

A Dufour bladelet from Potočka zijalka (Slovenia)

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Izvleček

V enem od najpomembnejših aurignacijskih najdišč v Evropi, v jami Potočka zijalka, je bil odkrit del klinice tipa Dufour. Klinica je ležala na površini Brodarjevega nasipa prekopanih sedimentov, ki je v letih 1928–1929 nastal v zadnjem delu jame. Potočka zijalka je znana predvsem po 125 odlično ohranjenih koščenih konicah, njihova datacija je s pomočjo metode ^{14}C 30.000 let. Zanimivo je, da so skoraj sočasno z nastankom in uporabo koščenih konic iz Potočke zijalke v bližnjem hrvaškem jamskem najdišču Vindija živeli neandertalci. V najmlajšem moustérienskem kompleksu Vindija G1 so skupaj s kostnimi ostanki neandertalcev ležale tudi koščene konice.

Ključne besede: Slovenija, Potočka zijalka – aurignacien, klinica Dufour, koščene konice; Hrvaška, Vindija – neandertalci

Within the framework of my doctoral thesis on the subject of bone points from Potočka zijalka, I wished to verify whether the excavated sediments that S. Brodar had removed to the rear of the cave,¹ contained any bone by-products made during the production process. This would conclusively prove that the bone points were being produced inside or in front of the cave rather than being brought from elsewhere. Six of the bone points have recently been dated with the ^{14}C method that showed them to be around 30,000 years old.²

¹ S. and M. Brodar 1983.

² Pacher 2001; Turk 2007b; all dates that appear in the text were obtained by using the ^{14}C method except in the case of Divje babe I, where the AMS ^{14}C as well as the ESR methods were used on the enamel of cave bear teeth; the ^{14}C dates must be calibrated, while the ESR and Th/U dates are assumed to be calendar years.

Abstract

At one of the most important Aurignacian sites in Europe, the cave of Potočka zijalka, part of a bladelet of the Dufour type was recently discovered. It was lying on the surface of the heap of sediments excavated by Srečko Brodar in the years 1928–1929 in the rear of the cave. Potočka zijalka is known primarily for the 125 bone points and 11 other bone tools found there in a perfect state of preservation and bearing the age of approximately 30,000 years. It is interesting to note that almost contemporaneously with the appearance and use of the bone points from Potočka zijalka, the nearby cave site of Vindija in Croatia was used by the Neanderthals, the bone remains of which were uncovered in the youngest Mousterian G1 complex of Vindija together with bone points.

Keywords: Slovenia, Potočka zijalka – Aurignacian, Dufour bladelet, bone points; Croatia, Vindija – Neanderthals

I had obtained permission for the inspection from Darja Pirkmajer, director of the Regional Museum Celje, since this institution is the owner of the cave. Thereupon I set off, in the company of Ivan Turk, to Potočka zijalka on 24th November, 2004 with the aim of taking a sample of the excavated sediment from the rear of the cave. I brought 8 litres of the sediment back from the cave, which I washed through a sieve at home.³

The one-square-millimetre sieve retained numerous small fragments of bones and rare fragments of teeth, but to my great surprise also a partially preserved small bladelet made of black chert. The size of the bladelet, particularly its small width, the clearly recognizable lateral retouch and, most

³ I would like to thank Ivan Turk for his professional guidance during the visit to Potočka zijalka and Darja Pirkmajer for the permission to visit.

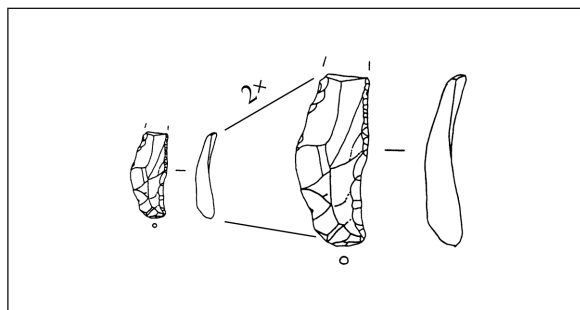


Fig. 1: Potočka zijalka. The Dufour bladelet was found on the heap of sediments excavated by Srečko Brodar, which he had had deposited at Kolmanova vrata (Kolman Gate) at the rear of the cave. Scale 1:1 and 2:1 (drawing: M. Turk).

Sl. 1: Potočka zijalka. Klinica Dufour je bila najdena na Brodarjevem stožcu prekopenih sedimentov, ki jih je odložil pri Kolmanovih vratih v zadnjem delu jame. M. = 1:1 in 2:1 (risba M. Turk).

importantly, the twisted curvature of the bladelet are features convincing enough for the determination of the bladelet as that of the Dufour type (fig. 1; fig. 2).⁴ As for parallels, the closest site on the southern side of the Alps that revealed Dufour bladelets and is temporally comparable to Potočka zijalka, is the Italian cave site of Fumane.⁵ The surprise of finding a Dufour bladelet was all the greater due to the fact that S. Brodar failed to find any stone tools or flakes at the rear part of the cave. At this point it has to be mentioned that the sediments from Potočka zijalka were neither washed nor sieved, neither at the time of the excavations by S. Brodar nor during the new excavations in 1997–2000.⁶ Simona Petru did not identify any traces of use wear on the Dufour bladelet from Potočka zijalka.⁷

The bladelet supplements the small number of small stone tools and flakes from the entrance part of the cave.⁸ Since it was collected from the top of the excavated heap of sediment, the principle of inverse stratigraphy indicates that it most probably originates from the earlier cultural layer at the rear of the cave according to S. Brodar, that is Layer 5. The formation of Layer 5 at the rear of the cave is equated by Ivan Turk to the formation of Layer 5 in the front part of the cave on

the basis of the development of the bone points through a longer period of time.⁹

D. de Sonneville-Bordes showed, in her synthesis on the Upper Palaeolithic of the Périgord, that Dufour bladelets are rarely present in the Aurignacian assemblages.¹⁰ The rare occurrence of Dufour bladelets is in a great measure a reflection of the old manner of excavation without wet-sieving of the excavated sediments. Having said that, modern excavations in Périgord also showed a varying appearance of these bladelets from site to site.¹¹

The rarity of Dufour bladelets can be observed also at the site of Abri Pataud. Only one of the eight Aurignacian layers revealed a greater number of Dufour bladelets. Layer 8, dated to 32 *ky* BP, revealed 44 bladelets (= 10.8 % of all stone tools).¹² As opposed to other layers, it contained also a greater number of other types of retouched bladelets. A similar pattern can be seen in the stone tools assemblage from the site of La Ferrassie, where Layer E1s, dated to 28 *ky* BP, revealed 11 Dufour bladelets (= 9.7 %). Besides the Dufour type, there were several other retouched bladelets as well as backed bladelets.¹³

The two examples cited above show that Dufour bladelets were made with a special intention and appear in a limited number and on certain sites only. The multivariate analysis by F. Djindjian showed that the levels with a greater number of Dufour bladelets represent a special phase of the Aurignacian.¹⁴

The question of the manner in which the Dufour bladelets were used remains open. On that subject, J. P. Rigaud is of the opinion that they formed parts of composite bone and antler points and were used in hunting. He bases his opinion on the trace analyses of these bladelets conducted by H. Plisson for the site of Le Flagolet. J. P. Rigaud also noticed a common appearance of Dufour bladelets and carinated scrapers, which led him to suppose that the latter actually represent core remains in the production of the Dufour bladelets.¹⁵ This supposition was convincingly confirmed by a practical experiment and reassembling of the chipped-off Dufour bladelets from the site of Abri Pataud by L. Chiotti.¹⁶

⁴ Demars, Laurent 1989; Lucas 2006; the as yet uninventoryed bladelet is kept at the Regional Museum Celje; I would like to thank Matija Turk for drawing the bladelet.

⁵ Broglio, Peresani 1992; Broglio 1996–1997.

⁶ Turk 2007a, 328–329; Turk 2007b.

⁷ I would like to thank Simona Petru for inspecting the bladelet.

⁸ S. and M. Brodar 1983, pl. 2: 36, 42, 47, 49; Pohar 2004, fig. 2: P.z. 227, fig. 4: PZ 681.

⁹ Turk 2002; Turk 2005; Turk 2007b.

¹⁰ Sonneville-Bordes 1960.

¹¹ Sonneville-Bordes 1982.

¹² Brooks 1995.

¹³ Delporte 1984.

¹⁴ Djindjian 1993.

¹⁵ Rigaud 1983.

¹⁶ Chiotti 2000.

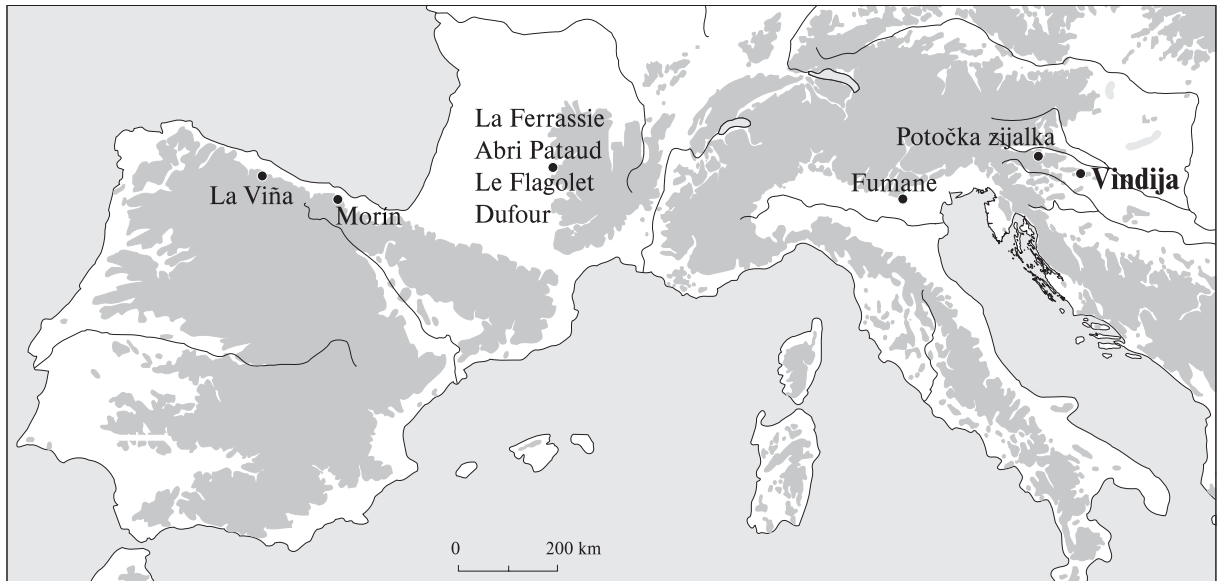


Fig. 2: Sites with Dufour bladelets mentioned in the text and the Vindija cave site with the remains of the Neanderthals, who lived almost contemporaneously with the producers and users of the bone points from Potočka zijalka.

Sl. 2: Najdišča s konicami Dufour, omenjena v besedilu, in jamsko najdišče Vindija z ostanki neandertalcev, ki so živeli skoraj sočasno z izdelovalci in uporabniki koščenih konic iz Potočke zijalke.

The number of bladelets on other sites varies greatly. The site of Le Trou Magrite (Belgian Wallonia), for example, revealed no Dufour bladelets in the Aurignacian layers dated to 40–30 *ky* BP.¹⁷ On the other hand, the bladelets in question form an important part of some of the earliest Aurignacian stone tool sets on the sites in Provence and northern Italy.¹⁸

The cave of Morín (Cantabria) was the site of modern excavations that revealed Dufour bladelets in greater numbers only in Layers 9, 8a, 8b and 6. Layer 8a revealed 17 (= 15.1 %) and Layer 8b 25 bladelets (= 21.1 %). The latter contained also other retouched bladelets. Layers 8a and 7 are dated to 28–29 *ky* BP. Layers 9 and 8b are ascribed to the "Archaic Aurignacian", Layers 7 and 6 to the "Typical Aurignacian" and Layer 5 to the "Developed Aurignacian". Layers 7 and 5 contain few Dufour or other bladelets. A similar picture as at the Morín cave can be observed at the rock shelter of La Viña (Asturias). The promptly published excavation reports of the rock shelter speak of several Dufour bladelets in Layers XI, XIII and XIII below, while they reveal a greater number of the same bladelets in Layer XII. All the above-mentioned layers also contained a larger number of carinated scrapers or cores.¹⁹ Layer XIII

below is dated to 36.5 *ky* BP, while Layer XIII, which contained also split-based bone points, to 32 *ky* BP.²⁰ The Aurignacian layers at the site of El Pendo (Cantabria), on the other hand, revealed neither Dufour nor any other bladelets, although the excavations were conducted according to modern standards.²¹

The appearance of bone points and tiny retouched bladelets in Europe was, in the past, tied by numerous authors to the arrival of Cro-Magnon man in Europe,²² while the culture was named after the well-known site of Aurignac. Due to new discoveries and particularly due to the modern dating methods, the old definition of the Aurignacian is not longer appropriate.²³

The bearer of the Aurignacian Culture was believed, until the mid-1990s, to be the Cro-Magnon exclusively. The last decade, however, has brought a change in this belief, also due to the surprising finds from the Slovene cave site of Divje babe I, where the remains of bone points were uncovered together with a flute of the Mousterian age (116–40 ka).²⁴ An important site in that respect is the Croatian cave site of Vindija. It revealed numerous bone remains of the Neanderthals in the

¹⁷ Otte, Straus 1995.

¹⁸ Bazile 1983; Broglio 1993.

¹⁹ Fortea 1995.

²⁰ Fortea 1996.

²¹ Bernaldo de Quirós 1982.

²² Bayer 1929.

²³ Bar-Yosef, Zilhão 2006.

²⁴ Turk (ed.) 1997; Turk 2001; Turk 2007a; Horusitzky 2007.



Fig. 3: Copies of the PZ 102 split-based bone point. Represented here is the manner of hafting small spindle-shaped arrow points onto the arrow shaft made of a year-old shoot of an elder tree. The split part of the base enables a tight fit between the point and the tubular shaft. Scale 1:1 (photo: B. Odar).

Sl. 3: Kopiji koščene konice PZ 102 z razcepom na bazi. Prikazan je način nasaditve majhnih vretenastih pušičnih osti na pušični naprek iz enoletnega bezgovega izrastka. Zagozda na bazi omogoča močan oprijem osti v notranjosti cevastega naperka. M. = 1:1 (foto B. Odar).

Mousterian levels of Complex G. The remains of the Neanderthal from Complex G1 have recently been dated to 32–33 *ky* BP.²⁵ This complex also contained bone points, while the stone tools show Szeletian characteristics. A particularity of this complex is the *os penis* of a cave bear with an incision in the form of a coil, such as is known on the bone points from Potočka zijalka. Complex G1 is topped by layers with bone points spanning from the Early Aurignacian to the Final Gravettian.²⁶ The successive Late Palaeolithic layers with bone points in this cave are important in explaining the gradual development of the bone points.²⁷ Also important and telling is the age of the Neanderthal remains, since it shows them to have lived almost contemporaneously with the producers and users of the bone points from Potočka zijalka. Bone remains that were positively ascribed to the Cro-Magnon, once thought the bearer of the Aurignacian Culture, and are older than 30,000 years, have, on the other hand, so far been uncovered only at the Romanian cave site of Peștera cu Oase (34.36 *ky* BP) and at Mladeč in the Czech Republic (34–35 *ky* BP).²⁸

The Aurignacian is today used to mark the period from 30,000 to 40,000 years ago. The

earliest Aurignacian layers in the southern parts of Europe reveal nosed and carinated scrapers on large flakes. The latter were used to chip off tiny twistedly curved Dufour bladelets.²⁹ Besides the latter, there is also a large number of other tiny retouched bladelets. Also appearing in greater numbers are bone points and other products made of bone, antler and mammoth's tusks. However, new research proves that the processing of bones and appearance of bone points occurred much earlier in some parts of Europe.³⁰ O. Bar-Yosef sees the origin of the Aurignacian proper in western Europe, whence it supposedly rapidly spread towards the east. J. Zilhão and F. D'Errico, on the other hand, set the appearance of the Aurignacian at the time of 36,500 years ago.³¹

Tiny bladelets signify a novelty in the production of stone tools. It is the first attempt at microlithization in Upper Palaeolithic, such as it is known from much later archaeological periods. Numerous authors tie this change to the first attempt at producing composite tools of different materials. The tiny bladelets were thereby supposedly set into wooden and bone mounts, used as larger blades for every-day purposes, such as the production of various objects, food preparation and hunting. Some

²⁵ Karavanić et al. 2006.

²⁶ Malez 1979; Karavanić 1993.

²⁷ Turk 2002; Turk 2005.

²⁸ Svoboda 2006, 261.

²⁹ Kuhn, Elston 2002; Bar-Yosef 2006; Bon 2006; Lucas 2006.

³⁰ Gaudzinski 1999; Turk 1997; Turk 2001.

³¹ Bar-Yosef 2006.

of the tiny bladelets from the earliest Aurignacian levels in the cave of Fumane show edges that run together into a point.³² Similar points from much later formed parts of arrow points.³³ The Aurignacian microlithization is tied by some authors to the change in nutritional habits. S. L. Kuhn tied the appearance of Aurignacian microlithization in Italy to the much stronger presence of bird bone remains in the Aurignacian layers as opposed to that observed in the Mousterian layers. Ground birds such as partridges had become an important link in the food chain of the Early Aurignacian.³⁴ Kuhn also writes that the Stone Age communities used bow and arrows during the warm period of the Holocene primarily for hunting animals that were evasive and difficult to catch, such as hares or fish.

It is interesting to note that all experts dealing in any way with the Aurignacian mention the microlithization, but not microossazation (the parallel process of making small objects of bone

during that period).³⁵ There are, in fact, numerous small bone points known from Potočka zijalka in Slovenia as well as from the cave of Istállóskő in Hungary. These could only have been used as arrow points of bowmen (*fig. 3*).³⁶

The Dufour bladelet from Potočka zijalka confirms my supposition that the logic of decreasing the size of functional objects involved the entire world of objects of the Aurignacian communities. Potočka zijalka revealed large bone points and large stone tools and flakes as well as small bone points and some stone micro-tools or their flakes, whereby the middle sizes of bone points are the consequence of reparations of large points after they had been broken during use.³⁷ The bone objects of small size from Potočka zijalka include also the earliest needle known so far in the world.³⁸

Translation: Andreja Maver

³² Kuhn 2002, 85, fig. 6.2.

³³ Fischer 1985.

³⁴ Kuhn 2002, 89.

³⁵ Elston, Kuhn 2002; Bar-Yosef, Zilhão 2006.

³⁶ Odar 2006.

³⁷ Turk 2002; Odar 2006.

³⁸ Odar 2006, fig. 8.

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Klinica Dufour iz Potočke zijalke

V sklopu doktorata, v katerem se ukvarjam s koščenimi konicami iz Potočke zijalke, sem želel preveriti, ali so se v prekopanih sedimentih, ki jih je Srečko Brodar dal odložiti v zadnjem delu jame,¹ ohranili kostni ostanki, ki bi lahko nastali ob izdelavi konic. S tem bi neizpodbitno dokazal, da so koščene konice ljudje izdelovali v jami ali pred njo in da jih niso prinesli od drugod. Šest koščenih konic je bilo nedavno datiranih z radiometrično metodo ¹⁴C. Stare so okoli 30 t. l.²

24. novembra 2004 sva se z Ivanom Turkom odpravila v Potočko zijalko z namenom, da vzamem vzorec prekopanega sedimenta v zadnjem delu jame. Ker je lastnik jame Pokrajinski

muzej Celje, sem pridobil dovoljenje od direktorice muzeja Darje Pirkmajer. V dolino sem odnesel 8 litrov sedimenta, ki sem ga doma spral z vodo.³

Ob številnih drobcih kosti in redkih zobeh je na situ s prepustnostjo enega kvadratnega milimetra na veliko presenečenje obležala delno ohranjena drobna klinica iz črnega rozenca. Velikost klinice, še posebej njena ožina, jasno prepoznavna robna retuša in predvsem vzvojena ukrivljenost so dovolj prepričljivi za njeno umestitev med klinice tipa Dufour (*sl. 1; sl. 2*).⁴ Najbližje najdišče na južni strani Alp, ki vsebuje klinice Dufour in je časovno primerljivo s Potočko zijalko, je italijansko jamsko najdišče Fumane.⁵ Presenečenje ob najdbi klinice Dufour je toliko večje, ker S. Brodar v zadnjem delu jame sploh ni našel

¹ S. in M. Brodar 1983.

² Pacher 2001; Turk 2007b. Okrajšava t. l. = tisoč let; t. l. p. s. = tisoč let pred sedanostjo. Vse datacije v besedilu so bile narejene s ¹⁴C metodo, razen v primeru Divjih bab I, kjer je bila poleg AMS ¹⁴C metode uporabljena še ESR metoda na sklenini zob jamskega medveda; s ¹⁴C metodo dobimo relativne starosti, z metodo ESR in Th/U pa so določena koledarska leta.

³ Ivanu Turku se zahvaljujem za strokovno vodstvo ob obisku Potočke zijalke in Darji Pirkmajer za dovoljenje.

⁴ Demars, Laurent 1989; Lucas 2006; klinico, ki še ni inventarizirana, hrani Pokrajinski muzej Celje; Matiji Turku se zahvaljujem za izris klinice.

⁵ Broglio, Peresani 1992; Broglio 1996-1997.

kamenih orodij niti odbitkov. Omeniti je potrebno, da sedimentov iz Potočke zijalke niso spirali ali sejali niti v času Brodarjevih izkopavanj niti ob ponovnih izkopavanjih v letih 1997–2000.⁶ Na klinici Dufour iz Potočke zijalke Simona Petru ni prepoznala sledov uporabe.⁷

Klinica dopolnjuje majhno število drobnih kamenih orodij in odbitkov iz vhodnega dela jame.⁸ Ker je bila klinica pobrana z vrha odloženega stožca, po načelu obrnjene stratigrafije najverjetneje izhaja iz starejše kulturne plasti v zadnjem delu jame po S. Brodarju, torej iz plasti 5. Turk nastanek plasti 5 v zadnjem delu jame enači z nastankom plasti 5 v sprednjem delu jame na podlagi razvoja koščenih konic skozi daljše obdobje.⁹

D. de Sonneville-Bordes je v svoji sintezi o zgornjem (mlajšem) paleolitu Perigorda pokazala na redko prisotnost klinic Dufour v tipičnih aurignacijskih zbirkah.¹⁰ Redkost klinic Dufour je v veliki meri odraz starega načina izkopavanja brez mokrega spiranja izkopanih sedimentov. Vendar tudi moderna izkopavanja v Perigordu kažejo na zelo spremenljiv pojav teh klinic od najdišča do najdišča.¹¹

To lahko vidimo tudi na primeru najdišča Abri Pataud. Le v eni od osmih aurignacijskih plasti je bilo odkrito večje število Dufour klinic. V plasti 8, katere datacija je 32 t. l., je bilo odkritih 44 klinic (= 10,8 % vsega kamenega orodja).¹² V plasti 8 je bilo za razliko od ostalih plasti tudi več drugih tipov retuširanih klinic. Podoben vzorec imamo v zbirki kamenih orodij iz najdišča La Ferrassie. V plasti E1s, z datacijo 28 t. l., je bilo odkritih 11 klinic Dufour (= 9,7 %). Zraven je bilo še nekaj drugih retuširanih klinic in klinic s hrptom.¹³

Navedena primera kažeta, da so bile klinice Dufour narejene s posebnim namenom in se pojavljajo v omejenem številu na posameznih najdiščih. V multivariantni raziskavi F. Djindjiana predstavljajo nivoji z večjim številom klinic Dufour posebno aurignacijsko stopnjo.¹⁴

Vprašanje je, zakaj so se klinice Dufour uporabljale. J. P. Rigaud meni, da so bile del sestavljenih konic iz kosti in rogovja za uporabo pri lov. Pri tem se opira na sledne raziskave teh klinic, ki jih je za najdišče Le Flagolet opravil H. Plisson. Rigaud je tudi opazil zvezno pojavljanje klinic Dufour in gredljastih praskal. Zato meni, da so gredljasta praskala dejansko jederni ostanki pri izdelavi klinic Dufour.¹⁵ S praktičnim preizkusom in s ponovnim sestavljanjem odbitih klinic Dufour iz najdišča Abri Pataud je L. Chiotti prepričljivo potrdil Rigaudovo domnevo o povezanosti klinic Dufour in gredljastih praskal oziroma jeder.¹⁶

Število klinic se v drugih najdiščih močno spreminja. Na najdišču Le Trou Magrite (belgijska Valonija) so klinice Dufour odsotne v aurignacijskih plasteh, ki so datirane med 40 in 30 t. l.¹⁷ Po drugi strani so klinice Dufour pomemben del nekaterih najzgodnejših aurignacijskih kamenih orodnih sestavov v Provansi in v severni Italiji.¹⁸

V jamskem najdišču Morin (Kantabrija), kjer so bila izvedena moderna izkopavanja, so klinice Dufour v večjem številu prisotne le v plasteh 9, 8a, 8b in 6. V plasti 8a jih je bilo 17 (= 15,1 %),

v plasti 8b pa 25 (= 21,1 %). V plasti 8b so se nahajale še druge retuširane klinice. Datacija plasti 8a in 7 je 28–29 t. l. Plasti 9 in 8b sta pripisani "arhaičnemu aurignacienu", plasti 7 in 6 "tipičnemu aurignacienu" in plast 5 "razvitemu aurignacienu". Plasti 7 in 5 vsebujeta majhno število klinic Dufour kot tudi ostalih klinic. Podobno kot pri jami Morin je pri spodmolu La Viña (Asturija). Sprotna poročila o izkopavanjih govorijo o nekaj klinicah Dufour v plasteh XI, XIII in XIII spodaj, o večjem številu teh klinic pa v plasti XII. V vseh omenjenih plasteh se pojavlja veliko število gredljastih praskal ali jeder.¹⁹ Datacija plasti XIII spodaj je 36,5 t. l., plast XIII, ki vsebuje koščene konice z razcepom na bazi, pa na 32 t. l.²⁰ Po drugi strani pa na najdišču El Pendo (Kantabrija) v aurignacijskih plasteh ni niti klinic Dufour niti kakih drugih klinic, čeprav je bilo najdišče kopano po modernih standardih.²¹

Pojav koščenih konic in drobnih retuširanih klinic v Evropi so v preteklosti številni avtorji povezovali s prihodom kromanjonca v Evropo,²² kulturo pa so poimenovali po prepoznavnem francoskem najdišču Aurignac. Zaradi novih odkritij in predvsem modernih načinov datiranja tako opredeljevanje aurignacijske ni več ustrezno.²³

Če je še do sredine devetdesetih let 20. stoletja veljalo, da je nosilec aurignacijske kulture izključno kromanjonec, se je v zadnjem desetletju pogled spremenil, tudi po zaslugi presenetljivih najdb v slovenskem jamskem najdišču Divje babe I, kjer so bili odkriti ostanki koščenih konic in piščal moustérienske starosti (116–40 t. l. p. s.).²⁴ Nedaleč od Haloz leži na hrvaški strani jama Vindija. V moustérijskih plasteh kompleksa G so bili odkriti številni kostni ostanki neandertalca. Zadnje datacije ostankov neandertalca iz kompleksa G1 so 32–33 t. l.²⁵ V kompleksu G1 so bile skupaj s kostnimi ostanki neandertalca najdene koščene konice, kamena orodja pa kažejo szeletijske značilnosti. Posebnost iz tega kompleksa predstavlja os penis jamskega medveda z vrezom v obliki vijačnice, kot jih poznamo na koščenih konicah iz Potočke zijalke. Nad kompleksom G1 ležijo plasti s koščenimi konicami od zgodnjega aurignacijskega do končnega gravettienca.²⁶ Zveznost plasti s koščenimi konicami skozi ves mlajši paleolitik je pomembna pri razlagi postopnega razvoja koščenih konic.²⁷ Starost neandertalcev iz Vindije je zelo pomembna, saj so živeli skoraj sočasno z izdelovalci in uporabniki koščenih konic iz Potočke zijalke. Kostni ostanki, ki zanesljivo pripadajo kromanjoncu in so starejši od 30 t. l., so bili zaenkrat odkriti v romunskem jamskem najdišču Peștera cu Oase (34,36 t. l. p. s.) in v Mladču na Češkem (34–35 t. l. p. s.).²⁸

Z aurignacijskim danes označujemo obdobje od okoli 30 do 40 t. l. V najzgodnejših aurignacijskih plasteh se v južnih delih Evrope pojavijo gobčasta praskala in gredljasta praskala na velikih odbitkih. Od slednjih so bile vzdolžno odbijane drobne vzvojneno ukrivljene klinice Dufour.²⁹ Poleg teh se v velikem številu pojavijo še druge drobne retuširane klinice. Prav tako se v velikem številu pojavijo koščene konice in drugi izdelki iz kosti, rogovja in mamutovih oklov. Vendar novejša raziskava dokazujejo obdelavo kosti in pojav koščenih konic ponekod

⁶ Turk 2007a, 328–329; Turk 2007b.

⁷ Simoni Petru se zahvaljujem za pregled klinice.

⁸ S. in M. Brodar 1983, t. 2: 36,42,47,49; Pohar 2004, sl. 2: P.z. 227, sl. 4: PZ 681.

⁹ Turk 2002; Turk 2005; Turk 2007b.

¹⁰ Sonneville-Bordes 1960.

¹¹ Sonneville-Bordes 1982.

¹² Brooks 1995.

¹³ Delporte 1984.

¹⁴ Djindjian 1993.

¹⁵ Rigaud 1983.

¹⁶ Chiotti 2000.

¹⁷ Otte, Straus 1995.

¹⁸ Bazile 1983; Broglio 1993.

¹⁹ Fortea 1995.

²⁰ Fortea 1996.

²¹ Bernaldo de Quirós 1982.

²² Bayer 1929.

²³ Bar-Yosef, Zilhão 2006.

²⁴ Turk (ur.) 1997; Turk 2001; Turk 2007a; Horusitzky 2007.

²⁵ Karavanić et al. 2006.

²⁶ Malez 1979; Karavanić 1993.

²⁷ Turk 2002; Turk 2005.

²⁸ Svoboda 2006, 261.

²⁹ Kuhn, Elston 2002; Bar-Yosef 2006; Bon 2006; Lucas 2006.

po Evropi že mnogo prej.³⁰ O. Bar-Yosef vidi izvor pravega aurignacijskega v zahodni Evropi, od koder naj bi se hitro razširil proti vzhodu. J. Zilhao in F. D'Errico pa začetek aurignacijskega postavitja v čas izpred 36,5 t. l.³¹

Drobne klinice pomenijo novost med kamenimi orodji. Gre za prvi poskus mikrolitizacije v mlajšem paleolitiku, kot jo poznamo iz mnogo kasnejših arheoloških obdobij. Številni avtorji to spremembo povezujejo s prvimi poskusi izdelave sestavljenih orodij iz različnih snovi. Tako naj bi bile drobne klinice, vstavljene v lesena in koščena ogrodja, uporabne kot večja rezila pri vsakdanjih opravilih, kot so na primer izdelava različnih predmetov, priprava hrane in lov. Nekaterim drobnim klinicam iz najzgodnejših aurignacijskih plasti v jami Fumane se robovi iztečejo v konico.³² Mnogo kasneje so podobne konice sestavni del puščičnih osti.³³ Aurignacijsko mikrolitizacijo nekateri strokovnjaki povezujejo s spremembo prehranjevalnih navad. S. L. Kuhn je pojav aurignacijske mikrolitizacije v Italiji povezal z mnogo večjo prisotnostjo kostnih ostankov perjadi v aurignacijskih plasteh kot v moustérijskih. Pomemben prehranjevalni člen v zgodnjem aurignacijskem so postale talne ptice, kot je na primer jerebica.³⁴ V nadaljevanju Kuhn omeni, da so kamenodobne skupnosti v holocenski otoplitvi uporabljale loke in puščice predvsem za lov izmuzljivih in težko ulovljivih živali, kot so zajci ali ribe.

Zanimivo je, da vsi strokovnjaki, ki se tako ali drugače ukvarjajo z aurignacijskim, omenjajo mikrolitizacijo, ne pa mikroosazacije v aurignacijskem, ali lepše napisano: izdelovanja majhnih koščanih izdelkov.³⁵ Iz Potočke zijalke v Sloveniji in iz jame Istállóskó na Madžarskem poznamo številne majhne koščane konice, ki so se lahko uporabljale le kot lokostrelske puščične osti (sl. 3).³⁶

Klinica Dufour iz Potočke zijalke potrjuje mojo domnevo, da je logika pomanjševanja uporabnih predmetov zajela ves predmetni svet aurignacijskih skupnosti. V Potočki zijalki imamo velike koščane konice in velika kamena orodja in kamene odbitke kot tudi majhne koščane konice in nekaj kamenih mikroorodij ali njihovih odlomkov. Vmesne velikosti koščanih konic so posledica popravljanja velikih konic potem, ko so se pri uporabi zlomile.³⁷ Med koščane predmete majhne velikosti iz Potočke zijalke smemo šteti tudi do sedaj najstarejšo znano šivanko na svetu.³⁸

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³⁰ Turk 1997; Gaudzinski 1999; Turk 2001.

³¹ Bar-Yosef 2006.

³² Kuhn 2002, 85, sl. 6.2.

³³ Fischer 1985.

³⁴ Kuhn 2002, 89.

³⁵ Elston, Kuhn 2002; Bar-Yosef, Zilhão 2006.

³⁶ Odar 2006.

³⁷ Turk 2002; Odar 2006.

³⁸ Odar 2006, sl. 8.