

The 3rd enclosure - Northern gallery - East wing



Example of block of the bas-reliefs fallen before 1909 behind the East wing of the Northern gallery

The 3rd enclosure - Northern gallery - East wing



Example of block of the bas-reliefs fallen before 1909 behind the East wing of the Northern gallery

The 3rd enclosure - Northern gallery - East wing

EFEO-CAM16009-1



EFEO-CAM16009-2

Condition in 1909 of the East end of the East wing of the Northern gallery
(Photomontage of the photos of General de Beylié from the photos archives of the EFEO)



© Olivier Cunin

3D scanning by photogrammetry of the current condition of the East end of the East wing of the Northern gallery

The 3rd enclosure - Northern gallery - East wing



- 38% of surface of the masonry of the wall of the bas-reliefs are currently collapsed
- 47% of surface of the narrative are unknown and not documented
- Unsafe access for the tourists

The bas-reliefs of Banteay Chhmar

Some numbers

Eastern gallery - North wing

Around 70% of the masonry of the wall of the bas-reliefs are currently collapsed and around 91% of the narrative are unknown and never documented

Eastern gallery - South wing

100% of the masonry of the wall of the bas-reliefs are stand up and 100% of the narrative are known and documented since 1909

Southern gallery - East wing

Over 48% of the masonry of the wall of the bas-reliefs are currently collapsed and around 90% of the narrative are unknown and never documented

Southern gallery - West wing

Around 47% of the masonry of the wall of the bas-reliefs are currently collapsed and around 66% of the narrative are unknown and never documented

Western gallery - South wing

Around 45% of the masonry of the wall of the bas-reliefs are currently stand up and 100% of the narrative are known and documented since 1909

Western Gallery - North wing

Around 50% of the masonry of the wall of the bas-reliefs are currently collapsed and around 67% of the narrative are unknown and never documented

Northern gallery - West wing

Around 56% of the masonry of the wall of the bas-reliefs are currently collapsed and around 81% of the narrative are unknown and never documented

Northern gallery - East wing

Around 38% of the masonry of the wall of the bas-reliefs are currently collapsed and around 47% of the narrative are unknown and never documented

The bas-reliefs of Banteay Chhmar

Gallery	Wing	Surface of the masonry of the wall of the bas-reliefs currently collapsed (included the looting and blocks in museums)	Surface of the narrative unknown and not documented
Eastern gallery	North wing	70 %	91 %
	South wing	0 %	0 %
Southern gallery	East wing	48 %	90 %
	West wing	47 %	66 %
Western gallery	South wing	55 %	0 %
	North wing	50 %	67 %
Northern gallery	West wing	56 %	81 %
	East wing	38 %	47 %
Total		49 %	59 %

Synthetic table regarding the walls of the galleries of the bas-reliefs of the 3rd enclosure of Prasat Banteay Chhmar

The bas-reliefs of Banteay Chhmar

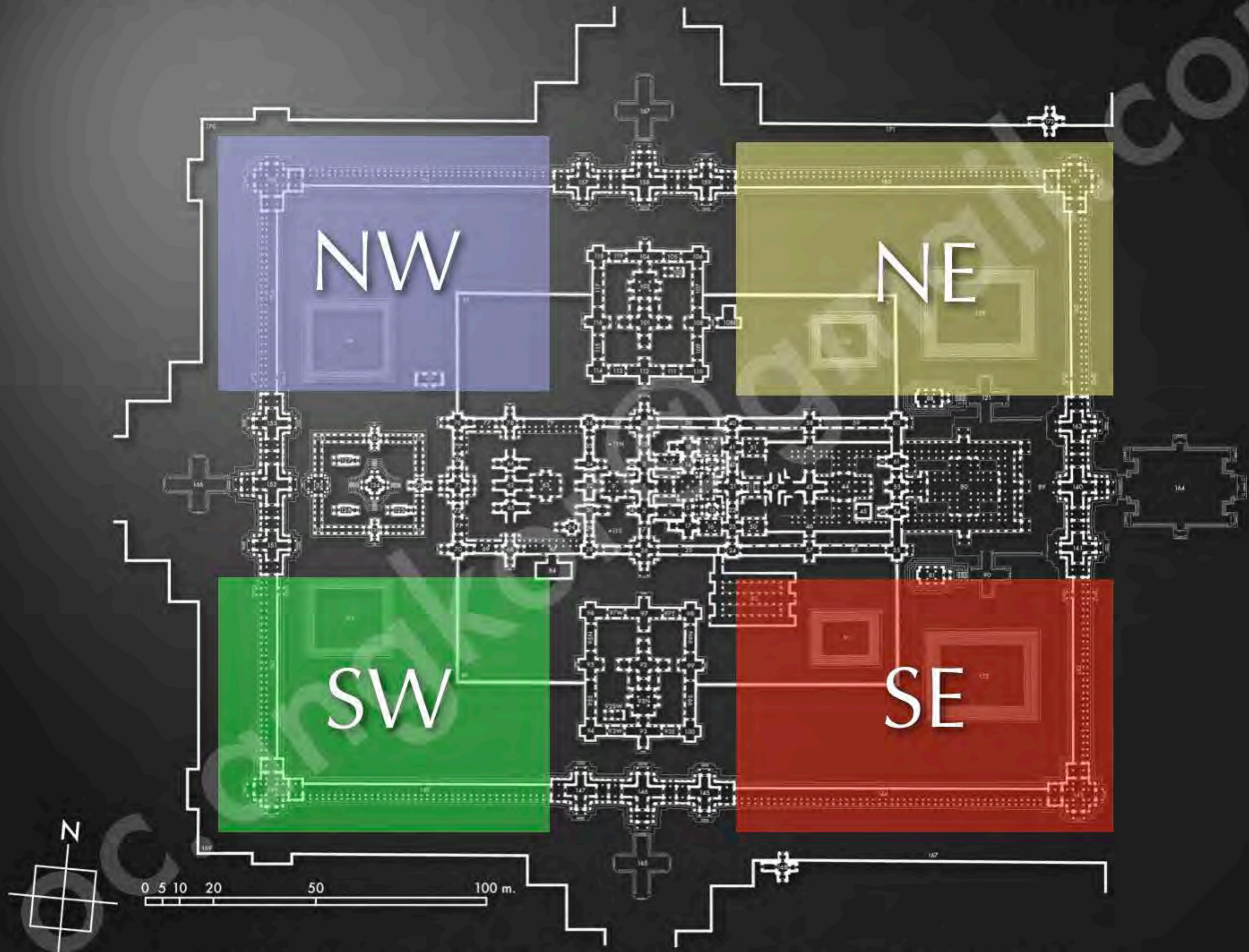
- 59% of the narratives of the galleries of the bas-reliefs of Banteay Chhmar are still unknown today

A methodologic clearing out and inventory of the collapsed stone blocks of the galleries of the bas-reliefs of Banteay Chhmar will be the more substantial scientist contribution of a conservation and restoration program on this monument with a direct benefit for the tourism

The final goal can be the publication of an atlas of the narratives bas-reliefs of Banteay Chhmar based on the virtual anastylosis of the walls of its galleries

This tool will give the opportunity of a full interpretation of this narrative and a cross disciplinary studies of the bas-reliefs of the Bayon and Prasat Banteay Chhmar

Bring to an end the puzzle of the bas-reliefs of Banteay Chhmar



General layout of the temple complex of Prasat Banteay Chhmar

The 3rd enclosure - Northeast quadrant

- 70% of surface of the masonry of the wall of the bas-reliefs are currently collapsed
- 91% of surface of the narrative are unknown and not documented

- 38% of surface of the masonry of the wall of the bas-reliefs are currently collapsed
- 47% of surface of the narrative are unknown and not documented

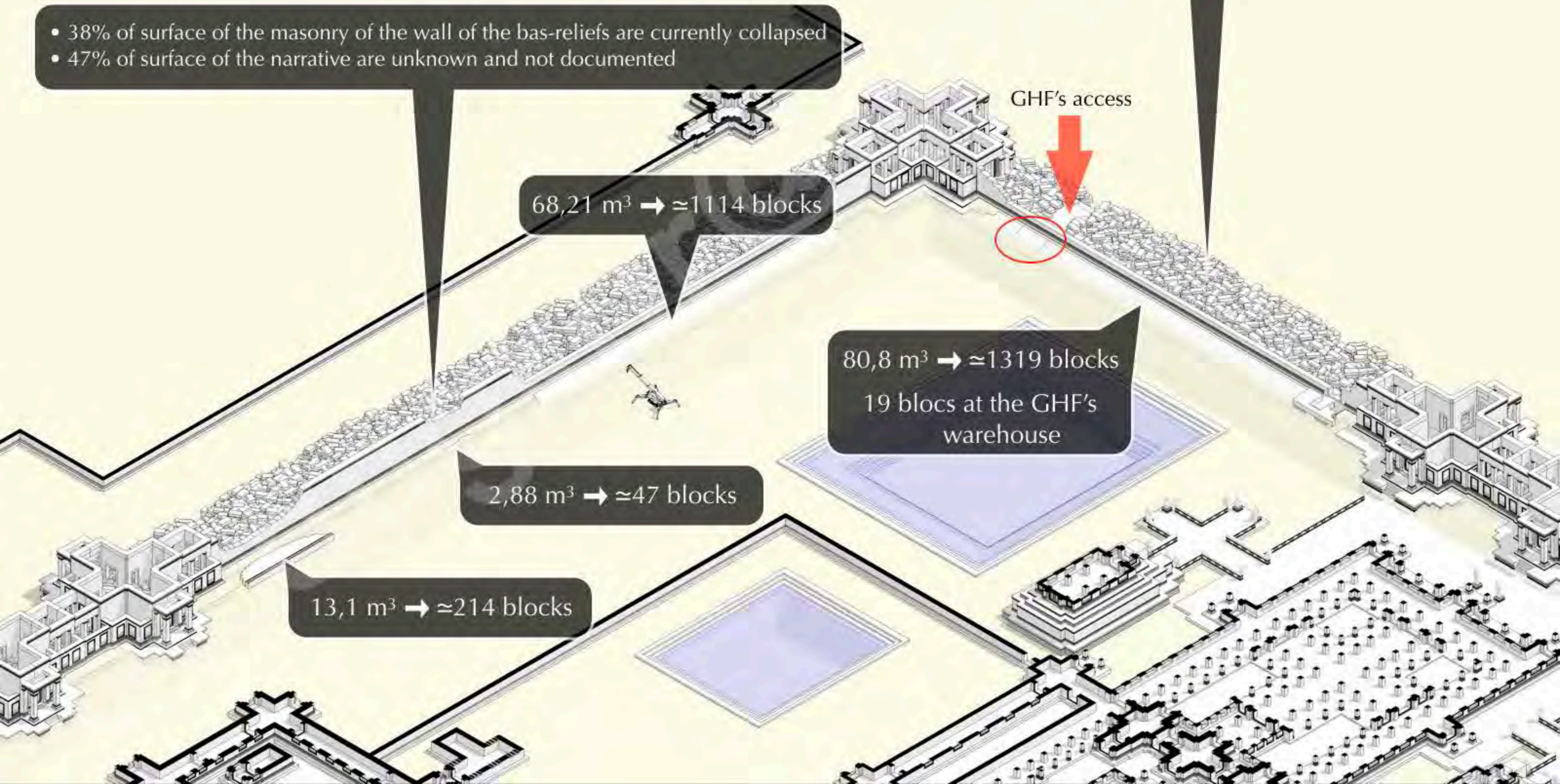
68,21 m³ → ≈1114 blocks

GHF's access

80,8 m³ → ≈1319 blocks
19 blocs at the GHF's warehouse

2,88 m³ → ≈47 blocks

13,1 m³ → ≈214 blocks



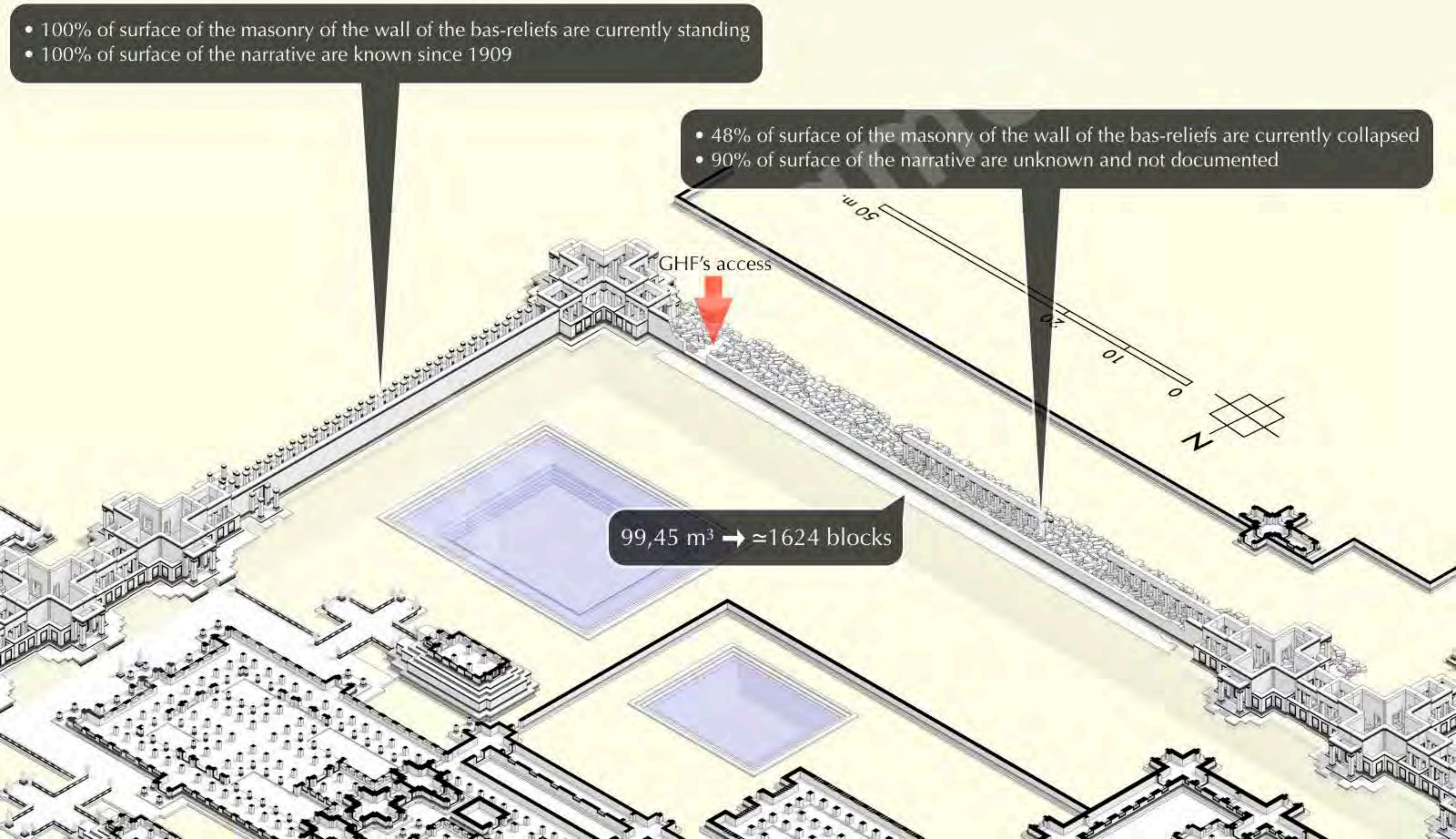
The 3rd enclosure - Southeast quadrant

- 100% of surface of the masonry of the wall of the bas-reliefs are currently standing
- 100% of surface of the narrative are known since 1909

- 48% of surface of the masonry of the wall of the bas-reliefs are currently collapsed
- 90% of surface of the narrative are unknown and not documented

GHF's access

99,45 m³ → ≈1624 blocks



The 3rd enclosure - Southwest quadrant

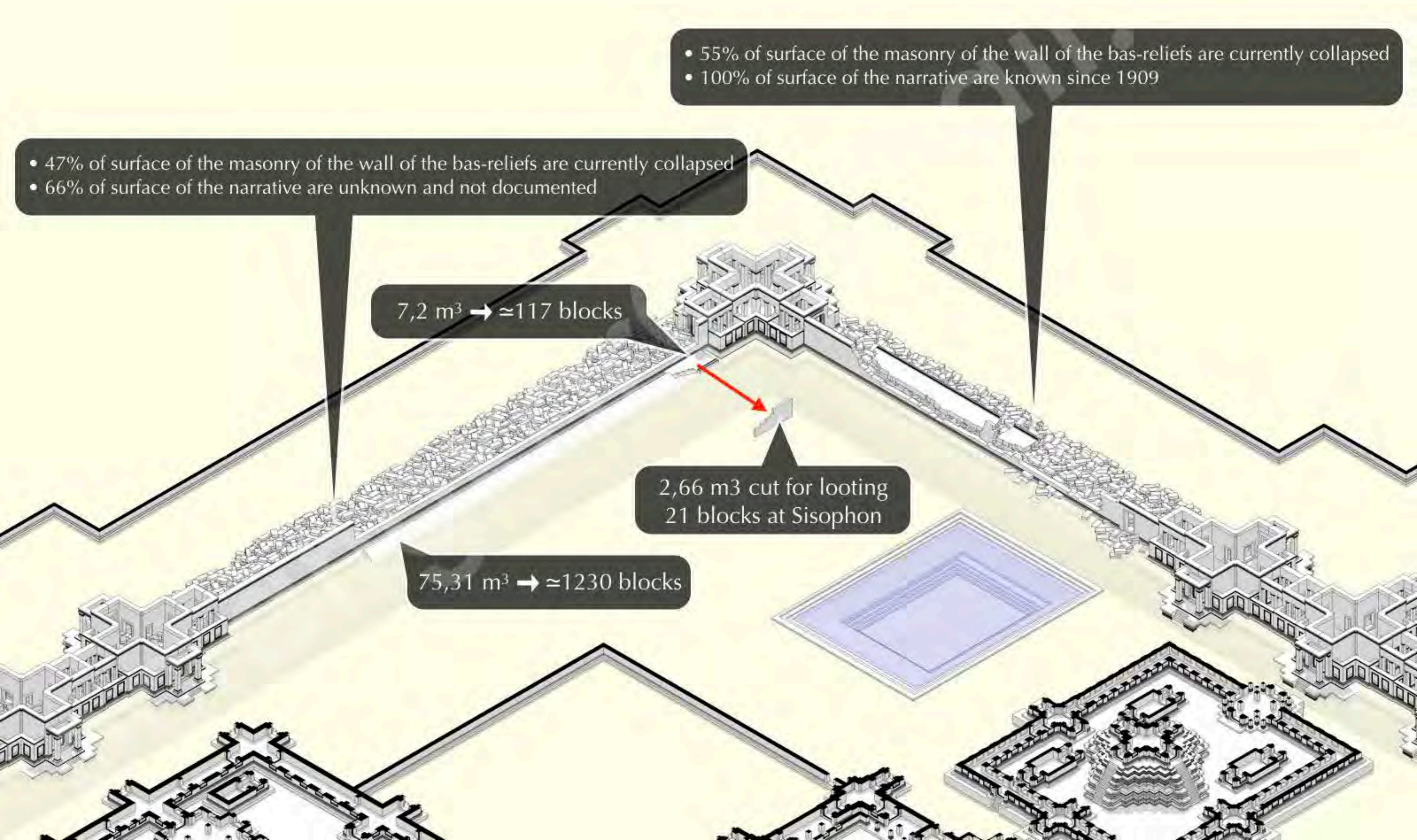
- 55% of surface of the masonry of the wall of the bas-reliefs are currently collapsed
- 100% of surface of the narrative are known since 1909

- 47% of surface of the masonry of the wall of the bas-reliefs are currently collapsed
- 66% of surface of the narrative are unknown and not documented

7,2 m³ → ≈117 blocks

2,66 m³ cut for looting
21 blocks at Sisophon

75,31 m³ → ≈1230 blocks



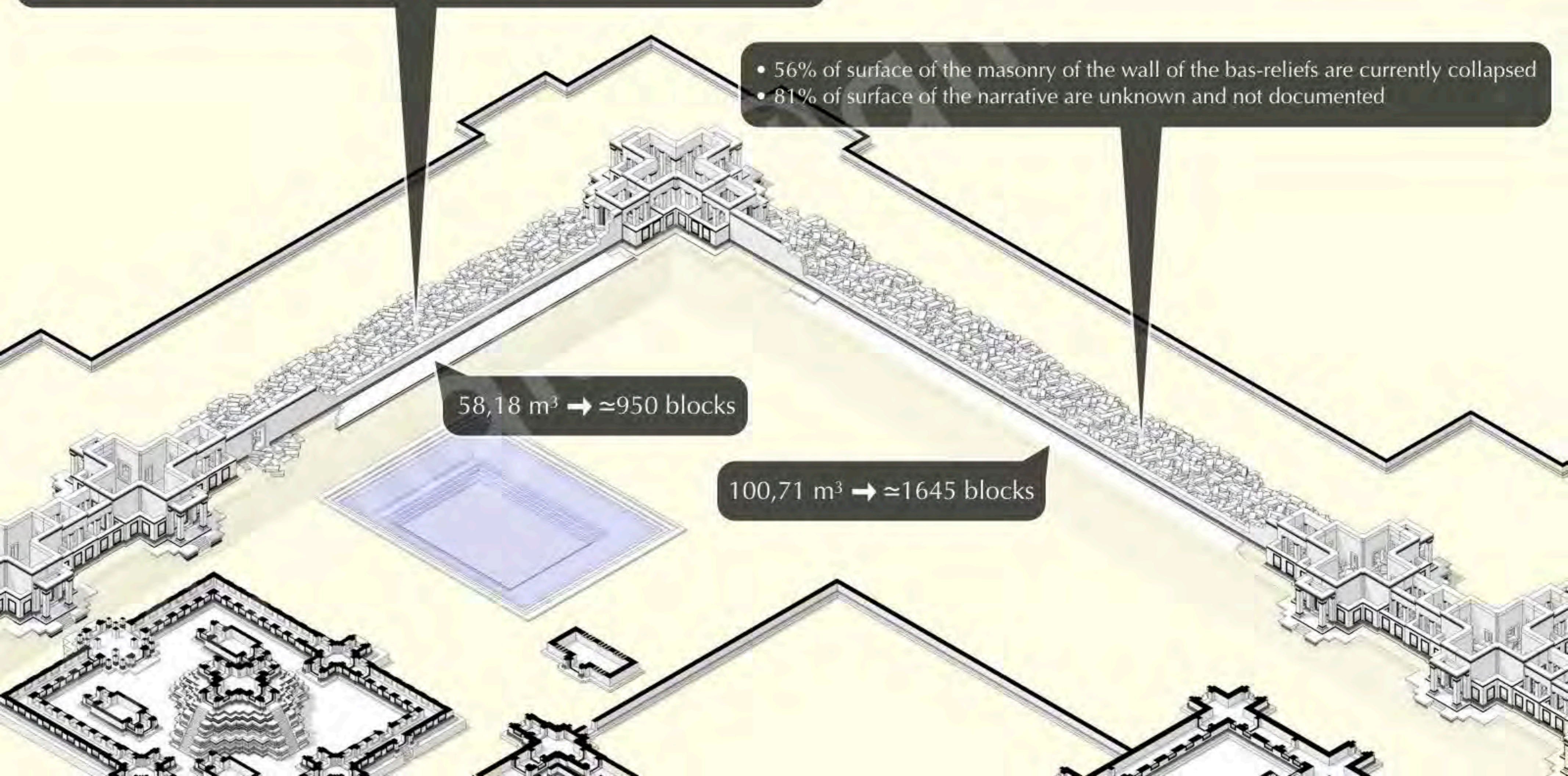
The 3rd enclosure - Northwest quadrant

- 50% of surface of the masonry of the wall of the bas-reliefs are currently collapsed
- 67% of surface of the narrative are unknown and not documented

- 56% of surface of the masonry of the wall of the bas-reliefs are currently collapsed
- 81% of surface of the narrative are unknown and not documented

58,18 m³ → ≈950 blocks

100,71 m³ → ≈1645 blocks



Bring to an end the puzzle of the bas-reliefs of Banteay Chhmar

- Clear the vegetation at the back of the wall of the bas-reliefs
 - Record the situation by classic survey or photos
- Remove step by step the sediment and collect the stone blocks
 - Indexation, consolidation and record of the stone blocks
- Virtual assembled of the removed stone blocks and bring back them with the standing parts of the wall of the bas-reliefs
(clear the surface of the bas-reliefs for record if possible)
 - Arranging the stone blocks in proper deposit area
(in standalone blocks or preassembled)

Bring to an end the puzzle of the bas-reliefs of Banteay Chhmar



Example of 3D scanning of the bas-reliefs of Banteay Chhmar

Bring to an end the puzzle of the bas-reliefs of Banteay Chhmar



Example of 3D scanning of the bas-reliefs of Banteay Chhmar after reorganization

Bring to an end the puzzle of the bas-reliefs of Banteay Chhmar



Example of 3D scanning of the bas-reliefs of Banteay Chhmar (biofilm and vegetation)

Bring to an end the puzzle of the bas-reliefs of Banteay Chhmar



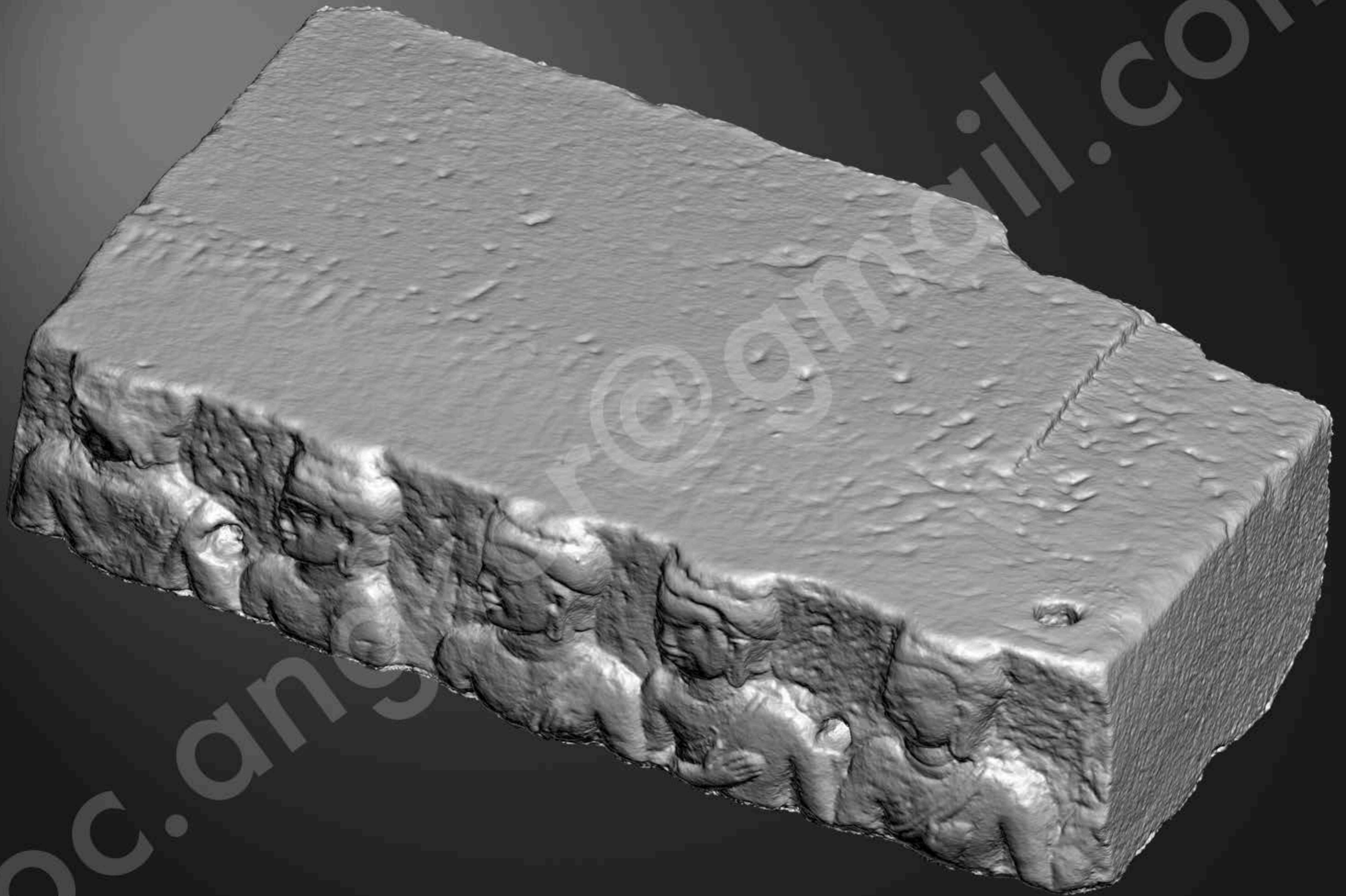
Example of 3D scanning of the bas-reliefs of Banteay Chhmar (biofilm and vegetation)

Bring to an end the puzzle of the bas-reliefs of Banteay Chhmar



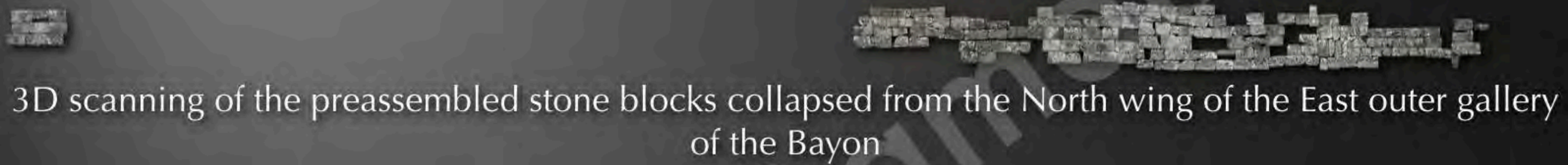
Example of 3D scanning of sandstone blocks from the Bayon (based on 41 photos)

Bring to an end the puzzle of the bas-reliefs of Banteay Chhmar



Example of 3D scanning of sandstone blocks from the Bayon (based on 41 photos)

Bring to an end the puzzle of the bas-reliefs of Banteay Chhmar



3D scanning of the preassembled stone blocks collapsed from the North wing of the East outer gallery of the Bayon



3D scanning of the North wing of the East outer gallery of the Bayon

Bring to an end the puzzle of the bas-reliefs of Banteay Chhmar



3D scanning of the North wing of the East outer gallery of the Bayon after virtual assembled

Preliminary inventory of the artifacts from Prasat Banteay Chhmar



Naga-enthroned Buddha
Ka.505 from tower 70

Olivier CUNIN

Ph.D. in architecture - Architect DPLG

Associate researcher of MAP-Crai (UMR 3495 CNRS/MCC), ENSA Nancy and CASE (UMR 8170, CNRS/EHESS)
oc.angkor@gmail.com

Artifacts from Banteay Chhmar whose origin is known

Ka.1720 (B.362, B.73.2)
According to the record cards of the NMC, this statue came from "library" tower BC.64 of the West group of the 2nd enclosure (Tour D entre 8 et 9*)
Current localization: NMC
Carry to the NMC by George Groslier in February 1935.



Ka.504 (B.162, B.115.1)
According to the record cards of the NMC, this statue came from "library" tower BC.64 of the West group of the 2nd enclosure (Tour D entre 8 et 9*)
Current localization: NMC
Carry to the NMC by George Groslier in February 1935.



Ka.86 (B.363, B.731.4)
According to the record cards of the NMC, this statue came from "library" tower BC.64 of the West group of the 2nd enclosure (Tour D entre 8 et 9*)
Current localization: NMC
Carry to the NMC by George Groslier in February 1935.



Ka.1702 (B.359, B.12.3)
According to the record cards of the NMC, this statue came from central tower BC.1 of the 1st enclosure (Tour F7*)
Current localization: NMC
Carry to the NMC by George Groslier in February 1935.



Ga.7325
Found between BC.13 and the tower BC.18 in August 25th, 2011
Current localization: NMC
Enter to the NMC in September 6th, 2011.



Ka.505 (B.259, B.10.16)
According to the photo EFEO-CAM10868, this statue was found to South-West tower BC.70 of West group of the 2nd enclosure.
Current localization: Eco-Global Museum of Preah Vihear
Carry to the NMC by the Pol's team (†) and enter to the museum in October 10th, 1924.



N° 1796
Found in tower BC.18 in December 8th, 2010.
Current localization: DCA
Enter to the DCA in December 14th, 2010.



Ka.1773 (B.360, B.32.7)
According to the record cards of the NMC, this statue came from South-East tower BC.24 of the 1st enclosure (Tour C6*)
Current localization: NMC
Carry to the NMC by George Groslier in February 1935.



N° 1797
Found in tower BC.18 in December 8th, 2010.
Current localization: DCA
Enter to the DCA in December 14th, 2010.



Ka.436 (C.160, C.36.25)
According to the record cards of the NMC, this antefix came from Western group of the 3rd enclosure BC.124 to BC.135 (Groupe Ouest)
Current localization: NMC
Carry to the NMC by George Groslier in February 1935.



Ka.2854 (Inscription K.1227)
Stolen in 1998 from the East group of the second enclosure, this doorjamb was found to an antidealer in Bangkok in December 1998.
Current localization: NMC
Enter to the NMC in April 1st, 2000.

Ka.2858
Stolen at the end of 1998 from the North segment of the South wing of the West gallery of the third enclosure, this panel was found in two trucks in Parchin Buri province, Thailand, in January 1999.
Current localization: NMC
Enter to the NMC in April 1st, 2000.



N° 1181 (Inscription K.1209)
Found in BC.155 (North wing) in January 7th, 1999.
Current localization: DCA
Enter to the DCA in July 2nd, 2000.



N° 1090 (Inscription K.1206)
Found in BC.161 (North wing) in July, 1997.
Current localization: DCA
Enter to the DCA in November 2nd, 1999.



Ka.2859
Stolen at the end of 1998 from the North segment of the South wing of the West gallery of the third enclosure, this panel was found in two trucks in Parchin Buri province, Thailand, in January 1999.
Current localization: NMC
Enter to the NMC in April 1st, 2000.



N° 1200
Found in BC.149 (South wing) mentioned by Jean Boisselier in 1965**
Current localization: DCA
Enter to the DCA in November 11th, 2000.



Ka.1872 (C.161, C.36.26)
According to the record cards of the NMC, this antefix came from the axial eastern group of towers BC.140, 141 & 163 of the 3rd enclosure (Porte monumentale Est)
Current localization: NMC
Carry to the NMC by George Groslier in February 1935.



Ka.1705 (B.361, B.601.5)
According to the record cards of the NMC, this head of Yaksa came from East causway of the domain enclosure (Chaussée Est)
Current localization: NMC
Carry to the NMC by George Groslier in February 1935.



Ka.1714 (B.222, B.13.1)
According to the caption of the photo EFEO-CAM10863, (Enceinte V, édifice Est), this statue was found into the "house of fire" BC.178.
Current localization: NMC
Carry to Angkor by Louis Finot in February 1921.
Enter to the NMC in September 23, 1923.



NMC: National Museum of Cambodia
DCA: Département de la Conservation d'Angkor
* According to photo EFEO-CAM14432, a and EFEO-CAM10291, a the map of Banteay Chhmar by George Groslier.
** Jean Boisselier, Préliminaires sur quelques images khmères d'Angkor, Les khmers d'Angkor, Paris, 1965, p. 82.

Artifacts from Banteay Chhmar whose exact origin is unknown



Head of giant
Ka.310 / B.51 / S.14.4

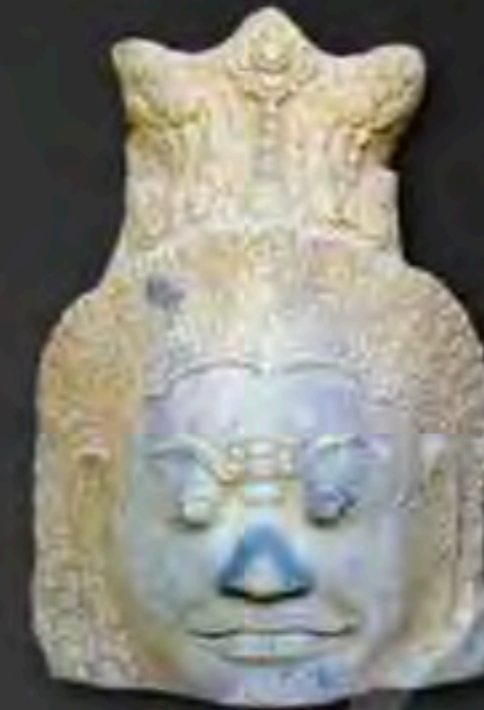
Enter to the National Museum of Cambodia in January 1st, 1920

This head was bring back from Banteay Chhmar and sent to Phnom Penh by General de Beylié in 1909



Head of giant
Ka.2855

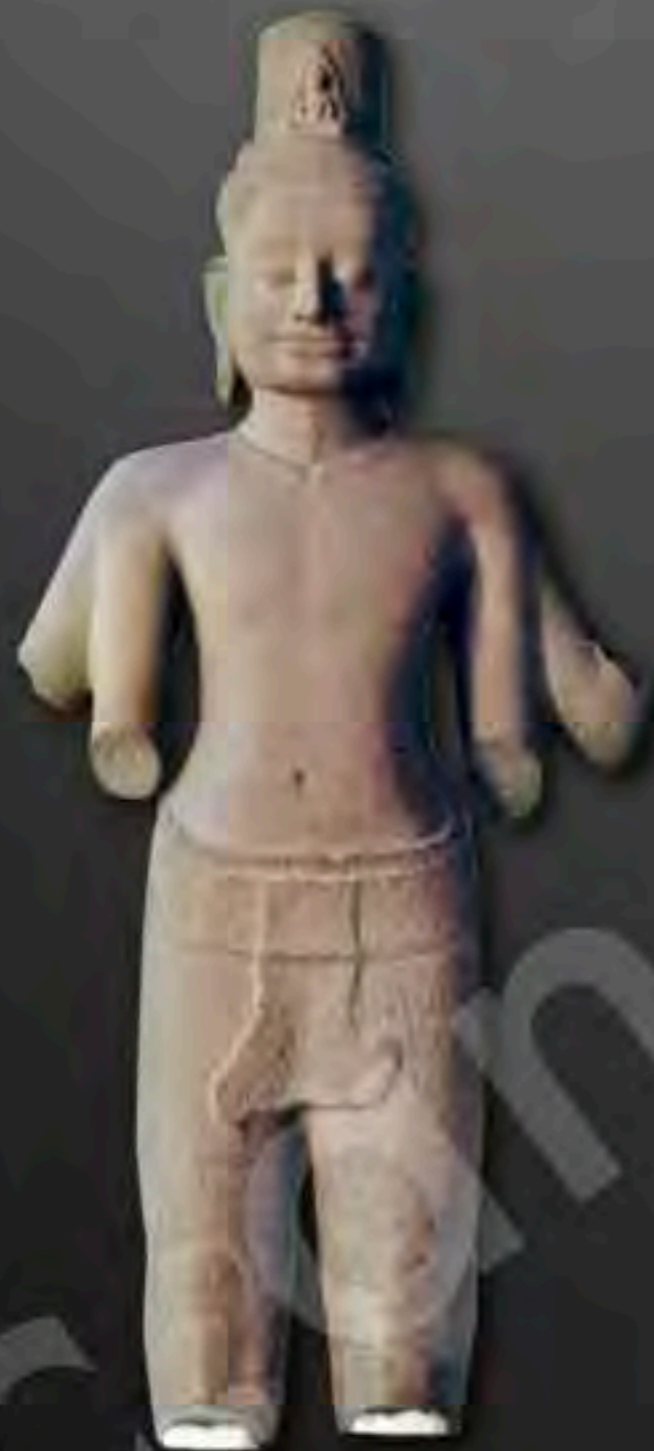
Enter to the National Museum of Cambodia in April 1st, 2000
These aterfacts were looted at the end of 1998



Head of giant
Ka.2856



Head of giant
Ka.2857



Lokshvara
Ka.1700 / B.118 / B.11.1

Enter to the National Museum of Cambodia in January 1st, 1920
Current localization: Angkor National Museum

This statue was bring back from Banteay Chhmar and sent to Phnom Penh by General de Beylié in 1909



Lokshvara
Ka.1816 / B.283 / B.11.3

Enter to the National Museum of Cambodia in Octobre 1930

This statue was bring back from Banteay Chhmar and sent to Siem Reap by General de Beylié in 1921

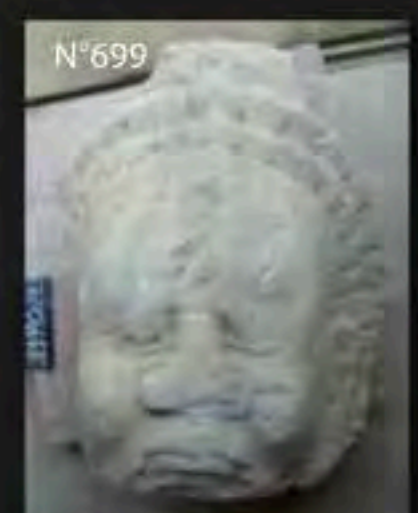
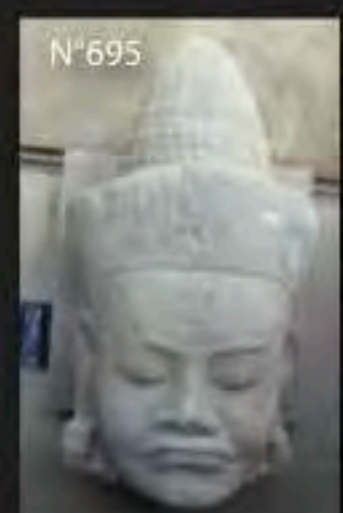
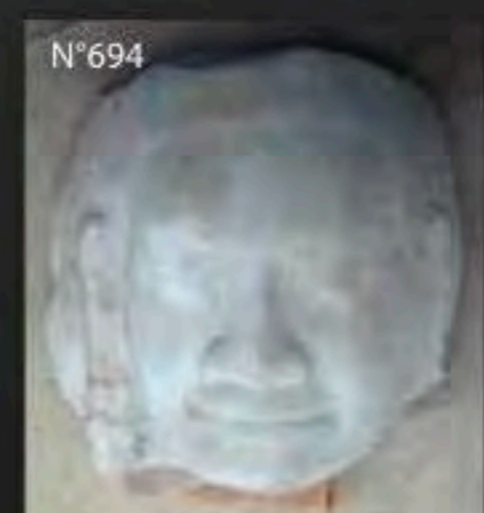
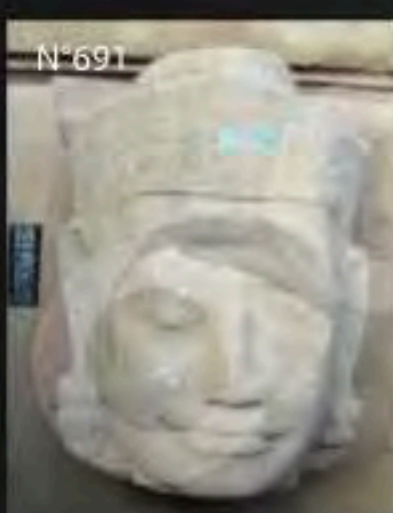
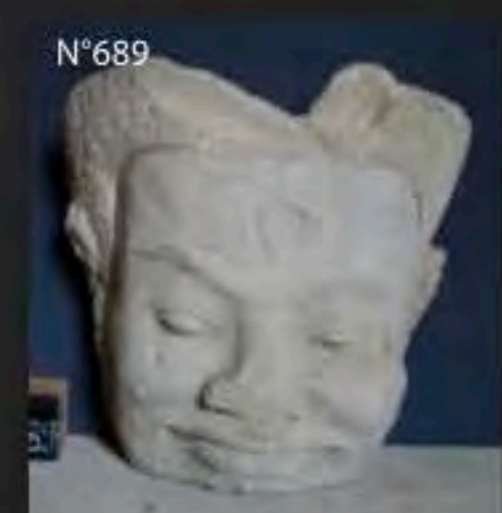
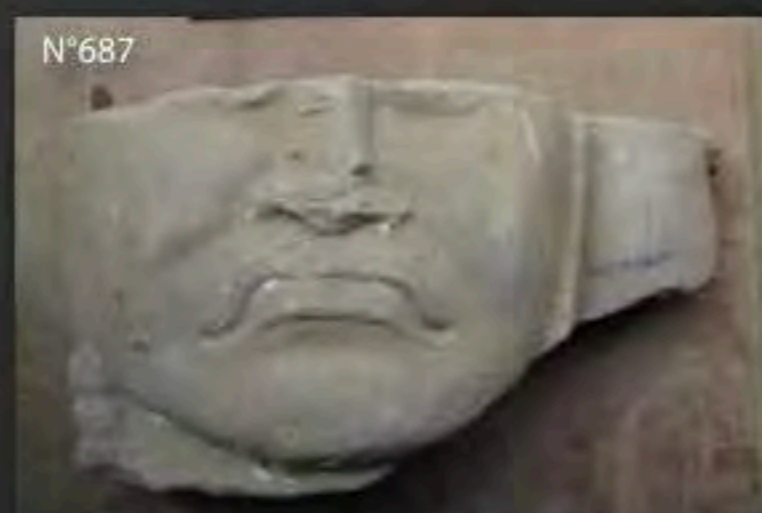
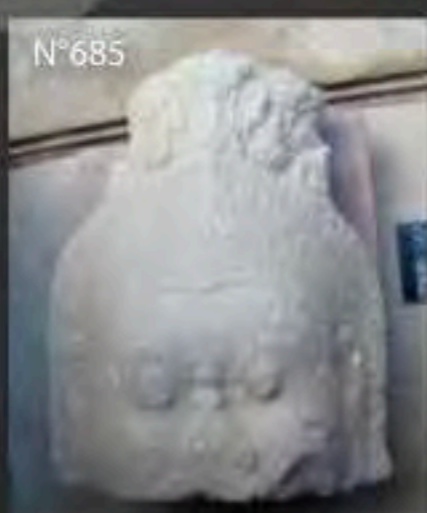
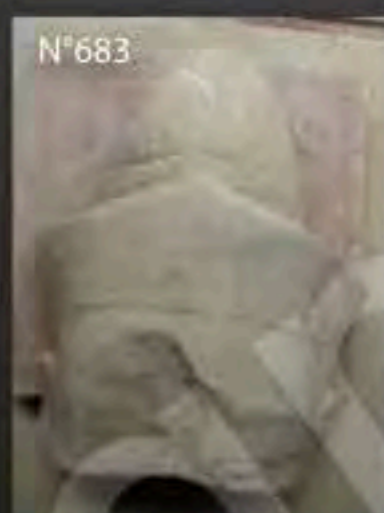
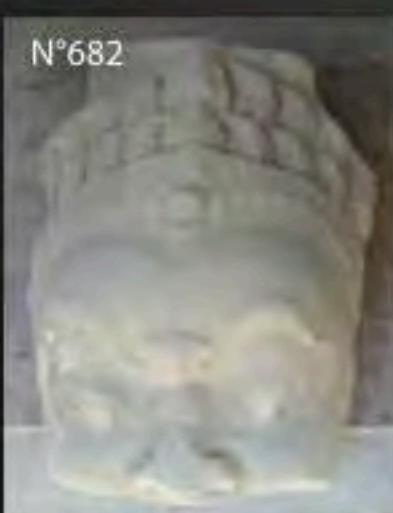
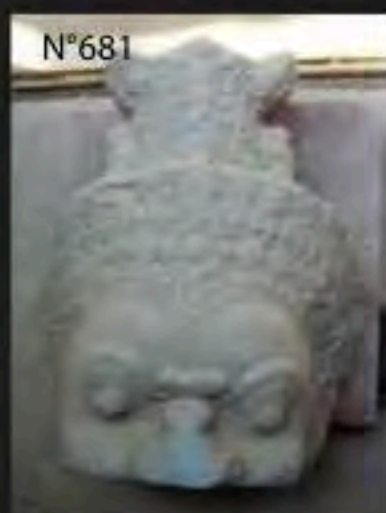
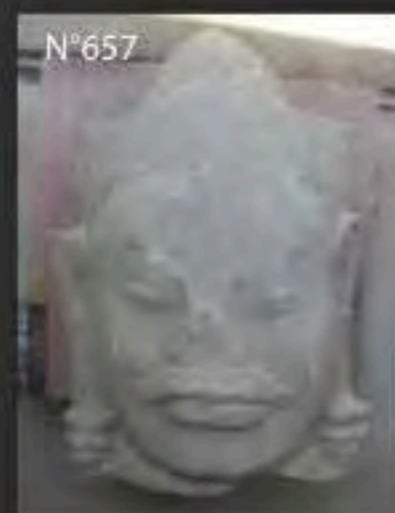
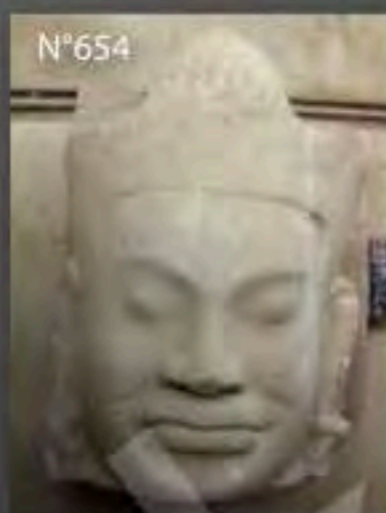
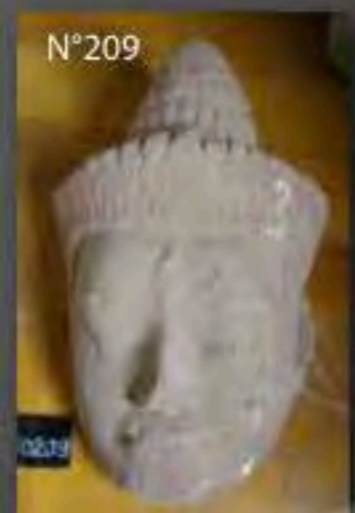
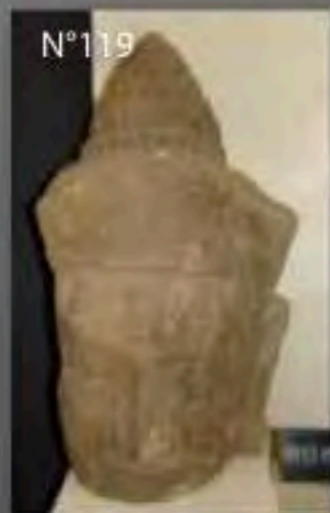
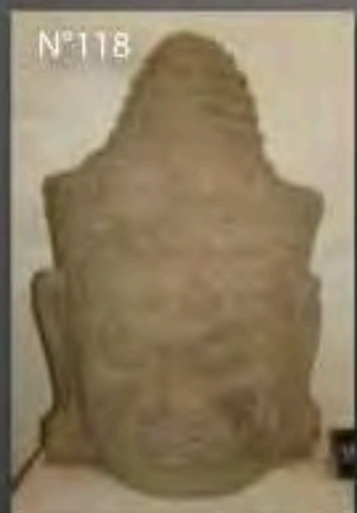
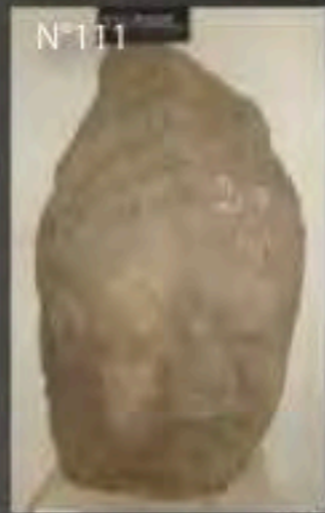


Torso of female divinity
Ka.1853 / B.360bis / B.712.11

Probably enter to the National Museum of Cambodia in February 1935

This statue was bring back from Banteay Chhmar by George Groslier

Artifacts from Banteay Chhmar at the Battambang Provincial Museum



Artifacts at the museum of Banteay Meanchey province



Head of lion
N°004



Head of lion
N°005



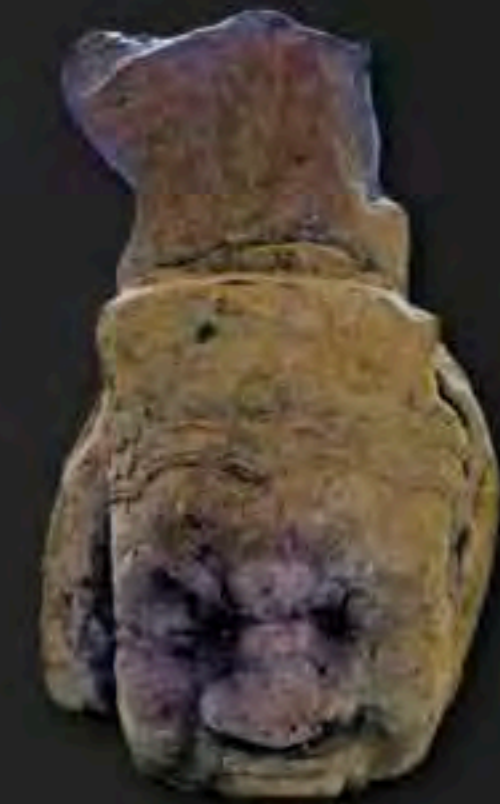
Head of giant
N°017



Head of giant
N°019



Head of giant
N°012



Head of giant
No ID number



Antefix
N°25



Antefix
N°280

Artifacts from Banteay Chhmar displayed at the Banteay Meanchey province

Artifacts at the museum of Banteay Meanchey province



Example of Bayon style artefacts not displayed at the Banteay Meanchey province



Example of artefacts from Banteay Chhmar not displayed at the Banteay Meanchey province

Artifacts at the museum of Banteay Meanchey province



Examples of Bayon style artefacts not displayed at the Banteay Meanchey province

Artifacts at the museum of Banteay Meanchey province



Example artefacts from Banteay Chhmar not displayed at the Banteay Meanchey province

Artifacts at the museum of Banteay Meanchey province



Examples of artefacts and fragments of bas-reliefs from Banteay Chhmar not displayed at the Banteay Meanchey province

Artifacts at the museum of Banteay Meanchey province



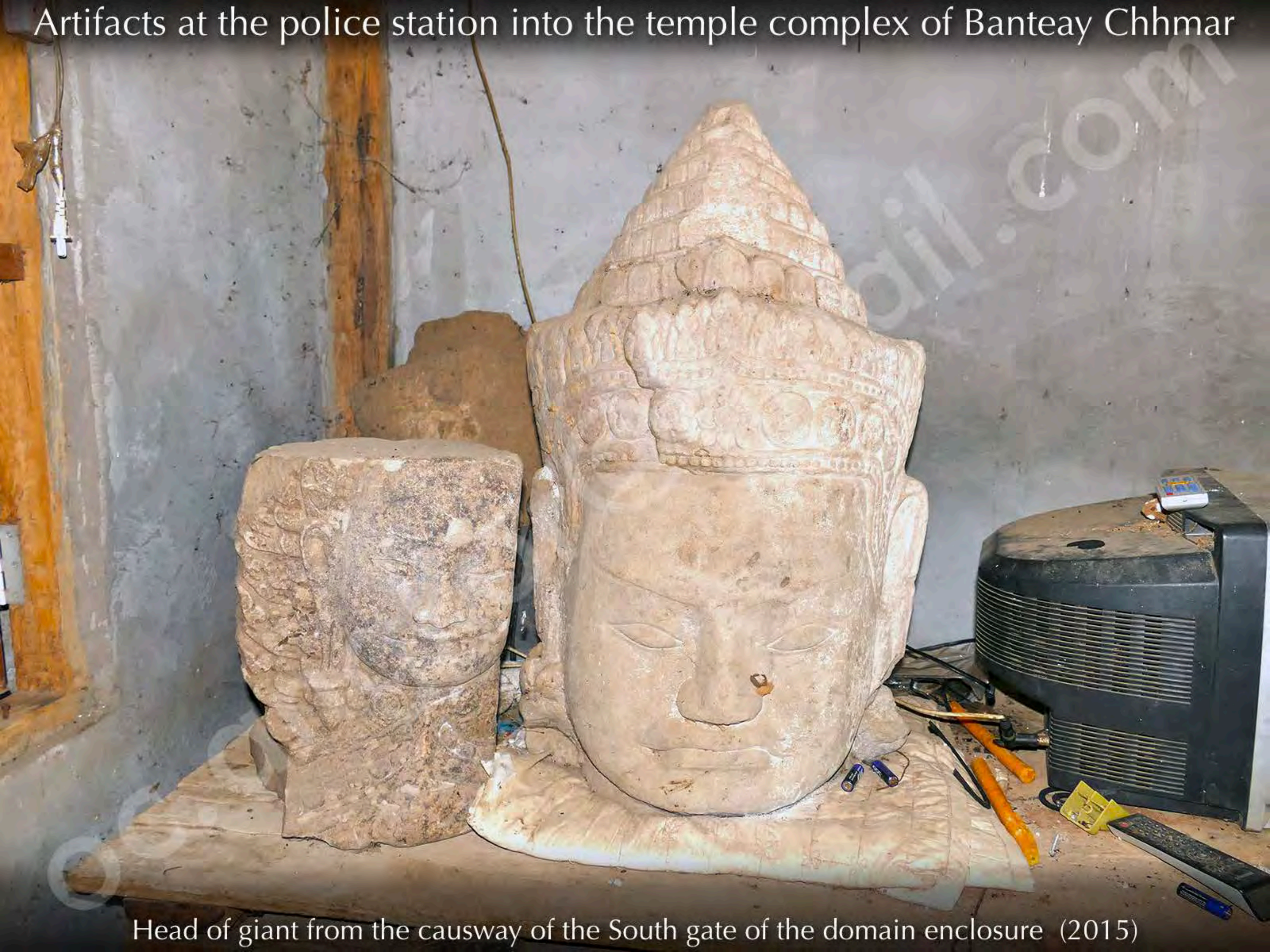
Examples of Bayon style artefacts not displayed at the Banteay Meanchey province

Artifacts at the police station into the temple complex of Banteay Chhmar



Lintel discovered around tower 18 (?) by the GHF (2010)

Artifacts at the police station into the temple complex of Banteay Chhmar



Head of giant from the causway of the South gate of the domain enclosure (2015)