention that the English version of the text is somewhat different.<sup>20</sup> However, note 3 seems more significant.<sup>21</sup> There, the author clearly specifies the meaning of “un-fragmentation of description” and “contextualisation of data sets”: “Our reconstruction is based upon data documented in excavation areas 17, 18 and 20 (Bregant 1975,43).”

As the author is not accurate in quoting, Bregant’s quadrant 17 is not mentioned on p. 43, and the information about the so-called excavation area (or quadrant) 20 does not correspond with the above interpretation (see below),<sup>22</sup> and it is therefore incomprehensible why he listed the three quadrants. Could it be that if all Bregant’s records about the so-called Resnikov prekop finds from Maharski prekop were in fact listed, it would not be possible to claim the pottery from the three listed quadrants as one of the arguments for the settlement being of the same age as Resnikov prekop?

A quotation from note 8, in a paper from 2006,<sup>23</sup> is similar: “The scatters of Resnikov prekop pottery type were found in this stratigraphical position (directly on the pre-settlement surface) on the site (Bregant 1974a.52; 1975.41; Velušček 2001.Sl. 29).” Certain inconsistency can be noticed in referring to the two different authors. I discussed the so-called Resnikov prekop pottery type on p. 93,<sup>24</sup> where I precisely established the locations of individual fragments in terms of the vertical stratigraphy. However, the quoted fig. 29 illustrates, in the framework of the considered problem, a less significant distribution of these finds across the site in terms of the horizontal stratigraphy. Moreover, Bregant mentioned the finds in question on p. 52,<sup>25</sup> where a single fragment of such type of pottery is described, found above the cultural layer (!) in quadrant no. XIV, while on p. 41 she presented ornamentation<sup>26</sup> and instead discussed the much more important stratigraphic data on the **non-cited** p. 43.<sup>27</sup>

It is obviously important that I once more quote part of the text by Bregant: “We have already mentioned finding a few artefacts that can be, observing their form as well as decorative and technical aspects, categorised as the Alpine facies of the Lengyel culture (Pl. IX, 3, 4, 5, 6; Pl. XII, 11; Pl. XIII, 6).<sup>28</sup> These fragments differ from other objects also

<sup>20</sup> See Budja 1994, 177 – last sentence: “The surface ... (Fig.7–8. Nr.3–6)” and compare with p. 170 – first sentence: “S površjem (The surface ...) ... (Fig.7–8. Nr.2–4).”

<sup>21</sup> Budja 1994, 170.

<sup>22</sup> Referring to the so-called Resnikov prekop pottery type from quadrant 20 is problematic. Bregant (1975) mentions a so-called Resnikov prekop type fragment from quadrant XX (pl. IX: 6) on p. 43. However, in a catalogue on p. 91, the same find is ascribed to quadrant XXI, which was proven to be correct upon re-examination (see Velušček 2001, 93, note 51).

<sup>23</sup> Mlekuž, Budja, Ogrinc 2006, 261, note 8.

<sup>24</sup> Velušček 2001.

<sup>25</sup> Bregant 1974b, 52; p. 68 in German summary.

<sup>26</sup> Bregant 1975, 41; p. 111 in German summary.

<sup>27</sup> Bregant 1975, 43; p. 111 in German summary.

<sup>28</sup> This is a culture to which the Resnikov prekop settlement had previously been ascribed (see e.g. Parzinger 1984, 31–33).

in terms of their stratigraphic position<sup>37</sup> [translation A. V. of note 37: “The same as a fragment exhibiting identical features, found in 1972 – Report III (B), 52.”], as they lie on top or underneath the layer with cultural remains. Fragments Pl. IX, 3 and Pl. XII, 11 lay at the bottom of a fairly greyish-yellow greasy clay layer, which is a prominent alluvium. The first fragment originates from quadrant XIX, at a depth of 50 cm, and the other from quadrant XXXIV, at a depth of 40 cm. Fragment Pl. IX, 6 had a similar location and originated from quadrant XX and a depth of 50 cm,<sup>29</sup> and also from the eroded layer, which is represented as yellow clay in this part of the pile-dwelling settlement. An even more stratigraphically different position is characteristic for this fragment, as a thick layer of gyttia separates it from the cultural layer. Two fragments Pl. IX, 4, 5 were found at the bottom of the cultural layer,<sup>30</sup> in a layer of gyttia formed prior to construction of the pile-dwellings; the first one was found 110 cm deep in quadrant XVIII and the other 100 cm deep in quadrant XIX. The exact location remains unknown only in the case of the sixth fragment Pl. XIII, 6, which originates from quadrant XXVII, ...”<sup>31</sup> [translation A. V.]

To summarise, Maharski prekop contains a small number of fragments of the so-called Resnikov prekop pottery type, which are highly scattered across the site.<sup>32</sup> If I furthermore consider the data listed by Bregant in 1974,<sup>33</sup> and later by the author of this discussion,<sup>34</sup> I can conclude that at least five fragments of the so-called Resnikov prekop pottery type were found above the cultural layer, and not more than two under or at the base of the cultural layer. Considering the amount and stratigraphical position of the mentioned finds, these probably do not indicate a settlement contemporary with Resnikov prekop; their origin has to be sought elsewhere. Bregant<sup>35</sup> believes that they were eroded from some settlement contemporaneous with Resnikov prekop, perhaps from Resnikov prekop itself or from a settlement – to this point undiscovered – dating to the same period, which was located closer to Maharski prekop (fig. 1). This was a logical reasoning, which later proved to be correct. Namely, we recently discovered that over the course of some time in prehistory, a watercourse traversed the site at Resnikov prekop and it washed away the settlement’s cultural layer.<sup>36</sup> It should be emphasized again at this point that Maharski prekop lies downstream from Resnikov prekop (fig. 1).

It is interesting that Budja apparently disagrees with such an interpretation. There is no explanation for this in his publications. Does he perhaps have doubts about the strength of the rivers and streams in the Ljubljansko

<sup>29</sup> See note 22.

<sup>30</sup> Parzinger (1984, 37, pl. 2: 7) classified the fragment to the Boleráz group of the Baden culture and not to the so-called Resnikov prekop pottery type.

<sup>31</sup> Bregant 1975, 43.

<sup>32</sup> See Bregant 1975, 43, 111; Velušček 2001, 93, fig. 29.

<sup>33</sup> 1974b, 52, 68.

<sup>34</sup> See Velušček 2001, 93, note 51, with noted stratigraphic information for the so-called Resnikov prekop pottery type, also for the 1976 and 1977 excavations.

<sup>35</sup> 1974b, 68; 1975, 111.

<sup>36</sup> Velušček 2006b, 56–57; cf. Turk 2006, 98; Toškan, Dirjec 2006, 154.

barje? I believe this is not the case, because – together with his co-authors – he presumes that the rivers of the Ljubljansko barje were so erosive that they were able to remove vertical piles (i.e. piles driven into the ground; author's note). Moreover, they also believe that the oldest settlement structures are absent from the Ižica (or Iščica) floodplain because they were most likely destroyed (presumably washed away) or buried.<sup>37</sup>

In 2006, Mlekuž, Budja and Ogrinc discussed Maharski prekop once more. The interpretation is this time based on radiocarbon dates. A bone from quadrant 34, dated to 6570 ± 40 BP, stands out from the highly dispersed radiocarbon dates from a laboratory in Zagreb,<sup>38</sup> and a set of 5 dates, dated to ca. 4700 BP. The oldest date was, beside other arguments,<sup>39</sup> the key element of the following statement: “However, a radiocarbon datum for bone from grid square 34 obviously document earlier settlement of the area. The existence of earlier phase settlement was proposed on the basis of pottery scatters deposited on the pre-settlement surface (Budja 1995, 170;<sup>40</sup> 1997.82).”<sup>41</sup> Not even a word is mentioned that the Resnikov prekop pottery type is discussed in the quoted papers, which is indirectly, according to the dating of the Resnikov prekop pile-dwelling settlement, dated to **the radiocarbon period ca. 5700 BP<sup>42</sup> and not to ca. 6600 BP**, which is the dating of the mentioned bone!

Budja's second settlement phase at Maharski prekop is even more mysterious.<sup>43</sup> Beside numerous “arguments” setting forth the characteristics of this phase, a large amount of pottery or ceramics<sup>44</sup> is also supposed to be distinctive. However, the latter is not even mentioned in the English translation.<sup>45</sup> It is particularly interesting that a *terminus ante quem* of the second settlement phase is the radiocarbon year 5080 BP,<sup>46</sup> which is a period between the settlement at Resnikov prekop and the Baden culture. That is why I believe that such a pottery would resemble finds from the so-called first Eneolithic settlement phase of Moverna vas,<sup>47</sup> or from the second settlement phase of Gradec near Mirna,<sup>48</sup> perhaps even pottery with analogies to the period of burials in Ajdovska jama,<sup>49</sup> etc. But the main problem is that such a type of pottery is unidentified at Maharski prekop.<sup>50</sup> Or am

I perhaps mistaken and is it known (only) to Budja and to Mlekuž? If so, I would expect it be published, if it actually exists. A similar situation existed at the site of Resnikov prekop, and pile-dwelling settlements in e.g. the Iščica and Bistra streams still experience the same conditions today, but the pottery finds, at least the majority of them, remain preserved.<sup>51</sup>

In a contribution from 2006, the authors discussed Maharski prekop and on p. 258 conclude: “Therefore, we can imagine Maharski prekop as a dispersed settlement with several settlement foci located on the channel levees and surrounded by fields. Some foci were settled for a very short time – less than 100 years in the case of Spodnje mostišče (Čufar et al. 1998.85–86) – but some (Maharski prekop) were occupied continuously for almost a millennium, or even two millennia, as recent radiocarbon data demonstrate (Tab. 1).” A pile-dwelling is no longer mentioned. Previously square-shaped houses<sup>52</sup> became rectangular.<sup>53</sup>

It is interesting to see how they substantiate the latter. It is based on research findings from the Institute's research group and dendrochronologists at the Parte-Iščica site, which is the exactly the same approach as that taken by the author of this paper. However, the author had introduced these findings for the first time five years earlier than Mlekuž, Budja and Ogrinc, and referred to them several times before 2006.<sup>54</sup> Any excuse that Budja and Mlekuž had accidentally overlooked the findings of the author of this paper is not appropriate here, because Budja was a member of the author's PhD oral examination committee. In a contribution from 2006, the author's dissertation<sup>55</sup> is quoted at least twice; once even on p. 77, in the chapter where p. 76 contains a section discussing the ground plans of houses from Maharski prekop.<sup>56</sup> An inaccurate citation of data from the author's master's thesis,<sup>57</sup> with no proper reference, also occurs.

To make myself quite clear, I cannot agree with the interpretations of precisely reconstructed ground plans of houses and a statement that the rectangular ground plans at Maharski prekop represent houses constructed on dry land with a clay floor being constructed directly on the ground.<sup>58</sup> I believe instead that we are dealing with a pile-dwelling.<sup>59</sup> Several arguments support this, but I will discuss these later.

The thesis that a (**permanent (?)**) lake did not cover the Ljubljansko barje during the Holocene recurs is recurring.

<sup>37</sup> Mlekuž, Budja, Ogrinc 2006; cf. Mlekuž 2001, 50.

<sup>38</sup> A critical opinion on the interpretative value of the Zagreb dates was presented by Velušček and Čufar 2008, 47.

<sup>39</sup> See *Documenta Praehistorica* 33, 260–261, and compare with Budja 1994, 169–170, 177.

<sup>40</sup> This is a paper from a 1994 periodical, which I cite as Budja 1994, but was published in 1995.

<sup>41</sup> Mlekuž, Budja, Ogrinc 2006, 261.

<sup>42</sup> See Velušček 2006b, 36.

<sup>43</sup> See Budja 1994, 177–178.

<sup>44</sup> Budja 1994, 170.

<sup>45</sup> Budja 1994, 177–178.

<sup>46</sup> Budja 1994, 178.

<sup>47</sup> See Budja 1992, 104, fig. 4: phase 7; 1993, 20, fig. 5.

<sup>48</sup> Dular et al. 1991, 141–142.

<sup>49</sup> Horvat 1989; Bonsall et al. 2007, 727–740.

<sup>50</sup> See Parzinger 1984, 18–21; Velušček 2001, 52–72; 2004a, 184–212, and the cited bibliography.

<sup>51</sup> E.g. Velušček 2006b, 56–57.

<sup>52</sup> See Budja 1994, fig. 9.

<sup>53</sup> Mlekuž, Budja, Ogrinc 2006, 259–260, figs. 7 and 8.

<sup>54</sup> Velušček 2001, 76, fig. 23; 2004b, 77; 2005a, 202; the brochure and exhibition *Dediščina Ostrorogega Jelena (The Heritage of Ostrorogi Jelen)*, opened in June 2005; see also Greif 1997, 74.

<sup>55</sup> Velušček 2001.

<sup>56</sup> See Mlekuž, Budja, Ogrinc 2006, 260–261.

<sup>57</sup> Velušček 1997a; 1997b; compare with Mlekuž 2001; Mlekuž, Budja, Ogrinc 2006.

<sup>58</sup> See Mlekuž, Budja, Ogrinc 2006, 259–260, figs. 7 and 8.

<sup>59</sup> See also Greif 1997, 74.

There is, of course, a entire set of different interpretations available. Budja and Mlekuž refer to the geographer and geomorphologist Milan Šifrer, who presented a controversial article about a possible geomorphological development of the Ljubljansko barje in *Geografski zbornik* in 1983.

Let me reiterate that Šifrer did not foresee a permanent, extensive lake at the Ljubljansko barje between the last ice age and the Holocene.<sup>60</sup> Furthermore, his article stated that lake marl or the so-called *polžarica* from the Ljubljansko barje was not a sediment deposited in a lake environment; instead, it was a sediment of fluvial origin (sic).<sup>61</sup> Šifrer also claimed that the Ljubljansko barje was primarily much drier and became marshy only as late as the pile-dwellers period.<sup>62</sup>

It is a fact that lake marl is present under archaeological remains in the south-eastern part of the Ljubljansko barje at Resnikov prekop (5<sup>th</sup> millennium BC), at Maharski prekop (4<sup>th</sup> millennium), in the area of the first Dežman's pile-dwelling settlements (3<sup>rd</sup> and perhaps also 2<sup>nd</sup> millennium), and also on the opposite side of the Ljubljansko barje, i.e. beneath the remains of the pile-dwelling settlements of Hočevarica, Stare gmajne, and Blatna Brezovica (all dating to the 4<sup>th</sup> millennium) and also under Mali Otavnik (2<sup>nd</sup> millennium) and even below the remains of the Mesolithic hunting camp of Zalog near Verd, etc. (see fig. 1).

Rudi Tancik, for example, studied lake marl in detail.<sup>63</sup> However, Šifrer did not refer to his findings. If despite all the above, I summarise Šifrer's findings, I can imagine an approximate development of the Ljubljansko barje during the Holocene as follows:

1. During a period after the ice age, rivers were discharging a grey/light grey sediment, i.e. *polžarica*, on the Ljubljansko barje. A lake (or standing flood waters) could form occasionally, but the area was mostly dry. Vegetation that most probably flourished well on the drier Ljubljansko barje ground was obviously concurrently decaying and almost no traces of it exist in lower layers of the Holocene profiles (compare to fig. 2).

2. The process of the peculiar river discharge of material forming the surface of the Ljubljansko barje was apparently finished approximately in the pile-dwelling period (which lasted almost 3000 years!), when rivers and streams suddenly "decided" for some reason to stop depositing *polžarica* on the Ljubljansko barje and to transform the area into marshland (sic), etc.

Nonetheless, in 1994, Budja introduced Šifrer's thesis about the geomorphological development of the Ljubljansko barje to archaeological studies.<sup>64</sup> He summarised that the Ljubljansko barje was much drier at first, which resulted in settlements built on dry ground beside the rivers,<sup>65</sup> and became much damper and unstable later, which resulted in

the construction of pile-dwellings.<sup>66</sup> Based on the above, more interpretations followed, each slightly different from the other. It is also important that although Budja, and later also Mlekuž, refers to Šifrer the whole time,<sup>67</sup> he gradually distances himself from Šifrer's thesis (see below).

In 2001, Mlekuž presented a test profile, opened on the eastern edge of the Ljubljansko barje near Babna Gorica, ca. 2 km to the northeast from the Maharski prekop pile-dwelling settlement. From this, it is clear that for a short time around 6200 BP, a regression of the lake occurred or, as the author states, a floodplain lake, and later a short-term transgression occurred again, followed by a sequence of alluvia.<sup>68</sup>

A paper from 2006 includes a somewhat different interpretation of obviously another profile from the surroundings of Babna Gorica: "*The sequence demonstrates intensive and complex fluvial and flood activity before 6700 cal BP, with a sequence of 'wet' and 'dry' episodes. In this case, even the presence of 'lacustrine' calcareous silt, traditionally an indicator of a stable lake, can be interpreted as a result of erosion and deposition by fluvial activity.*"<sup>69</sup>

Another paper,<sup>70</sup> discussing the Ljubljansko barje, states: "*Radiocarbon dates place the first phase of the palaeochannels before 5725 calBP. Thus, at the latest at 3776 calBC this part of Ljubljana Marshes was an active floodplain and not a shallow lake, as the traditional view suggests,*"<sup>71</sup> based on which we could suspect that the south-eastern part of the Ljubljansko barje could be, at least occasionally (?), submerged.

A similar interpretation can also be found in a popular contribution, published by Budja in the newspaper *Delo*, dated 8 May 2008. Discussion on the topic *Sodobne arheološke raziskave na Ljubljanskem barju* (Contemporary archaeological research at the Ljubljansko barje) includes a large sub-title *Mit o koliščarskem jezeru (The myth of a pile-dwelling lake)* on p. 23, which indicates that a so-called pile-dwelling (permanent) lake never existed on the Ljubljansko barje. The author refers to Šifrer to back up this statement: "*In the mid-eighties, the geographer Milan Šifrer published a study about the geomorphological development of the Ljubljansko barje, where the area of tectonic depression at the contact of the Alps and the Dinarides was presented as a Holocene floodplain, onto which fluvial sediments were deposited during frequent flooding and long-lasting stagnation of water. Inflows of water were dependent upon the amount of rainfall and the Alpine foothills and Dinaric Karst plateau hydrographical network dynamics. In addition, paleobotanists reported that, during this period, some of the settlements stood on dry or only slightly marshy ground.*" [translation A. V.]

<sup>66</sup> Late Maharski prekop and Parte or na Partih.

<sup>67</sup> See e.g. Mlekuž, Budja, Ogrinc 2006, 256; Budja, Mlekuž 2008b, 368.

<sup>68</sup> Mlekuž 2001, 44, fig. 3.

<sup>69</sup> Mlekuž, Budja, Ogrinc 2006, 257–258.

<sup>70</sup> The paper was discussed at the 15<sup>th</sup> Neolithic Seminar, held at the Department of Archaeology, Faculty of Arts, University of Ljubljana, during the second half of 2007 (see *Documenta Praehistorica* 35, p. III).

<sup>71</sup> Budja, Mlekuž 2008a, 48; similar also Budja, Mlekuž 2008b, 369.

<sup>60</sup> Šifrer 1983, 49.

<sup>61</sup> Šifrer 1983, 41, 49; see also Lovrenčak, Orožen Adamič 2001, 382.

<sup>62</sup> Šifrer 1983, 49.

<sup>63</sup> Tancik 1965, 67–69.

<sup>64</sup> Budja 1994, 163–181.

<sup>65</sup> Resnikov prekop and two early settlement phases of Maharski prekop.



The most recent paper even allows a possibility that a long-term lake actually existed. Namely, Budja and Mlekuž claim with “great certainty” [translation A. V.],<sup>72</sup> “that at least at the time of occupation (and probably even earlier) of the Maharski prekop site around 4000 cal BC, this part of the Ljubljana marshes was not covered by shallow lake”,<sup>73</sup> and, “We believe that the Ljubljana Marshes in prehistory was neither floodplain nor lake exclusively, but a dynamic mosaic of different environments, including floodplains and large bodies of standing water.”<sup>74</sup> The mosaic was highly dynamic, both in seasonal as well as in long term temporal scales, in association with global and regional climatic anomalies in the Holocene (Budja, Mlekuž 2008<sup>75</sup>).<sup>76</sup>

Let us leave aside this paronomasia, which makes us wonder at the exact meaning of vague descriptions of the Ljubljansko barje: large body of standing water, long-term stagnant water, etc., and let us stop at the next problem, i.e. the interpretations of palaeochannels and, above all, the dating of them.<sup>77</sup> In my opinion, an exemplary case of the incorrect utilization of otherwise doubtlessly useful technology, the so-called LiDAR, is presented here. As was said before, we will now focus on radiocarbon dates, which Budja and Mlekuž also consider a key element.<sup>78</sup>

But let us first discuss a fragment of pottery, found at the drilling of borehole no. 6: “This is supported by the piece of prehistoric pottery, found in the borehole, indicating that we dated an undisturbed surface, .... We therefore suggest that 5110 ± 40 BP is the age of the terrace surface.”<sup>79</sup> As we can see, this is, again, a period close to Budja’s so-called second settlement phase at Maharski prekop,<sup>80</sup> which was, based on the radiocarbon date 5080 BP, a presumable *terminus ante quem*, correlated with the first Eneolithic phase at Movernava, Gradec near Mirna and Ajdovska jama (see above).

An unambiguous conclusion follows. A so far unknown settlement phase exists at the Ljubljansko barje. Publication of such a fragment is therefore imperative! However, we are perhaps dealing with another paronomasia; we have already come across them in studies of the Ljubljansko barje. One of the most interesting studies discusses **still unpublished** pottery fragments from the Mesolithic context of the Breg near Škofljica site, which are supposed **to be typologically comparable to the earliest Linear pottery (sic)**.<sup>81</sup> Also worthy of mention is note 1,<sup>82</sup> which brings the above claim

to a close: “Field surveys at known mesolithic sites have also revealed fragments of pottery, but there has been a general tendency to ignore them.” However, the most important questions remain unanswered: which excavation sites are these and what does the mentioned pottery – which would establish the above claim – look like?<sup>83</sup>

Furthermore, it is conspicuously odd that the authors discuss five radiocarbon dates for an area covering more than 7 hectares (**over 70,000 m<sup>2</sup>**), which all – except for a date from borehole no. 6 – supposedly represent a *terminus ante quem* for an individual phase of activity of the palaeochannels.

Let us make a comparison with the site of Resnikov prekop,<sup>84</sup> where we dealt with an analogous problem of a palaeochannel, its filling and dating. It is essential to note that we are dealing with a smaller area here, comprising **as little as 33 m<sup>2</sup>**. All radiocarbon-dated samples, **which could potentially be gained by drilling**, originate from this area. To summarise, Resnikov prekop offers 5 radiocarbon dates from a layer just above lake marl.<sup>85</sup>

1. Two samples of organic carbon from a sediment: 2120 ± 40 BP and 2220 ± 40 BP;<sup>86</sup>

2. Two macro-plant samples: 1587 ± 30 BP and 1250 ± 30 BP;<sup>87</sup>

3. Vertical pile no. 33, with its top reaching as far up as the layer just above lake marl: 5718 ± 23 BP.<sup>88</sup>

The conclusion is obvious. Five (5!) radiocarbon-dated samples from a relatively small area represent a period stretching back thousands of years, which makes us doubt the interpretative value of five (5!), but in fact only four (4!), radiocarbon dates, gained on the basis of samples from an extensive area to the north of Resnikov prekop, as suggested by Budja and Mlekuž.<sup>89</sup> It is also unusual that, in the case of Mala Triglavca, the authors support a diametrically opposite opinion about the radiocarbon dates and their interpretation.<sup>90</sup> What applies to Mala Triglavca would thus not apply to the Ljubljansko barje!

<sup>83</sup> A similar discussion is already known in Slovenian archaeology, i.e. a discussion on pottery from the “Mesolithic context” of the Pod Črmukljo rock shelter (Brodar 1992, 25; Velušček 1995, 336; 2007, 434, figs. 2–5; Budja 1996, 329; Mlekuž 2005, 22, etc.).

<sup>84</sup> Velušček 2006a.

<sup>85</sup> The data is valid for the area where sample trenching was conducted in 2002 (see Velušček 2006b).

<sup>86</sup> Andrič 2006, 112, pl. 2.

<sup>87</sup> Culiberg 2006, 132, pl. 2.

<sup>88</sup> Čufar, Korenčič 2006, pl. 2; see also Velušček 2006b, fig. 5: pile no. 33.

<sup>89</sup> Budja, Mlekuž 2008a; 2008b.

<sup>90</sup> “The work at Mala Triglavca underlines the fact that any stratigraphic or radiocarbon sequence may be a complex palimpsest, created and recreated through a series of inter-linked processes. On the one hand, ‘gaps’ in the radiocarbon sequence do not necessarily represent periods of abandonment of a cave, but may reflect episodes of postdepositional disturbance and intensive modification and transformation of the cave sediments. They may also be created by having too few radiocarbon samples and by the selectivity of the. Small scale excavation (typical for cave sites), failure to appreciate

<sup>72</sup> Budja, Mlekuž 2008b, 366.

<sup>73</sup> Budja, Mlekuž 2008b, 369.

<sup>74</sup> Also Andrej Gaspari (2009, 37) has recently followed this thesis, despite the fact that like Budja in Mlekuž, he does not offer any evidence to be able to confirm it (compare Verbič, Horvat 2009, 13–19, Velušček 2009b, 49–52, and Gaspari 2009, 36–41).

<sup>75</sup> This is a paper by Budja, Mlekuž 2008a (author’s note).

<sup>76</sup> Budja, Mlekuž 2008b, 370.

<sup>77</sup> See Budja, Mlekuž 2008a; 2008b.

<sup>78</sup> Cf. Budja, Mlekuž 2008b, 369.

<sup>79</sup> Budja, Mlekuž 2008b, 369.

<sup>80</sup> See Budja 1994, 177–178.

<sup>81</sup> Mlekuž 2001, 47.

<sup>82</sup> Mlekuž 2001, 47, note 1.

Before I finish, I have to mention a few more discrepancies. Budja and Mlekuž, particularly in recent papers, discuss settlements constructed on dry ground, located on terraces or some sort of islands next to rivers or next to beds of flowing water. Some of the settlements were supposedly long-term, existing for a millennium or longer. Moreover, fields for agricultural activity were located in the direct vicinity of the settlements.

It is disturbing that the authors effortlessly eliminate pile-dwellings from interpretations (after 1994 or 1999), the reason being an outdated “*iconography*” that was supposedly recently reintroduced by Velušček (the author of this discussion).<sup>91</sup> The question remains: how to explain the statement that, at e.g. Maharski prekop, a clay house floor was laid directly onto the ground in a constantly damp environment, where organic remains are excellently preserved,<sup>92</sup> which would definitely not occur on dry land?<sup>93</sup>

Clay foundations and a wet or damp environment do not interconnect! In regions with settlements constructed on damp ground – but not pile-dwellings – long and straight planks were used to construct a floor or as an insulating material for house foundations. A classical example of this type of construction is Aichbühl in Germany.<sup>94</sup> Nothing similar has yet been found at the Ljubljansko barje. I sincerely doubt that the wooden foundations were washed away,<sup>95</sup> as cereal grains<sup>96</sup> and other small finds of organic origin were preserved.<sup>97</sup>

Another question arises. Namely, where can we seek terrain suitable for the cultivation of several species of wheat and barley, when the ground was constantly wet?<sup>98</sup> Certainly not on wet ground in the immediate vicinity of

Maharski prekop, as claimed by Mlekuž, Budja and Ogrinc.<sup>99</sup> Instead, it can be found on a fan of dry ground, ca. 800 m westwards from the pile-dwelling settlement.<sup>100</sup>

In a paper from 2008, we clearly showed that settlements located in the south-eastern part of the Ljubljansko barje were shifting through time, i.e. from the utmost southern end towards the north, or the middle of the Ljubljansko barje.<sup>101</sup> It is perhaps a coincidence that the earliest settlement was discovered on the far south and that settling then “continued” in northwardly direction in terms of horizontal stratigraphy, starting with settlements dating to the 4<sup>th</sup> millennium and then to the 3<sup>rd</sup> and perhaps even the 2<sup>nd</sup> millennium. However, every lake follows its own development from creation to disappearance, from swamp to moor.<sup>102</sup> I therefore presume that during an almost three-thousand-year period, the pile-dwellers were searching for locations most suitable for the construction of settlements and were careful not to move too far away from areas that were favourable for agriculture and other activities on dry ground. Swamp or marsh would have been present in the hinterland.

The settlement at Maharski prekop was protected by a double wooden palisade.<sup>103</sup> No evidence exists to be able to conclude that this was a breakwater or some sort of a

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also came across cereal pollen in the cultural layer (e.g. Šercelj 1981–1982, 103).

Charred cereal grains were discovered at Maharski prekop as late as in 2005 (Tolar, personal com.). As these macro-plant remains have not yet been published, I am emphasizing the finds from Hočevarica, which is chronologically probably less than a century older than Maharski prekop, as further evidence indicating which cultivated plants we can also expect to find at Maharski prekop, (e.g. Čufar, Kromer 2004, 281–285; Velušček, Čufar 2008, 40–41, fig. 7), and where several species of wheat and barley have been found (after Jeraj 2004, 58–59).

<sup>99</sup> See Mlekuž, Budja, Ogrinc 2006, 255–256, 258. The palynologist Andrič shares a similar opinion. In a contribution where she is describing climatic changes and flora of the Ljubljansko barje from the end of Pleistocene and during the Holocene, in a paragraph on the activities during the 5<sup>th</sup> millennium BC, she states: “*When, allegedly because of a drier climate, water level in a pool lowered, newly parched surfaces, which probably attracted the first farmers, started to be overgrown with alder and oak*” (Andrič 2009, 21–22; see also Andrič et al. 2008, 162) [translation A. V.].

Nevertheless, this is a very unusual point of view if we consider the ecology of cultivated plants (*Triticum* and *Hordeum*), which were probably known and cultivated by pile-dwellers from Resnikov prekop (see Culiberg 2006). According to Andrič (see above), they evidently flourished in a damp environment with good conditions for growth of alder and oak (e.g. Tancik 1965, 60–62, 78; Prus 2008, fig. 5).

<sup>100</sup> See Tancik 1965, 60, 72; Prus 2008, 33–34, fig. 5, and cf. Budja 1994, fig. 2.

<sup>101</sup> Velušček, Čufar 2008, 31–48.

<sup>102</sup> Pavšič 2008, 12.

<sup>103</sup> E.g. Greif 1997, 26; Velušček 2001, 75–77; 2004b, 77, and the cited bibliography.

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***the effects of postdepositional processes, direct translation of series of radiocarbon dates into cultural sequences, and interpretative models that see the Neolithic as radically different from the Mesolithic, have all contributed to the creation of such gaps***” (Mlekuž et al. 2008, 248).

<sup>91</sup> Budja, Mlekuž 2008b, 368.

<sup>92</sup> As has also been noted by Mlekuž, Budja and Ogrinc in 2006, 259.

<sup>93</sup> Analysis completed on the pile-dwelling wood, which lasted less than a month (Čufar, Tišler, Gorišek 2002, 69–75), showed that a few dry years in the area with preserved pile-dwelling remains perniciously influenced archaeological remains of organic origin. Borut Toškan (2005, 97) also emphasized differences in the preservation of material in a case of bone finds; the differences are a consequence of deposition in a different environment. And, last but not least, the reduction of the groundwater level and the drying of the wet bed represent the greatest threat to archaeological remains in the Ljubljansko barje.

<sup>94</sup> E.g. Schröter 2009; see also Črešnar 2007, fig. 19.

<sup>95</sup> Cf. Mlekuž, Budja, Ogrinc 2006, 259.

<sup>96</sup> Data valid for the studied pile-dwelling settlement of Maharski prekop (Tjaša Tolar, personal com.).

<sup>97</sup> Data valid for the studied pile-dwelling settlement of Maharski prekop (see e.g. Šercelj 1974, 71).

<sup>98</sup> It is known, based on the results of excavations conducted by Bregant, that the pile-dwellers from Maharski prekop were also engaged in agriculture, which is indirectly shown by a quern (e.g. Bregant 1975, fig. 2). Researchers

scarp.<sup>104</sup> After 15 years (!), I would therefore expect **at least one quotation (!)** supporting a thesis about a breakwater/scarp, which does not derive from research at Maharski prekop. Nevertheless, pile-dwellers had the surface of the lake on their doorstep.

Rivers and streams represent a problem. It appears that pile-dwellings were located in their vicinity. Cultural layers at the Stare gmajne and Blatna Brezovica sites, for instance, indicate that the predecessor of the present-day Ljubljana was flowing into the lake not far away from the mentioned settlements.<sup>105</sup>

A similar, but perhaps even more complicated situation was perhaps present in the area from Resnikov prekop to the so-called Dežman's pile-dwellings, located to the north of Ig. The constant shifting of settlement locations during the 4<sup>th</sup> millennium indicates fairly rapid local environmental changes, which perhaps slowed down again in the 3<sup>rd</sup> millennium.<sup>106</sup> Nonetheless, finds of the Resnikov prekop pottery type indicate dynamic activities at Maharski prekop. These, together with a bone from quadrant 34, dated to the 6<sup>th</sup> millennium BC, definitely do not originate from this pile-dwelling.

The same can also be claimed for a so-called palaeochannel that surrounds Maharski prekop. Budja<sup>107</sup> interprets it as evidence that the settlement stood next to a flowing-water channel. Let us put the palisade or a so-called breakwater aside, and discuss archaeological data, predominantly the vertical stratigraphy. Cross-sections, published by Bregant,<sup>108</sup> show that the riverbed was active after the inhabitation of the settlement terminated (see *fig. 3*). This could furthermore be confirmed with a radiocarbon date: 4020 ± 40 BP,<sup>109</sup> despite its doubtful interpretative value. I can even presume, considering the published cross-sections, that the channel of flowing water shifted closer to the settlement during the period when the settlement perhaps still existed. Moreover, the settlement perhaps may have then been abandoned because of an imminent danger, maybe caused by this water channel. All in all, the Maharski prekop site represents a complex problem that will be hard to solve satisfactorily, in any case harder than the Resnikov prekop site.<sup>110</sup>

Pile-dwelling locations remain another problem. Analysis, conducted at Stare gmajne, indicates that the pile-dwelling settlement stood in a marshy or swampy environment ca. 700 m from solid ground. We therefore assume that a lake had to be nearby, if not right next to the settlement or trench from which the investigated

samples were taken.<sup>111</sup> A thesis that pile-dwellers would settle 700 m into a swamp or a marsh in order to live next to a river does not seem logical at the moment. First of all, the central part of the Ljubljansko barje, i.e. the middle of the lake, has not (yet) yielded any pile-dwellings. Secondly, we discovered that after the pile-dwelling period, when the entire Ljubljansko barje became a marsh, the settlements shifted onto a solid fringe of the marsh.<sup>112</sup> As discussed above, activities near Maharski prekop can be explained in a similar way.<sup>113</sup>

Let me conclude with a few words on the duration of settlements. The thesis of long-term settlements, as argued by Budja and Mlekuž using the example of Maharski prekop, can now be rejected on the basis of the evidence. We can briefly discuss this theme after a decade and a half of dendrochronological research. Moreover, it further appears that the Institute investigations have become comparable with findings from Swiss, German and French lakes.<sup>114</sup> It appears that the Ljubljansko barje settlements were comparatively short-lived, existing for a few decades or a century at most,<sup>115</sup> some of them even less.<sup>116</sup> We have also found that the Ljubljansko barje was contemporaneously populated at several locations.<sup>117</sup> Last but not least, the data indicate that some settlement locations were repeatedly inhabited during different periods,<sup>118</sup> and – which also seems important – the area of the Ljubljansko barje was not continuously populated during the pile-dwelling period.<sup>119</sup>

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<sup>104</sup> Budja 1994, 178, etc.

<sup>105</sup> Turk, Horvat 2009a; 2009b.

<sup>106</sup> Cf. Velušček, Čufar 2008, *fig. 5*.

<sup>107</sup> 1994, 178.

<sup>108</sup> Bregant 1974a, appendix 1: northern cross-section of quadrant 8, southern cross-section of quadrants 3 and 4, and southern cross-section of quadrants 6 and 7; 1974b, appendix 1: northern and southern cross-sections of quadrant 9; 1975, appendix 3: northern cross-section of quadrant 15.

<sup>109</sup> Budja, Mlekuž 2008b, 369, *fig. 2*.

<sup>110</sup> See Velušček 2006a.

<sup>111</sup> Velušček 2009a; Turk, Horvat 2009a.

<sup>112</sup> See e.g. Velušček 2005b.

<sup>113</sup> Compare to Velušček, Čufar 2008, 31–48.

<sup>114</sup> See e.g. Menotti 2004a, 207–217; Schlichtherle 2004, 22–35; Pétrequin, Bailly 2004, 36–49.

<sup>115</sup> E.g. Spodnje mostišče, Stare gmajne and Založnica.

<sup>116</sup> Maharski prekop and Resnikov prekop.

<sup>117</sup> E.g. Spodnje mostišče and Črešnja pri Bistri, Stare gmajne and Veliki Otavnik Ib, Založnica and Parte.

<sup>118</sup> E.g. Stare gmajne, Notranje Gorice, the neighbouring sites Parte-Iščica and Parte.

<sup>119</sup> See e.g. Velušček, Čufar 2008, 46–48, and the cited bibliography.

