

In pursuit of a missing transition: a reassessment of the Mesolithic and Neolithic radiocarbon chronology at La Font-aux-Pigeons rockshelter (Châteauneuf-lès-Martigues, France)

Didier Binder^{1,*}, Janet Battentier¹, Claire Delhon¹ & Ingrid Sénépart^{1,2}

¹ *Université Côte d'Azur, CNRS, Cultures et Environnement, Préhistoire, Antiquité, Moyen-Âge, UMR7264, 24 avenue des Diables-Bleus, 06357 Nice Cedex 4, France*

² *Division Archéologie—SPMH, Ville de Marseille, 10 Belsunce Square, 13001 Marseille, France*

* *Author for correspondence (Email: didier.binder@cepam.cnrs.fr)*

The 1950s excavations at Châteauneuf-lès-Martigues—type site of the Late Mesolithic Castelnovian phase—played a significant role in shaping theories about the nature of the Neolithic transition in the western Mediterranean. Results of new AMS dating and Bayesian modelling of extant short life samples now date the Late Mesolithic deposits to c. 6460–6200 cal BC, and the Cardial deposits to c. 5260–4860 cal BC. The long gap within the stratigraphic sequence is interpreted as a consequence of erosion during the mid sixth millennium BC. These results overturn the older argument for Mesolithic/Neolithic continuity at this key site.

Keywords: France, La Font-aux-Pigeons, Mesolithic, Neolithic, Bayesian modelling

Table S1. Posterior distribution results: La Font-aux-Pigeons modelled events following hypotheses A (a) and B (b) and modelled phases following hypotheses A (c) and B (d); Montclus – La Baume (MLB) modelled events (e) and phases (f) (HPD, highest posterior density interval at 95%; MAP, posterior mode; Mean and StdD, mean and standard deviation of the posterior density).

Font-aux-Pigeons Hypothesis A												
Event (n-dates)	HPD (95%)	MAP	Mean	StdD								
FP_11_Cardial (2)	[-4970;-4738]	-4852	-4954	59								
FP_15N_Cardial (1)	[-5174;-4818]	-4985	-4995	95								
FP_16_Cardial (1)	[-5252;-4877]	-5010	-5060	100								
FP_17_Cardial (2)	[-5356;-5095]	-5255	-5240	64								
FP_18B_Castelnovian (1)	[-5609;-5232]	-5490	-5442	98								
FP_18G_Castelnovian (1)	[-5992;-5241]	-5541	-5581	190								
FP_18G3_Castelnovian (3)	[-6631;-6035]	-6219	-6175	86								
FP_18H_Castelnovian (1)	[-6439;-6129]	-6298	-6286	80								
FP_19B_Castelnovian (2)	[-6598;-6258]	-6430	-6434	88								
				a								
Font-aux-Pigeons Hypothesis B												
Event (n-dates)	HPD (95%)	MAP	Mean	StdD								
FP_11_Cardial (2)	[-4967;-4734]	-4850	-4853	59								
FP_15N_Cardial (1)	[-5180;-4817]	-4971	-4996	96								
FP_16_Cardial (1)	[-5257;-4878]	-5026	-5060	103								
FP_17_Cardial (2)	[-5364;-5100]	-5566	-5245	65								
FP_18B_outlying (1)	[-5705;-5302]	-5505	-5506	114								
FP_18G_outlying (1)	[-5506;-4933]	-5253	-5229	152								
FP_18G3_outlying (1)	[-5750;-5389]	-5575	-5569	103								
FP_19B_outlying (1)	[-5601;-5176]	-5393	-5391	118								
FP_18G3_Castelnovian (2)	[-6352;-6053]	-6225	-6200	78								
FP_18H_Castelnovian (1)	[-6454;-6139]	-6319	-6302	81								
FP_19B_Castelnovian (1)	[-6681;-6264]	-6442	-6467	115								
				b								
Font-aux-Pigeons Hypothesis A					Begin				End			
Phase (n-events, n-dates)	HPD (95%)	MAP	Mean	StdD	HPD (95%)	MAP	Mean	StdD	HPD (95%)	MAP	Mean	StdD
FP_Cardial (4, 6)	[213; 555]	389	386	86	[-5356;-5095]	-5255	-5240	64	[-4969;-4735]	-4852	-4854	59
FP_Castelnovian (5, 8)	[744; 1255]	954	991	132	[-6598;-6258]	-6430	-6434	88	[-5609;-5232]	-5490	-5442	98
												c
Font-aux-Pigeons Hypothesis B					Begin				End			
Phase (n-events, n-dates)	HPD (95%)	MAP	Mean	StdD	HPD (95%)	MAP	Mean	StdD	HPD (95%)	MAP	Mean	StdD
FP_Cardial (4, 6)	[213; 561]	395	392	87	[-5364;-5100]	-5255	-5245	65	[-4967;-4734]	-4850	-4853	59
FP_outlying cluster (4, 4)	[115; 711]	340	397	167	[-5788;-5443]	-5583	-5604	118	[-5431;-4954]	-5250	-5205	125
FP_Castelnovian (3, 4)	[39; 509]	226	266	133	[-6681;-6264]	-6442	-6467	115	[-6352;-6053]	-6225	-6200	78
												d
Montclus - La Baume												
Event (n-dates)	HPD (95%)	MAP	Mean	StdD								
MLB_c4A_Cardial (1)	[-5583;-5082]	-5472	-5381	146								
MLB_c5_Latest BTC (1)	[-5614;-5292]	-5479	-5462	86								
MLB_c7_Latest BTC (1)	[-5716;-5478]	-5590	-5596	59								
MLB_10B_Castelnovian (1)	[-6015;-5699]	-5863	-5860	81								
MLB_12A_Castelnovian (1)	[-6121;-5883]	-6020	-6007	59								
MLB_13B_Castelnovian (1)	[-6220;-5981]	-6062	-6086	63								
MLB_14B_Castelnovian (1)	[-6385;-6053]	-6183	-6207	86								
MLB_15_BTC transition (1)	[-6680;-6434]	-6508	-6485	83								
MLB_16_BTC transition (1)	[-6680;-6434]	-6562	-6558	64								
MLB_18B_Late Sauveterrian (1)	[-6919;-6503]	-6644	-6686	115								
				e								
Montclus - La Baume					Begin				End			
Phase (n-events, n-dates)	HPD (95%)	MAP	Mean	StdD	HPD (95%)	MAP	Mean	StdD	HPD (95%)	MAP	Mean	StdD
MLB_Cardial (1, 1)	—	—	—	—	[-5588;-5076]	-5472	-5379	147	[-5588;-5076]	-5472	-5379	147
MLB_Latest BTC (2, 2)	[1; 306]	91	139	91	[-5719;-5481]	-5596	-5595	59	[-5616;-5287]	-5495	-5460	87
MLB_Castelnovian (4, 4)	[125; 584]	345	347	117	[-6388;-6049]	-6194	-6207	88	[-6013;-5699]	-5874	-5860	81
MLB_BTC_Transition (2, 2)	[0; 212]	19	76	68	[-6679;-6439]	-6560	-6558	61	[-6639;-6308]	-6508	-6486	83
MLB_Late_Sauveterrian (1, 1)	—	—	—	—	[-6935;-6500]	-6645	-6687	118	[-6349;-6055]	-6229	-6198	78
												f