Supporting Information for this manuscript is included in this appendix:

Supplemental Table 1: Stable isotopic composition of hominin samples discussed in the text, with additional analytical results.

Supplemental Table 2: Stable isotopic composition of non-hominin mammalian fauna discussed in the text.

Supplemental Photos: Compilation of before/after photos of hominin specimens analyzed for isotopic composition (analyses HH1-HH19), showing location of subsample taken. Three additional samples from Dikika (analyses HH20-HH22) were sampled at a later date, and equivalent photos are not presented for these specimens.

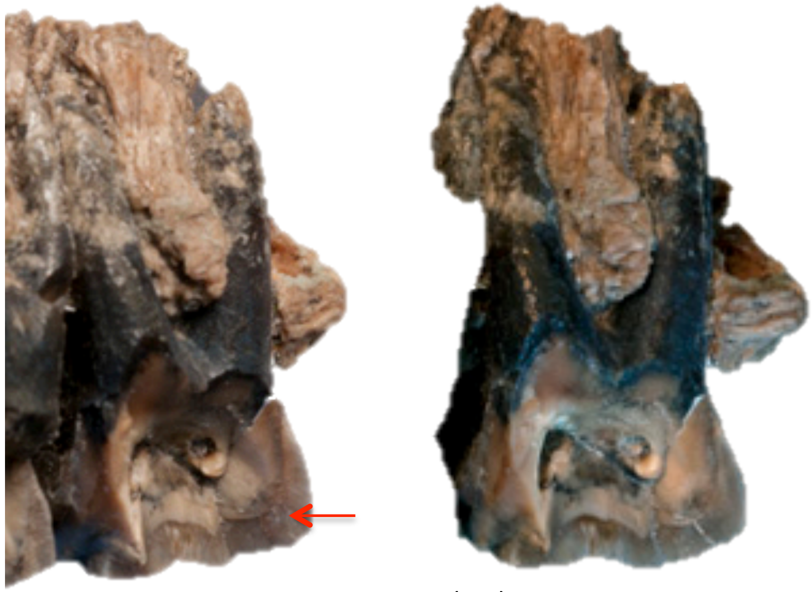
Supplemental Table 1

Specimen	Stratigraphy	Sample used	Sample	Mass drilled	Mass analyzed	Yield	$\delta^{13}C$ (VPDB)	$\delta^{18}O$ (VPDB)	Nominal $\%C_4$
	Submember			[mg]	[mg]	[% $CaCO_3$]	[‰]	[‰]	[%]
A.L.444-2	KH2	$M_{2/3}$ fragment	HH1	1.384	0.632	4.1	-8.0	-2.9	16
A.L.440-1	KH2	P_4 fragment	HH2	1.078	0.601	3.1	-7.6	-7.3	20
A.L.462-7	KH2	M_3	HH3	2.029	0.404	4.9	-6.4	-0.1	33
A.L.452-18	KH2	$\underline{M}$ fragment	HH4	2.033	0.694	5.1	-2.9	-2.7	69
A.L.437-2	KH2	M_2 fragment	HH5	1.356	0.655	3.3	-6.6	-3.3	31
A.L.438-1h	KH2	RM_1 fragment	HH6	1.263	0.647	4.2	-10.2	-6.8	0
A.L.309-8	DD3	M^1 fragment	HH7	1.339	0.668	4.3	-6.4	-4.6	33
A.L.423-1	SH2	M^1 in maxillar fragment	HH8	1.358	0.604	4.2	-7.2	-6.7	24
A.L.432-1	DD3	M_3 fragment in mandible fragment	HH9	1.875	0.654	5.1	-4.3	-8.0	55
A.L.699-1*	DD3	upper P fragment	HH10	2.001	0.696/0.303	27.1/9.5	(-8.2/-6.0)	(-4.4/-10.0)	-
A.L.333-52	DD2	M_1 fragment	HH11	1.291	0.633	5.2	-8.6	-7.1	9
A.L.207-17	DD2	lower M_3	HH12	1.660	0.647	4.7	-4.3	-7.4	55
A.L.411-1	SH2	M_2 in mandible fragment	HH13	1.729	0.697	5.9	-7.7	0.5	19
A.L.225-8	SH1	M_2 in mandible fragment	HH14	1.709	0.697	6.6	-6.7	-2.4	29
A.L.125-11	SH2	M_1 in maxillary fragment	HH15	2.000	0.662	4.0	-13.0	-8.4	0
A.L.660-1	SH1	M_2 fragment	HH16	2.225	0.603	4.3	-9.6	-1.1	0
A.L.249-27	SH1	P^3 fragment	HH17	1.544	0.643	4.1	-10.0	-9.5	0
A.L.293-3	DD3	I^1	HH18	0.405	0.290	5.2	-10.7	-9.0	0
DIK2-1	BM	M fragment	HH19	1.811	0.652	4.7	-4.3	-7.8	55
DIK40-1	SH	left M^1	HH20	0.475	0.475	7.8	-10.6	+4.1	0
DIK49-12	SH	P	HH21	1.411	1.411	6.1	-4.9	+5.7	48
DIK90-1**	SH	M in mandible	HH22	0.492	0.492	16.4	(-7.0)	(-3.4)	26

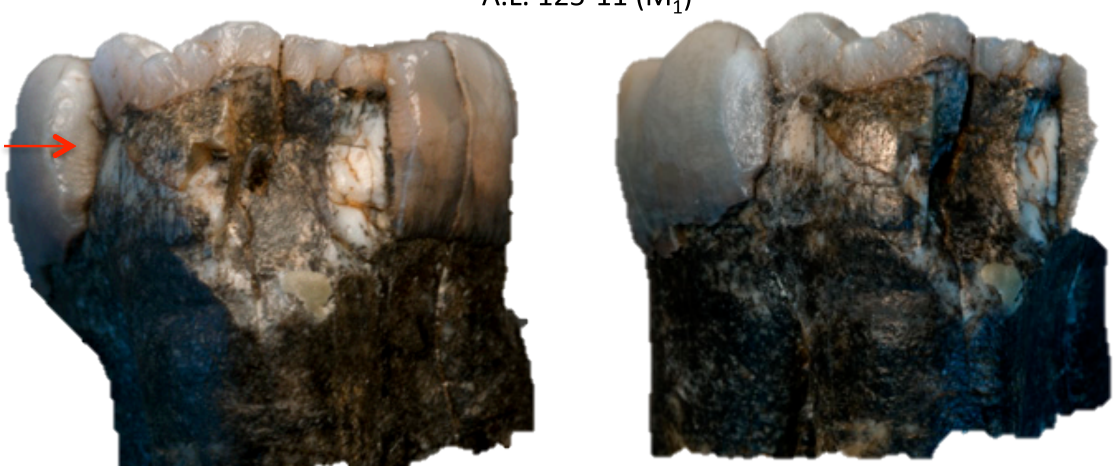
Notes: *a first analysis of this specimen (HH10) produced a yield of CO_2 from the reaction of H_3PO_4 with the sample that indicated the presence of exogenous carbonate (27.1% $CaCO_3$). A second analysis was completed with the remainder of the sample, which produced a slightly higher than expected yield (9.5% $CaCO_3$). Because of this high fraction of exogenous carbonate, likely precipitated from diagenetic fluids, this specimen is excluded from the statistical calculations in figures in the main text. **This specimen also showed a high yield, and was excluded from the statistical calculations and figures in the main text. Nominal $\%C_4$ was calculated using endmember values of pure C_4 and pure C_3 diets of +1.4 and -10.9‰ (the values of endmember C_4-grazing and C_3-browsing taxa Alcelaphini and *Giraffa*). Samples HH20 to HH22 were analyzed in a separate sequence of analyses. Two of these were analyzed in a sequence which included relatively poor analytical error on $\delta^{18}O$ values of reference materials (average standard deviation ~0.77‰ for these very small samples); analytical error on $\delta^{13}C$ values was 0.07‰.

Supplemental Table 2

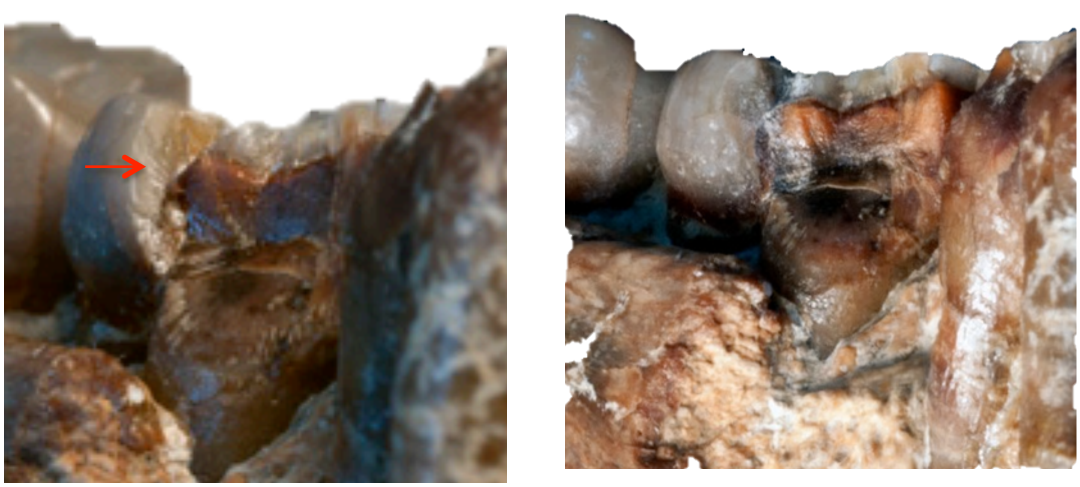
Specimen ID			Taxonomic ID	Stratigraphy Submember	Sample	$\delta^{13}C$ (VPDB) [‰]	$\delta^{18}O$ (VPDB) [‰]
A.L. 181	4	b	Alcelaphini	DD-2	JW-EN-229	2.6	-1.6
A.L. 115	3		Alcelaphini	DD-2	JW-EN-230	0.9	-4.4
A.L. 181	7		Alcelaphini	DD-2	JW-EN-231	1.9	-4.3
A.L. 136	6		Alcelaphini	DD-2	JW-EN-232	2.2	-1.0
A.L. 114	18		Alcelaphini	DD-2	JW-EN-233	2.8	-5.8
A.L. 241	13		Alcelaphini	DD-2	JW-EN-234	0.6	-3.6
A.L. 155	37		Alcelaphini	DD-2	JW-EN-235	1.8	-4.0
A.L. 167	29		Alcelaphini	DD-2	JW-EN-236	0.5	-1.7
A.L. 444	28		Alcelaphini	KH-2	JW-EN-237	0.9	-6.7
A.L. 114	17		Alcelaphini	DD-2	JW-EN-244	0.8	-4.2
A.L. 133	13		Alcelaphini	DD-2	JW-EN-228	0.7	-3.2
A.L. 333	502		*Giraffa*	DD-2	JW-EN-125	-10.3	3.5
A.L. 200	10		*Giraffa*	SH-1	JW-EN-126	-11.3	-4.7
A.L. 182	68		*Giraffa*	DD-2	KR-EN-94	-9.6	-4.5
A.L. 489	2		*Giraffa*	KH-2	MS-EN-36	-10.7	3.6
A.L. 1462	1		*Giraffa*	KH-2	MS-EN-38	-10.9	3.6
A.L. 207	5	a	*Giraffa*	DD-2	MS-EN-40	-9.1	3.8
A.L. 125	3	a	*Giraffa*	SH-1/SH-2	MS-EN-45	-10.4	0.5
A.L. 232	1	b	*Giraffa*	SH-1/SH-2	MS-EN-46	-10.9	-5.0
A.L. 500	1	c	*Giraffa*	KH-2	MS-EN-1	-11.4	-5.5
A.L. 114	8		*Giraffa*	DD-2	MS-EN-2	-11.4	1.0
A.L. 439	2		*Giraffa*	KH-2	MS-EN-3	-10.7	-0.4
A.L. 439	2		*Giraffa*	KH-2	MS-EN-4	-10.2	0.8
A.L. 114	20		*Giraffa*	DD-2	MS-EN-5	-11.5	-6.0
A.L. 115	9		*Giraffa*	DD-2	MS-EN-8	-12.7	-2.2
A.L. 361	5		*Giraffa*	KH-2	MS-EN-9	-14.8	-2.4



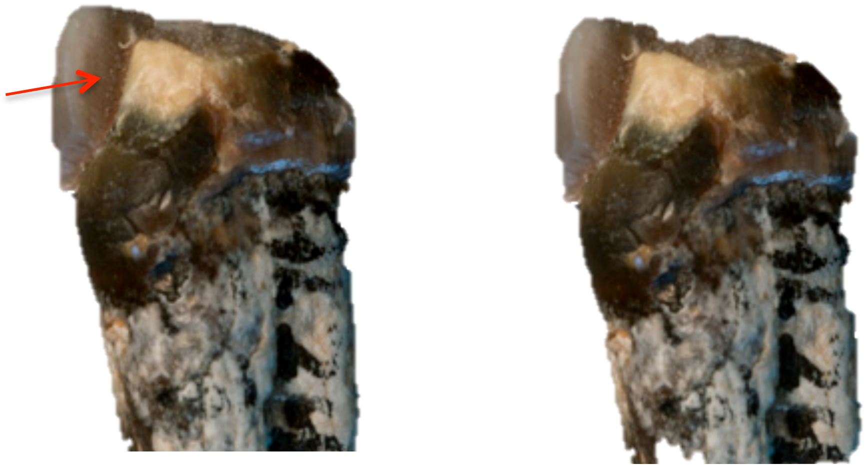
A.L. 125-11 (M_1)



A.L. 207-17 (M_3)

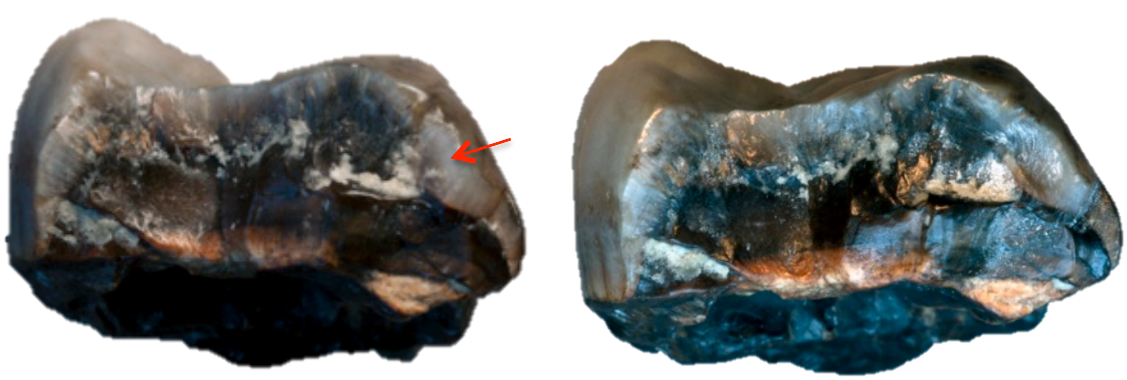


A.L. 225-8 (M_2)



A.L. 249-27 (P^3)

A.L. 293-3 (I^1)



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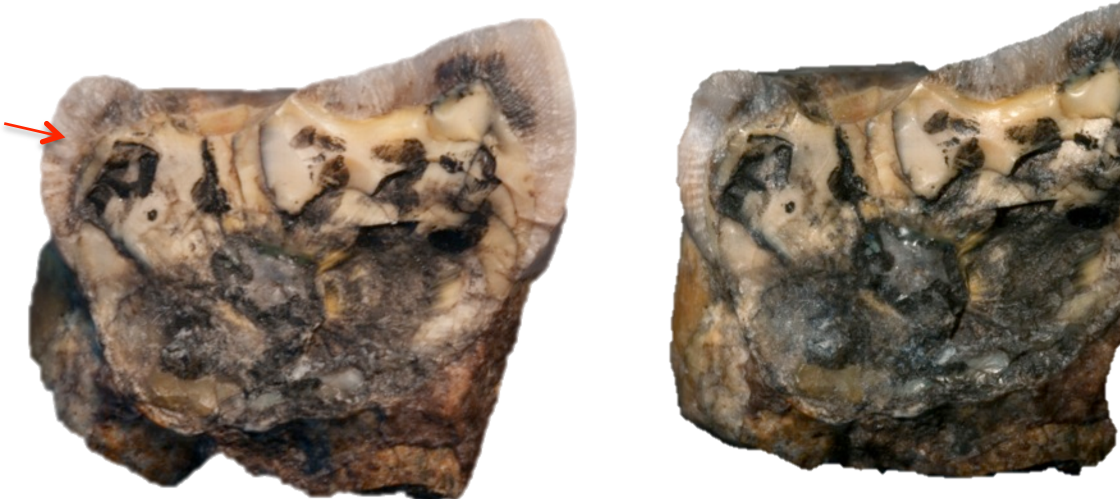
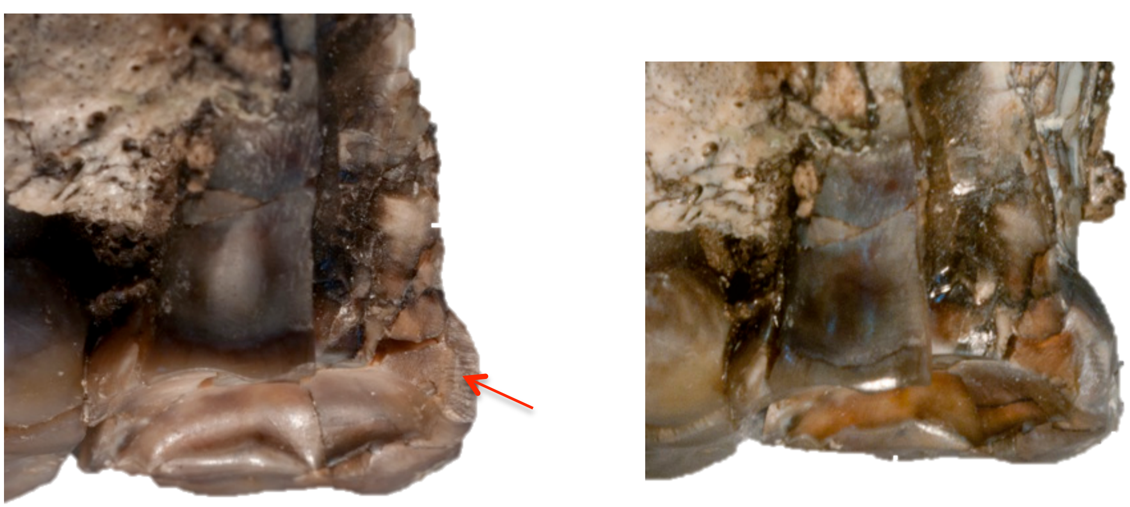
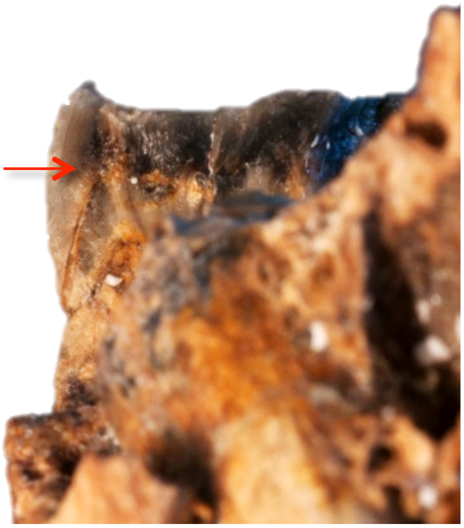
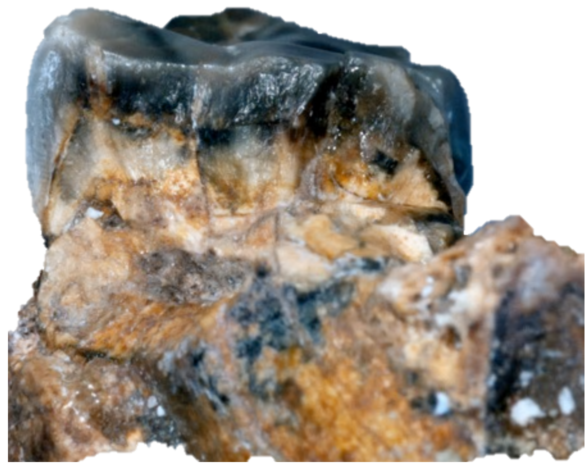


A.L. 333-52 (M_1)

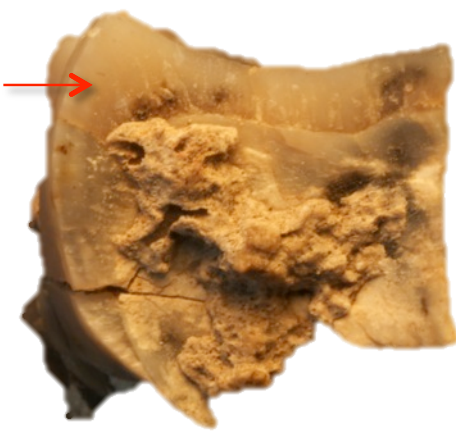
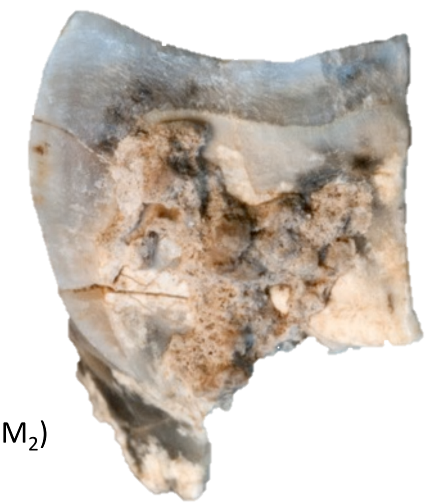
A.L. 411-1 (M_2)



A.L. 423-1 (M^1)

A.L. 432-1 (M_3)

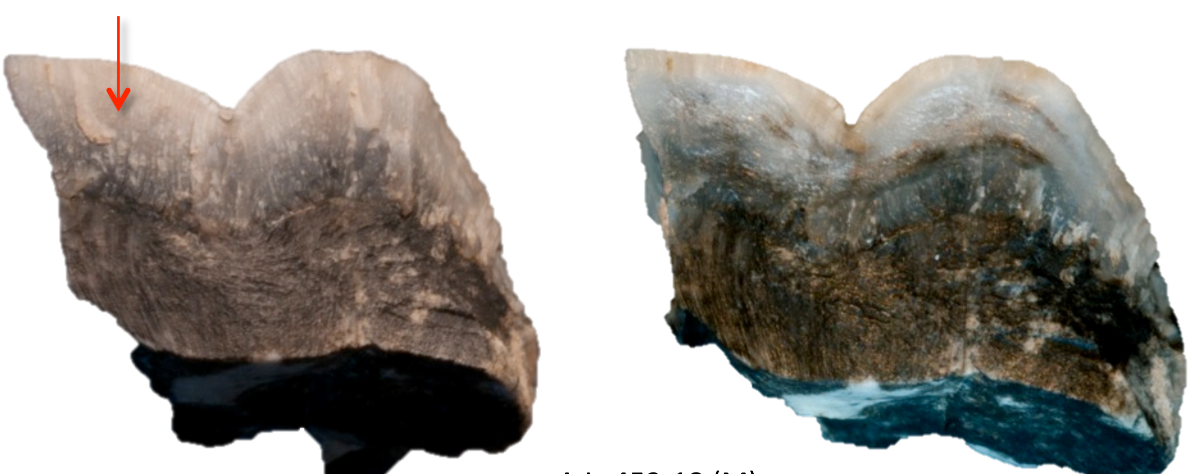



A.L. 437-2 (M_2)


A.L. 438-1h (M_1)

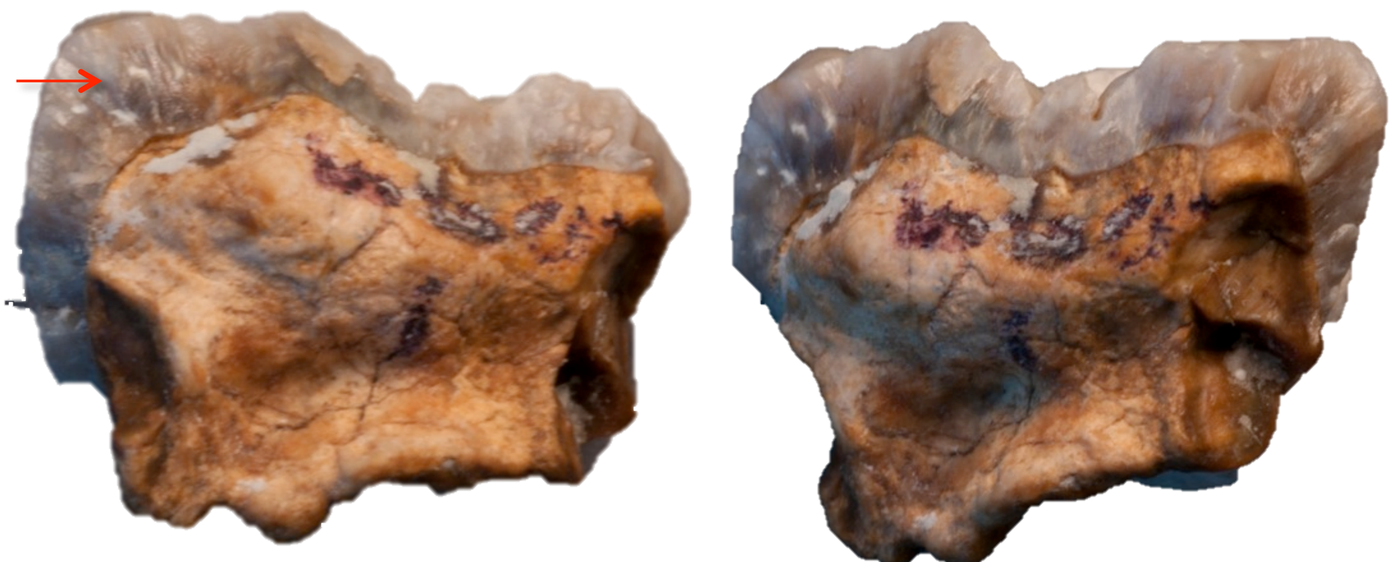
A.L. 440-1 (P_4)

A.L. 444-2 ($M_{2/3}$)

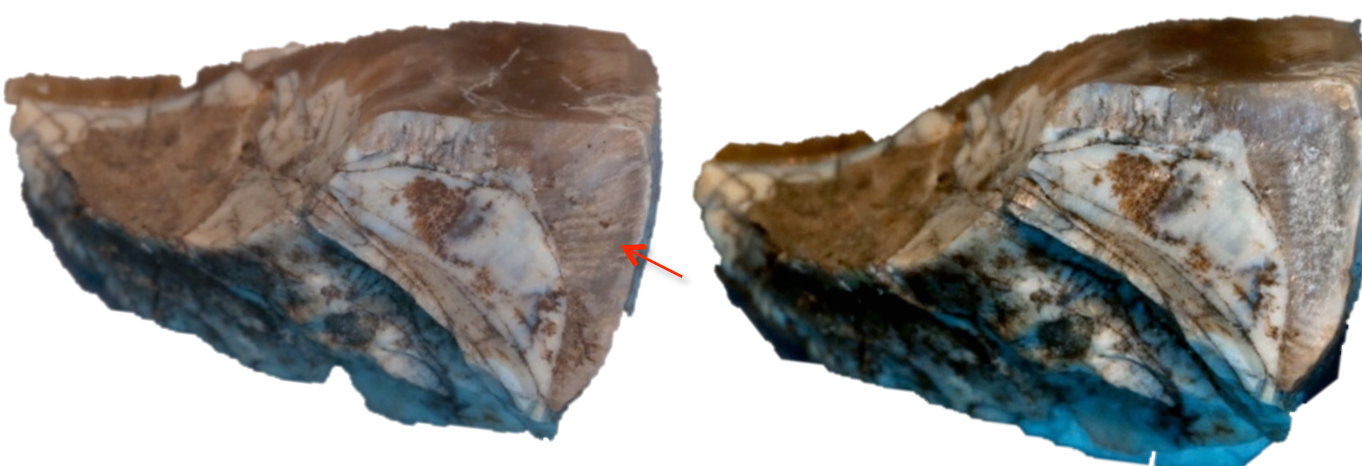


A.L. 452-18 ($\underline{M}$)

A.L. 462-7 (M_3)



A.L. 660-1 (M_2)



DIK 2-1 (M)