



Review Paper

The Chronology of BMAC in the Bactria

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Abstract: One of the issues and problems in the field of recognizing BMAC is to explain the time period for the beginning and end of this culture in its geographical area and especially in Bactria region. A brief look at the sources related to this culture shows that different histories are presented for the period of emergence and end of this culture in different regions of Bactria (Northern Bactria, Southern Bactria and Eastern Bactria). Interval for the emergence of BMAC, different dates are suggested in the period between 2400 to 2100 B.C. and for its end, the date is 1700 or 1400 to 1300 B.C. This concern in the field of chronology, research and study has made it difficult to identify, correctly introduce the works and findings, as well as to compare this culture with neighbor zones and cultures. In this article, an attempt has been made to explain and propose the chronology of this culture in the Bactria region by examining the different opinions of archaeologists and examining the maximum dates of the carbon 14.

Keywords: BMAC, Bactria, Chronology.

Introduction

The geographical area of BMAC can be divided into seven geographical regions: northern Bactria, eastern Bactria, southern Bactria, Margiana oasis, north of Copet dag, north-eastern Iran and eastern Iran. One of the problems in recognizing BMAC is determining a relatively precise time frame for the beginning and end of this culture in its geographical area, especially in the Bactria region. A quick look at the sources related to this culture shows that different histories are provided for the period of origin and end of this culture. This concern in the field of chronology, research and study has made it difficult to

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identify, correctly introduce the works and findings, as well as to compare this culture with neighbor zones and cultures. Francfort suggests 2500/2300 B.C. to start this culture (Francfort 1994: 272). Kohl, Vahdati and Biscione consider the date of 2300 B.C. to start the beginning of this culture (Basafa and Rahmati 1391: 614; Kohl 1984: 230; Biscione & Vahdati 2011: 238). Hibbert and Karlovsky suggest the period 2200 B.C. to start this culture (Lemberg-Karlovsky 2013: 22; Hiebert 1994: 80). Sarianidi suggested the date 2300 to 2250 B.C. to start this culture (Sarianidi 2008: 65). He then presented the date of 2400 B.C. according to the excavations of the Royal Cemetery of Gonur Depe (Sarianidi & Dubova 2010: 5). Various dates have been suggested for the timing of the end of this culture as well as its emergence. For the end of this culture, the date 1700 B.C. (Lemberg-Karlovsky 2013: 22; Biscione & Vahdati 2011: 238; Basafa and Rahmati 2012: 614) and the date 1500 to 1400 B.C. have been suggested (Hiebert 1994: 80; Luneau 2015: 304; Kohl 1984: 230). Francfort has proposed the date 1500/1300 B.C. (Francfort 1994: 272) and some others suggested the date 1300 B.C., which coincides with the end of the Takhirbai 3 in Margiana, the end of the Bustan phase in Bactria and the end of the Namazga VI in the foothills of Kopet Dag (Cattani et al., 2008: 43). Therefore, in this study, in order to better understand this culture, relying on carbon 14 dates and mentioning the opinions of archaeologists, a time frame for the chronology of BMAC in Bactria region is proposed.

Bactria

The name of Bactria in historical texts refers to the lands that are located in Central Asia today. The exact boundaries of this land have not been properly defined. The regions of southern Tajikistan, southern Uzbekistan and northern Afghanistan formed a single geographical area during the Bronze Age, known as the Oasis or Bactria region (Lombardo et al. 2014: 2). The Bactria region leads to the Tajik and Uzbek mountains (Hisar) in the north, the Pamir in the east, the Hindu Kush in the south, and the deserts of southern Turkmenistan and Iran in the west. This land is a collection of deltas, foothills and mountainous areas (Seyyed Sajjadi 2016: 50). Bactria region is divisible into three parts, northern Bactria, eastern Bactria and southern Bactria.

Southern Bactria

The geographical and cultural region of southern Bactria is located in northwestern Afghanistan and south of the Amu Darya River. Based on excavations at Tikar and Dashly, Sarianidi suggests the two time phases for chronology in southern Bactria (Sarianidi 1977: 24-25):

Hirdai phase: This phase has been observed in Hirdai hills IV and III.

Tikar phase: This phase has been reported in Hirdai I and II, Dashly and Tikar I and II hills (Luneau 2010: 44; Kohl 2015: 294-295).

Francfort and Kohl have dated the eastern Dashly areas (5-8 and 14 to 19) to about

Table 1: Carbon 14 dates from Dashly 1

Row	Lab Number	Sample location	Hiebert 1994: 83	Kohl 1984: 165	Vinogradova & Lombardo 2002: 121
1	976	Room 18	1443	1640-1500	1245±45
2	975	Room24	1818	2080-1920	1675±45

Table 2: Carbon 14 dates from Dashly 2

Row	Lab Number	Sample location	Hiebert 1994: 83	Kohl 1984: 165	Vinogradova & Lombardo 2002: 121
1	977	Pit	1619	1760-1660	1490±45

Table 3: Carbon 14 dates from Dashly 3

Row	Lab Number	Sample location	Hiebert 1994: 83	Kohl 1984: 165	Vinogradova & Lombardo 2002: 121
1	978	Burial	1740	2020-1710	1595±50
2	1175	Room 2 Temple	-----	1500-1290	1260±70
3	1252	palace	1991	2170-2110	1830±50
4	1254	palace	-----	3110-2880	2280±70
5	1253	Palace, room 50	-----	2860-2590	2230±70
6	1251	Palace, room 50	-----	1660-1560	1400±40

Table 4: Carbon 14 dates from Hirdai

Row	Lab Number	Sample location	Francfort 1983: 174	Kohl 1984: 165
1	1041	Pit	1630±40	2110-2060

Table 5: Chronology of BMAC in Bactria (Kaniuth 2007: 28)

Row	Time period	Northern Bactria		Southern Bactria
1	2000-1700 B.C.	LB I	LB Ia	Dashly 3
			LB Ib	Dashly 1
2	1700-1500/1450 B.C.	LB II	LB IIa	Dashly 17 and 19
			LB IIb	-----

Table 6: Carbon 14 dates from northern Bactria

Row	Lab Number	Sample location	Hiebert 1994: 83	Kohl 1984: 165	Vinogradova & Lombardo 2002: 121
1	Sapalli	LE 916	1740-2277	2060-2180	1800±95
2	Sapalli	LE 1078	1624-1885	1690-1950	1605±50
3	Djarkutan	Beta-33557	1682-2035	-----	1705±70

Table 6: Carbon 14 dates from northern Bactria

Row	Lab Number	Sample location	Hiebert 1994: 83	Kohl 1984: 165	Vinogradova & Lombardo 2002: 121
1	Sapalli	LE 916	2277-1740	2180-2060	1800±95
2	Sapalli	LE 1078	1885-1624	1950-1690	1605±50
3	Djarkutan	Beta-33557	2035-1682	-----	1705±70



1800 to 1500 B.C. In this regard, Kohl has proposed the date 2100-1800 B.C. for the western Dashly areas (1-6, 9-13) (Kohl 1984: 230; Francfort 1989: 343-347). Based on this, it can be said that in Dashly oasis, first the western areas were considered by human groups and gradually the eastern areas of this oasis were also inhabited.

There are also two dates of carbon 14 from Dashly I with the dates 1640-1500 B.C. and 2080-1920 B.C. The results of unmodified carbon 14 from Dashly III Palace are equal to 2280 ± 70 to 1300 ± 40 B.C. (Francfort 1983a: 173). According to the existing dates of Dashly, it is possible to suggest the date of about 2300 to 1300 B.C. for Dashly settlement and simultaneous settlements in northern Afghanistan and southern Bactria. Therefore, it can be said that the BMAC was formed around 2400/2300 B.C. in the southern Bactria region and this culture ended around 1300 B.C. at the same time as the beginning of the Iron Age in the region.

Northern Bactria

Northern Bactria includes parts of southern Uzbekistan and southwestern Tajikistan. Bronze Age settlements in southern Tajikistan are commonly referred to as the Vakhsh culture and in south of Uzbekistan as the Sapalli culture. The name of the Sapalli culture was chosen by Askarov based on the excavations in Sapalli hill and the excavations in Djarkutan's burials for the Uzbek Bronze Age culture (Askarov 1981: 258). He sometimes uses the term Sapalli-Dashly culture instead of the term Sapalli culture (Askarov & Shirinov 1994: 13). Despite some indigenous and distinct indicators of BMAC, these two cultures (especially Sapalli culture) due to the many similarities in the works and archaeological findings, It can be considered as a bigger and more comprehensive of BMAC. Avanessova divides the Bronze Age of south of Uzbekistan into five time phases based on the method of burial:

- 1) Sapalli
- 2) Djarkutan
- 3) Kuzali
- 4) Molali
- 5) Bustan

Based on the cultural materials of Sapalli, Djarkutan and Molali, Askarov divides the Sapalli culture into three temporal phases:

Sapalli phase: 1700-1500 B.C. (lower layer of Sapalli hill),

Djarkutan phase: 1500-1350 B.C. (upper layer of Sapalli and lower layer of Djarkutan),

Molali phase: 1350-1000 B.C. (upper layer of Djarkutan) (Luneau 2010: 436; Askarov, 1977: 60-88).

Rakhmanov modified these steps as follows:

- 1) Sapalli phase: 1700-1500 B.C.,

- 2) Djarkutan phase: 1500-1350 B.C.,
- 3) Kuzali phase: 1350-1200 B.C.,
- 4) Molali phase: 1200-1050 B.C.,
- 5) Bustan phase: 1050-900 B.C. (Rakhmanov 1987: 13-16).

Ionesov proposed the following period by studying 1500 graves in 15 cemeteries in southern Uzbekistan and the findings of Djarkutan and Bustan:

- 1) Sapalli phase: 1700-1650 B.C.,
- 2) Djarkutan phase: 1650-1350 B.C. which includes two phases of Djarkutan phase 1: 1650-1550 B.C. and Djarkutan phase 2: 1550-1350 B.C.
- 3) Kuzali phase: 1350-1200 B.C.
- 4) Molali phase: 1200-1050 B.C.
- 5) Bustan phase: 1050-950 B.C. (Ionesov 1999: 87).

According to some of the graves in the Busta (graves No. 148 and 230), Djarkutan 4c (Grave No. 165), Djarkutan 3 (Grave No. 50) and on the hill No. 4 (Grave No. 5) and solving some problems in chronology, for Sapalli teppe two time periods The following is also suggested:

SBI phase: 1950 to 1700 B.C. and SBII phase: 1700 to 1450 B.C. (Kaniuth & Teufer 2001: 112).

The following chronology is also cited for the chronology of Sapalli culture:

LB I Phase: 2000 to 1700 B.C., This phase is divided into two sub-periods LB Ia (Dashly 3) and LB Ib (Dashly 1).

LB II phase: 1700 to 1500 B.C., This phase is divided into two sub-periods LB IIa (Dashly 17 and 19) and LB IIb (Kaniuth 2007: 28).

Carbon 14 dates obtained from Djarkutan for the Sapalli and Djarkutan phase are equal to the date 2000-1700 B.C. and for the period of Kuzali, Molali and Bustan, the date of 1700 to 1500/1450 B.C. has been presented (Görsdorf & Huff 2001: 83; Luneau 2010: 472). Djarkutan Hill IV is dated to 2000-1800 B.C.; Temple of Djarkutan Hill VI is dated to 1800-1450 B.C. (Görsdorf & Huff 2001: 83).

According to what has been said, the BMAC was formed around 2000 B.C. in the northern Bactria region and lasted until about 1500/1400 B.C. The migration of human groups from the geographical area of BMAC (Southern Bactria and Margiana) has led to the formation of this culture in northern Bactria. In fact, after the formation and emersion of BMAC in southern Bactria and Margiana, This culture in order to expand its cultural influence and develop its geographical territory, has entered and penetrated in neighboring areas, including northern Bactria. This expansion led to the annexation of parts of south of Uzbekistan around 2000 B.C. and around 1800/1750 B.C. in southwestern

Tajikistan (northern Bactria) to the geographical extent of the Bactria-Margiana culture. Accordingly, the BMAC at first entered south of Uzbekistan in order to expand its geographical area in the western regions. The formation of the BMAC in Tajikistan should be considered the result of the formation of the BMAC in Uzbekistan and the secondary result of the migration of human groups from the Margiana oasis and southern Bactria to south of Uzbekistan.

Eastern Bactria

The Eastern Bactria region is located in northeastern of Afghanistan and on the Amu Darya River Basin. The chronology of this region is based on the chronology of Short-aghai. This area consists of two hills A and B, with a total area of two hectares. In terms of stratigraphy, this area is divided into two phases A (layers 1-2) and B (layers 3-4) (Francfort 1983b: 518). Phase A cultural materials obtained from Hill A have identified the site as a settlement associated with the Harappa culture in northeastern of Afghanistan. Phase B cultural materials obtained from Hill B have introduced this settlement as a subset of BMAC and the second period of Margiana oasis chronology (Hiebert 1994: 81-85). Francfort has proposed the date 2300-2000 B.C. for phase A (layers 1 and 2) and 2000-1800 B.C. for phase B (layers 3 & 4) (Francfort 1988: 16). Hiebert suggests 2600-2200 B.C. for phase A and coincides with the second chronological period of the Margiana oasis (2000-1750 B.C.) for phase B (Hiebert 1994: 81-85).

Therefore, it can be said that the BMAC was formed around 2000 B.C. in the eastern Bactria region and lasted until about 1800/1750 B.C. The migration of human groups from the geographical area of BMAC (Southern Bactria and Margiana) has caused the formation of this culture in Eastern Bactria. In fact, after the formation and emersion of BMAC in southern Bactria and Margiana, this culture has entered and penetrated in neighboring areas (northern Bactria and eastern Bactria) in order to expand cultural influence and develop its geographical territory. This expansion process led to the annexation of northeastern of Afghanistan (Eastern Bactria) to the geographical extent of BMAC around 2000 B.C.

Chronology of BMAC

Hiebert attributes the chronology of this culture in the Oasis of Margiana to a three period chronology: The first period from the end of Namazga V is equal to 2200 to 1900 B.C., Second period with data from Gonur and Togolok 21 equal to 2000 to 1750 B.C., Third period with data from Gonur area which is equal to 1800 to 1500 B.C. (Hiebert 1994: 80).

Salvatori describes this triple periodization as follows:

- 1) MBA: 2400/2300-1950 B.C.
- 2) LBA: 1950-1500 B.C.

Table 7: Carbon 14 dates from Djarkutan (Görsdorf & Huff 2001: 82-83)

Row	Site name	Lab Number	Date B.C.	Row	Site name	Lab Number	Date B.C.
1	Djarkutan IV	Bln-5303	2010-2000	11	Djarkutan VI	Bln-5144	1610-1560
			1980-1970				1540-1490
			1960-1880				1480-1540
2	Djarkutan IV	Bln-5302	1920-1900	12	Djarkutan VI	Bln-5142	1860-1840
			1890-1770				1770-1680
3	Djarkutan IV	Bln-5008	1890-1740	13	Djarkutan VI	Bln-5015	1680-1670
4	Djarkutan IV	Bln-5017	1880-1840				1660-1650
			1820-1790				1640-1520
5	Djarkutan Fortress	Bln-5009	1780-1740	14	Djarkutan VI	Bln-5016	1740-1710
			1880-1840				1700-1610
			1820-1790	15	Djarkutan VI	Bln-5145	1740-1620
			1780-1730	16	Djarkutan VI	Bln-5014	1620-1510
6	Djarkutan VI	Bln-5299	1710-1690	17	Djarkutan VI	Bln-5143	1690-1600
			2110-2100				1570-1530
7	Djarkutan VI	Bln-5300	2040-1940	18	Djarkutan VI	Bln-5012	1620-1510
			1880-1740				19
8	Djarkutan VI	Bln-5301	1690-1670	20	Djarkutan VI	Bln-5011	
			1660-1650				1860-1840
			1640-1520				1770-1680
9	Djarkutan VI	Bln-5304	1880-1840	21	Djarkutan VI	Bln-5013	1670-1660
			1810-1800				1650-1630
			1780-1730				1750-1680
			1710-1690				1670-1660
10	Djarkutan VI	Bln-5140	1940-1870	22	Djarkutan VI	Bln-5141	1890-1750
			1850-1810				23
			1800-1770				

Table 8: Carbon 14 dates from eastern Bactria, Shortaghai

Row	Layer	Lab Number	Hiebert 1994: 84	Kohl 1984: 165	Vinogradova & Lombardo 2002: 120
1	3	MC-1729	2281-1686	1957	2150-1800
2	4	NY-421	2322-1446	1831	2140-1680
3	4	MC-1730	2281-1742	2009	2106-1960



3) FBA: 1500-1300 B.C. (Cattani et al., 2008: 43; Salvatori 2010: 245). By accepting the chronology of three periods of BMAC, which archaeologists such as Hiebert (Hiebert 1994: 80), Kohl (1984: 230) and Salvatori (Cattani et al., 2008: 43; Salvatori 2010: 245), Have raised, the following chronological system is suggested. The chronology of BMAC is divided into three periods and cultural periods are separated from each other according to the following criteria:

Period I: The phase of formation of BMAC in the main and primary center.

Period II: The phase of expansion of BMAC to neighboring areas.

Period III: The phase of gradual decline and decline of BMAC (Tahmasebi 2021: 23).

Period I: This period consists of two phases IA and IB and covers a total period of 2400 to 2100/2000 B.C. The division of period I into two phases or sub-phases has been done with a little caution. With this attempted division, a distinction was made between the time of formation and emersion of the BMAC in its early centers (about 2400 B.C.) and the time of the beginning of the expansion and development of its geographical territory around 2000/2100 B.C. In this time division, an attempt has been made to determine the time of formation and emersion of the characteristics and features of this culture more clearly.

Phase IA: time period 2400 to 2200 B.C.; Formation and emersion of BMAC in southern Bactria (Kohl 1984: 230; Francfort 1989: 343-347).

The proposal for Phase IA for the formation of the BMAC in southern Bactria is based on the carbon 14 dates (2280 ± 70 to 1300 ± 40) presented by Palace of Dashly 3 (Francfort 1983: 173). According to the available information, it can be said that the first human groups in southern Bactria first settled in Dashly 3 and probably in Hirdai Teppeh. Also, the beginning of habitation in many areas of Dashly oasis (except Dashly 3) and Dolatabad, Farrokhabad and Nichkin oases has been in the period after 2100/2000 B.C. Therefore, the period of 2300/2200 B.C. can be suggested for the beginning of BMAC in Dashly 3 and Hirdai Teppeh.

Phase IB: 2250/2200 to 2100/2000 B.C., many features and characteristics of BMAC, including Miniature columns, Memorial architecture and Cenotaph are formed in this period (Iravani Ghadim & Tahmasebi Zave 2019: 142; Tahmasebi Zave & Salahshour 2016: 17).

Period II: This period consists of two phases Iia and Iib, which covers the period of 2100/2000 to 1500/1450 B.C.

Phase IIA: period 2100/2000 to 1800/1750 B.C.; the spread of BMAC in northern Bactria (Uzbekistan) (Görsdorf & Huff 2001: 83-86; Luneau 2010: 472; Kaniuth 2007: 28) and eastern Bactria (Francfort 1988: 16; Hiebert 1994: 81-85). Regarding the formation of BMAC in northern Bactria, it should be noted that this culture was first formed around 2100/2000 B.C. in south of Uzbekistan and then entered southwestern Tajikistan during the Molali

phase (1750/1700 B.C.).

The end of Phase IIa (1800/1750 B.C.), which coincides with the decline of BMAC in Eastern Bactria (Shortaghai) (Francfort 1988: 16; Hiebert 1994: 81-85) and the last period of production and use of some features of BMAC, including miniature of power sticks (Tahmasebi Zave & Salahshour 2016: 17).

Phase IIB: 1700 to 1500/1450 B.C. Expansion of BMAC to southwestern Tajikistan (northern Bactria) (Vinogradova 2004: 76), evidence of the use of fire in funerals and cremation. Regarding the formation of BMAC in northern Bactria, it should be noted that this culture was first formed in the south of Uzbekistan around 2100/2000 B.C. and then entered the southwest of Tajikistan during the Molali phase (1750/1700 B.C.). According to available information, the BMAC has lasted for about 250 to 350 years in southwestern of Tajikistan. This is confirmed by the fact that there were three cultural groups in south of Tajikistan at the same time: 1) Sapalli culture, 2) Bashkent-Vakhsh culture, 3) Andronovo culture. Sapalli culture in this region, which represents the BMAC, consists of two phases: 1) Molali phase (Djarkutan IIIa) and, 2) Bustan phase (Djarkutan IIIb) (Vinogradova 2004: 7). The end of this period (1500/1450 B.C.) coincides with the end of the BMAC in northern Bactria (Tajikistan and Uzbekistan) (Kaniuth & Teufer 2001: 112; Görsdorf & Huff 2001: 83-86; Luneau 2010: 472; Kaniuth 2007: 28) and the decline of settlements such as Togolok and Gonur in the Margiana oasis. The period of gradual decline and collapse of BMAC probably started around 1500 B.C. According to the end of BMAC around 1500/1450 B.C. in northern Bactria, it is likely that the decline and decline of BMAC in

Table No 9: Chronology of BMAC (Tahmasebi Zave 2021: 23)

the period	The period of B.C.	Margiana	Southern Bactria	Northern Bactria	Eastern Bactria	
I	Ia	2400/2300 to 2200	Layer 1 to 4 North Gonur, kelleli 1	Hirdai, Dashly 3	-----	-----
	Ib	2200 to 2100/2000	Layers 1 to 4 of Northern Gonur, Royal Cemetery, Gonur Cemetery, kelleli 3 and 4	Dashly 3	-----	-----
II	IIa	2100/2000 to 1800/1750	Layer 6 of Northern Gonur, Gonur Cemetery, Southern Gonur Architecture, Togolok 1 and 21, burials of Togolok 21 and 24	Dashly 1-6, 9-14, Palace and Temple of Dashly 3,	Sapalli, Djarkutan, Djarkutan 4,	Phase B of Shortaghai
	IIb	1800/1750 to 1450/1500	Takhirbai 3, Southern Gonur Surface Layer, Gonur Cemetery, Togolok 21	Dashly 1 and 3, 5-8, 14 to 17 and 19, Tikar 1 and 2, Nichkin and Farrokhabad oasis	Djarkutan (Kuzali phase, Molla Ali), Bustan 4-7, Molali, Temple of Djarkutan 6	-----
III	1450/1500 to 1400/1300	Takhirbai 3 and 1	Dashly 3, Tikar 1 & 2	----	-----	

this region began a little earlier than this time. Period III: This period covers the period of 1500/1450 to 1400/1300 B.C. This period should be considered as the period of decline and end of BMAC and the beginning of Yaz culture.

Conclusion

The date 2300 B.C. is suggested for the beginning of BMAC in southern Bactria. Also, the date 2100/2000 B.C. is suggested for the beginning of this culture in the northern Bactria region (southern Uzbekistan), Eastern Bactria and the date 1800/1750 B.C. for the formation of this culture in southwestern Tajikistan. For the end of BMAC, the date of 1750 B.C. in eastern Bactria and the date of 1500/1450 B.C. in northern Bactria have been proposed. It seems correct that this culture continued to exist in southern Bactria until about 1400/1300 B.C. A three-period chronology is suggested for BMAC:

Period I: The phase of formation of BMAC in the main and primary regions, this period includes two phases IA (2400/2300 to 2200 B.C.) and Ib (2250/2200 to 2100/2000 B.C.) and in total The period covers 2400/2300 to 2100/2000 B.C.

Period II: The phase of expansion of BMAC to neighboring areas, this period includes two phases IIa (2100/2000 to 1800/1750 B.C.) and IIb (1800/1750 to 1500/1450 B.C.), which in total It covers a period of 2100/2000 to 1500/1450 B.C.

Period III: The stage of gradual decline and decline, finally the end of BMAC and the beginning of the Yaz culture in the region, this period includes the period of 1500/1450 to 1400/1300 B.C.

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