ASSOCIATION POUR LA PROTECTION DE L'ARCHÉOLOGIE AFGHANE
ASSOCIATION FOR THE PROTECTION OF AFGHAN ARCHAEOLOGY
(Édition APAA)

ARCHAEOLOGIA AFGHANA

Série scientifique VI

GANDHĀRAN ARTISTS AND ARTISANS

Representations of an Era of Religious Images

edited by
Alexandra VANLEENE
Arnaud MARGUIER
Vydhegi BRICE



UNIVERSITÉ DE STRASBOURG

2025

GANDHĀRAN ARTISTS AND ARTISANS

Representations of an Era of Religious Images

Ouvrage publié avec le soutien
de l'Institut Thématique Interdisciplinaire
d'histoire, sociologie, archéologie et anthropologie des religions
de l'Université de Strasbourg

Collection Archaeologia afghana
dirigée par
Richard SALOMON et Zemaryalaï TARZI (†)

Responsable éditorial
Guillaume DUCŒUR

Image de couverture
Bodhisattva from Z. Tarzi's Excavations at Tape Shotor
H. TSh. VII, 19. H = 17 cm (TARZI 1991, pl. S3)

© Association for the Protection of Afghan Archaeology – 2025
www.apaa.info

ISBN 978-2-494259-29-4

ASSOCIATION POUR LA PROTECTION DE L'ARCHÉOLOGIE AFGHANE
ASSOCIATION FOR THE PROTECTION OF AFGHAN ARCHAEOLOGY
(Édition APAA)

ARCHAEOLOGIA AFGHANA

Série scientifique VI

GANDHĀRAN ARTISTS AND ARTISANS

Representations of an Era of Religious Images

edited by

Alexandra VANLEENE
Arnaud MARGUIER
Vydhegi BRICE

Université de Strasbourg

2025



[From left to right] Arnaud Marguier, Zémaryalaï Tarzi, Alexandra Vanleene, and Vydhegi Brice in front of the great cliff of Bāmiyān in 2009

TRIBUTE TO PROFESSOR ZÉMARYALAÏ TARZI

We wish to dedicate this volume to the memory of our esteemed Professor Zémaryalaï Tarzi, who has honored us by delivering his final lecture entitled *Metal Art and Industry in Haḍḍa as Observed in the Afghan Excavations of Tape Shotor (TSh) and Tape Tope Kalān (TTK),* during this *Gandhāran Artists and Artisans: Representations of an Era of Religious Images* International Colloquium.

We shall never be able to express adequately our admiration for this great scholar who dedicated his life to uncovering and preserving the rich cultural heritage of his homeland, and our gratitude to him for granting us the exceptional opportunity to engage in work within the field in Afghanistan, as well as for the invaluable insights he has imparted through his teachings, and the significant role he has played in the construction and development of our scientific mind. In this sense, Professor Tarzi is at the origin of the definition of the questions we formed during our academic research, some of which we aim to delve into further during this symposium.

Zémaryalaï Tarzi was born in Kabul in July 9, 1939. After a distinguished education at the French lycée Esteqlal in Kabul, his potential and qualitites were recognized by the french archaeologist Daniel Schlumberger, under whose guidance he began his academic journey. He earned his first Ph.D. in 1972 at the Marc Bloch University of Strasbourg with his dissertation titled *L'architecture et le décor rupestre des grottes de Bāmiyān*.

From 1973 to 1979, back in Afghanistan, Professor Tarzi served as Director General of Archaeology and Preservation of Historical Monuments of Afghanistan and as Director of the Afghan Institute of Archaeology (now Archaeology Institute of Afghanistan). During this time, Professor Tarzi carried out several major excavations and initiated programs aimed at the conservation and promotion of Afghan cultural heritage. He supervised more than thirty restoration projects on monuments from both the Buddhist and Islamic periods, the most famous concerning the two great Buddhas of Bāmiyān. Furthermore, he conducted extensive excavations at Tape Shotor and Tapa Tope Kalān in Haḍḍa. As the President of the Afghan-Soviet Archaeological Mission, Professor Tarzi took part in the excavations at Tillia Tepe, which treasure later became the centerpiece of the world-touring exhibition *Afghanistan: Hidden Treasures From the National Museum, Kabul*. In 1979, alas, he was compelled to flee his homeland in the aftermath of the pro-Soviet coup.

Zémaryalaï Tarzi sought refuge in France and settled in Strasbourg, his adopted city, where he embarked on a distinguished academic career, starting with a position as Associate Lecturer in Eastern Archaeology. During this time, he works in collaboration with Mme Francine Tissot at the Guimet Museum on the restoration of two *stūpas* from Tapa Kalān of Haḍḍa, that can still be admired in the gallery devoted to Buddhist archaeology from Afghanistan. Professor Tarzi sustained his second thesis, *Haḍḍa, à la lumière des fouilles afghanes de Tapa-e Shotor et Tapa Top-e Kalān* in 1991, and was appointed Lecturer at the Institute of History and Archaeology of the Ancient Orient. Ten years later, Professor Tarzi presented his habilitation thesis, titled *Relation entre les villes et les monastères bouddhiques au Nord-Ouest de l'Inde : le cas de Kābol*. After earning three PhDs, he took on the role of Professor of Eastern Archaeology.

After over twenty years in exile, in 2002, Professor Tarzi returned to Kabul to participate in a UNESCO symposium on Bāmiyān and to explore the possibility of a future excavation mission. He returned to find his hometown in ruins, with the once-restored archaeological heritage destroyed and the museum looted, even if he managed to recover some of his

documentation, including reports, photos, and drawings, all damaged and in poor condition. These disastrous circumstances led Professor Tarzi to strive for the preservation of Afghan heritage as the President of the Association for the Protection of Afghan Archaeology (APAA), created by his daughter Nadia Tarzi. In 2002, Professor Tarzi initiated a new excavation campaign at Bāmiyān. As the Director of the French-Afghan Archaeological Mission, he worked there alongside his dedicated students during ten campaigns until 2012, uncovering eight of the ten monasteries described by Xuanzang, and initiating excavations at four of them. As part of his numerous other responsibilities, Professor Tarzi was a member of the UMR 7044 at the CNRS Maison Interuniversitaire des Sciences de l'Homme – Alsace de Strasbourg (MISHA), a member of the Interdisciplinary Thematic Institutes of the University of Strasbourg "History, Sociology, Archaeology & Anthropology of Religions" (ITI HiSAAR), and the Director of the Mes Aynak Mission for the DIRI (Dhammachai International Research Institute).

Professor Tarzi fully devoted himself to the archaeology of Afghanistan. Even after retiring in 2008, he continued the excavations at Bāmiyān until 2012, all the while guiding his PhD students through the completion of their dissertations. Throughout his career, he took part in countless conferences, colloquia, and roundtables worldwide, while continuing to share his vast knowledge at the university. Alongside this, Professor Tarzi's efforts to safeguard Afghanistan's cultural heritage have lived up to his scholarly contributions. Professor Tarzi was honored with numerous awards and medals in recognition of his contributions, as well as accolades from international scholars, highlighting the impact of his work on our field of archaeology. Within his vast body of fieldwork and written works, those on Bāmiyān and Haḍḍa in particular remain seminal references, having uncovered fundamental knowledge in the subject area, along with his most recent work *Les fouilles des sites de Tape Maranjān I et II. Recherche sur les relations entre les anciennes villes de Kābol et les monastères bouddhiques de la région*, published in 2022.

Even in his final years, Professor Tarzi fully devoted himself to the archaeology of Afghanistan, despite the serious health issues that afflicted him. Remarkably, just a few months before his passing–and shortly after a first near-death experience– he found the strengh to attend our conference and actively participate, with a clarity of mind and commitment that commanded deep admiration.

On July 18, 2024, the renowned archaeologist and Professor Emeritus, Professor Tarzi, passed away at the age of 85; a multifaceted scholar–professor, researcher, lecturer, historian, art historian, archaeologist, and restorer–he was internationally acclaimed for his contributions to the study and preservation of Afghan archaeology. Professor Tarzi was deeply respected and loved by his family, students, colleagues, and friends, who often affectionately referred to as "the father of Afghan archaeology." He continuously inspired and amazed everyone he encountered, leaving a lasting and unforgettable legacy. For us, his students, he was far more than a professor; he was a mentor, a guide, and a constant source of inspiration. His kindness, wisdom, and the trust he placed in us will forever remain etched in our memories with heartfelt affection. His memory and teachings will live on, not only for those fortunate enough to have learned from his vast knowledge, but also for an entire generation of young archaeologists and art historians worldwide. We remember our esteemed Professor with deep respect, admiration and sincere emotion, and wish to pay tribute to him in the preamble of this manuscript.

Alexandra VANLEENE

ACKNOWLEDGEMENTS

We would like to express our grateful gratitude and acknowledgements to Professor Guillaume Ducœur, President of the Interdisciplinary Thematic Institute History, Sociology, Archaeology, and Anthropology of Religions (ITI HiSAAR) at the University of Strasbourg, for having proposed this outstanding project to us, and for his unwavering support in orchestrating such a dynamic and engaging event. Professor Ducœur's generous contributions—both financial and intellectual—have been the cornerstone of this endeavor from its inception. We are also profoundly grateful for his pivotal role in ensuring the publication of this volume, both in print and online, with the support of ITI HiSAAR.

We extend our heartfelt recognition and warmest thanks to all the international speakers for their generous acceptance of the invitation to participate in the *Gandhāran Artists and Artisans: Representations of an Era of Religious Images* International Colloquium held in May 2024. We hope that the diverse range of perspectives and expertise shared during the conference has enriched our understanding of the realities of workers' daily lives, representations, and aspirations. Furthermore, we trust that the fruitful discussions and exchange of ideas will lay the groundwork for future collaborations and advancements in our field, as well as inspire the next generation of researchers.

We wish to express our deepest appreciation to our Chairmen for their invaluable contributions to the smooth execution and success of our event. In particular, we extend our profound acknowledgement to the distinguished Professors Bopearachchi and Francfort for their exceptional leadership and guidance, as well as for generously sharing their profound expertise throughout the conference.

We extend our sincere thanks to the entire team involved in organizing the event, with special appreciation to Céline Redard and Ikram Khomri for their tireless dedication and invaluable assistance in managing logistical arrangements and numerous other essential aspects. We would also like to thank the Maison Interuniversitaire des Sciences de l'Homme - Alsace (MISHA) for hosting us in its facilities and for the support of its staff, who contributed to the success of our symposium.

Alexandra VANLEENE
Arnaud MARGUIER
Vydhegi BRICE

CONTRIBUTORS AND CHAIRMEN

Laeiq AHMADI studied archaeology at Kabul University, graduating in 2010. Subsequently, he assumed the role of Professor of Archaeology at Bāmiyān University. Following three years of teaching, he pursued his Master's degree at Al Farabi National University in Kazakhstan. In 2016, he published his dissertation titled *Problems and Solutions for Safeguarding Afghanistan's Cultural and Historical Heritage*. Upon returning to Afghanistan, he resumed his teaching duties at Bāmiyān University. Laeiq Ahmadi has now relocated to France and is currently pursuing a PhD at the University of Paris Nanterre.

Osmund BOPEARACHCHI is a numismatist, art historian and archaeologist, numata Professor of Central and South Asian Art and Archaeology at the UC Berkeley, and Emeritus Director of Research at the C.N.R.S.–E.N.S., Paris. He is the author of 16 books, 6 exhibition catalogues, editor of 6 volumes and the author of 152 research articles. He has read 102 papers at international conferences, given 311 talks at 157 universities and museums around the world, and carried out archaeological missions in 29 different countries.

Olivier BORDEAUX is an archaeologist and numismatist. He completed his doctoral thesis in 2015 under the supervision of Prof. Bopearachchi, focusing on *The successors of Alexander the Great in Central Asia and India, based on coin studies and the reconstruction of monetary treasures*. Between 2017 and 2019, he served as the scientific secretary at the French Archaeological Delegation in Afghanistan (DAFA). Currently, Dr. Bordeaux holds a research position at the French National Centre for Scientific Research (CNRS), as part of the "Archéologie de l'Asie centrale" team in the UMR 7041 ArScAn in Nanterre.

Vydhegi BRICE is an archaeologist and PhD student, undertaking a doctoral thesis under the supervision of Professor Ducoeur. Her research concentrates on the archaeological and iconographic analysis of Buddhist monasteries situated at Mes Aynak. Vydhegi Brice participated in the French Archaeological Mission in Bāmiyān under the leadership of Professor Zémaryalaï Tarzi between 2008 and 2011. Subsequently, she took part in the International Mission of Mes Aynak from 2012 to 2013. From 2015 to 2018, she conducted an inventory of the scientific materials within the archives of the French Archaeological Delegation in Afghanistan (DAFA) in Kabul.

Angela CHANG is the Assistant Director, Senior Conservator of Objects and Sculpture, and Head of the Objects Lab, at the Straus Center for Conservation and Technical Studies at the Harvard Art Museums in Cambridge. She is involved with all aspects of the preservation of objects in the museum's collections, including treatment, preventive care, and technical research on artists' materials. In addition to her current study of a small group of stucco fragments from Afghanistan, recent research projects collaborating with conservation scientists, art historians, and artists.

Claire CHESNEAU is a PhD student at the University of Paris Nanterre. She completed her master's dissertation on Gandhāran toilet trays. Subsequently, she pursued her doctoral research under the guidance of Professors Pascale Ballet and Henri-Paul Francfort, focusing on the circulation and transfer of images in Gandhāra and Bactria, with a particular emphasis on the iconography of Eros. Alongside her research, Claire Chesneau is also involved in teaching art history and archaeology of Antiquity at the University of Paris Nanterre.

Giulia FORGIONE currently holds the position of post-doctoral Research Fellow at the University of Naples "L'Orientale" until the end of 2023, where she also completed her undergraduate studies in Archaeology and earned her PhD She has been an integral member of the Italian Archaeological Mission in Afghanistan since 2014. Her research primarily focuses on the Archaeology and History of Art of Central Asia, with a particular emphasis on the clay and stucco sculpture of pre-Islamic Afghanistan, spanning from the 3rd/4th to the 10th/11th centuries. Dr. Forgione has been involved in numerous projects related to Buddhist archaeological sites, including Tapa Sardar in the Ghazni area, Tepe Narenj, Qol-e-Tut in the Kabul area, and Mes Aynak in Logar province.

Henri-Paul FRANCFORT is an archaeologist and historian specializing in Central Asia and the ancient Near East. As a member of the Académie des Inscriptions et Belles Lettres, Chevalier de la Légion d'Honneur, and emeritus research director at the CNRS, he has conducted significant excavations and studies on the civilizations of the Oxus and Bactria, contributing to a better understanding of cultural exchanges between Iran, India, and China. He has led several archaeological missions in Afghanistan and Uzbekistan and has published key studies on the cultural and artistic dynamics of these regions.

Alejandro GALLEGO LÓPEZ assumes the role of Field Director at the Oriental Institute, directed by **Professor Gil STEIN**. Collaborating with other heritage experts, they spearhead projects aimed at safeguarding precious and culturally significant artifacts. Together with their team, and in collaboration with the National Museum of Afghanistan, they conducted the Hadda Sculptural Project (HSP) from 2017 to 2022. Dr. López, alongside Professors Gil Stein and Fahim Rahimi, co-authored *A History of Afghanistan in 100 Objects*, providing detailed insights into some of Afghanistan's most culturally significant artifacts spanning prominent historical periods.

Chai Yee LEOW is a scholar in the field of Buddhist History and Archaeology, currently serving as a Post-Doctoral Fellow in the History of Art and Architecture at Harvard University, affiliated with the FAS CAMLab. She is leading the Digital Gandhara Project, focusing on the research and the digital reconstruction of Gandhāran Buddhist sites. She earned her PhD in Buddhist Archaeology from Peking University. Her doctoral dissertation provided an exploration of Gandhāra Buddhist narrative art, examining the intricacies of its repertoire composition and its interconnections with Chinese Buddhist literature. Dr. Leow's research primarily delves into the early Buddhist art of India, China, and Central Asia, paying special attention to the primary literary sources that inform Buddhist sites and artifacts.

Mònica LÓPEZ-PRAT is a cultural heritage conservator specializing in archaeological conservation. With over a decade of professional experience working on archaeological research projects affiliated with various universities and institutions, she transitioned into research herself. She completed her PhD in 2021, focusing on the conservation of monumental *terracruda* sculptures characteristic of the Silk Roads. Her doctoral work integrated archaeology, conservation, material science, and ethnography. Currently, Dr. López-Prat serves as a postdoctoral researcher at the University of Barcelona, where she also teaches Archaeological Conservation in the Master of Archaeological Science program.

Arnaud MARGUIER formerly served as operations manager for Professor Zémaryalaï Tarzi's mission in Bāmiyān from 2004 to 2011. Dr. Arnaud Marguier obtained his PhD degree from Strasbourg University in 2011. His doctoral research, supervised by Z. Tarzi, focused on columns and pilasters in Buddhist monasteries in Northwestern India. Additionally,

he developed an interest in ceramic studies and conducted an examination of ceramics with engraved underglaze decoration from Bāmiyān, particularly from the ancient city of Shahr-i Gholghola, for UNESCO in 2009.

Satoshi NAIKI serves as an Associate Professor at the School of Japanese Studies, Aichi Prefectural University. His research specializes in the artistic traditions and carving techniques of Gandhāran sculptures, with a particular emphasis on those originating from the sites of Thareli and Ranigat in the Peshawar basin. Notable among Dr. Naiki's publications is *Gandhāran Sculptures and Buddhism* (2016), which is rooted in his doctoral dissertation completed at Kyoto University.

Michael RAKOTOZONIA is an archaeologist specializing in pre-Islamic civilizations of Central Asia and northwestern India. His expertise lies in studying cultural exchanges between the Persian-Indian area and the rest of the world through the Indian Ocean. He has previously been a member of the French Archaeological Mission in Bāmiyān, led by Prof. Z. Tarzi, as well as the International Mission of Mes-Aynak. Since 2012, he has focused on investigating one of the port of Barygaza (modern-day Bharuch in Gujarat) as an associated researcher at the History Department of Baroda University. Between 2016 and 2018, as the director of excavations at Koungou, he has been teaching Civilizations at Mayotte University and History at Nelson Mandela Middle School. Dr. Rakotozonia currently teaches Geopolitics in western Guyana.

Xuecheng SHAO is a Special Researcher of SISU-WAI (Shanghai International Studies University-World Art History Institute) and Member of the Academic Committee for the Harvard FAS CAMLab Digital Gandhara Project. He focuses on Central Asian archaeology and art history, especially in the Bactrian and Gandhāra areas. Since 2017, he has worked at the Dunhuang Academy and Tsinghua University, serving as a curator for exhibitions in Japan, Pakistan, and Afghanistan. Dr. Shao has conducted extensive museum research and archaeological fieldwork in Silk Road countries.

Birgit Angelika SCHMIDT is a Graduate Conservator and Research Fellow at the Museum für Asiatische Kunst, Berlin. She is closely collaborating with the Museum particularly in relation to the Turfan Collection from the Northern Silk Road in Xinjiang. She was holding the "Bei Shan Tang Doctoral Thesis Grant" for completing her doctoral research at the Freie Universität Berlin, under the title *Investigations into the Materials and Production of Buddhist Clay-based Sculptures from the Northern Silk Road-A Methodological Approach*. This dissertation is dedicated to examining the clay-based sculptural production found at predominantly Buddhist archaeological sites in the northwest of China.

Zémaryalaï TARZI was an archaeologist and art historian, and an Emeritus Professor at the University of Strasbourg. Under the guidance of Daniel Schlumberger, Zémaryalaï Tarzi earned his first PhD in 1972 from the Marc Bloch University of Strasbourg with a dissertation titled *L'architecture et le décor rupestre des grottes de Bāmiyān*. As Director General of Archaeology and Preservation of Historical Monuments of Afghanistan, and as Director of the Afghan Institute of Archaeology (now Archaeology Institute of Afghanistan), he conducted extensive excavations at Tape Shotor and Tapa Tope Kalān in Haḍḍa. In 2002, Professor Tarzi initiated a new excavation campaign at Bāmiyān that continued for ten years. He passed away on July 18, 2024 at the age of 85.

Alexandra VANLEENE is an archaeologist specializing in Afghan-Buddhist archaeology. She sustained a thesis dedicated to the archaeological and iconographical study of

representation of scenes from the Life of the Buddha and Buddhist imagery in the art of Haḍḍa at Strasbourg University in 2011. From 2005 to 2012, she served as the head of archaeological operations as part of the Franco-Afghan mission for the survey and excavations of Bāmiyān led by Professor Zémaryalaï Tarzi. Dr. Vanleene has been leading the Haḍḍa Archeo Database Project (https://haddaarcheodb.com), dedicated to the study of artistic materials. She has served as an Academic Advisor for the Harvard FAS CAMLab Digital Gandhara Project since 2021, and has delivered courses and lectures as a visiting professor.

PREFACE

The genesis of this publication lies in a proposal of great commitment put forward by Professor Guillaume Ducœur, Director of the Interdisciplinary Thematic Institute History, Sociology, Archaeology & Anthropology of Religions (ITI HiSAAR) at the University of Strasbourg, to whom we would like to express our sincere gratitude here. We, the editors of this volume–students and archaeologists involved in the Afghan-French archaeological mission in Bāmiyān under the direction of the late Professor Zémaryalaï Tarzi–had the honour of participating in the colloquium held at the University of Strasbourg in 2022, commemorating the centenary of the founding of the French Archaeological Delegation in Afghanistan (DAFA), following an invitation from our esteemed professor, who was among the event's co-organizers. At the conclusion of the conference, Professor Guillaume Ducœur proposed the idea of organizing a colloquium dedicated to Gandhāran art, which we readily accepted, setting the work in motion shortly thereafter. The colloquium was ultimately held at the University of Strasbourg, in the *Maison Interuniversitaire des Sciences de l'Homme–Alsace* (MISHA), on the 22nd and 23rd of May 2024. The present work stands as a testimony to the successful realization of this endeavour.

Our initial concern was to identify an approach that could offer fresh perspectives on a subject that has been the focus of scholarly discussion for several centuries. Following a thorough discussion, we quickly decided to focus our attention on the work of artists and artisans. Indeed, one of the distinctive features of what is commonly referred to as "Gandhāran art" lies in the circumstances of its uncovering and the interpretative confusion that has ensued. At the time of its discovery, this designation encompassed numerous works found within a geographical region corresponding to the ancient Achaemenid satrapy known as Gandhāra. This question, as it goes without saying, has already been the subject of lengthy and passionate debates. Is the precise extent of this administrative designation, as indicated in Achaemenid inscriptions, truly known? This particular issue now appears to have reached a conclusion: the satrapy bearing this name would be located somewhere between present-day Afghanistan and Pakistan.

Initially, Gandhāran art constituted a collection of objects discovered in these regions, typically illustrating Buddhist religious themes. Considering the abundance, fertility and sophistication of this art, it was apparent that, at the time of its creation, a sufficiently organized society existed, capable of generating the wealth necessary to support the needs of the Buddhist religious community. Reflecting on the relationship between monasteries and cities, it became evident that such a development of community and religious settlements was intrinsically linked to a whole population at work. This organization supplied essential resources such as food, water, raw materials, tools, coins, jewelry, pottery, and so on. In other words, it constituted a comprehensive economic framework, sufficiently robust to meet both the practical needs of the community and of the Buddhist religion.

We encounter here two significant terms: city and monastery. Regarding the first one, what exactly are we referring to? What constituted a city in this particular place and era? If we turn our attention to the Greek *polis*, we encounter a complex entity, extensively documented, where our modern notions of politics, religion, and other spheres are often difficult to disentangle. The concept of laicism is, in fact, a distinctly modern idea. When examining ancient civilizations, from Mesopotamia to Egypt, Greece, and Rome, to name just a few, there are numerous challenges for those seeking to identify any form of secularism. According to Xuanzang, the monastery was located about an hour's walk from the city–a distance thought to balance the need for the seclusion required for meditation with the proximity necessary for the daily quest for food. Nevertheless, the distinction between civil and religious monuments is not

always as strictly delineated in our context. As the archaeological surveys in Taxila and Barikot demonstrate, monuments presenting a religious character can be found at the heart of settlements inhabited by non-religious communities, such as cities. Regarding the reality of life in these cities, of which so few have been excavated, our knowledge is largely limited to what the objects left behind by their vanished inhabitants can reveal.

And what of the monastery? Is it not, fundamentally, a Western concept applied to designate a type of structure revealed through archaeology in a context that is profoundly Eastern–both geographically and culturally–far removed from places such as Luxeuil, Cluny, Fulda, Iona, Lindisfarne, or Wearmouth-Jarrow? However, we must work within the limits of our paradigms. What remains certain is the existence of individuals who constructed and adorned these monuments–regardless of the names attributed to them, whether by their contemporaries or by us today. It is these individuals who hold our attention: the artists and artisans.

In a sense, they have left us a message through their works–one that we seek to decipher. These works were not originally intended for us, and they do not speak to us alone; they address eternity, so long as humanity remains interested in what their work represent. Is it not a remarkable thought? Buddhism–like many religious traditions–speaks of the continuity and transformation of beings and souls. And this is precisely what can occur through our work as archaeologists, when we seek the ideas that lie beyond the material remains. The work of artists and artisans–situated at the intersection of cities and monasteries–lies at the very heart of this volume.

At this point, the art of Gandhāra appeared most effectively defined through its association with Buddhism. Nevertheless, this overlooks the nature of spiritual sens in this part of the world. For instance, when discussing the birth of Siddhārtha, who was present to witness it? Indra and Brahma, both ancient deities of the Indian subcontinent, with the former even granted the privilege of receiving the holy child into his own hands. The birth of Siddhārtha took place within an already deeply religious context, to which Buddhism adapted, as illustrated for instance by the destinies of figures such as Harītī and Surya. Furthermore, the very nature of Buddhism remains ambiguous: was it, originally, a religion, a philosophy, or perhaps a doctrine or dogma? The discussion could extend far further: what distinguishes religion from philosophy? A much greater debate on its own. Let us take this step further: when we consider that today the Buddha is regarded as an avatar of Viṣnu, we are not far from losing our bearings entirely. If we consider what we know of contemporary Tibetan Buddhism, not to mention its Chinese, Japanese, and other variants, each with their own pantheon of deities, the rational mind finds itself at a loss for words. For this reason, Sanskrit terms are frequently employed to describe the works of art from Gandhāra. These terms appear in italics throughout the following texts, alongside other non-English words used occasionally by the contributors.

At the time of the first discoveries of Gandhāran art, exploration brought these works together, yet archaeology had not fully emerged as a formal science. A significant number of these works lack precise indications of provenance, and even more so, any stratigraphic information. The result was a marvelous collection that presents significant challenges for study, particularly in light of contemporary archaeological methodologies. The contrast between the profusion of objects and the paucity of information about them is particularly striking. Over time, discoveries and studies have become increasingly numerous. In the geographical area under consideration, we have particularly observed the emergence of sculptures associated with a “dynastic art” that, stylistically speaking, cannot be separated from Buddhist sculptures. We were left in a certain confusion by the polytheism depicted on Kaniṣka's coins, the recurring references to Greek mythology in the sculptures, to name just a few elements.

These observations only led us to one inescapable conclusion: Gandhāran art cannot be reduced to simplistic concepts. From this art, there remains only a conventional name applied

to an exceptional artistic production. Should we be surprised? Art possesses a universal dimension, likely recognized by the people of its time, certainly by us today, and by all future generations.

In studying Gandhāran art, we have become increasingly drawn to its relationship with artistic productions discovered beyond the borders of present-day Pakistan and Afghanistan. In a somewhat paradoxical effort to preserve the conventional designation, some of us refer to a "Greater Gandhāra": the Achaemenid satrapy from which the term originally derived has, for all practical purposes, been entirely reconfigured. This historical administrative designation ultimately proved too limited to encompass such a vast and complex artistic phenomenon. As the reader will observe, each time we have attempted to draw a boundary–whether spatial or temporal–it has ultimately collapsed. Therefore, we abandoned the notion of frontiers and focused our inquiry on the connections and distinctions among representations from a particular era–that is, a temporal epoch rather than a geographical area–of religious images. Even the very epoch in question remains unclear, as demonstrated, for instance, by the prolonged stalemate in the dating of Kaniṣka's reign. It broadly spans from the beginning of the Christian era, or the end of antiquity, to the transition into the medieval period, culminating with the rise of Islam. Let us state this clearly: this book does not directly address the boundaries of geography, history, or religion, as there is an abundance of existing literature on these subjects. Contributors, fully aware of the fluid nature of the limits of their respective subjects, frequently acknowledged these confines in the bibliographical references provided at the conclusion of their articles.

Fortunately, since the mid-20th century, systematic archaeological surveys have yielded a substantial number of objects and works, which are now more effectively associated with their discovery contexts. Bearing in mind the quantity of poorly documented works on one hand, and, on the other, the more recent archaeological research, we aimed to renew the comprehension of Gandhāran art in the light of the results obtained through scientific approaches. To this end, we chose to concentrate on the objects themselves, seeking to uncover what they can tell us, what they can reveal about the methods employed by artists and artisans in their creation, thereby providing insights into the lives of their creators.

The purpose of the colloquium was therefore to start from the facts, that is, from all objects, either directly or indirectly associated with the label of Gandhāran art. At this time when archaeological survey in this part of the world has became more than adventurous, we must take a breath and have a look to the past. For this reason, we chose the word "representations" for our subtitle. Considering the unprecedented possibilities now available to us for gathering and cross-referencing documents–possibilities that have never existed before on such a scale, thanks to the invaluable tools provided by modern digital technologies–it seemed only fitting to present, once again, the so-called art of Gandhāra. In this volume, we have intentionally set aside, at least to some extent, traditional categorization approaches in favor of a more integrative perspective: on one hand, we have the objects themselves; on the other, our understanding of them. The boundaries of the group of objects associated with Gandhāra are uncertain, often shifting, yet the ways in which we interpret these objects likely transcend any limitations, being inherently tied to the mindset of the era and to the distinctiveness of each person who examine and interpret them.

Each contributor has examined in depth specific objects attributed to the art of Gandhāra and has draw interesting propositions from this artifacts. Let us turn once more to language: is not the term "artifact" particularly admirable in its ability to link "art" and "fact"? This term encapsulates the approach we suggested to the contributors, each of whom adapted it in their own way–this is the richness of the present book.

The volume opens with what would become the final scholarly contribution by Professor Zémaryalaï Tarzi devoted to metalwork, followed by a numismatic study. Attention then turns to Gandhāran stone art, historically regarded as the earliest known form of this artistic tradition. The subsequent contributions present recent findings on modeling and painting–media now fully recognized as integral components of Gandhāran art, although their identification as such developed more recently than that of stone sculpture. The discussion continues with re-examinations of material uncovered during earlier excavations, including attempts to reassemble them, and a presentation of the outcomes of a preservation and restoration project aimed at safeguarding endangered objects. The volume concludes by broadening its scope, both temporally and geographically, exploring the role of Gandhāran art in the wider history of art developments and its connections to distant regions and religious traditions. By engaging more deeply with the available evidence and advancing the scientific discourse, we hope this work will offer fresh insights into the broader context and help bring this world heritage to life. We aspire for this volume and its approach to serve as a foundation for further research and to inspire new generations of young scholars.

Arnaud MARGUIER

The Art and Metal Industry at Haḍḍa as Observed in the Afghan Excavations of Tape Shotor (TSh) and Tapa Tope Kalān (TTK)

Lecture by Professor Zémaryalaï TARZI, transcribed from the oral presentation and translated from French into English by A. MARGUIER and A. VANLEENE

Abstract

The presentation of the metal material: iron, bronze and possibly gold from Haḍḍa which come from the Afghan excavations of the Buddhist monasteries of Tape Shotor (TSh) and Tape Tope Kalān (TTK) evoke a certain idea of the metal industry, if not the art of skilled craftsmen and artists. The iron industry commonly known as hardware was used for assembling and fixing architectural elements. On the other hand, bronze was used as a decoration which adorned the facades with symbols and iconographic images, and to make independent objects such as reliquaries.

This article addresses a completely new topic in the context of Haḍḍa: the art and metal industry as observed in the Afghan excavations of Tape Shotor (TSh) and Tapa Tope Kalān (TTK). The metal art of the region indeed remains largely unexplored. In this presentation, I will introduce its iconographic evidence through the corpus of material I have assembled and offer an analysis of its significance. Discussing Haḍḍa is no easy task: it is a world of its own, a cultural center that is both prestigious and little known. With the exception of the Lālma site, excavated by archaeologists from Kyoto University (MIZUNO 1968), the vast expanse of sites covers approximately 215 square kilometers and includes dozens of sites (Fig. 1). The extent of the Haḍḍa sites appears over several dozen hectares, clustered around the eponymous village, located about twelve kilometers south of present-day Jellālābād. The two sites highlighted in red were excavated by Afghan teams, while the others were explored by foreign missions. I choose to address them in chronological order.

Let us begin by mentioning the *Délégation Archéologique Française en Afghanistan* mission, led by Alfred Foucher himself, assisted by André Godard, its architect (FOUCHER 1927, HACKIN 1928). Together, from the first strokes of the pickaxe, they achieved particularly satisfactory results by uncovering *stūpas* and stucco modellings, a technique already known from British excavations in the Taxila region (MARSHALL 1951), but here with truly exceptional craftsmanship. These monasteries indeed revealed primarily high-quality material and reflected an art deeply influenced by Hellenistic art.

The mission began in the 1920s, and by the 1930s, Alfred Foucher gave a young French architect, geologist, and archaeologist, a certain Jules Barthoux, his chance. He accepted the mission entrusted to him by Foucher: to excavate as many objects and monuments as possible. Among the 16 sites located on this map–although there are actually a few more–Jules Barthoux excavated 500 *stūpas* and over fifteen thousand stucco objects (BARTHOUX 1930 & 1933), which still remain one of the highlights of the Guimet Museum in Paris (CAMBON 2004) as well as the National Museum of Afghanistan in Kabul before the looting during the civil war (TISSOT & DARBOIS 2002, TISSOT 2006). Subsequently, due to a particular circumstance, a redistribution of the works by the Guimet Museum–the details of which I have described in an article (TARZI 1996)–took place, sending the pieces to other museums both in France and abroad. Many objects from Haḍḍa were offered on behalf of Barthoux', although he was not informed of it. Nevertheless, this abundance ensured that this Hellenizing art, both in terms of technique and aesthetics, truly close to the Mediterranean, captured all the attention.

If this art has captivated, today I wish to turn to a completely different subject: the craft of metal-iron, bronze, and gilded bronze–which chance and fortune have sometimes allowed to be preserved. Among the tens of thousands of objects from 16 sites, not a single metal fragment appears in the general inventory. Preoccupied with other priorities, Barthoux did not excavate down to the final level of preservation, marked by the last fire in the 9th century CE. This is why, from the French excavations, we have unfortunately recovered no metal fragments.

In contrast, the Afghan excavations at Tape Shotor and Tape Tope Kalān have yielded a sufficient number of fragments to shed light on the use of iron and bronze in wooden architecture, both as structural fastenings and as decorative elements. In the 1960s, due to the political climate of the time, the Afghan government decided that the excavations would henceforth be conducted by a team of Afghan archaeologists rather than by a foreign team. The legitimacy of a certain archaeologist, my predecessor, Shaïbaï Mostamindi, was then emphasized, and he was appointed the first director of the Afghan Institute of Archaeology. Mostamindi opened the Tape Shotor site and carried out remarkable work there (MOSTAMINDI 1969). His method, however, differed from mine—an approach shared by others: he neither grid mapped the excavated soil nor extracted the objects according to a precise plan indicating depths, coordinates, etc. Nevertheless, he still discovered many objects made of metal, iron, and bronze. Due to the large number of doors and niches at Tape Shotor, Mostamindi was either unable or unwilling to collect all the iron elements such as nails or rivets. However, a few complete ones were still inventoried. It is important to note that the circumstances surrounding the ruin of these sites, particularly during the phases before the destruction caused by the 9th century fire CE, were marked by chaotic and brutal looting. The decorations on the doors and the facades of the niches, adorned with gilded metal, were especially targeted. Had it not been for this, it is likely that a large number of metal objects would have been found on-site, as is the case at the sites of Xogiani or Soltanpur, smaller sites which, on the other hand, yielded a significant quantity of metal objects.

Since no metal objects were found, or recorded, during the French excavations, we present four photographs from clandestine excavations in Afghanistan (Fig. 2), allegedly from the site of Xogiani, or, if not, from the site of Surkh Rod (سرخ رود) in Soltanpur, located on this side of the Surkh Rod River, in the northern district of Nangarhar Province (the district center being the town of Sultanpur). I visited these two sites, which are tiny. However, in some photos taken after the looting, one can see the finds displayed by the looters. It seems that they had even already established a typology; perhaps there was an expert among them?

Let us focus on the plates and reliquaries. As for the latter, it seems important to consider a particular category: a chest could be placed in front of a niche, awaiting to house relics, offerings, or donations. These relics were then sealed, and the reliquary containing them was immediately buried. However, in these photos, one can observe a large number of such reliquaries, opened. Among the metal remains, there were also many rosettes decorating the doors of the niches, as well as other Buddhist symbols, such as *triratnas*. One also finds cupules resembling bowls, but it seems to me that, for the most part, they are *chattra*, that is, parts of the *chattravali*–the crowning of *stūpas*–that have been detached from their context. It is therefore a truly exceptional collection, especially considering the absence of metal objects from the French excavations and the uncontextualized results of Shaïbaï Mostamindi's excavations.

When I took over the direction of the Afghan excavations (TARZI 1976, 1990 & 1991), I questioned the relevance of a stratigraphic approach and the establishment of a plan for such small metal objects. I wanted to determine whether this could yield meaningful results.

Thus, I applied recent excavation methods that brought about a new shift in the scientific rescue process; all objects, even those that seemed insignificant, were inventoried, and their locations were marked on a survey map. A selection of these results is illustrated in Fig. 3[1]. During the excavations at Tapa Tope Kalān, I settled directly on the ground to draw, photograph, and even attempt to reconstruct the objects. The iron found at this site was of very poor quality, and even the miracle solutions of our Indian chemists were not enough to preserve them. I therefore relied on photomontages and drawings. I have drawn hundreds of plates, but unfortunately, it is impossible for me to present them all. I first created a database and a typological table. Here is a typology that I proposed for what could, somewhat pejoratively, be called "ironmongery" (Fig. 4a and 4b). The archaeologist engaged in the study of small objects is well aware of the challenges and limitations associated with this type of work. This is an exercise that H. P. Francfort masters far better than I do, having studied an impressive number of objects at Aï Khanoum that are already published (FRANCFORT 1984).

This typology of nails should not be approached with a pejorative perspective, since these elements were used to assemble wooden structures and attach decorations to them. And precisely, among this hardware, there were quite unusual objects, some of which have also been found at Aï Khanoum and other sites. These are metal bars with two fixation points, used to vertically join the wooden boards of a door (Fig. 4b, top left). These elements were arranged to form a decorative pattern, and their position should be carefully examined during excavation.

Indeed, I discovered a door that had fallen intact, but there was no trace of wood left, only broken nails. However, it seemed to me that the number of metal elements was abnormally high, around 200, and their distribution was particularly strange: two on the right, two on the left, which piqued my curiosity. Thus, I realized that this door of *Caitya* No. 1 at Tapa Tope Kalān was decorated with metal elements on both sides. In Europe, when studying the ironwork of large church doors, it is common for the exterior side–the one facing the street and welcoming the faithful–to be carefully finished and decorated, while the interior side remains undecorated. The *caitya* being a sacred place, its door, whether viewed from the outside or the inside, carries a sacred significance in itself. It features a decoration visible upon entering and another upon exiting. This is a significant conclusion that should be kept in mind. Metal flowers, bells, and occasionally cut or hammered objects were also found (Fig. 4b). Thus, a door–even when made hastily–became an artwork in itself. However, we are only at the artisanal phase of the metalwork of Haḍḍa. Gradually, we will observe how the artisan becomes aware of their skills and begins to create true works of art. The photograph in Fig. 5 depicts the door of *Caitya* N° 1. In the absence of an image of the associated finds, I have chosen to illustrate it with comparable objects discovered at Tapa-e Shotor (Fig. 6). One can observe some rosettes with jagged edges[2]. The central stem of each flower is formed by a nail that passes through it, with its tip bent over, which is particularly visible in H. TSh. IV, 26. This detail is very important because this bent part indicates the thickness of the wood to which the flower was attached. I thus undertook the analysis of these objects with great interest and discovered truly remarkable elements. In this way, I found myself in the role of both carpenter and metalworker.

Let us now turn to some rare objects. As I mentioned, we observe a gradual transition, during which artisanal production gives way to objects that reflect more the artistic skills of their creator. In the top left of Fig. 7 (left), we can see a molding featuring a laurel leaf decoration

[1] H. TTK I, 116 A-M (Iron); H. TTK I, 117 A-L (Iron); H. TTK I, 118 A-N (Iron); H. TTK I, 119 A-F (Iron); H. TTK I, 121 A-I (Iron and bronze); H. TTK I, 146 A-L (Iron).
[2] H. TSh IV, 23; H. TSh IX, 45; H. TSh V, 39; H. TSh IV, 41; H. TSH III, 64, H. TSh IV, 26; TSh V, 184.

that adorned a part of a monumental arch, of which only this fragment has survived[3]. The following figure[4], illustrates a type of crown that I have sketched; however, I prefer to present the photographic image of it. To the right, we can observe a gleaming iron object, a bell[5], which may have been used to call the faithful.

Finally, as the progression towards more complex metal objects unfolds, it becomes evident that additional materials are integrated to enhance them, resulting in the creation of rare and composite artefacts (Fig. 8). On the left, three stone reliquary stands can be seen. In the center, the corresponding reliquaries, emptied of their contents, are placed on these stone stands, partially covering them, as indicated in blue on the illustration on the right. The upper part of the reliquaries, often lost, featured a bronze dome surmounted by a rod, always made of gold, forming the *yūpa* or *yasṭi* onto which the *chattra* were threaded. These reliquaries are undoubtedly objects that are both rare and complex to craft, and as such, striking and worthy of interest.

Let us take another step forward in the technical complexity by discussing the combination of metal and modeling, as seen in the Niche V2 of Tape Shotor, this famous niche that has sparked much discussion, particularly due to the *Vajrapāṇi-Herakles* and *Hāritī-Tychè* (TARZI 1976, pp. 395 to 401 & 2000) depicted within it (Fig. 9). In front of the draped throne, a finely crafted clay lotus flower was placed on a wooden structure, which was found charred, together with two fragments of *triratnas* (Fig. 10, left).

I have proposed two possible reconstructions of this decorative element (Fig. 10, right). A quadrangular wooden support holds the clay portion of the lotus, from which emerges a double *Triratna*, or Triple Jewels, the quintessential symbol of Buddhism since the Sermon at the Deer Park in Benares.

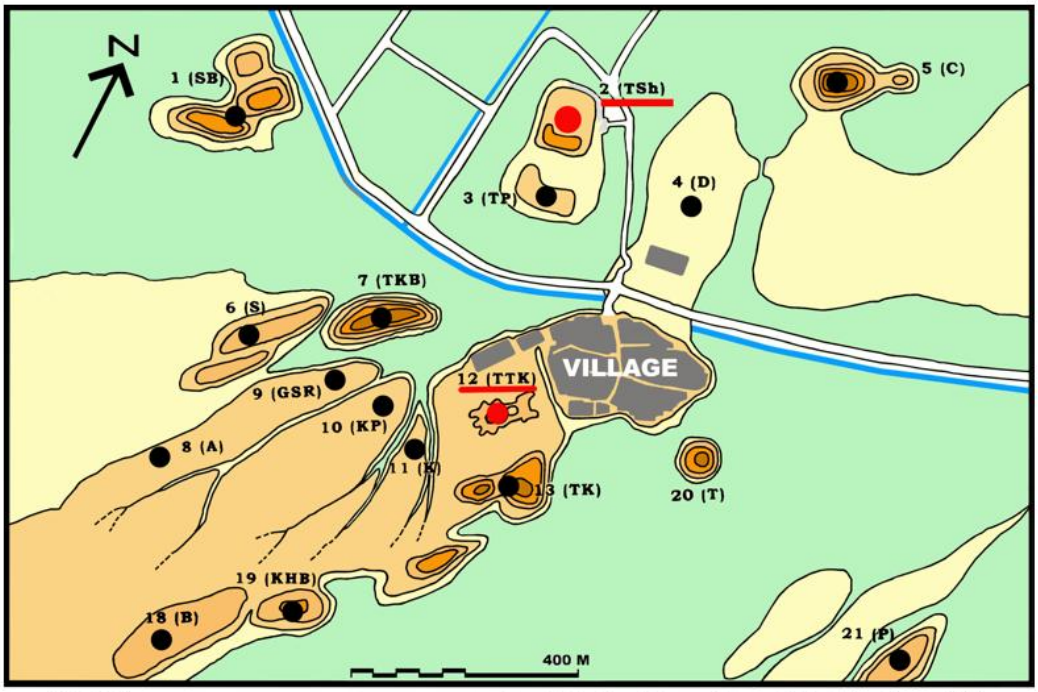
Two types of these metal ornaments can be distinguished. In the first example, as illustrated by a pair of pieces from Taxila (Fig. 11, bottom)[6], a crescent-shaped symbol supports the *Triratna*, which is positioned at the top of the design. In the second example, as seen on the pair of pieces from Tape Shotor (Fig. 10), the *Triratna* supports the crescent, thus appearing at the bottom of the design.

Furthermore, when each pair is placed back-to-back, the contours, curiously, align perfectly. Could this suggest that the *Triratna* was intended to be viewed from both sides? I am not in a position to answer this question: it would have been necessary to consult the artists or the monks of the time. It is important to remember that this type of *Triratna* was already known in the region of Taxila, discovered by Sir John Marshall, notably but not exclusively near the Dharmarājika *stūpa* (MARSHALL 1951). We can observe the similarities between our examples from Tape Shotor and two specimens discovered at Taxila, as well as these two others (Fig. 11, top) from the object collections of the Xogiani site, which I have previously mentioned. From Taxila to Haḍḍa, passing through Xogiani, an evolution emerges that could also have a chronological value. The symbol of the *Triratna* is particularly revered in the Buddhist world. At the entrance of monasteries in Ladakh, the Himalayas, or elsewhere, one typically finds a *Triratna*, often solitary, although it may sometimes be accompanied by two gazelles, symbols of the Sermon at the Deer Park in Benares.

[3] H, TSh III, 57.
[4] H. TSh III, 58.
[5] H. TSh V, 185.
[6] Taxila n° 405, (MARSHALL 1951, Pl. 178, fig. e); Taxila, Dharmarājika, G Court (MARSHALL 1951).

Let us conclude our study by examining more complex objects, which prove to be more rewarding from an archaeological perspective due to the insights they reveal. In examining the excavation reports of Haḍḍa, I discovered three *repoussé* bronze images of the *Buddha*, which, although depicting the same posture, differ in their details. It is the work of the same artist, the same craftsman. These images intrigued me, and I kept thinking that I had seen something like this before. I remembered that Barthoux had uncovered the large clay *Vihāra* 49 (Fig. 12, top). Between its two doors was a modeling, an image of a mandorla *Buddha* (Fig. 12, bottom left), very similar to those bronze *Buddhas* worked in *repoussé* (Fig. 12, bottom right). It should be noted that Barthoux made a truly remarkable survey of this discovery.

A comparative analysis of the images examined thus far is essential in order to assess the validity of the proposed interpretative framework. Upon re-examining one of the *repoussé* images, which could have been placed between two niches at the entrance of a *vihāra* in Haḍḍa, we observe a significant evolution: from craftsmanship focused on hardware and nails, we move to unique works, reflecting the work of a true artist. This artist and his works reveal an aspect of the Haḍḍa art school, no longer in stucco or clay, but this time in metal.

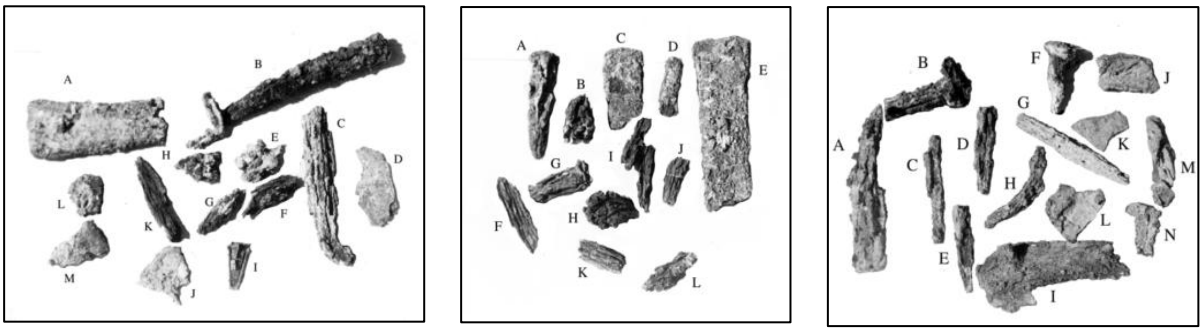


HADḌA - Les principaux sites bouddhiques autour du village de Haḍḍa : 1. Somotch Bāzār (SB), 2. Tape Shotor (TSh), 3. Tape Payān (TP), 4. Deh Ghoundi (D), 5. Shakhili Ghoundi (C), 6. Silraw (S), 7. Tape Kābol (TKB), 8. Gāre Naw (A), 9. Grand *stūpa* en ruine (GSR), 10. Kafarihāe Payān (KP), 11. Tape Kafarihā (K), 12. Tape Tope Kalān (TTK), 13. Tape Kalān (TK), 14, 15, 16 et 17 (ne figurent pas sur ce plan, ils sont plus à l'Ouest), 18. Baghgay (B), 19. Khord Baghgay (KHB), 20. Topak (T), 21. Pratès (P).
(DESSIN DE Z. TARZI)

Fig. 1: Main Buddhist sites at Haḍḍa by Z. Tarzi



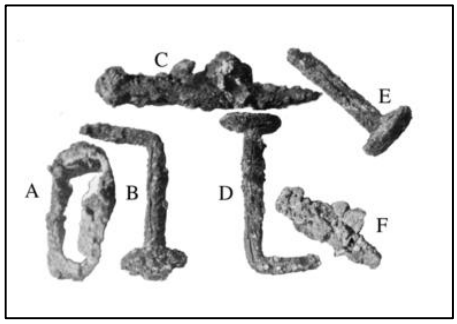
Fig. 2: Metallic material discovered during the excavations at Xogiani or Sultanpur



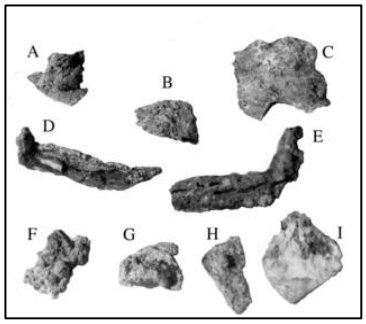
H. TTK I, 116 A-M (Iron)

H. TTK I, 117 A-L (Iron)

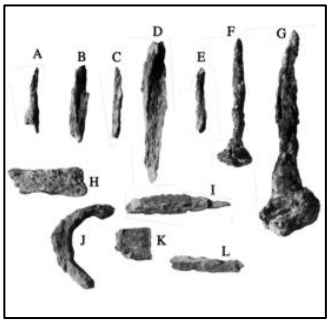
H. TTK I, 118 A-N (Iron)



H. TTK I, 119 A-F (Iron)



H. TTK I, 121 A-I
(Iron and bronze)



H. TTK I, 146 A-L (Iron)

Fig. 3: Some examples of iron objects from Tapa Tope Kalān

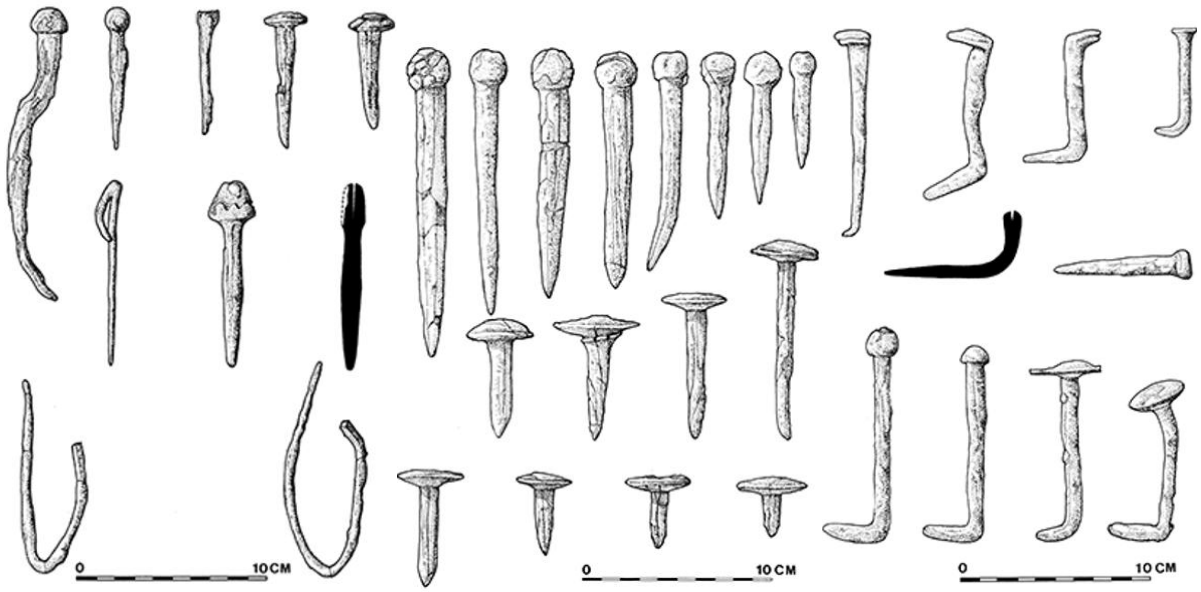


Fig. 4a: Typology of iron elements discovered at Tapa Tope Kalān

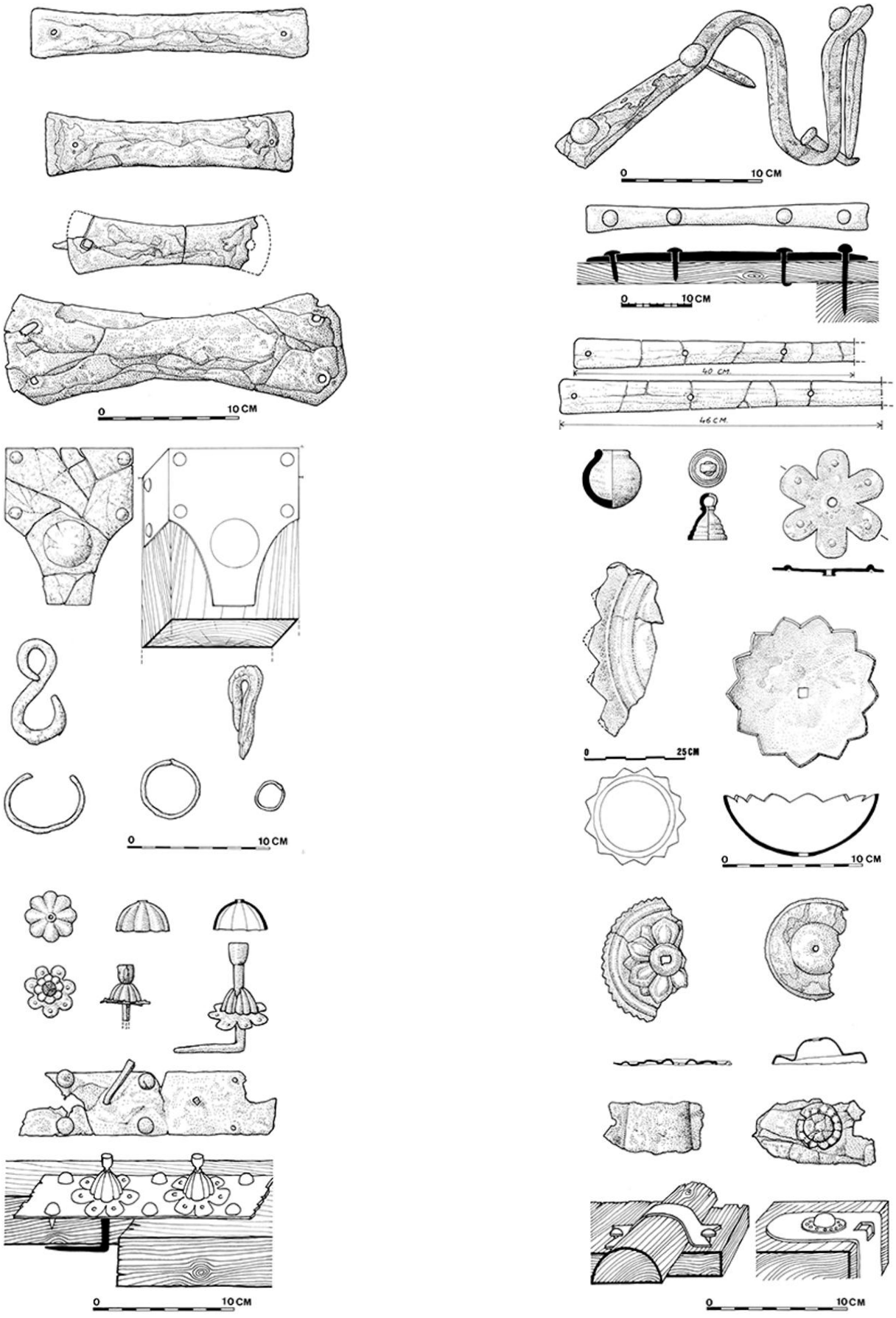


Fig. 4b: Typology of iron elements discovered at Tapa Tope Kalān

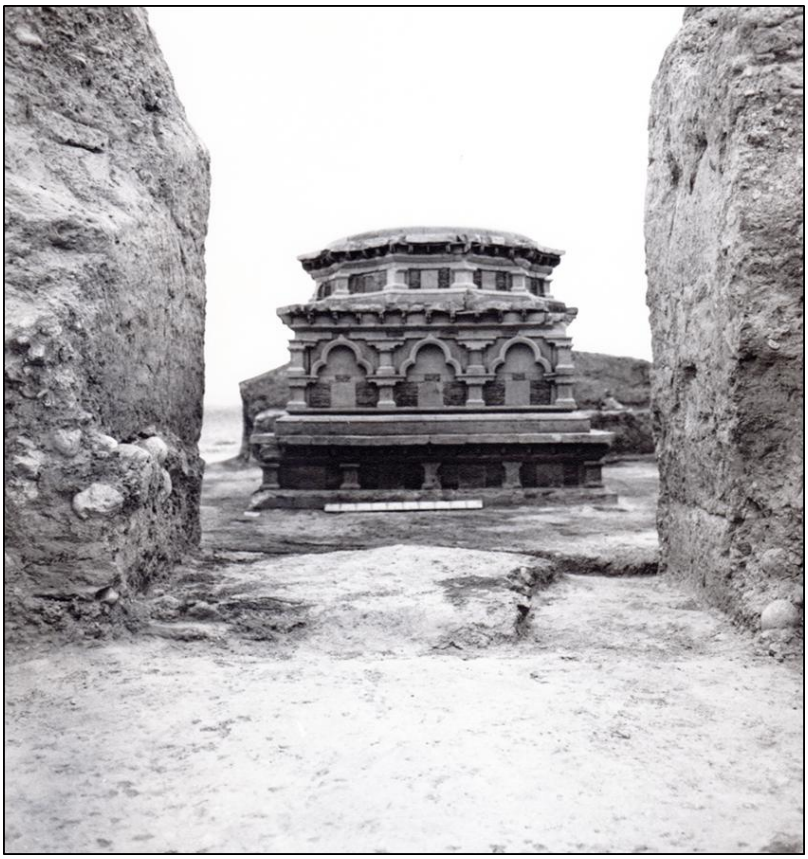


Fig. 5: Location of the gate of the *Caitya* n°1 of Tapa Tope Kalān



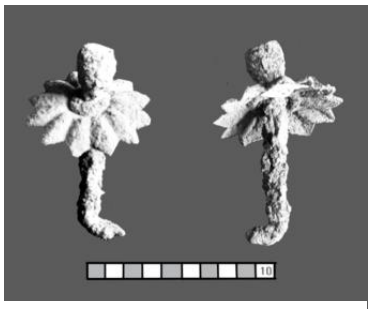
H. TSh IV, 23



H. TSh IX, 45



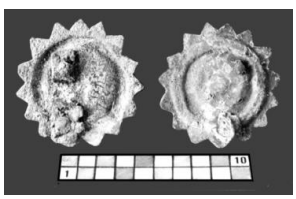
H. TSh V, 39; IV, 41 and III, 64



H. TSh IV, 26



H. TSh IV, 25



H. TSh V, 184

Fig. 6: Various metal objects from Tape Shotor



H. TSh III, 57 | H. TSh III, 58 / H. TSh VI, 214 | H. TSh V. 185 | H. TSh IV, 28

Fig. 7: Some rare objects from Tape Shotor



Fig. 8: Examples of rare and composite objects discovered at Tape Shotor:
reliquaries in the shape of a *stūpa*

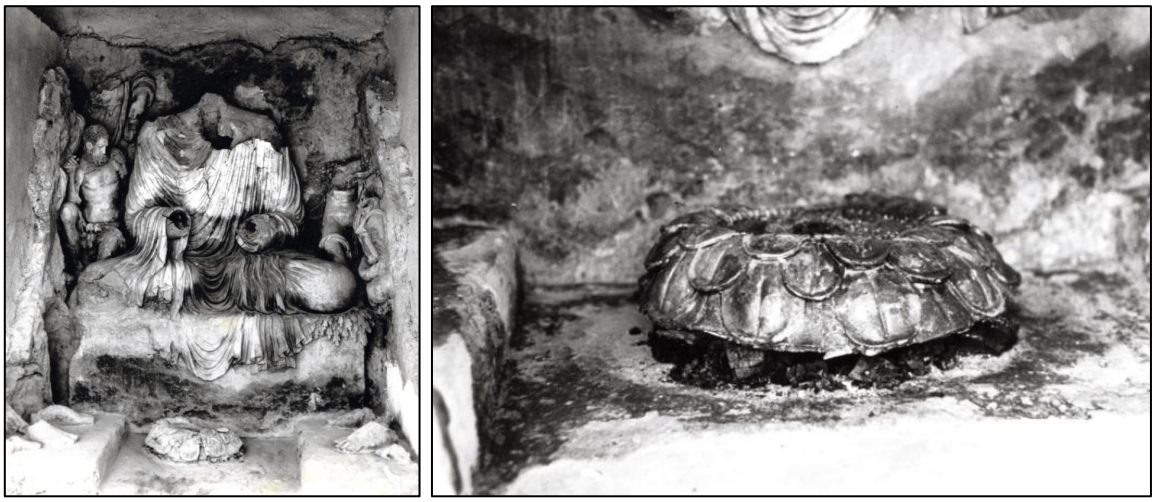


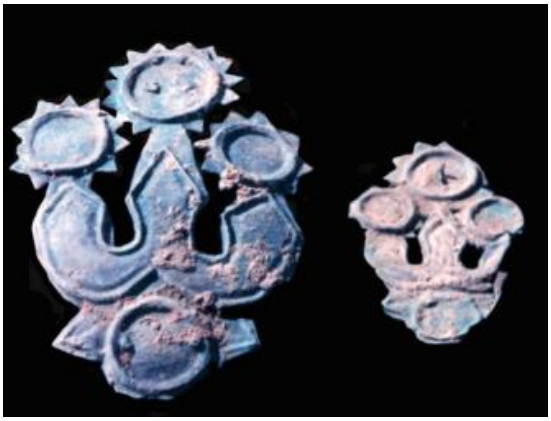
Fig. 9: *Triratna* from the V2 Niche of Tape Shotor



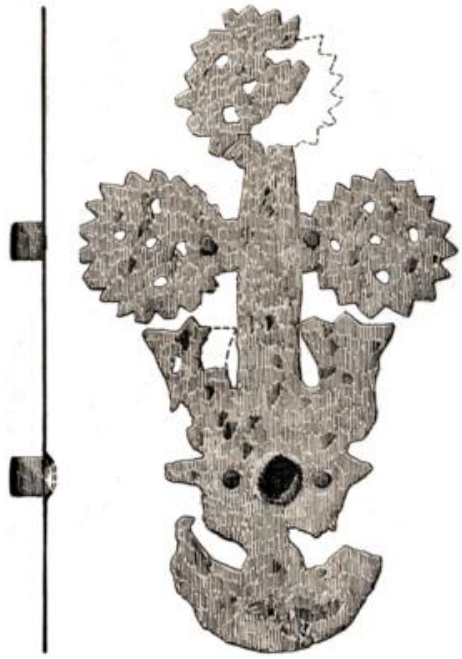
Fig. 10: Proposal for the reconstruction of the *Triratna* from the V2 niche of Tape Shotor



Triratna of type 1 from Xogiani



Triratna of type 2 from Xogiani



Taxila, n°405

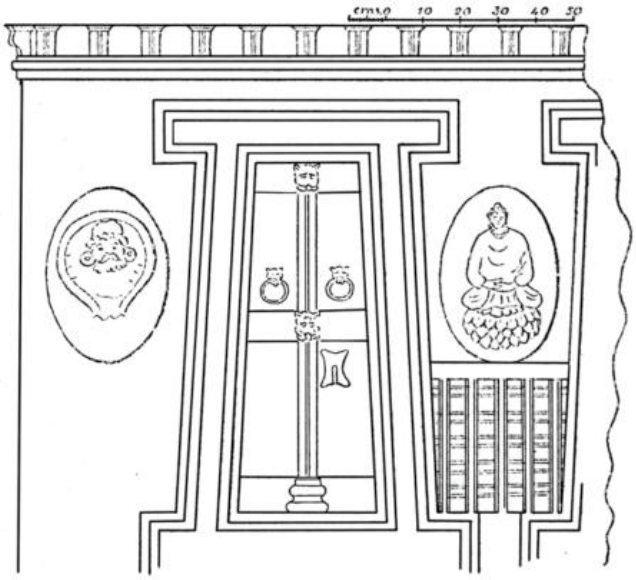


Taxila, Dharmarajika, G Court

Fig. 11: Comparative examination with some metallic *triratnas* from Taxila and Xogiani



H. Tape Kafarihā, *Vihāra* 59



H. Tape Kafarihā, *Vihāra* 59



H. TSh III, 54

Fig. 12: The crafting of bronze: from utilitarian use to artistic expression

BIBLIOGRAPHICAL REFERENCES

BARTHOUX 1930
Jules Barthoux, *Les Fouilles de Haḍḍa, Figures et Figurines,* Mémoires de la Délégation Archéologique Française en Afghanistan VI, Paris.

BARTHOUX 1933
Jules Barthoux, *Les Fouilles de Haḍḍa, Stupas et Sites,* Mémoires de la Délégation Archéologique Française en Afghanistan IV, Paris.

CAMBON 2004
Pierre Cambon, "Monuments de Haḍḍa au Musée National des Arts Guimet", *Monuments et Mémoires, Académie des Inscriptions et Belles Lettres*, T. LXXXIII, Paris.

FOUCHER 1927
Alfred Foucher, "La délégation archéologique française en Afghanistan (octobre 1922-novembre 1925)", *Compte Rendu de l'Académie des Inscriptions et Belles lettres*, vol. 71, n° 2, pp. 117-123, Paris.

HACKIN 1928
Joseph Hackin, "Les fouilles de la Délégation Archéologique Française à Haḍḍa (Afghanistan), missions Foucher - Godard - Barthoux (1923-1928)", *Arts Asiatiques*, T. V, n° 2, pp. 66-76, Paris.

FRANCFORT 1984
Henri-Paul Francfort, *Les Fouilles d'Aï Khanoum, vol. III Le sanctuaire du temple à niches indentées, 2. Les trouvailles*, Mémoires de la Délégation Archéologique Française en Afghanistan XXVII, Paris.

MARSHALL 1951
Sir John Marshall, *Taxila: an illustrated account of archaeological excavations carried out at Taxila under the orders of the Government of India between the years 1913 and 1914,* 3 vols., Cambridge.

MIZUNO 1968
Seiichi Mizuno, *Durman Tepe and Lalma, Buddhist sites in Afghanistan surveyed in 1963-1965*, Kyoto University.

MOSTAMINDI 1969
Shaïbaï and Mariella Mostamindi, "Nouvelles fouilles à Haḍḍa (1966-1967) par l'Institut Afghan d'Archéologie", *Arts Asiatiques,* Paris, T. XIX, pp. 15-36, Paris.

TARZI 1976
Zémaryalaï Tarzi, "Haḍḍa à la lumière des trois dernières campagnes de fouilles de Tapa-é-Shotor (1974-1976) ", *Compte Rendu de l'Académie des Inscriptions et Belles Lettres,* vol. 120, n° 3, pp. 381-410, Paris.

TARZI 1990
Zémaryalaï Tarzi, "Tapa-e-Top-e-Kalān of Haḍḍa", *South Asian Archaeology*, vol. LXVI, pp. 707-726, Roma.

TARZI 1991
Zémaryalaï Tarzi, *Haḍḍa à la lumière des fouilles afghanes de Tapa-e Shotor et Tapa-e Tope Kalān*, 4 vol., Strasbourg.

TARZI 1996
Zémaryalaï Tarzi, "Jules Barthoux : le découvreur oublié d'Aï Khanoum", *Compte Rendu de l'Académie des Inscriptions et Belles lettres*, vol. 140, n° 2, pp. 596-611, Paris.

TARZI 2000
Zémaryalaï Tarzi, "Vajrapāṇi-Héraclès de la niche V2 de Tape Shotor de Haḍḍa (Afghanistan)", *KTEMA*, n° 25, pp. 163-170, Strasbourg.

TISSOT 2006
Francine Tissot, *Catalogue of the National Museum of Afghanistan (1931-1985)*, UNESCO.

TISSOT & DARBOIS 2002
Francine Tissot et Dominique Darbois, *Kaboul, le passé confisqué : Trésors du Musée de Kaboul 1931-1965*, Paris.

Artists or performers? Die-engravers under Indo-Greek rule in Gandhāra

Olivier BORDEAUX[1]

Abstract

Coins play a central role in any given political state, be it an empire, a kingdom or an independent city. They serve as a conduit for symbolizing wealth and power, and sometimes bear complex political messages. In the Indo-Greek kingdom specifically (180 BCE–10 CE), multiple influences (Hellenistic, Roman, Indian, Scythian) coexist and reach the numismatic domain, making it one of the numerous textbook cases of the cultural melting-pot which is Gandhāra. But what about the die-engravers? Were they mere performers of an established royal typology, or were they given some artistic leeway in their work? Is it possible to identify who they were in the first place? This presentation shall endeavour to pursue, through coins, these crucial questions.

From the early 2nd century BCE to the beginning of the 1st century CE, vast territories located in modern-day Pakistan and Northwest India fell under Greek rule. This kingdom, or rather more often than not a constellation of smaller kingdoms, is called the Indo-Greek kingdom. The history of this realm finds its roots in the last quarter of the 4th century BCE, when Alexander the Great started from 334 BCE onwards his expeditions in the East. Central Asia and India, who then were divided into Achaemenid satrapies, were subjugated by the Conqueror between 330 and 325[2]. Thus came Greek and Macedonian populations to live in those far regions. In 303 BCE however, Seleucus I and the Mauryan emperor Chandragupta signed a treaty, transferring to the latter the territories located south of the Paropamisadae (*i.e.* the Hindu Kush)[3]. It was more than a century later before Greek rulers extended their power over these regions again, under the rule of Demetrius I (*c.* 190-180 BCE)[4]. The elephant scalp worn by the king on his coins bears testimony of his victories in India[5].

Our knowledge of the Indo-Greek kingdom mainly derives from numismatic sources. As Osmund Bopearachchi astutely put it in his article about the Indo-Greek ruler Menander I published in 1990: "L'histoire des rois de la Bactriane et de l'Inde du nord-ouest à l'époque hellénistique est avant tout une histoire numismatique"[6]. However, coins not only provide historical data: they also are a source of iconographic, epigraphic, technical and even social information. Being an instrument of political and economic power as well as a common exchange tool used daily by a vast amount of people, coins are influenced by a large number of

[1] CNRS, UMR 7041 ArScAn, "Archéologie de l'Asie centrale" team, Maison des Sciences de l'Homme Mondes (MSHM), 21 allée de l'Université, 92023 Nanterre; olivier.bordeaux@cnrs.fr. I wish to convey my sincerest thanks to the organizers of the "Gandhāran Artists and Artisans. Representations of an Era of Religious Images" international colloquium for their generous invitation to participate, and to publish my paper in this volume. This work is dedicated to the memory of Prof. Zémaryalaï Tarzi, who was my Graeco-Buddhist Archaeology Professor at Strasbourg University from 2005 to 2008, and who initiated me to the beauty and marvels of the archaeology of Central Asia, a topic very much dear to his heart.

[2] BORDEAUX 2025, pp. 75-76.

[3] *Ibid*., pp. 84-86.

[4] BERNARD, PINAULT & ROUGEMONT 2004, p. 274.

[5] BOPEARACHCHI 1991, pp. 49-55.

[6] BOPEARACHCHI 1990b, p. 52.

constraints and requirements which deeply impacted its features. This object is thus a reflection of its time, context and aims, whether intentionally or not.

In this perspective, our paper deeply relies upon a concept which emerged in the 1940's and which has recently been extensively examined by Frank L. Holt[7]: cognitive numismatics. This new approach follows the same logic as processional archaeology (formerly known as New Archaeology), which incidentally emerged in the 1950's, that is broadly around the same time. Cognitive numismatics question which individual and group dynamics are put into pace in order to plan ahead and provide strategies to new challenges. It thus really heavily on the concept of cognitive map, which is the mental representation by an individual of their surrounding space and its organisation. Cognitive map was itself theorized by American psychologist Edward C. Tolman in an article from 1948[8].

Broadly speaking, cognitive numismatics concern the whole *chaîne opératoire*, from the acquisition of raw metal to striking the coins and then put them into circulation, finally ending by their abandonment, their lost or their reuse. However, when it comes to the striking phase, and more especially, since that is the topic of this paper, to the designing and engraving of the dies used to strike said coins[9], the mental representation of the type and its physical transfer to a minute and dense object is of crucial importance. This procedure meets specific constraints and requirements which we mentioned earlier, to which the engraver adapts consciously or subconsciously: the complexity of the type requires spatial planning in its execution, the length of the legend provides a possible frame for the iconographical figure or type, additional elements such as monograms must be considered from the start, and most importantly everything must be engraved backwards. It has thus been suggested that this precise and delicate work was done with the help of some sort of magnifying glasses, or that the engravers were young and/or short-sighted individuals[10].

When it comes to the legend, we know that about two dozen of words and names used on coins during the Graeco-Bactrian period: those have been usefully and clearly summed up by F. L. Holt in his book[11]. Of particular interest to us is the number of engraving errors, their frequence and their distribution among Graeco-Bactrian rulers. We thus observe that the error rate rises significantly under the rules of Euthydemus I (230-190 BCE), Antimachus I (176-171 BCE), Eucratides I (171-145 BCE) and finally Heliocles I (145-130 BCE). This observation also includes complex errors, such as missing or duplicated letters. Is this relevant and significant to our question, and if yes, then how? We will start from the assumption that if these errors are obvious to us, that also was the case to the Greek-speaking people of that time. What could then explain their existence?

A first explanation could be that the corrupted legends have been overlooked: this could of course be explained by careless and sloppy monitoring on behalf of the mint staff, or possibly a rush in production caused by outside factors, such as an armed conflict. Indeed, it is of particular interest that all of the rulers mentioned above had to go through severe struggles to

[7] HOLT 2012, pp. 160-183.
[8] TOLMAN 1948. This concept was later further developed in various publications by the same author.
[9] We know of a single Graeco-Bactrian reverse die used to strike silver tetradrachms belonging to Demetrius I, published in BOPEARACHCHI 2011, pp. 3-6 and its composition analysed in BLET-LEMARQUAND & DUVAL 2012, pp. 9-10.
[10] HOLT 2012, p. 165.
[11] *Ibid*., p. 177, table 1 and p. 178, table 2.

establish and/or defend their independence[12]. Another explanation could be that these errors were tolerated, as they either would not impact the endorsement of the coins by the targeted population, or that the specimens bearing these errors were destined to be distributed among non-Greek speakers, which would made such mistakes irrelevant as to their acceptance as *de bon aloi*. Greek silver did indeed enjoy excellent reputation and prestige during Antiquity: for instance, the Athenian owls were used as an international currency for several centuries, and widely imitated to that purpose in Egypt, Babylonia and Bactria[13]. When a certain payment of 100 silver drachms to be paid to hired Scythian mercenaries is mentioned in the Amphipolis parchment[14], could it be considered that these coins were specially struck for that expense? We lack the data to defend this hypothesis, which in all fairness seems a bit far-stretched given what we know of monetary production in Hellenistic Central Asia.

Let us go back for a moment to the engraving process of the legend and the type. The typical *chaîne opératoire* would be as follows: the central figure would first be engraved, followed by the legend and the monogram(s) if any are present. This specific procedure could thus lead to variations of the layout of iconography and legend towards one another[15]. Furthermore, the engravers often incised the legend with the help of guiding dots (Figs. 1a & b, with the dots highlighted in red), which they would usually erase before the die would get in use, but which can sometimes still be observed on the coins[16]. In the case of the double decadrachms struck by Amyntas, the double row of points which can be observed around the die is also present where the legend is engraved horizontally at the bottom of the reverse. F. L. Holt has thus suggested the existence of some sort of "master template" used directly on the die to guide the engraver and facilitate his work[17].

Following on this line of thought, this method also leads to the existence of "compressed" legends. Indeed, some letters possess no guiding points (such as O, Θ or Ω), which is why they are typically smaller in legends: these letters are reduced in size in order to make the legend fit in as the available engraving space is progressively lacking towards the end. This clearly demonstrates that the engravers are not merely copying a textual template, which they could thus do in a geometrical manner, but actually are engraving the letters of a legend they clearly understood one after the other, leading to this accumulation. Moreover, this shows that the type is evidently engraved before the legend. Nonetheless, the whole procedure visibly underlines the apparent lack of anticipation, especially considering how frequently these "compressed" legends can be noticed.

---

[12] Let us mention the invasion of Bactria by Antiochus III (223-187 BCE) for Euthydemus I, the war against various Graeco-Bactrian and Indo-Greek rulers for Eucratides I, and the progressive downfall of the Graeco-Bactrian kingdom under Heliocles I.

[13] BORDEAUX 2021, pp. 90-92.

[14] CLARYSSE & THOMPSON 2007. This document is dated to the reign of Antimachus I and the 30th year of an era, which must be identified as an era started around 206 BCE by Euthydemus I.

[15] See the essential comments recently made by O. Bopearachchi regarding mint organization under Indo-Greek rule and die engraving (BOPEARACHCHI & MAJUMBAR 2020, pp. 46-48).

[16] This feature can be seen both on Graeco-Bactrian and Indo-Greek coins: see the celebrated 20-staters coin of Eucratides I and the crucial importance of those guiding dots for this ruler's monetary history (BOPEARACHCHI 1991, p. 69), and the double decadrachm of Amyntas illustrated in this paper.

[17] HOLT 2012, p. 171. Regarding Amyntas' double decadrachms, this observation has originally been made by R. Curiel and discussed by O. Bopearachchi (BOPEARACHCHI 1990a, p. 91, note 43).

Another significant example of the link between the type and the legend are the tetradrachms struck by Euthydemus II (180-176 BCE), whose reverse type depicts Heracles standing facing and holding a wreath in his extended right hand (Figs. 2 a & b)[18]. However, the crown held by the god sometimes fits in between the letters Y and Θ, and specifically on coins bearing the monograms  , and . While in this case the type is evidently engraved before the legend, the systematic presence of this layout within three monograms to the exclusion of all others would tend to prove that it is no mere lack of anticipation, but rather a fixed arrangement of the legend and type. We can thus infer that if this arrangement probably is the consequence of poor assessment of available space on the engravers' part in the first place, it nonetheless served from then on as a model for all other reverse dies produced in this workshop. Unfortunately, die-studies of Graeco-Bactrian have not yet delivered any proof of an obverse die link between and [19], which could explain why two distinctive layouts exist simultaneously.

With regard to the Indo-Greek kingdom, the engraving of legends is the most revealing point when it comes to visible errors on the coins. Several articles have been published addressing these mistakes, which are far from being uncommon and sometimes quite spectacular. On a Lysias bronze coin found in the Pandayale hoard and published in 2001, the name of the ruler (ΛΥΣΙΟΥ) is engraved backwards, or should we say it was engraved the right way on the die[20]. O. Bopearachchi mentions another coin struck with the same obverse and reverse dies, currently kept in the British Museum (Fig. 3). It is interesting to note that some early Seleucid issues struck in Bactria show similar blunders[21].

An even more striking example of a mistake within the king's name is a bronze coin issued by same ruler originating from the second Mir Zakah deposit[22]. On this coin, two letters are missing from the epithet (AN[IK]HTOY), letters which are present in a puzzled manner in front of the royal name (Fig. 4). According to O. Bopearachchi, after engraving the type, the engraver realized his mistake when the upper legend ended being too short on the die, and he added the missing letters in order to fill the large remaining available space. He got off to a bad start anyway, since the place where he started engraving the upper legend (at 7 o'clock, contrary to normal 9 o'clock) is unusual in the first place. This blatant disregard for spelling and meaning could support the hypothesis that the engraver was at the very least a novice, and/or quite possibly an Indian individual unfamiliar with the Greek language, which would not be entirely surprising in the Indo-Greek kingdom.

---

[18] BOPEARACHCHI 1991, series 1, p. 168. The coins illustrated are kept in the Département des monnaies, médailles et antiques de la Bibliothèque nationale de France (1974.395 and Armand Valton 545).
[19] GLENN 2020, p. 105, fig. 33, "Coinage system of Demetrius I". S. Glenn identifies these two monograms with two separate mints ("A" and "B"); Furthermore, they do not appear simultaneously in any other die-study conducted by S. Glenn (from Euthydemus I to Antimachus I).
[20] BOPEARACHCHI 2001, pp. 20-21.
[21] HOLT 2012, p. 170, note 34, which refers the reader to BERNARD & GUILLAUME 1980, p. 22 and especially note 24 (for further examples in the Seleucid world).
[22] BOPEARACHCHI & GRIGO 2002, p. 15.

There are numerous other spelling or engraving mistakes which we have encountered in our own die-studies[23]. These errors are usually indicated in the description when the coins are published, and for the most part they can be broken down as follows: mirrored letters, inverted letters and missing letters. Nonetheless, this question and its related issues remain a bit of a blind spot when it comes to Graeco-Bactrian and Indo-Greek numismatics, saved from the study undertook by Frank L. Holt.

The engraving processes using guiding dots which we have detailed above present strong similarities with another craftmanship: gem engraving. The possibility that die engravers could also have been gem engravers, or vice-versa, has been addressed in details in an article from 2006 by Pierfrancesco Callieri[24]. This prospect is especially relevant to our topic, as the engraving of coins and gems is a particularly striking clue of Greek presence, and both objects require the highest level of quality for such specialized and complex craftsmanship. However, we should start by mentioning that they are vast differences between these two kinds of objects: *intaglios* are made out of half-precious stones using drills and emery powder, while coins are made out of metal, whether precious or not, using incising tools but no drills as far as the iconography and the legend is concerned. Nonetheless, they have in common the task of producing a negative image which is itself the miniaturization of a detailed iconography. According to P. Callieri, the iconography originating from the Indian world could have been engraved by Greek artists.

Let us have a closer look at some technical and iconographic examples illustrating the closeness between gems and coins. Among the celebrated objects found on the Tillya Tepe archaeological site is a signet-ring from tomb II depicting Athena (Figs. 5a & b)[25]. This particular item displays the same pattern of guiding points (in red) for the legend, whose letters are shaped in a similar manner as on coins: for instance, the *theta* presents no such dots. Similar dots can also be observed on the godly figure (in green), which in this case marks a difference compared to coins where they are absent. However, this signet-ring is made of yellow and white gold for its outer and inner parts, and not from a gemstone, which limits the conclusions we could draw from this example.

In an article from 1972, Gérard Fussman published in the *Revue Numismatique* a list of Indian *intaglios* and imprints dated from the Hellenistic to the Kushan period, in order to compare them with coins issued at the same time[26]. Of particular interest to us is a sardonyx oval seal depicting Aphrodite with the legend ΔΙΟΔΩΡΟΥ, that is with a cursive *omega*. This peculiar feature is reminiscent of some small-module bronze coins issued by Antimachus I in Indian territories, on which the legend is ΒΑΣΙΛΕΩΣ / ΑΝΤΙΜΑΧΟΥ[27]. Furthermore, G. Fussman specifies that there is no doubt about an Indian context of production

[23] For illustration, see a Menander I drachm kept at the American Numismatic Society (1991.3.112, "ΜΞΝΑΝΔΡΟΥ"), or another one at the Bibliothèque nationale de France (R 3681.367, "ΣΩΤΗΟΡΣ"); for Hippostratus (65-55 BCE), see for instance a tetradrachm from the American Numismatic Society (1995.51.232, "ΒΑΣΙΛΩΣ").
[24] CALLIERI 2006.
[25] CAMBON 2007, p. 172, nº 55.
[26] FUSSMAN 1972.
[27] BOPEARACHCHI 1991, pp. 186-187, series 8; see for example a specimen kept at the Bibliothèque nationale de France (R 3681.72).

for this seal, as attested by the anklets worn by the goddess. In the same vein, there is a chalcedony *intaglio* kept at the British Museum (1880.3729) whose iconography, an anguiped figure holding an oar, is close to the one used by Indo-Greek kings Hippostratus and Telephos (80-70 BCE), who ruled over Gandhāra[28]. These few examples clearly demonstrate that coins and gems are closely intertwined whether on the technical or on the iconographic levels.

P. Callieri supports the idea that no major shift in monetary production happened after the dynastic change between the Indo-Greeks and the Indo-Scythians[29]. Sure enough, we can now uphold the hypothesis, thanks to an Artemidoros (55-50 BCE) bronze issue, that these two dynasties did indeed share family ties[30]. Under the Indo-Scythians, the quality of coins remained the same as under Hellenistic rule: this observation could hint at a tangible political will to keep alive the Hellenistic monetary tradition in terms of technics, iconography and style. In this perspective, P. Callieri mentions an inscribed seal of Indravarma from the Bajaur region belonging to the Indo-Scythian or Indo-Parthian period, with a male prince figure seen from three-quarters (Fig. 6-a). The iconography and style of this engraved garnet follows the Hellenistic tradition, even if it was produced in an Indian context, as demonstrated by the Brahmi and Kharoshthi legend. Furthermore, the male figure depicted is comparable with the Zeus on Azilises coins (Fig. 6-b) and Poseidon on Azes II coins.

Going back to the Indo-Greek kingdom, we would like to present some preliminary results of a large die-study (1266 coins altogether[31]) that we have recently completed on three kings: Lysias, Antialcidas (115-95 BCE) and Heliocles II (100-90 BCE)[32] (Fig. 7). These three rulers, which broadly ruled at the same time over the Paropamisadae, Gandhāra and the Punjab, share strong ties on the numismatic level (iconography, monograms). Lysias and Antialcidas struck two joint bronze coin series with both their types[33]. Above all, two of them–Lysias and Heliocles II–have in common to have their names written differently in Kharoshthi (*Lisikasa*/*Lisiasa* and *Heliyakreyasa*/*Heliyakresasa*/*Helikrayeasa*) depending on the monogram[34]. This exceptional feature has typically been interpreted as a geographical distinction: separate mints in different regions with their own dialectal traditions would explain why the spelling differs. This would also mean that the engravers would be local individuals, at least for the reverse legend.

The results of this die-study completely belie this interpretation: they reveal that most of the monograms are die-linked with one another, which demonstrate that we are dealing with a

[28] CALLIERI 2006, p. 16.
[29] *Ibid*., pp. 13-14.
[30] BOPEARACHCHI 2008-2009; BORDEAUX 2018, pp. 131-133. The reverse legend on this bronze series is *Rajatirajasa Moasa putrasa ca Artemidorasa* ("of the king of kings and son of Maues, Artemidoros"). It should be mentioned that Artemidoros could have been an adopted son.
[31] Here are the detailed numbers of the study: 279 Lysias coins (11 unilingual, 182 bilingual silver and 86 bilingual bronze coins), 770 Antialcidas coins (12 unilingual, 579 bilingual silver and 179 bilingual bronze coins), and 217 Heliocles II coins (141 bilingual silver and 76 bilingual bronze coins). We have identified 129 obverse and 173 reverse dies for Lysias, 362 obverse and 572 reverse dies for Antialcidas, and 119 obverse and 167 reverse dies for Heliocles II.
[32] We are currently formalising the detailed results, which will be published soon (BORDEAUX *forthcoming*).
[33] BOPEARACHCHI 1991, Lysias & Antialcidas, series 1 and 2, p. 280.
[34] *Ibid*., pp. 93-95 and 97-99.

unique mint for the coinages of Lysias and Antialcidas, and what seems to be a separate one for Heliocles II, instead of at least three. These results are in line with the previous die-studies which we have conducted[35], namely that the total number of mints is often overestimated, especially for gold and silver coinages. We must therefore look elsewhere in order to explain this phenomenon: it is quite probable that Greek engravers were influenced by or copied texts written with the Kharoshthi alphabet, in which similar mistakes can be observed[36].

Which conclusions can we draw from these observations, and how can we explain the multiplication and the apparent tolerance of engraving errors? Several options can be mentioned: intensification of monetary production, lax in control and supervision, cuts in personnel training, major internal and/or private troubles, or variations in procedures and staff[37]. The Indo-Greek coinages are characterized almost from its very beginning by a near-constant state of conflict within and outside the realm. Numerous overstrikes attest of a tough power competition between these rulers, which will eventually lead to the downfall of the Indo-Greek kingdom around 10 CE. Furthermore, the monetary production is quite consistent throughout most of its history, based on what we know from die-studies, and blunders remains relatively infrequent compared to the known corpora of coins and dies. Overlooking these errors probably did not cost much to the powers that be, given the renown of Greek silver and its obvious success at that time and after, under Indo-Scythian rule. Nonetheless, further die-studies are required, especially for the late Indo-Greek rulers, particularly from the moment they lost control of Gandhāra *c.* 70 BCE and sought refuge in the Punjab, to understand if their monetary production decreased or not. The Indo-Greek die-engravers, true artists but occasionally performers in lack of a specific knowledge, for example linguistic, testify in any case to the liveness of Hellenism in Gandhāra during the 2nd and 1st century BCE.

[35] BORDEAUX 2018.
[36] We are deeply grateful to Prof. Stefan Baums for suggesting this possibility to us.
[37] HOLT 2012, pp. 181-182.



Fig. 1 a & b: Double decadrachm struck by Amyntas (95-90 BCE); after FRANCFORT 2022, p. 57, fig. 1



Fig. 2 a & b: Tetradrachms struck by Euthydemus II (180-176 BCE); Source gallica.bnf.fr / BnF



Fig. 3: Bronze coin struck by Lysias (120-110 BCE) with the name of the king engraved backwards; BM 1956,0710.35 (© The Trustees of the British Museum, CC BY-NC-SA 4.0)



Fig. 4: Bronze coin struck by Lysias (120-110 BCE) with the name of the king including additional letters; after BOPEARACHCHI & GRIGO 2002, p. 15, photograph courtesy of O. Bopearachchi



Fig. 5 a & b: Signet-ring with Athena from Tillya Tepe, Afghanistan; after CAMBON 2007, p. 172, n° 55



Fig. 6 a & b: Engraved garnet seal of Indravarma and drachm of Azilises; after SALOMON *et al.*, p. 16, fig. 1 (BM 1998,0720.1); Source gallica.bnf.fr / BnF

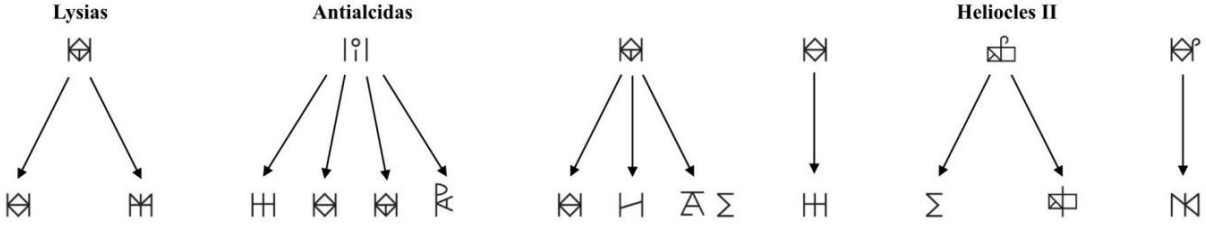


Fig. 7: Monograms of Lysias, Antialcidas and Heliocles II sorted by die-links

BIBLIOGRAPHICAL REFERENCES

BERNARD & GUILLAUME 1980
Paul Bernard, Olivier Guillaume, "Monnaies inédites de la Bactriane grecque à Aï Khanoum (Afghanistan)", *Revue Numismatique,* nº 22, pp. 9-32.

BERNARD, PINAULT & ROUGEMONT 2004
Paul Bernard, Georges-Jean Pinault, Georges Rougemont, "Deux nouvelles inscriptions grecques de l'Asie centrale", *Journal des Savants,* pp. 227-356.

BLET-LEMARQUAND & DUVAL 2012
Maryse Blet-Lemarquand, Florian Duval, "Analyse élémentaire du coin monétaire du roi gréco-bactrien Démétrios Ier", *Cahiers Numismatiques,* nº 191, pp. 9-10.

BOPEARACHCHI 1990a
Osmund Bopearachchi, "Graeco-Bactrian issues of the later Indo-Greek kings", *Numismatic Chronicle,* nº 150, pp. 79-103.

BOPEARACHCHI 1990b
Osmund Bopearachchi, "Ménandre Sôter, un roi indo-grec. Observations chronologiques et géographiques", *Studia Iranica,* nº 19, pp. 39-85.

BOPEARACHCHI 1991
Osmund Bopearachchi, *Monnaies gréco-bactriennes et indo-grecques. Catalogue raisonné,* Paris.

BOPEARACHCHI 2001
Osmund Bopearachchi, "Some interesting coins from the Pandayale hoard", *Oriental Numismatic Society Newsletter,* nº 169, pp. 19-21.

BOPEARACHCHI 2008-2009
Osmund Bopearachchi, "Was Indo-Greek Artemidoros the son of Indo-Sctythian Maues? Amluk Dara Hoard revisited", *ΝΟΜΙΣΜΑΤΙΚΑ ΧΡΟΝΙΚΑ*, pp. 25-36.

BOPEARACHCHI 2011
Osmund Bopearachchi, "Deux documents exceptionnels en numismatique indo-grecque", *Cahiers Numismatiques,* nº 189, pp. 3-6.

BOPEARACHCHI & GRIGO 2002
Osmund Bopearachchi, Klaus Grigo, "To Err is Human", *Oriental Numismatic Society Newsletter,* nº 172, pp. 14-16.

BOPEARACHCHI & MAJUMBAR 2020
Osmund Bopearachchi, Susmita Basu Majumbar, *From Hindu Kush to Salt Range. Mauryan, Indo-Greek and Indo-Scythian Coin Hoards,* Hasnabad.

BORDEAUX 2018
Olivier Bordeaux, *Les Grecs en Inde. Politiques et pratiques monétaires (IIIe s a.C.-Ier s. p.C.),* Bordeaux.

BORDEAUX 2025
Olivier Bordeaux, “Les satrapies perses orientales et l’anabase d’Alexandre le Grand”, in C. Ferrier (ed.), *Histoire ancienne et médiévale de l’Inde du Nord (VIe siècle avant notre ère, début XIIIe siècle)*, Paris, (Nouvelle Clio), pp. 63-86.

BORDEAUX *forthcoming*
Olivier Bordeaux, “Lysias, Antialcidas et Hélioclès II: production monétaire et épigraphie” (forthcoming).

CALLIERI 2006
Pierfrancesco Callieri, “The Activity of Gem and Coin Die Engravers in North-West India between the Indo-Greeks and the Kuṣāṇas”, in P. Callieri (ed.), *Architetti, capomastri, artigiani. L’organizzazione dei cantieri e della produzione artistica nell’Asia ellenistica. Studi offerti a Domenico Faccenna nel suo ottantesimo compleanno*, Rome, (Serie Orientale Roma, C), pp. 7-16.

CAMBON 2007
Pierre Cambon (dir.), *Afghanistan, les trésors retrouvés*, Paris.

CLARYSSE & THOMPSON 2007
Willy Clarysse, Dorothy J. Thompson, “Two Greek Texts on Skin from Hellenistic Bactria”, *Zeitschrift für Papyrologie und Epigraphik*, n° 159, pp. 273-279.

FRANCFORT 2022
Henri-Paul Francfort, “A “Blessing” Hand Gesture in Images of Deities and Kings in the Arts of Bactria and Gandhāra (2nd Century B.C.E.–1st Century C.E.): The Sign of the Horns”, *Bulletin of the Asia Institute*, n° 31, pp. 55-86.

FUSSMAN 1972
Gérard Fussman, “Intailles et empreintes indiennes du Cabinet des Médailles de Paris”, *Revue numismatique*, pp. 21-48.

GLENN 2020
Simon Glenn, *Money and Power in Hellenistic Bactria*, New York.

HOLT 2012
Frank L. Holt, *Lost World of the Golden King. In Search of Ancient Afghanistan*, Berkeley, Los Angeles, London.

SALOMON *et al.* 1999
Richard Salomon, Pierfrancesco Callieri, Simon Schmitt, “An Inscribed Seal of Indravarma, King of Avaca”, *Bulletin of the Asia Institute*, n° 13, pp. 15-26.

TOLMAN 1948
Edward C. Tolman, “Cognitive Maps in Rats and Men”, *Psychological Review*, n° 55 (4), pp. 189-208.

Considering the frame: an attempt to classify Gandhāran sculptures

Arnaud MARGUIER

Abstract

I conducted a study on the framing elements of stone sculptures found in the Swat Valley, Gandhāra, and Afghanistan. A detailed description of the moulded borders, architraves, bases, columns, and pilasters present in these sculptures provides valuable insights into the distinctive hands of various artists and artisans. Building on the investigation led by Domenico Faccenna at Butkara I, this study will offer comparative analyses with other sites.

As suggested by my teacher Professor Zémaryalaï Tarzi, I must briefly explain what I mean by the word "frame" in the context of this paper. There are many ways to understand it. Firstly, "frame" evokes the relationship between sculptures and monuments. The sculptures not isolated but placed for the most part, in series on the monuments, form pieces of a dispersed puzzle that we have to reconstruct. Therefore, the word "frame" corresponds to the architectural context of the sculptures. Secondly, in the ornamentation, we find columns each depicted within a kind of rectangular panel and described as framed columns. Thirdly, around images of Buddha and scenes from his life find we the decors I will present, and so they form a kind of "frame" similar to the frames of paintings in our museums. Fourthly, the central placement of Buddha images gives a symbolic meaning to representations surrounding them. On the one hand, there is the Buddha's experience, and on the other hand, there is the rest of the world with its social life. In this way, the "frame" evokes this life. Finally, among those decors, we can see figures depicted with clothing intended to give them an ethnic determination and the "frame" becomes the historical context of the sculptures' production.

We reflect on the artists and artisans in Gandhāra. What remains of their work provides us with part of the answer. Following a proposition of Professor Zémaryalaï Tarzi, I drew a long time ago some columns and pilasters represented on Butkara I sculptures.

I did not realize then that in fact, I had joined ever so modestly a prestigious tradition of drawing that began with Alexander Cunningham's publications at the end of the 19th century and followed in France by Madeleine Hallade, Francine Tissot and Anne-Marie Loth[1].
More recently, Osmund Boperachchi also presented detailed drawings of the sculptures from the so-called Buner *stūpa*. The different motifs used to separate scenes at each level of this monument are particularly interesting. Furthermore, Philippe Stern[2] for Ajanta and Ellora and Mireille Bénisti[3] for Amaravati already employed with success the method of using selected motifs to classify sculptures. Due to the large number of sculptures discovered in a single sanctuary, Butkara I is highly significant in demonstrating us the diversity of ways artists worked in the same place over different periods. For this reason, I will first present a study of part of the decors appearing in various forms of sculptures on this site. Secondly, I will present a brief comparative study, focusing primarily on two of the most commonly represented motifs in Gandhāran art: columns and pilasters of the Gandhāran-Corinthian type.

Butkara I

On some door-jambs from Butkara I (Fig .1), the capital of Gandhāran-Corinthian columns has an abacus with a horizontal protruding fillet, adorned at the center with a flower. Below,

[1] TISSOT & LOTH 1985.
[2] STERN 1972.
[3] STERN & BENISTI 1961.

a central acanthus leaf appears between two external volutes. The capital's lower part has three acanthus leaves and an astragal. The shaft is plain and rests on a scotia-type base formed by a fillet, an upper torus, a second fillet, a scotia, a third fillet, a lower torus and a plinth. Acanthus leaves alternating with lotus petals[4] adorn some of the architraves supported by those columns, in other cases architraves decor is a row of reversed stepped pyramids. A garland of lotus flowers borders those sculptures vertically[5]. The figures depicted between the columns are dwarfs posed in a manner reminiscent of the Titan Atlas, followed by pairs of soldiers[6], a six arms deity with a particular cap, a city goddess[7], worshipers and musicians in Indian dress[8]. Another door-jamb shows Gandhāran-Corinthian pilasters, whose capital seems to feature also a flower at the center of the abacus (Fig. 2). However, the moldings of the base reduce to fillets, a torus and a plinth[9]. Associated figures are draped worshipers, holding a bunch of flowers. The vertical garland of lotus flowers appears on other door-jambs, but the associated figures are dancing people in Scythian dress, a warrior killing a beast[10] and an ascetic kissing a woman (Fig. 3)[11]. Acanthus leaves only that is to say without intercalated lotus petals adorn some architraves[12]. There is also a new type of ornamentation for architraves: the torus of laurel leaves[13]. Regarding the columns, the central flower is absent from the abacus. In a series of sculptures, the Gandhāran-Corinthian columns and pilasters have capitals with two internal volutes[14]. The shaft of the pilasters has a flute[15], and two horizontal grooves in the upper part and two in the lower part adorn each column's shaft (Fig. 4). Columns and pilasters no longer support the architraves but instead pointed and vaulted arches or pediments. The associated figures include an ascetic and a woman, or a Buddha figure, at one time standing and at other times seated, alongside two standing worshipers wearing tunics and trousers, beneath a double-domed image chapel. On the architraves, a double row of lotus petals, sometimes underlined by a row of beads-and-reel, becomes most common. In some cases, the ornamentation of a pillar's capital becomes very schematic (Fig. 5)[16].

On a door-jamb sculpted on both sides, one side shows Gandhāran-Persepolitan columns (Fig. 6)[17]. From top to bottom, their capital has some reversed degrees, a trapezoidal element, a vase and a bell-shaped member. Their pot-like base rests on a few degrees. Between the columns is a figure surrounded by a tapering doorframe adorned with flowers under a pointed arch with volutes and pendants. Among door-jambs showing Gandhāran-Persepolitan columns, some have architraves enriched with a row of acanthus leaves, while a double row of lotus petals adorn their others architraves (Fig. 7). The vertical border on those sculptures is formed by rows of beads-and-reel alternating with garlands of little lotus flower[18]. We can also see a half represented Gandhāran-Persepolitan column appearing on a fragment of a false niche

[4] Sometimes described as "a pattern of repeated acanthus leaves separated by an arrowhead motif".
[5] "Conventionalised lotus buds" (MARSHALL 1951, p. 704).
[6] FACCENNA 1962, B284, Pl. CCCXXXIX, drawing style.
[7] FACCENNA 1962, B1603, Pl. CCCXXXVII, 135 cm high, drawing style.
[8] FACCENNA 1962, B2871, Pl. CCCLI, 110 cm high, drawing style; B4325, Pl. CCCLII-III, 68 cm high, drawing style.
[9] FACCENNA 1962, B689, Pl. CCCXL, 34 cm high.
[10] FACCENNA 1962, B2329, Pl. CCCL, 43 cm high.
[11] FACCENNA 1962, B4382, Pl. CCCXLV, 23 cm high.
[12] FACCENNA 1962, B80, Pl. CDXCIV, 50.5 cm high.
[13] Ovolo with sharply cut pointed-leaf enrichment, lanceolate leaves (in Heidicon terminology).
[14] FACCENNA 1962, B3215, Pl. CCCLXXXIX, 50 cm high.
[15] The word flute is the one choose in Italian terminology, we can prefer fluting and sometime the description is: "Long, narrow, recessed oblong panel curved at the top and the bottom".
[16] FACCENNA 1962, B3549a, Pl. CCCLXVa, 71.5 cm high.
[17] FACCENNA 1962, B3549b, Pl. CCCLXVb.
[18] "…rows of bead-and-reel ornament alternating with foliate pattern" (MARSHALL 1951, p. 704).

(Fig .8)[19]. A number of friezes from Butkara I show the same repeated motif: a figure under a pointed arch with volutes and pendants. Between these inhabited arches are Gandhāran-Persepolitan columns. Several reversed degrees form the uppermost part of each column's capital. On one of these friezes[20], we see a trapezoidal element with curved lateral sides placed below reversed degrees (Fig. 9). From top to bottom, underneath, there is a vase, a dome[21] and a bell-shaped member. This frieze has no molding at the upper border. In other cases, the trapezoidal element or the dome is missing. Furthermore, the sculptures have a molding at the upper border, which can be a torus of laurel leaves (Fig. 11)[22] or a row of dentils and drops (Fig. 12)[23]. For the sake of comparison, I present here a fragment showing a Gandhāran-Persepolitan column whose capital has a row of beads-and-reel above two back-to-back bulls separated by a lion's head (Fig. 14). Lotus petals enrich vase, dome and bell-shaped member [24] . Exceptionally, the column shaft has crossed beaded ribbons. Framed Gandhāran-Corinthian columns[25] except at the top appear only in two cases at the angles of a *harmika* (Fig. 15)[26].

Most of *harmika* have pilasters with flute on the shaft (Fig. 16) and a torus of laurel leaves at their top (Fig. 17-18). Representations of Gandhāran-Corinthian pilasters often bordered the sides of panels depicting scenes of Buddha's life. On several sculptures, pilaster has a figure on the shaft and a capital surmounted by a console[27] with beads-and-reel moldings (Fig. 19). The figure on the pilaster's shaft can be a dancing woman, an Indian dressed worshiper, or a man bearing a club.

The lower border of those sculptures has a double row of lotus petals[28]. The same lower border appears on panels in which each pilaster has a capital crowned by a console enriched with saw tooth patterns (Fig. 20). The shaft of those pilasters features a double outlined flute[29]. A row of lotus petals must we also mentioned regarding a series of panels showing framed Gandhāran-Persepolitan columns (Fig. 21)[30]. Another series includes panels whose upper border is a torus of laurel leaves (Fig. 22). A worshiper standing on a lotus flower adorn pilaster's shaft. Some panels show a framed Gandhāran-Corinthian column, except at the top[31]. Each of these columns has a capital including two internal volutes clearly indicated and two external volutes overlapping the outer border of the frame (Fig. 23). We can mention for comparison a fragment bordered at the top by a row of lotus petals (Fig. 24). This rare framed

---

[19] FACCENNA 1962, B2291, Pl. CCCLVIII.
[20] FACCENNA 1962, B289, Pl. DCLXVIIIa, 21 cm high.
[21] Sometime describes as a "hemisphere".
[22] FACCENNA 1962, B3944, Pl. DCLXXI, 17 cm high.
[23] FACCENNA 1962, B2394, Pl. DCLXXa, 14.5 cm high.
[24] FACCENNA 1962, B800, Pl. CXLII, 47 cm high.
[25] "Corinthian pilasters with rounded shaft in countersunk panels" (MARSHALL 1960, p. 73).
[26] FACCENNA 1962, B2845, Pl. DXLIV; B2655, Pl. DXXV-VI.
[27] Console sometimes described as a modillion or voluted double bracket element. Gandhāran-corinthian pilasters without consoles appear on bigger sculptures between pairs of characters placed at balconies. They occur too but lacking the flute, for example at the bottom of a big sculpture in a secondary register where they separate some winged marine monsters one from the other. At the bottom of a big sculpture, some Toscan pilasters separate Atlas-like figures, and on a stela, flowers.
[28] FACCENNA 1962, B3281, Pl. XXIII, same frieze as B3275, B3279, Pl. XXIV and B3280, naturalistic style, 31 cm high. Another sculpture shows the same lower border, and on pilaster shaft a standing figure rise an arm. Fragmentary scenes conserved at each side of this pilaster are Mara's assault and offering of the bowls (FACCENNA 1962, B815, Pl. DCLXVIIb).
[29] FACCENNA 1962, B3357, Pl. XXIb; B3358, Pl. XX; B3359, Pl. XXIa; B4013, Pl. XXIIa, 21 cm high, curvilinear frieze, naturalistic style.
[30] FACCENNA 1962, B1539, Pl. XVIII; B822, B1171, B1184, B4149, 14.5 cm high, naturalistic style.
[31] The Gandhāran-Corinthian column without frame appears in some representations of architectures, as is the case for example in big sculptures on which short Gandhāran-Corinthian columns lacking a base separate characters, who seem to observe the principal scene from balconies.

Gandhāran-Corinthian column has a shaft adorned with grooves and a capital's lower part reduced to two acanthus leaves[32].

Comparisons

Marshall described a door-jamb, 67 cm high, originated from Dharmarājikā *stūpa* site in Taxila and made of "chloritized micaceous schist" among "miscellaneous sculptures of the adolescent period" that "admirably illustrate the way in which, from about the middle of the first century onwards, the newly revived Hellenistic art became blended with Indian". Between two Gandhāran-Corinthian columns supporting an architrave adorned with a row of reversed stepped pyramid, are two "attired in Indian costumes" worshippers. Acanthus leaves adorned another architrave[33]. "On outer edge is a moulding of conventionalised lotus buds". The nature of stone used for this sculpture, the scotia-type base of columns and this garland of lotus flowers recall Butkara I. On a false gable from Zar Dheri, 181 cm high, superposed registers are each composed of two Gandhāran-Corinthian columns supporting an architrave adorned with reversed degrees above a row of circular patterns. In each register is most of the time a pair of Indian dressed worshippers but in upper most register characters seem to be monks. Beside those superposed registers, we can see a garland of lotus flowers emerging one from the other recalling some door-jambs from Butkara I[34].

The Gandhāran-Corinthian columns with a flower at the center of the abacus and a scotia-type base appear in the decor of Saïdu Sharif's Great *Stūpa*[35], but there is no upper border of the column frame. A smallest panel from Butkara III has a column with a slightly different capital (Fig. 25)[36]. I present also a specimen from the Dir district. Crossed beaded ribbons exceptionally adorn its shaft (Fig. 27)[37]. The scotia-type base is rare. We find it in Andan Dheri[38].

The flower at the abacus and scotia-type base also appear on sculptures described as "stair-risers reliefs". We can see standing figures wearing Indian dress[39], Greek dress[40] and to a lesser extent Scythian dress[41]. There are also naked figures[42] and boatmen[43]. On the capital of each column, some grooves under the external volute evoke the chalice[44].

Similar Gandhāran-Corinthian columns also appear on relief panels from the Mardan collection, showing scenes of Buddha's life, but here the column base is below the floor level

[32] FACCENNA 1962, B847, Pl. CCXCIV, stereometric style.
[33] MARSHALL 1960, pp. 58-59, Pl. 54, Fig. 79; MARSHALL 1951, p. 704, Pl. 214, n° 23; ROSENFIELD 1967, Fig. 55.
[34] CAMBON 2010, p. 103, Fig. 33.
[35] FACCENNA 1995.
[36] CAMBON 2010, p. 123, Fig. 51.
[37] CAMBON 2010, p. 122, Fig.50.
[38] Heidicon DMC 326; #23825750 DMC 496, #23821629; DMC 262, #23818070.
[39] INGHOLD 1957, Pl. IV, 3, N° 412-414; Marshall 1960, Pl. 28, fig. 43-44; Royal Ontario Museum, Object Number 924.27.1.
[40] INGHOLD 1957, p. 160, Pl. IV,1; Cleveland Museum of Art, Accession Number 1930.0328.2; Royal Ontario Museum, Object Number 930.19.2; Victoria and Albert Museum, Accession Number IS.3-1971.
[41] ROSENFIELD 1967, p. 216-217, fig. 58; Cleveland Museum of Art, Accession Number 1930.0328.1.
[42] Cleveland Museum of Art, Accession Number 1930.0328.3.
[43] INGHOLD 1957, p. 26, Pl. IV,2; Metropolitan Museum of Art, New-York, Accession number 13.96.21; MARSHALL 1960, Pl. 30, fig. 47; British Museum, Museum Number 1889,1016.1.
[44] A nice triangular sculpture in the Staatliche Museen zu Berlin shows the same detail (Objekt 1636882).

of the scene (Fig. 26)[45]. The rare scotia-type base we can find on a sculpture from Kula Dherī near Charsadda is worth mentioning[46].

At Sanghao, the column's frame has an upper border, and under each external volute, is an acanthus leaf in profile view (Fig. 28)[47]. Below the plinth of the column's base, there is the lower border of the column's frame, which rests on the floor level. The columns of Sikri *stūpa* are, in the same way, within a frame that has both an upper and a lower border, but the base appears partly below the floor level (Fig. 29)[48]. Furthermore, the capital has internal volutes and does not feature an acanthus leaf in profile view beneath the external volute. A legendary scene from the same site has a slightly different column (Fig. 30)[49] and a third sculpture from Sikri shows a much smaller Gandhāran-Corinthian column (Fig. 31)[50]. The upper border of the column's frame is still there, but external volutes just evoked and rendered horizontally. The doubling of its frame at the top and at the sides characterized a framed Gandhāran-Corinthian column on a sculpture from Sahri Bahlol (Fig. 32)[51]. Furthermore, what is striking is the way the artist emphasized the representation of the drooping lobe of the lateral acanthus leaves in the lower part of the capital. On a sculpture from Takht-i-Bahi[52], bordered at the top by a row of brackets topped with saw tooth, each framed Gandhāran-Corinthian column has a base, which resembles a pot, thus recalling some sculpture from Jamal Garhi[53]. The framed Gandhāran-Corinthian column in Charsadda on a sculpture without upper border molding has a frame adorned with a row of beads-and-reel[54]. In Haḍḍa, on some framed Gandhāran-Corinthian columns, two horizontal grooves placed at half the height of the shaft are particularly interesting[55].

Let us turn now to Gandhāran-Corinthian pilasters. In Chatpat like in Andhan Dheri and Ramora[56], the frame in which Gandhāran-Corinthian pilasters without figure on the shaft often are, as is the case with columns, is especially characterizing. As far as I know, in other sites, pilasters have generally no frame. In a series of panels from Bambolay[57], each pilaster has a flute with curved lateral sides and acanthus leaves, each with nine lobes. The disappearance of the external volute, replaced by an acanthus leaf seen in profile view, is a very significant feature. In the shaft of the pilasters, the doubling of the fluted border is quite rare. I show here a very particular example that Ackermann has attributed to the Swat valley and gave to second quarter of 2nd century CE (Fig. 33)[58]. A very large console enriched with a saw tooth pattern characterizes this pilaster. Ackermann gave the same origin and a later date to the next example (Fig. 34)[59]. What is striking is the upper central acanthus leaf, with its drooping central lobe and the probable loss of the internal volutes at both sides of it. As we can see on a pilaster

[45] There is "Interpretation of Māyā's dream", 15 cm high (FOUCHER 1905-51, Fig. 151; INGHOLD 1957, p. 51, nº 12; MARSHALL 1960, Pl. 34, Fig. 54). "The Seven Steps" has the same height (FOUCHER 1905-51, Fig. 155; MARSHALL 1960, Pl. 34, Fig. 55). "The Great Renunciation" from Takht-i-Bahi presented probably same characteristics and has 17 cm high (FOUCHER 1905-51, p. 351, Fig. 179; British Museum, Museum Number 1900,0414.12).
[46] ACKERMANN 1975, Pl. VI, Victoria and Albert Museum, Accession Number IS.11-1951.
[47] FOUCHER 1905-51, Fig. 173, 18 cm high.
[48] FOUCHER 1903; MARSHALL 1960, Pl. 49-53.
[49] CAMBON 2010, p. 127, Fig. 55.
[50] FOUCHER 1905-51, Fig. 297, 21 cm high; The Huntington Archive, Scan Number 9774.
[51] STEIN 1915, Pl. XXXIX, Fig. 8; INGHOLD 1957, p. 60, nº 44.
[52] SPOONER 1911, p. 139, nº 794, Pl. XLIIIa; INGHOLD 1957, p. 84, nº 120.
[53] ERRINGTON 2022, p. 26, Fig. 22, nº 3; British Museum, Museum Number 1880.103, 17.1 cm high.
[54] MARSHALL & VOGEL 1904, Pl. XXVII.
[55] DAGENS, LE BERRE & SCHLUMBERGER 1964, Pl. X, nº 39 ; Haḍḍa Archéo Database, nº 444.
[56] DANI 1968-69.
[57] DANI 1968-69.
[58] ACKERMANN 1975, Pl. XXXVIII, Victoria and Albert Museum, Accession Number IM.302-1921.
[59] ACKERMANN 1975, Pl. XXXIX, Victoria and Albert Museum, Accession Number IM.52-1936.

represented on a sculpture from the Nathu upper monastery, some artists preferred a straight central acanthus leaf and they found enough place to depict an acanthus leaf in profile view, even beneath the internal volute (Fig. 35)[60].

At Takht-i-Bahi, absence of flute characterized the pilasters with console adorning the pedestal of the emaciated Buddha sculpture (Fig. 36)[61]. At Taxila, the console is absent but flute reappears timidly in the shaft (Fig. 37)[62]. In fact, it is probably at Haḍḍa that we once again encounter flute with a doubled border (Fig. 38)[63]. We shall emphasize here on the particular treatment of acanthus leaves with their very drooping central lobes. A sculpture from Chakhil-i-Goundi, showing two superposed scenes of Buddha's life separated by a row of brackets, features Gandhāran-Corinthian pilasters with console and a short flute in the shaft (Fig. 39)[64]. At the lower border, there is a row of acanthus leaves, each separated by grooves: The traditionally intercalated lotus petals have lost their original form.

On a sculpture from Shotorak, the pilaster lacks both a console and flute (Fig. 40)[65]. The lower part of the capital consists of two acanthus leaves shown in profile view. In Fayaz Tepa (Fig. 41), pilasters without console support an arch with brackets. Here, the double-bordered flute and the very drooping acanthus leaves recall Haḍḍa. The scotia-type base is very rare for a pilaster.

It remains to consider Gandhāran-Corinthian pilasters showing a figurative decor on the shaft. The diversity of figures present on pilaster's shaft characterized sculptures from Chatpat. Here, for example, we can see a kneeled monk (Fig. 42)[66]. There are also several forms of Buddha sitting on a lotus flower some with a stem and some without. Sometimes the pilasters have no console, while at other times they do. Another Gandhāran-Corinthian pilaster from Chatpat presented here belongs to a sculpture whose upper border is a row of lotus petals (Fig. 43)[67]. The importance of the console is obvious and the particular way the voluted extremity is treated is very significant[68]. On sculptures from Loriyan Tangaï, we can sometimes see a seated Buddha (Fig. 44) and in other cases a standing worshiper. There is no pilaster console. In the same way, on a sculpture from Sanghao, there is no pilaster console (Fig. 45)[69]. We see a very particular pattern on the lower border. The monk of the shaft is standing. The Gandhāran-Corinthian pilaster on a sculpture from Sikri has a short console and a worshiper on the shaft (Fig. 46)[70]. A seated Buddha on the shaft appears also at Taxila and again the pilaster has no console (Fig. 47)[71]. On the shaft of a pilaster from a sculpture in Shotorak, the figurative decoration almost forms a scene, and the capital, with two superposed rows of acanthus leaves is particularly prominent (Fig.48)[72]. Finally, a sculpture from Kunduz exhibits a distinctive treatment of acanthus leaves at its upper border and a pilaster with a capital featuring only three acanthus leaves. This pilaster supports two standing Buddha as well as two segmented arches with brackets (Fig. 49)[73].

---

[60] MARSHALL 1960, p. 68, Pl. 60, Fig. 87, "no doubts about the provenance of the pieces", 8.75 inch (22.2 cm); The Huntington Archive, Scan Number 4910.
[61] SPOONER 1911, Pl. XLIIIa
[62] CAMBON 2010, p. 130, Fig. 58.
[63] MARSHALL 1960, Pl. 86, Fig. 121;
[64] BUSSAGLI 1996, p. 261; Haḍḍa Archéo Database, n° 466.
[65] MEUNIÉ 1942, Fig. 61; The Huntington Archive, Scan Number 10535
[66] Heidicon DMC 720 #23794066, 21.8-23 cm high.
[67] Heidicon DMC 621#23789156, 26.6 cm high.
[68] In fact, on a sculpture from Sahri Bahlol (PONS 2024, Fig. II.4.24), the treatment of figured pilaster's capital is so close that a link is undoubtable.
[69] FOUCHER 1905-51, Fig. 191, 16 cm high; MARSHALL 1960, Pl. 47, Fig. 71.
[70] FOUCHER 1905-51, Fig. 224, 13 cm high.
[71] CAMBON 2010, p. 133, Fig. 61.
[72] MEUNIÉ 1942, Fig. 54.
[73] FISCHER 1958.

To conclude, we must acknowledge all the people who worked with great care to build the massive monuments that sculptures adorned. From sculptures, we can clearly observe that artists in Gandhāra worked in various ways within the broader context of a developing tradition. The first classification to make, concerns the form of the sculptures. As we have seen at Butkara I, sculptures on the same site can exhibit very different features while being linked by the transmission of similar moldings between artists. These artists, likely aiming to conform to earlier traditions, repeat older motifs but interpret them in their own way. By considering the frame, we can compare sculptures from different sites. The first result of this approach is the ability to group them based on shared characteristics in their moldings, columns and pilasters. I pointed out some examples of sculptures showing Gandhāran-Corinthian columns and pilasters with well-attested origins. Each of them has its own distinct characteristics and serves as a reference point for proposing probable workshops of production for the numerous Gandhāran sculptures dispersed in Museums, many of which lack indication of their origin. Indeed, by cross-referencing information obtained from careful observation of columns and pilasters on one hand, and the description of upper and lower borders on the other, we gain a valuable tool for objectifying our approach to these sculptures. I will not present the typology of Gandhāran-Persepolitan columns here nor will I elaborate further on how the description of moldings at the upper and lower borders of the sculptures is effective in identifying sculptures that share same stylistic treatment of drapery, similar proportions of the human body, and a similar way of composing the scene. Furthermore, I will not discuss the figures placed within a frame to separate scenes, nor other types of ornamentation used for this purpose, although their study is also relevant[74].

[74] It remains to thank Professor Guillaume Ducœur for inviting me to co-organize this colloquium, ITI-HiSAAR staff for all its work and late Professor Zémaryalaï Tarzi and his daughter Nadia for their help to redact this presentation. I am also grateful to Alexandra Vanleene for her corrections and to members of France Travail for their support.

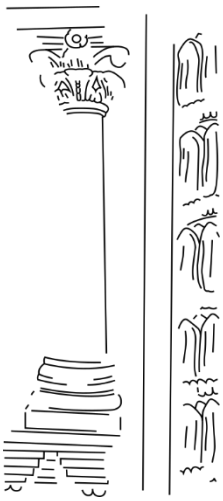


Fig. 1: B 1603 (B 284, B 2871, B 4325).



Fig. 2: B 689



Fig. 3: B 80



Fig. 4: B 3215



Fig. 5: B 3549, face A

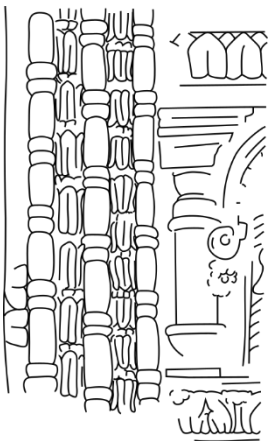


Fig. 6: B 3549, face B



Fig. 7: B 4258

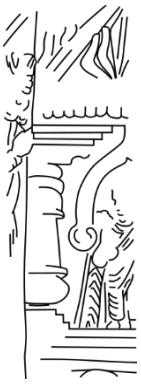


Fig. 8: B 2291

0 10 cm

All drawings by Arnaud Marguier

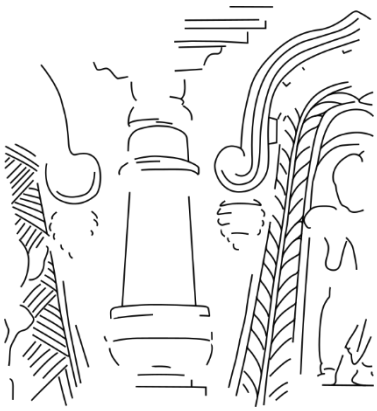


Fig. 9: B 289



Fig. 10: B 4208

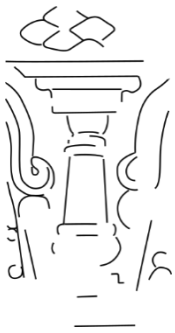


Fig. 11: B 3944



Fig. 12: B 2394



Fig. 13: B 3974



Fig. 14: B 800



Fig. 15: B 2845



Fig. 16: B 1027



Fig. 17: B 3067



Fig. 18: B 3493

0 10 cm

All drawings by Arnaud Marguier



Fig. 19: B 3281, B 3279



Fig. 20: B 3357

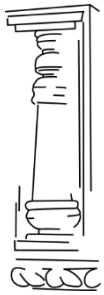


Fig. 21: B 1539



Fig. 22: B 782



Fig. 23: B 4016



Fig. 24: B 847

0 10 cm

All drawings by Arnaud Marguier

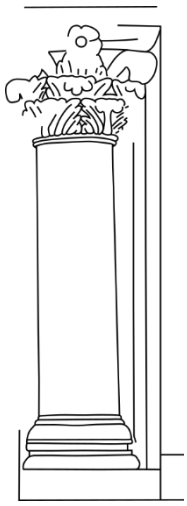


Fig. 25: Butkara III

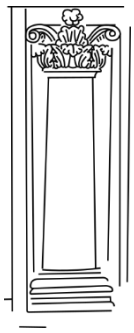


Fig. 26: Collection of guide regiment in Mardan

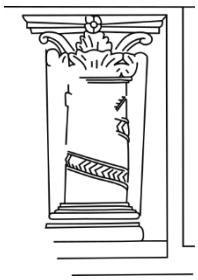


Fig. 27: Charkpat (Dir)

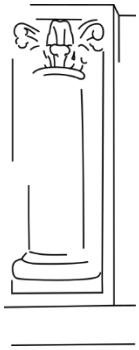


Fig. 28: Sanghao

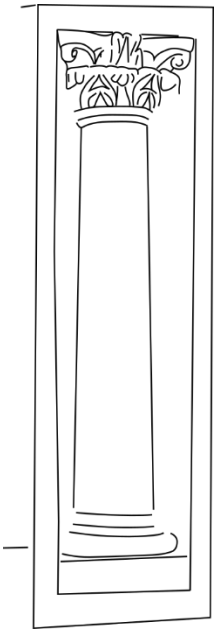


Fig. 29: Sikri *stūpa*

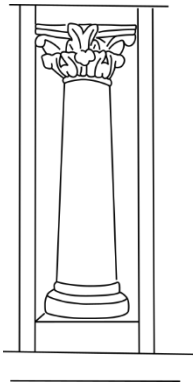


Fig. 30: Sikri



Fig. 31: Sikri



Fig. 32: Sahri Bahlol

0 10 cm

All drawings by Arnaud Marguier

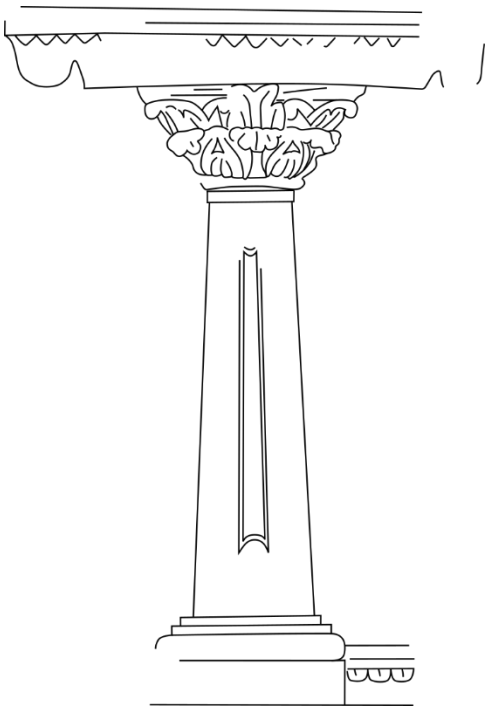


Fig. 33: Swat

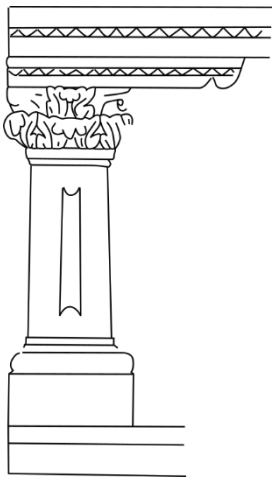


Fig. 34: Swat

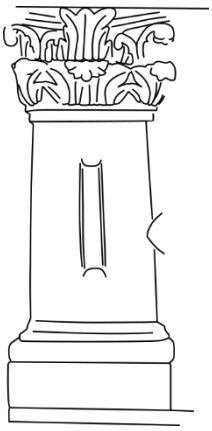


Fig. 35: Nathu



Fig. 36: Takht-i Bahai



Fig. 37: Taxila

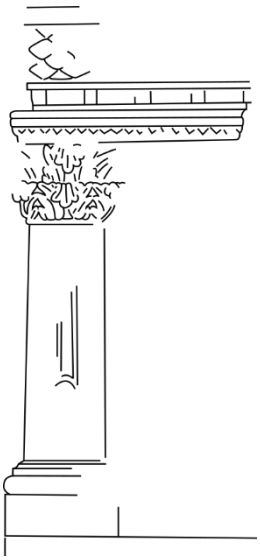


Fig. 38: Hadda



Fig. 39: Chakhil-i Ghoundi



Fig. 40: Shotorak

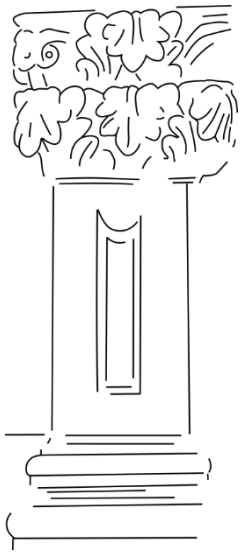


Fig. 41: Fayaz Tepa

0 10 cm

All drawings by Arnaud Marguier



Fig. 42: Chatpat

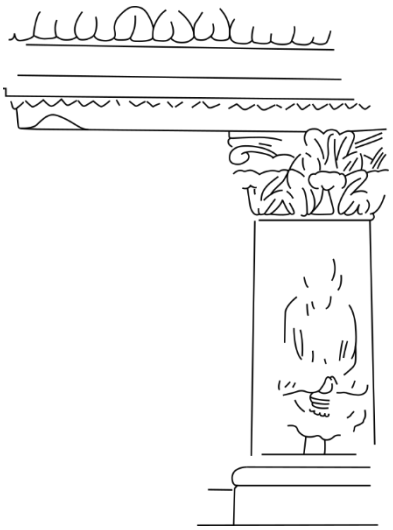


Fig. 43: Chatpat

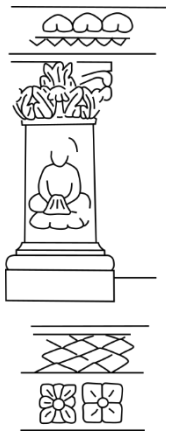


Fig. 44: Loriyan Tangai



Fig. 45: Sanghao



Fig. 46: Sikri



Fig. 47: Taxila

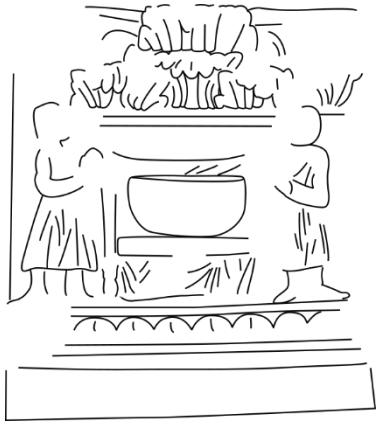


Fig 48: Shotorak

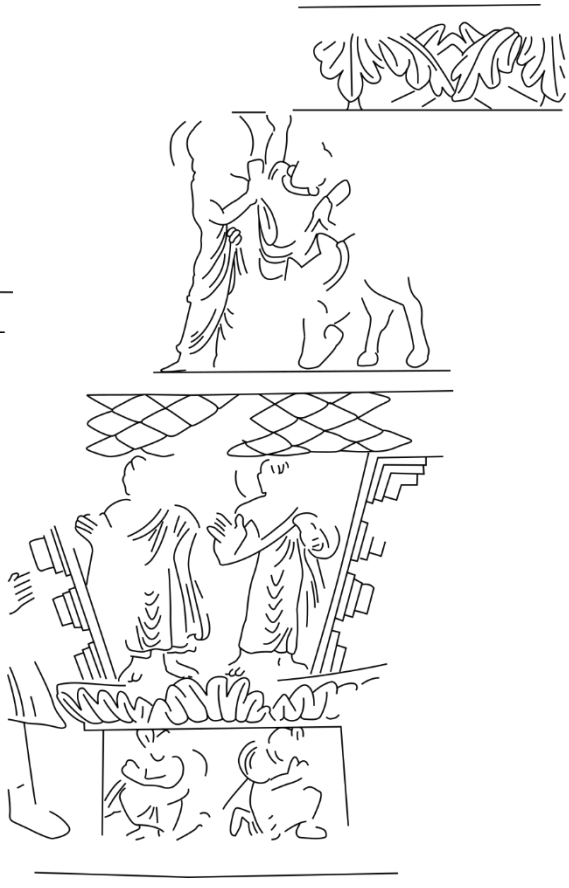


Fig. 49: Kunduz

0 10 cm

All drawings by Arnaud Marguier

BIBLIOGRAPHICAL REFERENCES

ACKERMANN 1975
Hans Christoph Ackermann, *Narrative Stone Reliefs from Gandhara in the Victoria and Albert Museum in London*. *Catalogue and Attempt at a Stylistic History*, IsMEO Reports and Memoirs XVII, Director of the Series Giuseppe Tucci, Rome.

BUSSAGLI 1996
Mario Bussagli, *L'Arte del Gandhara*, Turin, 1984, traduction française : *L'Art du Gandhāra*, Librairie générale française, La Pochothèque, Paris.

CAMBON 2010
Pierre Cambon, *Pakistan*, *Terre de rencontre* Ier-VIe *siècle*, Paris.

DAGENS, LE BERRE & SCHLUMBERGER 1964
Bruno Dagens, Marc Le Berre and Daniel Schlumberger, *Monuments préislamiques d'Afghanistan,* Mémoires de la Délégation Archéologique Française en Afghanistan XIX, Paris.

DANI 1968-69
Ahmad Hasan Dani, "Chakdara Fort and Gandhāra Art", *Ancient Pakistan,* vol. IV.

ERRINGTON 2022
Elisabeth Errington, "Reconstructiong Jamalgarhi and Appendix B, The archaeological record 1848-1923", *The Rediscovery and Reception of Gandharan Art*, Oxford, pp. 1-42.

FACCENNA 1962-1964
Domenico Faccenna, *Reports on the Campaigns* 1956-1958 *in Swat* (*Pakistan*), *Mingora*: *Site of Butkara* I; *Sculptures from the Sacred Area of Butkara* I (*Swāt, Pakistan*), Part. 2 and 3, IsMEO Reports and Memoirs 1-2, Rome.

FACCENNA 1995
Domenico Faccenna, *Saïdu Sharif* I (*Swāt*, *Pakistan*) 2, *The Buddhist Sacred Area*. *The stūpa terrace*, IsMEO Reports and Memoirs XXIII, 2, Rome.

FISCHER 1958
Klaus Fischer, "Gandhāran sculpture from Kunduz and environs", *Artibus Asiae* XXI, 3-4, p. 231.

FOUCHER 1903
Alfred Foucher, "Les bas-reliefs du *stūpa* de Sikri (Gandhāra)", *Journal Asiatique*, sept.-oct. 1903, p. 185-330.

FOUCHER 1905-51
Alfred Foucher, *L'art gréco-bouddhique du Gandhāra*, 2 vol., Paris-Hanoï.

INGHOLD 1957
Harald Ingholt, *Gandhāran Art in Pakistan*, Pantheon Books, New York.

MARSHALL 1951
Sir John Marshall, *Taxila, an illustrated account of archaeological excavations carried under the orders of the government of India between the years* 1913 *and* 1934, 3 vols., The University Press, Cambridge.

MARSHALL 1960
Sir John Marshall, *The Buddhist Art of Gandhāra, the story of the early school its birth, growth and decline*, Cambridge University Press, Cambridge.

MARSHALL & VOGEL 1904
Sir John Marshall & J. Ph. Vogel, "Excavations at Charsada", *Archaeological Survey of India Annual Report* 1902-03, pp. 141-184.

MEUNIÉ 1942
Jacques Meunié, *Shotorak,* Mémoires de la Délégation Archéologique Française en Afghanistan X, Paris.

PONS 2024
Jessie Pons, *Arts du Gandhara, Richesse, Diversité et Répartition des ateliers de sculpteurs sur pierre*, Strasbourg.

ROSENFIELD 1967
John M. Rosenfield, *The dynastic Arts of the Kushans*, Berkeley and Los Angeles.

SPOONER 1911
David Brainerd Spooner, "Excavations at Takht-i-Bāhi", Ar*chaeological Survey of India Annual Report* 1907-08, pp.132-148.

STEIN 1915
Aurel Stein, "Excavations at Sahri Bahlōl", *Archaeological Survey of India Annual Report* 1911-12, pp. 95-118.

STERN 1972
Philippe Stern, *Colonnes indiennes d'Ajanta et d'Ellora*, MG (ed.), Paris

STERN & BÉNISTI 1961
Philippe Stern & Mireille Bénisti, *Évolution du style indien d'Amaravati*, PUF, Paris.

TISSOT & LOTH 1985
Françine Tissot & Anne Marie Loth, *Gandhara*, Jean Maisonneuve (ed.), Paris.

Preliminary observations on a few Buddhist schist reliefs from Mes Aynak, Logar

Vydhegi Brice

Abstract

The Buddhist monasteries at the Mes Aynak site are among the most remarkable archaeological discoveries made in Afghanistan in recent years. The abundance of architectural remains and artefacts, dated between the 1st and 7th centuries CE, attests to the site's historical and cultural significance. Despite its importance, Mes Aynak remains only partially studied due to the urgency of excavation campaigns, which were conducted under significant pressure from ongoing mining interests and regional instability. The exceptional quantity of material discovered raises numerous questions about religious practices and artistic production during the Kushan and post-Kushan periods. The present article seeks to further the various lines of inquiry initiated by previous research concerning the schist reliefs discovered at Mes Aynak.

Introduction

The Mes Aynak archaeological site is located in present-day Logar province, approximately 35 kilometers south of Kabul. Situated at an altitude of over 2500 meters, it preserves several Buddhist monasteries whose occupation is estimated to have occurred between the 1st and 7th centuries CE. Mes Aynak is notable for the coexistence, in the same area, of monastic complexes and a copper mine exploited during the same period.

The first references to the Mes Aynak site date back to the 1960s and are mainly geological. A. Lapparent mentioned the site as early as 1963, followed by several Soviet missions conducted in the late 1970s. The most significant geological research was carried out by T. Berthoud and his team[1]. A radiocarbon analysis performed on a fragment of charred wood suggests that mining activity at the site may have begun in the 1st century BCE.
The first archaeological investigations of the site date back to 1975, when Z. Tarzi[2] explored several galleries, shafts, and tunnels. In 1976, G. Fussmann and M. Le Berre[3] also visited the site. Finally, in 1980, J. C. Gardin and B. Lyonnet[4] conducted surveys to collect ceramic sherds.

Known for its archaeological potential, the site was regularly looted in the 2000s. In 2004, the Director of the National Institute of Archaeology, N. Rasouli, visited the site; however, excavations could not be carried out due to inadequate security conditions. Since the early 2000s, the site's copper reserves, estimated to be the second largest in the world[5], have attracted the interest of industrial operators. An agreement was signed in May 2008 in favor of the Metallurgical Corporation of China, for a period of thirty years, effectively condemning the site to inevitable destruction. Faced with this threat, urgent rescue excavations were initiated. From the outset, the French Archaeological Delegation in Afghanistan provided support as a scientific consultant[6].

---

[1] BERTHOUD *et al.* 1977, pp. 12-15.
[2] TARZI 2011.
[3] FUSSMAN and LE BERRE 1976, pp. 101-102.
[4] GARDIN and LYONNET 1980.
[5] Afghanistan Geological Survey & British Geological Survey, 2005, *Aynak Information Package*, Part I & II, Kaboul.
[6] ENGEL 2022, pp. 238-243.

The excavation campaigns began in the summer of 2009 and continued intermittently until 2019. They were initially planned to last only a few months. However, after many negotiations, they were extended on multiple occasions. This system of halting and resuming the excavations, with additional short-term extensions, continued for nearly a decade. Under these conditions, the primary objective was always to excavate as quickly as possible in order to rescue as many archaeological remains as possible before the destruction of the site[7]. Due to the urgency of the operations, standard documentation could not be carried out consistently. As a result, some areas have only partial scientific records, while others were more thoroughly documented.

The archaeological remains currently cover an area of more than 4 kilometers². The site consists of a main mountain to the west, a series of hills extending to the north and east, and a central lower area occupied by architectural structures forming the lower city. The number of identified sites or test trenches opened across the area exceeds one hundred[8]. These can be grouped into three main categories: structures related to mining activity associated with the main mountain (extraction workshops, slag dumps[9], fortifications, etc.), those related to religious activity (monasteries, chapels, temples, etc.), and those related to civil architecture (residential areas, storage facilities, etc.). Mes Aynak preserves several monastic complexes. As of 2017, six had been definitively identified: Gol Hamid (site 001), Kafiriat Tepe (site 003), Shahmar Tepe (site 007), Shamal-e Baba Wali (site 013), site 042, and Kuh-e Aynak (site 045), along with a seventh cult-related site, Shah Tepe (site 006). The site also includes a number of chapels scattered throughout the urban fabric.

The monasteries of Mes Aynak, curiously reminiscent of those at Haḍḍa, are richly adorned with architectural decorations, mural paintings, hundreds of modeled clay sculptures of various sizes, as well as numerous decorated *stūpas*. The recurring motifs used in these monastic complexes depict the Buddha in various episodes of his life, surrounded by donors and/or devotees, and, in later phases, by Bodhisattvas. The site also yielded a wide range of artefacts from various categories, including manuscripts, coins, sculptures, jewelry, ceramics, and stamped sherds, among other finds.

Schist reliefs have also been discovered. The complete pieces, though few in number, are notable in their composition, which blends traditional iconographic themes with local features. The article presented here examines three schist reliefs and one wooden relief. An analysis and comparison of these selected reliefs with those from other areas can provide valuable insights into religious representations in Buddhist monasteries, from both local and regional contexts.

The relief of the *Jātaka* of the Buddha Dīpaṅkara

One of the most interesting artefacts discovered at Mes Aynak is a complete relief from the Kafiriat Tepe site depicting the *Jātaka* of the Buddha Dīpaṅkara. Carved from schist, the relief measures 41 cm in height and 25 cm in width (Fig. 1). It features a rounded upper section and is divided into two parts: the main scene and a lower rectangular portion. The main scene is decorated with a fine border made up of small triangles pointing outward. The relief shows numerous traces of polychromy[10] and gilding residues[11] indicating a once richly ornamented surface.

[7] KHAIRZADA and FUSSMAN 2013, p. 71.
[8] In 2017, nineteen sites were considered high-priority.
[9] ELEY, MARQUIS and NOORI 2019.
[10] Mostly remains of red pigment and some blue and black pigments.
[11] The traces of gilding are particularly visible on the drapery of the different characters.

Remarkably, a hole was drilled into the upper part of the relief and the reverse side was painted[12], those elements suggest a display context that maybe allowed visibility from multiple angles.

The story of the Buddha Dīpaṅkara, who, according to Buddhist texts, was the earliest of the twenty-four predecessors of the Buddha Śākyamuni [13], is well known in Gandhāran iconography. The episode is variously represented by artists, especially in the regions of Nagarāhāra and Kabul.

This *Jātaka* is known mainly from Pāli, Prakrit, and Sanskrit texts[14]. It narrates one of the previous lives of the Buddha Śākyamuni, when he was just a young Brahmanic student. In these texts, the stories differ in detail, but the general framework remains the same.

According to the Pāli version, the Buddha Dīpaṅkara planned to visit the city of Dīpavatī. The king of this locality reserved all the available flowers to pay a worthy homage to the eminent figure, thereby causing a shortage of flowers. The student known as Megha (according to the *Mahāvastu*) or Sumati (according to the *Divyāvadāna*) managed to buy five of the seven lotuses from a young woman named Gopā, only after promising to marry her in all his future incarnations. As we will see later, she can easily be identified as the future Yasodharā.

Usually, in order to illustrate the four key moments of this narrative episode, the main character, Sumati, is depicted multiple times in different postures either side by side or, in some cases, even overlapped. In some reliefs, such as the one from Mes Aynak, only the last three moments are shown. After negotiating for the flowers, Sumati waited on the road for the Buddha Dīpaṅkara. As he passed by, Sumati tossed the five lotuses before him. Instead of falling to the ground, the flower miraculously remain suspended in the air, forming a sort of halo around the Buddha's head.

In this relief (Fig. 1), the Buddha Dīpaṅkara occupies the central position, extending the full height of the upper section. He is depicted frontally, with his hand in *dhyānamudrā*. His body proportions are relatively compact, and his face is notably round. The characteristic features associated with his enlightened state are clearly visible: the fragmented *ūrṇā*, the *uṣṇīṣa*, and the elongated earlobes. Sumati, recognizable by his chignon and the water vase held in his left hand, stands to the right of the Buddha. His right arm and part of his hair extend slightly beyond the edge of the relief. He still holds the lotuses in his right hand, and his shoulder, slightly lowered, suggests that he is about to throw them. The same flowers are shown floating on the upper rounded edge of the relief, three of them appearing partially fragmented.

Moved by the miracle, Sumati, forgetting all his marriage promises, expresses his desire to pursue the path to enlightenment as well. In the same spirit of devotion, he prostrated himself before the Buddha, using his own hair to cover the muddy ground to prevent the Blessed One from soiling his feet. In some versions of the story, the young man also offers his upper garment. Here, we can see that the second Sumati (depicted in front of the first Sumati) is fully prostrated. His back forms a curve, his forehead is resting on the ground, and his hair is shown under the right foot of the Buddha.

In the final sequence of the episode, the Buddha Dīpaṅkara, moved by the student's sincere devotion, proclaims that Sumati will one day attain Buddhahood in a future life. This prediction

[12] ENGEL 2011, p. 42: The painting depicts the Buddha seated in *padmāsana,* flanked on either side by two figures. Two devotees are also visible in the foreground.
[13] INGHOLT 1957, p. 50.
[14] FOUCHER 1905, p. 273.

is accompanied by a second miracle: the levitation of Sumati. In our relief, Sumati appears once more, this time elevated in the upper section of the composition, floating beside the lotuses, kneeling with his hands joined in *añjalimudrā*.

As previously noted, likely due to the limited width of the panel, the artist opted to restrict the composition to its essential elements: the Buddha, the three Sumatis, and the lotuses, all enclosed within a border decorated with small triangular motifs.

Finally, the lower part of the relief's base is decorated with a small scene depicting four figures in adoration before the Buddha's bowl, placed on a little platform topped by a canopy. The cult of the bowl[15] as a sacred relic is also a recurring theme in Gandhāran iconography.

The relief from Mes Aynak shows similarities with other examples found in the region, particularly with those discovered at Shotorak. This archaeological site is located some thirty kilometers north of Kabul, close to the Begram site. Excavations carried out in 1937 uncovered numerous fragments, as well as a complete relief, all associated with the *Jātaka* of Buddha Dīpaṅkara[16]. The repeated appearance of this motif on this site seems to indicate a particular attachment to the message conveyed by this episode.

When comparing this relief[17] with that from Mes Aynak, a number of similarities can be observed. Both artefacts share the same overall form, as well as a similar division between the main scene and the secondary scene depicted on the base.

The composition of the main scene is similar: the Buddha Dīpaṅkara is depicted in *abhayamudrā*, occupying the full height and positioned at the center of the composition. His body proportions are stocky. Sumati stands to his right, with one hand slightly extending beyond the frame. The prostrated Sumati appears in the foreground, partially obscuring the legs of his standing counterpart. Five flowers decorate the upper part of the scene, and a border frames the entire composition.

The two reliefs clearly share an identical framework, although some variations are visible. On the Shotorak relief, the following differences can be observed: the shoulders of the Buddha Dīpaṅkara are adorned with flames; this iconographic detail is often interpreted as an Iranian influence in connection with universal kingship, as noted by Meunié[18]. Fussman presents another possible interpretation within the context of Indian thought and Buddhism: that of the concept of *tejas*, symbolizing more an inner energy[19]. A lotus of the Law is inscribed on the palm of the Buddha's right hand. Sumati is presented on a quadrangular garment, which also protrudes slightly into the pedestal scene. Other figures are also included, among them a Bodhisattva, also depicted in *abhayamudrā*, who accompanies the Blessed One to his right. Due to his turban, he is identified as Prince Siddhartha. Two figures in *añjalimudrā*. are shown floating, kneeling on either side of the Buddha's face; these are the customary Brahma and Indra, presenting their homage. It can be seen here that Sumati is not represented a third time as customary.

Such additions and omissions of figures or symbolic elements reflect not only the artist’s personal aesthetic choices but also the expectations of the commissioner(s). The selection of

[15] WANG-TOUTAIN 1994.
[16] MEUNIÉ 1942, p. 33.
[17] *Ibid*, Pl. X, fig. 36, stele n°149.
[18] MEUNIÉ 1942, p. 36. Use of specific terms: “sainteté” and “majesté”.
[19] FUSSMAN 2008, p. 153.

specific iconographic details, in particular, served to emphasize a deliberate message or to highlight key moments within the depicted episode.

To complement our comparison, the study conducted by Foucher in 1905[20] provides additional relevant information. His analysis focuses on three reliefs, two of which appear to originate from the Peshawar region, while the provenance of the third remains uncertain. Once again, the overall composition follows a similar pattern: the positioning of the figures, the prominent scale of the Buddha, and the repetition of the young Brahmin figure make it easy to identify the episode in question.

However, certain notable differences can be observed. In these three reliefs, the artists chose to depict architectural elements of the city of Dīpavatī. Columns and pilasters frame the scene, balustrades shelter the spectators who have come to acclaim the Buddha Dīpaṅkara, and a doorway provides a niche for the young woman bearing flowers. Secondary figures are also systematically included: the monk, frequently depicted as a representative of the monastic community; Vajrapāṇi, at times, as the Blessed One's companion and protector; and, when space permits, additional devotees are also represented. All of these additional elements serve to enrich the decor, thereby bringing a sense of depth to the composition.

This profusion can be explained by two main reasons. In Gandhāra, the choice of a horizontally oriented rectangular format facilitates the integration of multiple narrative elements around the central figure. The second possible reason concerns the choice of religious message: it appears that particular attention is given to the initial situation of the episode. The artists were keen to show a Buddha awaited and acclaimed by the entire population, demonstrating the importance of his teachings. At the same time, the presence of the young woman alludes to the commitments made by the young student who, despite his aspiration for spiritual elevation, remains entangled in earthly attachments, announcing the potential challenges that lie along the path to enlightenment.

In the region referred to as Kabul-Kapisa, the support takes a vertically oriented rectangular form with a rounded upper section. This compositional choice limits secondary narrative elements. Regarding the conveyed message, it appears that the focus is primarily on the interaction between the Buddha and the student, thereby highlighting the act of devotion and the potential merits to be gained through renunciation.

The expression of a regional style

The combined expression "Kabul-Kapisa" was introduced by Professor Tarzi to designate specific local stylistic features of this region[21], distinguishing it from the stylistic conventions observed in Gandhāra and in Swat.

According to his iconographic and comparative study, schist reliefs in the Kabul-Kapisa style are distinguished by five specific features: the type of stone used; the frequent use of mandorlas and halos with decorated borders[22]; notable disproportions between different parts of the body; compact figures (especially in representations of the Buddha)[23]; and finally,

[20] FOUCHER 1905, p. 273.

[21] TARZI 2000, p. 91: "Dans bien des cas, la ressemblance des objets archéologiques entre les deux bassins voisins est tellement frappante que nous ne nous permettons pas de les étudier comme deux productions séparées, mais plutôt comme seule entité indivisible".

[22] TARZI 2000, p. 93: "usage fréquent des mandorles et nimbes aux contours embrasés".

[23] *Ibid*. p. 93: "[…] adoption des proportions trapues des Buddha debout, voire dans la disproportion entre la taille (stature) et la grosseur de la tête et des membres supérieurs".

the choice of iconographic themes[24]. Regarding the shape of the reliefs, Tarzi identifies two distinct types: a rectangular form with a rounded top, and an approximately rectangular form surmounted by a halo[25].

His analysis is further developed by Professor Fussman, who proposes the hypothesis of a major production center[26] for schist reliefs in the Kabul and Kapisa region, which he refers to as the Païtava workshop[27]. The stylistic features of this group are characterized by rigid figures with compact proportions, depicted mainly frontally. The garment folds are deep, and their arrangement is so conventional that it sometimes appears clumsy[28].

Fussman also identifies four notable recurring shapes among the formal types employed: hybrid-shaped reliefs, usually composed of a central rectangular section flanked by two small rectangular side elements and topped with a nearly circular form[29]. Rectangular reliefs with rounded tops, usually used to depict a standing Buddha in *abhayamudrā*, leaning against the support[30]. Round reliefs, or *tondi*, depicting the Buddha seated in meditation, leaning against a perfectly circular mandorla[31]. And finally, the recurring use of small bases depicting miniature scenes, typically of a devotional nature[32].

In their respective analyses, both scholars agree that the region was the source of two major innovations[33]: the creation of the so-called statue-slab form, "statue-dalle", most likely related to the statues-slab of the Kushan kings; and the introduction of the mandorla or halo, derived from the older motif of the aureole.

Regarding the two reliefs from Mes Aynak and Shotorak depicting the *Jātaka* of Buddha Dīpaṅkara, it is clear that the artists employed the stereotypical form of the rectangular relief with a rounded top, combined with a base featuring a miniature scene. As for the representation of the figures, it clearly reflects local stylistic traits, particularly in the rigidity of the poses and the proportions of the bodies.

The others complete reliefs discovered at Mes Aynak

These stereotypical features, characteristic of the Kabul-Kapisa region or the Païtava workshop, are also observable in other artefacts found at Mes Aynak.

The wooden relief (Fig. 2), whose exact provenance is unknown, measures 20 cm in height and 13 cm in width. It depicts a seated Buddha in a meditative posture on a lotus flower, with his right hand raised in *abhayamudrā*. The particular appearance of the facial features and hair may

[24] *Ibid*. p. 93: About the The Great Miracle of Śrāvastī, "Śākyamuni émet des flammes de ses épaules, et […] de l'eau sous ses pieds".
[25] TARZI 2000, p. 94. Use of specific expressions : "stèle ou statue-dalle".
[26] FUSSMAN 2008, p. 149: "beaucoup de pièces assignées au style de Kapisa sont si particulières qu'il paraît difficile de croire qu'elles ne sortent pas d'un même atelier".
[27] FUSSMAN 2008, p. 154: clarification in a footnote regarding the style of Païtava "a fort bien pu être celui d'autres ateliers du Kapisa, que nous ne savons pas distinguer de celui de Païtava".
[28] FUSSMAN 2008, p. 150: "des personnages raides, aux proportions trapues, représentés strictement de face ; les plis des vêtements sont profonds, et leur disposition conventionnelle au point d'en être parfois très maladroite".
[29] *Ibid*. p. 150: This form is particularly used to depict the Miracle of Śrāvastī.
[30] *Ibid*. p. 150: Also referred to as "mandorle de forme ovale".
[31] *Ibid*. p. 150: Also referred as "stèle circulaire" or "mandorle circulaire".
[32] The central figure or object is placed in the middle, surrounded by devotees. Occasionally, the base may also be decorated with floral motifs.
[33] TARZI 2000, p. 94 and FUSSMAN 2008, p. 154.

be attributed to the small size of the relief, as well as to the grain of the wood, which may have limited the rendering of finer details.

Certain similarities clearly recall the schist reliefs. The shape of the relief follows the contours of the Blessed One's body: it is rectangular in form, rounds off at the shoulders, and extends into a mandorla at the level of the head. The relief is framed by a simple border around the body; at the level of the face, the border becomes thicker and is itself decorated with small elements. The body's proportions are clearly compact, and the hands also appear disproportionately large. Due to its small size, the base does not include a narrative scene; it is simply decorated with stylized lotus petals. Taken together, these elements suggest that the artist was inspired by stone reliefs. As this is the only known surviving wooden example, no comparative material is currently available. The relief is estimated to date relatively late, between the 5th and 7th centuries CE[34].

Another significant relief from Mes Aynak (Fig. 3) comes from the site of Kafiriat Tepe: "the pensive Bodhisattva" analyzed by Fussman in 2013[35]. It measures 40 cm in height and 21 cm in width. The schist stone used is believed not to be of local origin.

The relief depicts a young prince seated in a posture of relaxation beneath a Bodhi tree, wearing all the royal attributes: earrings, bracelets, necklaces, and a turban adorned with two wide ribbons flowing from the head to the shoulders. As noted by Fussman, the iconography is rather unusual: the presence of pipal leaves suggest that the figure is indeed Prince Siddhārtha on the eve of his awakening. However, it cannot be him, as he was already wearing ascetic garments at that point. His posture in *lalitāsana*, instead of the usual meditative position, also adds a degree of ambiguity.

According to Fussman, the situation may be explained by a "coalescence of two stereotyped motives", which provides two key insights: first, that neither the artist nor the patron appears to have had a thorough understanding of the iconographic themes associated with the life of the Buddha. And second, that there may have been a cult devoted to the future Buddha prior to his awakening or the "cult of Gautama".

Fussman clearly attributes this relief to the Païtava school for three main reasons: "the frontal attitude [...] of the monk", "the two vertical decorative bands flanking the prince", and the fact that the relief was found near the Buddha Dīpaṅkara relief.

To this analysis, one may add that the relief shares certain similarities with mandorla-shaped examples discovered at Païtava[36]. This rounded structure remains clearly discernible in the Mes Aynak relief, despite the presence of foliage. The final detail concerns the Bodhisattva's compact proportions: although seated, the shoulders and torso appear relatively broad in comparison to the rest of the body. All of these features clearly point to the local style. Based on numismatic evidence, the relief is dated to between the 3rd and 4th centuries CE.

Finally, a last schist relief (Fig. 4) discovered at Mes Aynak also deserves to be mentioned. Based on the previous analysis, it is clear that this relief also belongs to the Païtava school. First, the proportions of the body are notably compact; the shoulders appear notably broad, the left hand resting on the hip is disproportionately large, and the legs are unusually shortened. The Bodhisattva wears, as in the previous relief, a turban with two large ribbons flowing from the head to the shoulders. The upper part of the body is supported by a large circular mandorla,

[34] STANCO 2016, p 42.
[35] FUSSMAN 2013, pp. 35-39.
[36] FUSSMAN 2008, Pl. 87, fig. A & B.

which is adorned with a stylized border. All these features are typical of the Païtava school. This relief is also dated to the 3rd to 5th century CE.

Conclusion

Although the site of Mes Aynak is not mentioned in any known ancient textual sources, the analysis of the reliefs discussed in this article strongly suggests sustained interactions (whether artistic, cultural, or religious) with other monastic centers in the Kabul-Kapisa region, such as Shotorak and Païtava. The comparison and analysis of the reliefs, in light of previous research, confirm that Mes Aynak fits fully within the local artistic tradition, as evidenced by its preference for specific formal types, the proportions employed, and the selection of iconographic themes. The Gandhāran style is clearly reinterpreted here according to distinctly Afghan sensibilities.

It should also be noted that, despite certain similarities, the reliefs from Mes Aynak are striking for their unique features such as the blending of iconographic details, the use of wood, and the painted reverse of the first relief.

At the Mes Aynak site, the schist reliefs are dated between the 3rd and 5th centuries CE. To gain a more comprehensive understanding, it would be worthwhile to expand future research to include the other schist reliefs. More broadly, a thorough study of all available material, particularly the modeled sculptures, could yield valuable insights into the functioning and iconographic program of the Buddhist monasteries uncovered at this remarkable site.



Fig.1: Relief of the Buddha Dīpaṅkara
Kafiriat Tepe, Mes Aynak
Size: 41 x 25 x 8 cm, schiste
Kabul Museum, inv. n° 010.63.136
© 2016 Národní muzeum (STANCO 2016)



Fig. 2: Relief of Sitting Buddha
Site unknown, Mes Aynak
Size: 20.5 x 13 x 3 cm, wood
Kabul Museum, inv. n° 010.63.78
© 2016 Národní muzeum (STANCO 2016)



Fig. 3: Relief of the "Pensive Bodhisattva"
Kafiriat Tepe, Mes Aynak
Size: 40 x 21 cm, schist
Kabul Museum, inv. n° 010.63.117
© 2016 Národní muzeum (STANCO 2016)



Fig. 4: Relief of the Standing Boddhisattva
Site unknown, Mes Aynak
Size: 41 x 18,5 x 6 cm.
Kabul Museum, inv. n° 010.63.142
© 2016 Národní muzeum (STANCO 2016)

BIBLIOGRAPHICAL REFERENCES

BERTHOUD *et al.* 1977

Berthoud *et al.*, *Les anciennes mines d'Afghanistan. Rapport préliminaire*, Recherche coopérative sur programme n°442, pp. 12-15, Paris.

CAMBON 1996

Pierre Cambon, "Fouilles anciennes en Afghanistan (1924-1925). Païtāvā, Karratcha", *Art asiatiques*, tome 51, pp. 13-28.

COCKING *et al.* 2013

Guy Cocking *et al.*, *Recent Archaeological Works in Afghanistan: Preliminary Studies on Mes Aynak Excavations and Other Field Works*, Ministry of Information and Culture of the Islamic Republic of Afghanistan, Kabul.

ELEY, MARQUIS and NOORI 2019

Thomas Eley, Philippe Marquis and Noor Agha Noori, "Archaeometallurgical Evidence at Mes Aynak, Logar Province, Afghanistan", *Archaologische Mitteilungen aus Iran und Turan*, band 48, pp. 265-282.

ENGEL and MASSOUDI 2011

Nicolas Engel and Omara Khan Massoudi, *New excavations in Afghanistan: Mes Aynak Recent excavations along The Silk Road*, Exhibition Catalogue National Museum of Afghanistan, Kabul.

ENGEL 2022

Nicolas Engel, "Mes Aynak", in *Afghanistan, Ombres et Légendes*, Paris, pp. 238-243.

FACCENA and FILIGENZI 2007

Dominique Faccenna and Anna Filigenzi, *Repertorio terminologico per la schedatura delle sculture dell'arte gandharica: Sulla base dei materiali provenienti dagli scavi della Missione archeologica italiana dell'IsIAO nello Swat, Pakistan*, Istituto italiano per l'Africa e l'Oriente, Roma.

FOUCHER 1905

Alfred Foucher, *L'art gréco-bouddhique du Gandhāra: Étude sur les origines de l'influence classique dans l'art bouddhique de l'Inde et de l'Extrême-Orient*, I, Paris

FUSSMAN 2013

Gérard Fussman, "A newly discovered 'pensive bodhisattva' representing the young Gautama Siddhārtha Śākyamuni", in *Recent Archaeological works in Afghanistan. Preliminary studies on Mes Aynak excavations and other field works*, Kabul, pp. 35-39.

FUSSMAN and LE BERRE 1976

Gérard Fussman and Marc Le Berre, *Monuments bouddhiques de la région de Caboul I. Le monastère de Gul Dara*, MDAFA, vol. XXII, Paris.

FUSSMAN, OLLIVIER and BABA 2008

Gérard Fussman, Eric Ollivier and Murad Baba, *Monuments bouddhiques de la région de Caboul, - Kabul Buddhist Monuments*, Institut de civilisation indienne, fasc. 76, Paris.

GARDIN and LYONNET 1980
Jean-Claude Gardin and Bertille Lyonnet, *Datation sommaire des poteries du tessonnier de la Délégation Archéologique Française en Afghanistan*, Paris.

INGHOLT 1957
Harald Ingholt, *Gandhāran Art in Pakistan*, New York.

KHAIRZADA and FUSSMAN 2012
Khair Muhammad Khairzada and Gérard Fussman, "La fouille afghane de Mes Aynak (Afghanistan)", *Annuaire du Collège de France 2012-2013*, pp. 912-915, Paris.

KLIMBURG-SALTER 2018
Deborah Klimburg-Salter, "Contextualizing Mes Aynak", *Afghanistan*, vol 1.2, Edinburgh University, pp. 213-238.

MARSHALL 1960
John Marshall, *The Buddhist Art of Gandhāra*, Cambridge.

MEUNIÉ 1942
Jacques Meunié, *Shotorak*, MDAFA X, Paris

PONS 2024
Jessie Pons, *Art du Gandhara. Richesse, diversité et répartition des ateliers de sculpteurs sur pierre*, Archaeologia Afghana Collection, Strasbourg.

STANCO 2016
Ladislav Stanco, *Afghanistan: Rescued Treasures of Buddhism*, Exhibition Catalogue, National Museum Prague.

TARZI 2000
Zémaryalaï Tarzi, "Mise au point sur quelques schistes 'gréco-bouddhiques' d'Afghanistan", *Silk Road Art and Archaeology 6: Paper in honour of Francine Tissot*, Kamakura, pp. 83-96.

TARZI 2011
Zémaryalaï Tarzi, *Copper mine at Mes Aynak*, ebook in Association for Protection of Afghan Archaeology website, www.apaa.info.

TISSOT 2006
Francine Tissot, *Catalogue of the National Museum of Afghanistan (1931-1985)*, UNESCO.

WANG-TOUTAIN 1994
Françoise Wang-Toutain, "Le bol du Buddha. Propagation du bouddhisme et légitimité politique", *Bulletin de l'Ecole française d'Extrême-Orient*, t. 81, pp. 59-82, Paris.

ZWALF 1996
Wladimir Zwalf, A Catalogue of the Gandhāra Sculpture in the British Museum, 2 vols., London.

Technical Findings on Objects from Afghanistan at the Harvard Art Museums

Angela CHANG[1], Katherine EREMIN[2], Patrick DEGRYSE[3], Georgina RAYNER[4], Sarah LAURSEN[5]

Abstract

This paper reports recent findings from a technical study of 16 stucco objects in the collection of the Harvard Art Museums that have been attributed to 2nd- to 5th-century Afghanistan. Conservators and conservation scientists characterized the objects' lime plaster composite materials, construction, and pigments, using visual examination and analyses by scanning electron microscopy with energy dispersive microanalysis (SEM-EDS), Raman spectroscopy, Fourier transform infrared (FTIR) spectroscopy, and thin section petrography. One over-life-sized object dating to the 4th or 5th century, Head of a Buddhist Figure, was imaged using micro-computed tomography (micro-CT) to understand the details and relationships of its layered construction, as well its structural condition and restoration following its removal from its original context. The data and observations on the materials, construction techniques, and pigments, from this study may be compared with those of other sculptures from the region to help address art historical questions about origins and possible workshop groupings.

[1]Assistant Director, Senior Conservator of Objects and Sculpture, Head of Objects Lab, Straus Center for Conservation and Technical Studies, Harvard Art Museums. [2]Patricia Cornwell Senior Conservation Scientist, Straus Center. [3]Professor of Archaeometry, Department of Earth and Environmental Sciences, Katholieke Universiteit, Leuven, Belgium. [4]Conservation Scientist, Straus Center. [5]Alan J. Dworsky Curator of Chinese Art, Harvard Art Museums.

I. Introduction

This technical study of 16 sculptural stucco fragments from Afghanistan in the collection of the Harvard Art Museums stemmed from the investigation of the media comprising *Head of a Bodhisattva* (1943.57.7), which had been variably described in the museum's early curatorial records as "clay", "terracotta", and "stucco." A curatorial interest in the verification and specific nature of "stucco" for this object prompted a closer look by conservators and conservation scientists into the object's materials and manufacture. An expanded study was undertaken to include comparable objects in the collection to enable a deeper material understanding of the stucco medium. For these objects, which lack clear provenance, it is hoped that technical and stylistic analysis together may connect them with others of known origins. Complementing this technical research was a study of the objects' origins and histories by two consultative curators from the National Museum of Afghanistan, Basir Kamjo and Nasrin Belali and art historian Deborah Klimburg-Salter. Together they have attributed the objects to 2nd- to 5th-century sites in Haḍḍa, Afghanistan based on stylistic observations and comparisons with photographs taken at the sites and with objects with known provenance. Like most sculptural elements from Greater Gandhāra, the 16 fragments came from architectural frameworks and thus have break edges, losses, unfinished backs, or restorations. Grouped by their type and size, there are five heads (Figs. 1-5), seven reliefs (Figs. 6-11), and four small heads (Figs. 12-16), most with remnants of polychromy.

The five heads, ranging in size from 16 to 35 cm in height, appear modeled rather than molded. 1943.57.7, 89.1971, and 90.1971 have a solid, layered construction consisting of a coarse core material with a finer modeled surface layer. 1947.23 is assumed to have a similar construction based on its size and details, though restoration material blocks a view of the

interior. 1963.124 shows two layers around a hollow center missing its original internal armature. Viewed from the back, the interior surface shows impressions from a missing assembly made from rope wrapped around a fibrous material.

The seven reliefs range in size from 10 to 51 cm high. The backs of five reliefs retain remnants of their supporting structure. The largest, 1978.102, appears to have been modeled with applied details: its forms are in high relief with many undercut areas. The other relief fragments appear to have been molded: they have lower overall relief, shallow and simpler details, and their back surfaces are open and flat, suggesting the use of a one-piece mold. All are comprised of two layers: a finer grained stucco that was first pressed into a mold to capture details, and a coarser grained stucco to fill the rest of the volume and provide structural strength. The four small heads also appear molded. All but 1981.26 depict faces just beyond the back of the ears. 1981.26 is rendered in the round, with its only break edge across the neck.

Collecting History

The 16 fragments may be considered in three groupings, according to their collecting histories. In the first group are two objects that were exhibited at the Stora Art Gallery in New York in early spring of 1931, following an earlier exhibition by Nouvelle Revue Française in Paris. Images of *Head of a Bodhisattva or Royal Figure* (1947.23), and *Seated Bodhisattva in Meditation* (1978.102) were published by Josef Strzygowski in 1932[1]. Reportedly uncovered at Tashkurgan in the far west of China's Xinjiang province by French writer M. André Malraux in association with the *Nouvelle Revue Française*, the origins of these objects were questioned by German art historian Ludwig Bachhover, who noted that no similar items had been uncovered previously in this region and that they were close in form to examples from Haḍḍa. Harvard University art history professor Benjamin Roland speculated that Malraux's stucco fragments were "acquired from clandestine excavations in the Peshawar area."[2]

A 1931 review article by Ella Siple listed some of the museums that acquired works from Stora Gallery's exhibition, pointing curators towards comparable pieces in other collections that were purchased in the early 1930s[3]. Notably, the early restorations found on 1947.23 and 1978.102 match those of other objects attributed to Haḍḍa in American collections. The backs of the head and relief, damaged from their fall or removal from their original contexts, were filled with a neatly applied cement- or plaster-like material. The edges of the fills were shaped carefully with beveled edges (Fig. 2b). The relief has an extended short, rectangular plaster "base" cast with a brass mounting sleeve that is square in cross section (Fig. 6e). Other objects purchased through the Stora Gallery show similar restorations, including examples at the St. Louis Art Museum (29.1931, 30.1931, 43.1931), the Detroit Institute of Arts (32.15, 32.16), the Davis Museum at Wellesley College (1931.12-14), and the Museum of Fine Arts, Boston (31.191, 31.367). (Figs. 17a-d, 18a-d). Most show comparable details such as smoothed or raised fills, beveled edges, extended bases, or cast-in square brass mounting sleeves. Of these objects, the only restoration visible in Strzygowski's 1932 catalog images appears in a view of *Head of a Devata* in the Museum of Fine Arts, Boston (31.191)[4]. These restorations suggest that the Stora Gallery objects were prepared at the same time, and perhaps by the same hand, for exhibition or publication photography. Moreover, most of the fills are marked with the same style of red stenciled numbers, incised numbers,

[1] STRZYGOWSKI 1932, pp. 23, 26.
[2] LEVINE 2011, pp. 634-639.
[3] SIPLE 1931, pp. 140, 144-145.
[4] STRYZYGOSKI, p. 30. See Museum of Fine Arts, Boston, 31.191, http://collections.mfa.org/objects/17650/head-of-a-devata.

or importation stamps. Many of the objects also appear to have an applied layer of mud that covers the finished surfaces and overlaps the edges of the fill materials, although this was not verified by live examination of all the objects.

The second group consists of 13 stucco fragments lent or given to the Harvard Art Museums by Peter B. Edmunds: two larger heads (89.1971, 90.1971), two standing guardian figures (1981.23, 1981.24), two seated figures in relief (32.1980, 1981.25), two head and torsos (TL17407.2, 1981.28), and four small heads (1981.26-27, 29-30). A stone corner pillar fragment (1981.22) was also purchased from Edmunds. Historical notes from the museum's curatorial files, which could not be verified, indicated that Edmunds acquired the objects between 1964 and 1966, sometimes through a "villager" or dealer in various locations, including Kabul, Haḍḍa, Kunduz, and Jalalabad.

Two objects' collecting histories fall outside of the previous two groups: *Head of a Buddha* (1963.124) and *Head of a Bodhisattva* (1943.57.7). The first was gifted to the museum by George P. Bickford, a Harvard University alumnus and collector. The latter was one of about 4,000 objects donated by alumnus and noted collector Grenville L. Winthrop as part of his generous 1943 bequest to the Fogg Art Museum (now part of the Harvard Art Museums). Winthrop purchased *Head of a Bodhisattva* in 1941 from New York-based Asian art dealer Yamanaka & Company. While this date makes it possible that Yamanaka acquired the object from the Stora Art Gallery¸ no supporting documentation has yet been found. Unlike the other objects sold through the Stora Art Gallery, the back of this head was not restored.

Previous studies

Earlier studies of similar objects by Giovanni Verri *et al.* and Andrew Middleton and Anna Gill provided critical comparative images, observations, and analytical findings[5].

Jules Barthoux's observations from excavating at Haḍḍa, along with Zémaryalaï Tarzi and Kalidindi Mohana Varma's descriptions of modelling methods for sculptures in clay and stucco established a broad survey of materials and techniques available to and practiced by artists[6]. Through the careful consideration of historical and technological contexts, Mònica López-Prat *et al.* advised a wider view of the manufacture of the sculptures examined in this study, linking them to the artistic and religious traditions transferred and adopted along the Silk Roads from the 3rd and 2nd centuries BCE to the 11th century CE and practiced in the present day[7]. She proposed the term "monumental *terracruda* sculpture" to connect the common practices observed across Central Asia, the Himalayas, and East Asia.

To complement and expand on these important publications, this paper reports on observations on the construction techniques and the material composition of the 16 sculptural stucco fragments at the Harvard Art Museums based on imaging and analytical techniques. Questions that guided this study included: how were the objects constructed, what specific materials comprise the stucco medium, and how could these data be used for comparison with objects of known provenance?

This paper follows the authors' publication, "A Technical Study of a Head Attributed to Haḍḍa, Afghanistan," which characterized the materials, construction, and condition of *Head*

[5] VERRI *et al.* 2019, MIDDLETON AND GILL 1996.
[6] BARTHOUX 1930, TARZI 1986, VARMA 1970 and 1987.
[7] LÓPEZ -PRAT *et al.* 2024.

of a Bodhisattva (1943.57.7)[8]. Highlights from the earlier paper are included here for context and comparison with observations and analytical results from the additional stucco objects.

Stucco

The earliest examples of Buddhist images in stucco are attributed to Amaravati images in the 1st century CE in India[9]. "Stucco" usually refers to a highly variable mixture of lime (calcium carbonate) or gypsum (calcium sulfate) binder with aggregates, such as sand and straw, and organic additives, such as gums, proteins, and oils, used to modify working properties[10]. The term excludes clay-based sculpture, though clay-based materials may have been used with stucco on a single sculpture. As the patronage of Buddhist monasteries expanded, particularly around the 3rd century, stucco (often polychromed) became a common medium in Taxila in Pakistan and sites in Afghanistan. Unlike carving earlier schist sculptures, modeling stucco was an additive technique, offering the advantages of speed, lower cost, and the option of using molds for reproducibility and mass production. Vanleene noted that while stone remained available, stucco proliferated as a medium for its efficiency and versatility. For example, molded heads could be formed following conventions while allowing for reworking with additional expressive details[11].

Lime plaster, the binder for one type of stucco, can be made from calcium carbonate ($CaCO_3$), in the form of limestone, chalk, or the mineral calcite. When heated to high temperatures (800-900°C) the material converts to a caustic powder called quicklime (calcium oxide, CaO) by loss of carbon dioxide (CO_2) gas. With the addition of water, quicklime converts into a plastic material, called slaked lime (calcium hydroxide, $Ca(OH)_2$). This putty is used to create a mortar, stucco, or lime plaster and is often mixed with additives to adjust the working properties and strength. When the mixture dries, it loses water and recrystallizes with uptake of carbon dioxide from the air to form calcite (the most stable form of calcium carbonate), thus returning to its original composition. As lime plaster dries and sets, it shrinks slightly[12].

Plaster can also be produced from gypsum, a naturally occurring mineral composed of hydrated calcium sulphate ($CaSO_4 \cdot 2H_2O$), by grinding it to powder and heating it to about 130°C to drive off some water and form partially hydrated calcium sulfate hemi-hydrate, $CaSO_4 \cdot (H_2O)_{0.5}$.

This is the basis of Plaster of Paris or modern plasters, which set rapidly when mixed with water by recrystallizing to gypsum. Unlike lime plaster, gypsum plaster expands slightly as it sets. If gypsum is heated to very high temperatures, like those used to produce plaster from limestone, sulfur dioxide is driven off, in addition to water. The resulting product is again quicklime, and the plaster formed after mixing with water and drying/setting is also a lime plaster.

The variability and versatility of stucco have surely contributed to confusion about the term. It has also undoubtedly been applied without verification, used to describe a broad class of complex sculptures, or referred to different material compositions. Varma preferred to differentiate between lime-based stucco, "a well-kneaded mixture of quick lime and sand"

[8] CHANG *ET AL.*, 2025.
[9] VARMA 1987.
[10] MIDDLETON AND GILL 1996; VERRI *et al.* 2019.
[11] VANLEENE 2019, p. 146.
[12] WRIGHT 2005, p. 146.

mixed with water, and gypsum-based stucco, which is a mixture of marble dust, and water. For the latter, he opted for "gypsum compound"[13]. Middleton and Gill used the terms "lime- or gypsum-stucco", derived from analytical results when possible, and included forming methods in their definitions for both: "a plastic material which can be moulded and/or modeled, and which will set to a hard and relatively durable finished product."[14] Similarly, Wright emphasized the importance of defining the function of stucco to create form, distinguishing it from plaster, which is used for finishing. As a building material, stucco may be applied to protect an underlying stone, provide a substrate for polychromy, or create modeled ornamentation[15].

The current European Standard (EN) defines "stucco" in cultural heritage by its composition and use. It is a type of mortar "used for decorative purposes, which allows making mouldings, architectural castings and other decorations on the facades and in the interiors of the buildings." "Mortar" is defined as a "material traditionally composed of one or more (usually inorganic) binders, aggregates, water, possible additives and admixtures combined..." Further, "concrete" or "conglomerate" are mortars containing aggregates above three to four millimeters in size[16]. With these modern definitions, all four terms–stucco, mortar, concrete, and conglomerate–could be correctly applied to describe the objects in this study, with "stucco" being the most specific term.

Despite its inconsistent usage across time periods and cultures, "stucco" remains practical as a general term for a mixture that is widely understood to be inherently variable and dependent on local materials. It is helpful to specify its application, since there are materials with similar composition used for very different purposes, such as lime mortar, used for masonry. The array of stucco materials and sculptural methods can be more deeply understood and compared through detailed analysis. In this paper, we use the term "stucco" to denote the variable lime plaster-based mixtures identified in the objects studied.

Sculptural traditions

Sculptures from the Gandhāra region exhibit a rich diversity of materials and techniques that evolved over centuries, and Haḍḍa was a center of artistic production and innovation[17]. Sculpture and architectural media included limestone, schist, unbaked clay, mud brick, gypsum- and lime-based stucco, and gypsum plaster. Supporting materials or additives included wood, rope, plant fibers, cloth, and gums. For reasons of efficiency, preservation, experimentation, or problem-solving, sculpture could be made with combinations of these materials, whether in mixtures, layers, or component parts. Tarzi defined three groups of sculptures by media: those made with unbaked clay (including clay layered onto a stone or mud brick core), clay covered with stucco, and stucco alone. Lime-based stucco was used outdoors, and gypsum plaster used indoors or in protected outdoor sites. He further described the basic structure of clay-based sculpture in high relief affixed to a wall: an internal wooden armature supporting layers of materials packed around it. A fine surfacing material was then applied to model details and to provide a smooth substrate for paint or gilding. The armature, sometimes wrapped with rope, helped secure parts of the body to each other, the ground, and the wall.

[13] VARMA 1987, pp. 13-14.
[14] MIDDLETON AND GILL 1996, p. 363.
[15] WRIGHT 2005 pp. 167-174.
[16] EN 16572:2015.
[17] BARTHOUX 1930, VANLEENE 2019.

A horizontal wooden peg might help attach an armature or the figure to the wall[18]. Varma offered the term "safety sticks" for such pegs[19]. Many variations of this design exist, and this design was adapted to make figures with other media.

Barthoux described how polychromy on heads from Haḍḍa enhances their relief by coloring or darkening recesses, such as in the creases of the eyes and neck, the outline of the hairline, and the furrows of the ears. He briefly mentioned the traditional coloring of a Buddha figure's skin "in a yellow wash"[20]. Technical studies of sculpture from Haḍḍa and Gandhāra have identified the use of a variety of pigments – most commonly red ocher, yellow ocher, ultramarine, lead white, red lead, vermilion, orpiment, bone black and carbon black. Gilding was also present on some art works[21].

II. Structure and condition

The heads, reliefs, and small heads show many similarities in their construction, namely their use of layered stucco mixtures and added details. Internal layers are generally more coarsely grained with visible large inclusions and voids, and the outer or finishing layers are dense and fine grained, allowing delicate modeling, carving, and burnishing. The larger objects appear to have been modeled *in situ*, while the smaller objects were formed in molds. Both methods were enhanced with additional modeled elements and finished with fine details and textures. Most objects were painted similarly with the accents described by Barthoux. The following descriptions of objects highlight the variations and subtleties within these manufacturing processes. The condition of many objects, with break edges and losses, allowed close examination of the materials and construction used. X-radiography, carried out for most of the objects, enabled a view of internal details.

Head of a Bodhisattva, 1943.57.7[22]

Micro-computed tomography (micro-CT) of *Head of a Bodhisattva*, 1943.57.7, was carried out to examine the object's internal structure and morphological details of its solid, layered stucco structure (Figs. 1c-f)[23]. A coarse-grained stucco mixture was first packed onto a presumed vertical armature and horizontal support (missing) extending from the adjacent wall. Next, medium-grained stucco was added and modeled to form the rough shapes of the head. Fine-grained stucco was then selectively applied to form finer details. To create the face, a shallow, angled cavity appears to have been carved into the medium-grained layer and filled with fine stucco that was modeled and carved to depict the delicate facial features. The seamless interface of the two layers with no joining material shows that the face was carved directly into the prepared fine stucco. On the surface, there is no visible indication of this inset detail. This observed technique may explain a detached "face mask" in the collection of the British Museum discussed by Middleton and Gill, who speculated that the object was modelled *in situ* over a core[24]. The form of the inset face of 1943.57.7 resembles this "face mask" in its uniform thickness, about one centimeter, and overall shape. Bearing a similar appearance, clay "masks" discussed by Tarzi, were found separated from their heads or cracked along their edges on the

[18] Tarzi 1986.
[19] Varma 1987, p. 60.
[20] Barthoux 1930, p. 10.
[21] Lluveras-Tenorio *et al.* 2022; Pannuzi *et al.* 2019; Verri *et al.* 2019; Middleton and Gill 1996.
[22] See Chang 2025 for detailed discussion and images of 1943.57.7. A summary is included here.
[23] Micro-CT is an imaging technique that captures thousands of two-dimensional radiographs from incremental angles. The data is used to reconstruct internal views and "slices", images that resolve the structural details within selected planes. See Analytical Techniques for instrument specifications and parameters.
[24] Middleton and Gill, p. 365-367.

heads. He hypothesized that the clay faces, which were made by pressing into a mold, were different in their physical nature than the clay of the head, and therefore often ineffectively joined[25].

Many elements of 1943.57.7 were formed separately using fine lime stucco and attached. The stucco, with the consistency of soft putty, was used to make the ears, hair, and hair ornaments. Textures such as the dimples in the top knot, strands of hair, and the twisting lines in the bands were freely drawn or incised. Unlike the inset face, these elements were pressed and joined unevenly, showing varying gaps along the joins in the CT views (Figs. 1g-h).

CT images also revealed details of the object's condition history, including internal damage and repairs. A vertical wooden dowel, probably dating to the 19th century, was added in the presumed position of an original armature, and a horizontal hole left from a support extending from the wall (Varma's "safety stick" or Tarzi's "wooden peg"[26]) was filled with plaster. Several materials appear to have been added to obscure or give the surface a "patina": a muddy "wash" was applied over all finished and broken surfaces, and a thin, brown paint was spattered on the face and surrounding hair. Two different campaigns of gypsum plaster fills were identified: a repair on the halo or headdress, and infilling of the horizontal hole at the back.

The observed materials and sequence of layering, adding elements, and finishing with textural or carved details provide a useful basis of comparison with other stucco objects in this study.

Other larger heads

The construction of *Head of a Royal Figure* (1947.23, Fig. 2) resembles the larger *Head of a Bodhisattva* (1943.57.7). Both were modeled in very high relief with at least two layers of stucco. There is a clear distinction between the layers, indicating the inner layer was well set before applying the next. The core stucco material is coarse with large, visible rock inclusions (up to one centimeter, observed) and impressions from fibrous materials. The finer, outer layer is about one centimeter thick. Like the larger head, the facial details are sharply modeled with added elements, such as the hair, ears, and headdress. Also similar are the warm tone of the surface and the red polychromy on the lips, hairline, and headdress. The smooth surface of the face is well-preserved with visible, fine root marks from burial.

Similar in size to 1947.23, *Head of a Buddha* (1963.124, Fig. 3), displays a contrasting, worn and textured surface condition, perhaps resulting from weathering or cleaning. The stucco appears cool gray with no traces of polychromy and has fewer impurities than other objects. Like the two other large heads, this one appears to have been constructed *in situ* with at least two layers of stucco, applied onto an armature that is now lost. The resulting hollow interior remains impressed with evidence of the armature: bundled, organic fibers, presumably over a wooden post, wrapped with rope (fig. 3b). The rope had a Z-twist rope, and the fibers appear uniform and rigid, like straw[27]. Inside the top of the head at the level of the hair, an additional material with abundant fibers was added, perhaps to center the armature in the head. This material appears original, it was thick and putty-like when applied, leaving many large voids.

---

[25] TARZI, p. 84 and planche VII, figs. 28-32.
[26] TARZI 1986, p. 75. VARMA 1987, p. 60-62.
[27] The impressions may be compared with jute rope fragments (with S-twist) from Tapa Shotor, Haḍḍa, in TARZI 1986, Planche II, Fig. 5. Planche IV, Fig 14, from Tapa Shotor, shows similar imprints in an internal clay layer.

Two smaller objects, both entitled *Heads of a Buddha* (89.1971 and 90.1971, Figs. 4-5), appear to have been molded. Both have planar backs that show distinct one- to two-centimeter layers of light gray stucco that were likely pressed into a mold and then filled with a bright white, coarse stucco comprising the core. A clear distinction between the layers suggests that the first stucco layer was allowed to set completely before the core was filled. An X-radiograph of 90.1971 (Fig. 5d) shows that the ears were formed from stucco with a finer, more even grain than the rest of the head. For a molded head, it would have been practical to model and add these details separately since it would be difficult to release the cast head with protruding or undercut elements from a rigid mold, presumably made of clay.

Both smaller heads have a fine-grained, bright white finishing layer (less than one millimeter thick) with warm, pale-yellow toning and polychromed details. This thin layer was not observed through X-radiography (Figs. 4c, 5d-e). Unlike the structure of 1943.57.7, these two heads do not have a prepared cavity in the coarse stucco to hold fine stucco for the face. The fine finishing layers on the heads have different states of preservation. On 90.1971, the surface is intact with burnished areas retaining a shiny appearance, whereas on 89.1971 the fine layer is unevenly worn, textured, and matte. A pattern of impressed arcs decorates the finished surface of the hair. Overall, the hair appears matte and warm gray from an applied mud, perhaps to diminish the appearance of the losses. The hair on 89.1971 has several broad areas where a thin layer, two to three millimeters thick, of the added hair is lost, revealing the underlying coarse stucco that shows a pattern of consistent bumps (Fig. 4b). *Head of a Buddha* at the Saint Louis Art Museum shows similar losses in the hair, though the exposed stucco looks irregular (Fig. 17c).

Unlike the other heads, the surface of the face and hair of 89.1971 have contrasting colors, with the face, ears, and neck appearing bright white, and the hair remaining beige. The reason for this is not clear, and X-radiographs do not show unusual details about the structure.

Reliefs

The backs of the two largest reliefs, *Seated Bodhisattva in Mediation* (1978.102, Fig. 6), and *Buddha Preaching* (32.1980, Fig. 7) are covered by a restoration and wooden panel, though the edges show at least two layers of stucco. The reliefs were likely modeled *in situ*, due to their size and design. The naturalistic modeling of 1978.102 is similar in complexity and dimensionality to the larger heads. From their frontal views, all give the illusion of being sculptures in the round. For 1978.102, the head and bent arms extend outward, and many additional elements such as the hands, headdress, and neck ornaments enhance this effect. These elements appear freely and gracefully modeled. The style of 32.1980 is simpler and more monolithic, and the flat, planar back, resembles the compact form of the smaller reliefs (1981.23-25, TL17404.2, Figs. 8-11). *Seated Buddha* (32.1980), was formed over a shallow step, as seen behind the knees in a side view (Fig. 7b). The finer outer layer of stucco measures one centimeter thick in an exposed area near the knees. Added details include the ushnisha, ears, hands, and drapery folds. The surface was finished with a pattern impressed in the hair and headdress, and lines incised in the drapery.

All four smaller reliefs have planar backs and appear molded, while retaining a thin layer of the supporting architectural structure. The pair of donor figures (1981.23-24, Figs. 8-9) were similarly formed with fine stucco measuring about six to seven millimeters thick, a coarser core material that includes colorful inclusions and fibrous material, and a seven-millimeter-thick layer of wall remnants. For both figures, the mold ended near the figures' knees at the edge of the drapery, leaving the legs and feet to be added separately. The application of the core material

differs between the figures. For the female donor, the core material did not fill the fine stucco cast completely. Instead, it was shaped into a shallow, curved form, which is visible behind the lower legs (fig. 8b). The resulting hollow space would have allowed mortar to fill in the back of the cast, perhaps adding strength to the bond between the figure and wall. The core layer of the male donor appears flush with the edges of the molded figure (Fig. 9b).

Seated Buddha (1981.25, Fig. 10), the most dimensional and complete molded figure in the group of reliefs and small heads, demonstrates multiple steps taken to mold and finish a small relief. The complexity is perhaps surprising given its small size. The figure appears to have been molded in two or three parts: the head and torso (separately or together) and the lower body. The head and torso section(s) would have come from a mold filled from the back, while the lower body section appears to have been cast from mold that was open under the folded legs. The molded sections measure 0.6-1 cm in thickness. The presumed join at the neck is repaired. X-radiographs did not reveal the presumed join line behind the forearms, between the torso and lower body, although it is not always possible to see such details with homogenous materials. The architectural remnants on the back and bottom of the relief block a view of the core material filling the molded parts. Elements added to the molded parts include the extended forearms and hands, the *ushnisha*, and ears. On the surface, smoothing marks are visible at the base of the *ushnisha*. Cracks and openings along the joins for the ears suggest they were added quickly and were never fully sealed in place. Finishing details include lines in the drapery which were drawn in the wet stucco with a tool with a rounded tip, impressed texture in the hair, and fine shaping of the hairline, facial and ear details.

The fine outer layer of stucco on *Head and Torso of a Buddha* (TL17407.2, Fig. 11) is notably thin and different from the other molded objects, measuring two to five millimeters in thickness. X-radiography (fig. 11d) revealed that fine grained stucco was applied to construct the figure's face from the middle of the forehead to the top of the neck, with a seamless transition to this material from the coarse molding stucco, like the face detail observed in 1943.57.7. Fine stucco was also applied to finish the top of the *ushnisha*, the back of the head, and the hands.

Head and Torso of a Woman (1981.28, Fig. 12), appears to be molded with fine stucco throughout, with no surfacing layer observed. Stucco was added to the back of the head to raise it from the supporting structure and to angle the face downward and to the right. Details added to the molded head include the elaborate hair, headdress, ears, and ornaments on the ears and robe. The torso section, in low relief, could have been molded or modeled. Finishing details include the fine shaping and drawn lines to render the folds and texture of the clothes and hair.

Small heads

Examination of the four small heads (1981.26, .27, .29, .30, Figs. 13-16), in addition to nine others at the Museum of Fine Arts, Boston[28], found similar methods of manufacture: all appear formed in an open mold with a three- to five-millimeter-thick layer of fine stucco and filled with a similar or coarser grained stucco. Added details included hair, ornaments, and ears, and finishing lines or shapes were incised or impressed. Notably, the small heads were consistently cast in high relief, projecting beyond half of the head. This technique created an illusion of further depth by hiding the edges of the round form, usually with added details such as ears, *ushnisha*, or hair. On the smaller heads, the ears often appeared quickly executed with poor joins, and many scaled too large for the head. Another device that artists used to develop the

[28] The nine small heads at the Museum of Fine Arts, Boston, 32.54-62, measure 3.5-7.5 cm in height.

illusion of depth and enliven the head was orienting the faces at an angle. This effect is seen on two of the small heads (Figs. 15, 16), as well as some of the reliefs (Figs. 6, 9, 10, 12). For the angled or tilted small heads, wedges of stucco were added to the back to further support and adjust the facial orientation (1981.28, 1981.29, 1981.30). This small group of molded heads and reliefs demonstrate how a basic molded form could be enlivened with great variation and expression[29].

X-radiography of most of the small heads revealed limited details of their manufacture, in part due to the homogeneous material composition and densities. However, X-radiographs of two heads, 1981.27 and 1981.30 (Figs. 16d), revealed that both faces and the hair of 1981.30 were fully formed with a distinct layer of fine-grained stucco. It is difficult to discern whether fine stucco was applied to a mold and then backed with coarse stucco, or if the fine stucco was applied to a simple molded stucco form and modeled freely, like on the large head, 1943.57.7 (a recessed space was not carved out of the coarse core of the smaller heads). In both heads, the finished surface is continuous and does not show evidence of this facial structure. X-radiography makes evident the degree of attention and finish to such small heads. *Head of a Young Girl* (1981.26, Fig. 13) is the only small head in the round in the group, presumably made from two molded sections. However, neither close observation nor X-radiography revealed seams that would confirm that two parts were joined.

III. Materials analyses

The 16 objects were analyzed to determine the materials present. The first stage involved non-destructive analysis using X-ray fluorescence spectroscopy (XRF) for initial characterization of the construction materials and polychrome decoration. Since only limited identification was possible with in-situ XRF analysis, this was followed by the removal of samples taken from the surface and underlaying layers, and microsamples of polychromy from the surface decoration.

Fourier transform infrared (FTIR) and Raman spectroscopy were applied to identify specific minerals and organic compounds. Some samples were mounted as cross-sections for optical microscopy and scanning electron microscopy with energy dispersive microanalysis (SEM-EDX), or as thin sections for petrographic examination. Optical microscopy, SEM-EDX, and thin section petrography were used to determine the textures and phases present. SEM-EDX was also used to produce elemental maps of the samples. Details of the analytical techniques are provided in the Analytical Methodology section.

Analysis of Stucco

Analysis of samples from the different objects and layers described above showed that all layers consisted of a fine-grained calcite matrix, termed micrite, around variable amounts of silicate and carbonate inclusions (Fig. 19). The inclusions comprise both individual minerals and rock fragments with multiple mineral phases and/or grains. Some samples also contain microsparite and sparite as well as the finer grained micrite. In most objects, the matrix also contains distinct lumps of lime lumps with micritic texture and varied inclusions of calcite minerals and fragments, including limestone and marble (Figs. 20-21).

The composition of the calcite matrix and the inclusion assemblage and percentage showed some variation between samples. However, in most instances all layers of an object were similar and slight differences in the mineral and rock inclusions present were likely due to the

[29] VANLEENE 2018, p. 146, notes this freedom of expression, especially with secondary figures from Haḍḍa.

heterogeneity of the material and the necessarily small sample sizes, particularly when compared to the size of many inclusions (for example the inclusion in Fig. 21). In most instances, at least two samples were taken from each layer observed in an object, with one prepared as a petrographic thin section and one prepared as a cross-section for SEM-EDX analysis. The results from the two techniques and all samples from a specific object and layer were combined to give the most comprehensive description of the materials used.

The mineral assemblage observed was extremely varied, with the most abundant minerals being quartz (SiO_2), calcite ($CaCO_3$), dolomite ($CaMg(CO_3)_2$) and potassium and sodium felspar ($KAlSi_3O_8$ and $NaAlSi_3O_8$ respectively). Other minerals identified included olivine (Mg_2SiO_4), micas (biotite $K(Mg,Fe)_3\ AlSi_3O_{10}(OH)_2$ and muscovite $KAl_2(AlSi_3O_{10})(OH)_2$), chlorite $(Mg,Fe,Al)_6(Si,Al)_4O_{10}(OH)_8$), pyroxene (silicates with magnesium and/or calcium) and amphiboles (silicates with varied chemistry). Small, isolated inclusions of apatite ($Ca_5(PO_4)_3(OH)$), rutile (TiO_2) and iron oxides also occur in many samples.

Although spectroscopic analysis indicated the presence of some calcium sulfate in many samples, SEM examination showed that calcium sulfate was present mainly in surface layers or along cracks, likely due to reaction of environmental sulfur with calcium carbonate to produce calcium sulfate. A surface layer of calcium sulfate is particularly clear in some samples from *Seated Buddha* (1981.25) (Fig. 22). However, in a few instances, calcium sulfate is present as a distinct surface layer or deliberate filler, for example in the restoration at the back of the *Head of a Bodhisattva* (1943.57.7) Samples from this restoration area consist of coarse-grained gypsum, hydrated calcium sulphate, (Fig. 23). Some samples of the restoration show a mixture of gypsum with micritic calcite and silicates similar to those in the original material.

Analysis indicated variations in the composition of the micrite matrix between objects. In samples from *Head of a Buddha* (1963.124) analysis of the matrix shows this is pure calcium carbonate around distinct mineral inclusions of calcite, quartz, rare feldspar and lime lumps with micritic texture (Fig. 24). In contrast, analysis of the fine-grained matrix in *Head of a Bodhisattva* (1981.27), shows this contains significant magnesium and silicon as well as calcium, and has a higher proportion of larger silicate inclusions and a more varied mineral assemblage (Fig. 25). Examination of samples from 1981.27 at high magnification shows the micritic calcium carbonate is intimately mixed with fine magnesium–and calcium magnesium silicates, very different from the pure micritic matrix in 1963.124 (Fig. 26).

1. Objects with very low magnesium and silicon in matrix calcium carbonate: *Head of a Buddha* (1963.124), *Seated Bodhisattva in Mediation* (1978.102), *Head of a Buddha* (89.1971)

A matrix of pure micritic calcite with a lack of very fine silicate inclusions and little included magnesium or silicon is observed in samples from three objects–*Head of a Buddha* (1963.124), *Seated Bodhisattva in Mediation* (1978.102) and *Head of a Buddha* (89.1971). The simplest mineral assemblage occurs in samples from *Head of a Buddha* (1963.124) which contain quartz, calcite and occasional feldspar. Large calcite crystals in these samples are characterized by parallel twin lamellae (Fig. 27), which are uncommon in samples of most objects studied in this paper (being observed only in 1978.102, 1981.26, 1981.29, none of which have a similar matrix). In addition to quartz, calcite and some feldspar, samples from *Seated Bodhisattva in Mediation* (1978.102) contain dolomite, micas and amphibole, whilst samples from *Head of a Buddha* (89.1971) contain more abundant feldspar, micas and amphibole. All three of these objects also contain fragments of limestone (possibly including marble) and sandstone (possibly

quartzite) and *Head of a Buddha* (89.1971) also contains quartz-biotite schist. The included minerals are likely derived from the observed rock fragments, and the presence of schist in samples from *Head of a Buddha* (89.1971) may explain the greater proportion of micas in these samples.

2. Objects with intermediate levels of magnesium and silicon in matrix calcium carbonate: *Head of a Bodhisattva* (1943.57.7), *Head of an Old Man* (1981.29), *Head of a Young Man* (1981.30), *Standing Donors* (1981.23, 1981.24), *Seated Buddha* (1981.25)

Low levels of magnesium and some silicon occur in the micritic calcite matrix of six objects–*Head of a Bodhisattva* (1943.57.7), *Head of an Old Man* (1981.29), *Head of a Young Man* (1981.30), *Standing Donors* (1981.23, 1981.24), *Seated Buddha* (1981.25). This is likely due to the presence of some calcium magnesium carbonate and/or a small proportion of very fine silicates. Samples from these objects contain inclusions of calcite, quartz, feldspar, mica and amphibole. In addition, samples from the *Standing Donors* (1981.23, 1981.24) also contain inclusions of pyroxene and likely chlorite, and samples from *Seated Buddha* (1981.25) contain some inclusions of dolomite. These differences may be due to heterogeneity in the materials and the small samples as the most varied mineral assemblage comes from the *Head of a Bodhisattva* (1943.57.7) with quartz, calcite, dolomite, feldspar, mica, amphibole, pyroxene, and rare olivine, and many more samples were taken from this larger head than from the other smaller objects. All six objects contain fragments of limestone (and possibly marble) and sandstone (possibly quartzite) and additional rock types include schist (chlorite-mica-schist and feldspar-mica-schist in *Standing Donor* 1981.23, 1981.24; metamorphosed argillaceous limestone in *Head of a Young Man* 1931.30; metamorphosed limestone and muscovite-biotite schist in *Seated Buddha* 1981.25). As with the minerals, the widest range of rock types was observed in samples from *Head of a Bodhisattva* (1943.57.7) due to the greater number of samples taken, and include limestone, marble, sandstone, quartzite, mica-schist, and gabbro. In addition, some samples from *Head of a Bodhisattva* (1943.57.7) have inclusions of added ceramic fragments (grog) (Fig. 28). The proportion of rock fragments and grog present in the samples varies between 5 and 50% of the total sample surface, reflecting the heterogeneity of the stucco.

3. Objects with significant levels of magnesium and silicon in matrix calcium carbonate - *Head of a Royal Figure* (1947.23), *Head of a Young Girl* (1981.26), *Head of a Bodhisattva* (1981.27), *Head of a Woman* (1981.28), *Head of a Buddha* (90.1971), *Buddha Preaching* (32.1980)

Six objects–*Head of a Royal Figure* (1947.23), *Head of a Young Girl* (1981.26), *Head of a Bodhisattva* (1981.27), *Head of a Woman* (1981.28), *Head of a Buddha* (90.1971) and *Buddha Preaching* (32.1980)–have significant levels of magnesium and silicon in the fine-grained calcite matrix, and contain numerous silicate minerals including fine-grained magnesium silicates and calcium magnesium silicates within the micritic matrix. The composition of the stucco mixture results in reaction between silicate inclusions and the matrix, resulting in clear reaction rims around some inclusions, particularly quartz (Fig. 29). Samples from these objects are often very heterogenous and differences between them may reflect the small sample sizes. All samples contain quartz, calcite, feldspar, mica, amphibole and likely pyroxene and olivine. Additional minerals include dolomite in *Head of a Royal Figure* (1947.23) and *Head of a Bodhisattva* (1981.27). One distinct difference noted in samples from *Buddha Preaching* (32.1980) is the presence of numerous inclusions of manganese oxide in the carbonate matrix. Fragments of limestone occur in all objects, with additional rock fragments

including sandstone (in 1981.27, 1981.28 and 32.1980) and various schists (mica schist in 90.1971, metamorphosed argillaceous limestone in 1947.23 and 1981.27). These variations may be an effect of sampling as some inclusions are large compared to the sample size.

4. *Head and Torso of a Buddha* (TL17407.2)

The samples from *Head and Torso of a Buddha* (TL17407.2) were unusual in lacking quartz and hence crumbled during preparation. The remaining material was micritic calcite with some magnesium and calcium, containing lime lumps with micritic texture and some feldspar. The lack of quartz is surprising, but due to the small size of the samples, additional samples would be required to make definitive statements about this object.

Discussion of Materials

Typically, air hardening lime binders consist partly of a homogenous matrix with an absence of impurities and calcite crystals in a micritic texture (crystals <10μm). Nevertheless, such lime binders can show a (micro)sparitic texture, with larger crystals around 20-40 μm. This texture can indicate a different production process of the lime, like a very slow carbonation process, insufficient curing time for the slaked lime mixture, a lime source burned at a high temperature, or repeated dissolution and recrystallisation due to water circulating in the material, resulting in larger crystals[30]. The samples studied here are unusually variable with uneven areas in the matrix and variations in the crystallinity of the calcite present, attributed to partial recrystallization (visible as secondary deposits in pores) or a lack of homogeneity (poor mixing) in the original raw materials (visible as variable interference colors of the calcite in petrographic section).

The mineral and rock aggregate added to the lime binder are diverse and likely derived from the geology of the area local to the objects manufacture[31]. The most common rock inclusions are limestone (likely including marble) and metamorphic rock (likely schist) containing much calcite. The most common mineral inclusions are quartz, calcite, muscovite, orthoclase, biotite, pyroxene, and amphibole in varying frequencies. The addition of aggregates with hydraulic properties such as ceramic, shale or volcanic materials could be intentional to strengthen the stucco. Additionally, the shape and size of the aggregates has a direct impact on the behavior of the stucco. Smaller, more angular fragments will facilitate a larger reaction surface and thus a higher grade of hydraulic characteristics. Hydraulic properties will manifest themselves as a reaction rim consisting of hydrated calcium silicates and hydrated calcium aluminates around the aggregate. As discussed above, reaction rims are observed in samples from objects with a higher magnesium and silicon content in the calcite matrix (Fig. 29). The porosity is under 15% in most samples, with planar voids and/or vugs present in some samples. Subspherical pores can be attributed to air being trapped in the stucco mixture. Together with the heterogeneity of the mixture, this suggests lack of care during the mixing process. Planar voids can result from the mortar shrinking during the process of hardening. This is often present in stucco rich in lime binder, with lesser proportions of aggregate as seen here.

[30] PECCHIONI *ET AL.* 2014, p. 78.
[31] ELSEN *ET AL.* 2012.

Analysis of Pigments

Analysis of the polychrome decoration observed on six objects–*Head of a Bodhisattva* (1943.57.7), S*eated Bodhisattva in Mediation* (1978.102), *Seated Buddha* (1981.25), *Head of a Young Girl* (1981.26), *Head of a Bodhisattva* (1981.27) and *Head of a Buddha* (90.1981)– indicate the presence of ochers, mixtures of iron oxides and iron hydroxides with variable amounts of silicates (quartz and clays), calcite and minor calcium sulfate. Limited use of red lead was confirmed on the lips of *Head of a Bodhisattva* (1943.57.7) and trace lead with higher iron was found with XRF of red pigment on *Head of a Buddha* (90.1981) and *Head of a Young Girl* (1981.26). However, only iron pigments, specifically hematite, were confirmed by analysis of samples from these heads. Analysis of areas of black or dark blue decoration, for example on the hair or eyes, showed these were compositionally similar to the substrate suggesting use of a carbon-based black. No phosphorus was detected suggesting the use of lamp black (fine carbon) rather than bone black (which contains both carbon and calcium phosphate). The pigments appear to have been applied as a very thin layer directly on the outer layer of fine lime plaster (Fig. 30).

IV. Conclusions

The 16 stucco objects at the Harvard Art Museums from Greater Gandhāra all show a comparable mineralogical composition, with a micritic calcite matrix containing fine and coarser grained mineral inclusions. The lime binder is noticeably heterogeneous, containing multiple lumps and a notable number of voids, often subspherical in shape, attributed to an incomplete mixing introducing air bubbles. The most common minerals present are quartz, calcite, feldspar, micas (muscovite, biotite), pyroxene, and amphibole. Angular rock fragments from less than 500µm to 5mm in size are common, of which limestone and schist are the most represented. The size, texture, and frequency of the inclusions are similar in most objects studied. It is proposed that at least some of the apparent rock and mineral fragments were ground in the manufacturing process of the stucco and added to increase its hydraulic properties. Based on this information, it could be argued that the production of the stucco used in these sculptures has a similar, although not totally uniform, production method and raw material choice. Further study of the geology local to the proposed production sites of the sculptures may allow identification of the source of the lime binder and rock and mineral aggregates.

With these variable stucco mixtures, the objects were constructed with a combination of free modeling and molding. Layers were either added *in situ* from the core outward, starting with very coarsely grained stucco and progressing to a fine-grained mixture, or by filling a mold with finer stucco and backing the molded layer with a coarser stucco core. Further details made of freely sculpted elements made of fine- or medium-grained stucco were added to the base structure. Fine-grained stucco was also selectively applied as a substrate for carving, or as a finishing layer and ground for polychromy. Textures and definition of details were inscribed or impressed, and finally polychromed details were painted.

Alexandra Vanleene observed that *Head of a Bodhisattva* (1943.57.7) shares a “stylistic kinship” with heads with established provenance from Tapa-i Kafarihā, Bāgh Gaï, or Tapa Kalān. She noted that their stylistic similarities may suggest the work of a group of artist-modelers, though further investigation was necessary[32]. Complementing such stylistic

[32] VANLEENE 2024.

comparisons and associations, it is hoped that understanding objects through the scientific investigation of their materials and construction can provide a basis of comparison to link the Harvard Art Museums fragments with objects of known origins. Technical study may also inform the research and discussion about the symbolic meaning of the materials and construction of religious figures. In his comparison of historic Indian texts with objects from the Haḍḍa sites, Tapa-e Shotor and Tape Tope Kalān, Zémaryalaï Tarzi noted that some of the construction details were, in fact, "disappointing" and simpler in their representation of anatomical elements. For example, a wood armature that represented the important human skeleton was quite rough, the glue that was to replace fatty tissue and cartilage was undetectable, and layers representing muscles and blood were homogenous[33]. For these objects and those examined in this study, the internal details often reflected the practical reality of working with the materials, combined with the expression and choices of the artist.

While we seek to characterize the specific nature of the materials and manufacture matter for enriching our understanding of the technology, artistry, origins, and meaning of these works, it is also important to keep in mind a wider view urged by Mònica López-Prat *et al.*, who proposed the term "monumental *terracruda* sculpture" to connect earthen and stucco sculptures through the common artistic practices transmitted and adopted via the Silk Roads across Central Asia for Buddhist imagery[34]. It is hoped that a balanced perspective that considers this greater context along with a technical understanding of the materials and manufacture can further our appreciation and understanding of the stucco objects that survive in locations far removed from their origins.

Analytical methodology

Cross-section preparation and microscopy

Samples for cross-section analysis were embedded in Bio-Plastic liquid polyester casting resin (Ward's Natural Science). Mounted samples were ground to exposure using a Buehler Handimet 2 roll grinder with Carbimet abrasive paper rolls ranging in grit from 240-600. Samples were then polished using a Buehler Metaserv 2000 polisher with 6µm and 1µm Buehler MetaDi Monocrystalline Diamond Suspension. Cross-sections were observed using a Zeiss Axio Imager.M2m upright microscope equipped with four objectives (5x, 10x, 20x and 50x) and a Zeiss Axiocam 512 Color digital camera. Images were captured using the Zeiss Zen 2.6 (blue edition) software. Visible light and bright field conditions utilized a halogen lamp and either an EPI-polarization filter cube or an EPI-Bright Field cube respectively. Ultraviolet (UV) conditions utilized a mercury vapor lamp and either a DAPI filter cube (excitation BP 450-490, beam splitter FT 510 and emission BP 515-565) or a FITC filter cube (excitation BP 450-490, beam splitter FT 510 and emission LP515).

Fourier transform infrared spectroscopy (FTIR)

FTIR in transmission mode was performed using a Bruker Vertex 70 infrared bench spectrometer coupled to a Bruker Hyperion 3000 infrared microscope. Samples were compressed on to a diamond cell with a stainless-steel roller prior to analysis. Using the Bruker OPUS (version 6.0) software, spectra were recorded between 4000 and 600 cm^{-1} at 4 cm^{-1} spectral resolution and 32 scans per spectrum. The collected spectra were compared to in-house and IRUG databases[35].

[33] TARZI 1986.
[34] LÓPEZ-PRAT 2024.
[35] PRICE *et al.* 2007.

Micro-computed tomography (micro-CT)

H. Greg Lin carried out micro-CT imaging at the Harvard Center for Nanoscale Systems. The micro-CT system was manufactured by X-Tek (now a division of Nikon Metrology) with a 2048 x 2048 pixels (each pixel, 200 x 200 µm), 16-bit amorphous silicon flat panel detector. Industrial volume rendering software, VGStudio MAX from Volume Graphics GmbH (Heidelberg, Germany) was used for all post data processing work, including analysis, stitching, and measurements. For the duration of the micro-CT scanning the object was kept in a laminated foam board box lined with polyethylene foam supports. A total of three scans were performed on the entire head specimen. The X-ray was tuned to 225 kV and 185 µA (41.625 watts) using a tungsten target with one second exposure for 3143 projections. A copper filter with thickness of 2.5 mm was implemented for all scanning. The achievable voxel resolution during the micro-CT scanning was about 127 µm.

Raman spectroscopy

Raman analysis was conducted using a Bruker Optics Senterra dispersive Raman microscope with an Olympus BX51M microscope equipped with 20x and 50x long working distance objectives and using the Bruker OPUS (version 7.5) software. The Raman spectrometer has three laser sources, 532nm, 633nm and 785nm. The optimum laser source depends on the pigment analyzed, but in general, blue and green pigments were predominantly analyzed with the 532nm laser at 2mW or 5mW power and other colors analyzed with the 785nm laser at 10mW power. Spectra were compared with reference libraries, particularly the RRUFF™ database[36] using the Opus software.

Scanning electron microscopy with energy dispersive-ray spectrometry (SEM-EDX)

Cross-sections were analyzed using a JEOL JSM-IT500LV SEM (tungsten filament) with an Oxford Instruments X-MaxN SDD, 80 mm^2 detector (resolution Mn Kα, 126eV) running the Oxford Instruments AZtec software (version 4.2 SP1). The SEM was operated in low vacuum mode at a chamber pressure of 70Pa, with an operating voltage of 20kV, beam current optimized for dead time of analysis and working distance of 10 mm. The cross-sections were not coated prior to analysis.

X-radiography

Computed X-radiography was carried out with a Comet MXR-320/26 tube and Carestream Industrex Flex XL Blue digital imaging plate.

X-ray fluorescence spectrometry (XRF)

The XRF system employed was a Bruker Artax XRF spectrometer with a Silicon Drift Detector (SDD) and a rhodium anode X-ray tube. The primary X-ray beam is collimated to give a spot size of 0.65 mm. Using the Bruker Artax (version 7.6) software, spectra were acquired for 100 seconds live time at 50kV and 600µA. Analysis was undertaken without a helium flux, resulting in poor detection of light elements (atomic number of potassium and lower).

Petrography

Millimeter-sized samples were prepared into thin section slides with a standard thickness of 30µm. Because of the friable and porous nature of the samples, as well as to ensure a better visualization of porosity, all samples were first impregnated with a low viscosity epoxy resin (developed by TAAB), coloured with a fluorescent yellow dye. The slides were examined using a Leica DM750P polarising microscope with magnifications ranging from 50x to 200x using

[36] LAFUENETE *ET AL.* 2015.

cross polarised light (XPL) and plane polarised light (PPL). Photos of the thin sections were taken with a Sony A7 II camera.

Acknowledgments

Special thanks to the following colleagues for the support, expertise, and assistance: Nasrin Belali, Susanne Ebbinghaus, and Basir Kamjo, Harvard Art Museums; Yuhua Ding, the Davis Museum at Wellesley College; Adrienne Gendron, Museum of Fine Arts, Boston; Elizabeth Homberger, Detroit Institute of Art; Deborah Klimburg-Salter; Amaris Sturm, Saint Louis Art Museum.

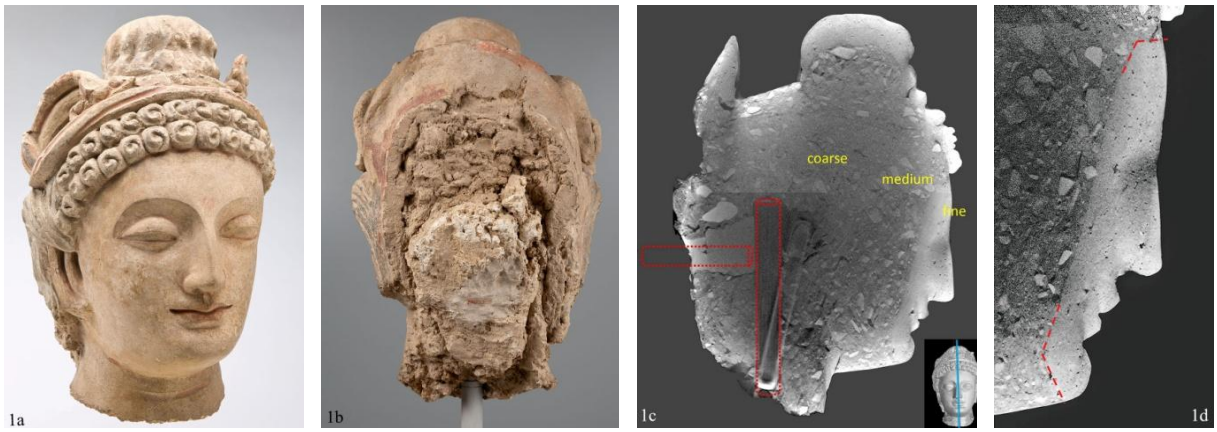


Fig. 1a-b: 1943.57.7, *Head of a Bodhisattva* (front and back), 4-5th c., 35.3 × 22 × 28 cm. Bequest of Grenville L. Winthrop. https://hvrd.art/o/202859

Fig. 1c: 1943.57.7, micro-CT image of the solid head showing coarse, medium, and fine-grained stucco layers packed around an armature. The red lines indicate the position of original supports, now filled with plaster and a later (19th c.) wooden dowel

Fig. 1d: 1943.57.7, micro-CT image detail, face detail. An angled cavity appears to have been carved out of the medium-grained stucco to receive the fine-grained stucco forming the face

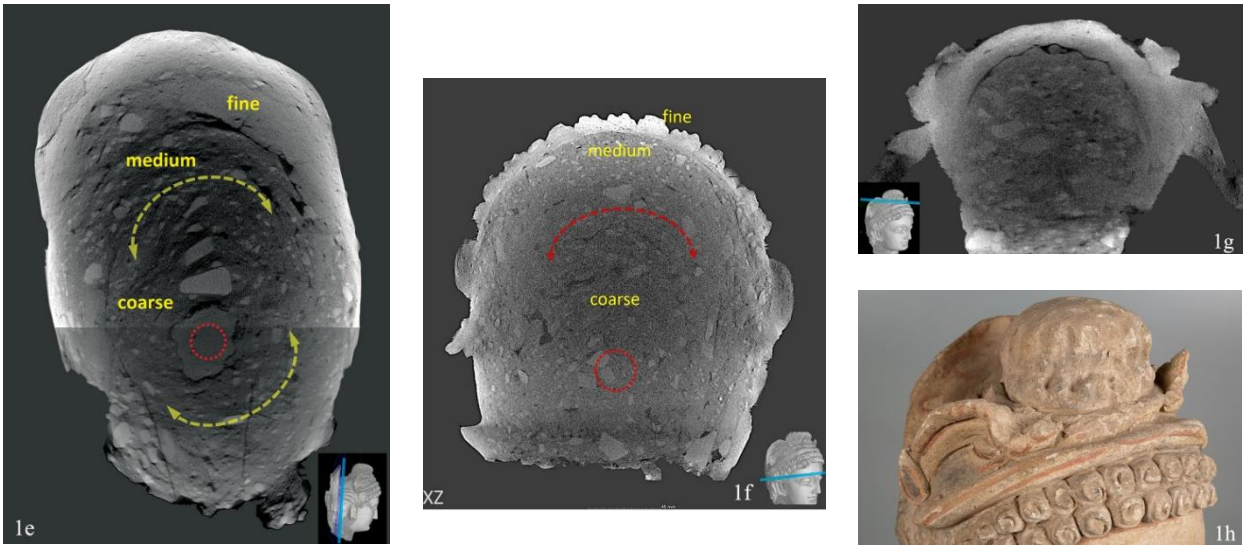


Fig. 1e: 1943.57.7, micro-CT image, a vertical section of the back of the head. The stucco layers were packed in a circular direction around a horizontal support (indicated by the red circle) affixed to the wall

Fig. 1f-g: 1943.57.7, micro-CT image, a horizontal section across the forehead. The stucco layers were also packed around a vertical armature (indicated by the red circle)

Fig. 1h: 1943.57.7









Fig. 2a-b: 1947.23, *Head of a Royal Figure* (front and back), 3-5th c., 23.6 x 20 cm. Gift of C. Adrian Rübel
https://hvrd.art/o/203139
Fig. 3a-b: 1963.124, *Head of a Buddha* (front and back), 2-4th c., 26 x 13.9 cm. Gift of George Bickford
https://hvrd.art/o/202892

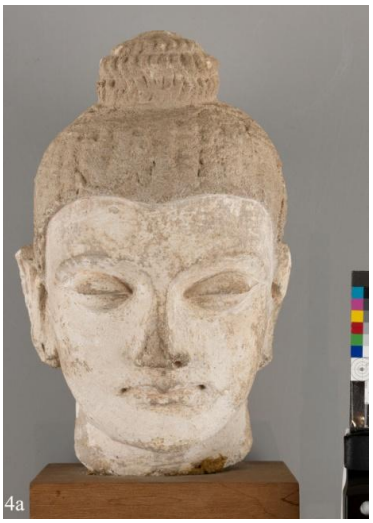






Fig. 4a: 89.1971, *Head of a Buddha*, 20 x 13 x 12 cm. Accessioned in 1981 after anonymous long-term loan
Fig. 4b: 89.1971, proper right side
Fig. 4c: 89.1971, X-radiograph, frontal view



Fig. 5a-b: 90.1971, *Head of a Buddha* (front and back), 16.5 x 11 x 8.3 cm. Accessioned in 1981 after anonymous long-term loan
Fig. 5c: 90.1971, proper right side
Fig. 5d-e: 90.1971, X-radiograph, frontal and side view



Fig. 6a-b: 1978.102, *Seated Bodhisattva in Meditation* (front and back), 2-4th c., 51 x 30.5 x 12 cm
Gift of Mrs. Ellen O. Jennings in memory of Horace D. Chapin
Fig. 6c: 1978.102, proper right side
Fig. 6d: 1978.102, bottom



Fig. 7a: 32.1980, *Buddha Preaching*, 2-4th c., 40 x 24 x 9 cm
Accessioned in 1981 after anonymous long-term loan
Fig. 7b: 32.1980, proper right side



Fig. 8a-b: 1981.23, *Standing Female Donor*, face and back, 3-4th c., 37 x 13.5 x 7.5cm
Fig. 9a-b: 1981.24, *Standing Male Donor*, face and back, 3-4th c., 37 x 13.5 x 7.5 cm



Fig. 10a-b: 1981.25, *Seated Buddha in Meditation, His Hands in Dhyanamudrā* (front and back), 4-5th c., 23.5 x 19 x 6.5 cm, Ernest B. and Helen Pratt Dane Fund for Asian Art in memory of Benjamin Rowland Jr., https://hvrd.art/o/201990
Fig. 11a-b: TL17407.2. (front and back)
Fig. 11c: TL17407.2, proper right side
Fig. 11d: TL17407.2, X-radiograph, side view



Fig. 12a-b: 1981.28, *Head and Upper Torso of a Woman* (front and back), 3-5th. c., 10.1 x 7.7 x 5.3 cm, Ernest B. and Helen Pratt Dane Fund for Asian Art in memory of Benjamin Rowland Jr., https://hvrd.art/o/201812
Fig. 13a-b: 1981.26, *Head of a Young Girl* (front and back), 3-4th c., 8 x 7.2 x 7 cm, Ernest B. and Helen Pratt Dane Fund for Asian Art in memory of Benjamin Rowland Jr., https://hvrd.art/o/202060
Fig. 13c: 1981.26, bottom view
Fig. 13d-e: 1981.26, proper and X-radiograph side view



Fig. 14a-b: 1981.27, *Head of a Bodhisattva or a Female Deity* (front and back), 3-4th c., 12 x 8.3 x 7.4 cm, Ernest B. and Helen Pratt Dane Fund for Asian Art in memory of Benjamin Rowland Jr.; https://hvrd.art/o/202035
Fig. 15a-b: 1981.29, *Head of an Old Man with a Moustache* (front and back), 2-4th c., 5.8 x 5.5 x 3.7 cm, Ernest B. and Helen Pratt Dane Fund for Asian Art in memory of Benjamin Rowland Jr., https://hvrd.art/o/201923

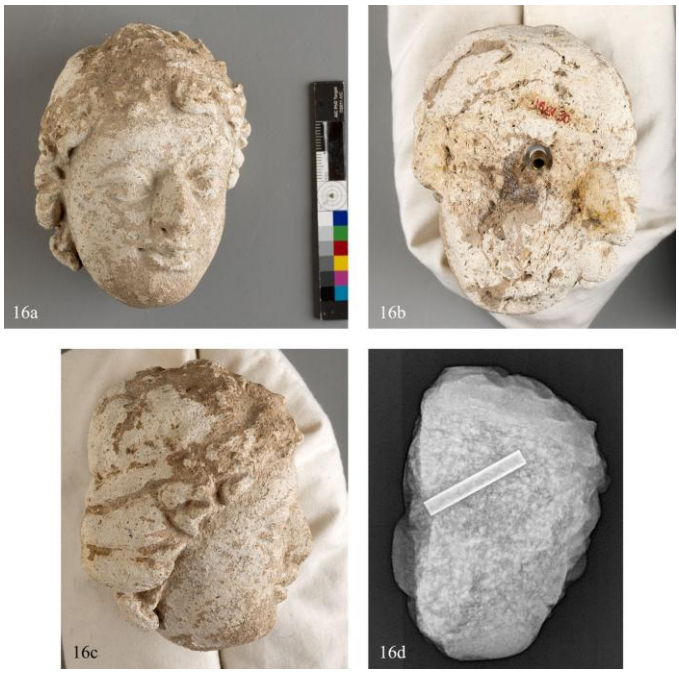


Fig. 16a-b: 1981.30, *Head of a Young Man* (front and back), 2-3rd c., 9.2 x 7 x 5.7 cm, Ernest B. and Helen Pratt Dane Fund for Asian Art in memory of Benjamin Rowland Jr., https://hvrd.art/o/201991
Fig. 16c: 1981.30, proper right side
Fig. 16d: 1981.30, X-radiograph, side view



Fig. 17a-b: *Head of a Figure* (front and back), 4th c. CE; Gandhāra, Pakistan, probably Kidarite dynasty; stucco with traces of pigment; 7 3/4 x 5 1/4 x 5 1/2 inches;
Saint Louis Art Museum, Museum Purchase 29:1931
Fig. 17c-d: *Head of a Buddha* (front and back), 4th c. CE; Gandhāra, Pakistan, probably Kidarite dynasty; stucco with traces of pigment; 18 x 11 1/2 x 10 1/2 inches;
Saint Louis Art Museum, Museum Purchase 43:1931



Fig. 18a-b: Gandhāra, *Head of a Male Figure* (front and back), 4-5th c., stucco
Detroit Institute of Arts, Founders Society Purchase, Edsel B. Ford Fund, 32.15
Fig. 18c-d: Gandhāra, *Head of a Female Figure* (front and back), 4-5th c., stucco
Detroit Institute of Arts, Founders Society Purchase, Edsel B. Ford Fund, 32.16

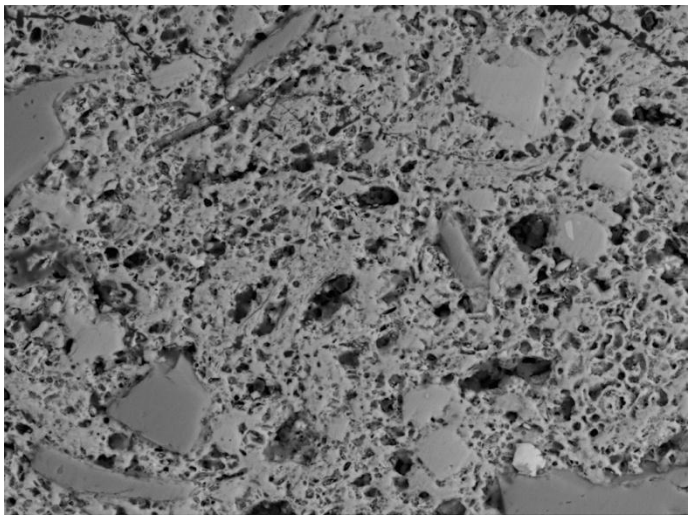


Fig 19: Back scattered electron (BSE) image from scanning electron microscope with energy dispersive microanalysis (SEM-EDS) of a sample from *Head of a Buddha* (1963.124) showing the fine-grained calcite matrix around inclusions of calcite, quartz (darker grey in BSE) and rare apatite (white in BSE).

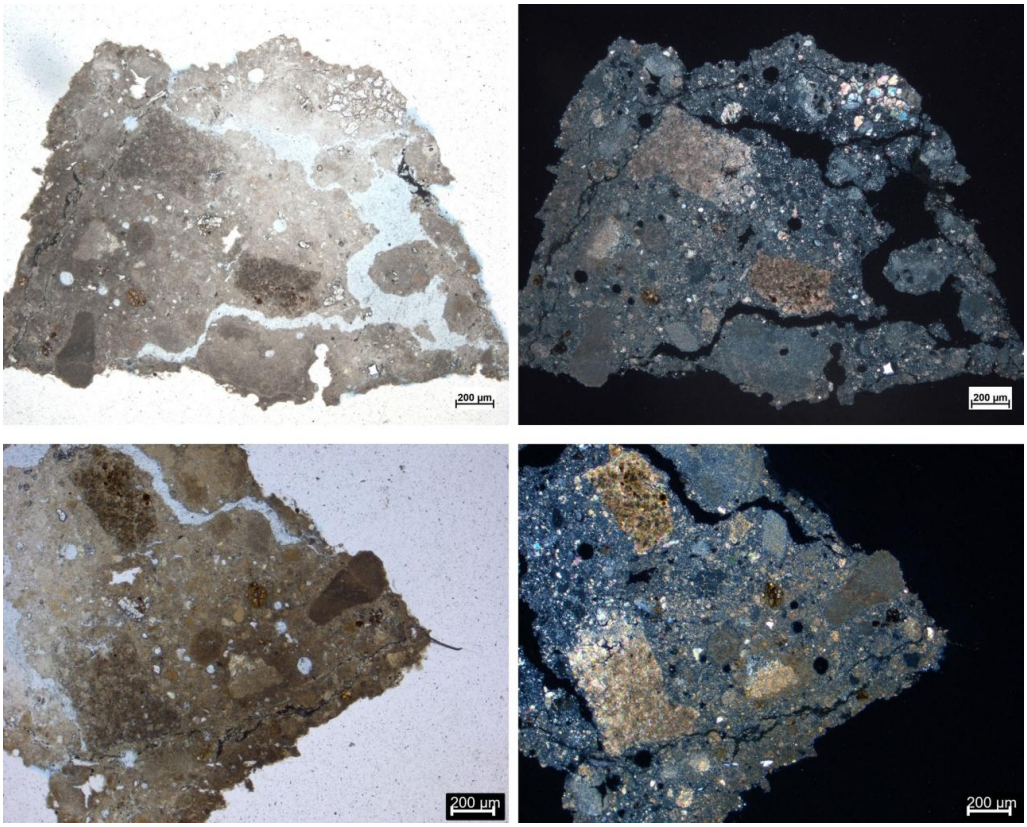


Fig. 20a-b: Thin section of a sample from *Head of a Bodhisattva* (1943.57.7) in (a) plane polarized light (PPL) and (b) crossed polarized light (XPL). The fine-grained matrix of micritic calcite surrounds lime lumps with a micritic texture (grayish to brown in XPL and PPL), a larger limestone fragment in the top right (bright in XPL).

Fig. 20c-d: Thin section of a sample from *Head of a Bodhisattva* (1943.57.7) in PPL (c) and XPL (d). The micritic calcite matrix surrounds rounded lime lumps with micritic texture (grey to brown in PPL and XPL) and angular fragments of limestone (brown in PPL, bright in XPL).

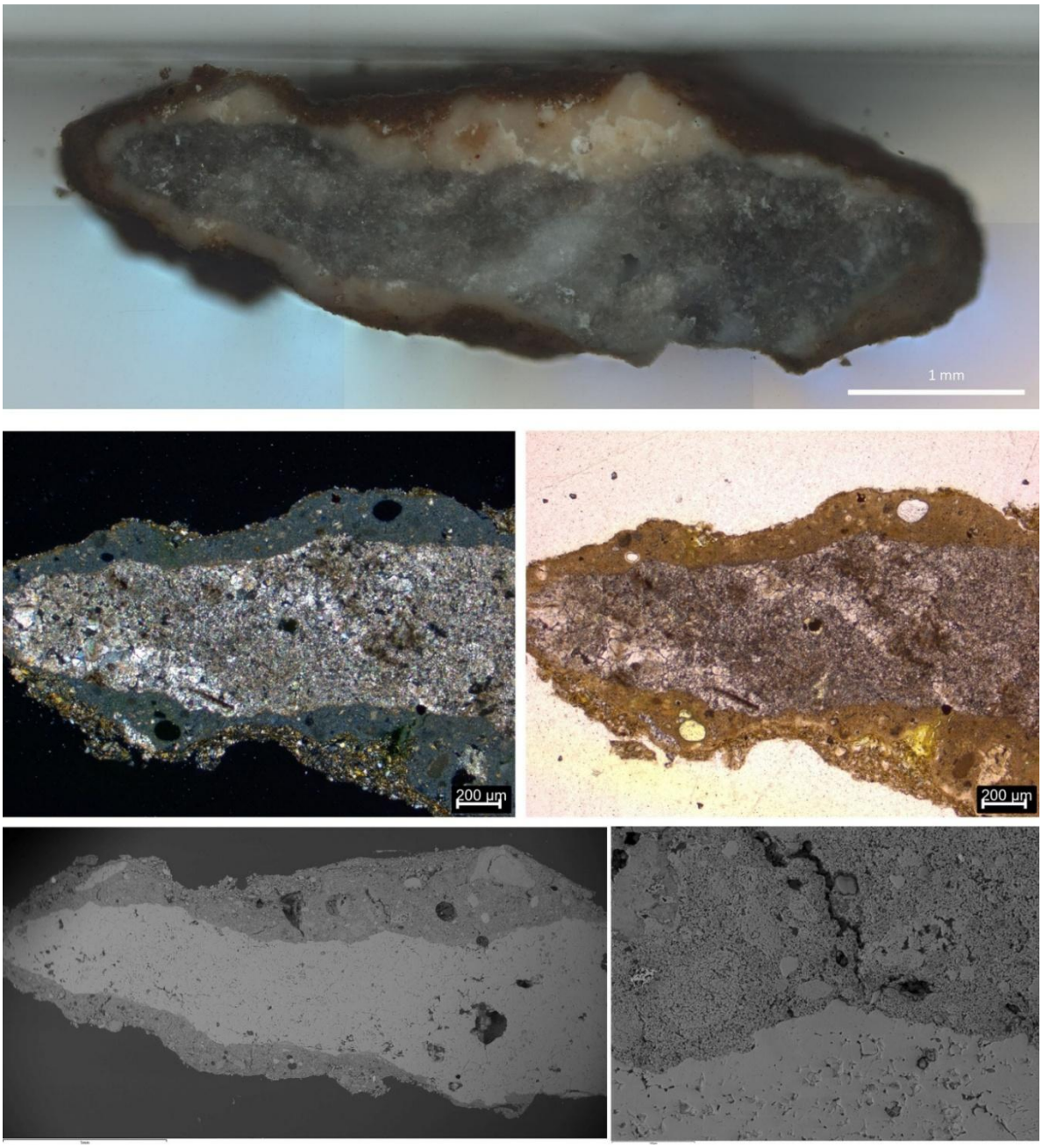


Fig. 21a: Optical micrograph of a cross-section from *Head of a Bodhisattva* (1943.57.7) photographed in visible light with a polarizing cube. Most of the sample consists of a large limestone fragment at least 5 mm long surrounded by a matrix of fine-grained micritic calcite.
Fig 21b-c: Thin section of a sample from *Head of a Bodhisattva* (1943.57.7) in PPL (b) and XPL (c). Most of the sample consists of a large limestone fragment (center, lighter brown in PPL, bright in XPL) surrounded by a matrix of fine-grained micritic calcite containing lime lumps (dark brown in PPL, dark grey in XPL)
Fig. 21d: BSE image of the sample showing the large limestone inclusion in the center (light grey in BSE) surrounded by a matrix of fine-grained micritic calcite (darker grey in BSE).
Fig. 21e: Higher magnification BSE detail showing the difference in texture between the large limestone inclusion (lower half of image, light grey in BSE) and the fine-grained micritic matrix (top half of image, darker grey).

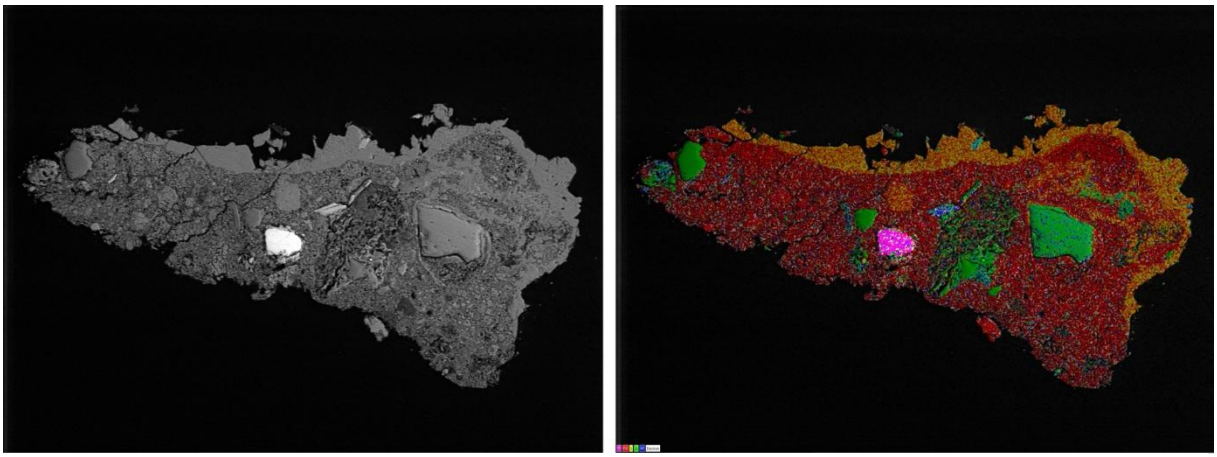


Fig. 22a-b: BSE image (a) and overlay of elemental maps (b) of a sample from *Seated Buddha* (1981.25) with a fine-grained surface layer of calcium sulfate (pale grey in BSE) along the top and right side of the calcite-rich stucco. The overlay shows calcium (Ca) in red, silicon (Si) in green, aluminum (Al) in blue, and titanium (Ti) in pink. In the overlay, calcium sulfate appears orange, calcium carbonate appears red, quartz appears green and other silicates appear blue / green. The calcite matrix surrounds inclusions of quartz and other silicates and there is a large Fe-Ti mineral in the center (which appears white in BSE, pink in the overlay).

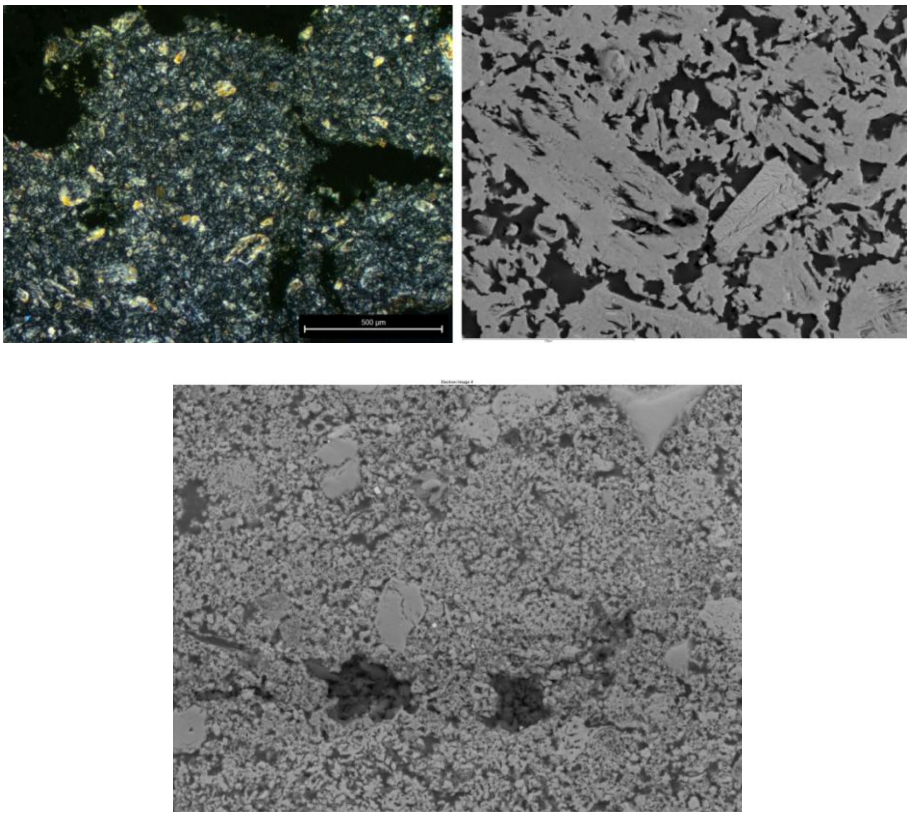


Fig. 23a: Thin section from the restoration fill at the back of *Head of a Bodhisattva* (1943.57.7) in XPL. The sample is mainly coarse-grained gypsum with minor calcite and silicates, possibly derived from the original materials.
Fig. 23b-c: Comparison of BSE images of samples from *Head of a Bodhisattva (1*943.57.7), (b) from the restoration fill at the back and (c) from the lime stucco core showing the difference in texture between the coarse-grained gypsum (b) in the fill and the fine-grained micritic calcite (c) in the original stucco.

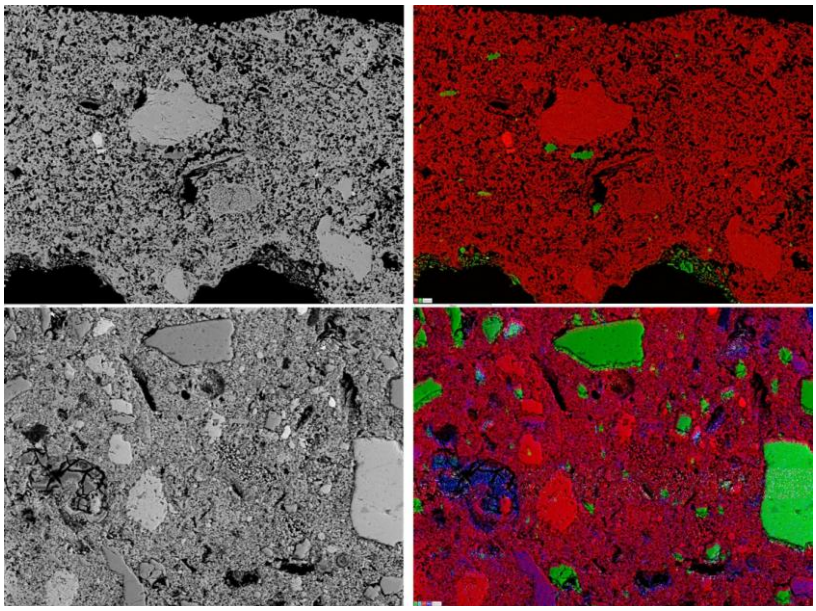


Fig 24a-b: BSE image (a) and overlay of elemental maps of a sample from *Head of a Buddha* (1963.124) showing the fine-grained matrix containing inclusions of calcite, smaller scattered inclusions of quartz (darker grey in BSE) and a few grains of apatite (white in BSE). The overlay shows calcium (Ca) in red and silicon (Si) in green. The micritic matrix of pure calcite and the calcite inclusions appear red in the overlay, whilst the scattered quartz inclusions appear green.

Fig 25a-b: BSE image (a) and overlay of elemental maps (b) of a sample from *Head of a Bodhisattva* (1981.27) showing the abundant and varied inclusions within the fine-grained matrix. The overlay shows calcium (Ca) in red, silicon (Si) in green, aluminum (Al) in light blue, and magnesium (Mg) in dark blue. In the overlay, calcite inclusions appear red, quartz inclusions appear green, and magnesium-rich minerals appear dark blue/purple. The darker color of the micritic matrix compared to the red calcite inclusions suggests the matrix consists of fine-grained calcite and magnesium-silicates.

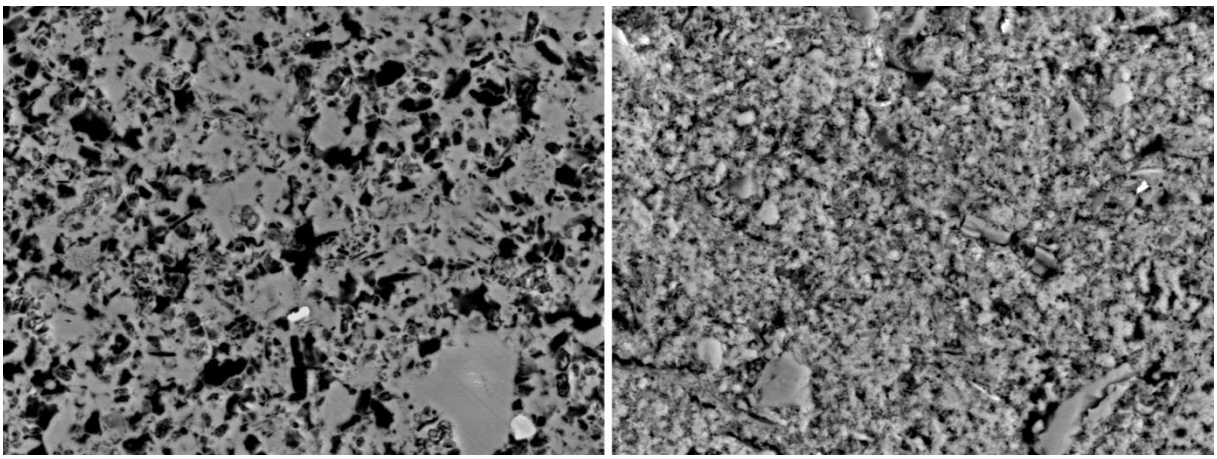


Fig 26a-b: Comparison of high-magnification BSE images of samples from (a) *Head of a Buddha (*1963.124) and (b) *Head of a Bodhisattva* (1981.27) shows the difference in texture. The fine-grained matrix from 1963.124 (a) is pure micrite and has a more open structure, whilst the matrix of 1981.27 (b) is denser and contains a significant proportion of fine-grained magnesium-rich silicates as well as calcite.

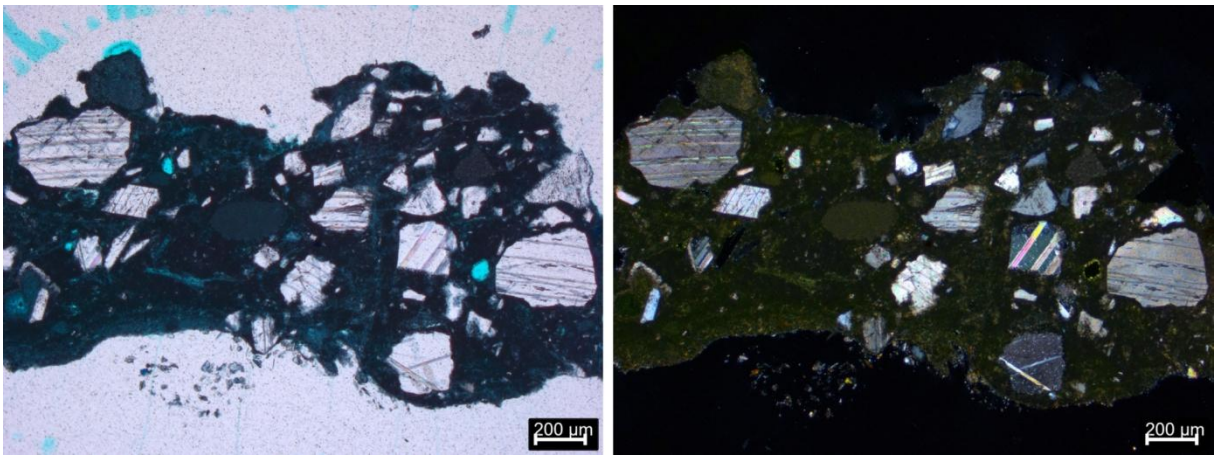


Fig. 27a-b: Thin section of a sample from *Head of a Buddha* (1963.124) in PPL (a) and XPL (b). Fine-grained micritic calcite surrounds large calcite crystals which show parallel twin lamellae in XPL, lime lumps with micritic texture (dark grey in PPL, dark brown in XPL) and quartz (grey in XPL).

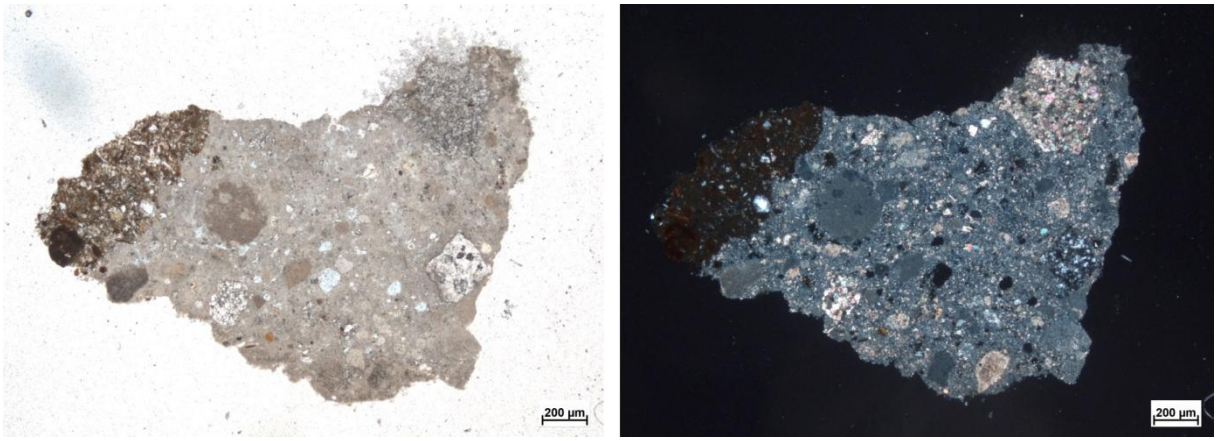


Fig. 28a-b: Thin section of a sample from *Head of a Bodhisattva* (1943.57.7) in PPL (a) and XPL (b). The left side contains part of a large ceramic fragment, termed grog, (brown in PPL, very dark in XPL), with stucco to the right of this. The stucco consists of a micritic calcite matrix around lime lumps (brown in PPL, grey in XPL), fragments of limestone (bright in XPL) and quartzite (far right, light in PPL, grey in XPL).

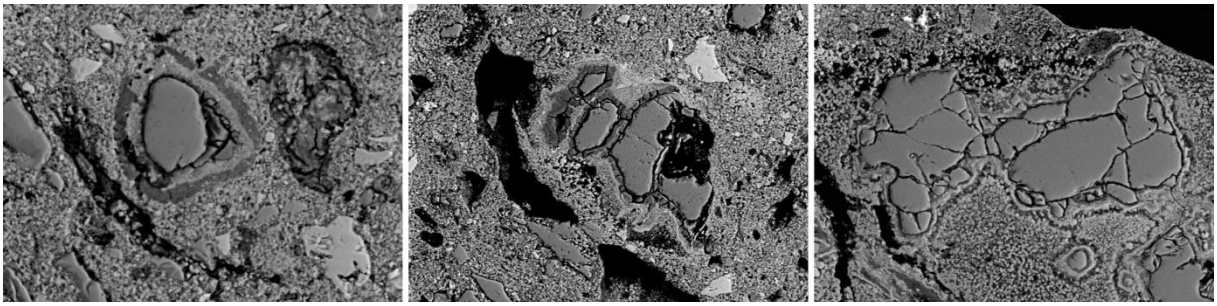


Fig. 29a-c: BSE images showing quartz grains surrounded by reaction rims in samples from (a-b) *Head of a Bodhisattva* (1981.27) and (c) *Head of a Woman* (1981.28). These rims form due to chemical reactions between the quartz inclusions and the surrounding matrix, which is rich in calcium, magnesium and silicon.

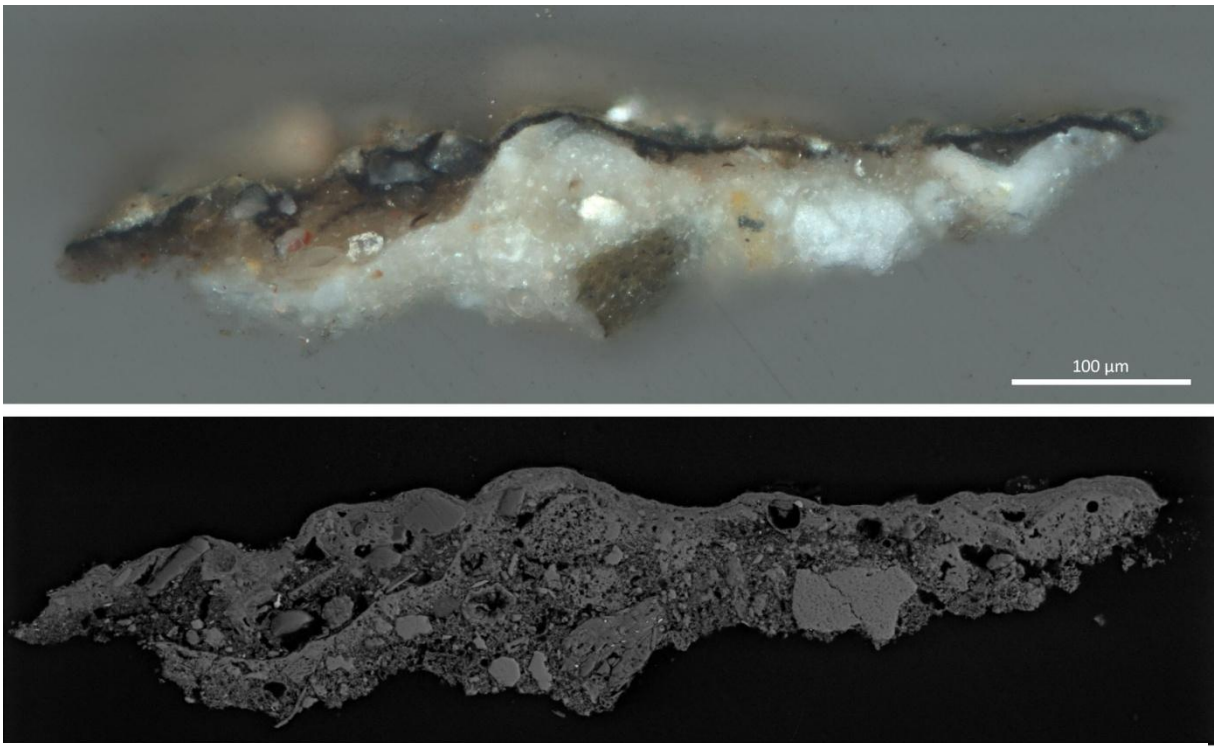


Fig. 30a-b: Optical micrograph (a) and BSE image (b) of black pigment from the hair of *Head of a Bodhisattva* (1943.57.7) showing the thin pigment layer (≤ 25 microns) containing fine-grained carbon black over the heterogenous stucco mixture of lime plaster and silicates.

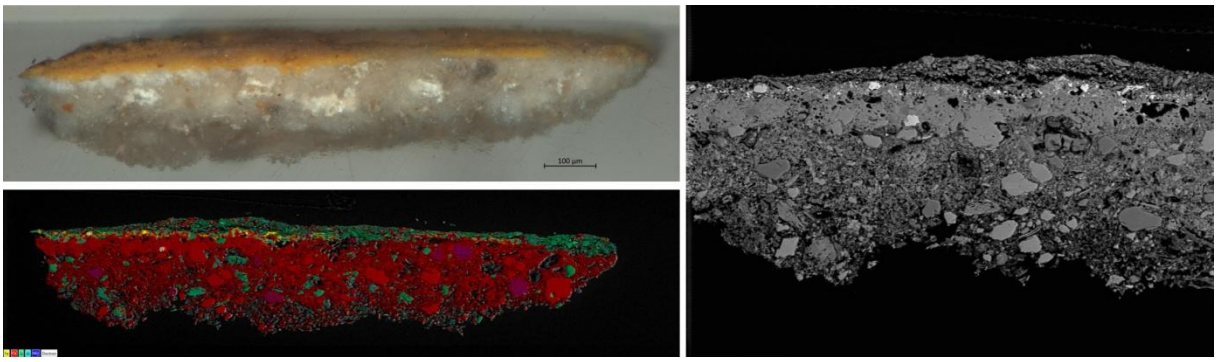


Fig. 30c-d: Optical micrograph (c) and overlay of elemental maps (d) of yellow pigment (ocher) from *Seated Bodhisattva* (1978.102). The overlay shows iron (Fe) in yellow, calcium (Ca) in red, silicon (Si) in green, aluminum (Al) in light blue and magnesium (Mg) in dark blue. A thin surface layer of silicates (top of sample, green-blue in the overlay) occurs over the iron-rich ocher layer (yellow in the overlay) which sits on the stucco (lower part of the sample, red matrix around green inclusions in the overlay).

Fig. 30e: BSE image of a detail of the yellow pigment sample. The yellow ocher forms a layer 10-20 microns thick of iron-oxide minerals (bright in BSE) and silicates on top of a layer 20-50 microns thick of very fine-grained calcite (light grey in BSE). The fine-grained calcite is over the stucco, which makes up the lower part of the sample. The iron-rich layer is covered by a surface layer of silicates up to 20 microns thick (top of sample, darker grey in BSE), likely applied mud.

BIBLIOGRAPHICAL REFERENCES

BARTHOUX 1930

Jules Barthoux, *Les Fouilles de Haḍḍa III*, Mémoires de la Délégation Archéologique Française en Afghanistan, Paris.

CHANG *et al.* 2025 (in press)

Angela Chang, Katherine Eremin, H. Greg Lin, Georgina Rayner, Sarah Laursen, Patrick Degryse, "A Technical Study of a Head Attributed to Haḍḍa, Afghanistan", in *Scientific Research in the Field of Asian Art: Proceedings of the Seventh Forbes Symposium at the National Museum of Asian Art,* 2023.

ELSEN *et al*. 2012

Jan Elsen, Koenraad Van Balen, and Gilles Mertens, "Hydraulicity in historic lime mortars: a review", in Jan Válek, John J. Hughes, and Caspar J. W. P. Groot (eds.), *Historic Mortars*, Dordrecht (RILEM Bookseries, vol. 7), pp. 125-39.
https://doi.org/10.1007/978-94-007-4635-0_10

EN 16572:2015

Conservation of cultural heritage, Glossary of technical terms concerning mortars for masonry, renders and plasters used in cultural heritage:
https://standards.iteh.ai/catalog/standards/sist/86a21595-1e05-44bf-8793-8fb045f5c5f3/sist-en-16572-2015 (accessed 1 March 2025).

LAFUENETE *et al.* 2015

Barbara Lafuenete, R. T. Downs, Y. Yang, N. Stone, "The power of databases: the RRUFF project", in Thomas Armbruster, Rosa Michaela Danis (eds.), *Highlights in mineralogical crystallography*, Berlin, München, Boston, pp. 1-30.
https://doi.org/10.1515/9783110417104-003.

LEVINE 2011

Gregory P.A. Levine, "Malraux's Buddha heads", in Rebecca M. Brown and Deborah S. Hutton (eds.), *A Companion to Asian Art and Architecture,* Oxford (Wiley-Blackwell), pp. 629-654.

LÓPEZ-PRAT *et al.* 2024

Mònica López-Prat, Alessandra Pecci, Carla Lancelotti, Domenico Miriello, "Shaping the sacred along the Silk Roads: the millenary artistic tradition of making "monumental terracruda sculptures", *Journal of Archaeological Science: Reports*, vol. 54.
https://doi.org/10.1016/j.jasrep.2024.104454.

LLUVERAS-TENORIO *et al.* 2022

Anna Lluveras-Tenorio, Alessia Andreotti, Fabio Talarico, Stephano Legnaioli, Luca M. Olivieri, Maria P. Colombini, Ilaria Bonaduce, Simona Pannuzi, "An insight into Gandhāran art: materials and techniques of polychrome decoration", *Heritage* 5, pp. 488-508.
https://doi.org/10.3390/heritage5010028.

MIDDLETON and GILL 1996
Andrew P. Middleton and Anna J. Gill, “Technical examination and conservation of the stucco sculpture”, in Wladimir Zwalf (ed.), *A catalogue of the Gandhāra sculpture in the British Museum*, London (The British Museum, vol. 3), pp. 363-68.

PANNUZI *et al.* 2019
Simona Pannuzi, Fabio Talarico, Giuseppe Guida, and Carlo Rosa. “Polychromy and gilding in the Gandhāran sculptures from Pakistan and Afghanistan: samplings from Museum Guimet in Paris, Civic Archaeological Museum of Milan and Museum of Oriental Art of Turin”, *Restauro archeologico (Testo stampato)*, vol. 27, n°1.
https://doi.org/10.13128/RA-25128.

PECCHIONI *et al.* 2014
Elena Pecchioni, Fabio Fratini, Emma Cantisani, *Atlante Delle Malte Antiche in Sezione Sottile al Microscopio Ottico*, Firenze.

PRICE *et al.* 2007
Beth A. Price, Boris Pretzel and Suzanne Quillen Lomax (eds.). Infrared and Raman Users Group Spectral Database, vol. 1-2. Philadelphia; http://www.irug.org/search-spectral-database/spectra-index (accessed March 2025).

SIPLE 1931
Ella S. Siple, “Stucco sculpture from Central Asia”, *The Burlington magazine for connoisseurs,* vol. 59, n° 342, pp. 140, 144-145.

STRZYGOWSKI 1932
Josef Strzygowski, *The Afghan stuccos of the N. R. F. collection*, New York.

TARZI 1986
Zémaryalaï Tarzi, “La technique du modelage en argile en Asie Centrale et au Nord-Ouest de l’Inde sous les Kouchans: La continuité malgré les ruptures”, *Ktèma: civilisations de l'Orient, de la Grèce et de Rome antiques*, n°11, pp. 57-94.
https://doi.org/10.3406/ktema.1986.2635

VANLEENE 2019
Alexandra Vanleene, “Differences and similarities in Gandhāran art production: the case of the modelling school of Haḍḍa (Afghanistan)”, in Wannaporn Rienjkang and Peter Stewart (eds.), in *The geography of Gandhāran Art: proceedings of the second international workshop of the Gandhāra Connections Project, University of Oxford, 22nd-23rd March 2018.* pp. 143-163; http://dx.doi.org/10.32028/9781789691863.

VANLEENE 2024
Alexandra Vanleene, “Tracing a Gandhāran artist-modeller's hand: uncovering Haḍḍa monasteries' chronological sequence via modelled works examination”, in *International Colloquium Proceedings: Gandhāran Artists and Artisan. Representations of an Era of Religious Images, Interdisciplinary Thematic Institute History, Sociology, Archaeology and Anthropology of Religions of the Strasbourg University* (ITI HiSAAR), 22-23 May 2024.
https://www.youtube.com/watch?v=NORVmObBcJo (accessed 1 March 2025).

VARMA 1970
Kalidindi Mohana (K.M.) Varma, *The Indian technique of clay modelling*, Santiniketan.

VARMA 1987
Kalidindi Mohana (K.M.) Varma, *Technique of Gandhāran and Indo-Afghan stucco images: including images of gypsum compound*, Santiniketan.

VERRI *et al.* 2019
Giovanni Verri, Christian Luczanits, Victor Borges, Nick Barnard, John Clarke, "Investigations of a Gandhāran stucco head of the Buddha at the Victoria and Albert Museum (IM.3-1931)", *Technè*, vol. 48, pp.136-149.
https://doi.org/10.4000/techne.2792.

WRIGHT 2005
George Roy Haslam Wright, *Ancient building technology, vol. 2: Materials*, Boston.

Exploring Indian Traditional Knowledge for the Technological Understanding of "Monumental *Terracruda* Sculpture": New Evidence for the Study of Archaeological Examples along the Silk Roads

Mònica LÓPEZ-PRAT[1,2,3], Sudipa RAY BANDYOPADHYAY[4], Arnab CHATTERJEE[4], Jayaraman RAJENDRAN[5], and Veerasamy SELVAKUMAR[6]

Abstract

*This article presents the findings of multidisciplinary research aimed at advancing the technological understanding of archaeological sculptures made of air-dried or unfired clay (*terracruda*). By integrating archaeometric research with insights from ancient sacred texts and Indian traditional knowledge, the study explores the historical use of "clay" and "stucco" in the modeling of monumental sacred sculptures intended to remain. Despite the temporal and contextual differences, the cross-referencing of data offers valuable insights that may help elucidate the technological aspects underlying Gandhāran clay and stucco sculpture, as well as their interrelationship. By examining these living traditions, it is possible to trace continuities in materials and techniques, which can contribute to a better understanding of Buddhist sculpture. The results of this research not only enhance our understanding of a unique sculptural tradition but also provide a framework for its preservation and interpretation within the broader history of Asian sacred art.*

[1] Institute of Heritage Science, National Research Council of Italy (ISPC-CNR), [2] Conservació - Restauració del Patrimoni Research Group, Department of Arts and Conservation, Universitat de Barcelona, Spain, [3] Institut d'Arqueologia de la Universitat de Barcelona, Spain, [4] Department of Ancient Indian History and Culture, University of Calcutta, Kolkata, India, [5] Government. College of Architecture, Mamallapuram, India, [6] Department of Maritime History and Marine Archaeology, Tamil University, Thanjavur, India.

1. Introduction

A literature review across various disciplines addressing historical and archaeological monumental sculptures made of air-dried or unfired clay (*terracruda*) reveals a significant terminological challenge. This issue likely arises because the artistic tradition behind these artifacts is unique to Central, South, and East Asia–regions historically linked by the Silk Roads–and has no direct parallel elsewhere. This tradition utilizes *terracruda* as the primary material for creating sacred sculptures intended for permanence. Various terms have been used to describe these sculptures, including "clay sculptures", "loess sculptures", "earthen sculptures", and more recently, "clay-based sculptures", among others.

Furthermore, there is the question of whether two distinct types of sculpture coexisted in Buddhist Gandhāran contexts, both utilizing *terracruda* to model sacred figures (TARZI 1986; VARMA 1987; LIPPOLIS *et al.* 2019). However, one type appears to be primarily composed of lime mortar rather than clay, leading to its classification as "stucco" sculpture (VARMA 1987; MIDDLETON & GILL 1996; LIPPOLIS *et al.* 2019).

Adding to this complexity is the debate surrounding the unfired nature of the clay, sparked by evidence suggesting low firing in some Gandhāran archaeological sculptures (HAMEED *et al.* 2019; FORGIONE 2019, 2021), further complicating the technological classification.

This terminological and technological ambiguity not only complicates scholarly discourse but also has significant implications for the study, interpretation, and development of precise

conservation treatments for these sculptures. To address this question, we propose the term "monumental *terracruda* sculpture", characterizing its immobile nature, its large scale, and its frequent association with monuments to designate this technological tradition historically linked to the Silk Roads. Additionally, this designation deliberately contrasts with the widely used "*terracotta* sculpture", which refers to fired-clay works, emphasizing the distinctiveness of this unfired or air-dried clay tradition.

To advance our understanding of the materials and techniques associated with this unique sculptural tradition and to address its conservation challenges, a research initiative was launched. Scientific analyses were conducted on Buddhist archaeological examples from Tepe Narenj and Qol-e-Tut, two of the most representative Afghan Buddhist sites preserving monumental *terracruda* sculptures *in situ*. The results were then compared with existing literature on the material composition of sculptures following the tradition of using "clay" for sacred monumental representations, as well as with insights from Indian traditional knowledge and ancient sacred texts.

This cross-referencing of data has revealed significant technological similarities, indicating the existence of two primary modeling techniques for representing the sacred in monumental form using *terracruda*. These techniques are found in Gandhāran contexts, referenced in Indian sacred literature, and are still practiced in India today.

This article synthesizes the research findings and key conclusions, structured into five sections. Following this introduction, the second and third sections provide an overview of the technology associated with the main examples of *terracruda* sculpture, for which material and technical aspects are known. The fourth and fifth sections examine the available information on the use of *terracruda* through sacred literature and Indian traditional knowledge. Finally, the discussion analyzes the results, while the conclusion underscores the persistence of an ancient tradition that prioritizes the use of *terracruda* to represent the sacred. This practice, which spread with Buddhism along the Silk Roads, intersects with "stucco" sculpture in Gandhāran contexts and present-day South India, suggesting a link likely related to the use of "lime mortar" combined with "clay" connected exclusively to Indian modeling sculptural traditions.

2. "Clay" and "stucco" sculpture in archaeological and historical contexts

An analysis of the bibliography on the material and technical aspects of *terracruda* sculpture reveals a consistent structural requirement: these sculptures always require an internal core to support the modeling. This core, which is invariably connected to an architectural structure or surrounding environment, is typically composed of wood, stone, or bricks, onto which successive layers of modeling pastes are applied. In some cases, ropes or traces of them have been found wrapped around the core.

The modeling pastes often contain fibers and/or a high proportion of straw (chaff, husk), particularly evident in the inner layers–sometimes described in the literature as "coarser". Additionally, fabric imprints are frequently observed between the internal layers and the finishing layer(s). These monumental sculptures are found exclusively in sacred archaeological and historical contexts across Central, South, and East Asia (LÓPEZ-PRAT *et al.* 2024b).

Exceptionally, in Gandhāran artistic contexts, a distinct type of "clay" sculpture has been documented, characterized by a hard, reddish clay finish that sometimes appears to have been low-fired (PAIMAN 2008; HAMEED *et al.* 2019, 2021). This specific type of *terracruda* sculpture

is unique to the Gandhāra region. It has not been reported in any other artistic tradition that employs air-dried or unfired clay for the monumental representation of divinity.

Connected to *terracruda* sculptural techniques, and primarily influenced by Gandhāran art, there are Buddhist sculptures in which lime plasters appear to predominate over "clay". In the literature, these sculptures are generally referred to as "stucco" sculptures (VARMA 1987; MIDDLETON & GILL 1996; VERRI *et al.* 2019).

"Stucco" sculpture presents an additional challenge in identifying the technique or techniques that utilize unfired or airdried clay for sculptures intended to remain, because sculptures in which *terracruda* serves as the primary modeling material often feature a white finish, also commonly referred to as "stucco" in the literature. This overlap complicates distinguishing between "clay-based" and "lime-mortar-based" *terracruda* sculptures.

When diagnostic techniques are used to analyze the composition of different modeling layers in "clay" sculpture, cases where lime is not mentioned typically reveal a stratigraphy characterized by clayey pastes in the inner layers and sandier mixtures in the outer layers (CHIARI 1993; BLÄNSDORF & MELZL 2009; BAYEROVÁ *et al.* 2010; ZHAO 2014). The finishing layer is often white and maybe gypsum-based (NAGPALL & AGRAWAL 1959; BLÄNSDORF & MELZL 2009; BAYEROVÁ *et al.* 2010) or composed of other white minerals such as limestone, chalk, or kaolinite (CHIARI 1993; LLUVERAS *et al.* 2011; ZHAO 2014).

In contrast, when the modeling material is primarily lime-based, the inner layers tend to contain a higher fraction of aggregates, including pebbles, while the outer layers exhibit a thinner lime-mortar application with fewer aggregates (MIDDLETON & GILL 1996; VERRI *et al.* 2019; CHANG *et al.* 2024).

3. The first examples and the spread of the tradition

The earliest examples following the technical pattern in which *terracruda* serves as the primary sculpting material–and no lime is mentioned–appear in the core of Central Asia, particularly around the Bactrian region, in non-Buddhist contexts. These early instances suggest that the tradition of modeling monumental sculptures using air-dried or unfired clay originated independently within this cultural sphere before being adopted in Buddhist contexts. The sites are Ai-Khanoum, Old Nisa, Takht-i-Sangin and Khaltchayan, and the findings are reported to be connected to sacred contexts from the 3rd-1st centuries BCE.

Among the studies conducted on these sculptural collections, the scientific analyses of the Old Nisa examples stand out. These studies have confirmed the recurring technical pattern of *terracruda* sculpture characterized by the presence of a wooden skeleton, rope imprints, clayey and coarser internal modeling layers enriched with straw, sandier and thinner external layers with less straw, and a white finishing layer (CHIARI 1993).

Although lacking scientific analyses, the exhaustive descriptions provided by the French scholar P. Bernard regarding the sculptural findings at Aï Khanoum also deserve special mention (BERNARD 1969, 1973). His observations suggest a similar technical approach, reinforcing the consistency of the *terracruda* sculptural tradition in Central Asia during the 3rd-1st centuries BCE.

Other possible examples of monumental *terracruda* sculpture could be the examples found in ancient Chorasmia in Elkharas (BONGARD-LEVIN & KOŠELENKO 2005), Akchakhan-kala,

and Toprak-kala (MINARDI 2016). However, the absence of published detailed descriptions on their materials and manufacturing limits our understanding of these sculptures from a technical perspective.

Following these non-Buddhist examples, the earliest known *terracruda* sculptures emerge within the Buddhist tradition, with the Gandhāran art of Haḍḍa being particularly significant. Studies on Haḍḍa's sculptures, especially those based on the descriptions and interpretations of Tarzi (TARZI 1986) and Varma (VARMA 1970, 1987), suggest that some of these works can be technically classified as *terracruda* examples, while others align more closely with "stucco" examples. This distinction highlights the coexistence of both sculptural techniques employing "clay" within the Gandhāran artistic tradition.

From the material and technological point of view and connected to Gandhāran sphere, it must be mentioned the studies carried out on Bāmiyān (BLÄNSDORF & MELZL 2009), Mes Aynak (OHLÍDALOVÁ *et al.* 2016), Tepe Sardar (FORGIONE 2019, 2021), Tepe Narenj (FORGIONE 2019, 2021; LÓPEZ-PRAT *et al.* 2022a, 2022b, 2024a), Qol-e-tut (LÓPEZ-PRAT *et al.* 2022b, 2024a), which confirm that these examples would belong to examples of *terracruda* sculpture, that in some cases seem to be low-fired (OHLÍDALOVÁ *et al.* 2016, FORGIONE 2021).

There has been little scientific examination of Gandhāran "stucco" sculpture from a material point of view. Haḍḍa is likely the source of most of the "stucco" examples with published scientific data. These are the studies carried out by the British Museum (MIDDLETON & GILL 1996), the Victoria & Albert (VERRI *et al.* 2019) and the Harvard Museums (CHANG *et al.* 2025). Concentrated on heads, confirm that these were made from lime-based pastes, sometimes mixed with gypsum, originally containing a wooden pole or attached to a primary support, from which the pastes were modeled by superimposing layers, the inner ones with a higher proportion of aggregates and mineral inclusions and the outer ones with a finer composition.

Far from Gandhāra, there are other Buddhist archaeological sites in the Indian subcontinent where "stucco" was used as a sculptural medium. These would be some examples of Amaravati, in Andhra Pradesh (VARMA 1985, 1987), Nalanda, in Bihar (TIWARY 2018) and Moghalmari, in West Bengal (BASU 2020).

On the opposite side, examples of *terracruda* sculpture are documented in large numbers in Buddhist contexts beyond Gandhāra. Prominent among these are those found in monasteries and temples of Central Asia (KOSTROV 1961, 1963; FEDOROVITCHE 1969, LUNEV & MUSNITDINNODJAEV 1975; LEFEVRE & PRE 1996; SCHMIDT 2024), as well as in the Himalayas (BAYEROVA *et al.* 2010, SINGH *et al.* 2014) and China (BLÄENSDORF & TAO 2010, ZHAO 2014; LI 2001; LI *et al.* 2016; SONG *et al.* 2021*)*. The most eastern region where historic examples of *terracruda* sculpture are mentioned is Japan, linked to the Nara period (MORAN 1960). However, despite the many Buddhist examples of *terracruda* sculptures in these eastern regions, scientific studies providing data about technique and materials are also scarce. In these regions, distant from the Gandhāran context, there is no record of any "stucco" (*i.e.* lime-mortar) sculpture. Thus, in Antiquity, outside Gandhāran artistic contexts, lime-mortar sculpture seems to be found only in the Indian subcontinent, with Nalanda (Bihar, India) being the only archaeological example known to date of which material and technical aspects relating to the sculptural production, dated to the Gupta, Pala and Sena periods, have been described (TIWARY 2018).

However, outside the Gandhāran context, there are no known records of monumental *terracruda* sculptures in archaeological contexts within the Indian subcontinent. The tradition of modeling the sacred in this medium appears to be associated with recent periods and it is primarily manifested in creating ephemeral sculptures for worshiping Hindu deities during their respective festivals (*utsava*). While these sculptures are typically temporary, a few examples have been documented as having been preserved in temples with permanent religious functions (ROBINSON 1983, pp. 108, 273).

Nevertheless, Hindu sacred literature references a tradition of embodying the sacred with unfired or airdried clay as early as the 8th–9th century CE (VARMA 1970, ROBINSON 1983). This tradition follows a structured pattern involving an internal wooden skeleton, ropes, multiple clay-based layers, and fabrics between the final modeling layers and the polychrome finishing. These textual accounts suggest a long-standing continuity in *terracruda* sculptural practices, even though the surviving examples are associated with ephemeral ritual sculptures rather than monumental, permanent structures.

4. Sacred literature and the indian traditional knowledge

K. M. Varma is the only scholar who has conducted a technical study of texts detailing the procedures for making clay and stucco sculptures. He was the first to compare Sanskrit literature with archaeological records and traditional Bengali knowledge, adopting a pioneering approach he presented in his seminal work, *The Indian Technique of Clay Modeling* (VARMA 1970).

For his study, Varma primarily relied on the *Kashyapashilpa* (*c.* 12th century CE) as his main source, while also incorporating insights from other significant texts, including:

- *Vimanarchanakalpa* (*c.* 8th century CE)
- *Kashyapajnankanda* (*c.* 16th century CE)
- *Samurtarchanadhikarana* (*c.* 16th–17th centuries CE)

Through this comparative analysis, Varma established connections between textual descriptions, historical sculptural traditions, and contemporary practices, providing a foundational framework for understanding the Indian tradition of clay modeling from an archaeological and technical perspective.

These classical texts explain in detail the process of making a sacred image out of air-dried clay using seven materials, which are paralleled by the "elements" that make up a human body: the wooden armature (*sula*) is the skeleton; the ropes (*raju*) are the veins and sinew; the different layers of clay (*mrt*) are the flesh; the clothes (*pata*) in the final layers of clay are the skin; the glue (*astabandha*), is the fat; the "limestone paste" (*sarkara-kalka*) is the blood; and the color (*varna*) is the life force. In his work, Varma, in addition to studying the ancient Sanskrit sources dealing with the subject, compares the classical canons of clay image-making with the Gandhāran archaeological record and the traditional Bengali practice, demonstrating strong technological parallels.

Inspired by K.M. Varma's work and to gain deeper insight into the making of monumental *terracruda* sculptures, a research initiative was undertaken in the autumn of 2019 in collaboration with the Department of the University of Calcutta (West Bengal, India). This study focused on documenting the work of *kumors* (the Bengali term for "clay" artists), who continue the tradition of embodying the sacred through "clay".

These artisans uphold an ancestral art that is deeply intertwined with Hindu cosmology, as they "are said to have as their ancestor the very same Brahma, or supreme god, creator of the All" (DUTTA 2016, p. 30). By observing their techniques, tools, and materials, this documentation provided valuable ethnographic insights into an enduring artistic tradition that resonates with ancient textual descriptions and historical sculptural practices.

As a general practice, *kumors* work alongside a team of apprentices or assistants in a workshop. Today, most commissions are fulfilled in urban workshops, but until a few decades ago, it was common for traditional families to hire the same team of artists each year for religious festivals. These artists would live and work at the family's home for the duration of the sculpting process (ROBINSON 1983, p. 78).

The materials used–such as bamboo, straw, clay, and jute fiber–are typically sourced from local traders. Throughout the various stages of creation, *kumors* rely on a network of craftsmen and suppliers. Even the ornaments used to adorn the sculptures are purchased from specialized artisans, whose workshops are often located near the *kumors'* studios, reflecting a deeply rooted system of interdependent craftsmanship.

In the process of modeling, the *kumors* begin to build the *kathamo* or wooden platform where they hold bamboo poles as a simplified skeleton of the sculpture. On the base of *kathamo* is often raised a structure known as *simhasana* or *vedi*, also made with bamboo poles, which varies according to the divinity represented and its size. This keeps the figure erect on its base. In complex images containing more than one figure, the *chali* is often inserted over the *kathamo*. It acts as a unifying structure, framing the figures and supporting them. In these cases, the weight of the composition is supported by the *chali* and the figures are supported by the inclusion of bamboo sticks firmly inserted into the frame. These would have a technical function analogous to the *upasula*, detailed to link the sculptures to the architecture in the classical Sanskrit texts. The *chali* can be semicircular, square, rectangular, or even adopt more complex shapes. It is made using large bamboo rods arranged vertically and horizontally at strategic points to support the large weight of the figures. To create the frame and skeleton of the figures, bamboo poles are cut into various thicknesses and firmly joined together with the use of nails and jute rope. The jute rope is used profusely in the elaboration of the sculpture, *i.e.* in the making of the *chali* or back support structure, in joining the different poles of the figure skeleton, and in assembling the rice straw bundles that will give the initial volume to the figures. These bundles, in addition to giving the initial volume to the core, allow the initial modeling pastes to adhere.

To prepare the modeling pastes, today the *kumors* use two types of soil, one more clayey (for the inner layers) and the other sandier (for external layers). In Kumortuli (the neighborhood of Calcutta where the clay artists are settled), these two types of soil are known as:

- *etel-mati* (brought by boat from the Diamond Harbour area, in the southern suburb of Kolkata, where the Hooghly River, a distributor of the Ganges River, meets the Bay of Bengal) and,
- *bele-mati* or *Ganga-mati* (extracted from the same Hooghly River, which is the western border of the Kumortuli neighborhood).

It is worth mentioning that *etel* in Bengali could be translated as "sticky", *bele* as "sand" and *mati* means "clay" or "earth." Before being modeled, both types of soil must be kneaded and purified to a great extent to make them ready for use. They are used separately or mixed, in this last case producing *doansh–mat*i, necessary for making parts that need a mixture of the

characteristics of the two different main soils, as in the case of the parts obtained through the plaster of Paris molds, mainly used in the realization of heads, hands, feet or jewelry of some figures.

Vegetable matter (husks, straw, and fibers) is also used in different ways depending on the part of the body to be modeled. For example, to make the modeling pastes that give the main volume of the body (*i.e.* to model the inner layers), rice husks (or rice husks + straw for large sculptures) are mixed with *etel-mati*, making a coarse-looking paste that the *kumors* identify as *tus-mati* (which could be translated as "bran soil"). Or to prepare the modeling pastes for the *mūdra* fingers (which need extra stiffness to stand straight) they are made separately by adding a high content of jute fibers.

After making the main volume of the sculpture, it is necessary to wait for the *tus-mati* to dry completely. Depending on the divinity being modeled and its size, the head, hands, feet, and fingers are modeled separately, usually with *doansh-mati*. It is worth mentioning that sometimes, to speed up the drying process to complete the commission on time, the *kumors* use a fan or, in the case of the heads, a low firing was documented.

This is despite the fact that some classical Sanskrit texts explicitly forbid the use of *terracotta* images for worship (ROBINSON 1983, p. 48; VARMA 1970, pp. 3-5). These texts indicate that while both *terracotta* (fired clay) and *terracruda* (unfired clay) images may be venerated, preference is given to the latter. Additionally, some texts specify that *terracotta* images are not suitable for ordinary worship (VARMA 1970, p. 5).

According to Robinson, the reason for this prohibition is not explicitly stated in any of the texts. However, he suggests that it may stem from the belief that clay should not be fired, as only in its raw state does it remain fertile (ROBINSON 1983, p. 52). This perspective aligns with broader religious and symbolic associations between clay, fertility, and the ephemeral nature of life.

Once the volume of the body has been made and the head, hands and feet have been added, the *kumors* begin to model with sandier clay (*bele-mati*) the shapes that will finish the figure. It should be noted that in the final modeling layers, the *kumors* today only add jute fibers to the pastes that need extra stiffness, such as fingers, crowns, or weak parts, and no straw or husk. Once the finishing shapes are modeled, they add cotton fabrics soaked in *etel-mati* to avoid the perception of cracks appearing during the drying process, covered in turn with a barbotine of *etel-mati* applied with a brush. This is considered the last stage of modeling.

Once the figure is dry, the polychrome phase begins with the bleaching of the figure, currently prepared with kaolinite or chalk (identified as *khore-mati)* agglutinated with a preparate based on tamarind gum and other "secret" products that were impossible to know because they constitute a familiar formula that distinguishes one workshop from another. Several layers of *khore-mati* of different consistencies are added, waiting for each layer to dry between applications. This mixture could be identified as a white primer that allows polychromies and could be similar to *sarkara-kalka*, the paste mentioned in Sanskrit texts which, according to Varma, should be translated as "limestone paste". This product is obtained by the grinding of *sarkaras*, translated by Varma as "white pebbles" (VARMA 1970, pp. 26-27).

The last layer of *khore-mati* is usually mixed with the base color associated with the divinity.

The details of polychromies are given at a final stage, and it is when the eyes are painted in a ritual called *Chakshudana* that the divinity is believed to enter the sculpture, awakening it.

The *kumors* do not use lime at any stage of modeling. However, there is still a tradition of modeling sacred sculptures with lime in South India today. This art is known as *sudhai* sculpture, a Tamil word that, according to Varma (VARMA 1983, p. 35), is derived from the Sanskrit word *sudha*, which could be translated into English as "lime-based mortar", but that is translated by Tamil *shilpis* (or traditional artists) as "stucco" sculpture. No doubt this is due to the interference of the Western language and its artistic traditions because, in Indian contexts, *sudha* or *sudhai* sculpture always refers to a method using lime mortar to model three-dimensional sculptures intended to decorate temples from ancient times to the present-day, with numerous examples throughout South India.

Here, the practice is still very much alive, thanks to generations of artists who perpetuate this traditional knowledge, but also to the presence of the Government College of Architecture and Art of Mamallapuram (Chengalpattu district, Tamil Nadu), where students are trained to continue the art of making *sudhai* sculptures. Established in 1957 as a Sculpture Training Centre under the Ministry of Industries and Commerce, the College was founded with the primary goal of reviving and expanding the ancient Indian traditions of sculpture and architecture. Through a comprehensive four-year certificate program, students immerse themselves in studying *Shilpa*, *Agama*, and *Vastu Sastras*, alongside Iconography, Aesthetics, Philosophy, and languages such as Sanskrit, English, and Tamil.

To make a *sudhai* sculpture in the round today, the *shilpis* usually begin by making a metal skeleton of the deity, which is fixed to a pedestal or to the architecture itself. In high-relief sculptures, the metal skeleton can be omitted. In the second step, fragments of bricks with lime mortar are attached to the metal skeleton (in the case of three-dimensional sculptures) or directly to the wall (in the case of high-relief sculptures) to give the figure the desired volume. In the third step, the sculpture is properly modeled, first with a thicker lime-based paste (with more sand) and then with a finer lime-based paste (with less sand), on which the polychrome is applied once it has dried.

As a general rule, to prepare lime-based mortar, they mix slaked lime with a water obtained from the decoction of *kadukkai* (black myrobalan – *Terminalia chebula*). To prepare this water, they smash *kadukkai* fruits in a jute bag and put the bag with the smashed fruits in water for 15 days. Finally, they mix the resulting water with *jaggery* (the name given to the traditional raw sugar obtained by evaporating water from sugar cane juice or palm sap) before its application to prepare the lime mortar:

i. They pour one part of slaked lime into the lime mortar mill, which consists of two metal wheels that run over a circular pan.
ii. They start to slowly add the *kadukkai* + *jaggery* water.
iii. They add sieved river sand to achieve the different desired consistencies.
iv. They left the mixture to cure (for not more than 4 days; otherwise, it dries) before using it.

Unfortunately, the art of *sudhai* sculpture is now threatened by the advent of cement, which is much cheaper and quicker to use than the traditional lime mortar. This material, in addition to the mixture of the above-mentioned organic substances, involves several waiting times for optimal curing and drying. Therefore, nowadays, traditional lime mortar is practically only used to restore monuments under governmental supervision.

It is a remarkable fact that the same artists who learn the art of *sudhai* sculpture associate it with the art of modeling the sacred in "clay". According to interviewed *sthapatis*, the sculptors mainly follow the prescriptions of *Cirpa Cennūl*, a treatise on Indian sculpture and iconography originally written in Tamil by V. Ganapati Sthapati, in 1977. In it, the author explains, simplifies and interprets the information provided by *Shilpa Shastras* without referencing the source of every precise information offered. However, the *Cirpa Cennūl* is considered by the Tamil *sthapatis* as an authoritative text in the field of sculpture and iconography. The *Cirpa Cennūl* identifies *katusarkara padimam* as sacred images for worship made by modeling: "When the *shilpi* is fashioning images of God in stone, wood or metal, is able to express only the external characteristics of the human body. On the other hand, when the *shilpi* is faced with the challenge of creating divine forms with soft materials like earth and *sudhai*, he can be innovative. He is given an opportunity to adopt both, the inner and outer characteristics of the human form to fashion the image (…) The images fashioned out of earth make use of wooden members in the place of bones, string for nerves and muscles, earth for flesh, and cloth to represent skin" (Ganapati Sthapati 2002, p. 223).

According to the interviewed *stapathis*, some Vishnu temples and Goddess temples preserve *kadusarkarai padiman* (*kadursarkara* image). In these, the sculptures decorating *vimanas* and *gopurams* are *sudhai* sculptures. An example of this kind of temple would be the temple of Ulagalantha Perumal, in Kanchipuram (Tamil Nadu), dedicated to Vishnu. This temple is believed to be built during the Pallava dynasty in a Dravidian style, and it is profusely decorated with *sudhai* sculptures. In addition, the *vimana* has an elevated roof to accommodate in his interior the huge image of the *sancta sanctorum* deity: the *Ulagalantha Perumal* (the One who measures the Earth or the Universe, in Tamil) a form of Vishnu 11 meters tall in a standing posture. This image was recently restored, and according to the *sthapatis* "the core is made of wood, and the muscles are made-up of lime mortar with brick fragments covered with *kalka* plaster. *Kalka* plaster contains 8 to 32 materials, among them: powder of a red stone found in a red soil area (harder variety), moringa tree resin, cotton, ghee, palm jaggery and others and would be an example of *Kadusarkarai padimam*".

It seems worth mentioning that Varma, in his work on "stucco" (VARMA 1983, p.35), points out that *sarkara-kalka* is sometimes also mentioned in Sanskrit as *gathisarkara*. According to him, the word *kadisarkara* (or *katusarkara*) would be a Tamil version of Sanskrit *gathisarkara*, which he translates as "the paste (*kalka*) made of the powder of *sarkara*s" (limestone pebbles, not lime), noting that scholars mistakenly translate it as "stucco" (a word that for Varma exclusively identifies lime mortar).

5. Discussion

Despite the temporal and contextual differences, the documentation of Indian "clay" and "stucco" modeling traditions offers valuable insights that may help elucidate some of the technological aspects underlying Gandhāran clay and stucco sculpture. By examining these living traditions, it is possible to trace continuities in materials and techniques, which may contribute to a better understanding of their interrelationship.

Both modeling practices are maintained in India for different purposes: "clay" sculpture is mainly preserved in Bengal regions connected to ephemeral worship sculptures, which could be exceptionally low-fired to accelerate their drying process. In contrast, "stucco" or *sudhai* sculpture is predominantly employed in South India to decorate temples, *vimanas*, and *gopurams*. However, in South India, where the Agama literature is believed to have

originated, the two techniques seem to overlap. This is suggested by the interpretation of the *Cirpa Cennul* compendium and evidence from temple sculptures such as that of *Ulagalantha Perumal* in Kanchipuram (Tamil Nadu). A hybrid approach could represent the development of a variant of clay modeling with lime mortar for worship as well.

The use of "stucco" on exteriors and "clay" on interiors aligns with the hypotheses proposed by Varma (VARMA 1970) and Tarzi (TARZI 1986) regarding Gandhāran contexts. Both scholars suggested that "stucco" was primarily employed in exterior settings, likely for decorating temples and *stūpas*. This interpretation reinforces the idea that "stucco" served as a protective outer layer for "clay" works in outdoor environments.

This observation could be linked to Varma's statement in his study of Sanskrit texts on Indian "clay" modeling:

> "*The texts sometimes also deal with different images that are to be made and fixed to the outer surfaces of temple walls either without niches or in niches. But in general, these figures are not all meant for worship. It is in connection with the images meant for worship inside temples that the Agama texts take much care in prescribing the material of which they are to be made, according to the purpose they serve in the manifold worship.*" (VARMA 1970, p. 4, Footnote 17).

This distinction in textual sources aligns with the potential functional differences between Gandhāran "stucco" and "clay" sculptures–stucco likely serving as a protective layer for "clay" modeling in outdoor decorative sculptures, while "clay" for sacred sculptures intended for worship inside temples.

Furthermore, there is no evidence of lime mortar sculpture in antiquity outside the Indian subcontinent. However, monumental *terracruda* sculpture is widespread within Buddhism along the Silk Roads, suggesting that certain Buddhist currents may have prioritized clay as the primary material for sacred representation during their foundational stages (LÓPEZ-PRAT *et al.* 2024b).

It is important to note that Hellenistic and Roman cultures never developed a tradition of modeling three-dimensional sculptures (*i.e.*, free-standing sculptures or very high reliefs) in lime mortar or gypsum mortar, and even less so in *terracruda*. To find anything technically comparable to stucco sculpture in the West, one must look to the "Masters of the Lakes" of the 16th century Italian Renaissance. These artists pioneered the production of very high-relief sculptures using lime mortar mixed with sand and marble powder, sometimes incorporating organic additives (CAROSELLI *et al.* 2020).

This technique spread from Italy to other parts of Europe as a substitute for carved marble or stone, particularly for large architectural projects between the 16th and 18th centuries (GRAPPER 1999; GRAPPER & ORTON 2011). It is likely due to this later European tradition that Gandhāran lime-mortar sculptures came to be referred to as "stuccos", a term primarily associated with the sculptural work of Italian Renaissance masters.

This distinction reinforces the idea that the use of clay for monumental sacred sculpture was pioneered by religious traditions emerging between Central Asia and the Indian subcontinent around the 2nd century BCE. Within these traditions, *terracruda* was the preferred material for monumentally embodying the sacred (LÓPEZ-PRAT *et al.* 2024b).

Later, and exclusively within the Indian artistic and technological tradition, a variant of sculptures modeled in lime mortar was developed. These Gandhāran lime-mortar sculptures were likely not intended for worship. Instead, they served a primarily decorative function, adorning sacred buildings with an "earthen" material that could better withstand exposure to the elements.

As Indian art historian, Fernández del Campo (FERNÁNDEZ DEL CAMPO 2020, p. 54) explains:

> "*One of the most commonly used words in Sanskrit to define "sculpture" is* murti, *which refers not only to the material work and the image of a divinity but primarily to the idea that this image is an incarnation of the divinity it depicts. That is to say– the sculpture is not a representation but a materialization of the sacred. In the West, we have too frequently understood this concept of "incarnation" as primarily symbolic, reducing it to a quality of religious art. This has been one of the most persistent misinterpretations of Indian art and one of the main obstacles to fully grasping the essence of its sculptural expression.*"

This perspective highlights the fundamental difference between Indian and Western sculptural traditions: while Western art has often emphasized representation, Indian sacred art prioritizes incarnation–a belief in which the material itself plays a central role in manifesting the divine rather than merely depicting it.

6. Conclusions

This study offers several significant insights into the technological tradition of monumental *terracruda* sculpture:

I. Continuity of an ancient tradition. Evidence suggests an unbroken technological lineage of *terracruda* sculpture, originating in Central Asia around the 2nd century BCE and extending with Buddhism through South, and East Asia along the Silk Roads.
II. There is an overlap between "clay" and "stucco" sculptures in Gandhāran contexts and in South India today, indicating a possible link between these traditions. Sanskrit texts and traditional Indian knowledge suggest that "stucco" may represent a regional technical variant adapted for outdoor sacred monuments.
III. The religious meaning of "earth" in sacred sculpture. The research reaffirms that the *terracruda* was not a mere material choice, but was deeply linked to the religious concept of "earth" (containing water, *i.e.* remaining fertile, therefore "alive") as a sacred means for embodying divinity.
IV. "Stucco" as a decorative evolution. A distinct Indian technological tradition, linked to *terracruda* modeling but composed of lime mortar, appears to have developed primarily for decorative purposes in Gandhāran architecture rather than for direct worship.
V. Importance of Indian religious texts and traditional knowledge. The study highlights how sacred texts and artistic traditions provide valuable context and interpretative frameworks for understanding archaeological examples and the cultural significance of *terracruda* sculptural tradition.

These findings underscore the need for interdisciplinary research integrating archaeometric analysis, sacred texts, and ethnographic studies. This approach will enhance our technological understanding of monumental *terracruda* sculpture while providing a more accurate view of its presence and historical significance within archaeological contexts.

Acknowledgments

This work has been developed in the framework of the postdoctoral Juan de la Cierva contract (FJC2021-046803-I) funded by MCIN (Ministerio de Ciencia e Innovación)/AE (Agencia Estatal de Investigación) - 10.13039/501100011033 and by the European Union "Next Generation EU"/PRT. The paper has been produced in the context of the TANTRiC project funded by the European Union through an MSCA-2022-PF-01 (Nº 101105953). We gratefully acknowledge all the *kumors*, *shilpis*, and *sthapatis* who generously collaborated in this research. We also extend our sincere thanks to the institutions that made this transboundary East-West study possible, with special appreciation to an explorer encountered in Samarkand.

Funding

FJC2021-046803-I funded by MCIN (Ministerio de Ciencia e Innovación)/AE (Agencia Estatal de Investigación) - 10.13039/ 501100011033 and by the European Union "Next Generation EU"/PRT. Horizon Europe funding under the TANTRiC grant agreement Nº 101105953

.

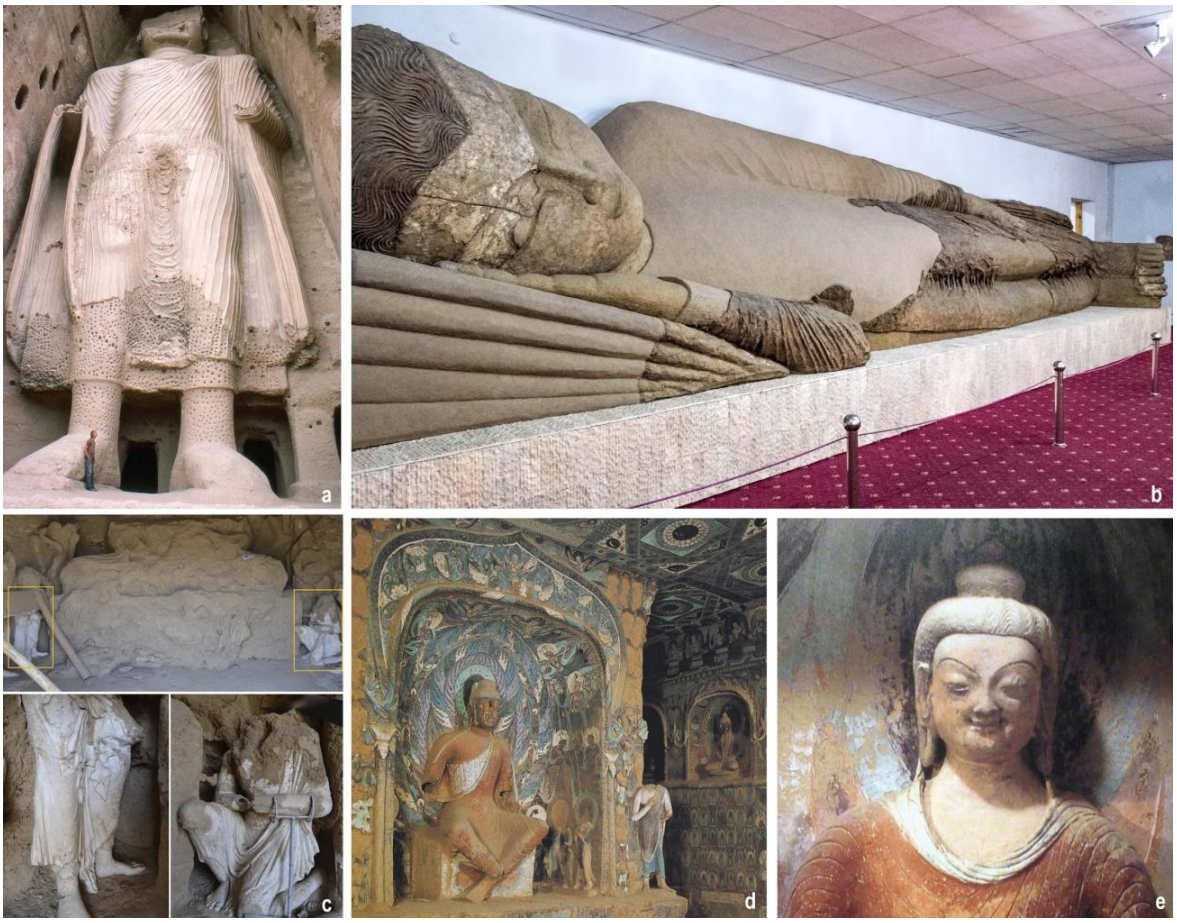


Fig. 1: Different examples of “clay” sculpture: a. Eastern Bamiyan Buddha (Phecda 109, Wikimedia Commons), b. Reclining Buddha of Ajina Tepe (Lundberg, Wikimedia Commons), c. Chapel III of Tepe Narenj, d. and e. some examples of Dunhuang “clay” sculpture (D. Stanley, Wikimedia Commons).



Fig. 2: Example of red ‘clay’ sculptures from Tepe Sardar, Ghazni, Afghanistan (Buddhist Ghazni – IsMEO/IsIAO Italian Archaeological Mission in Afghanistan)



Fig. 3: Stucco head of the Buddha, Lucknow State Museum.
Front view (left) and rear view (right)
(VERRI *et al*. 2019) © C. Luczanits



Fig. 4: *Kumors* in making the structure (with bamboo) and volume of the legs (with bundles of rice straw) of a large sculpture (Kolkata, West Bengal)



Fig. 5: Some semi-fired clay heads near a portable oven (Kolkata, West Bengal)



Fig. 6: *Kumor* applying yellow colored *khore-mati* (Kolkata, West Bengal)



Fig. 7: *Sudhai* sculpture of *vimana* and *gopuram* of Kapaleeswarar Temple (Chennai, Tamil Nadu)



Fig. 8: Restoration works of *sudhai* sculpture of the same *vimana* in which Ulagalantha Perumal image is housed (Kanchipuram, Tamil Nadu)

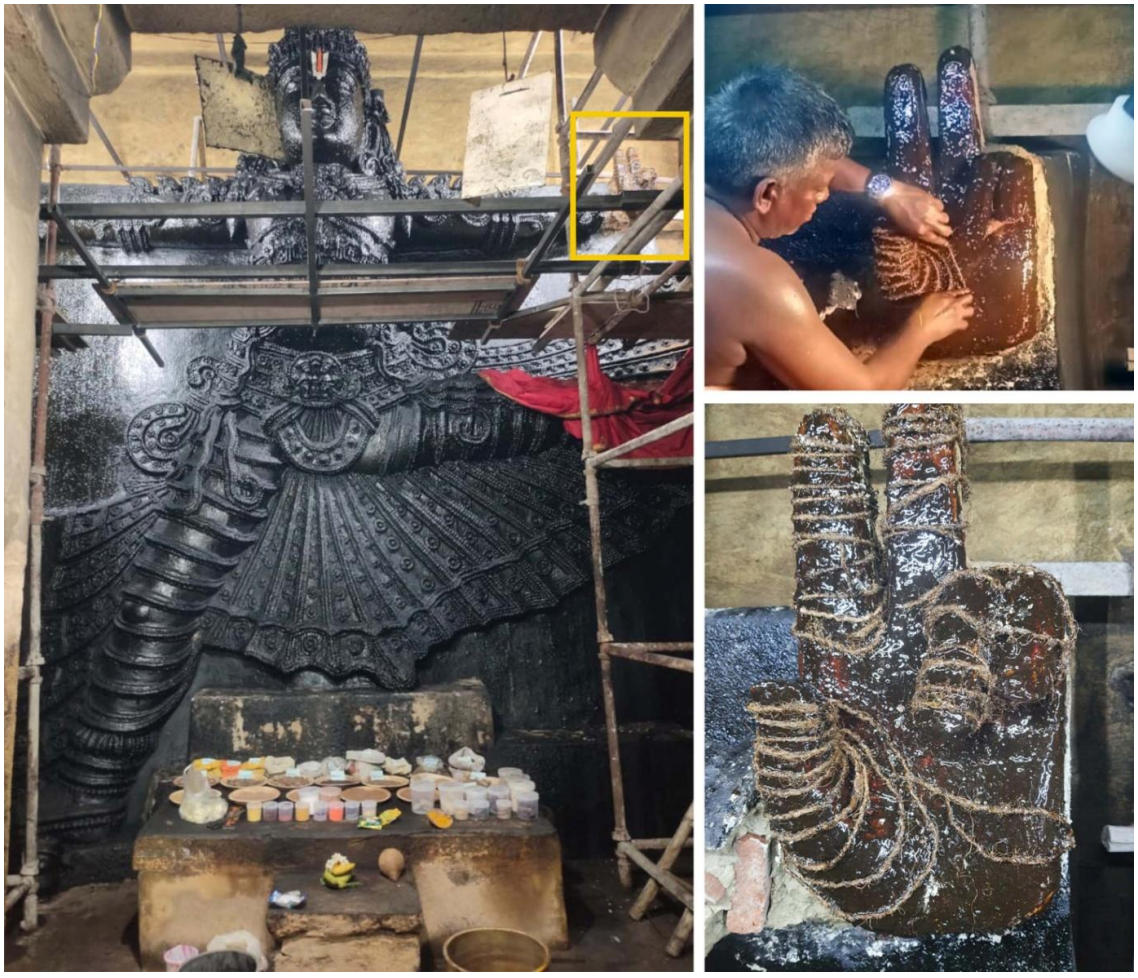


Fig. 9: Left hand restoration process of Ulagalantha Perumal image (Kanchipuram, Tamil Nadu)

BILIOGRAPHICAL REFERENCES

BASU 2020

Durga Basu, "Stucco as a Building Material-A Study of Its Composition, Use and Scientific Analysis", *Heritage: Journal of Multidisciplinary Studies in Archaeology 8.2*, pp. 662-679.

BAYEROVÁ, GRUBER & KRIST 2010

Tatjana Bayerová, Maria Gruber & Gabriella Krist, "Technical study of polychrome clay sculptures from the Buddhist temple complex at Nako, Himachal Pradesh, North India", in *Multidisciplinary Conservation: A Holistic view for Historic Interiors* (Rome, 23rd-24th March 2010), Joint interim meeting of five ICOM-CC working groups: Sculpture, Polychromy, and Architectural Decoration.

BERNARD 1969

Paul Bernard, "Quatrième Campagne de Fouilles à Ai Khanoum (Bactriane)", *Comptes Rendus Des Séances de l'Académie Des Inscriptions et Belles-Lettres*, 3, pp. 313–355.

BERNARD 1973

Paul Bernard, *Fouilles d'Aï Khanoum I* (campagnes 1965, 1966, 1967, 1968), MDAFA XXI, 2 vol., Klincksieck, Paris.

BLÄNSDORF & MELZL 2009

Catharina Blänsdorf & Edmund Melzl, "Technique of Modeling the Buddha Statues, The Giant Buddhas of Bamiyan: Safeguarding the Remains", *Monuments and Sites XIX*, pp. 201-214, ICOMOS, Bäßler, Berlín.

BLÄNSDORF & TAO 2010

Catharina Blänsdorf & Ma Tao, "Chinese-German Cooperative Project for the Preservation of the Cultural Heritage of Shaanxi Province: Conservation of the Polychromee Clay Sculpture and Investigation of Painting Materials in the Great Hall of the Shuilu'an Buddhist Temple", *Conservation of Ancient Sites on the Silk Road*, pp. 203-211, The Getty Conservation Institute, Los Angeles.

BONGARD-LEVIN & KOŠELENKO 2005

Grigorij M. Bongard-Levin & Gennadij Andrejevič Košelenko, "The Puzzle of Elkharas", *East and West* 55, 1/4, pp. 41-53.

CAROSELLI, ZUMBÜHL, CAVALLO *et al.* 2020

Marta Caroselli, Stefan Zumbühl, Giovanni Cavallo *et al.*, "Composition and techniques of the Ticinese stucco decorations from the 16th to the 17th century: results from the analysis of the materials", *Herit Sci* 8, p. 102.

CHANG, EREMIN, DEGRYSE, RAYNER, LAURSEN 2025

Angela Chang, Katerin Eremin, Patrick Degryse, Georgina Rayner, Sarah Laursen, "Technical findings on objects from Afghanistan in the Collection of the Harvard Art Museums", in *Proceedings from Gandhāran Artists and Artisans, Representations of an Era of Religious Images, International Colloquium*, University of Strasbourg, 22nd-23rd May 2024.

CHIARI 1993
Giacomo Chiari, "Investigation and Restoration of Clay Fragmentary Statues from Old Nisa", in *7a Conferencia Internacional Sobre O Estudio e Conservaçao Da Arquitectura de Terra*, pp. 228–230, Silves, Portugal.

DUTTA 2016
Krishna Dutta, *Image-makers of Kumortuli and the Durga Puja festival*, New Delhi.

FEDOROVITCHE 1969
Eugenia Fedorovitche, "Nouvelle méthode de fixation des anciennes sculptures en argile brute", *Monumentum IV,* pp. 97-99.

FERNÁNDEZ DEL CAMPO 2020
Eva Fernández del Campo, "Statues of flesh, art to be touched", in *Spiritual and Corporal Selves in India: Approaches in a Global World,* Cambridge Scholars Publishing.

FORGIONE 2019
Giulia Forgione, "Clays and Colours: Tracking Technologies and Theories of Vision in the Ancient Buddhist Art of Afghanistan", *Restauro Archeologico* 1, pp. 130-141.

FORGIONE 2021
Giulia Forgione, "Clay-based sculptures: analysis of technical aspects and typologies", *Parthica 23,* pp. 145-170.

GANAPATI STHAPATI 1977
Vaidyanatha Ganapati Sthapati, *Cirpa Cennul. Indian sculpture & iconography: forms & measurements,* English version by Sashikala Ananth (ed), Sri Aurobindo Society, 2002.

GAPPER 1999
Claire Gapper, "What is 'Stucco'? English interpretations of an Italian term", *Architectural History* 42, pp. 333-343.

GAPPER & JEFF ORTON 2011
Claire Gapper & Jeff Orton, "Mortar, Stucco and Stuccoes", *Journal of Architectural Conservation*, 17:3, pp. 7-22.

HAMEED, SAMAD, KENOYER & SHER 2019
Abdul Hameed, Abdul Samad, Jonathan Mark Kenoyer & Shaista Sher, "Terracotta Sculpture from Bhamala, Taxila, Pakistan: New Insight on Kushan Manufacturing and Firing Techniques", *Gandhāran Studies*, 13, pp. 79-92.

KOSTROV & SHEININA 1961
P. I. Kostrov & E. G. Sheinina, "Restoration of Monumental Painting on Loess Mortar using Synthetic Resins", *Studies in Conservation* 6, pp. 90-106.

KOSTROV 1963
P. I. Kostrov, "Restoration of ancient monumental painting on loess mortar and painted loess sculpture", in *Joint meeting for the ICOM Committee for Scientific Museum Laboratories and the ICOM Sub-committee for the care of paintings,* 63/84.

LEFEVRE & PRE 1996
Lional Lefevre & Yann Pre, "Dessalement de statuettes en terre crue d'Asie centrale conservées au musée Guimet", in *Le dessalement des matériaux poreux : 7emes journées d'études de la SFIIC* - Poitiers, 9th-10th May 1996, pp. 91-103.

LI, JIANGUO, HONGLI, RONGHUA, TAO 2016
Lisha Li, Du Jianguo, Liu Hongli, Chen Ronghua, Liu Tao, "Dynamic Characteristics and Seismic Responses of Painted Sculptures of Dunhuang Mogao Grottoes", *Journal of Cultural Heritage* 22, pp. 1040-1048.
https://doi.org/10.1016/j.culher.2016.07.003.

LI 2001
Zuixiong Li, "Coloured clay sculptures and their protection at mo kao grotto at Dunhuang", *Monuments and Sites*, 3, pp. 174-177.

LIPPOLIS, DAVIT & TURCO 2019
Carlo Lippolis, Patrizia Davit, & Francesca Turco, "Stucco and clay in the decoration of the monumental buildings of old Nisa", *Syria. Archéologie, art et histoire*, V, pp. 311-322.

LÓPEZ-PRAT, AGOSTINO *et al.* 2022
Mònica López-Prat, Raffaele Giuseppe Agostino, Sudipa Ray Bandyopadhyay, B. Carrascosa, Maria Caterina Crocco, R. De Luca, & Domenico Miriello, "Architectural terracruda sculptures of the silk roads: new conservation insights through a diagnostic approach based on non-destructive X-ray micro-computed tomography", *Studies in Conservation*, 67(4), pp. 209-221.

LÓPEZ-PRAT, LANCELOTTI *et al.* 2022
Mònica López-Prat, Carla Lancelotti, Gema Campo-Francés, Sudipa Ray Bandyopadhay, B. Carrascosa, Noor Agha Noori, Alessandra Pecci, J. Simón-Cortes, & Domenico Miriello, "The role of plants and fibres in modeling monumental terracruda sculptures of the Silk Roads: archaeobotanical analyses from the Buddhists sites of Tepe-Narenj and Qol-e-tut (Kabul, Afghanistan)", *Heritage Science*, 10(67), pp. 1-16.
https://doi.org/10.1186/s40494-022-00709-2.

LÓPEZ-PRAT, DE LUCA *et al.* 2024a
Mònica López-Prat, R. De Luca, Alessandra Pecci, Simona Mileto, Sudipa Ray Bandyopadhyay, Andrea Bloise & Domenico Miriello, "The modeling pastes of the monumental terracruda sculpture of the Silk Roads: Archaeometric study of the Tepe Narenj and Qol-e-tut examples (Kabul, Afghanistan)", *Archaeometry*, 66(1), pp. 76-99.

LÓPEZ-PRAT, PECCI *et al.* 2024b
Mònica López-Prat, Alessandra Pecci, Carla Lancelotti & Domenico Miriello, "Shaping the sacred along the Silk Roads: the millenary artistic tradition of making monumental terracruda sculptures", *Journal of Archaeological Science*: *Reports*, 54.

LLUVERAS, BONADUCE, COLOMBINI, BLAENSDORF & MA TAO 2011
Anna Lluveras, Ilaria Bonaduce, Maria Perla Colombini, Catharina Blaensdorf & Ma Tao, "A first insight into the Asian clay sculptures painting technique and materials: western and eastern Buddha of the Bamiyan Valley (Afghanistan) and sculptures from Shuilu'an (Shaanxi, China)", in *Art'11 International Conference on Non-Destructive Investigations*

and Microanalysis for the Diagnostics and Conservation of Cultural and Environmental Heritage, Florence, Italy.

LUNEV & MUSNITDINNODJAEV 1975
V. A. Lunev, & H. Musnitdinnodjaev, "Method of Excavation, Conservation and Storing of the Polychrome Sculpture on the Clay Base", in *ICOM Committee for Conservation, 4th Triennial Meeting*, 13th-18th October, Venice.

MIDDLETON & GILL 1996
A. P. Middleton & A. J. Gill, "Technical Examination and Conservation of the Stucco Sculpture", in *Catalogue of the Gandhāra Sculpture in the British Museum*, vol. Appendix 4.

MINARDI 2016
Michele Minardi, "The Ancient Chorasmian Unbaked-Clay Modeled Sculptures: Hellenistic Cultural 'Impacts' on an Eastern Iranian Polity.", in *Religions, Society, Trade and Kingship: Archaeology and Art in South Asia and along the Silk Road*, 5500 BCE- 5th Century CE, pp. 195-208.

MORAN 1960
Sherwood F. Moran, "Structural Features of Clay Sculpture of the Nara Period", *Artibus Asiae* 23/1, pp. 41-66. https://doi.org/10.2307/3248028.

NAGPALL & AGRAWAL 1959
J. C. Nagpall & O. P. Agrawal, "Examination and preservation of a painted stucco head", *Ancient India*, 15, pp. 94-99.

OHLÍDALOVÁ, KOZÁKOVÁ, SULCOVÁ, SEFCU, SREINOVÁ, MALÍKOVÁ & FORT 2016
Martina Ohlídalová, Radka Kozáková, Veronika Sulcová, R. Sefcu, B. Sreinová, Radana Malíková & M. Fort, "Technical analysis", in Ladislav Stanco (ed.), *Afghanistan rescued treasures of Buddhism, Catalogue of the Exhibition*, pp. 106-145.

PAÏMAN 2008
Zafar Païman, "Kaboul: foyer d'art bouddhique", *Archeologia*, 461, pp. 56-65.

ROBINSON 1983
J. D. Robinson, *The Worship of Clay Images in Bengal* (PhD Thesis), Oxford University.

SCHMIDT 2024
Birgit Angelika Schmidt, "A technical analysis on modular systems in the production of Buddhist clay-based sculptures from Karashahr: connecting Silk Road collections in Berlin and London", *Silk Roads Archaeology and Heritage, 1(1)*, pp. 29–51. https://doi.org/10.5334/srah.5.

SINGH GILL, PRIEGO RENDO & MENON 2014
M. Singh Gill, Carolina Priego Rendo & Sreekumar Menon, "Materials and techniques: Early Buddhist wall paintings and sculptures at Sumda Chun, Ladakh", *Studies in Conservation* 59/5, pp. 300-313.

SONG, XIANG, YAN *et al.* 2021
Jiahang Song, Wei Xiang, Shaojun Yan *et al.*, "Craftsmanship and materials: painted Bodhisattva sculptures in the Fengguo Temple dated to the year 1020 in Yi County, Northeast China", *Heritage Science* 9, p. 12.
https://doi.org/10.1186/s40494-021-00488-2.

TARZI 1986
Zémaryalaï Tarzi, "La technique du modelage en argile en Asie Centrale et au Nord-Ouest de l'Inde sous les Kouchans : la continuité malgré les ruptures", *Ktéma*, 11, pp. 57–93.

TIWARY 2018
Saurabh Kr. Tiwary, "Stucco Art of Nalanda Excavated Site, District Nalanda, Bihar: An Archaeological Overview", *Annals of Archaeology* 1/1, pp. 13-21.

VARMA 1970
Kalidindi Mohana Varma, *The Indian technique of clay modeling*, Santiniketan: Proddu.

VARMA 1983
Kalidindi Mohana Varma, *Stucco in India, from pre-Mohenjodaro times to the beginning of the Christian era*, Santiniketan: Proddu.

VARMA 1985
Kalidindi Mohana Varma, *Amaravātī and the Beginnings of Stucco Modeling in India*.

VARMA 1987
Kalidindi Mohana Varma, *Technique of Gandharan and Indo-Afghan stucco images*.

VERRI, LUCZANITS, BORGES, BARNARD, & CLARKE 2019
Giovanni Verri, Christian Luczanits, Victor Borges, Nick Barnard & John Clarke, "Investigations of a Gandharan stucco head of the Buddha at the Victoria and Albert Museum (IM.3-1931)", *Technè*, 48, pp. 136-149.
https://doi.org/10.4000/techne.2792.

ZHAO 2014
Linjuan Zhao, "Selection of consolidants for the polychrome clay sculptures in the Guanyin Temple, Sichuan, China", *Studies in Conservation*, 59/1, pp. 289-291.

Pigments and painting techniques of the Buddhist clay sculpture in Afghanistan: some preliminary observations

Giulia FORGIONE

Abstract

The clay sculpture tradition constitutes an essential part of the Buddhist art in Afghanistan and Central Asia, which enjoyed its heyday between approximately the 3rd and 8th centuries CE. The focus of my presentation is the use of colour, a theme that will be explored both in terms of materials and techniques of paint preparation and application through a critical review of chemical-physical analyses carried out in the last few years by various institutes. The aim of this investigation is to reconstruct not only the general appearance of the sculptures but also to track the artists' knowledge of pigments and specific techniques, which in turn raises questions about the little-known system of workshops, apprenticeship and training in arts and crafts. This approach may also provide crucial insights into the economics of art-making, as well as the non-casual nature of aesthetic choices certainly aimed at expressing symbolic meanings that still remain difficult for us to decode and understand.

Introduction

This contribution presents a preliminary study of Afghan clay-based Buddhist sculpture from the period between the 3rd and 4th centuries CE and the 8th century CE, with only brief references to some earlier stone reliefs. The focus is on painting techniques and their cultural context. As for the latter, the interpretations proposed are based on a number of case studies selected for their particular relevance to the research questions. They include material from important archaeological excavations such as Tapa Sardar,[1] Fondukistan,[2] Tepe Narenj[3] and Mes Aynak[4],

[1] Tapa Sardar is a Buddhist archaeological site in the Ghazni region, excavated by the Italian Archaeological Mission in Afghanistan (hereafter IAMA) in the 60s and 70s of the last century and, after a long break due to the security situation, in 2003. The archaeological reports, the studies of the site and the digital catalogue of all the finds constitute a fundamental and reliable reference for research on pre-Islamic Afghanistan (in view of the extensive bibliography, only excavation reports and the online platform dedicated to Buddhist and Islamic Ghazni are mentioned): TADDEI 1968, TADDEI, VERARDI 1978, VERARDI, PAPARATTI 2005; https://ghazni.bdus.cloud/).

[2] Fondukistan is a Buddhist archaeological site in Parvan Province, excavated by the Délégation Archéologique Française en Afghanistan (hereafter DAFA) in 1937 (HACKIN *et al.* 1959), which shares many aspects with Tapa Sardar. It is known to have produced a red clay sculpture, now divided between the *Musée* Guimet in Paris and the National Museum of Afghanistan in Kabul, and two cinerary urns containing coins as well as ashes.

[3] Located in the Kabul area, Tepe Narenj is one of the few Buddhist archaeological sites systematically excavated in the 2000s by the Archaeological Institute of Afghanistan (hereafter AIA) with the scientific and economic support of the IAMA. The collaboration between the IAMA and the AIA led to the sharing of data with the aim of increasing scientific and comparative studies of important and contemporary sites, including Qol-e-Tut, a Buddhist archaeological site located a few kilometres away in the same area, and Tapa Sardar. The final report of the excavation was published in 2013 (PAIMAN, ALRAM 2013); a review of the archaeological data and a study of the entire sculptural production of Tepe Narenj will be published in the near future (FORGIONE, *forthcoming*).

[4] The first explorations of Mes Aynak, in Logar Province, took place in 1963, but due to the conflict situation, it was not until 2005 that an Afghan archaeological mission visited the site, and it was not until 2009 that the Ministry of Information and Culture's Institute of Archaeology, with the support of the DAFA and the World Bank, officially began a rescue excavation in the Ghol Hamid area with the MAAP (Mes Aynak Archaeological Project), with a deadline that was extended several times. Mes Aynak is the largest known Afghan archaeological site, but it is at risk because it sits on top of the world's second largest copper mine, whose exploration rights were granted by the previous Afghan government in 2007 to the Chinese company MCC (China Metallurgical Group) and the private company Jiangxi Copper Limited. The site includes ancient copper mining and production areas and the remains of a civil settlement surrounded by Buddhist monasteries (LITECKA *et al.* 2013; MASSOUDI 2011).

which, by preserving obvious traces of colour, offer the opportunity to analyse some features that deserve to be studied in greater depth.

This work of identifying information on painting techniques (in relation to the sculptures) has in fact allowed to collect and comment on the data from the chemical-physical analyses carried out in previous years by various institutes. It is part of the first phase of a wider project called "eartHeritage–A Cultural Rescue Initiative for the Earthen Heritage": An interdisciplinary, diachronic and trans-areal approach to interconnected artistic productions in clay and stucco in Iran, Iraq, Central Asia and the north of the Indian subcontinent (3rd millennium BCE - 8th century CE)". The project is funded by the Ministry of Universities and Research and the European Union within a funding programme for Projects of Relevant National Interest. It is the result of the synergy between three universities with specific and internationally recognised expertise: the University of Naples L'Orientale for the Afghanistan/Pakistan area (with Prof. A. Filigenzi as Principal Investigator), the Sapienza University of Rome for the Ancient Tokharestan and Khotan Oasis (with Prof. C. Lo Muzio as responsible), and the Alma Mater Studiorum University of Bologna for Iraq and Iran (with Resp. Dr. L. Colliva).

As the title suggests, the aim of the project is to study the material and non-material aspects of clay sculpture, a tradition whose importance is also due to its wide and long diffusion, which includes present-day Iran, Iraq, Tajikistan, Uzbekistan, Afghanistan, Pakistan and Xinjiang (for the latter, particular attention will be paid to the oasis of Khotan), and a period roughly between the 3rd century BCE and the 8th century CE. This project provides opportunity not only to deepen our research on Afghanistan, but also to place it in a multi-scale comparative framework.

State of the art

Very little is known about the material and technical aspects, but even less is known about the artistic, historical and cultural aspects in which these sculptural productions were conceived. This is due to several factors. Firstly, most archaeological research in Afghanistan was carried out in the last century and came to a halt in the late 1970s. This means that while archaeology around the world was changing its approach and laying the groundwork for stratigraphic excavation, the same science came to a standstill in Afghanistan. Many archaeological sites lack accurate documentation, including photographs, detailed plans, stratigraphic cross sections, and a complete catalogue of systematically described finds. In fact, the reports that do exist often contain many inconsistencies and gaps that prevent us from placing the finds in their archaeological context. One example of a site whose accurate documentation would have been extremely valuable is Fondukistan. Indeed, despite the provenance of most of the materials–including sculptures and two important urns–can be traced back to the niches that surrounded the main *stūpa*, there is no essential data to reconstruct a chronology of the site (see below).

Another difficulty is the fragility of clay sculptures, which often means that compact forms, monumental figures and original polychromy are not preserved. This means that clay fragments have often been undervalued because they do not fit into the category of compelling objects with a strong visual impact that deserve to be preserved and studied. It is enough to look at how many objects have been catalogued and described on the basis of stylistic features such as hairstyles, faces, ornamentation, rarely taking into account traces of manufacture, technical features and additional materials. Moreover, the lack of protocols and expertise has not facilitated archaeological fieldwork, the recovery of works of art and their conservation.

However, there are exceptions of systematic excavations accompanied by extensive scientific documentation and catalogues in which numerous data were recorded, from the

findspot of the objects to the tiniest trace of colour as well as of other details useful to the technical and material analyses.

A case in point is Tapa Sardar, which, although it was scientifically studied in the 1960s and 1970s, still offers the possibility of working at a distance thanks to the extensive collection of documents and data collected in the field. However, recent archaeological investigations have also faced many difficulties due to a lack of specialist staff, management capacity, infrastructure and continuity for safety issues. In addition, most of the fieldwork began as rescue excavations, with the pressure of ever-extending deadlines. A case in point is Mes Aynak, where the limited timeframe of the excavation forced the recovery and separation of as many finds as possible, but at the expense of scientific documentation, which instead requires time and meticulous attention. Similarly, the excavation of Tepe Narenj began as a rescue operation and gradually became systematic archaeological fieldwork as part of a wider project to safeguard ancient sites in the Kabul area. It was also part of a wider project in collaboration with IAMA, which promoted the collection of archaeological data and the production of graphic, photographic and inventory documentation.

Despite the difficulties, examples of good practice demonstrate the importance of continuing our efforts to reassess and reconnect documentation in order to reconstruct more and more of Afghanistan's art, history and culture. As recent research has shown, every fragment, no matter how small, can provide us with important artistic, stylistic, technical and material information, as well as aesthetic codes and symbolic meanings.

Investigation into ancient colour pigments

The study of ancient colour pigments is undoubtedly a promising field, for the evidence they can provide of various forms of exchange and socio-economic interaction, as well as for the information they can indirectly reveal about the non-material aspects of material heritage. These aspects, which are still largely unexplored, include the painting techniques involved in the production process, the degree of knowledge of the artists-artisans about the properties of the pigments, as well as historical, economic and cultural issues that are often lost to us. For example, there is uncertainty about the factors that determined the choice of materials.

With regard to the pigments, we know that the palettes could include several colours, some with similar shades, such as shades of red: red ochre, red lead or cinnabar. However, we do not know the parameters within which the pigments were selected.[5] Based on the identification of the pigments, we can expect as much information as possible about their use (technique) and provenance (where possible), and reconstruct the diffusion and circulation of materials, people and technical knowledge.

Some pigments may have been more valuable than others, imported or exported; they may have had different economic and symbolic values, possibly stemming from the substances from which they were derived or the methods of extraction and production used.[6] In short, they can provide information about the historical context.

In the past, pioneering studies have highlighted the importance of polychromy, attempting to understand the role of colour and the techniques involved in its use. These studies undoubtedly constitute fundamental reference models to be taken up and developed. The work

[5] Despite the paucity of laboratory analyses and the objective difficulty of planning analytical campaigns to study the palette used at a given site, there are some more fortunate cases. For example, the pigment samples analysed from the Fondukistan sculptures are fairly representative of the palette (see above), although further laboratory analysis would be required to complete the data collection. It should also be remembered that part of the production is also preserved in the Kabul Museum. The samples analysed from the sculptures at Mes Aynak are less representative due to the small number of samples compared to the materials found, but they do provide an insight into some of the resources available.

[6] The more complicated the process, the more expensive the product.

of K. M. Varma (VARMA 1961, 1970, 1987) should be mentioned, which remains the main reference for those who wish to approach the study of clay sculpture. In addition, the studies of Z. Tarzi (TARZI 1977, 1986, 2005) on Bāmiyān and Haḍḍa, as well as those of G. Verardi (VERARDI 1983) on the sculptures of Tapa Sardar, have provided us with examples of in-depth studies of specific technical details that introduce us to the various variants that can be found depending on the region, the period, the sculptural typology and the workshops.

In recent years, there has been an increase in studies aimed at identifying materials by means of chemical-physical analysis. Several projects have been carried out for quite different reasons; I will limit myself to mentioning some of them that are more directly related to my topic. One important is the conservation project focusing on the fragments of the colossal Buddhas and paintings of Bāmiyān, carried out by ICOMOS in close cooperation with UNESCO, the Japanese Funds in-Trust, the Culture of Agency and the Ministry of Foreign Affairs, Japan. The work done on the paintings is equally important in this regard, as the techniques, especially the pigments and the raw earthen supports, were essentially the same as those used in sculpture (PETZET 2009; EMMERLING, PETZET 2016; TANIGUCHI, COTTE 2022). Among the other ongoing projects there is the one on the Haḍḍa sculptures, based in the Kabul Museum, that is currently being carried out by the Institute for the Study of Ancient Cultures of the Chicago University but results have not yet been published. The Austrian Science Fund project, under the direction of Prof. em. Deborah Klimburg-Salter in collaboration with National Research Partner HR Doz. Dr Michael Alram, includes a programme of chemical-physical analysis, and is underway on Shahi sculptures (KIMMET 2022).

It is also worth mentioning initiatives on a smaller scale, which have nevertheless contributed to the understanding of issues where there are still gaps and many questions. As far as colour is concerned, only a few of the research projects are mentioned here, since they are referred to further in this paper. Chemical-physical analyses were carried out on the occasion of the exhibition "*Afghanistan – Rescued Treasures of Buddhism*", held in Prague in 2016, which, in addition to objects from Mes Aynak, included sculptures and paintings from other sites such as Tapa Sardar, Tepe Narenj and Bāmiyān. The results were published in the exhibition catalogue (STANČO 2016). A programme of chemical-physical analyses carried out in two stages by the Istituto Centrale per il Restauro (hereafter ISCR) in Rome on samples from various museum collections, in particular the former Museum of Oriental Art of Rome Giuseppe Tucci, which houses materials from the Italian archaeological excavations in Swat, the Civic Archaeological Museum of Milan, the Museum of Oriental Art of Turin and the *Musée* Guimet in Paris. The analyses were published in 2015 (PANNUZI 2015) and 2019 (OLIVIERI, PANNUZI 2019). In my opinion, particularly relevant in this data set are the results on the sculptures from Fondukistan, now kept in the *Musée* Guimet (PANNUZI *et al.* 2019, pp. 57-63), for which information on the original context is known, albeit with many gaps. In addition, in 2019 some chemical-physical analyses funded by the Italian Archaeological Mission in Afghanistan were included in a joint publication with the ISCR (ROSA *et al.* 2019, pp. 25-31; BONADUCE *et al.* 2019, pp. 85-86). These were part of a series of ongoing analyses that will be published and discussed in the near future.

Colour rendering: ground layers, pigments, and their qualities

One aspect that emerged from the study of the laboratory analyses draw some attention. This is the importance of the priming or ground layers, which are the preparatory layers for polychromy, and which aim to guarantee and optimise the rendering and adhesion of the top layer of paint. Ground layers can generally be seen with the naked eye if the overpainting is patchy and, if available, in sections that show overlapping-coloured layers, which can

sometimes be confused with repainting.[7] Usually, a white ground layer is applied to the clay body of the sculpture, in a similar way as it is also documented on sculptures and architectural elements made of stone, such as schist or limestone. According to chemical-physical analyses, this layer is often composed of calcite, even though gypsum or white lead have also been detected in a minority of cases. At Tapa Sardar, several clay sculptures covered with a white ground layer are well documented (Figs. 1-2). Nevertheless, samples from these layers were never taken and the identification of the material as lime milk (VERARDI 1983) is based on primary eye examination made by archaeologists and restorers. The inability to access these materials even today prevents us from investigating the nature of the coatings on the Tapa Sardar sculpture through specific analyses.

New examples come from Tepe Narenj, including large Buddha heads (Fig. 3, height: 43 cm; PAÏMAN, ALRAM 2013, pp. 54, 146, pl. XXVI n. 22) made of clay and covered with a thin layer of white "stucco".[8] Separate mention must be made of sculptures examined by chemical-physical analysis. These include sculptures made either entirely[9] or almost entirely of lime- or gypsum-based pastes, or of clay and covered with a thin white layer, similar to the sculptures from Tapa Sardar and Tepe Narenj mentioned above. Differences can be detected from case to case. At Mes Aynak, for example, sculptures have been found with a clay core covered with either lime stucco or gypsum stucco, on which paint has been applied. These include the figure of a standing donor, which still retains clear traces of polychromy on the face, hair and garments (cf. STANČO 2016, p. 193, cat. no. 51), and a Buddha head with clear traces of colour and gilding (Fig. 4; STANČO 2016, p. 184, cat. no. 34). A sample taken from the area below the donor's right ear revealed that a thick layer of pink had been applied directly onto a thick layer of lime stucco (OHLÍDALOVÁ *et al.* 2016, p. 129, fig. 36a). In the case of the Buddha's head, however, the gilding and colours were applied to a thin, white, gypsum-based ground layer (OHLÍDALOVÁ *et al.* 2016, pp. 130-131, fig. 39b).[10] The blue colour used to emphasise the contours of the Buddha's and the donor's eyes should also be mentioned, although no analyses of these pigments have been carried out.[11]

A similar technique has been observed in relation to a princely head from the site of Tepe Narenj (Fig. 5; PAÏMAN, ALRAM 2013, pp. 54, 146, pl. XXVI n. 23). This was made of an inner clay core covered with a thick gypsum-based coating, which was the surface for the colour (OHLÍDALOVÁ *et al.* 2016, p. 127). However, another method must have been very widespread in both stone and clay sculpture, often combined with the previous ones. This required the application of a red surface layer, usually identified as haematite based, hence ochre or bole. The latter was a mixture of liquid clay and haematite used to ensure the adherence of the surface gilding.

Several heads at Tapa Sardar have preserved a red layer. Interestingly, as a result of late reworking this layer had been overpainted with white paint, which in turn had been covered with red paint, the latter used as bole to ensure that the gilding would hold (Fig. 6; VERARDI 1983, pp. 490, 500, fig. 30). In fact, more detailed studies of pigments and painting techniques prove that calcite and ochre were very widely used in ancient times. In addition to

[7] Identifying layers of paint without an understanding of painting techniques, pigments and their properties can be difficult and confusing.

[8] In this work, "stucco" is a conventional term used to indicate white lime or gypsum-based layers in the absence of laboratory analyses.

[9] In this case, I mean sculptures in clay covered with a thick white coating layer.

[10] When the white layer is thin, it follows the shape of the figure given to the clay mass. When the white layer is thick, obtained with one or more layers of "stucco", it is modelled in the desired shape since it covers a clay core that is not modelled into its final form. This technique is clearly documented thanks to the life-size and slightly smaller heads from Tepe Narenj (see PAÏMAN) which, preserving only the stucco coating layer detached from the clayed inner core, show the rear side of the coating not completely modelled (FORGIONE forthcoming).

[11] For further studies on the meaning of this iconographic feature, see FILIGENZI 2020; FORGIONE 2019.

the hues of these colours, the reason for such widespread use is probably the qualities of these pigments. Ochre has always been appreciated by painters, not only because it offers a great variety of tones, but also because it is very stable (it resists humidity, sun and temperature) and, if well prepared in small grains, it becomes quite manageable and easy to work with. It was also often used as an underpainting, like charcoal black, because its fine granular texture improves the hold of the paint applied over it. In fact, colours are not always present in single layers.

Calcium carbonate (or calcite, if we are referring to the mineral) was often used for both the ground layers and white paint, either alone or to lighten other colours by mixing pigments. However, an analysis of the palettes selected for this study shows that other pigments could be used to produce ground layers. One of these, which I think is particularly interesting, is red lead. Unfortunately, there are no chronological-stratigraphic data to help us understand when this pigment appeared in the palettes of the north-west Indian subcontinent. There is evidence that it was known in ancient times, particularly in China and the Middle East, from the birth of metallurgy. Literary sources attest to its manufacture in China since the 5th century BCE and Han times. Some authors suggest that artificial lead was introduced into China from India, while others suggest that lead was exported from China to India because it was called "china flour" by the Indians (FITZHUGH 2012a, pp. 110-111). However, Indian sources–such as the *Arthaśāstra* in the second half of the fourth century–also speak of "Gandhāran lead" as a well-known pigment of the north-western Indian subcontinent, also used for embedding gold on metals and in the purification process of gold and silver (BISWAS 1996, pp. 45-46, 49, 51).[12]

Red lead, also known as minium, is fine-grained, which means that it is easy to work with, it is durable, and resistant. When prepared, it is dense, so it also has a hiding power. Compared to ochre, red lead produces a more lustrous colour, although it has a more orange tint (FITZHUGH 2012a, pp. 113-114). Red lead is documented, for example, in the case of the *Salabhanjika* head from Haḍḍa, now in the *Musée* Guimet (CAMBON 2019, p. 151, fig. 8). Red lead was applied to a layer of red ochre on the cheek area (PANNUZI *et al.* 2019, pp. 52-53), presumably to impart a particular skin tone. An interesting example of the use of red lead is provided by a schist stele from Shotorak (CAMBON 2019, p. 147, fig. 5), where lead and calcium (perhaps mixed?) underlie the gilding (PANNUZI *et al.* 2019, p. 57). This choice of the artist might suggest that the fine grain and density of lead were qualities that also favoured the adhesion of the gilding.[13]

It was not by chance that red lead was often used in combination with other metals and as a paint since it is resistant to corrosion (FITZHUGH 2012a, p. 113). Obviously, it is a well-known fact– and it was in ancient times too– that gold does not oxidise. Nevertheless, it is also true that almost all gold products are not 100% pure and they can potentially oxidise over time. In this respect, the use of red lead as a bole in the Shotorak remains extremely interesting, as it may indicate an attempt to preserve the gilding as much as possible and may indicate the technical knowledge and skill of the craftsmen. Unfortunately, we do not have the chemical-physical features of the gilding, which was only detected and was not visible to the naked eye. What is unknown is that red lead is particularly common in a relatively late period, between the 6th and 8th centuries. In the case of Bāmiyān, for example, chemical-physical analyses of the fragments of the colossal Buddhas have revealed the use of red lead, most probably for rendering the overrobe of the 55-meter-high Buddha.[14] In some samples,

[12] These applications are significant because they have somehow conferred an additional metaphorical meaning, such as the quality of having regenerative power, as in the case of cinnabar, which contains mercury (BISWAS 1996: 50; FORGIONE 2024, p. 20, note 28; see below).

[13] In fact, we know from Indian sources that it was used to gild metals (see above; BISWAS 1996, p. 46). The preservation of the gilding is in a sense proof of this quality.

[14] The extensive use of white lead at Bāmiyān should also be noted (see also TANIGUCHI, COTTE 2022. For the chronology of the Bāmiyān Buddhas, see PETZET 2009).

the red lead covered a pinkish layer of gypsum, calcite and iron oxides that can be identified as brightened ochre (BLÄNSDORF *et al.* 2009, p. 243 fig. 6-group 1, pp. 253-254). We do not know whether this stratigraphy means that the pinkish layer was intended to be a similarly coloured priming layer for the red lead layer or, as suggested, that the Buddha's robe was pinkish in an earlier version of the statue and was later renovated with red lead (BLÄNSDORF *et al.* 2009, p. 242).

Another sculptural production that represents a main reference for this relatively late chronological period is that from the site of Fondukistan. I will refer to the sculptures of one of the *naga* figures (Fig. 7; HACKIN *et al.* 1959, fig. 182; PANNUZI *et al.* 2019, pp. 56-57, fig. 14, 16, 18) and one of the attendant bodhisattva from Niche D (Fig. 8; HACKIN *et al.* 1959, fig. 174; PANNUZI *et al.* 2019, p. 59, fig. 22, 24), and a seated Buddha (HACKIN *et al.* 1959, fig. 176; CAMBON 2019, p. 152, fig. 9; PANNUZI *et al.* 2019, fig. 28) from Niche C now kept in the *Musée* Guimet.

All the sculptures were made of red clay with, even more interestingly, the surface covered with a red layer, in some cases made of a lead compound and in others ochre. In the case of the *Naga* figure (Fig. 7), analyses have revealed the use of red lead, corresponding to the hair and earring[15] covered with a layer of blue ultramarine (obtained from lapis lazuli) and a layer of yellow orpiment, probably mixed with massicot, respectively (see samples 15 and 17 in PANNUZI *et al.* 2019, pp. 57-59). As for the Bodhisattva (Fig. 8), samples were taken from the hair and the garland. Differently from the previous sculpture, the red layer resulted from ochre mixed with calcite. In addition, on the hair the ochre was covered with a blue layer of ultramarine (lapis lazuli), while on the garland the red ochre was covered with a first greyish layer obtained from a mixture of white lead and bone black,[16] which in turn was covered with a second blue layer made from a lead compound, ultramarine and calcium (see samples 18 and 19 in PANNUZI *et al.* 2019, pp. 60-61).[17]

Analysing technical aspects

From a technical point of view, there are several aspects that point to the quality and high technical level of this production. Firstly, the technique of mixing different colours–such as white lead and bone black (see the Bodhisattva's garland, Fig. 8)–demonstrates the advanced skills of the artists-artisans in balancing the pigments. Secondly, the use of pigments that are difficult to work with, such as blue ultramarine and orpiment, is documented at important sites, including not only Fondukistan and Bāmiyān (BLÄNSDORF *et al.* 2009, p. 254), but also Tepe Narenj[18] and certainly many others. As these pigments are characterised by coarse granules, orpiment and lazurite, unlike ochre and lead, do not adhere well to surfaces. Nevertheless, they were highly prized in ancient times for their colour and for the symbolic values associated with the raw materials.

Lazurite, or blue ultramarine, has always been appreciated for its brilliant colour, stability and apotropaic value. It is derived from lapis lazuli, a mineral that has always been associated with the starry sky and infinity because of its intense blue colour and golden inclusions of iron

[15] Please note that the publication of these results mentions the ear instead of the earring, but this is clearly a mistake as the ear is not visible. In addition, a photograph suggests that the sample was taken from the earring.

[16] The use of bone black is also interesting because it was made from charred animal bones. It will be interesting to find out which animal, given that Buddhism did not encourage the exploitation of animals. This means that the production of black, as well as other substances such as animal glue, was part of a production chain that depended on the availability of slaughtered animal resources. It would be interesting to understand the religious or social context in which this process took place.

[17] It should be noted that the samples of blue ultramarine and orpiment from the Fondukistan site also contained traces of binding materials, in particular animal glue, milk and eggs together.

[18] Laboratory analyses have been carried out and will be published shortly.

pyrite, sometimes confused with gold (PLESTERS 2012, pp. 37-45). Blue is therefore associated with the divine, transcendence, immutability and strength. It also brings peace and serenity and, like all cool colours, encourages meditation. Mined in Afghanistan (for example in the Sang District, Koksha Valley, Badakhshan province), lapis lazuli has been exported to the West since protohistoric times. The high demand for the raw material and the long, laborious extraction process made ultramarine an expensive colour. Similarly, orpiment has always been recognised for its brighter, more consistent yellow shade than ochre, despite it being less stable and photosensitive (FITZHUGH 2012b, pp. 51-56). It was also associated with gold, the colour of the divine, the sun (on which life depends), a symbol of light, but also of purity and incorruptibility. It was probably used to imitate real gold earrings in the case of the *Naga* statue of Fondukistan. In the light of these considerations, it is clear that pigments such as orpiment and ultramarine were chosen for their hues and symbolic values and not, or not always, for their physical properties. Finally, the third reason is that both lead and ochre were not always used as paint, but apparently also as underpaint to aid the adhesion of the overpainting, which is characterised by a different and coarser grain, in particular orpiment and lazurite in the cases mentioned above.

As far as Fondukistan is concerned, the use of lead and ochre as underpaint could suggest two different phases, if we were able to identify distinct phases. However, I believe that we must consider the use of these two types of underpaintings as contemporary, since the sculptural production of Fondukistan shows a clear consistency in technical and stylistic characteristics. Moreover, the use of underpainting, a technique that must have been very widespread, is significant because it indicates both the skill and knowledge of the painters and economic factors such as the availability, cost and selective use of certain pigments. The same technique is also used for colours of similar hue but different grain size, as in the case of the Bodhisattva's garland (Fig. 8). Its colour was obtained by applying three layers: the red preparation, the greyish layer and finally the blue. The similarity between the shades of the greyish layer and the overpainting was deliberate. This was undoubtedly a way of achieving the desired tone[19], but the use of an underpaint similar in colour to the overpainting was also intended to limit the lack of colour in the event of partial detachment of the top layer (due to its coarser granules). The same applies to the carbon black used alone or mixed with gypsum and calcite as an underpainting for the blue, as documented at Bāmiyān on fragments of the colossal Buddhas and paintings (BLÄNSDORF *et al.* 2009, pp. 245, 254; TANIGUCHI, COTTE 2022, pp. 55, 60-61, figs. 2.20, 2.24).

However, another aspect to be highlighted is the cost-effectiveness of the underpainting. When the main pigment was an expensive colour, the majority of the thickness of the paint layer consisted of the preparatory layer, to which the expensive pigment was applied to achieve the required shade. This is the case with ultramarine, which in other historical contexts was often underpainted with black (PLESTERS 2012, p. 39). The same method was used in the case of the Bodhisattva's garland at the site of Fondukistan (Fig. 8), where the blue ultramarine was underpainted with a greyish layer of similar colour (made from a mixture of white lead and bone black); the same is probably true of wall paintings, such as those at Mes Aynak (Figs. 9-10) or Tepe Maranjan (HACKIN *et al.* 1959, figs. 14-15). These paintings were part of a widespread tradition that included the recurrent depiction of religious figures such as Buddhas and Bodhisattvas (painted or carved) against a black background filled with white (but not exclusively) flowers. However, in light of these technical considerations, it is plausible that the background, which we now perceive as black, may have originally been blue, like the sky. This selective use of colours might be therefore motivated by aesthetic reasons, to achieve a

[19] Tone probably different from the blue obtained on the hair, due to the different composition of the ground layer, which certainly influenced the colour rendering.

desired hue, practical explanations, to facilitate pigment adhesion, and economic factors, to limit the use of expensive pigments to the surface.

In this context, the superimposition of a blue layer on top of a red one, which is often seen on the robes of some Buddha and Bodhisattva sculptures from Tepe Narenj (Fig. 11) and Mes Aynak (Fig. 12), is also noteworthy. While the hypothesis of repainting cannot be dismissed, it seems more likely to me that, similarly to the sculptures from Fondukistan, the red layers could be considered as underpainting. However, this aspect needs to be explored through more in-depth studies. Finally, the site of Fondukistan introduces us to the use of another red pigment, which is cinnabar. Traces of this pigment have been found on the robe of the seated Buddha (HACKIN *et al.* 1959, fig. 176; CAMBON 2019, p. 152, fig. 9), mixed with red lead, applied on a layer of red lead, in turn applied on a brown-greyish layer, clay-based, probably the preparation (see sample 20 in PANNUZI *et al.* 2019, pp. 62-63).

Although cinnabar can decay – because it turns black – and is not as stable as ochre, it was highly valued for its hue, which was a brighter, more intense and saturated red, an "orange" red (GETTENS *et al.* 2012, pp. 163-168). It was also highly symbolic, as the crystal looks like a precious stone but lacks the hardness of gems.[20] It was also very important in ancient times because it could be used to extract mercury. The latter was known for its ability to combine with gold and was therefore used to gild less noble metals (see above) and to purify gold (and silver). For this aspect, on a spiritual level, it was recognised as having the ability to regenerate the spirit, in addition to its healing powers (FORGIONE 2024, p. 20, note 28). For these reasons, it was a precious pigment, expensive and therefore used selectively. My impression is that in the case of this Buddha, it was only used on the surface to give a more vivid shade of red. The same use of cinnabar on the surface layer is documented in Bāmiyān and also in this case we can consider it as a means to give the body halo a more vivid tone of colour (Stančo 2016, p. 166, cat. no. 4). Furthermore, ochre and red lead are documented in the same painting. This data confirms that cinnabar was used in smaller quantities, as it was an expensive colour; although present in the palette, it was obviously spared for the surface and specific details.[21] For example, at Mes Aynak, in the case of a Buddha (*paré* or Bodhisattva) head, it is used for the lips (Fig. 13; STANČO 2016, p. 183; cat. no. 31). The choice of cinnabar for the mouth, which is also an important part of the figure because it represents both the breath of life and the word of the Buddha, which has the power to bring about profound changes in those who follow the doctrine, is certainly no coincidence.

Furthermore, on the same head we can see the obvious use of gold leaf, the most precious material *par excellence*. However, orpiment has also been found in its gypsum-based ground layer, but not under the cinnabar (OHLÍDALOVÁ *et al.* 2016, p. 131). Obviously, the orpiment is used in the preparation of the gilding, in order to give a similar shade in case the gold leaf comes off.

Concluding remarks

Despite the paucity of systematic data from archaeological contexts, it is still possible to derive useful information about the factors that guided the painters and influenced their choice of materials. These certainly included hues, colour composition, pigment properties, and both economic and symbolic values. The choice of colour was not accidental. Rather, it seems to have implied an iconographic choice and possibly a desire to convey and evoke certain meanings and feelings, also linked to the cultural perception of the materials used. Of course, the more precious and refined the material, the higher the value of the artefact. The extensive

[20] On the importance of gems in the Buddhist tradition, see Forgione 2024 (pp. 17-20) and related bibliography.
[21] Another site where the selective use of colours is well documented is Ajanta, in India (see BON VALSASSINA *et al.* 2016).

use of precious materials and pigments such as gold leaf, blue ultramarine, cinnabar and orpiment in sites such as Mes Aynak and Fondukistan certainly indicates the wealth and sophistication of the religious foundations. The site of Fondukistan is a special case, because not only do we know the context in which the sculptures were made, but we also have a dating element.

As with the above samples, they were taken from sculptures originally placed in one of the niches surrounding the *stūpa* courtyard. The excavated niches contained cultic clay images such as large Buddhas and Bodhisattvas, with the exception of Niche E, which stands out for its peculiar content (HACKIN *et al.* 1959, pp. 49-58, figs. 143-204). Instead of divine images, it contained a princely couple seated in a posture of royal ease, with their elbows resting on a pile of cushions, supported by a pedestal, wearing clothes and jewellery (HACKIN *et al.* 1959, figs. 189-194), certainly inspired by real prototypes (FORGIONE 2024, pp. 7-12), symbols of high rank. Inside the pedestal supporting the couple, two urns were found containing the ashes of the princes probably depicted here. One of the urns also contained a monetary deposit, providing a chronological reference offered by a coin of the Sasanian king Khusraw II (590-628), re-struck by an Arab governor in 689 CE (HACKIN *et al.* 1959, p. 57; ALRAM 2014, pp. 282-283). Nevertheless, this is a valid *post quem* term for the deposition of the urn, but not for the sculptural apparatus of the niches. In fact, we cannot exclude the possibility that the sculptures were made before the deposition of the urn, though not much earlier.

The monastery of Fondukistan, with its courtyard, was certainly designed with a precise project in mind. Although the sacred area is not as large as others, it was clearly commissioned by members of the ruling aristocracy with the intention of reserving one of the niches as a kind of funerary chapel, thus realising a solemn form of burial *ad sanctos*. Basically, there are two possibilities: the first is that the heirs of the princes whose ashes were buried built the sanctuary and the niche in honour of their parents; the second, and in my opinion more likely, is that the princes themselves planned their own burial during their lifetime (a very common practice) and invested in the construction of the sanctuary, which they probably saw built before they died. In fact, it is possible that the statues had already been built before the urns were placed, and we cannot be sure that the two urns were placed there at the same time. The fact that there were two urns could be an indication of reuse, as it is common practice in family tombs to reopen the repository on the occasion of the death of another member. This also implies that a small compartment for the urns was probably arranged and designed so as not to compromise the stability of the base containing the sculptures.

The use of precious pigments in Fondukistan is precisely part of the great investment made by members of the ruling aristocracy in the construction of a sacred area, which they chose as their own burial place. The patrons spared no expense in order to demonstrate their prestige, their power, but also the greatness of the vow they had made to acquire merit in their spiritual path. In addition, it should be noted that the chronological term offered by the coin of Fondukistan documents a phase from a historical and artistic point of view. This phase corresponds to the late period of the sites of Tapa Sardar and Tepe Narenj, where the use of the same red coating on red clay sculpture is a recurrent feature, as is the new standardised aesthetic, visible in the thin, elongated figures, the increasingly geometric shapes, especially of the faces, and the strong tendency towards decorativism. We can say that, despite the gaps in our documentation, this is a benchmark in the history of Afghan cultural heritage.

In conclusion, if chemical-physical analyses are crucial to understanding the nature of materials, the interpretation of the data they provide within a historical-artistic frame of reference is no less important. The combination of the humanities and the exact sciences that we can practise today is the most effective way of going beyond material data and reconstructing artistic, economic, social and historical phenomena.



Fig. 1: Head of a figure from Tapa Sardar (TS01437). MNAOR 3713, © IsIAO



Fig. 2: Head of a male figure from Tapa Sardar (TS01621). AFTS0207, © IsIAO



Fig. 3: Head of a Buddha or bodhisattva from Tepe Narenj (TN086)
Tepe Narenj (72), © Z. Paiman



Fig. 4: Head of a Buddha (?) from Mes Aynak
DSCF0772, © G. Forgione



Fig. 5: Head of a princely donor from
Tepe Narenj (TN089)
IMG_0837, © Z. Paiman



Fig. 6: Head of a deity (?) from
Tapa Sardar (TS01869)
DSCN5005, © IsIAO



Fig. 7: Nāga king from the site of Fondukistan,
Niche D, kept in the *Musée* Guimet
IMG 20230129150954, © G. Forgione



Fig. 8: Bodhisattva from Fondukistan,
Niche D, kept in the *Musée* Guimet
20150225_142308, © G. Forgione



Fig. 9: Monastery of Kafiriat Tepe (Mes Aynak): detail of wall painting. 01082010_mesainak_IsIAO 102, © IsIAO



Fig. 10: Monastery of Kafiriat Tepe (Mes Aynak): wall painting. DSC_0037, © IsIAO



Fig. 11: Tepe Narenj, Chapel 8: view of statues no. 1 (to the right) and no. 2 in the background
IMG_3331, © Z. Paiman



Fig. 12: Monastery of Kafiriat Tepe
(Mes Aynak): detail of a bodhisattva's robe



Fig. 13: Head of a Buddha (?) from Mes Aynak

BIBLIOGRAPHICAL REFERENCES

ALRAM 2014
Michael Alram, "From the Sasanians to the Huns. New Numismatic Evidence from the Hindu Kush", *The Numismatic Chronicle* 174, pp. 261-295.

BISWAS and BISWAS 1996
Arun Kumar Biswas, Sulekha Biswas, *Minerals and Metals in Ancient India*, vol. 2, New Delhi.

BLÄNSDORF *et al.* 2009
Catharina Blänsdorf *et al.*, "The Polychromy of the Giant Buddha Statues in Bāmiyān", in Michael Petzet (ed.), *The Giant Buddha of Bamiyan. Safeguarding the Remains* (Monuments and Sites XIX), Berlin, pp. 237-264.

BON VALSASSINA *et al.* 2016
Caterina Bon Valsassina *et al.* (eds.), *Ajanta Dipinta - Painted Ajanta Vol. 1 e 2: Studio sulla tecnica e sulla conservazione del sito rupestre indiano - Studies on the techniques and the conservation of the Indian rock art site*, Roma.

BONADUCE *et al.* 2019
Ilaria Bonaduce *et al.*, "The characterisation of paint binders in the polychromies and gildings of the Gandharan artworks", in Luca Maria Olivieri and Simona Pannuzi (eds.), *Restauro Archeologico*, 1, pp. 82-89.

CAMBON 2019
Pierre Cambon, "Collections gandhariennes et afghanes à Paris, Musée national des arts asiatiques-Guimet", in Luca Maria Olivieri and Simona Pannuzi (eds.), *Restauro Archeologico*, 1, pp. 142-155.

EMMERLING and PETZET 2016
Erwin Emmerling and Michael Petzet (ed.), *The Giant Buddha of Bamiyan II. Safeguarding the Remains 2010-2015* (Monuments and Sites XXI), Berlin.

FELLER 2012
Robert L. Feller (ed.), *Artists' Pigments. A Handbook of Their History and Characteristics*, vol. 1, Washington-London (reprint; originally published in 1986).

FILIGENZI 2020
Anna Filigenzi (in collaboration with Zafar Paiman and Michael Alram), "Afghanistan's Pre-Islamic Archaeology: Vulnerability, Resilience and Perspectives", in Laxshmi Rose Greaves and Adam Hardy (eds.), *Religions, Society, Trade and Kingship: Archaeology and Art in South Asia and along the Silk Road, 5500 BCE-5th Century CE. Research Presented at the Twenty-third Conference of the European Association for South Asian Archaeology and Art, Cardiff, 2016, vol. 1: Archaeology, Seals and Inscriptions, Iconography and Artistic Expression*, New Delhi, pp. 223-233.

FITZHUGH 2012a
Elisabeth West Fitzhugh, "Red Lead and Minium", in Robert L. Feller (ed.), *Artists' Pigments. A Handbook of Their History and Characteristics*, vol. 1, Washington-London (reprint; originally published in 1986), pp. 109-140.

FITZHUGH 2012b
Elisabeth West Fitzhugh, "Orpiment and Realgar", in Elisabeth West Fitzhugh (ed.), *Artists' Pigments. A Handbook of Their History and Characteristics*, vol. 3, Washington-London (reprint; originally published in 1997), pp. 47-80.

FITZHUGH 2012c
Elisabeth West Fitzhugh (ed.), *Artists' Pigments. A Handbook of Their History and Characteristics*, Vol. 3, Washington-London (reprint; originally published in 1997).

FORGIONE 2019
Giulia Forgione, "Clays and colours: Tracking technologies and theories of vision in the ancient Buddhist art of Afghanistan", in Luca Maria Olivieri and Simona Pannuzi (eds.), *Restauro Archeologico*, 1, pp. 130-141.

FORGIONE 2024
Giulia Forgione, "Gemstones as "Pure" Symbols: Archaeological Insights from the Buddhist Site of Tapa Sardar", *Annali, Sezione Orientale* (published online ahead of print 2024), pp. 1-23.

GETTENS *et al.* 2012
Rutherford J. Gettens *et al.*, "Vermillion and Cinnabar", in Ashok Roy (ed.), *Artists' Pigments. A Handbook of Their History and Characteristics*, vol. 3, Washington-London (reprint; originally published in 1993), pp. 159-182.

HACKIN *et al.* 1959
Joseph Hackin *et al.*, *Diverses recherches archéologiques en Afghanistan (1933-1940)*, Mémoires de la Délégation Archéologique Française en Afghanistan, vol. VIII, Paris.

KIMMET 2022
Natasha Kimmet, "Buddhist Clay-based Sculpture Production in the Śāhi Kingdoms: A Preliminary Investigation of the Akhnur and Ushkur Groups", paper presented at the 25th International Conference of the European Association for South Asian Archaeology and Art, Barcelona 04-08 July 2022.

LITECKA *et al.* 2013
Stepanka Litecka *et al.* (eds.), *Recent Archaeological Works in Afghanistan, Preliminary Studies on Mes Aynak Excavations and Other Field Works*, Kabul.

MASSOUDI 2011
Omara Khan Massoudi, *New Excavations in Afghanistan – Mes Aynak*, Published at occasion of the exhibition "Mes Aynak – Recent Discoveries Along the Silk Road" at National Museum of Afghanistan, Kabul.

OHLÍDALOVÁ *et al.* 2016
Martina Ohlídalová *et al.*, "Technical analyses", in Ladislav Stančo, *Afghanistan. Rescued Treasures of Buddhism*, Prague, pp. 104-143.

OLIVIERI and PANNUZI 2019
Luca Maria Olivieri and Simona Pannuzi (eds.), *Restauro Archeologico*, 1, 2019. (https://oaj.fupress.net/index.php/ra/issue/view/526/57).

PAIMAN and ALRAM 2013
Zafar Paiman and Michael Alram, *Tepe Narenj à Caboul, ou l'art bouddhique à Caboul au temps des incursions musulmanes / The Tepe Narenj Buddhist Monastery at Kabul, Buddhist Art during the First Muslim Raids against the Town* (Publications de l'Institut de Civilisation Indienne, Fascicule 82), Paris.

PANNUZI 2015
Simona Pannuzi (ed.), *Gandhara. tecnologia, produzione e conservazione. Indagini preliminari su sculture in pietra e in stucco del Museo Nazionale d'Arte Orientale* "*Giuseppe Tucci*", Roma.

PANNUZI *et al.* 2019
Simona Pannuzi *et al.*, "Polychromy and gilding in the Gandharan sculptures from Pakistan and Afghanistan: samplings from Museum Guimet in Paris, Civic Archaeological Museum of Milan and Museum of Oriental Art of Turin", in Luca Maria Olivieri and Simona Pannuzi (eds.), *Restauro Archeologico*, 1, pp. 57-63.

PETZET 2009
Michael Petzet (ed.), *The Giant Buddha of Bamiyan. Safeguarding the Remains* (Monuments and Sites XIX), Berlin.

PLESTERS 2012
Joyce Plesters, "Ultramarine Blue, Natural and Artificial", in ASHOK ROY (ed.) *Artists' Pigments. A Handbook of Their History and Characteristics*, vol. 3, Washington-London (reprint; originally published in 1993), pp. 37-66.

ROSA *et al.* 2019
Carlo Rosa *et al.*, "Geological overwiew of Gandharan sites and petrographical analysis on Gandharan stucco and clay artefacts", in Luca Maria Olivieri and Simona Pannuzi (eds.), *Restauro Archeologico*, 1, pp. 12-39.

ROY 2012
Ashok Roy (ed.) *Artists' Pigments. A Handbook of Their History and Characteristics*, vol. 3, Washington-London (reprint; originally published in 1993).

STANČO 2016
Ladislav Stančo, *Afghanistan. Rescued Treasures of Buddhism*, Prague.

TADDEI 1968
Maurizio Taddei, "Tapa Sardār First Preliminary Report", *East and West* 18, pp. 109-124.

TADDEI and VERARDI 1978
Maurizio Taddei and Giovanni Verardi, “Tapa Sardār - Second Preliminary Report”, *East and West* 28, 1-4, pp. 33-135.

TANIGUCHI and COTTE 2022
Yoko Taniguchi and Marine Cotte, *The Wall Paintings of Bamiyan, Afghanistan. Technology and Materials*, London.

TARZI 1977
Zémaryalaï Tarzi, *L’architecture et le décor rupestre des grottes de Bāmiyān* (Bibliothèque du Centre de Recherches sur l’Asie centrale et la Haute Asie, 1), Paris.

TARZI 1986
Zémaryalaï Tarzi, “La technique du modelage en argile en Asie Centrale et au Nord Ouest de l’Inde sous les Kouchans : la continuité malgré les ruptures”, *Ktema,* XI, pp. 57-93.

TARZI 2005
Zémaryalaï Tarzi, “Sculpture in the Round and Very High Relief in the Clay Statuary of Haḍḍa: the Case of the so-Called Fish Porch (Niche XIII)”, *East and West* 55, 1-4, pp. 383-394.

VARMA 1961
Kalidindi Mohana Varma, “The Rôle of Polychromy in Indian Statuary”, *Artibus Asiae*, vol. 24, no. 2, pp. 117–32.

VARMA 1970
Kalidindi Mohana Varma, *The Indian Technique of Clay Modelling*, Santiniketan.

VARMA 1987
Kalidindi Mohana Varma, *Technique of Gandharan and Indo-Afghan Stucco Images (including images of Gypsum compound)*, Calcutta.

VERARDI 1983
Giovanni Verardi, “Osservazioni sulla coroplastica di epoca kuṣāṇa nel Nord-Ovest e in Afghanistan in relazione al materiale di Tapa Sardar, seguite da una precisazione sulla natura e la data delle sculture di Ushkur”, *Annali: Rivista del Seminario di Studi Asiatici e del Seminario di Studi Africani 43*, pp. 479-503.

VERARDI and PAPARATTI 2005
Giovanni Verardi and Elio Paparatti, “From Early to Late Tapa Sardār. A Tentative Chronology”, *East and West* 55, 1-4, pp. 405-444.

Technical Analysis on Buddhist Clay-based Sculptures from the Northern Silk Road. A Preliminary Comparison with Greater Gandhāra

Birgit Angelika SCHMIDT

Abstract

This study presents a technical analysis of Buddhist clay-based sculptures from the Northern Silk Road (present-day Xinjiang), dated between the 3rd/4th to the 14th centuries CE[1] and housed in the Museum für Asiatische Kunst (AKu), Berlin, comparing them with artifacts from Greater Gandhāra. While clay sculptures represent one of the most distinctive features of Central Asian material culture and have generated extensive scholarly literature since the inception of archaeological excavations in the late 19th century, their technical aspects remain understudied. Art historical research has traditionally characterized and compared "stylistic schools" based on their subjects, representational modes, motifs, and iconography, while the analysis of "style" through technical examination and production processes has received comparatively little attention.

Through examination of material parameters, this work investigates the technical characteristics of these sculptures in Berlin, analyzing how local natural resources influenced production techniques. The study focuses on identifying distinct patterns in local traditions, contributing to a broader understanding of regional artistic mobility and the dissemination of artisanal knowledge and practices. This approach aims to elucidate the networks of artistic exchange between these regions, thereby enhancing our understanding of long-term technical and cultural transmission in Buddhist art.

(Birgit.A.Schmidt@gmx.net)

Introduction

Religious and economic networks frequently shared routes and nodes of interaction, as centers of power and wealth often served multiple functions as sites of worship and cultural production. As Jason Neelis (NEELIS 2014) argues, Buddhist networks played a crucial role in facilitating cultural transmission by connecting monastic communities with sources of economic and social support, thereby catalyzing expansion and long-distance exchange. This interconnection between religious and economic spheres demonstrates how Buddhist institutions functioned not only as religious centers but also as important nodes in broader networks of cultural and material exchange. Neelis' observations regarding the spread of Buddhism can be effectively applied to its artistic manifestations as well. Dynamic interactions and exchanges must have occurred across geographical and cultural boundaries [2]. These interactions likely did not follow a linear progression from India through Central Asia to East Asia. Instead, various traditions probably flourished independently yet within interconnected networks of exchange until the end of the first millennium CE. This observation is further supported by Sonya S. Lee (Lee 2023), who points to the Tarim Basin as providing crucial evidence for multi-directional cultural exchange. She notes that Buddhist wall paintings

[1] The extensive time spam reflects both, the geographical extent of the research area and current scholarly discourse on dating and chronology. The earliest reliable archaeological evidence for Buddhist monasteries in the Tarim Basin dates to the mid-3rd century CE (NEELIS 2014, p. 5). Buddhist cultural production continued until the 14th century, when the decline of the Silk Road following the Mongol Empire's collapse marked a significant cultural transition (see ENCYCLOPÆDIA IRANICA, « Chinese Turkestan iii: From the Advent of Islam to the Mongols », 17.10.2021, https://iranicaonline.org/articles/chinese-turkestan-iii [accessed 16.02.2025]).

[2] NEELIS 2014, pp. 5-6.

in oasis kingdoms across the Taklamakan Desert, particularly in Kroraina and Kucha, predated those at major Buddhist sites further west, such as Bāmiyān in Afghanistan, despite sharing key artistic and architectural features[3]. The existence of earlier monuments east of the Pamirs demonstrates that Buddhism and its material culture traveled in both eastward and westward directions. To better understand these processes of artistic transmission relevant to this research, it appears productive to envision a comprehensive system encompassing patronage and coordinated artisanal activities, as Francine Tissot (TISSOT 2002) emphasized. This approach necessitates examining and comparatively analyzing selected aspects of artistic technology and production techniques.

Recent archaeological research on Buddhist clay sculptures in Central Asia has increasingly emphasized these kind of comparative methodological approaches. Significant studies by Ciro Lo Muzio (LO MUZIO 2022) and Giulia Forgione (Forgione 2023) have identified notable cultural and, particularly, technical parallels between the Buddhist artistic traditions of Greater Gandhāra[4] and present-day Xinjiang, with specific focus on oasis sites along the southern route of the Tarim Basin. This research methodology proposed, offers considerable potential, particularly given the persistent challenges in the study of Buddhist sculptural, or rather modelling traditions in Central Asia. This is especially relevant to my research area– the Buddhist sites along the northern edge of the Tarim Basin in Xinjiang (Fig. 1). Here, we continue to face substantial challenges in analyzing modelling techniques, as the sculptural evidence, where extant, remains largely fragmentary and decontextualized.

Archaeological campaigns conducted in the late 19th/ early 20th century, and in some cases continuing into the present, often failed to meet contemporary standards of scientific documentation. This circumstance significantly complicates efforts to establish for example reliable chronologies. The difficulties are further compounded by the limited number of surviving artifacts, their loss *in situ* due to the inherent properties of clay, and their dispersal through early archaeological expeditions around the globe.

The influences of early Gandhāran art (2nd to 5th centuries CE) are particularly evident in the figurative sculpture along the Northern Silk Road. According to Osmund Bopearachchi (BOPEARACHCHI 2020), this art form is distinguished by the fusion of regional cultural elements and is characterized by a unique style, manifesting in a naturalism reminiscent of Classical Greek art and an iconographic preference for scenes from the historical Buddha's life[5]. Furthermore, the sculpture in eastern Central Asia is also shaped by the Gupta style, which merged with Gandhāran elements between the 6th and 8th centuries[6].

Given these constraints, a systematic analysis of materials and techniques across different sites and regions becomes increasingly significant. Such analyses can reveal traceable

[3] This is evidenced by comparative analyses of features shared by Bamiyan and Kizil, such as the Buddha's *parinirvāṇa* motif and colossal Buddha sculptures, which suggest these practices originated in Kucha before appearing in Bamiyan (LEE 2023 refers to IWAI 2007, pp. 54-59).

[4] Gandhāra was a Persian Empire satrapy in what is now northern Pakistan and eastern Afghanistan, primarily encompassing the fertile valleys of the lower Kabul, Swat, and upper Indus rivers. Its core was the Peshawar valley, with main cities at Puṣkalavatī (modern Peshawar) and Takṣaśilā (Taxila). While its boundaries fluctuated historically, Gandhāra should be understood in connection with neighboring regions that constitute "Greater Gandhāra", including the upper Swat valley, Dir, Bajaur agencies, and the Afghan areas of Begram-Kapisi and Hadda. See BOPEARACHCHI 2020, pp. 1-2.

[5] BOPEARACHCHI 2020, p. 1.

[6] FILIGENZI 2010, pp. 394-395, cited in LO MUZIO 2022, p. 240.

connections within the broader Buddhist world, particularly when examining seemingly distant regions that share remarkable cultural parallels.

Methodological Approach

This study examines the sculpture collection of the Museum für Asiatische Kunst (AKu) in Berlin[7], comprising approximately 350 predominantly fragmentary objects. These can be attributed to four major archaeological regions encompassing 11 sites along the Northern Silk Road (Fig. 1). The investigation initially focuses on the material properties (structural characteristics) and manufacturing techniques that can partially be reconstructed through analysis of the objects. They were inventoried and categorised according to size, type, and other technical features. Visual analysis, optical microscopy, and limited instrumental techniques, such as X-ray diffraction (XRD), were employed.

The physical collection (Fig. 2), coupled with valuable contextual information such as archival materials from the expeditions, including an extensive historical photographic archive, provided unprecedented access to these previously underexplored artifacts. These combined sources facilitated the identification of similarities and differences in local production traditions during the course of my doctoral research (2020–2024). Selected findings on materials and techniques are presented here and compared with examples from Greater Gandhāra. These comparative analyses should be understood as an initial exploration rather than definitive conclusions. While certain aspects may remain open to debate, they offer a foundation for discussing broader regional movements in artistic transmission, adaptation, and knowledge exchange across Central Asia.

State of Research

The methodological approach employed in this study examines materials and manufacturing techniques as primary sources for analyzing Buddhist clay-based sculptures, establishing a novel research perspective for the study area. While the systematic investigation of material-technical aspects of these artworks represents a significant gap in current research, the challenge is compounded by linguistic barriers. The few existing scientific analyses of sculptures preserved *in situ* are predominantly published in Chinese, creating substantial obstacles for Western scholarship and limiting opportunities for broader academic exchange and collaboration in this field[8]. A notable exception is the research of Giuseppe Vignato, who, building upon the work of Su Bai (SU BAI 1983), has extensively studied the cave complexes in the Kucha region[9]. His studies are distinguished by their systematic documentation and analysis of technical aspects, including installation traces and constructive features of the sculptures[10].

---

[7] The Museum für Asiatische Kunst (AKu) in Berlin houses one of the largest collections of artifacts from significant Buddhist nodes along of the northern Tarim Basin, brought to Germany by the "Turfan Expeditions" (1902-1914). Next to clay-based sculptural fragments, hundreds of square meters of detached wall paintings, offers a unique opportunity for systematic studies of these archaeological finds from the first millennium CE, providing access to a material culture that has been largely lost *in situ*.

[8] SU 1983. Exceptions include authors such as WU 2018, p. 32-37, whose findings were published in English.

[9] The ancient Kingdom of Kucha (*c.* 3rd-8th c.) on the Northern Silk Road (in present-day Xinjiang) included more than ten Buddhist cave complexes.

[10] VIGNATO 2005, pp. 121-40; VIGNATO 2006, pp. 359-416; VIGNATO 2008, pp. 32-39; VIGNATO 2021, pp. 101-124.

Material-technical studies along the Northern Silk Road during the past century primarily focused on detached wall paintings preserved in various collections[11]. In Berlin, only occasional scientific analyses of sculptures were conducted, including technological comparisons with the wall paintings[12]. In contrast, the archaeological sites in Greater Gandhāra have been subject to more comprehensive research, owing to more or less continuous Pakistani, Afghan, French, and Italian archaeological missions. These long-term investigations have generated a substantial body of publications[13]. Of particular significance is Forgione's research, which is fundamental to the study of technical aspects (FORGIONE 2021) of clay-based sculptures and the layout of Buddhist architecture (FORGIONE 2023). Moreover, Forgione (FORGIONE 2021) developed a systematic and comprehensible terminology that is applicable to the sites in the present study area and contributes significantly to the standardization of technical terminology in the field.

Geographical and Geological Foundations for Technical Characteristics

Any investigation of materials and manufacturing techniques necessitates a thorough understanding of the local geographical and geological conditions. In this regard, the distinctive features of this arid and expansive region - characterized by vast deserts, high mountain ranges, extensive steppes, and snow-fed rivers - have profoundly influenced its historical development. The availability of water resources has been a determining factor in shaping agricultural practices, settlement patterns, and urban development. Furthermore, local geological deposits have played a crucial role in determining the choice of materials and manufacturing techniques employed in the region[14].

The geological conditions of the Tarim Basin significantly influenced the choice of clay as the preferred building and "sculptural" material in the region. Clay[15], a clastic sedimentary rock, essentially a weathering product of solid rock, became the predominant natural construction material, used in the form of sun-dried mud bricks or rammed earth in architectural structures at sites such as Tumshuk and Kocho. While natural stone is also present in the region (Fig. 3), it primarily consists of weakly bonded, conglomeratic materials such as sandstone and limestone that lack sufficient quality for sculptural work. Precise surface finishing of this natural stone is extremely limited, though its removal is relatively simple due to its weak bonding, as evidenced by the rock-cut architecture in regions like Kizil and Kumtura. Consequently, sculptures in the study area were not directly carved into the cliff faces but were instead built up from various layers of clay (see below).

Beyond clay, the study area is characterized by a rich mineral diversity, particularly an abundance of gypsum[16] deposits. These gypsum occurrences are documented in geological

[11] GETTENS 1938; BIRSTEIN 1975 & RIEDERER 1977.
[12] RIEDERER 1977, pp. 353-423.
[13] VARMA 1970; TARZI 1986; VARMA 1987; OLIVIERI & PANNUZI (eds.) 2019; MIDDLETON & GILL 1996; TADDEI 1999; TARZI 2005; BLÄNSDORF & MELZL 2009; OHLÍDALOVÁ *et al*. 2016; VERRI *et al.* 2019; FORGIONE 2019 & 2021; LLUVERAS-TENORIO *et al.* 2022; LÓPEZ-PRAT *et al.* 2024; KIMMET 2022.
[14] SCHMIDT 2023, pp. 33-68.
[15] Clay (geologically) is a textural term, referring to grain size. Based on GUGGENHEIM & MARTIN (1995), pp. 257-259) the term "clay" refers to a naturally occurring material composed of fine-grained "clay minerals" (phyllosilicates and other materials that impart plasticity at appropriate water contents), silt, sand and gravel of various sizes and natural temper (such as minerals, bioclasts or organic matter). The "clay minerals" form the binder in the clay, since their structure enables them to retain water.
[16] Gypsum is a widely distributed, soft mineral of sedimentary origin. Chemically, it is identified as hydrated crystalline calcium sulfate ($CaSO_4 \times 2H_2O$). It typically occurs with or adjacent to anhydrite ($CaSO_4$), which lacks

maps (Fig. 3), though the frequency of gypsum in this region suggests that numerous local deposits remain unmapped. Gypsum warrants special attention as this study reveals its significant role as a binding agent in those layers that served as painting grounds for the polychrome sculptures and wallpaintings, underscoring its importance in the artistic production process. Additionally, gypsum mixed with high proportions of quartz sand was also used to create negative moulds (Fig. 4) (see below).

The absence of limestone suitable for use as raw and carved blocks in art and architecture, as well as its processed products such as lime-based mortar or plaster, represents a significant finding in the study area. While natural calcite (chem: $CaCO_3$; calcium carbonate/"lime") content in clay can be detected due to the geological conditions of the sites, neither lime plaster as a ground layer nor lime mortar for plastic modelling could be identified. This absence directly correlates with the available raw material resources and the energy-intensive process of converting limestone into workable plaster or mortar.

In technical comparison with the sites in Greater Gandhāra, this aspect constitutes a key differentiating characteristic that warrants particular attention. A *Restauro Archeologico* Journal from 2019 addresses this subject matter comprehensively by systematically examining the natural deposits, processing methods, and diverse applications of limestone based on the authors research in the Swat Valley[17].

The use and processing of limestone materials, particularly the so called *kanjur* (also *kankar*), an organogenic limestone, underwent significant changes in the Gandhāra region after the 3rd century CE[18]. While, based on the authors, schist was the predominant material for sculptures and decorative elements in the first two centuries CE, *kanjur* later became extensively utilized, despite not being locally available in regions such as Swat. Scientific analysis has confirmed that the limestone used in Swat originated from outcrops in the mountains northwest of Islamabad, demonstrating the existence of established material trade routes. The mortar and plaster produced in these regions incorporated a mixture of local crushed rocks, including schists and granites[19].

The material's application was twofold: First, as a carved building material for architectural elements, though its texture limited the achievable detail compared to schist. Second, and notably, it served as the raw material for a lime-based mortar/plaster production, which was used both for independently and as a finishing layer over carved raw limestone (*kanjur*) elements.

In summary, the sites of Greater Gandhāra demonstrate significant geological diversity that fundamentally distinguishes them from the northern Tarim Basin region. While Pakistani sites predominantly feature metamorphic rocks, Afghan sites exhibit abundant limestone, sandstone, and siltstone formations of varying ages. This natural resource availability is reflected in the more frequent occurrence of lime-based mortars/plasters in "stucco" and clay artworks at Afghan sites[20]. This diverse geological setting enabled artisans in these regions to make deliberate material choices from a broader spectrum of options. They utilized both gypsum and lime plasters/mortars, either independently or in combination. The clay-based sculptures of Greater Gandhāra exhibit size-dependent variations in their plaster compositions, incorporating

water of crystallization. From a scientific perspective, anhydrite is anhydrous calcium sulfate ($CaSO_4$) that readily transforms into the significantly more common hydrated form, gypsum ($CaSO_4 \times 2H_2O$).

[17] OLIVIERI & PANNUZI (eds.) 2019.

[18] OLIVIERI & PANNUZI (eds.) 2019, p. 8.

[19] OLIVIERI & PANNUZI (eds.) 2019, p. 12.

[20] ROSA, THEYE & PANNUZI 2019, p. 34.

gypsum ($CaSO_4$; calcium sulfate) and/or lime ($CaCO_3$; calcium carbonate) in varying proportions, combined with both intentionally added and naturally occurring aggregates. These plaster layers primarily served as grounds for subsequent paint applications.

For these plasters, the production of lime through calcination, requiring temperatures above 1000°C sustained over several days, was an established practice in Greater Gandhāra. Such energy-intensive processes, however, were not feasible in the resource-limited environment of Xinjiang, where gypsum, processed at significantly lower temperatures of approximately 120°C, became the predominant material for ground layers.

Technical characteristics of clay-based sculptures from the Northern Silk Road

Archaeological evidence from different Buddhist monasteries along the Northern Silk Road reveals that, despite their limited preservation, these complexes once housed extensive clay-based sculptural ensembles alongside their main Buddha images. These sculptures, which formed integral components of larger figurative groups, demonstrated both conceptual and technical relationships with the surrounding wall paintings. Their architectural integration, whether in cliff-carved or surface-built structures, typically involved connection to two-dimensional back walls.

This architectural context influenced their sculptural form: rather than being fully three-dimensional, most pieces were conceived as reliefs of varying depths–from low to very high relief–integrated into or positioned near shrine or *stūpa* walls. This resulted in selective three-dimensional modelling, with only certain elements such as arms or legs fully rendered in the round. Freestanding sculptures were comparatively uncommon. Today, these works survive primarily as fragments, with their former presence often indicated by cavities and niches in the better-preserved rock-cut architecture, including pedestals designed for prominent sculptures. The systematic positioning of these sculptural elements within sacred spaces underscores their significance in Buddhist ritual practice.

The absence of stone with suitable sculptural qualities, such as schist or limestone, necessitated the development of a modelling tradition. This tradition, when evaluated from a technical perspective, differs significantly from the sculptural traditions further east and west, primarily in terms of the medium employed, namely clay. Due to the geological conditions mentioned earlier, the sculptures in the study area were, with a few exceptions, not directly carved into the rock cliffs. Instead, they were constructed through successive layers of clay, which were modelled onto supporting wooden armatures providing inner support when certain dimensions were exceeded. Therefore, it is more accurate to describe the artistic tradition along the northern route of the Tarim Basin as a "modelling school"[21].

One of the key findings of this study is the extensive use of moulds in the production of clay-based sculptures in Xinjiang. Technological similarities and differences in regard of the casting techniques between the regions of Greater Gandhāra and the Northern Silk Road are difficult to trace: While Xinjiang provides extensive documentation of negative moulds used in clay-based sculpture production[22], comparable findings in Greater Gandhāra remain notably scarce, primarily limited to small-scale objects such as moulds for hair curls[23].

[21] In 2018, Alexandra Vanleene has already defined this term in a very comprehensible way and thereby also clearly distinguishes it from a so called « sculpting school », see VANLEENE 2018, pp. 143-163.
[22] SCHMIDT 2024, London Paper.
[23] TARZI 1986, p. 82, fig. 21 (depicts a mould for a hair curl found in Haḍḍa).

The moulds discoveries from the third German expedition in the oasis of Shorchuk (Karashahr) are particularly instructive, enabling detailed analysis of manufacturing techniques. These artifacts document a sophisticated casting system: a single facial mould (Fig. 4) could generate multiple distinct heads through various combinations (Fig. 5). The figures, modelled layer by layer *in situ* at their intended location, demonstrate only minor typological variations in their faces, yet exemplify the efficient application of available casting techniques. Archaeological evidence from different sites across the Northern Silk Road region (Fig. 6), confirms the widespread adoption of these techniques. This combination of modelling and casting methods created a diverse repertoire of iconographic types, potentially reflecting adaptations to local resource availability.

The paint layers of these sculptures, similar to those of the wallpaintings, demonstrate a sophisticated technical approach: A pure gypsum layer provided the ground for an elaborate polychrome treatment. The painting technique can generally be characterized, with few exceptions, as a form of (glue-bound) *tempera*, consisting of a mixture of coloring agents (pigments[24] and/or dyes) and organic binding media such as animal glues (bovine glue, or generally hide glues) or plant-based adhesives (starch, plant gums), drying oils, or resins. These materials were often applied in multiple layers, sometimes as glazes or in gradations of shading. In particular, naturally occurring mineral/inorganic pigments, which are scientifically comparatively easy to identify, have been well researched. The original splendor of these sculptures is partially still evident through surviving traces of gold leaf, particularly visible on the garments and facial areas of certain Buddha representations (Fig. 7).

A significant finding emerges from the analysis of wall paintings and sculptures within individual spaces: These architectural elements demonstrate not only iconographic correspondence but also technical coherence, as evidenced by nearly identical material compositions. A simultaneous execution and material consistency suggests a deliberate integration of sculptural and pictorial programs, reflecting a unified approach to spatial decoration (Fig. 8). This arrangement further underscores the close interconnection between architectural, pictorial, and sculptural components in these monastic settings as well as the masterful synthesis of these elements.

The technical coherence observed in these integrated artistic programs extends beyond local production to incorporate materials acquired through extensive trade networks. Indeed, the transmission of painting traditions and regional artistic exchange can be documented through material evidence of pigment trade. This is particularly evident in the occurrence of valuable pigments with characteristic color properties, such as lapis lazuli[25], which were accessible exclusively through established long-distance commercial connections[26]. This aspect of material acquisition and distribution, which provides tangible evidence of cross-regional contact, requires systematic long-term research to fully understand its implications for artistic transmission.

[24] Powders that comprise diverse source materials, including naturally occurring minerals, earth compounds, synthetically produced metallic salts, and organic colorants. TANIGUCHI & COTTE 2022, p. 4.
[25] Lapis lazuli has long been known to originate from the Sar-e Sang of the Kokcha River basin in the Badakhshan region of Afghanistan (BOWERSOX & CHAMBERLIN 1995, p. 47 cited in TANIGUCHI & COTTE 2022, p. 59.
[26] See also TANIGUCHI & COTTE 2022, p. 101.

Comparative Studies of Installation Contexts

The material and technical analysis of sculptures achieves its full scholarly significance only when contextualized within their broader architectural settings. Although material studies generate valuable data, understanding the original spatial positioning, layout, and installation of these works within their architectural environments is crucial for maximizing their research potential. Studies should emphasize the essential relationship between material characteristics and architectural space, and should demonstrate how technical choices were often determined by installation requirements and spatial considerations. While this integrated approach can only be illustrated through selected examples within the scope of this article, it hopefully opens up some ideas for future research. In particular, comparing installation contexts between different archaeological regions along the Silk Road provides valuable insights into patterns of cultural exchange and the transmission of technical knowledge across these historical networks.

While surviving sculptures, archaeological documentation, and historical expedition photographs enable partial reconstructions of architectural contexts, scholars face significant methodological challenges in their analysis. The global dispersal of related artifacts across museums and collections, coupled with the frequent impossibility of definitively determining their original architectural placement, creates substantial barriers to comprehensive understanding. These circumstances inherently introduce uncertainties into historical interpretation.

Nevertheless, comparative studies of installation contexts across different archaeological regions along the Silk Road have proved particularly promising, offering valuable insights into patterns of cultural exchange and the transmission of technical knowledge through these historical networks. Recent scholarship has provided illuminating examples of such comparative approaches. Lo Muzio (LO MUZIO 2022) and Forgione (FORGIONE 2023) have made particularly significant contributions to this discourse.

In their respective articles, both authors draw parallels between sites in Afghanistan and those along the southern route in Xinjiang. As a selected example, I would like to reference here the "installations with one or more central statues surrounded by sculpted figures in the corners of the chapel" discussed by Forgione[27], which she documents in Xinjiang at sites including Dandan Oiliq[28] and Farhad-Beg-yailaki in the Khotan Oasis[29]. While these are indeed rare (or scarcely documented) outside Xinjiang, with examples such as Tapa Sardar in Afghanistan or Kala-i Kafirnigan in Tajikistan, they nevertheless demonstrate "a significant cross-border diffusion during the late 6th/7th-8th centuries CE"[30]. Their presence across this geographical span additionally invites further comparative analysis with sites along the Northern Silk Road.

The ancient Kingdom of Kucha offers an excellent comparative case study, as its monastic complexes and their layouts have been systematically and meticulously researched over decades[31].

In the monasteries of Kucha, evidence for statues installed in the corners exists primarily in the rear chambers of central pillar caves, though these examples are relatively few in number.

[27] FORGIONE 2023, p. 84.
[28] STEIN 1907, pp. 246-47 cited in FORGIONE 2023, p. 91.
[29] FORGIONE 2023, p. 91.
[30] FORGIONE 2023, p. 84.
[31] See, for example, HOWARD & VIGNATO 2015.

The physical remains are limited to peg holes, inserted at 45-degree angles into the front two corners. Based on these traces, this layout appears in several central pillar caves[32] with rear chambers at Kizil, specifically in caves 8, 34, 99, 104, 195, 196, 198, and 219, with comparable examples found at other Kucha sites. Notably, such features are entirely absent in square caves[33] in Kucha. The documentation of similar architectural details at other Buddhist sites along the northern edge of the Taklamakan remains often unclear, as peg holes are rarely recorded in published materials[34].

Further evidence comes from the notes of German archaeologist Albert Grünwedel, who documented several caves in the Shorchuk (Karashahr) rock-cut complex[35]. These include a double cave, designated as the *Handschriftenhöhle* by the German expedition, a cave named *Höhle der Priesterweihe*, and the *Kirinhöhle*, each equipped with two standing Buddha figures (approximately 1.40 m tall) in the front corners of the rear passages (Fig. 9[36]).

In Shorchuk, these figures are found exclusively in the rear chambers; to date, no examples along the Northern Silk Route indicate the presence of such corner figures in the main cellas. Interestingly, as Grünwedel noted in 1912, the halo of the Buddha in the right corner figure in the *Höhle der Priesterweihe* was bent around the corner of the side passage[37].

Conclusions

Along the Northern Silk Road, the recurring positioning of corner figures across sites separated by hundreds of kilometers represents a remarkable phenomenon of architectural and artistic coherence. This selected example vividly demonstrates how expanding our geographical framework of investigation reveals the mobility of artistic knowledge and technical expertise across vast distances.

This topic becomes particularly significant when considering the chronological questions that remain unanswered in current scholarship. As future research establishes more precise dating frameworks, these specific installation patterns may provide concrete evidence for multi-directional knowledge transmission rather than the simplified unilateral progression from India through Central Asia to East Asia that dominated earlier interpretations.

The sculptural traditions examined in this study reveal a complex network of cultural exchange. While each regional tradition developed distinctive characteristics responding to local conditions and material constraints, the underlying aesthetic principles and technical approaches show remarkable consistency across time and space. These works simultaneously exhibit localized adaptations while maintaining unmistakable connections to the broader artistic vocabularies of India, Central Asia, and China.

---

[32] Central pillar caves represent a distinctive two-chamber architectural form derived from the Indian *caitya* through the incorporation of a circumambulatory path. Their defining characteristic is the arrangement where the rear section connects to the main front chamber via two side corridors that extend along the left and right sides of the central pillar, facilitating ritual movement through the space.

[33] Recent scholarship (VIGNATO & HIYAMA 2022) identifies these structures as representing the earliest form of Buddhist cave architecture.

[34] I thank Prof. Giuseppe Vignato for sharing this information (personal communication, [05.02.2025]).

[35] GRÜNWEDEL 1912, pp. 196-97; pp. 201 & 205.

[36] I would like to express my sincere gratitude to Lu Tian, doctoral candidate in East Asian Art History at Freie Universität Berlin, who brought to my attention an incorrect attribution of this image in Grünwedel 1912, p. 203, fig. 457 (personal communication, [25.02.2025]). The figure actually depicts the rear chamber of the *Höhle der Priesterweihe* rather than the *Kirinhöhle*, as erroneously stated in *Kultstätten* (1912).

[37] See marking x in the floor plan in GRÜNWEDEL 1912, p. 200, fig. 449 & p. 201.

Buddhist sculptural arts thus emerge not merely as expressions of religious devotion but as sophisticated vehicles for cultural transmission. The technical patterns identified in this study suggest that artistic knowledge circulated through extensive networks that facilitated multi-directional exchange rather than following linear pathways. This perspective invites further investigation into how material practices and installation contexts might illuminate the complex dynamics of cultural interaction along the Silk Road during the first millennium CE.

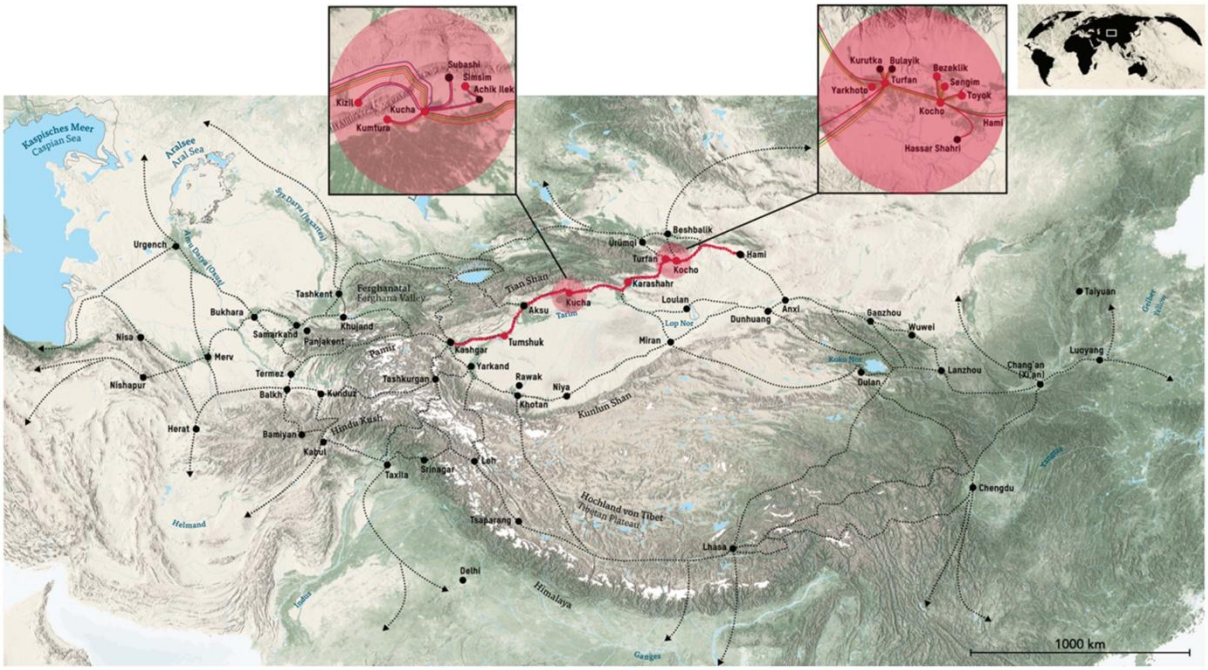
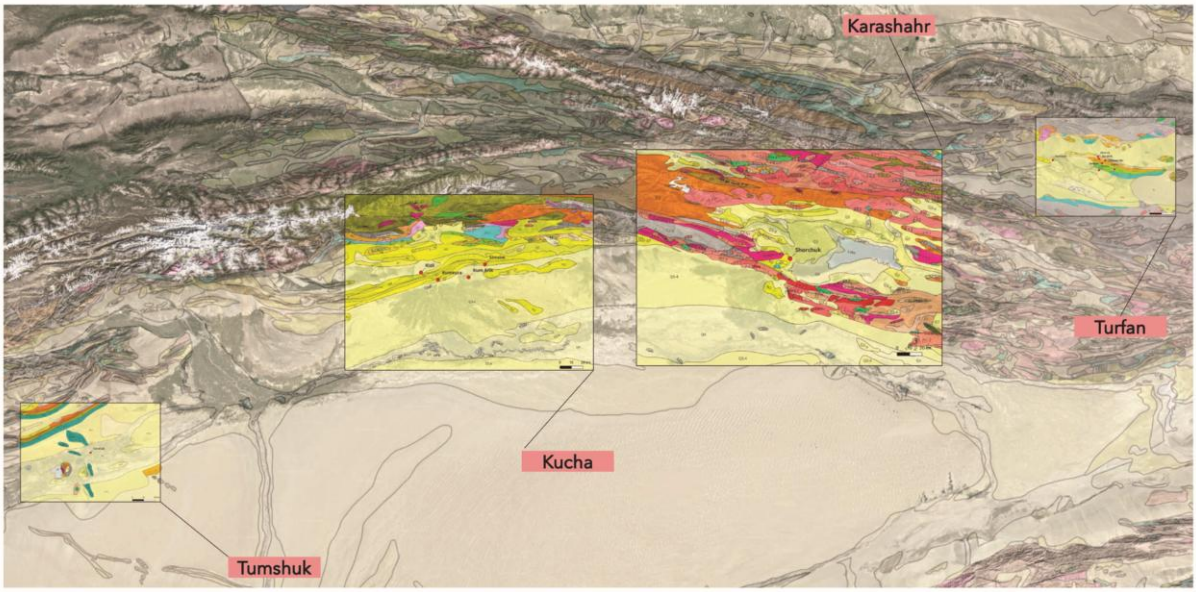


Fig. 1: Map of the network of the Silk Roads. The northern route and the archaeological find sites of sculptures currently housed in Berlin are marked in red. © Adapted by the author. Staatliche Museen zu Berlin (SMB)/Stiftung Humboldt Forum/ Cartographer: Sheraz Khan



Fig. 2: View into the former storage of the Museum für Asiatische Kunst, Berlin. The sculpture fragments are arranged in the display cases on the right side of the image



E	Greyish brown limestone, mudstone, argillaceous sandstone, gypsum bed	J1 2	Yellowish green mudstone sandy mudstone, conglomerate intercalated with oil shale and coal seam	P	Variegated sandstone, mudstone, siltstone, conglomerate
E3 N1	Brownish yellow, brownish red conglomerate, sandstone, siltstone intercalated with gypsum bed.	J 3	Purplish red conglomerate, sandstone, marl; limestone, sandstone, quartz sandstone in Kunlun Mts.	PT12	Marble, quartzite, mica quartz schist; migmatite, plagioclase amphibolite in Beishan Mts
K	Purplish red conglomerate, sandy conglomerate, siltstone, argillaceous rock	D 1	Grey sandstone, sandy limestone; migmatite, two-mica schist, quartz porphyry in Altay	P 1	Andesite, rhyolite, tuff; sandstone, shelly limestone in souther margin of Tarim
K 1	Greyish green, brownish red mudstone, sandy mudstone, sandstone, conglomerate	D 2	Grey limestone, calcareous sandstone, siltstone, andesite, rhyolite, tuffaceous sandstone	P 2	Variegated conglomerate, sandstone, bituminous shale; intercalation of oil shale, dolomite, in north Tianshan Mts.
K 2	Greyish white quartz sandstone, conglomerate; greyish green mudstone, limestone, gypsum bed in Kunlun Mts	D 3	Greyish green tuffaceous sandstone, carbonaceous siltstone; limestone, intercalated with quartz sandstone in Tianshan Mts.	P2 T1	Brown, greyish green sandstone, conglomeratic sandstone, sandy mudstone, conglomerate
K 2 E	Brownish red sandstone, sandy mudstone, rock salt and gypsum bed	D 2-3	Dark red, greyish green argillaceous slate, sandstone, siltstone, phyllite.	Y delta 42	Granodiorite rocks
N 1	Greyish green, brown mudstone, sandy mudstone, sandstone intercalated with gypsum bed	Epsilon y 43	K-spar granite rocks	Y 4 1	Monzonitic or biotite granite rocks
N 2	Brown sandy mudstone, mudstone, conglomerate sandstone	Epsilon y 42	K-spar granite rocks	Y 4 2	Monzonitic or biotite granite rocks
Q 1	Variegated semicemented conglomerate intercalated with mudstone, sandstone; glacial muddy gravel, fluvioglacial conglomerate (mountainous region)	O par 4	Ultrabasic rocks	O 1	Dolomitic limestone, silicate, mica quartz schist, tuff in Junggar
Q 2	Sand, sandy clay, glacial gravels, detritus, calcium-cemented conglomerate.	C	Limestone, sandstone, mudstone intercalated with gypsum bed	O 1 +2	Grey limestone, marl, argillaceous siltstone, silicate, slate, shale
Q 3	Sand, loess, sandy clay, gravel, glacial gravels	C 1	Sandstone, mudstone shale intercalated with limestone; limestone, calcareous sandstone in Kunlun Mts	V4 2	Gabbro rocks
Q 4	Sand, sandy clay loess, detritus, gravel, salt rock, glacial boulder	C 2	Purple conglomerate, sandstone, mudstone, shale; andesite, tuff in north Tianshan Mts	S 1	Silicate, siltstone, shale, slate intercalated with limestone
Q 3-4	Sandy clay, gravel, detritus.	Z 2	Grey tillite, marl, sandy argillaceous slate, sandstone, limestone, tuff intercalated with basalt	S 2 -3	Greyish green sandstone, siltstone intercalated with sandy limestone; intercalation of limestone and gypsum bed in Kunlun Mts.
C h	Greyish green metamorphosed sandstone, quartzite; intercalation of basalt, dacite, in Kunlun-Altun Mts	J x	Marble, dolomite, quartzite, intercalation of felsite, bacite, basalt; in Altun Mts	S 3	Variegated tuff, tuffaceous conglomerate, tuffaceous sandstone intercalated with limestone, sandstone, siltstone, conglomerate

Fig. 3: Geological map of Xinjiang Province © ORR & ASSOCIATES



Fig. 4: Karashahr (Shorchuk), negative mould for head; AKu Museum, Berlin, n° III 7986, 35.5 x 28.5 x 16 cm



Fig. 5: Kizil, Letzte Höhle der Anlage II, two clay-based heads, whose faces were produced using apparently the same negative mold; AKu Museum, Berlin, n° III 7930 (left) & III 7946 (right)



Fig. 6: Clay-based head from *Duldur Akur (Kucha);Musée* Guimet Paris, n° MG. 23756 (left), 32 x 23 x 15cm
© GIÈS (éd.) 1994, p. 176.
Clay-based head from Kocho (Turfan);
AKu Museum, Berlin, n° III 4480 (right), 28.3 x 23 x 18 cm



Fig. 7: Clay-based head from Kocho (Turfan); AKu Museum, Berlin, n° III 4499, 15.4 x 10 x 10 cm



Fig. 8: Kizil, Cave 77, AKu Museum, Berlin, wallpaintings: n° III 8838 & III 8840, 60 x 33 & 82 x 62 cm; *c*lay-based sculptures*:* n° III 427 (left), 73.5 x 78 x 42 cm; n° III 8184 (right), 74 x 25 x 20 cm



Fig. 9: Karashahr (Shorchuk), Höhle der Priesterweihe, rear chamber, right side wall, part of a *parinirvāṇa* scene (not shown in the photograph)*;* photograph taken during the third German expedition (1907) and archived in AKu Museum, Berlin, n° B 684. See also floor plan after GRÜNWEDEL, p. 200, fig. 449

BIBLIOGRAPHICAL REFERENCES

BIRSTEIN 1975

Vadim J. Birstein, "On the Technology of Central Asian Wall Paintings: The Problem of Binding Media", *Studies in Conservation*, nº 20, pp. 8-19.

BLÄNSDORF & MELZL 2009

Catharina Blänsdorf and Edmund Melzl, "Technique of Modelling the Buddha Statues", in Michael Petzet (ed.), *The Giant Buddhas of Bamiyan. Saveguarding the Remains*, Berlin (Monuments & Sites XIX, ICOMOS), pp. 201-214.

BOPEARACHCHI 2020

Osmund Bopearachchi, *When West Met East: Gandhāran Art Revisited,* Delhi.

BOWERSOX & CHAMBERLIN 1995

Gary W. Bowersox, and Bonita E. Chamberlin, *Gemstones of Afghanistan*, Tucson, Arizona.

FILIGENZI 2010

Anna Filigenzi, "Post-Gandharan/non-Gandharan: An Archaeological Inquiry into a Still Nameless Period", in Michael Alram *et al*. (éds.), *Coins, Art, and Chronology II: The First Millennium CE in the Indo-Iranian Borderlands*, Wien, pp. 389-406.

FORGIONE 2019

Giulia Forgione, "Clays and colours: Tracking technologies and theories of vision in the ancient Buddhist art of Afghanistan", in Luca M. Olivieri, and Simona Pannuzi (eds.), *Restauro Archeologico 1_2019,* Firenze, (Journal of the Department of Architecture, University of Florence), pp. 130-141.

FORGIONE 2021

Giulia Forgione, "Clay-based Sculptures. Analysis of Technical Aspects and Typologies", *Parthica,* nº 23, pp. 145-176.

FORGIONE 2023

Giulia Forgione, "From Afghanistan to Xinjiang: Notes on some Types of Buddhist Chapels (6th/7th Centuries CE)", *Revista degli Studi Orientali,* nº 96, (Fasc. 2-4), pp. 69-94. (DOI: https://doi.org/10.19272/202303804004)

GETTENS 1938

Rutherford J. Gettens, "The Materials in the Wallpaintings from Kizil in Chinese Turkestan", *Technical Studies in the Field of Fine Arts*, nº 6, pp. 281-294.

GIÈS (ed.) 1994

Jacques Giès (ed.), *Les arts de l'Asie centrale : La collection Paul Pelliot du musée national des arts asiatiques – Guimet*, 2 vol, Paris.

GRÜNWEDEL 1912

Albert Grünwedel, *Altbuddhistische Kultstätten in Chinesisch-Turkistan: Bericht über Archäologische Arbeiten von 1906 bis 1907 in Kuča, Qarašahr und in der Oase Turfan,* Berlin.

GUGGENHEIM & MARTIN 1995
Stephen Guggenheim & R.T. Martin, "Definition of Clay and Clay Mineral: Joint Report of the AIPEA and CMS Nomenclature Commitees", *Clay Minerals*, nº 30:3, pp. 257-259.

HOWARD & VIGNATO 2015
Angela Howard, and Giuseppe Vignato, *Archaeological and Visual Sources of Meditation in the Ancient Monasteries of Kuča*, Leiden/Boston.

IWAI 2007
Shumpei Iwai, "Radiocarbon Dating and Art-Historical Studies in Central Asian Mural Paintings", in Kazuya Yamauchi, Yoko Taniguchi, and Tomoko Uno (eds.), *Mural Paintings of the Silk Road: Cultural Exchange between East and West*, Tokyo, pp. 54-59.

KIMMET 2022
Natasha Kimmet, "Red Clay-based Buddhist Sculpture in the Śāhi Kingdoms: Material and Technical Considerations from the Kabul Valley to the Himalayan Foothills", *Sourcebook for the Shahi Kingdoms*, pp. 1-22.

LEE 2023
Sonya S. Lee, "Buddhist Wall Paintings", in *Oxford Research Encyclopedia of Religion.* 23 Aug. 2023, Accessed 13 Feb. 2025.
https://oxfordre.com/religion/view/10.1093/acrefore/9780199340378.001.0001/acrefore-9780199340378-e-751.

LLUVERAS-TENORIO *et al.* 2022
Anna Lluveras-Tenorio *et al*., "An Insight into Gandharan Art: Materials and Techniques of Polychrome Decoration", *Heritage,* nº 5:1, pp. 488-508.

LO MUZIO 2022
Ciro Lo Muzio, "Some Remarks on Rawak (Khotan Oasis, Xinjiang): The Stūpa, Clay Sculptures and Wall Paintings", in Ines Konczak-Nagel, Satomi Hiyama, and Astrid Klein (eds.), *Connecting the Art, Literature, and Religion of South and Central Asia. Studies in Honour of Monika Zin*, New Delhi, pp. 233-245.

LÓPEZ-PRAT *et al.* 2024
Mònica López-Prat *et al*., "Shaping the sacred along the Silk Roads: the millenary artistic tradition of making monumental terracruda sculptures", *Journal of Archaeological Science: Reports,* nº 54, pp. 1-12.

MIDDLETON & GILL 1996
Andrew P. Middleton, and Anna J. Gill, "Technical Examination and Conservation of the Stucco Sculpture", in Wladimir Zwalf (ed.), *A catalogue of the Gandharan Sculpture in the British Museum,* London (vol. I, App. 4), pp. 363-368.

NEELIS 2014
Jason Neelis, "Networks for Long-distance Transmission of Buddhism in South Asian Transit Zones", in Tansen Sen (ed.), *Buddhism Across Asia. Networks of Material, Intellectual and Cultural Exchange.* Singapore (vol. 1), pp. 3-18.

OHLÍDALOVÁ *et al.* 2016
Martina Ohlídalová *et al*., "Technical Analyses", in Marika Tisucká and Ladislav Stančo (eds.), *Afghanistan. Rescued Treasures of Buddhism*, Prague, pp. 106-145.

OLIVIERI & PANNUZI (eds.) 2019
Luca M. Olivieri, and Simona Pannuzi (eds.), *Restauro Archeologico,* nº 1_2019, Firenze, (Journal of the Department of Architecture. University of Florence).

RIEDERER 1977
Josef Riederer, "Technik und Farbstoffe der frühmittelalterlichen Wandmalereien Ostturkistans", in Herbert Härtel (ed.), *Beiträge zur Indienforschung*. Berlin, pp. 353-423.

ROSA, THEYE & PANNUZI 2019
Carlo Rosa, Thomas Theye, and Simona Pannuzi, "Geological overview of Gandhara sites and petrographical analysis on Gandhara stucco and clay artefacts", in Luca M. Olivieri and Simona Pannuzi (eds.), *Restauro Archeologico,* nº 1_2019, Firenze, (Journal of the Department of Architecture. University of Florence), pp. 12–39.

SCHMIDT 2023
Birgit A. Schmidt, "Climate and Resource Dependencies in Buddhist Art and Architecture along the Northern Silk Road", in Julia A. B. Hegewald (ed.), *Embodied Dependencies and Freedoms. Artistic Communities and Patronage in Asia*, Berlin, Boston, pp. 33-68.

SCHMIDT 2024
Birgit A. Schmidt, "A Technical Analysis on Modular Systems in the Production of Buddhist Clay-based Sculptures from Karashahr: Connecting Silk Road collections in Berlin and London", *Silk Roads Archaeology and Heritage*, nº 1(1), pp. 29-51.

STEIN 1907
Marc Aurel Stein, *Ancient Khotan. Detailed Report of Archaeological Explorations in Chinese Turkestan*, 2 vols, Oxford.

SU 1983
Bai Su, "Kezi'er Bufen Dongku Jieduanhuafen yu Niendai deng Wenti de Chubutansuo [A basical study on the development and the dating of several caves in Kizil]", *Zhongguo Shiku Kezi'er Shiku,* Beijing (vol. 1), pp. 162-178.

TADDEI 1999
Maurizio Taddei, "Chronological problems connected with Buddhist unbaked-clay sculpture from Afghanistan and surrounding areas", in Michael Alram and Deborah Klimburg-Salter (eds.), *Coins, Art and Chronology, Essays on the pre-Islamic History of the Indo-Iranian Borderlands*, Wien, (Beiträge zur Kultur- und Geistesgeschichte Asiens, Bd. 31), pp. 391-397.

TANIGUCHI & COTTE 2022
Yoko Taniguchi, and Marine Cotte, *The Wall Paintings of Bamiyan, Afghanistan. Technology and Materials.* London.

TARZI 1986
Zémaryalaï Tarzi, “La technique du modelage en argile en Asie Centrale et au Nord-Ouest de l’Inde sous les Kouchans: la continuité malgré les ruptures”, *KTEMA, Civilisations de l’Orient, de la Grèce et de la Rome Antiques*, nº 11, pp. 57-93.

TARZI 2005
Zémaryalaï Tarzi, “Sculpture in the Round and Very High Relief in the Clay Statuary of Haḍḍa: The Case of the So-called Fish Porch (Niche XIII)”, *East and West,* vol. 55, Iss. 1-4, pp. 383-394.

TISSOT 2002
Francine Tissot, *Gandhâra. 2ème édition revue et corrigée*, Paris.

VANLEENE 2018
Alexandra Vanleene, “Differences and Similarities in Gandhāran Art Production: The Case of the Modelling School of Haḍḍa (Afghanistan)”, in Wannaporn Rienjang & Peter Stewart (eds.), *The Geography of Gandhāran Art. Proceedings of the Second International Workshop of the Gandhāran Connections Project,* Oxford, (University of Oxford, 22nd-23rd March), pp. 143-163.

VARMA 1970
Kalidindi M. Varma, *The Indian Technique of Clay Modelling,* Santiniketan.

VARMA 1987
Kalidindi M. Varma, *Technique of Gandharan and Indo-Afghan Stucco Images,* Santiniketan.

VERRI *et al.* 2019
Giovanni Verri *et al*., “Investigations of a Gandharan stucco head of the Buddha at the Victoria and Albert Museum (IM.3-1931)”, *Technè* [Online], nº 48, pp. 136-149.

VIGNATO 2005
Giuseppe Vignato, “Qizil: Characteristics and development of the groups of caves in Western Guxi”, *Annali dell’Università degli Studi di Napoli L’Orientale*, nº 65, pp. 121-140.

VIGNATO 2006
Giuseppe Vignato, “Archaeological Survey in Kizil. Its Groups of Caves, Districts, Chronology and Buddhist Schools”, *East and West* 56, nº 4, pp. 359-416.

VIGNATO 2008
Giuseppe Vignato, “Towards a More Reliable Chronology for the Site of Kizil”, in Rajeshwari Ghose (ed.), *Kizil on the Silk Road. Crossroads of Commerce and Meeting of Minds,* Mumbai, (vol. 59, nº 3), pp. 32-39.

VIGNATO 2021
Giuseppe Vignato, “The Reappearance of the Buddha. A Preliminary Study on the lost Clay Statues in the Caves of Kucha”, *East and West*, (2) 61, nº 2, pp. 101-124.

VIGNATO & HIYAMA 2022
Giuseppe Vignato, and Satomi Hiyama, *Traces of the Sarvāstivādins in the Buddhist Monasteries of Kucha*, New Delhi (Leipzig Kucha Studies 3).

WU 2018
Lihong Wu, "Preliminary investigation of painted clay sculptures collected in the Qiuci Academy of Xinjiang", *Dunhuang Research*, n° 6, pp. 32-37.

INTERNET SOURCES

ENCYCLOPÆDIA IRANICA
"Chinese Turkestan iii: From the Advent of Islam to the Mongols", 17.10.2021, https://iranicaonline.org/articles/chinese-turkestan-iii [accessed 16.02.2025]).

The Analysis of Narrative Reliefs Found in Mekhasanda in the Gandhāra Region[1]

Satoshi NAIKI

Abstract

Mekhasanda is a small Buddhist monastic site in the Gandhāra region and has been excavated by French and Japanese archaeologists. The site has a character that high ratio of sculptures unearthed there were made of stucco, not stone. This can be said unique because stone sculptures are dominant in most of known sites in the Gandhāra region.

Narrative reliefs found in the northwestern Indian subcontinent (Fig. 1) are fundamental for understanding Buddhism there in ancient times. By analyzing depictions seen on reliefs, we can catch a glimpse of what was worshipped or what was regarded to be important in Buddhism at that time.

Many scholars have focused on narrative reliefs and analyzed iconography of their depiction[2]. They compared depictions on Gandhāran narrative reliefs with descriptions in Buddhist scriptures written in Sanskrit or Chinese, and identified which scene is depicted on each relief. Thanks to their efforts, we can now easily identify the scenes depicted on narrative reliefs found in the northwestern Indian subcontinent. Besides, there is high potential to continue identifying scenes, as many narrative reliefs have depictions that have not yet been fully studied. However, we cannot attain a comprehensive understanding of the roles of narrative reliefs in this way, because a relief originally decorated a storey on a podium, a circular drum, or a *harmikā* of a *stūpa* not solely, but together with other reliefs. We need to adopt an approach to reassemble reliefs that originally decorated the same storey of a *stūpa*.

1. Studies to reassemble Gandhāran narrative reliefs

Scholars who have sought to reassemble narrative reliefs emerged in the late 20th century. Domenico Faccenna reassembled reliefs which he thought have been used to decorate the drum of the main *stūpa* in the Buddhist monastic site of Saidu Sharif I in the Uddiyāna region[3]. He dealt with only one set of reliefs, but his study clearly illustrated the importance to analyze reliefs unearthed in scientific excavations.

Akira Miyaji picked up narrative reliefs stored in museums and introduced five sets of reliefs[4]. He insisted that there are two different categories of selection of scenes in Gandhāran narrative reliefs: 1) scenes mainly from early life of Siddhārtha and around his death or *Parinirvāṇa*, and 2) scenes composed of Siddhārtha seeking the truth and teaching people after

[1] This article is based on two presentations, one at EASAA conference held in Barcelona in 2022 and another at colloquium held at university of Strasbourg in 2024. I thank to Prof. Deborah Klimburg-Salter and Prof. Anna Filigenzi for their continuous supports to my research, and to my friend Dr. Alexandra Vanleene to invite me to the wonderful colloquium in Strasbourg. A tentative analysis of narrative reliefs found in Thareli and Mekhasanda was conducted in NAIKI 2016 (in Japanese). At that time, only reliefs whose bases and cornices remain were picked up and reassembled into sets. However, other pieces lacking bases and cornices should not be ignored. Then, this paper picks up reliefs including these pieces and tries to reassemble them into sets. Names of sets of reliefs are also reconsidered. This is the last updated version of research of sets of reliefs unearthed in Mekhasanda.

[2] FOUCHER 1905; 1917; etc.

[3] FACCENNA, CALLIERI and FILIGENZI 2003.

[4] MIYAJI 1994.

his enlightenment. Kurt Behrendt used old photos taken in the late 19th and the early 20th century when Archaeological Survey of India excavated plenty of Buddhist monastic sites in the Gandhāra region, such as Marjanai, Loriyan Tangai and Nathu. The reliefs appearing in these photos were reassembled by him into 45 sets[5]. He also mentioned that the depictions on these sets of reliefs can be divided into two categories.

As we saw, scholars have already started reassembling narrative reliefs into sets. It is highly appreciated that their considerations have even been extended to the categorization of the scene selections depicted on each set of reliefs. However, their studies did not reach the point of explaining why there are different categories in the selection of scenes among sets of narrative reliefs. The current issue is that the number of examples of sets is still too small. In order to formulate a consistent explanation, we need more examples of sets. Therefore, the present author started to analyze reliefs unearthed during excavations of Buddhist monastic sites by the Japanese Mission. Narrative reliefs found in Area C in the Buddhist monastic site of Thareli (Fig. 1) were picked up and analyzed in the previous paper[6].

Two *stūpa* courts were unearthed in excavations in Area C of Thareli: C100 and C106. On one hand, sets of reliefs reassembled in the *stūpa* court C100 have depictions mainly of Buddha preaching, meditating and worshipped. In other words, most of the sets of reliefs reassembled in C100 show us scenes from the life story of Siddhārtha after his enlightenment. On the other hand, those reassembled in the *stūpa* court C106 mainly show scenes from the life story of Siddhārtha before his enlightenment and around his death or *Parinirvāṇa*. The existence of two categories of scene selections in sets of narrative reliefs, as suggested by Miyaji and Behrendt, was confirmed through the analysis of reliefs unearthed during these excavations. The important point is that the two categories of selections were recognized separately in two different *stūpa* courts in one Buddhist monastic site. By considering the reason why such a difference emerged in two *stūpa* courts at the same site, we may uncover the cause of the two distinct categories in scene selections.

There is a difference in the ratio of material used for sculptures between these two *stūpa* courts in Thareli. Not only stone sculptures but also stucco[7] sculptures were unearthed in the *stūpa* court C100, while only stone sculptures were unearthed in the *stūpa* court C106. There is a high possibility that the difference in the ratio of materials for sculptures reflects the difference in the period when these courts were constructed, as it is believed that stone was replaced by stucco as material for sculptures, at least in the Gandhāra region. In other words, construction of the *stūpa* court C106 seems to have been relatively earlier than that of the *stūpa* court C100. Therefore, we can assume that the difference in categories of scene selections between C106 and C100 resulted from the difference in the periods during which the *stūpa* courts were constructed and the narrative reliefs, which decorated *stūpas* in these courts, were sculpted.

The emergence of two distinct categories in the selection of scenes depicted on narrative reliefs can be attributed to the differences in the periods during which the reliefs were sculpted. This is the hypothesis suggested in the previous paper based on the analysis of reliefs unearthed in Thareli. We can verify its accuracy by analyzing other Buddhist monastic sites. If a consistent result can be brought from analysis of reliefs in several sites, we can prove this hypothesis.

[5] BEHRENDT 2005, p. 385.
[6] NAIKI forthcoming.
[7] There is a heated argument over the use of the term “stucco”. The author cannot judge what is the best word to point out whitish colored sculptures made of lime plaster or gypsum unearthed in the north-western Indian subcontinent, then use the word “stucco” in this paper, following the tradition of studies of Gandhāran sculptures.

Therefore, narrative reliefs unearthed in the Buddhist monastic site of Mekhasanda in the Gandhāra region are examined in this paper. The Buddhist monastic site of Mekhasanda is thought to have been established slightly later than that of Thareli, as we will discuss later.

2. Excavations in the Buddhist monastic site of Mekhasanda

Mekhasanda is a Buddhist monastic site standing on a mountain situated north-east from Shahbaz Gaṛhi, which is located about 10 km east-northeast from Mardān (Fig. 1). The scale of the monastery in Mekhasanda is much smaller than that of Thareli.

Alexander Cunningham visited Shahbaz Gaṛhi and its surrounding area in 1847 and again in 1872-1873. He assumed that Shahbaz Gaṛhi was the ancient *Po-lu-sha* (仏沙伏城、跋虜沙城) mentioned by Song Yun (宋雲) and Xuanzang (玄奘). He also speculated that the Mekhasanda mountain was the ancient Dantalok mountain (弾多落迦山) recorded by Xuanzang as the place where Sudāna *Jātaka*, or Vessantara *Jātaka*, took place, but he did not mention the Buddhist monastic site of Mekhasanda at all[8].

Alfred Foucher was the first scholar who excavated the site of Mekhasanda. Following Cunningham's opinion, he attempted further identifications of places related to Vessantara *Jātaka*. He visited Shahbaz Gaṛhi from 1895 to 1897 and excavated a part of the *stūpa* court at the site of Mekhasanda. He detected the main *stūpa*, several small *stūpas* surrounding the main *stūpa*, and a few shrines surrounding *stūpas*[9]. Several sculptures made of stone and stucco unearthed in his excavation were transported to Paris and are currently stored in *Musée* Guimet.

An expedition from Japan organized by Kozui Otani excavated the site of Mekhasanda in 1902[10]. They detected nine bases of *stūpas* and shrines and obtained dozens of sculptures. Unearthed objects were brought to the Lüshun Museum in China. They regarded the monastic site of Mekhasanda as the ruin of the *stūpa* constructed by Ashoka which was mentioned by Xuanzang.

In 1959, Seiichi Mizuno organized *The Kyoto University Scientific Mission to Iranian Plateau and Hindukush*, during which they surveyed the site of Mekhasanda in the first year of the mission. Following the survey, they started excavations at the site. The excavations were conducted for three seasons until 1967. They revealed the overall view of the monastery. According to the report, this Buddhist monastery was constituted of a *stūpa* court with the main *stūpa*, votive *stūpas* and shrines, annex buildings such as an assembly hall, and *vihāras* or monks' residences (Fig. 2, 3)[11].

4103 pieces of sculptures in total were unearthed during the excavations at Mekhasanda. 1006 pieces are stone sculptures, and the remaining 3,097 pieces are made of stucco[12]. One of the distinct characteristics of this site is that three quarters of unearthed sculptures were made of stucco.

[8] CUNNINGHAM 1875, pp. 16-17.
[9] FOUCHER 1901, pp. 353-357; 1915: pp. 26-30.
[10] UEHARA 1937, p. 56.
[11] MIZUNO 1969, pp. 6-9, 81-82.
[12] NISHIKAWA 2011, p. 183, table 6-1.

Nine copper coins were unearthed in the excavations. The breakdown of these coins was as follows: One Kanishka coin, one Huvishka coin, one Vasudeva coin, five late Kushan (Vasudeva type) coins, and one Kushano-Sasan coin[13]. The report concluded that the date of construction of the monastery was around "the Middle Kushan" (*c.* 250~350 CE) from the Vasudeva type coins, and the monastery lasted until about 450 CE[14].

According to the tentative chronology of earthenware constructed by Yozo Namba, later presented in the report on the excavations at the Buddhist monastic site of Ranigat (Fig. 1), earthenware excavated in Mekhasanda is contemporary with those of the period 5 to 6 in Ranigat. He also mentioned that the monastery at Thareli was built somewhat prior to the monastery at Mekhasanda based on the difference in types of lamps unearthed. The period 5 in Ranigat is approximately in the earlier half of the 3rd century CE[15].

The identification of Mekhasanda as the place related to the Vessantara *Jātaka* was later denied by Elizabeth Errington. She reconsidered distances between towns and monasteries recorded by Chinese pilgrims and insisted that Sahri-Bahlol (Fig. 1) should be appropriate for the ancient *Po-lu-sha*[16].

3. Stone sculptures found in Mekhasanda

Sculptures unearthed in Mekhasanda are made of stones and stuccos as mentioned above. There is a difference in the ratio of materials for sculptures among three Buddhist monastic sites in Ranigat, Thareli and Mekhasanda, which are all excavated by the Japanese mission in the Gandhāra region. The later the monastery was established, the higher the ratio of stucco against stone is[17]. The difference in the ratio of materials of sculptures implies that stone was used predominantly as material for sculptures in the early period, and stucco replaced stone at a certain point of time at least in the Gandhāra region.

Stone sculptures found in Mekhasanda can be categorized into independent statues, narrative reliefs, false niches, stair risers, other decorative reliefs (garland bearers, a row of niches, balustrades, cornices, etc.), and architectural elements (domes, shafts, *chattra*, etc.). The present paper focuses on narrative reliefs mainly and refer to false niches and stair risers. False niches and stair risers often have depictions of narrative stories, making it worthwhile to examine these alongside the narrative reliefs.

4. Reassembling Narrative reliefs found in Mekhasanda

Narrative reliefs found in Mekhasanda will be reassembled into sets based on the following three criteria, which were adopted in the previous analysis of reliefs found in Thareli[18]: (1) height; (2) composition of the front face; (3) dividing band[19].

---

[13] MIZUNO 1969, pp. 60, 94-95.
[14] *Ibid*., pp. 62-63, 96.
[15] NISHIKAWA 2011, pp. 285-286, 301, 645-646, 664.
[16] ERRIGTON 1993, p. 59,
[17] NISHIKAWA 2011, p. 183, table 6-1.
[18] NAIKI, forthcoming.
[19] Terms and expressions used for describing Gandhāran sculptures are primarily based on FACCENNA and FILIGENZI 2007. The webpage *The DiGA Thesaurus*, created by the DiGA (Digitization of Gandhāran Artefacts) project led by Frederik Elwert and Jessie Pons, is also a valuable resource for identifying appropriate terms for Gandhāran sculptures (https://skosmos.ub.rub.de/thesaurus/en/ [25 December 2024]).

We can easily imagine that the reliefs which decorated the same storey of a *stūpa* originally had the same height. The same applies to composition and the dividing band. The front face of reliefs is composed of figured fields, a base below the fields, and a cornice above the fields. Heights and motifs of bases and cornices should be the same among reliefs which decorated the same storey of a *stūpa*. Figured fields are vertically separated by dividing bands, usually in the form of figures, semi-columns, or pilasters. Figures and semi-columns are generally framed, but pilasters are displayed without frames. Sometimes a figure is represented against the shaft of a pilaster. This paper regards them as a variation of dividing bands in the form of pilasters. Dividing bands in the form of semi-columns are not known in the findings at Mekhasanda, although they are commonly used on reliefs found in Buddhist monastic sites in the Gandhāra region.

In addition to the three criteria, observation on the back and side faces of reliefs is also helpful in reassembling original sets of reliefs. The upper and lower faces of the reliefs have traces of connection system, such as tenons and sockets, sockets for cramps, and so on, which jointed reliefs to other architectural elements of the *stūpas*. Technique should have been shared among reliefs which belonged to the same set. The back faces of the reliefs show tool marks. Reliefs belonging to the same set were probably made by the same sculptor with his tool. If so, tool marks may exhibit the same characteristics among the reliefs.

Based on these criteria, reliefs found in Mekhasanda could be reassembled into sets. Each set is labeled after name of the site ("M." after Mekhasanda in this paper.), forms of dividing bands, and height of original reliefs. The different forms of dividing bands will be indicated as follows: f (figure); c (semi-column); p (pilaster); u (unidentifiable). For example, a set of reliefs found in Mekhasanda with dividing band in the form of pilaster (=p) which are the fifth largest in scale is named "the set M.-p5". Two reliefs, pls. 42-12 and 42-10 (Fig. 5-3, 4), are included in this set, and are thought to have decorated the same storey of a *stūpa*[20].

a. Narrative reliefs which decorated *stūpas* in Mekhasanda

18 *stūpas* in total were detected in excavations at Mekhasanda (Fig. 3)[21]. 17 *stūpas* stood in the *stūpa* court and a *stūpa* (St. 20) stood alone at a landing space between staircases. No traces of *stūpa* shrines, or "*Gṛha stūpas*", were detected in this site. Narrative reliefs unearthed in this site should have been used to decorate these 18 *stūpas*. Reliefs found in Mekhasanda can be reassembled into 20 sets as shown below (Fig. 4~7, chart).

M.-f1: Pl. 42-5 (Fig. 4-1) is 16.5 cm high and is the only one example with a dividing band in the form of a framed figure. Even if only one relief exhibits certain characteristics (height, composition, and dividing band), it can be guessed that there was originally a series of reliefs sharing the same characteristics. Two figured fields are separated by a dividing band in the form of standing naked *putto* (?) under a tree on a podium. Naked *putti* stand on a pot, sometimes with stepped plinth[22]. In the right field, a woman stands in front of a door, holding something in her right hand. Although the field is badly broken and eroded, a trace of a horse's front face remains in front of her. In the left field, a horseman or a horse carrying a burden is entering the gate of a castle. A female guardian with a spear in her right hand is sitting next to the gate and a

[20] The plate number in the excavation report will be used to refer to reliefs unearthed at the monastic site of Mekhasanda in this paper (MIZUNO 1969, pl. 39-47).
[21] St.1~St. 9 and St. 12~St. 20. Structures called "*Stūpa* 10 and *Stūpa* 11" in the report were thought to be pedestals of shrines (MIZUNO 1969, pp. 13, 84.).
[22] *e.g.* MIZUNO and HIGUCHI 1978, pl. 82-11; NISHIKAWA 1994, pl. 147-21.

podium-like structure is depicted beside her. Similar depictions appear on reliefs found in Ranigat[23]. The depiction of a man carrying a burden and entering a gate on a relief stored in the Lahore Museum was identified with the scene of the urn carried into Kusinagara after the cremation of the Buddha[24]. However, the identification cannot be connected to the depiction in the right field in the case of the narrative relief in Mekhasanda[25]. We need to look for an appropriate story which accords with the depictions in the figured fields.

M.-p1: Pl. 40-2 (Fig. 4-14) is a piece of relief. The remaining piece is 21 cm in height and its base is 9 cm in height. A large relief has been reconstructed from this piece. In the left end of its figured field, the plinth of a pilaster is visible. Pl. 41-27 (Fig. 4-3) is the capital of a pilaster, and its size corresponds to the plinth of pl. 40-2 (Fig. 4-14). Above the capital, a row of saw-tooth patterns is present. A similar row of saw-tooth can be observed on pl. 41-24 (Fig. 4-4). Severely eroded cornices of similar height are visible on pls. 41-25, 41-35 and 41-36 (Fig. 4-5~7). Only heads and bodies of people remain on pls. 40-7, 40-6, 41-33, 41-16, 41-26, 41-32, 41-30, 41-31 and 41-34 (Fig. 4-8~13, 15~17). Their relatively large-sized depiction of people implies that they belong to this set. On the relief pl. 40-2 (Fig. 4-14), an animal with a swirling pattern on its right hind leg is crouching. Pl. 40-7 (Fig. 4-8) also shows legs of animal crouching. Pl. 40-6 (Fig. 4-9) may be the face of one of the two animals. These crouching animals could be a lion, a tiger or a wolf (or a leopard) all of which are incarnations of *devas*, or gods, in the story of Sudāna *Jātaka* or Vessantara *Jātaka*[26]. If these are parts of the *Jātaka*, a child in the piece of pl. 41-32 (Fig. 4-13) could be the one devoted by his father (Sudāna or Vessantara) to a *Brahman*.

M.-p2: Pl. 39-7 (Fig. 4-2) is an upper part of a pilaster against which a *putto* is depicted. A row of saw-tooth runs on the cornice above the capital.

M.-p3: Pl. 40-8 (Fig. 5-1) is 20.0 cm high, but the photo in the report lacks the upper end of the relief[27]. It has dividing bands in the form of pilasters with concave flutes. The base of relief is composed of multiple layers of mouldings. In the right field, the Buddha is reclining on a bed, and a monk stands at his bedside, holding something, likely a flywhisk, in his right hand. Others, probably monks, also stand around the bed. This should be a scene of Siddhārtha's death or *Parinirvāṇa*. In the left field, five people stand and face each other, but the scene cannot be identified.

M.-p4: Pl. 40-9 (Fig. 5-2) also has multiple layers of mouldings on the base. This relief is 17.2 cm high. Someone kneeling and folding his hands is depicted against the dividing band in the form of a pilaster. A man stands in the figured field, but the scene cannot be identified.

M.-p5: Pl. 42-12 (Fig. 5-3) is 19.0 cm high and has dividing bands in the form of pilasters. There are four layers of mouldings on the base. The upper half of the relief is badly eroded. In the right figured field, two standing people and two children face each other. One of the children kneels and folds his hand, and another stands and folds his hands or devotes something to a standing figure in front of them. This should be the scene of dust offering by Ashoka in his

[23] NISHIKAWA 1994, pl. 123-6, 158-20.
[24] FOUCHER 1905, 585~586, fig. 288; INGHOLT 1957, fig. 151.
[25] There are many examples of reliefs with several figured fields. These reliefs illustrate that the stories depicted in the figured fields generally develop in a direction from the right field to the left (*e.g.* FOUCHER 1905, figs. 157, 158, 160, 165, 172, 178, 180, 184, 187, 232, 290, 297, 298, 299, 300; MIZUNO and HIGUCHI 1978, pl. 138-11, 16, 27, 29).
[26] LIUDUJIJING RESEARCH GROUP 2021, pp. 84-85; NAKAMURA 1988, p. 223.
[27] Assuming that there is a cornice above the figured field, the figure is shown here a little smaller.

former life described in the *Divyāvadāna*[28]. In the left field, a standing Buddha is flanked by four people, but there is no clue to judge which scene is depicted. Pl. 42-10 (Fig. 5-4) has the same dividing band, and the base has the same height with the same mouldings. Its upper part is lost. A podium is flanked by two people in the right figured field, and a pillar-like structure on a podium is franked by four people in the left.

M.-p6: Pl. 42-6 (Fig. 5-5) is 11.6 cm high, and its figured fields are divided by a pilaster. Its surface is eroded, but the cornice above figured fields might have been decorated with a row of saw-tooth. In the right field, two standing people remain. One is likely a child holding an offering. This could be identified with the scene of dust offering by Ashoka, too. Several people are depicted in the left field, but the details cannot be known.

M.-p7: Pl. 41-48 (Fig. 5-6) is 8.2 cm long and has a dividing band in the form of a pilaster. The cornice above the field is 2.5 cm high. A figure is likely bearing something on his shoulder in the figured field. If this is a garland bearer, this should not be counted as one set of narrative reliefs.

M.-u1: Pl. 42-2 (Fig. 5-7) and 42-4 (Fig. 5-8) are both 18.5 cm high. Pl. 42-3 (Fig. 5-9) and pl. 39-9 (Fig. 5-10) also have similar height. Pieces of reliefs which share the similar size of heads and bodies could belong to this set (Fig. 5-11~21). A horseman faces to the left on pl. 42-2 (Fig. 5-7). This scene is recorded as "riding to school" in the report[29], but this could also be a part of the scene of the "four encounters". Pl. 42-4 (Fig. 5-8) depicts a camel carrying a burden on its back and a man holding a stick behind it. The report says this is a scene of the caravan merchants, Trapusha and Bhallika[30]. A female deity is depicted on pls. 39-9 (Fig. 5-10). Pl. 41-47 (Fig. 5-16) depicts a naked man with a strangely swelling belly. The report says this is a depiction of a demon, but this could also be a sick man in the scene of the "Four encounters". Combined with the relief pl. 42-2 (Fig. 5-7), it could depict the scene of the encounter with a sick man.

M.-u2: Pl. 43-5 (Fig. 6-1) has a plain base. Pl. 43-2 (Fig. 6-2) depicts people whose proportions are the same as those on pl. 43-5. Two Buddhas stand on pl. 43-5 (Fig 6-1), while a monk and a Vajrapāṇi who holds a *vajra* in his left hand and flywhisk in his right hand stand on pl. 43-2 (Fig. 6-2). A relief unearthed at the same site during the excavation by the Otani Mission and stored in the Lüshun Museum in China may belong to this set[31].

M.-u3: Pl. 41-3 (Fig. 6-3) is 9.5 cm high. There is a cornice above the figured field. A figure faces to the right and folds his or her hands.

M.-u4: Pl. 43-6 (Fig. 6-4) has a cornice with a row of saw-tooth above the figured field. A woman faces to the left and folds her hands.

M.-u5: Pl. 41-39 (Fig. 6-5) has a cornice with two layers, whose second layer has a row of dentils. A small head of a man remains below the cornice.

---

[28] HIRAOKA 2007, pp. 72-75.
[29] MIZUNO 1969, pp. 35, 89.
[30] *Ibid*., 35, 89.
[31] LÜSHUN MUSEUM 1940, fig. 111-2. This piece highlights the potentiality for the analysis of reliefs excavated before the Kyoto University Mission's excavations to drastically enhance the quality of research of narrative reliefs at this site.

M.-u6: Pl. 44-10 (Fig. 6-6) has a cornice decorated with the acanthus leaf pattern. A head of Buddha remains in the figured field.

M.-u7: Pl. 42-9 (Fig. 6-7) has a base with four layers, and pl. 42-7 (Fig. 6-8) has an eroded base with a similar height. A figure sits on a stool and faces to the left on pl. 42-9 (Fig. 6-7), while a figure prostrates on the ground in front of a standing figure on pl. 42-7 (Fig. 6-8). The posture of the man is commonly seen in the scene of Dīpankara Jātaka. However, the direction is reversed, and this posture is also seen in other scenes such as the "invitation of Śrīgupta32". Therefore, the scene cannot be judged from this small piece.

M.-u8: Pl. 43-3 (Fig. 6-9) is 15.0 cm high, and its cornice running above the figured field displays a row of projecting elements, or brackets. While there may be two or three layers of mouldings above the brackets, there is a row of saw-tooth below the brackets. A seated figure with a halo behind his head, most probably a meditating Bodhisattva, is shown under a tree at the right end of the piece. Two people are worshipping him at his right. One may devote something. A garland bearer is depicted at the left end. This paper does not deal with decorative reliefs such as garland bearers, for they do not depict narrative scenes generally. However, this piece clearly depicts a scene of worship with several figures and is therefore considered an exceptional set of reliefs in this paper.

M.-u9: Pl. 41-38 (Fig. 6-10) also features a row of running brackets above the figured field, but the brackets are much smaller than those in the former set. Two layers of mouldings are below the brackets. Only a head of Buddha remains in the figured field.

M.-u10: Pl. 45-9 (Fig. 6-11) is 9.0 cm long. A row of running brackets appears above the figured field. Above it, a row of saw-tooth and a plain fillet continue. A few heads and a part of a tree remain in the figured field.

M.-u11: Pl. 45-7 (Fig. 6-12) is 5.0 cm high. A row of brackets and a row of saw-tooth run above the figured field. The head of a figure remains in the figured field.

M.-u12: Pl. 41-56 (Fig. 6-13) is 10.5 cm long. It has a base composed of four layers. A body of a seated figure, probably a meditating Buddha, is in the figured field.

b. Other pieces which cannot be reassembled

Many other reliefs have been found at Mekhasanda, but it is difficult to appropriately assign them to the sets mentioned above or to establish isolated sets for them (Fig. 6-14~35). They remain only part of the figured field, suggesting that some of them may be parts of other sculptures, such as false niches and stair risers.

Pl. 41-52 (Fig. 6-14) depicts a large head of a figure. The remaining piece is 19.0 cm high. Its considerable size makes evaluation challenging. Pl. 43-4 (Fig. 6-15) is 14.0 cm high. Two woman are standing, with a child probably positioned between them. A woman on the right is playing a stringed music instrument. Pls. 41-49 and 41-51 (Fig. 6-16, 17) depict figures with proportions similar to those in pl. 43-4 (Fig. 6-15). Therefore, if they were parts of narrative reliefs, they might have belonged to the same set. A figure holds something in his right hand on pl. 41-49 (Fig. 6-16). It is reported as a Vajrapāṇi[33]. A woman stands and holds a

[32] ACKERMANN 1975, pl. XXXV.
[33] MIZUNO 1969, p. 65.

bouquet in her right hand in front of a door on pl. 42-8 (Fig. 6-18). This could be a part of the scene of Dīpankara *Jātaka*. Garuḍa kidnaps *Nāginī* on pl. 41-44 (Fig. 6-26)[34].

c. False niches and stair risers.

This paper deals with narrative reliefs on which stories from the Buddha's life or his former lives are depicted. However, other sculptures, such as false niches and stair risers, occasionally feature narrative depictions as well. Therefore, if we wish to consider what kind of stories are most commonly selected in this site, false niches and stair risers should not be ignored. Several pieces which seem to be parts of false niches and stair risers were unearthed in excavations in Mekhasanda (Fig. 7-1~14).

A sculpture that arranges several figured fields vertically is classified as a false niche in this paper (Fig. 7-1, 3, 5). Figured fields are separated by intermediate elements composed of brackets (Fig. 7-2, 3) or decorative bands such as a row of tangential pearls (Fig. 7-1), chevrons (Fig. 7-4) and saw-tooth (Fig. 7-5, 8). The bases of pls. 41-42 and 41-19 (Fig. 7-6, 7) which have a row of saw-tooth, implies that another figured field continues below the base.

A man holding a *vajra* in his right hand stands and faces to the right in the lower figured field, while two people stand and face to the right in the upper field on pl. 43-15 (Fig. 7-1). A seated Buddha on a throne faces to the left on pl. 43-7 (Fig. 7-2). A man prostrates in front of a standing Buddha on pl. 42-1 (Fig. 7-3). It is difficult to interpret the depiction as the scene of Dīpankara *Jātaka*, as the individuals surrounding the Buddha differ from those typically seen in the scene. The feet of the Buddha, which are lost in this piece, are presumed to be elevated from the floor. Five standing figures are preserved, one of whom stands on a podium. The depiction of the "Invitation of Śrīgupta" on the sculpture stored in the Victoria and Albert Museum is similar, but not the same[35]. Two people are seated in the European way on pl. 43-16 (Fig. 7-4). This may show a scene of the "Interpretation of Māyā's dream" or "Siddhārtha's horoscope".

Long, straight panels, ranging in height from 15 to 18 cm and often featuring a cornice with a plain fillet, are generally regarded as stair risers[36]. Several scenes from *Jātaka* stories are known to be drawn on them[37]. Three sculptures unearthed in Mekhasanda, pls. 43-10, 43-1, and 42-11 (Fig. 7-10~12) seem to be parts of stair risers. Pls. 43-8 and 43-9 (Fig. 7-13, 14) are also possibly parts of stair risers, although their sizes are not recorded in the report. There is also a possibility that these two belonged to the set M.-p1 (Fig. 4-3~17).

A deer drinking water and a gourd are depicted on pl. 42-11 (Fig. 7-12). The report identified this depiction with a scene from the Śyāma *Jātaka*[38].

d. Locations of the relief sets installed originally.

Reliefs found in Mekhasanda could be reassembled into 20 sets. However, there is a possibility that some of these sets may be combined into a single set. For example, a piece of pilaster labeled M.-p2 (Fig. 4-2) could serve as the dividing band for one of the sets,

[34] *Ibid*., p. 36.
[35] ACKERMANN 1975, pl. XXXV.
[36] *e.g*., ZWALF 1996, figs. 304, 306-339 and so on.
[37] ERRINGTON 2022, fig. 18-F4, figs. 19-F6, F7, F8, figs. 20-F11, F-'J4'.
[38] MIZUNO 1969, pp. 36, 89.

whose dividing bands are unidentifiable. Additionally, the sets M.-p3~p6 and M.-u7 (Fig. 5-1~5, 6-7~8) have close similarities in their dividing bands and bases. Although they were reassembled separately due to differing details, they could have been used to decorate the same storey of a *stūpa*. Besides, the set M.-p7 could be just a decorative relief with garland bearers (Fig. 5-6). At the same time, there is a possibility that pieces which cannot be reassembled in this paper, such as pls. 43-4, 41-49 and 41-51 (Fig. 6-15~17), could compose a single set. Therefore, the number of sets of reliefs reassembled based on the criteria, 20 in this paper, does not necessarily tell us the actual number of the sets that adorned the monastic site.

We have two clues when determining the original locations where each set of reliefs was installed. The first clue is the data regarding the find spot of each relief, which may reveal the location where the relief was originally attached. If reliefs belonging to the same set were found near a certain *stūpa*, we can guess that the set was used to decorate the *stūpa*. However, the Buddhist monastic sites in the north-western Indian subcontinent generally have been devastated by illegal looters and Mekhasanda is no exception, unfortunately. The second clue is the data of the scale of *stūpas* and reliefs. We can easily imagine that the larger the *stūpa* is, the larger the relief attached to the *stūpa* is.

Find spots of reliefs belonging to each set is listed (chart). Most of the reliefs were found around the main *stūpa* and the southern half of the *stūpa* court. However, no sets of reliefs can, unfortunately, be correlated with any *stūpas* from their find spots. The remaining clue is the scale of *stūpas* and reliefs.

While the largest *stūpa* detected in Mekhasanda is the main *stūpa*, situated in the central part of the *stūpa* court and measuring about 5.30 m in diameter[39], the largest reliefs in this site are those belonging to the set M.-p1 (Fig. 4-3~17). The original height of reliefs belonging to this set can be reconstructed to about 35 cm[40]. The reliefs in this set were found around the main *stūpa*. Two of them were found at the main *stūpa* itself, two were at the north-west of the *stūpa*, and six were around the southern part of the *stūpa* court. We can guess that this set originally decorated a storey of the main *stūpa*[41].

The original locations of other sets of reliefs cannot be considered from the data of find spots or their scales.

e. Characteristics of reliefs unearthed in Mekhasanda.

As discussed in the history of studies of narrative reliefs, two categories were identified for the scene selections in narrative reliefs produced in the north-western Indian subcontinent: 1) scenes mainly from early life of Siddhārtha and around his death or *Parinirvāṇa*, and 2) scenes composed of Siddhārtha seeking the truth and teaching after his enlightenment[42]. Among the sets of reliefs reassembled in this paper, only the set M.-p3 can be assigned to the first category and sets M.-p1, p5, p6, u1, u2, u6, u7, u9 and u12, are assigned to the second category. The second category of scenes, depicting Siddhārtha preaching or being

[39] *Ibid.*, p. 83.
[40] The heights of the base, the figured field and the cornice of reliefs belonging to the set M.-p1 can be reconstructed roughly from pls. 40-2, 41-34 and 41-24 (Fig. 4-14, 17, 4).
[41] A piece of sculpture depicting a large human head cannot have been reassembled into sets in this paper (Fig. 6-14). While it is impossible to judge its role from the remaining piece, we cannot completely deny the possibility that it was a part of a narrative relief. If, by any chance, this is a part of a narrative relief, it would suggest the existence of a set of reliefs larger in size than those of the M.-p1 set.
[42] MIYAJI 1994.

worshipped after his enlightenment, were obviously preferred in Mekhasanda. This is a remarkable characteristic of the reliefs unearthed in this site.

The previous paper analyzing reliefs found in Thareli suggested that difference in selections of categories reflects the difference in period when reliefs were sculpted. While sets of reliefs assigned to the first category were unearthed mainly from the *stūpa* court C106, sets of reliefs assigned to the second category were unearthed predominantly in the *stūpa* court C100 in Thareli. The *stūpa* court C106 seems to have been constructed earlier than the *stūpa* court C100, according to the ratio of material of sculptures between stone and stucco. The present result of selection supports the hypothesis proposed in the previous paper, as the *stūpa* court at Mekhasanda is believed to have been constructed later than those at Thareli.

While the category of selection of scenes depicted on the reliefs is shared between C100 in Thareli and Mekhasanda, there are many differences in scenes between the reliefs found at these sites.

There are several pieces of reliefs which depict *Jātaka* stories in Mekhasanda. Reliefs seemingly depicting Sudāna / Vessantara *Jātaka* are included in M.-p1 which composed of the largest reliefs found in Mekhasanda and thought to have been used to decorate the main *stūpa* (Fig. 4-8, 9, 14). It is curious that a set of narrative reliefs depicting Sudāna / Vessantara *Jātaka* decorated the main *stūpa* in Mekhasanda, considering that the identification of the present-day Shahbaz Gaṛhi with the place related to the story of Sudāna / Vessantara *Jātaka* has already been denied[43]. It is worth noting here that a piece of stair riser might have depicted a scene from Śyāma *Jātaka* (Fig. 7-12). A prostrating man and a standing woman holding a *bouquet* in front of a door is seen on pl. 42-7, 42-1, and 42-8 (Fig. 6-8, 7-3, 6-18). Some of them might possibly be the scene of Dīpankara *Jātaka*. Additionally, several pieces of reliefs might be part of the scene of dust offering by Ashoka in his former life (Fig. 5-3, 5, 7-7). We can point out that stories concerning the former lives of Siddhārtha and Ashoka are preferably depicted in Mekhasanda.

Besides these, plenty of distinct depictions are seen in reliefs in Mekhasanda. For example, depiction of past Buddhas (Fig. 6-1), Vajrapāṇi holding a *vajra* in his left hand and a flywhisk in his right hand (Fig. 6-2), worship of a seated Bodhisattva (Fig. 6-9), and Garuḍa kidnapping *Nāginī* (Fig 6-26), are not seen among reliefs found at C106 and C100 in Thareli. The depiction of Vajrapāṇi holding a flywhisk in his hand was inherited and used in the later Central Asian arts[44].

Another characteristic of reliefs unearthed in Mekhasanda concerns dividing bands. Generally, various forms of dividing bands are recognized in reliefs found in Buddhist monastic sites in the Gandhāra region[45]. However, the dividing band in the form of semi-column was not found in Mekhasanda at all. In addition, except for the set M.-f1, which has a dividing band in the form of a figure, all the sets use dividing bands in the form of pilasters. Dividing bands in the form of pilaster are predominant in the reliefs found in Mekhasanda.

The selection of dividing bands is also different between Thareli and Mekhasanda. The ratio of each form of dividing bands, figure: semi-column: pilaster, was 3: 4: 1 in the *stūpa* court C106 in Thareli, 2: 1: 3 in the *stūpa* court C100 in Thareli, and 1: 0: 7 in the *stūpa* court in

[43] ERRINGTON 1993, pp. 59, 63.
[44] *e.g.*, HACKIN 1933, pl. XLVIII.
[45] For example, dividing bands in the form of figures, semi-columns, and pilasters are found on reliefs from Ranigat and Thareli.

Mekhasanda. Dividing bands in the form of figures and a semi-column were used frequently when the *stūpa* court C106 was constructed in Thareli, but pilasters gradually increased and finally replaced figures and semi-columns.

5. Conclusion

The reliefs unearthed in Mekhasanda were reassembled into 20 sets in this paper, a number close to the 18 *stūpas* detected in this monastic site. Unfortunately, the find spots of the reliefs did not provide any information about the relationships between the sets of reliefs and the *stūpas*. Among the sets of reliefs reassembled in this paper, the set M.-p1 might have been used to decorate a storey of the main *stūpa*.

Each set of reliefs depicts stories of Siddhārtha Buddha or his former lives (*Jātaka*). It is notable that there are plenty of scenes related with former lives of Siddhārtha and Ashoka, such as Sudāna / Vessantara *Jātaka*, Śyāma *Jātaka*, Dīpankara *Jātaka* and dust offering by Ashoka in his former life. Significantly, there is a possibility that the scenes from Sudāna / Vessantara *Jātaka* were depicted on the reliefs attached to the main *stūpa*. Past Buddhas and Bodhisattvas were also depicted on reliefs in Mekhasanda. Dividing bands with pilasters were preferred and predominant in this monastery. These characteristics were not recognized in the analysis of reliefs found in the *stūpa* courts in Area C in Thareli.

We have obtained the data concerning Buddhism around the former half of the 3rd century CE from the analysis of narrative reliefs unearthed in the monastic site of Mekhasanda. It is just one aspect of Buddhism in this period, but we could accumulate data needed for comprehensive understanding of Buddhism in each period by continuing the analysis of reassembling narrative reliefs.

Chart - Narrative reliefs found in Mekhasanda

No.	Set	MIZUNO 1969	Figure	Remained size	Depiction	Find place
1	M.-f1	pl. 42-5	4-1	h. 16.5	Horses and women	42-43n
2	M.-p1	pl. 41-27	4-3	h. 10.0	Capital of pilaster	33w
3		pl. 41-24	4-4	h. 11.0	Head of a man	1
4		pl. 41-25	4-5	l. 26.0	Heads of people	33nw
5		pl. 41-35	4-6	h. 15.0	Upper body of a woman	34 36e
6		pl. 41-36	4-7	h. 10.0	Head of a person	32
7		pl. 40-7	4-8	h. 11.5	Legs of a lion	1nw
8		pl. 40-6	4-9	h. 6.0	Face of a lion	1nw
9		pl. 41-33	4-10	h. 13.5	Upper body of a Buddha	33w
10		pl. 41-16	4-11	h. 8.6	Head of a Buddha	11w
11		pl. 41-26	4-12	h. 11.0	Head of a man	1
12		pl. 41-32	4-13	h. 12.5	Worshipping boy	33w
13		pl. 40-2	4-14	h. 21.0	Crouching animal	17
14		pl. 41-30	4-15	h. 20.0	Body of a person	stray
15		pl. 41-31	4-16	h. 22.0	Body of a person	stray
16		pl. 41-34	4-17	h. 25.0	Person	21
17	M.-p2	pl. 39-7	4-2	h. 12.0	Boy against pilaster	31
18	M.-p3	pl. 40-8	5-1	h. 20.0	*Parinirvāṇa*	stray
19	M.-p4	pl. 40-9	5-2	h. 17.2	Pilaster	22s
20	M.-p5	pl. 42- 12	5-3	h. 19.0	Offering handful dust	1 pit
21		pl. 42-10	5-4	h. 13.0	Worship of *stūpa*	31w
22	M.-p6	pl. 42-6	5-5	h. 11.6	Boy offering	xvn
23	M.-p7	pl. 41-48	5-6	l. 8.2	Man carrying a burden	1se
24	M.-u1	pl. 42-2	5-7	h. 18.5	Four encounters?	1 pit
25		pl. 42-4	5-8	h. 18.5	*Trapusha* and *Bhallika*	1 pit
26		pl. 42-3	5-9	h. 18.0	Person	Steps 6
27		pl. 39-9	5-10	h. 18.7	Female deity	30e
28	M.-u1?	pl. 41-43	5-11	h. 16.0	Woman	33n
29		pl. 41-45	5-12	h. 12.0	Man	34 36e
30		pl. 41-46	5-13	h. 9.0	Man	38w
31		pl. 43-12	5-14	h. 8.0	Women	31w
32		pl. 41-7	5-15	h. 9.5	Legs of a person	1 22s
33		pl. 41-47	5-16	h. 6.2	Four encounters?	1se
34		pl. 41-11	5-17	h. 7.0	Man	stray
35		pl. 41-53	5-18	h. 6.5	Vajrapāṇi	stray
36		pl. 41-15	5-19	h. 5.5	Head of a horse	11w
37		pl. 41-8	5-20	h. 5.0	Head of Buddha	21w
38		pl. 41-18	5-21	h. 4.3	Head of a man	vs
39	M.-u2	pl. 43-5	6-1	h. 13.0	Past Buddhas	41 43n
40		pl. 43-2	6-2	h. 14.5	Vajrapāṇi and monk	1 pit
41	M.-u3	pl. 41-3	6-3	h. 9.5	Person worshipping	1 22s
42	M.-u4	pl. 43-6	6-4	h. 12.8	Woman worshipping	stray
43	M.-u5	pl. 41-39	6-5	h. 4.2	Head of a man	21n
44	M.-u6	pl. 44-10	6-6	h. 10.0	Head of Buddha	22e

45	M.-u7	pl. 42-9	6-7	h. 9.0	Person sitting on a stool	22ae
46		pl. 42-7	6-8	h. 10.0	Prostrating man	22ne
47	M.-u8	pl. 43-3	6-9	h.15.0	Bodhisattva worshipped	1~22
48	M.- u9	pl. 41-38	6-10	h. 5.5	Head of Buddha	1~31
49	M.-u10	pl. 45-9	6-11	l. 9.0	Heads of people	1
50	M.-u11	pl. 45-7	6-12	h. 5.0	Heads of people	1~22
51	M.-u12	pl. 41-56	6-13	l. 10.5	Seated Buddha	stray
52	M.	pl. 41-52	6-14	h. 19.0	Head of a person	30-31e
53	M.	pl. 43-4	6-15	h. 14.0	Musicians	xvn
54	M.	pl. 41-49	6-16	h. 10.2	Vajrapāṇi	1~11
55	M.	pl. 41-51	6-17	h. 5.5	Head of a man	1w
56	M.	pl. 42-8	6-18	h. 9.0	Woman in front of a door	29w
57	M.	pl. 43-14	6-19	h. 20.0	People	21n
58	M.	pl. 41-21	6-20	h. 5.0	Head of Buddha	xii
59	M.	pl. 41-54	6-21	h. 11.0	Standing Buddha	stray
60	M.	pl. 41-20	6-22	h. 9.5	Seated Buddha	xii
61	M.	pl. 41-6	6-23	h. 6.0	Legs of a person	D4n
62	M.	pl. 41-2	6-24	h.10.0	Person	12w
63	M.	pl. 41-47	6-25	h. 7.0	Legs of a person	33n
64	M.	pl. 41-44	6-26	h. 10.5	*Garuḍa* and *Nāginī*	17
65	M.	pl. 41-57	6-27	h. 8.5	Celestial	D4n
66	M.	pl. 41-50	6-28	l. 24.3	Balcony	stray
67	M.	pl. 41-14	6-29	h. 3.2	Head of Buddha	vs
68	M.	pl. 41- 55	6-30	h. 3.6	Head of a man	stray
69	M.	pl. 41-37	6-31	h. 2.5	Head of a person	33n
70	M.	pl. 43-11	6-32	h. 7.0	People	xvn
71	M.	pl. 43-13	6-33	h. 7.0	Person	22ne
72	M.	pl. 41-17	6-34	h. 6.5	Person	1w
73	M.	pl. 41-40	6-35	h. 6.5	Elephant carrying	21n
74	M. false niche	pl. 43-15	7-1	h. 32.0	Vajrapāṇi	iin
75	M. false niche	pl. 43-7	7-2	h. 16.0	Seated Buddha	xvn
76	M. false niche	pl. 42-1	7-3	h. 23.0	Prostrating man	31s
77	M. false niche	pl. 43-16	7-4	h. 16.5	lnterpretation of Māyā's dream?	stray
78	M. false niche	pl. 39-8	7-5	h. 15.0	Boy	29e
79	M. false niche	pl. 41-42	7-6	h. 13.2	Person	40
80	M. false niche	pl. 41-19	7-7	h. 10.0	Boy	11w
81	M. false niche	pl. 39-11	7-8	h. 11.0	Boy	38w
82	M. false niche	pl. 41-23	7-9	h. 12.0	Boy	stray
83	M. stair riser	pl. 43-10	7-10	h. 10.5	Female guardian	30e
84	M. stair riser	pl. 43-1	7-11	h. 12.0	Female guardian	31e
85	M. stair riser	pl. 42-11	7-12	h. 11.0	Syama *Jātaka*	31w
86	M. stair riser	pl. 43-8	7-13	-	Head of a woman	stray
87	M. stair riser	pl. 43-9	7-14	-	Head of a woman	stray

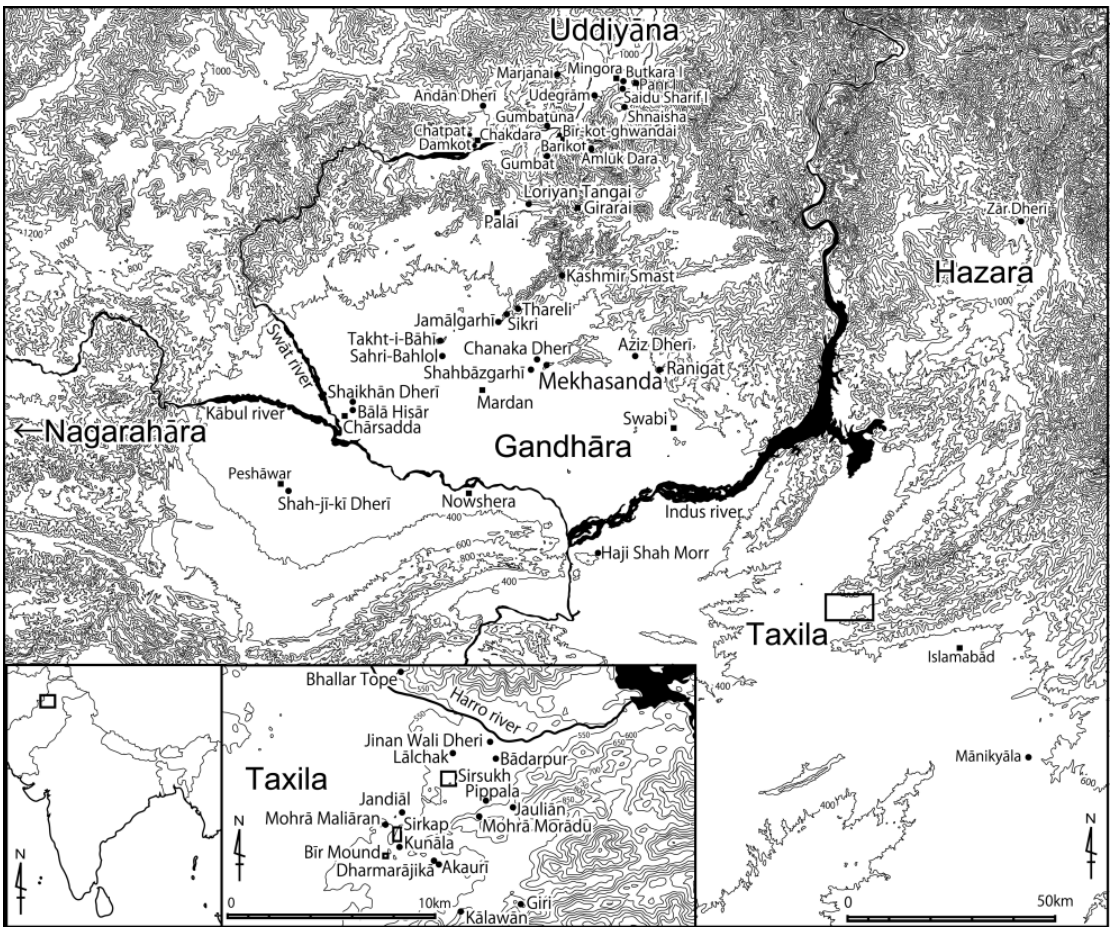


Fig. 1: Map of the northwestern Indian subcontinent and main Buddhist monastic sites
(Drawing by the author)

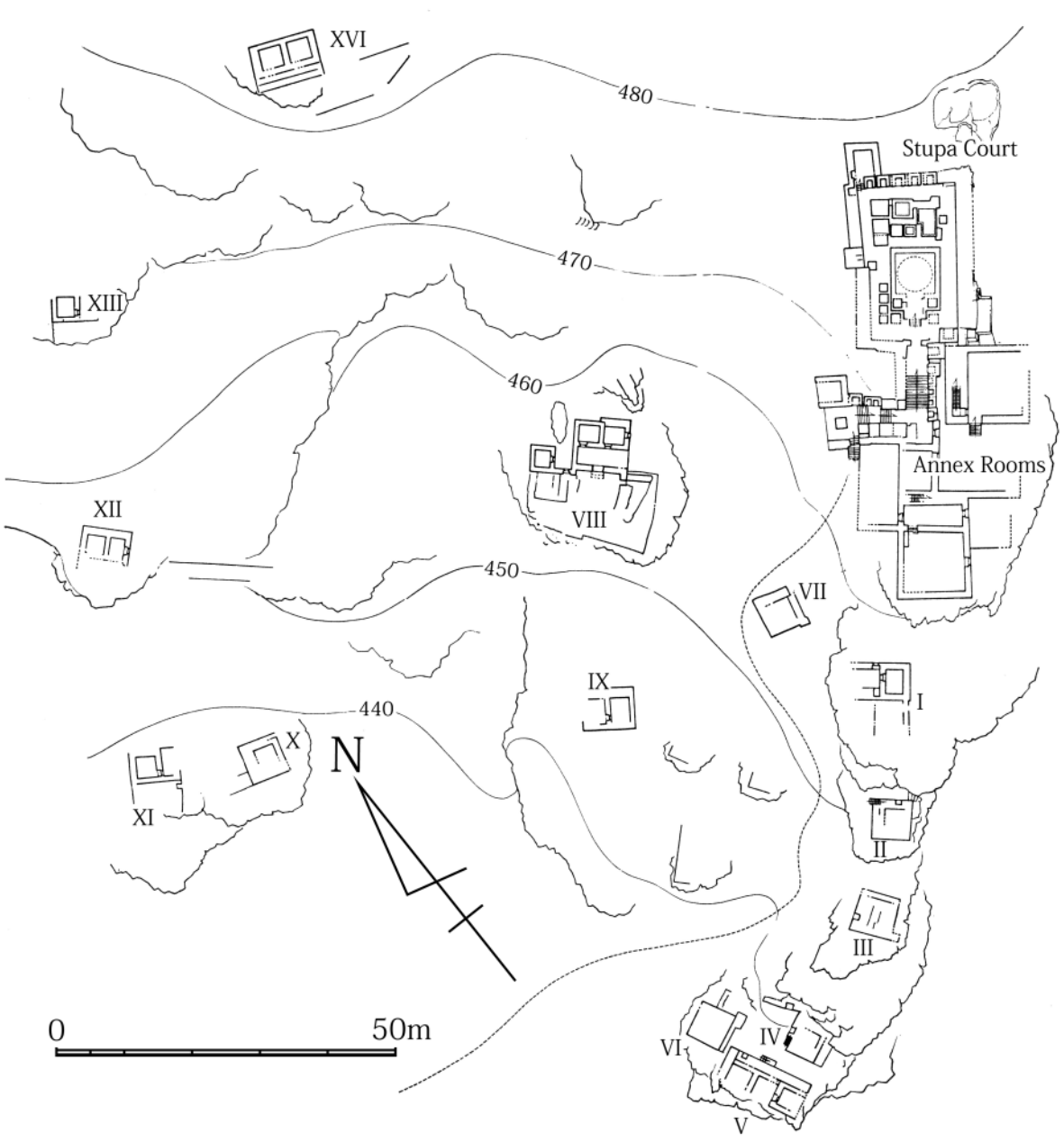


Fig. 2: Plan of the monastic site of Mekhasanda (scale 1/1.000)
Modified after MIZUNO 1969, plan 1

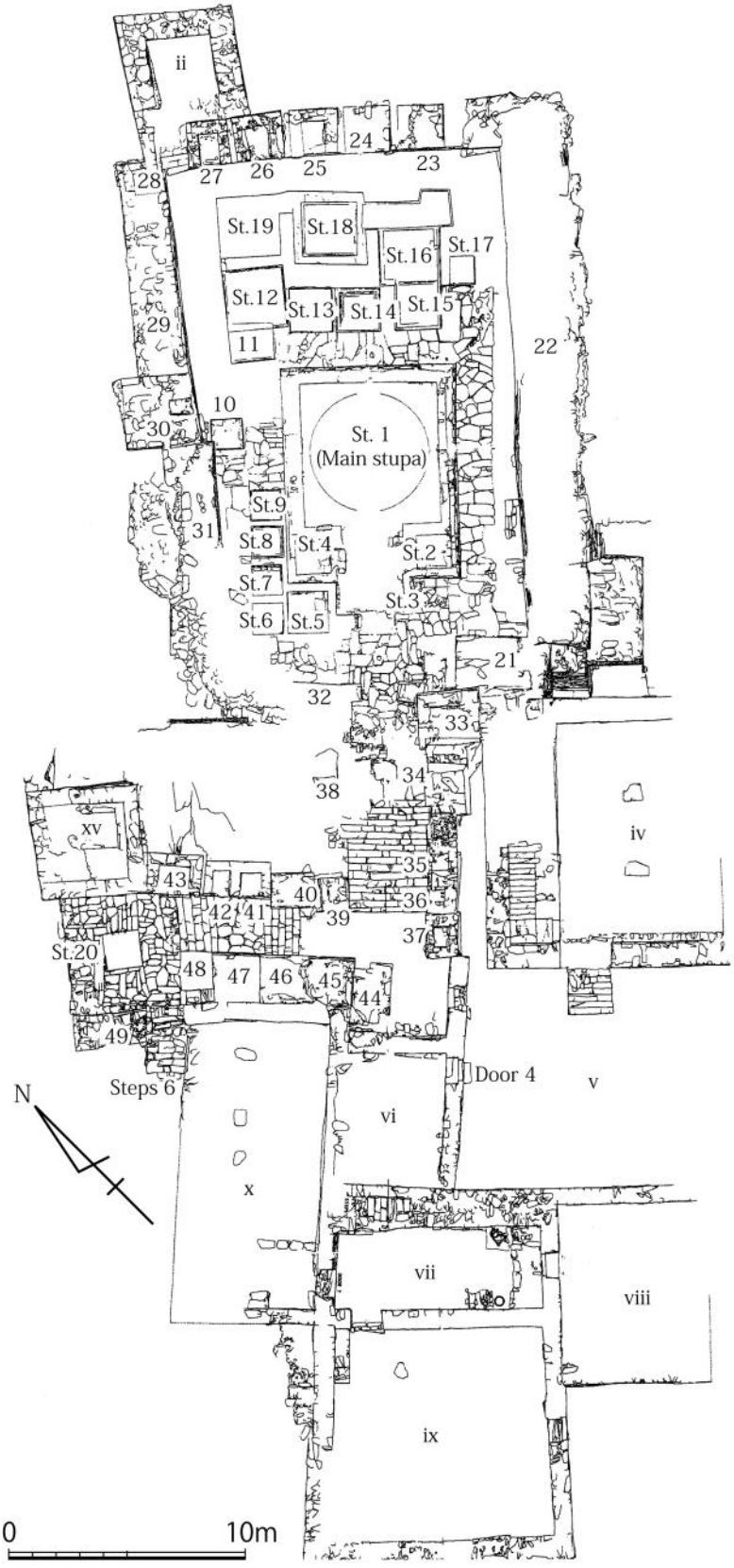


Fig. 3: Plan of the *stūpa* court of Mekhasanda (scale 1/300)
Modified after KYOTO UNIVERSITY 2008, p. 47

M.-f1



Fig. 4-1: MS 42-5

M.-p2



Fig. 4-2: MS 39-7

M.-p1



Fig. 4-3: MS 41-27



Fig. 4-4: MS 41-24



Fig. 4-5: MS 41-25



Fig. 4-6: MS 41-35



Fig. 4-7: MS 41-36



Fig. 4-8: MS 40-7



Fig. 4-9: MS 40-6



Fig. 4-10: MS 41-33



Fig. 4-11: MS 41-16



Fig. 4-12: MS 41-26



Fig. 4-13: MS 41-32



Fig. 4-14: MS 40-2



Fig. 4-15: MS 41-30



Fig. 4-16: MS 41-31



Fig. 4-17: MS 41-34

Fig. 4: Narrative reliefs found in Mekhasanda (1) (scale 1/5), modified after MIZUNO 1969

M.-p3

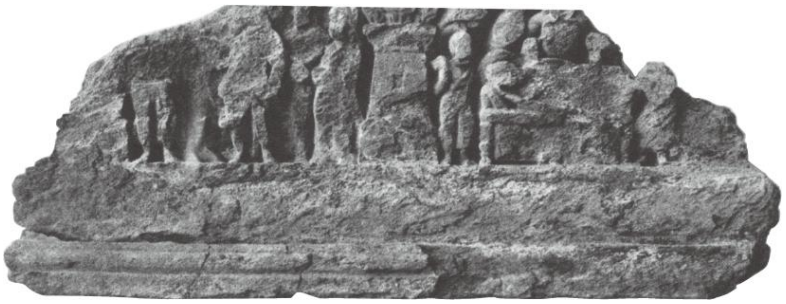


Fig. 5-1: MS 40-8

M.-p4



Fig. 5-2: MS 40-9

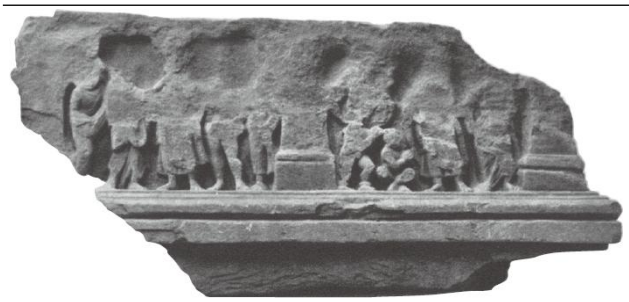


Fig. 5-3: MS 42-12

M.-p5



Fig. 5-4: MS 42-10

M.-p6



Fig. 5-5: MS 42-6

M.-p7

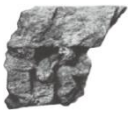


Fig. 5-6: MS 41-48



Fig. 5-7: MS 42-2

M.-u1



Fig. 5-8: MS 42-4



Fig. 5-9: MS 42-3



Fig. 5-10: MS 39-9



Fig. 5-11: MS 41-43



Fig. 5-12: MS 41-45



Fig. 5-13: MS 41-46



Fig. 5-14: MS 43-12



Fig. 5-15: MS 41-7



Fig. 5-16: MS 41-47



Fig. 5-17: MS 41-11



Fig. 5-18: MS41-53



Fig. 5-19: MS 41-15



Fig. 5-20: MS 41-8



Fig. 5-21: MS 41-18

Fig. 5: Narrative reliefs found in Mekhasanda (2) (Scale 1/5)
Fig.5-2: Photo by the author; Others: modified after MIZUNO 1969

M.-u2



Fig. 6-1: MS 43-5



Fig. 6-2: MS 43-2

M.-u3



Fig. 6-3: MS 41-3

M.-u4



Fig. 6-4: MS 43-6

M.-u5



Fig. 6-5: MS 41-39

M.-u6



Fig. 6-6: MS 44-10

M.-u7



Fig. 6-7: MS 42-9



Fig. 6-8: MS 42-7

M.-u8



Fig. 6-9: MS 43-3

M.-u9



Fig. 6-10: MS 41-38

M.-u10



Fig. 6-11: MS 45-9

M.-u11



Fig. 6-12: MS45-7

M.-u12



Fig. 6-13: MS 41-56

Not reassembled



Fig. 6-14: MS 41-52



Fig. 6-15: MS 43-4



Fig. 6-16: MS 41-49



Fig. 6-17: MS 41-51



Fig. 6-18: MS 42-8



Fig. 6-20: MS 41-21



Fig. 6-21: MS 41-54



Fig. 6-22: MS 41-20



Fig. 6-23: MS 41-6



Fig. 6-24: MS 41-2



Fig. 6-19: MS 43-14



Fig. 6-25: MS 41-41



Fig. 6-26: MS 41-44



Fig. 6-27: MS 41-57



Fig. 6-28: MS 41-50



Fig. 6-29: MS 41-14



Fig. 6-30: MS 41-55



Fig. 6-31: MS 41-37



Fig. 6-32: MS 43-11



Fig. 6-33: MS. 43-13



Fig. 6-34: MS 41-17



Fig. 6-35: MS 41-40

Fig. 6: Narrative reliefs found in Mekhasanda (3) (scale 1/5)
Fig.6-2: Photo by the author; Others: modified after MIZUNO 1969

False niches



Fig. 7-1: MS 43-15



Fig. 7-2:
MS 43-7



Fig. 7-3:
MS 42-1



Fig. 7-4:
MS 43-16



Fig. 7-5:
MS 39-8



Fig. 7-6:
MS 41-42



Fig. 7-7:
MS 41-19



Fig. 7-8:
MS 39-11



Fig. 7-9:
MS 41-23

Stair risers



Fig. 7-10:
MS 43-10



Fig. 7-11:
MS 43-1



Fig. 7-12:
MS 42-11



Fig. 7-13: MS 43-8
（サイズ不明）



Fig. 7-14: MS 43-9
（サイズ不明）

Fig. 7: False gables and stair risers found in Mekhasanda (Fig.7-1 to 7-12 scale 1/5)
Fig. 7-7: Photo by the author; Others: modified after MIZUNO 1969

BIBLIOGRAPHICAL REFERENCES

ACKERMANN 1975
Hans Christoph Ackermann, 1975 *Narrative Stone Reliefs from Gandhāra in the Victoria and Albert Museum in London*, Rome.

BEHRENDT 2005
Kurt Behrendt, "Narrative Sequences in the Buddhist Reliefs from Gandhara", in Catherine Jarrige and Vincent Lefevre (eds.), *South Asian Archaeology 2001*. Paris, pp. 383-392.

CUNNINGHAM 1875
Alexander Cunningham, Report for the Year 1872-73, *Archaeological Survey of India*, New Delhi.

ERRINGTON 1993
Elizabeth Errington, "In Search of Po-lu-sha, a City of the Central Gandhāra Plain", *Bulletin of the Asia Institute, New Series*, 7, pp. 55-66.

ERRINGTON 2022
Elizabeth Errington, "Reconstructing Jamālgarhī and Appendix B: the Archaeological Record 1848-1923", in Wannaporn Rienjang and Peter Stewart (eds.), *The Rediscovery and Reception of Gandhāran Art: Proceedings of the Fourth International Workshop of the Gandhāra Connections Project, University of Oxford, 24th–26th March, 2021*, Oxford, pp. 1-42.

FACCENNA, CALLIERI and FILIGENZI 2003
Domenico Faccenna, Pierfrancesco Callieri & Anna Filigenzi, "At the Origin of Gandharan Art: The Contribution of the IsIAO Italian Archaeological Mission in the Swat Valley Pakistan", *Ancient Civilizations from Scythia to Siberia*, 9-3, pp. 277-380.

FACCENNA and FILIGENZI 2007
Domenico Faccenna and Anna Filigenzi, *Repertory of Terms for Cataloguing Gandharan Sculptures: Based on Material from the IsIAO Italian Archaeological Mission in Swat, Pakistan*, Rome.

FOUCHER 1901
Alfred Foucher, "Notes sur la géographie ancienne du Gandhâra : Commentaire à un chapitre de Hiuen-Tsang", *Bulletin de l'Ecole française d'Extrême-Orient*, 1, pp. 322-369.

FOUCHER 1905
Alfred Foucher, *L'art gréco-bouddhique du Gandhāra: Étude sur les origines de l'influence classique dans l'art bouddhique de l'Inde et de l'Extrême-Orient*, I, Paris.

FOUCHER 1915
Alfred Foucher, *Note on the Ancient Geography of Gandhara* (Trans. by H. Hargreaves).

FOUCHER 1917
Alfred Foucher, "Interprétation de quelques bas-reliefs du Gandhāra", *Journal Asiatique*, pp. 257-281.

HACKIN 1933
Joseph Hackin, Nouvelles recherches archéologiques à Bāmiyan, *Mémoires de la Délégation Archéologique Française en Afghanistan*, vol. III, Paris.

HIRAOKA 2007
Satoshi Hiraoka (in Japanese), *Translation of Divyāvadāna*, Tokyo.

INGHOLT 1957
Harald Ingholt, *Gandhāran Art in Pakistan*, New York.

KYOTO UNIVERSITY 2008
Institute for Research in Humanities, Kyoto University (in Japanese), *70 Years of Excavations on Silkroad*, Kyoto.

LIUDUJIJING RESEARCH GROUP 2021
Liudujijing Research Group (in Japanese), *Liudujijing: The Story of Buddha's Former Lives*, Kyoto.

LÜSHUN MUSEUM 1940
Lüshun Museum, *A Catalogue of Artifacts Displayed at Lüshun Museum*（『旅順博物館陳列品圖録』）, Lüshun.

MIYAJI 1994
Akira Miyaji (in Japanese), "Three Types in Indian Buddhist Narrative Art", *Bukkyo Geijutsu*（佛教藝術）, 217, pp. 15-32.

MIZUNO 1969
Seiichi Mizuno, *Mekhasanda: Buddhist Monastery in Pakistan Surveyed in 1962~1967*, Kyoto.

MIZUNO and HIGUCHI 1978
Seiichi Mizuno and Takayasu Higuchi (eds.), *Thareli: Buddhist Site in Pakistan Surveyed in 1963~1967*, Kyoto.

NAIKI 2016
Satoshi Naiki (in Japanese), *Gandhāran Sculptures and Buddhism*, Kyoto.

NAIKI (forthcoming)
Satoshi Naiki, The Analysis of Narrative Reliefs Found in Area C of Thareli in the Gandhara region, *South Asian Archaeology and Art 2018*, Naples.

NAKAMURA 1988
Hajime Nakamura (ed.) (in Japanese), *Jātaka Collection*, 10, Tokyo.

NISHIKAWA 1994/2011
Koji Nishikawa (ed.), *Ranigat: A Buddhist Site in Gandhara, Pakistan Surveyed 1983-1992*, 2 vols., Kyoto.

UEHARA1937
Hotaro Uehara (ed.) (in Japanese), New Record of the Western Regions, 『新西域記, vol. I, Tokyo.

ZWALF 1996
Wladimir Zwalf, *A Catalogue of the Gandhāra Sculpture in the British Museum*, 2 vols., London.

The Nma-Isac Haḍḍa Sculptural Project – Conserving and Restoring Early Buddhist Sculptures in the National Museum of Afghanistan

G. STEIN, A. GALLEGO, F. COLOMBO, E. PANNUNZIO and A. CASALINI

Abstract

The early Buddhist collection of sculptures from Haḍḍa in the National Museum of Afghanistan is one of the most important and unique manifestations of the emerging Buddhist art in Central Asia. Unfortunately, the collection was dramatically damaged in the iconoclastic destruction inflicted by the Taliban on the Kabul Museum in early 2001, just before their destruction of the monumental Bāmiyān Buddhas. To rescue these unique objects, the Institute for the Study of Ancient Cultures of the University of Chicago in partnership with the National Museum of Afghanistan, carried out the Hadda Sculptural Project (HSP) from 2017 to 2021 in Kabul (and continued working remotely on documentation and analysis from 2021-2023) with the main goal of conserving, restoring, documenting, and reassembling as many of the damaged sculptures as possible. This paper presents a summary overview of the Hadda Sculptural Project's goals, outcomes, and potential contributions to our understanding of Early Buddhist/Gandhāran culture. The HSP team treated 484 sculptures from the site and partially re-assembled 336 of them. At the same time, our conservation studies recorded valuable information regarding the chaîne opératoire *by which the stucco sculptures were produced by Gandhāran craft specialists. Finally, our team conducted a spatial analysis of the distribution of sculptures within the rooms and stūpas of Tepe Shotor and Tepe Kalān. Our analyses suggest that sculptural production at Haḍḍa formed part of a broadly shared community of practice in stucco art production among Gandhāran craft specialists.*

In 2012, the Institute for the Study of Ancient Cultures (ISAC) of the University of Chicago, started its collaboration with the National Museum of Afghanistan (NMA), through the signing of a Memorandum of Understanding with the Afghanistan Ministry of Culture. The main goal of the partnership was to create the first full digital inventory of the surviving holdings of the Museum, including the Early Buddhist collections from important sites such as Haḍḍa. Retired NMA Director Dr. Omkara Khan Massoudi estimates that up to 70 percent of the Museum's objects and 90 percent of its registration records were lost during the Afghan civil war after the Soviet withdrawal from Afghanistan in 1989 (Massoudi personal communication; STEIN 2015: 188). The project inventoried 135,899 pieces in 46,509 digital records, representing 99.8 percent of the NMA's holdings, including objects stored in both the Museum itself and in the vaults of the Presidential Palace. Every inventoried object was described, measured, photographed, and rehoused in acid-free archival material (FISHER and STEIN 2016; FISHER 2017). The completed digital catalogue of every artifact in the Museum was key to guaranteeing its preservation through a principle that we call *preservation through documentation* (Fig. 1).

The inventory project set the ground for further collaborative work in the National Museum of Afghanistan. As a result, two more projects were developed: the Mobile Museum Outreach Project, a large-scale educational program designed to bring the Museum closer to students in Kabul and the major cities in five more provinces around Afghanistan; and the Hadda Sculptural Project, designed to restore, conserve, and preserve the most damaged part of the Hadda collection, mainly stucco sculptures that had been damaged by the Taliban in 2001.

The site of Haḍḍa: History of excavations and collections

The National Museum of Afghanistan is the main repository for the history of Afghanistan from Prehistoric to Islamic and Modern times, and it is the main place to study and understand the significance of the NMA's Haḍḍa collection, along with the *Musée* Guimet in Paris. That is why the study and preservation of the Haḍḍa collection in Afghanistan is of paramount importance and why we focused on the partially destroyed subset of the Haḍḍa collection as crucial to understanding the collection, its broader context.

Located south of Jalalabad, near the Khyber Pass, Haḍḍa is one of the most significant archaeological sites in Afghanistan. It was a major Early Buddhist pilgrimage center where numerous monasteries and *stūpas* were constructed between the first and the sixth centuries CE. Due to its religious importance and location on the Silk Road, Haḍḍa played a key role in the spread of Buddhism from India across Afghanistan as far as China.

Haḍḍa was first surveyed and excavated in the early 19 th century by Charles Masson. Travelling throughout Afghanistan, the English explorer started working at Haḍḍa in 1834 (ERRINGTON 2017:162-163). Numerous sculptural heads, coins, reliquaries, and other finds recovered by Masson from Haḍḍa, most notably from Tepe Kalān (one of the most important monasteries at the site), are now in the collection of the British Museum. The first systematic excavations at Haḍḍa were conducted between 1923 and 1929 by the French Archaeological Delegation in Afghanistan (DAFA), whose archaeologists discovered literally thousands of sculptures ornamenting the monasteries at the site. In 1923, Alfred Foucher focused the efforts of the first excavation on the site of Tepe Kalān with outstanding results. This was followed by the work of Jules Barthoux between 1926 and 1928 in other monasteries at Haḍḍa, such as Bāgh Gaï, Gār Naô, Prates, Chakhil-i Ghoundi, Deh-i Ghoundi and Tapa-i Kafarihā.

Surveys and Archaeological excavations in Haḍḍa

Charles Masson - 1833-1841	Tepe Kalān
William Simpson - 1879	
Alfred Foucher and André Godard, DAFA - 1923	Tepe Kalān
Jules Barthoux, DAFA - 1926-1928	Bāgh Gai, Gār Naô, Prates, Chakhil- i Ghoundi, Deh-i Ghoundi and Tepe-i Kafarihā
Seiichi Mizuno, Kyoto University - 1965	Lālma
Shaïbaï Mostamindi, AIA, 1965-1972	Tepe Shotor
Zémaryalaï Tarzi, AIA, 1973-1979	Tepe Shotor and Tepe Tope Kalān

Almost four decades later, in 1965 an archaeological mission of the Kyoto University directed by Seiichi Mizuno worked at the site of Lālma. During the same year, the Archaeology Institute of Afghanistan (AIA) resumed the study of two of the monasteries at Haḍḍa, the most important of them Tepe Shotor, where Afghan archaeologists uncovered the splendor of the earliest phases of this Buddhist shrine. Shaïbaï Mostamindi directed the AIA work at Tepe Shotor between 1965 and 1972. Zémaryalaï Tarzi continued the excavations of that site and Tepe Tope Kalan between 1973 and 1979 (TARZI 1976, 1991) and played a key role in the protection of the archaeological site by turning it into an open-air museum.

Archaeological work at Haḍḍa stopped in 1979, due to the Soviet Invasion and 10-year occupation of Afghanistan. Shortly after the Soviet withdrawal in 1989, as civil war engulfed

the country, the National Museum decided to safeguard 22,000 of its most valuable objects– including many of the most precious pieces of sculptures from Haḍḍa, by hiding them in the vaults of the National Bank in the Presidential Palace in Kabul.

Archaeological work would never resume in Haḍḍa, which was vandalized, looted, and destroyed by fire in 1992 during the Afghan civil war (Tarzi 2001), that ended with the Taliban's first takeover of Afghanistan in 1995. Between 2,700 and 2,500 sculptures[1] at the National Museum were vandalized by the Taliban between January and March of 2001. A considerable number of those sculptures belonged to the site of Haḍḍa.

The history of the Haḍḍa collection is as troubled and problematic as the excavation of the site. The number of excavated sculptures, around 23,000 objects, is indeed overwhelming (BARTHOUX 1933). Even during the earliest excavations directed by Jules Barthoux, the local population of the area vandalized some of the exposed Buddhist sculptures. Barthoux himself mentions the destruction of some 26 statues by a local mob, following the command of a Muslim cleric as reported by Mr. Chauvet, the contemporary French *Chargé d´Affaires* in Kabul (GORSHENINA and RAPIN 2001).

The considerable number or artifacts retrieved from Haḍḍa belong today to the holdings of different museums outside Afghanistan, including around 380 objects which today form part of the Masson collection in the British Museum. Although the sculptures excavated were not properly inventoried, we estimate that between 13,000 and 16,000 statues were uncovered during the DAFA excavations. Part of that set of objects, between 3,000 and 4,000 sculptures, were sent to the Museum in Kabul.

Once in Kabul and according to the Afghan-French agreement signed in 1922 and to the *partage* system (OLIVIER-UTARD 2006), half of the objects were sent to the *Musée* Guimet. After the objects arrived in Paris, Foucher decided to donate some of the artifacts to several museums around the world. Thus, 2,430 objects remained in Paris and 202 were relocated elsewhere (Fig. 2) (TARZI 1996: 595, footnote 2).

Despite the large number of Haḍḍa sculptures in the *Musée* Guimet, the National Museum of Afghanistan still holds the largest number of objects from Haḍḍa. The NMA collections consist of an estimated two thousand artifacts from the DAFA excavations, with the remainder deriving from the objects recovered by the work of the AIA and the Nangarhar Museum. While we are able to reconstruct a good estimate of the total number of objects from Haḍḍa in Afghanistan today, the truth is that we only have reliable provenience numbers for the existing sculptures and objects inside the Kabul Museum and the Presidential Palace. It is far more difficult to tell for every single sculptural fragment whether it originated from the French or the Afghan excavations at the Haḍḍa sites.

Around 2,600 sculptures are currently housed in the storerooms of the National Museum of Afghanistan (including those in the vaults of the Presidential Palace). We do know that most of them, specifically 979 of the Haḍḍa sculptures come from DAFA excavations and 919 from the AIA archaeological work. The remainder could not be definitively associated with any specific excavation.

[1] Dr. Omara Khan Massoudi, former Director of the National Museum of Afghanistan. Personal communication.

Comparison between the surviving registration records and photographs in the National Museum, the 2006 catalogue compiled by Francine Tissot, and the objects as they were recorded in our inventory database, allowed us to estimate that 2686 sculptures and other artifacts from Hadda were present in the National Museum after 2001. The re-discovery of 1,647 old Museum registration cards from 1962 and 1963 with photographs and descriptions of the objects from the DAFA excavations as well as 483 individual photographs of objects from the AIA excavations were crucial to deriving these estimates. Additionally, a considerable number of sculptural fragments still preserved part of their original inventory numbers which could be linked to those photographs and surviving registration records.

Catalogues and other publications (*e.g.* DUPREE *et al.* 1974) were also of paramount importance to identifying and reconstructing the fragmentary stucco objects. The Tissot catalogue (TISSOT 2006), illustrating highlights of the most important collections in the National Museum, helped greatly in our efforts. The catalogue includes artworks photographed between 1931 and 1985. Since these objects were documented before the Afghan civil war and the period of Taliban rule, through a comparison with our inventory, we were able to determine which of the objects illustrated in the publication are now missing by comparing this corpus with our inventory.

Regarding Haḍḍa the number of missing objects is quite significant. Only 177 of the 392 artifacts from Haḍḍa in Tissot's account were found when we completed our inventory of the NMA collection. This means that around 65% (n=215) of the Haḍḍa objects in the Tissot catalogue had been either looted, lost, or destroyed. Unfortunately, the situation is similar for the remaining objects in the rest of the catalogue from the other collections.

The NMA-ISAC Haḍḍa Sculptural Project

The Hadda Sculptural Project (HSP) was first conceived in collaboration with the NMA, when during the inventory process we came across thirteen metal trunks filled with fragments of stucco sculpture from Haḍḍa. Around 7,600 fragments were stored in these trunks in the basement of the Museum. After the Taliban smashed thousands of Haḍḍa sculptures in 2001, the courageous Museum staff secretly collected the fragments of the Buddhist sculptures and hid them in the Museum storerooms. In partnership with the Museum, we decided to try to conserve as many as these sculptures as possible and restore their lost dignity.

From the very beginning of the project, our guiding questions were corpus-based, directly related to the fragments we were trying to understand, such as: how many objects were part of the Haḍḍa collection originally; how many sculptures were damaged during the civil war and the Taliban regime and what percentage of these partial sculptures could be identified through surviving old records, photographs, and archaeological reports.

The main goals of the HSP were cleaning, stabilizing, and restoring as many sculptural fragments as possible and understanding the full extent of the Haḍḍa collection. Additionally, we investigated some specific technical topics, such as the fabrication processes for the Haḍḍa stucco objects, stylistic variation within the sculptural corpus, and their original spatial distribution within each monastery at the site of Haḍḍa.

Although conceived in late 2016, the first phase of the project started in 2017, when the team focused on sorting, organizing, and documenting the surviving fragments and storing them in acid-free archival material.

Once the 7,600 fragments were sorted and placed on proper archival material, they were moved from the Museum basement to the Conservation Laboratory. There, they were organized in categories according to types, preserved features such as body parts and drapery, internal vs. external fragments, and technical characteristics. The fragments were then individually treated as necessary, stabilized, and studied by the conservators (Fig. 3 and 4).

Early in the development of the project, several chemical analyses were conducted on some stucco samples in order to understand its physical composition and to determine the best treatment for that specific type of stucco. The study of every individual piece also enabled us to find the first evidence to identify fragmentary objects. Apart from the physical appearance and its comparison to old photographs and catalogues, we found inventory numbers written on the fragments, as mentioned above. Even some of the smallest fragments bore numbers (Fig. 5).

Once this first phase of the treatment and preliminary study was finished, we proceeded to reassemble the very fragmentary stucco objects between 2018 and 2020. To do so, the fragments were laid out on the tables of the Conservation Laboratory and divided into sculptural groups (Fig. 6, 7 and 8).

The fragments were sorted according to the preserved features; on this basis, the main groups were standing Buddhas, sitting Buddhas, Bodhisattvas and other figurative representations such as demons, atlantes, devotees, soldiers, and architectural fragments.

From 2017-2021 we made significant progress in putting together many of the fragments that we identified as parts of the same sculptures, with the help of Tissot's catalogue and Barthoux' Haḍḍa excavation reports.

However, the main turning point in the identification of the sculptures that allowed us to partially reassemble a considerable number of them, was the re-discovery of 1,647 Old Kabul Museum partially burnt inventory cards and photographs of the objects excavated by DAFA and the AIA (Fig. 9). This archival resource proved to be crucial not only could we then understand the original appearance of many of the complete sculptures but also gathered more information about their archaeological context, provenance, and original dimensions. Unfortunately, only a relatively small number of cards had survived the fire that destroyed most of the written records inside the National Museum during the civil war, and some were partially burnt. However, the information we gathered from them, together with the catalogues and archaeological reports, allowed us to estimate how many sculptures have been damaged, destroyed and lost; in the end, we were able to identify and locate around 69% of the objects portrayed in the cards.

This information, together with the catalogues and archaeological reports, allowed us to estimate how many sculptures overall had been damaged, destroyed and lost.

In 2020, once we were able to identify individual sculptures, we assigned them new digital inventory numbers and registered them in two linked databases: a conservation and treatment database in FileMaker Pro, and a digital assets management system image database designed to bring together all images relating to each Partially Reassembled Sculpture (PRS) (Fig. 10 and 11). The two linked databases followed the principle of the inventory of the NMA. Each entry includes a technical description of the fragmentary sculpture, its condition, detailed photographs, and complementary description of the sculpture, this time from an art historical and iconographic perspective. The FileMaker Pro conservation and treatment database recorded

every detail of each sculpture, including old and new photographs, dimensions, condition, description, and conservation treatments (Fig. 10).

In tandem with the Conservation Database, we implemented a Daminion Digital Asset Management system, a searchable image database for the partially re-assembled Haḍḍa sculptures (Fig. 11). More than 11,000 still images populate this image database. All are tagged with keywords that allow curators, conservators, archaeologists, art historians, and heritage preservation specialists to navigate the different aspects of the project data and include all the correspondences that we could establish between old photographs, inventory numbers, and the damaged fragments.

Apart from this type of documentation, we also integrated new technology in the study of the fragments, such as 3D scanning. The scanning of around 40 sculptures has enabled us to understand the nature of the breaks in the sculptures, the inner stratigraphy of the sculpture, thus identifying the layers of stucco and the techniques used in the production of the sculptures (SALEMI 2022). 3D scans and rendering can also be used in recreations and in developing visualization methods to re-assemble different fragments belonging to the same sculpture (Fig. 12).

Construction of the stucco sculptures

There are two areas where the Hadda Sculptural Project has enormous potential: identifying the steps and building techniques of the stucco sculptures, and intra-site spatial analyses of the original locations and contexts of display of the NMA sculptures across sites and in specific *stūpas*, *vihāras* and niches at Haḍḍa.

The shattered and fragmentary statues in the Haḍḍa collection have allowed us to see their normally inaccessible interiors – providing a deeper understanding about how Gandhāran stucco sculptures were actually modeled. Project conservators Fabio Colombo and Elisa Pannunzio (2022) were able to reconstruct the complex *chaîne opératoire* production sequence by which different materials, and techniques were used by Gandhāran craft specialists to create the Haḍḍa stucco sculptures. To do so they compared the information obtained from the broken fragments with the photographic and 3D model documentation of the sculptures (Fig. 13), the intact sculptures in the storeroom of the Museum, and integrated this first-hand knowledge with the analyses by archaeologists who have previously worked with the Haḍḍa material and similar objects from the Gandhāran region.

In this regard, we must acknowledge the great contribution of Z. Tarzi, whose work in Haḍḍa has been crucial for the understanding of Early Buddhism in Afghanistan and the Gandhāra region. His reconstruction of the modeling process of Haḍḍa sculptures has been a major point of reference for our work (TARZI 1991). Most of the sculptures from the Haḍḍa collection are high relief, meaning that the sculptures were attached as part of a sculptural group. Some of them, included here in our analysis, retain traces of the supporting elements that would have been used to install them upon the architecture, such as the imprints of vegetal fibers on the back of decorative elements. Other architectural elements, such as columns, pillars, or brackets, have marks of their supporting elements in the back, such as pegs, nails, and dowels (Fig. 14).

The architectural surfaces that served as background and support for the sculptures often left traces on back of the sculptures. Some sculptures have a thin clay layer with impressions of

vegetal fibers on their back (Fig. 15 and 16), showing that they were probably built on a structure made in *paksha* (*Terre pisé,* or packed mud) or covered with *kaghel* plaster. Other fragments, especially those of pillars or capitals, show impressions of their supporting structure on their back, often made of schist or stone elements. In their descriptions of architectural features on *stūpas* at Haḍḍa, both Barthoux (BARTHOUX 1933) and Tarzi (TARZI 1991) observed that most monastery buildings were built in both *pakhsa* and mudbrick.

The surfaces of the architecture were coated with a layer of mortar to even it out and prepare it for the installation of the sculpture. The need to fit a certain iconographic program into a limited space left little room for improvisation. Therefore, it was necessary to define the shape and space occupied by each sculpture and decorative elements through careful preparatory drawings that sketched the features on the background surfaces, a technique that had already been described by Barthoux (BARTHOUX 1933) and Tarzi (TARZI 1991). According to the latter, the shapes were drawn directly on the wet plaster[2]. In other cases, the sculptures' shape was chiseled on the dry plaster surface (Fig. 17 and 18).

Another aspect of the sculptures' construction that we were able to document is the use of internal supporting structures, such as wooden skeletons that enabled figures to be in high relief despite their considerable volume. The supporting structure was composed of poles and bundles of sticks bound with twine, a technique also used in clay statuary, such as the examples excavated at Tepe Narenj and Tepe Sardar 3rd-4th century CE to 10th-11th century CE). Giulia Forgione (FORGIONE 2021) compared the structural impressions on the sculptures' backs to the prescriptions contained in textual tradition about the art of sculpture and found many similarities and connections between the technique described in those texts and the impressions left by wooden poles and sticks bundles.[3] A 3D scan of PRS 20.3.76, photographed by Josephine Powell, enabled us to find traces of the use of this same type of supporting structures, in this case a wooden skeleton (Fig. 19, 20, and 21).

A similar comparison between ancient Indian texts and the features on the excavated sculptures was made by Tarzi (TARZI 1986) as well, who carefully listed the different steps in the production process:

- *"A skeleton made with wooden poles. A glue is used to fix a thin rope that covers the pole. The glue's nature is not specified as he did not find clear evidence of it on the archaeological objects.*
- *To build the sculpture's head, a bundle of sticks was secured to the top of the vertical main pole that supported the torso, with a thin rope that were then wrapped around the entire pole, to help the core layers to adhere* (TARZI 1986).
- *On the supporting structure, a layer of clay and stone cuts was applied, to create the core.*
- *On the core, another layer was applied, composed of clay and lime, and modelled to portray the shape of the naked body or, according to what Tarzi suggests, the shape of the body under the skin. This layer symbolised the material through which the blood circulation can happen.*
- *A layer of fabric covered the clay and lime layer. It symbolizes the skin that is refined with the final application of a gypsum or stucco layer and its modelled and moulded details.*
- *The painted decoration was the final touch that gave life to the sacred image"* (TARZI 1986).

[2] In his doctoral thesis, Z. Tarzi states that he found some fragments with drawings on them, possibly used as drafts for the decorative elements of the religious buildings. The fragments have been found in Terrace 61 of Tepe Shotor and Tarzi dates them to the site's phase IV, corresponding to Vasudeva period. He did not describe the nature of the fragments nor the drawings on them, yet the re-use of fragments for drafts is a common practice documented at many ancient sites.

[3] Forgione (FORGIONE 2021) uses the *Āgama* and *Śilpa*, which collect treatises on arts and crafts of different religious affiliation, specifically Vishnuite and Shivaite. Amongst Buddhist texts, she mentions the *Mūlasarvāstivāda-vinaya*, the only one that contains references to the coroplastic art.

The use of 3D scans also helped us document the composition of the core of some sculptures. A core layer can be built around a supporting structure, or it can be itself the element that bears the sculpture's weight. Most of the sculptures we analysed have mortar cores, regardless of their dimensions, although clay cores are also present. Multi-material sculptures have a clay core and one or more finishing layers of modelled stucco. In both cases, the sculpture is built by layering its constituent materials and, occasionally, securing the core to the architecture using pins. Pins seems often to have been made with sticks, but we also observed schist chips (Fig. 14), pins, pegs, and stucco fragments. The features of the cores analysed by our project correspond with the models described by Tarzi (TARZI 1986).

A good example for this practice is PRS 20.3.175 (Fig. 23). The impressions observed on the back of the sculpture are consistent with what Tarzi and Forgione posited for clay and multi-material sculptures. Thus, our data reinforce the hypothesis that Haḍḍa's artists adopted similar solutions for the technical problems posed by clay, by stucco and by multi-material sculptures.

The features we observed on clay cores are consistent with what Tarzi described about the multi-material sculpture, having a clay core and one or more finishing layers of modelled stucco. In both cases, the sculpture is built by layering its constituent materials and, occasionally, securing the core to the architecture using pins. Pins seems often to have been made with sticks, but we also observed schist chips (Fig. 14) and stucco fragments.

Our examination of the exposed inner matrix of the smashed sculpture fragments revealed impressions of the rope, wood, and bundled sticks (Fig. 24 and 25) that had formed the armatures on which progressively finer layers of clay and stucco were applied to build up the sculpture as a whole. These findings provide strong confirmation for the *chaîne opératoire* for stucco sculpture production as first hypothesized by Z. Tarzi in his examination of the sculptural remains from his excavations at Haḍḍa in the 1970's. Importantly, our reconstruction of the production sequence for the Haḍḍa sculptures also matches the reconstruction of the production sequence outlined by Forgione (FORGIONE 2021) for the fabrication of clay sculptures at the contemporaneous early Buddhist monastery sites of Tapa Sardar (294 km away from Haḍḍa) along with Tapa Narenj and Qol-e Tut in the Kabul area (194 km away from Haḍḍa). It is notable that the production techniques and sequences of these four sites show remarkable similarities, despite the large distances separating the Hadda, Ghazni, and Kabul locations of these monasteries. This patterned distribution is consistent with the concept of a "community of practice" (MINAR and CROWN 2001; SAMRIT and SHOOCONGDEJ 2024; SASSAMAN and RUDOLPHI 2001; BUEHLMANN-BARBEAU 2020) in which craft specialists shared methods, techniques, and styles for the production of the same class of art works–stucco and clay sculptures for placement in Buddhist monasteries. Communities of practice are reproduced by having a high degree of face-to-face interaction and inter-generational instruction among their participants-either from parent-to-child or master-to-apprentice. These communities can function at different scales ranging from the local to the regional. Considered together, the analyses by Tarzi, Forgione, and the HSP all suggest that sculptural production at Haḍḍa may have been carried out by craft specialists who formed part of a broadly shared regional community of practice in stucco and clay art production among Gandhāran craft specialists distributed across distances of hundreds of kilometers. The cohesion and continuity of this community may well have been reinforced through their shared Buddhist faith. This raises the interesting and important question of whether these master craft producers were itinerant specialists, or alternatively, a larger number of sedentary, locally based artisans scattered in secular or ritual communities across the Gandhāran landscape

These observations reflect just part of the data recorded to document the *chaîne opératoire* for the construction of stucco sculptures from Haḍḍa. They also reflect how the Hadda Sculptural Project provided a great opportunity to study this topic in greater depth, not only regarding the construction of the sculptures but also its finishing that could be analysed in detail due to the fragmentary state of the sculptures. This allowed us to reconstruct the final steps in the making of sculptures. A good example of the modelling around the core and armatures is PRS 20.3.154, described in the old inventory cards as a "mask of Buddha" and that indeed corresponds to one of the last steps in the modelling of the head of the sculpture (Fig. 26). The imprints of fabric on the interior of the "mask" (Fig. 27 and 28) confirm Tarzi's suggestion that the clay core of the sculptures was covered with textile before the addition of the overlying modelled stucco design (TARZI 1986).

Spatial Analysis and stylistic analysis of the Haḍḍa collection

The HSP also focused on the identification and spatial contextualization of the sculptures within their original locations in the monasteries of Haḍḍa (GALLEGO LOPEZ 2022). Here, the use of the existing and surviving records was essential. The most important and information rich sources for us were Barthoux' publication of the excavations (BARTHOUX 1933) conducted by the French Archaeological Delegation in Afghanistan (DAFA), Francine Tissot's pre-war catalogue (Fig. 29), the NMA inventory cards and photographs from the 1960's, as well as the many scientific publications deriving from the different excavation campaigns at Haḍḍa.

The sculptures discussed in this study come from the following main sites: Tepe Kalān, Tepe-i Kafarihā, Bāgh Gaï, Prates, Gār Naô and Chakhil-i Ghoundi. As a starting point for our spatial analysis, we crosschecked the information in the Tissot 2006 catalogue against the data and photographs in Barthoux 1933. On that basis, we could reliably locate a good number of the objects that were also published by Tissot. Barthoux' publications include illustrate 441 artifacts: 193 of them show Tepe Kalān artifacts, 43.76 % of the total.

Even though this comparison allowed us to locate the general spatial context for hundreds of sculptures, that context is not completely precise, because we only have the number of the *stūpas* where the objects originated. Barthoux' excavation reports do not record the exact find spots of these objects, therefore we do not know with certainty whether they were found *in situ* (that is, still attached to the *stūpa* walls) or whether they were on the ground, having fallen off from the monuments–even though we might assume that the latter is more likely. Only in a few cases were we able to locate the artifacts with such precision. Access to the field photographs taken *in situ* by the DAFA archaeologists during the excavations, when available, will certainly help in this endeavour. For example, the sculptures in the *Musée* Guimet collection and the ones excavated by the AIA are not included in this study, but archival documentation is almost certainly available for them. We look forward to including such materials in future investigations.

Recovering the original context of the sculptures is fundamental to understand both the iconographic programs in each monastery within Haḍḍa and their relationship with the religious architecture at the sites. It is also useful to date historical and stylistic phases. A preliminary seriation of the stucco Buddha heads from Haḍḍa has shown the potential value of including this methodology as a way to develop a more accurate periodization of the monasteries and of the iconographic programs represented there, as well as the use of similar moulds in the making of the sculptures (CASALINI 2022).

A good example of the application of this methodology can be seen in the site of Tepe Kalān. Once we obtained the data and photographs of the objects, we decided to place them in the map for an easier interpretation of their iconographic subjects and their connection (Fig. 30). We used colors to differentiate between the sculptures held in the storerooms of the National Museum of Afghanistan, the ones safely stored in the Presidential Palace, and the ones smashed by the Taliban in 2001 and stored in the Conservation Laboratory.

This same method can be applied to each of the component sites in Haḍḍa. If we can locate all the existing objects from Haḍḍa in the different collections in Museums around the world, we should be able to reconstruct the original appearance of the monasteries at Haḍḍa.

Summary and Conclusions

This paper has presented an overview of the Hadda Sculptural Project (HSP), during which more than 7,600 stucco fragments from this early Buddhist pilgrimage center were stabilized, 485 sculptures were documented, and at least 336 were partially reassembled. 420 sculptures were matched with surviving pre-war registration records; on this basis we determined that these sculptures had been vandalized, but not looted as we had feared. All conservation treatments of the partially reassembled sculptures were documented in a FileMaker Pro database, while all images and registration records for each sculpture were brought together in a separate searchable digital assets management image database.

The project used the conserved sculptures as the basis for broader research concerning the fabrication process of the sculptures and identification of the architectural contexts where they were placed within the Haḍḍa monastic complex. Close analysis of the fragments allowed us to reconstruct the *chaîne opératoire* production sequence through which the stucco and clay sculptures were built. Our results corroborated the *chaîne opératoire* that had been proposed in earlier analyses by Tarzi, and a more recent analysis by Forgione. Inter-site comparison of the four analysed monastery sites of Haḍḍa, Tapa Sardar, Tepe Narenj, and Qol-e Tut suggests that sculptural production may have been carried out by craft specialists who formed part of a broadly shared community of practice in stucco and clay sculpture production among Gandhāran master stucco artists distributed across distances of hundreds of kilometers.

The project also conducted spatial analyses of the partially reassembled sculptures. Comparisons of the sculptures with photographs from the excavations by Barthoux and Tarzi allowed us to match and re-locate 177 specific sculptures back into the original rooms where they had been discovered in monasteries at Haḍḍa such as Tepe Kalān, Tepe-i Kafarihā and Bāgh Gaï (Fig. 31).

Finally, an integral part of the project has been the training component and collaboration with our Afghan colleagues at the National Museum of Afghanistan. We conducted six training workshops for museum conservators and curators during the project both in Kabul and remotely via Zoom video sessions.

At the conclusion of the project in 2020-2021, all partially re-assembled sculptures and individual fragments were packed in archival housing and returned to the Museum storerooms. We aim for a future comprehensive publication of the project, addressing in detail its development, methods, and results. Our hope is that at some point in the future, when conditions permit, conservation and restoration of the Haḍḍa fragments will resume to contribute additional new insights into art and society during the Early Buddhist period of Afghanistan.

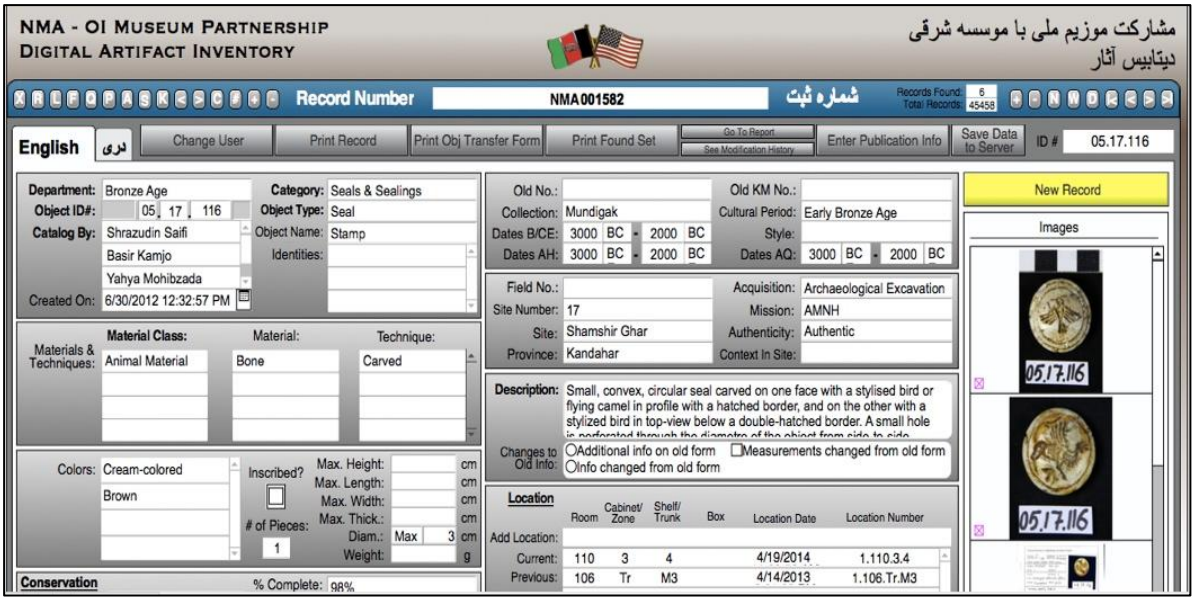


Fig. 1: NMA-ISAC inventory database layout showing key data recorded

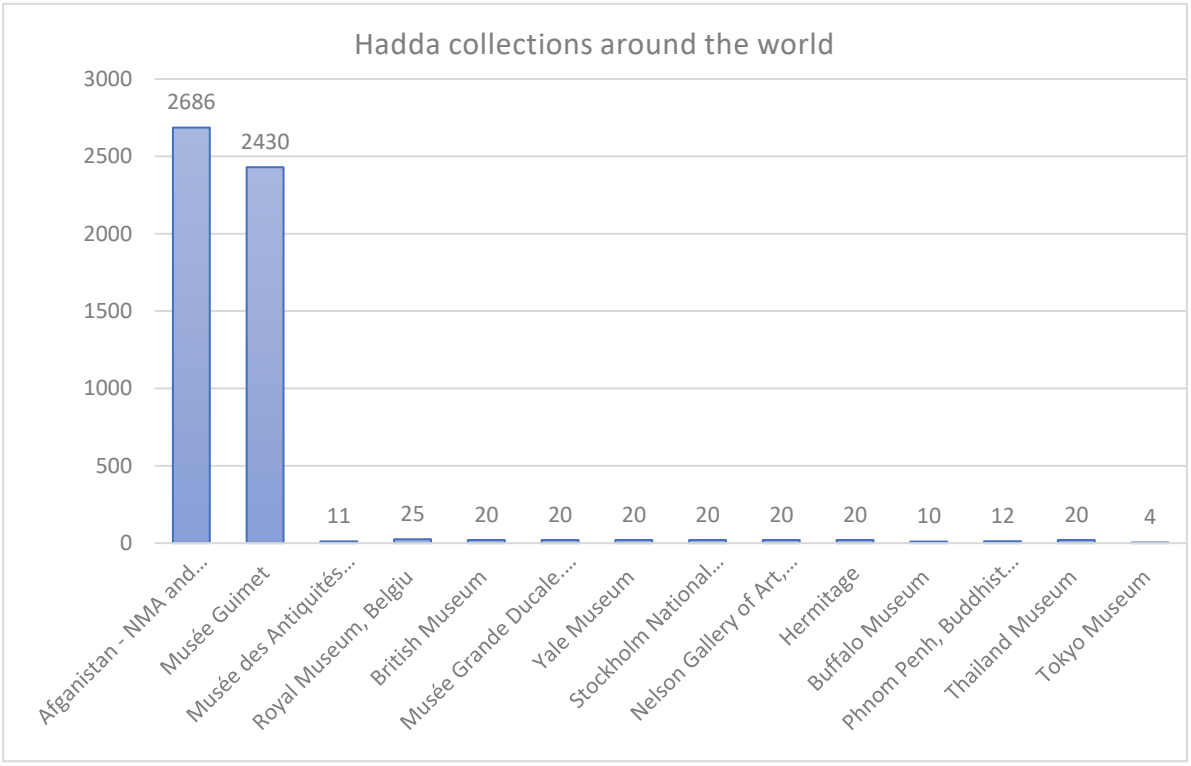


Fig. 2: Distribution of Haḍḍa collections around the globe. Source: HSP Technical Report 15



Fig. 3: Preliminary assessment of the sculptures damaged by the Taliban in 2001



Fig. 4: Stucco fragments with surviving pre-war inventory numbers

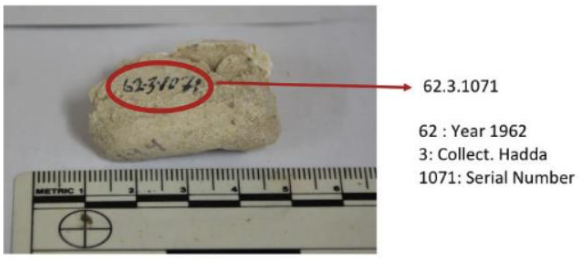


Fig. 5: Haḍḍa stucco fragment with original inventory number still surviving



Fig. 6: Distribution of more than 7,000 stucco fragments treated and organized by category on the tables of the Conservation Laboratory at the NMA



Fig. 7: Fragmentary stucco sculptures depicting sitting and standing Buddhas

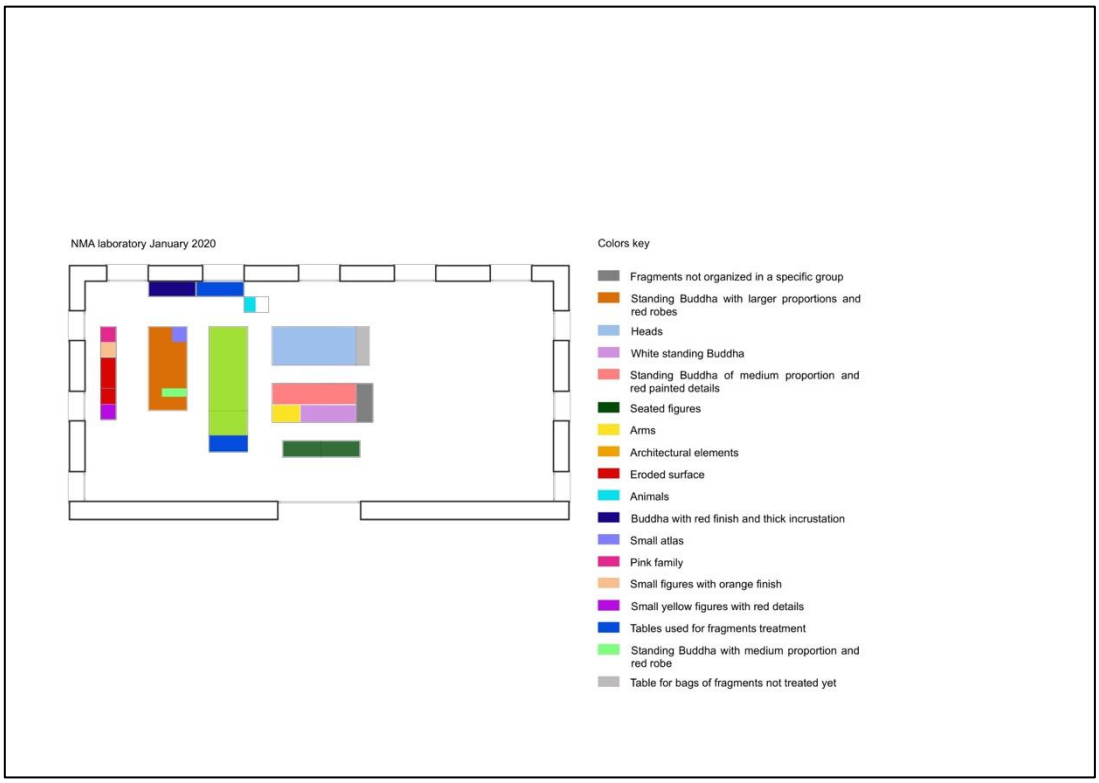


Fig. 8: Distribution of the HSP Haḍḍa sculptures in the Conservation Laboratory of the NMA

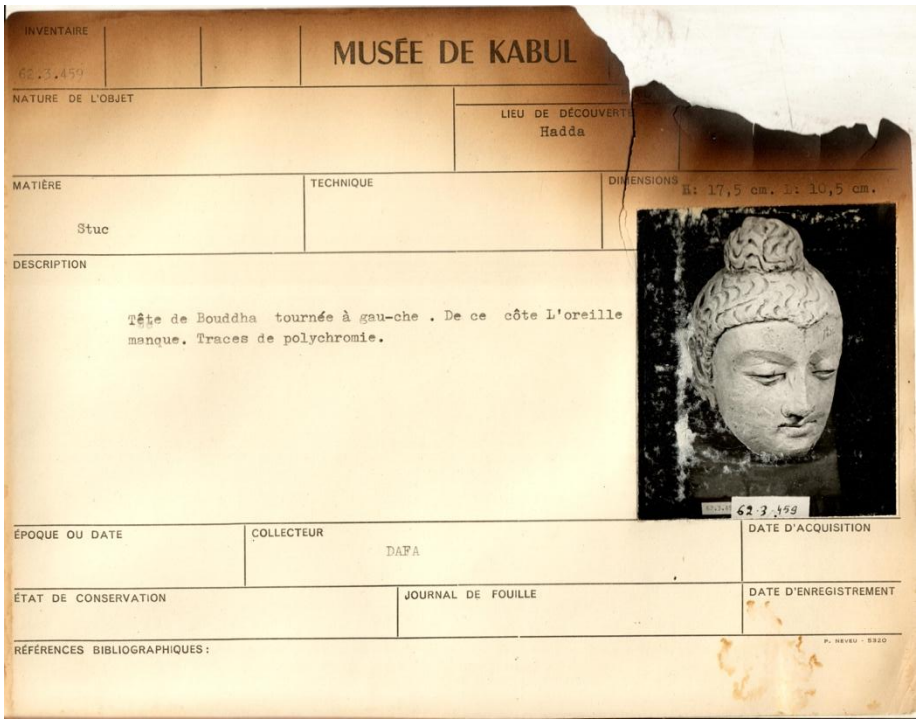


Fig. 9: Partially burnt Old Kabul Museum inventory card with descriptive details and record photograph of a Buddha head

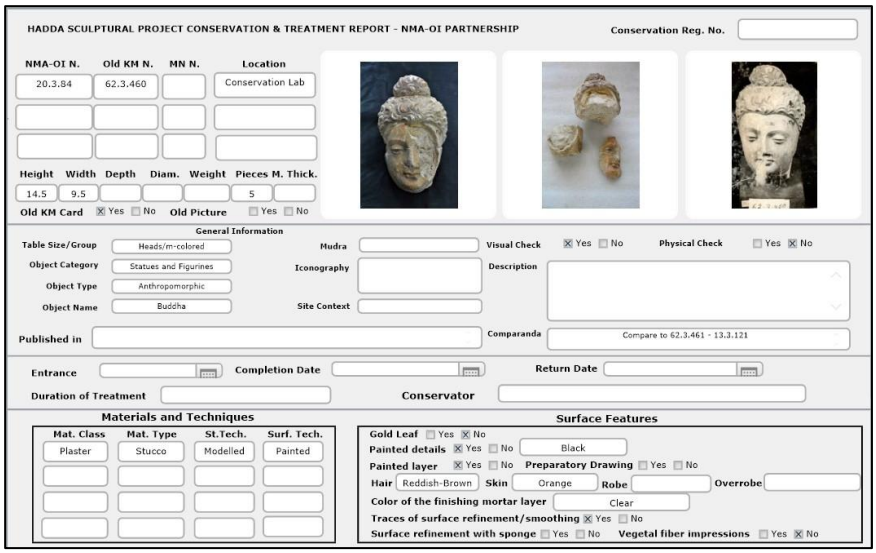


Fig. 10: Layout of the Conservation & Treatment Database

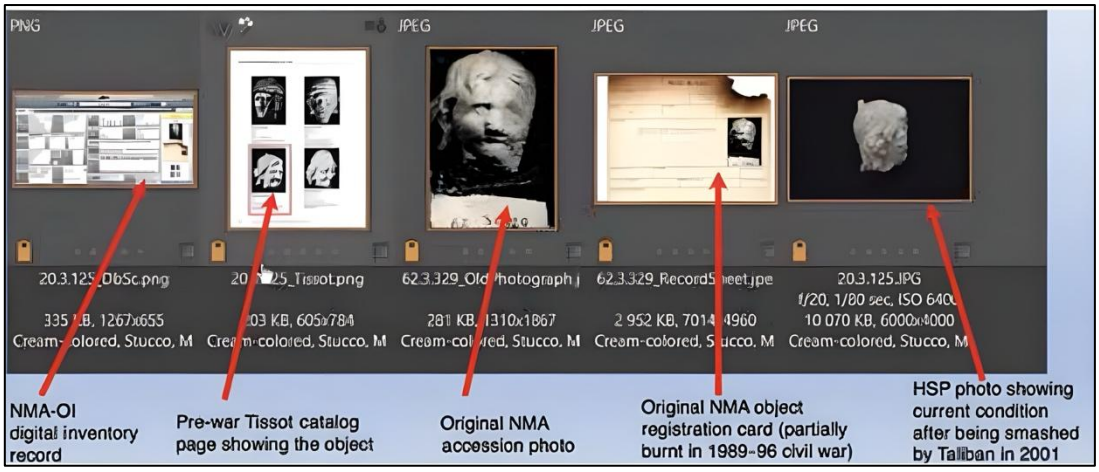


Fig. 11: Daminion Digital Assets Management system database and the different sets of information included



Fig. 12: 3D scan models of PRS 20.3.84



Fig. 13: 3D scan and rendition of a damaged stucco Buddha head using different visualization techniques



Fig. 14: Stucco modillion with a schist peg. NMA-ISAC inventory number 12.3.52



Fig. 15: Back of an acanthus leave with vegetal prints. PRS 20.3.458. Old inventory number 62.3.153



Fig. 16: Front of a stucco decorative element, an acanthus leaf. PRS 20.3.458. Old inventory number 62.3.153



Fig. 17: High-relief sculpture depicting a devotee. Photograph from the old NMA registration card. PRS 20.3.301. Old KM inventory number 63.3.372

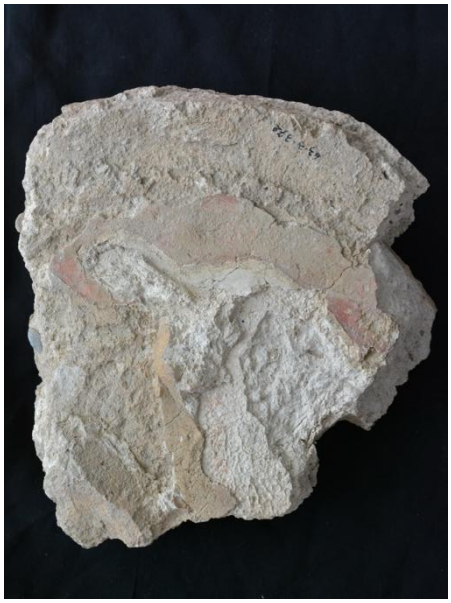


Fig. 18: The same sculpture as it was inventoried in 2020 after been damaged by the Taliban in 2001. PRS 20.3.301. Old KM inventory number 63.3.372

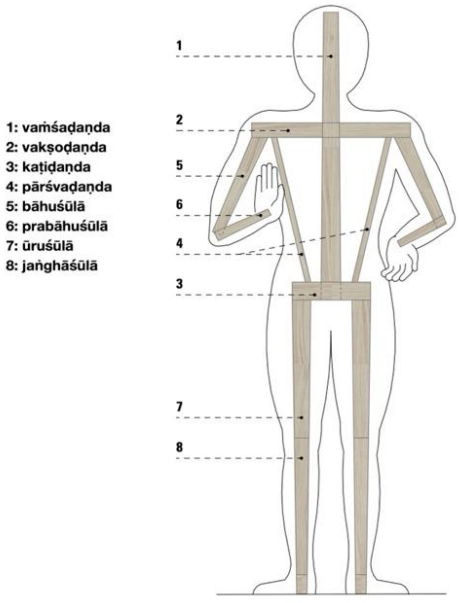


Fig. 19: Armature of a standing stucco sculpture. FORGIONE 2021



Fig. 20: Scan of standing Buddha PRS 20.3.76. Front

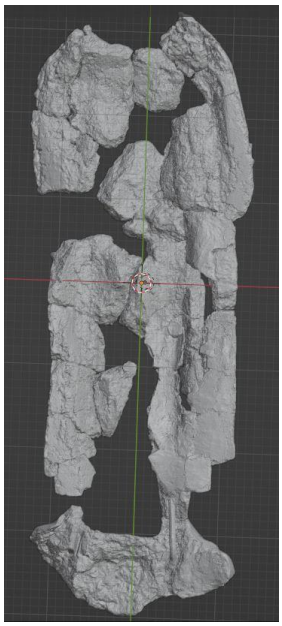


Fig. 21: Scan of standing Buddha PRS 20.3.76. Back

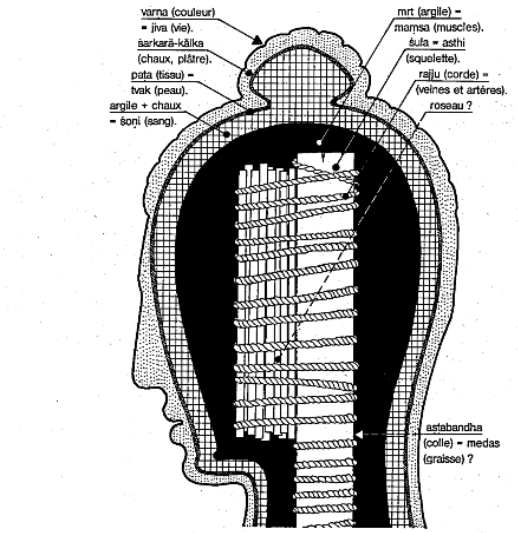


FIG. 5. — Coupe d'une tête en stuc à base de plâtre sur âme en argile, avec indication des équivalences de la symbolique des textes indiens. Le roseau n'est pas mentionné dans les textes, contrairement à la colle (*aṣṭabandha*) qui, elle, n'est pas décelable à l'analyse (Dessin Z. Tarzi).

Fig. 22: Model for construction of stucco heads
TARZI 1986



Fig. 23: Front and back of 20.3.175



Fig. 24: PRS 20.3.454 with traces of a bundle of sticks

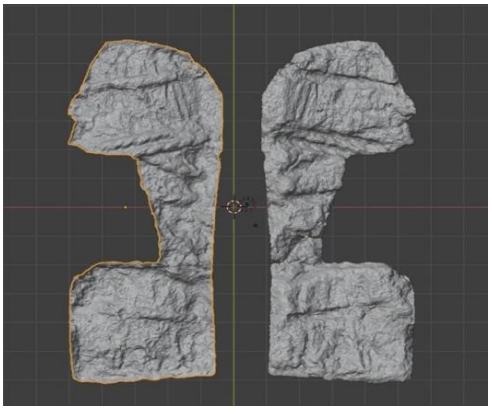


Fig. 25: 3D scan of the back of PRS 20.3.175 with prints of ropes

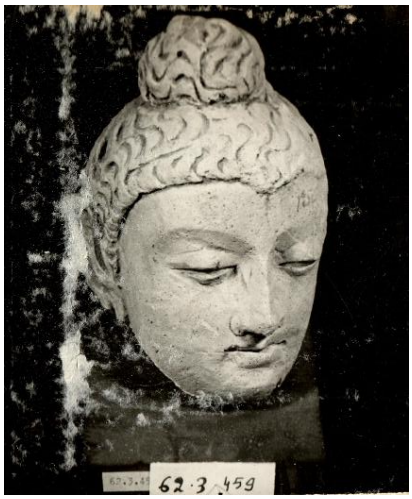


Fig. 26: PRS 20.3.154 in Old KM Cards as 62.3.459



Fig. 27: Front of PRS 20.3.154



Fig. 28: Back of PRS 20.3.154 with textile remains



K.p. Ha. 1001. 68.
K. M. inv. no. 62-3-466.
H 0.82.
Stucco.
J. Hackin, 1922, fig. 2b; ROW, 71, fig. 130; MIY, fig. 217.
Complete image of a standing Buddha (hands in bad condition).



K.p. Ha. 1002. 69.
K. M. inv. no. 62-3-36.
H 0.21, L 0.18.
Stucco.
D.D. B.103.150; V.T., PS. 6909.
Upper part of a Buddha seated under an arch.



K.p. Ha. 1003. 70.
K. M. inv. no. 62-3-27.
H 0.22.
Stucco.
D.D. B.103.141; V.T., PS. 6901.
Fragment of an arch with seated monk.

Fig. 29: Sculptures published in TISSOT 2006, identified among the fragmented sculptures located by the NMA-ISAC inventory and the Hadda Sculptural Project

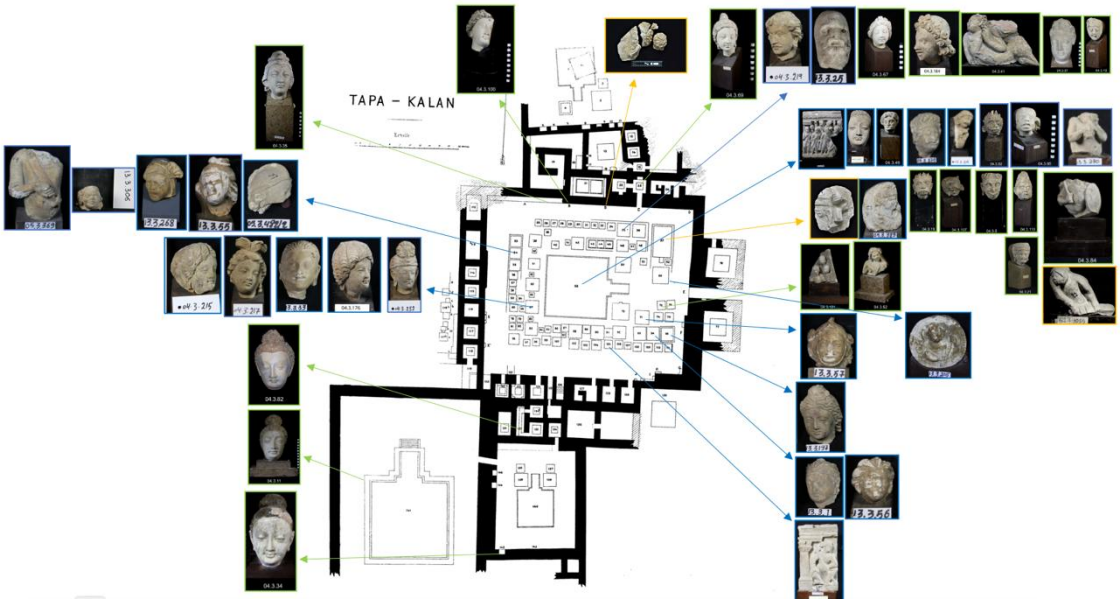


Fig. 30: Haḍḍa sculptures in the NMA from Tepe Kalan identified and located in their original rooms. Arrow colors indicate current location of objects: blue – NMA, green – Presidential Palace, and yellow – Conservation Laboratory



Fig. 31: *Nagi* sculptures identified through photographic documentation and contextualized in *stūpa* 66 in Bāgh Gaï. Black and White photograph by Z. Tarzi (TARZI 2005, p. 388, fig. 5), and color images by the NMA-ISAC partnership

BIBLIOGRAPHICAL REFERENCES

BARTHOUX 1933

Jules Barthoux, *Les fouilles de Haḍḍa, I: stupas and sites*, Mémoires de la Délégation Archéologique Française en Afghanistan, Paris.

BIRSTEIN 1975

V. J. Birstein, "On the technology of Central Asian wall paintings: the problem of binding media", *Studies in Conservation*, n° 20, pp. 8-19.

BONADUCE *et al.* 2019

Ilaria Bonaduce *et al.*, "The characterisation of paint binders in the polychromies and gildings of the Gandharan artworks", *Restauro Archeologico, Journal of the Department of Architecture University of Florence*, n° I, pp. 82-89.

BUEHLMANN-BARBEAU 2020

S. Buehlmann-Barbeau, *Mapping Minerals, Charting Community: A Petrographic Study of Dalma Ware in the Chalcolithic Near East. Anthropology*, Oregon State University.

CAMBON 2004

Pierre Cambon, "Monuments de Hadda au Musée des arts asiatiques-Guimet", *Monuments and mémoires de la Fondation Eugène Piot*, t. 83, pp. 131-184.

CAMBON 2019

Pierre Cambon, "Collections gandhariennes et afghanes à Paris, Musée national des arts asiatiques-Guimet", *Restauro Archeologico, Journal of the Department of Architecture University of Florence*, n° I, pp. 142-155.

CASALINI 2022

Alice Casalini, "Stylistic Seriation of heads of Buddha sculptures from Hadda", Paper presented at the conference "Re-Assembling Hadda (Afghanistan) in the Early Buddhist World: Perspectives from Conservation, Archaeology, And Art History", Online Conference, Dec. 7, 2022. Institute for the Study of Ancient Cultures, University of Chicago.

DUPREE *et al.* 1974

N. H. Dupree, L. Dupree, and A. A. Motamedi, (1974). *The National Museum of Afghanistan: An Illustrated Guide*, Kabul, The Afghan Air Authority and the Afghan Tourist Organization.

ERRINGTON 2017

Elisabeth Errington, Charles Masson and the Buddhist Sites of Afghanistan: Explorations, Excavations, Collections 1832-1835.

FISHER 2017

Michael Fisher, "Partnership for Preservation: The Digital Inventory of the National Museum of Afghanistan", in G. J. Stein, M. T. Fisher, A. H. Latify and D. N. Hatch (eds.), *Preserving the Cultural Heritage of Afghanistan*, Chicago, University of Chicago Oriental Institute Publications, pp. 43-48.

FISHER and STEIN 2016
Michael Fisher and Gil Stein, "Aks of War: A Digital Museum Inventory for a War-Torn Afghanistan", in A. Jamieson (ed.), *Collections at Risk: Sustainable Strategies for Managing Near Eastern Archaeological Collections*, pp. 449-463.

FORGIONE 2021
Giulia Forgione, "Clay-based sculptures: analysis of technical aspects and typologies", *Parthica*, n° 23, pp. 145-176.

GALLEGO LÓPEZ 2022
Alejandro Gallego Lopez, "Spatial Analysis of Sculptures at Hadda", Paper presented at the conference "Re-Assembling Hadda (Afghanistan) in the Early Buddhist World: Perspectives from Conservation, Archaeology, And Art History", Online Conference, December 7, 2022. Institute for the Study of Ancient Cultures, University of Chicago.

GORSHENINA and RAPIN 2001
Gorshenina, Svetlana and Rapin, Claude, *De Kaboul à Samarcande : les archéologues en Asie centrale*, Paris.

LLUVERAS TENORIO *et al.* 2017
Anna Lluveras Tenorio *et al.*, "GC/MS and proteomics to unravel the painting history of the lost giant Buddhas of Bamiyan (Afghanistan)", *Plos One*, 5th April, pp. 1-18.

LLUVERAS TENORIO *et al.* 2022
Anna Lluveras Tenorio *et al.*, "An insight into Gandharan Art: materials and techniques of polychrome decoration", *Heritage*, n° 5, pp. 488-508.

MINAR and CROWN 2001
C. J. Minar and P. L. Crown, "Learning and craft production: an introduction", *Journal of Anthropological Research, 57*(4), pp. 369-380.

MOSTAMINDI 1969
Shaibaï and Mariella Mostamindi, "Nouvelles fouilles à Haḍḍa (1966-1967) par l'Institut Afghan d'Archéologie", *Arts asiatiques*, vol. 19, pp. 15-36.

MOSTAMINDI 1969
Shaibaï Mostamindi, "La fouille de Haḍḍa", *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres*, 113e année, n° 1, pp. 119-128.

OLIVIER-UTARD, 2006
Francoise Olivier-Utard, *Politique et archéologie : Histoire de la Délégation française en Afghanistan (1922-1982)*, Paris.

PANNUZI *et al.* 2019
Simona Pannuzi *et al.*, "Polychromy and gilding in the Gandharan sculptures from Pakistan and Afghanistan: samplings from Museum Guimet in Paris", *Civic Archaeological Museum of Milan and Museum of Oriental Art of Turin, Restauro Archeologico, Journal of the Department of Architecture University of Florence*, n° 1, pp. 40-81.

PANNUNZIO and COLOMBO 2022
Elisa Pannunzio and Fabio Colombo, “The Fabrication of Stucco sculptures at Hadda – A Chaine Operatoire Approach”, Paper presented at the conference “Re-Assembling Hadda (Afghanistan) in the Early Buddhist World: Perspectives from Conservation, Archaeology, And Art History”, Online Conference, December 7, 2022. Institute for the Study of Ancient Cultures, University of Chicago.

RAMASSO 2019
Claudia Ramasso, “Investigating gilding techniques on Gandharan stone sculptures and architectural components: a preliminary note”, *Restauro Archeologico, Journal of the Department of Architecture University of Florence*, n° 1, pp. 164-173.

ROSA, THEYE and PANNUZI 2019
Carlos Rosa, Thomas Theye and Simona Pannuzi, “Geological overwiew of Gandharan sites and petrographical analysis on Gandharan stucco and clay artefacts”, *Restauro Archeologico, Journal of the Department of Architecture University of Florence*, n° 1, pp. 12-39.

SALEMI 2022
Giuseppe Salemi, “3D modelling of Partially Re-assembled Sculptures from the Hadda Sculptural Project”, Paper presented at the conference *Re-Assembling Hadda (Afghanistan) in the Early Buddhist World: Perspectives from Conservation, Archaeology, and Art History*, Online Conference, December 7, 2022. Institute for the Study of Ancient Cultures, University of Chicago.

SAMRIT and SHOOCONGDEJ 2024
C. Samrit and R. Shoocongdej, “A Study of Communities of Practice in Craft Production from Log Coffin Culture Archaeological Sites in Highland Pang Mapha, Northwestern Thailand”, *Manusya: Journal of Humanities*, 27(1), pp. 1-24.

SASSAMAN and RUDOLPHI 2001
K. E. Sassaman and W. Rudolphi, “Communities of practice in the early pottery traditions of the American Southeast”, *Journal of Anthropological Research*, 57(4), pp. 407-425.

STEIN 2015
Gil Stein, “The War-Ravaged Cultural Heritage of Afghanistan: An Overview of Projects of Assessment, Mitigation, and Preservation”, *Near Eastern Archaeology*, 78 (3), pp. 187-195.

TARZI 1976
Zémaryalaï Tarzi, “Haḍḍa à la lumière des trois dernières campagnes de fouilles de Tapa-è-Shotor (1974-1976)”, *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres, 120e année*, n° 3 (communication du 25 Juin 1976), pp. 381-410.

TARZI 1986
Zémaryalaï Tarzi, “La technique du modelage en argile en Asie Centrale et au Nord-Ouest de l’Inde sous les Kouchans : la continuité malgré les ruptures”, *Ktèma*, vol. 11. Strasbourg, pp. 57-94.

TARZI 1990
Zémaryalaï Tarzi, “Tapa-e-Top-e-Kalan of Haḍḍa”, in *South Asian archaeology 1987: proceedings of the 9th International conference of the Association of South Asian archaeologists in Western Europe, held in the Fondazione Giorgio Cini, Island of San Giorgio Maggiore, Venice*. Rome 19, pp. 707-726.

TARZI 1991
Zémaryalaï Tarzi, *Haḍḍa à la lumière des fouilles de Tapa-e Shotor et Tapa-e Top-e Kalân*, Thèse de Doctorat, Université II de Strasbourg, vol. 1 (Strasbourg: unpublished).

TARZI 1996
Zémaryalaï Tarzi, “Jules Barthoux : le découvreur oublié d'Aï Khanoum”, *Comptes rendus des séances de l’Académie des Inscriptions et Belles-Lettres*, 140e année, n° 2.

TARZI 2001
Zémaryalaï Tarzi, “Le site ruiné de Haḍḍa », in *Afghanistan, Patrimoine en péril*, Actes d’une journée d’étude, Unesco, Ceredaf, pp. 60-69.

TARZI 2005
Zémaryalaï Tarzi, “Sculpture in the round and very high relief in the statuary of Haḍḍa: The case of the so-called fish porsch (Niche XIII)”, *East and West*, vol. 55, n° 1/4.

TARZI 2006
Francine Tissot, *Catalogue of the National Museum of Afghanistan, 1931–1985*, UNESCO Publishing.

Tecniche di esecuzione e materiali costitutivi, Corso sulla manutenzione dei dipinti murali, mosaici, stucchi. Dimos, parte I – modulo 1 (Rome: Istituto Centrale per il Restauro ISCR 1978).

VERRI *et al.* 2021
Giovanni Verri *et al.*, “Investigations of a Gandharan stucco head of the Buddha at the Victoria and Albert Museum (IM.3-1931)”, *Technè*, n° 48, pp. 136-149.

Tracing a Gandhāran Artist-Modeller's Hand: Uncovering Haḍḍa Monasteries' Chronological Sequence via Modelled Works Examination

Alexandra VANLEENE

Abstract

Can one trace the hand of a Gandhāran artist-modeller? Identify a style? Recognize the touch and paste of a Master, his pupils or a workshop? What insights can we draw from this as regards the temporal sequence of construction and ornamentation of the different parts of a monastery? In the context of the saṃghārāmas *of Tapa Kalān, Bāgh Gaï and Tapa-i Kafarihā in Haḍḍa, where excavations in the early 20th century failed to establish a chronological sequence due to a lack of stratigraphic studies, a detailed examination of the modellings and identifiable "series" could shed unexpected light on these questions.*

Introduction

We no longer require a presentation of the Buddhist monasteries of Haḍḍa (Fig. 1), situated near the modern town of Jellālābad, within the ancient region of *Nagarāhāra*, which was occupied for an extended period from the 1st to the 9th centuries CE (Fig. 2). The excavation conditions in the 1920's hindered Jules Barthoux' ability to study the stratigraphy of the monasteries, thus preventing him from proposing a precise dating (BARTHOUX 1930 and 1933). However, thanks to excavations conducted by Shaïbaï Mostamindi (MOSTAMINDI 1969) and more particularly by Professor Zémaryalaï Tarzi (TARZI 1976, 1990, and 1991), we now possess a better comprehensive understanding of the stratigraphy of Tape Shotor (TSh) and Tapa Tope Kalān (TTK).

The history of Tape Shotor is detailed by Tarzi in nine phases: a pre-monastic period and six buddhists phases of occupation, enlargement and embellishment, marked by two *hiatus*[1]. As a result, we now possess a clearer comprehension of the dating of the modellings adorning the *stūpas* and chapels at Tape Shotor. This specified chronology can further support efforts to refine the dating of the modellings found in other Haḍḍa monasteries.

Upon close examination of the crafted production from Haḍḍa, I have often been captivated by the stylistic and aesthetic resemblances among certain figures, a phenomenon likely observed by others as well. Similarities vary in degree, but some are so striking that it is hard to distinguish between two different works. Moreover, it turned out that such figures did not always originate from the same site. In this context, I undertook the task of identifying "series" of figures that exhibit shared aesthetic resemblances, with the aim of investigating the potential implications of such a classification. This examination has greatly benefited from the use of the Haḍḍa Archeo Database[2]–a project I initiated several years ago–specifically designed to support the study of the artistic *décor* of the *saṃghārāmas*.

[1] It is crucial to highlight that Professor Tarzi revised the chronology and construction sequence initially proposed in his preliminary 1976 article in his 1991 dissertation, *Haḍḍa à la lumière des fouilles afghanes de Tapa-e Shotor et Tapa-e Tope Kalān (4 vol.)*. However, as this dissertation remained unpublished, only the dates put forward in the 1976 article have thus far been available and utilized within the scholarly community. In 2012, following the defense of my own dissertation–devoted to the archaeological and iconographical study of representations of scenes from the life of the Buddha and Buddhist imagery in the art of Haḍḍa–Professor Tarzi accorded me the great honor of proposing a joint publication of our respective works. Regrettably, time was not in our favour. Before his passing, he entrusted me with the responsibility of bringing this essential project to completion. The publication of his dissertation, alongside mine, is currently in preparation.

[2] The Haḍḍa Archeo Database Project is accessible via the following url: https://haddaarcheodb.com/.

This investigation pursues multiple purposes. First, it seeks to ascertain whether it is feasible to trace the work of an artist or artistic workshop, with the aim of identifying correlations that might suggest a possible contemporaneity of the decorative production in specific areas of the monasteries. Subsequently, by comparing the findings with the more accurately dated modellings from Tape Shotor, this investigation explores the potential for proposing chronological attributions for certain works discovered in the other Haḍḍa monasteries.

We must promptly highlight the numerous limits inherent in this form of comparative aesthetic and stylistic analysis. First and foremost, we acknowledge the subjective nature of such comparisons. It is well understood that scholars and researchers may reach divergent conclusions when assessing the similarities or differences between artworks, often resulting in inherently subjective interpretations. This subjectivity arises from various factors, including the interpreter's personal biases, cultural background, and aesthetic preferences. Therefore, while comparative iconographic and stylistic examinations can provide valuable insights into artistic production and cultural exchange, it is crucial to approach them with critical awareness and methodological caution.

A second challenge that adds complexity to our analysis is that the modellings, as we know, may have been re-used and moved from one place to another during remodelling, embellishment or repair work within the monasteries. Sculptures may have been displaced from their original context and incorporated within new architectural settings, sometimes across different sites. Such practice of re-use and relocation undoubtedly complicate chronological analysis, obscuring the original temporal framework.

A third issue concerns the extent to which the interpretation of artistic styles and motifs is shaped by the availability and quality of documentation, which is often incomplete or ambiguous. Indeed, some of these artworks are solely documented through old photographs, which can be misleading, especially concerning their proportions. For instance, there are certain Buddhas heads that I had only encountered through photographs in Barthoux's publication (HADB 16[3], 24[4], 23[5] and 17[6]). However, during the excellent exhibition *Afghanistan, shadows and legends* organized by Nicolas Engel for the Guimet Museum in 2022, I was quite surprised to discover that they appeared much less chubby than depicted in the old photographs (Fig. 3 to 6)[7]. These misleading impressions can certainly skew our perception of the artwork, influence the descriptions we provide, and consequently, affect the stylistic comparisons we make.

A fourth limitation lies in the fact that a significant part of the dimensions remains unknown or has been lost. This presents challenges, as comparing a 7 cm face with a 40 cm face is inconsequential. The scale of an artwork plays a crucial role in shaping not only its visual impact, but also the intricacy of its details, and therefore, its overall artistic expression. A larger sculpture provides more space for sophisticated details and nuanced expressions, while a smaller one may require simplification and abstraction. Without considering the scale, attempting to compare artworks becomes futile. For this reason, I limit my analysis to heads of

---

The database and website have been designed and are maintained by Thierry Beat, whose unwavering commitment and support have been instrumental to the development and continuity of this long-term project. I extend to him my deepest gratitude.

[3] H = 30 cm. Guimet Museum. BARTHOUX 1930, Pl. 11b. HADB 16: https://haddaarcheodb.com/objet/16.

[4] H around 30 cm (by sight). Guimet Museum. BARTHOUX 1930, Pl. 3.
HADB 24: https://haddaarcheodb.com/objet/24.

[5] H around 30 cm (by sight). Guimet Museum. BARTHOUX 1930, Pl. 6b.
HADB 23: https://haddaarcheodb.com/objet/23.

[6] H = 26.3 cm. Guimet Museum. BARTHOUX 1930, Pl. 11a. HADB 17: https://haddaarcheodb.com/objet/17.

[7] Unless otherwise indicated, the black-and-white photographs are taken from BARTHOUX 1930 and 1933, while the colour images are from the author’s photographic archives.

comparable dimensions. The heights indicated in the footnotes refer to the heads alone, excluding the bust– where the latter is preserved.

Fifth and finally, the use of masks and molds introduces further uncertainty, as it remains unclear whether they were employed by multiple generations of artists, potentially spanning several distinct periods.

All those complications, unknowns, and misleading impressions can certainly skew our perception of the artwork, influence the descriptions we provide, consequently, affect the stylistic examination and blur the chronological approach. Nevertheless, by acknowledging these limitations, we can strive for more nuanced examination while remaining open to interpretations.

It should be noted that I have not investigated these series–assuming they indeed constitute a series–in the order in which they are presented in this paper. Rather, I have arranged them according to the outcomes of their examination, for the purpose of demonstration. Returning to the core question of this inquiry: to what extent can the hand of a Gandhāran artist be identified through stylistic analysis? This question is nothing new. Professors Zémaryalaï Tarzi (TARZI 1976 and 1991), Domenico Faccena (FACCENA 1962-1964, 1993 and 1995), Anna Filigenzi (FILIGENZI 2008 and 2009), Luca-Maria Olivieri (OLIVIERI 2020), and Farooq Swāti (SWĀTI 1997) have already investigated the subject, as well as more recently Jessie Pons (PONS 2020), among others. On this concern, the history of art provide us with invaluable insights through the ages and across cultures. We can assume that, in Haḍḍa as elsewhere, certain Masters have achieved recognition for their artistic prowess and innovation. These Masters, through their exceptional skill and distinctive style, may have garnered admiration and emulation from their contemporaries and subsequent generations. As a result, their artistic schools may have become influential centers of creativity and learning, attracting apprentices. These schools, characterized by their unique approaches to artistry, have served as sources of inspiration for countless artists, who draw upon their techniques, and motifs, to enrich their own artistic practices. We know this dynamic process of emulation and inspiration has played a crucial role in the evolution of artistic movements and styles, shaping the cultural landscape and contributing to the diversity and richness of artistic expression across different periods and regions in Greater Gandhāra.

An unexpected insight into two skeletal representations

To introduce our argument, let us start with an examination that led to an unexpected revelation. Barthoux' publication provide us with a photograph of this skeletal figure[8] (Fig.7), photographed again years later (Fig. 8)–or so I assumed–by Thierry Ollivier as part of the project to enhance and preserved the Guimet Museum archives[9], within the broader framework of the *Grand Palais-Réunion des Musées Nationaux* Agency archives[10].

The hydrocephalic skull, orbits of different diameters, asymmetrical nostril openings, massive teeth, separated by wide diastemas–some pointed on the upper jaw–and two posterior teeth appearing to be "fused" together, along with the attention to the rendering of the trachea, clavicles, and ribs, as well as the misrepresentation of the sternum, represented as vertebrae: all of these concordant iconographic clues strongly suggest that these were two photographs of the same skeleton figure.

However, this does not appear to be the case. The first detail that drew my attention was a discrepancy in the orbital dimensions: in one photograph, the left orbit was smaller, whereas in

[8] H = 10.5 cm. Guimet Museum. BARTHOUX 1930, Pl. 101c. HADB 184: https://haddaarcheodb.com/objet/184.
[9] Guimet Museum: https://www.guimet.fr/fr/collections/afghanistan-et-gandhara.
[10] GrandPalais RmnPhoto: https://images.grandpalaisrmn.fr/resultat-de-la-recherche.

the other, it was the right. The same applied to fused teeth. My first thought was to consider the possibility that, during the development of Barthoux' negatives, the direction of the photo may have been inadvertently reversed. Such reversed ancient photographs are a phenomenon with which we are all familiar. With heightened attention, my gaze continued to scrutinize the image for further discrepancies, and I soon observed that a section of the remaining wall had vanished, along with the left shoulder. I considered the possibility of a break in the artwork between Barthoux' time and our own. However, upon reflection, I realized that this theory was implausible: if the photo had been reversed, the section of the wall would have appear on the other side, in other words, to the left of the skeletal figure.

Let us, then, inverse Barthoux' photograph in order to investigate the matter for ourselves (Fig. 9). The first observation to emerge is that the section of the wall does not appear on the same side. Secondly, the inclination of the head does not coincide either, nor does the "lump" visible on the hydrocephalic skull, which makes it asymmetrical. The narrowest nostril, which should be on the right, is on the left. As well as the two fused teeth. Finally, the number of ribs and "vertebrae" in place of the sternum are not the same.

The argument presented should now be evident. We are not talking about two photographs of the same skeleton, but about two distinct skeletal figures. This serves as an ideal introduction to our reasoning. Precisely because it is difficult to distinguish between two works, it seems highly likely that they were created by the same hand, by the same artist, and are therefore contemporary. In the case of these two modellings, it is evident that they can be attributed to the same artisan, who could be designated as "assigned" to skeletal representations.

Artistic resonances

Let us consider a similar connection. Once again, there is a striking resemblance between these two divinities, genius and demon, one associated with the winds, the other with fire. The one linked to the winds[11] (Fig. 10) had hair and beard treated in twisted and coiled strands, bristling in the shape of flames. Restored in the Guimet Museum, the genie is depicted with a veil billowing above him, as if lifted by a draft, and held in both hands. The expressive face seems to be inspired by a Western model. The forehead is girded with a simple headband, the eyes are laughing, the mouth half-open. The one associated with fire[12] (Fig. 11) had hair and a beard bristling in the shape of flames. Their expression is marked by *pathos* borrowed from western influence[13]: deep gaze, half-open mouth, which here is subtly adapted: the genius smiles while the demon grimaces. Restored on his bust in the Guimet Museum, the demon is bare-chested. From his left hand, held to his chest, a flame gushes out.

These two artworks were part of the decoration of two adjacent *stūpas*, 67 and 68 of Tapa Kalān (Fig. 12). Without overstepping, it is reasonable to presume they were made by the same hand, and subsequently are contemporaneous.

---

[11] H = 10 cm (by sight). Guimet Museum. BARTHOUX 1930, Pl. 99f.
HADB 138: https://haddaarcheodb.com/objet/138.

[12] H = 10 cm. Guimet Museum. BARTHOUX 1930, Pl. 102c. HABD 197: https://haddaarcheodb.com/objet/197.

[13] In the course of this text, I will frequently refer to the expressions "Western influence" and "Indian influence". These expressions denote a set of characteristics long established by Alfred Foucher, and since widely accepted in the scholarly literature. As regards Western aesthetics, the most distinctive facial features include long, nearly horizontal eyebrows forming an arc akin to a semicircular arch, large elongated almond-shaped eyes, heavily contoured lips, a prominent aquiline nose, and–for secular figures–angular features, sometimes even marked with wrinkles. In contrast, Indian aesthetics are characterized by smaller almond-shaped eyes, a short and delicate nose that is sometimes slightly asymmetrical, a small, usually smiling mouth, and high, rounded cheekbones. On these points, I refer the reader to Foucher (FOUCHER 1918-1922).

A few mustached personages

Let us now shift our focus on this series of mustached figures, starting with this warrior sporting a shaved chin[14] (Fig. 13), with short, curly hair, depicted schematically in hollow. The face bears the mark of Western influence. The deep gaze and the dark expression give this fighter a tormented look, a severe expression that we found on the next character (Fig. 14). The hair of this bearded and mustached *brahman*[15] is raised in a bun. The face is framed by a row of stylized hair rolls while on the rest of the head, the locks are represented by hollows. The bun is held together by a tie and forms a small palmette. The beard is treated differently, in small strands, two of which, under the chin, curl and confront each other. Barthoux associates this head with a naked bust, a rope passed across the torso, which holds in the left hand a vase in which he is dipping his hand. We can see the top of a loincloth, certainly held by a tie at the waist, since the fabric folds up to form a border. The *brahman*, made very expressive by eyes deeply sunken in their sockets and serious eyebrows, seems to half-open his mouth. We clearly recognize the same artistic hand. I suggest we compare this two *brahmans* to the following one[16] (Fig. 15), who exhibit the same "dark gaze". At the time of its discovery, this *brahman* described as having a "Semitic type" was dubbed "the Jesus of Haḍḍa" and likened to the Christ figures in Western medieval churches. These outdated considerations may now be set aside. The hair is long, and falls over ears with enlarged lobes. One of the locks is twisted and forms a small bun. The face is young, thin, with high cheekbones. The eyes are deep, the mouth half-open. He is dressed in a kind of short-sleeved tunic that seems to be cut out of leather and makes a particular gesture: the left hand is raised to the level of the torso, palm towards the sky, and the right hand is raised to the level of the face, the index finger pointed towards the mouth. This hand gesture is similar to that of the Alexandrian Harpocrates, the Graeco-Egyptian deity. Inspired by this type are two other almost identical figures (Fig. 16[17] and 17[18]), except for the rendering of the beard. The hair is long and straight, arranged from a median parting. Again, the facial expression bears the influence of Western art and features the aforementioned characteristics.

All these works come from the vicinity of *stūpas* 67 and 68 at Tapa Kalān (Fig. 18) and seem to be attributable to the same hand, or at least the same workshop, subsequently to the same period.

Let us return to the *brahman* depicted in Fig. 15, which is accompanied by a similar, though less refined**,** figure[19] (Fig. 19), likewise discovered in the vicinity of the main S*tūpa* 68. This comparison prompted a reflection on the notion of artistic legacy and the enduring influence of a particular school of art. I pondered whether the last head–particularly given its more rudimentary treatment of the facial features and hair–might represent a "first draft", perhaps the work of an apprentice, or alternatively, a later attempt to emulate this disctinctive "Mustached" touch. Not to mention that this work could represent a subsequent replication or imitation, while simultaneously serving as a "first draft" for the artist undertaking its

[14] H = 10 cm. Guimet Museum. BARTHOUX 1930, Pl. 47a and a'.
HADB 355: https://haddaarcheodb.com/objet/355.
[15] H = 13.5 cm. Guimet Museum. BARTHOUX 1930, Pl. 47b, b' and 63a.
HADB 239: https://haddaarcheodb.com/objet/239.
[16] H = 11 cm. Guimet Museum. BARTHOUX 1930, Pl. 64a and b.
HADB 295: https://haddaarcheodb.com/objet/295.
[17] H = 11 cm. National Museum of Afghanistan. BARTHOUX 1930, Pl. 61c. TISSOT 2006, p. 415,
K.p. Ha. 1136.203. HADB 297: https://haddaarcheodb.com/objet/297.
[18] H = 11 cm. Guimet Museum. BARTHOUX 1930, Pl. 61b. HADB 298: https://haddaarcheodb.com/objet/298
[19] H around 10 cm (by sight). National Museum of Afghanistan. BARTHOUX 1930, Pl. 62d.
HADB 296: https://haddaarcheodb.com/objet/296.

reproduction. Indeed, it is reasonable to posit that certain styles were more highly valued than others, eventually achieving recognition and renown–much like their creators, who likely gained a reputation for excellence, attracting apprentices, and ultimately creating emulators, before being imitated and reproduced. Let us take this line of inquiry further. It is even conceivable that such "imitation work" formed an integral part of an apprentices' training, serving as means for the Master to evaluate the precision, discipline and skill of his pupils before permitting them to develop and express their own artistic voice. Might we even envisage a Master who, as a form of reward, permitted a particularly gifted apprentice to contribute to the creation of a modelled scene, in the manner of Renaissance painters–such as when Andrea del Verrocchio is said to have entrusted his pupil Leonardo da Vinci with painting one of the angels in his *Baptism of Christ*? In the absence of written records, literary sources, or archaeological evidences, such an anachronistic hypothesis may appear speculative and hazardous. Nonetheless, such instances of "less accomplished" work, seemingly inspired by more refined examples, give rise to legitimate questions.

We have wondered whether this modelling represent a "first draft", the work of an apprentice, or a later "*replica*". What are the implications for the relative dating of these works of art? In the first two *scenarii*, this would suggest a temporal proximity to the period of the heads produced by the original workshop. In the third scenario, it would imply a later date. We should therefore proceed with caution. In any case, a question mark looms over this matter. The distinctive rendering of the gaze's depth also raises the question of whether a *brahman*[20] (Fig. 20), despite its Central Asian-inspired appearance, should be included in this group. The figure is portrayed as a mature man, characterized by elongated eyes and a slight baldness. His intense and severe gaze is emphasized by furrowed brows. The hair, beard, and moustache are rendered with parallel incisions, exhibit a subtle wave. Housed at the Museum für Völkerkunde in Berlin, its precise provenance, unfortunately, has been lost.

Thus far, our examination has led us to inquire into the potential contemporaneity of the decorations found across various monuments within the same area of a monastery, as exemplified by the *Stūpas* Courtyard of Tapa Kalān in these instances.

Similarities of facial proportions

Let us proceed with our examination and consider two Buddha heads: one photographed in right profile[21] (Fig. 21), the other in left profile[22] (Fig. 22). As with the representation of skeletons, at first glance, it may appear to be the same artwork, photographed from two different angles. Obviously, the eye of the specialist art historian will immediately discern a number of differencies, particularly in the rendering of the hair. Nevertheless, the design of the forehead, the roundness of the face, the almond shape of the half-closed eyes, the straight nose, the mouth with its hemmed lips, and the proportions of the different parts of the face undoubtedly exhibit a marked kinship. These iconographic features lead me to believe that these two artworks were likely produced by the same artist and, consequently, are contemporaneous.

It is important to note that these modellings originate from the site of Tapa Kalān: one ornated *stūpa* 92 located in the *Stūpas* Courtyard around the main *Stūpa* 68, the other forms part of the decor of niche 142, situated on the perimeter of the courtyard surrounding *Stūpa* 140 (Fig. 23). The construction sequence of Tapa Kalān remains poorly understood. The monastery consists of four adjoining parts. The oldest settlement is probably the one located furthest to the north, while the relative chronology of the other areas remains unknown. If these two artworks

[20] H = 17 cm. SECKEL 1968, p. 298, Pl. 32. HADB 453: https://haddaarcheodb.com/objet/453.
[21] Dimensions unknown. BARTHOUX 1930, Pl. 26a. HADB 39: https://haddaarcheodb.com/objet/39.
[22] Dimensions unknown. National Museum of Afghanistan. BARTHOUX 1930, Pl. 14a and b. TISSOT 2006, p. 395, K.p. Ha. 1056.123. HADB 40: https://haddaarcheodb.com/objet/40.

were created by the same hand, this would suggest that at least part of the decoration on *stūpa* 92 and niche 142 is contemporaneous. Admittedly, this single evidence is far from sufficient to presume that the entirety of the decorative programs in both areas should be regarded as contemporaneous. Only the gathering of concurrent evidence and indications of this kind can substantiate or challenge the legitimacy of extending this open question.

In this regard, we now turn to the observation of three modelled heads, one representing the Buddha[23] (Fig. 24) and the other two depicting Bodhisattvas (Fig. 25[24] and 26[25]). The faces, drawing inspiration from Indian artistic tradition, exhibit rounded, childlike traits. The facial features are idealized: half-closed eyes, a slight smile, full cheeks, and elongated earlobes, now partially broken. The facial lines, in some case slightly asymmetrical due to the nose, are charming and delicate, executed with delicacy and aesthetic refinement.

It could be contended that these traits are commonplace among all representations of Buddhas and Bodhisattvas. However, upon examining, for instance, the Buddha heads depicted in Fig. 3 to 6, we notice a similar iconography: intricately crafted hair, a closed mouth, plump cheeks, and elongated earlobes. Nevertheless, the facial style remains unmistakably distinct. What prompts me to doubt the likelihood of a singular creative hand behind these works is not merely the shared iconographic traits among these three heads, but rather the stylistic resemblances they exhibit, coupled with the kinship of the proportions of the different parts of the face, such as spacing between the eyes, distance from the eyes to the bridge of the nose, from the nose to the mouth, and so forth.

Once again, the stylistic similarities prompt a reconsideration of their possible contemporaneity. If the three heads presented here were indeed created by the same modeller or group of artist–we remain in the conditional tense–what insights might their respective findspots offer? They all originate from Tapa Kalān (Fig. 27[26]). However, it is worth noting that one was found around benches A or B, adorning the perimeter of the *Stūpa*'s Courtyard, the central part of the monastery, while the other was discovered in the niches surrounding the courtyard in *Stūpa* 140, the southernmost structure. This constitutes the second instance that forges a compelling connection between these two perimeters–a striking correspondence that was, I must admit, wholly unforeseen.

Some "Majestuous" Heads

Let us now turn to another comparison. The Genius with Flowers[27] (Fig. 28) is one of the most famous modellings among those found at Haḍḍa. He exudes a majestic appearance with the supple and symmetrical arrangement of his hair curls around the forehead, the perfect oval of his face, and the nervous modelling of his eyes and lips. The genius drew with his right hand (now lost) a whole supply of flowers contained in the sinus of his *uttarīya*, held by his other hand, in order to rain petals on the Buddha (FOUCHER 1930). This refined work can be brought closer to a head[28] (Fig. 29) depicting a Bodhisattva, a young *brahman*, or God Brahma himself. In the same manner, the hair is treated in large curly locks, symmetrically distributed on either side of a central parting. The face, mutilated at the level of the nose, bears the mark of

[23] Dimensions unknown. National Museum of Afghanistan. BARTHOUX 1930, Pl. 6a. TISSOT 2006, p. 395, K.p. Ha. 1055.122. HADB 36: https://haddaarcheodb.com/objet/36.
[24] Dimensions unknown. BARTHOUX 1930, Pl. 32. HADB 68: https://haddaarcheodb.com/objet/68.
[25] H = 22 cm. Guimet Museum. BARTHOUX 1930, Pl. 31. HADB 67: https://haddaarcheodb.com/objet/67.
[26] As the Buddha in Fig. 27 has no precise provenance, we have chosen to depict it outside the enclosure.
[27] Height of the head = 23 cm. Guimet Museum. BARTHOUX 1930, Pl. 37 and 38. FOUCHER 1930, pp. 101-110. HADB 151: https://haddaarcheodb.com/objet/151.
[28] Dimensions unknown. National Museum of Afghanistan. BARTHOUX 1930, Pl. 36. ROWLAND 1966, fig. 61. TISSOT 2006, p. 427, K.p. Ha. 1177.244. HADB 286: https://haddaarcheodb.com/objet/286.

Western influence. Rounded and youthful, it is idealised. By eponymy, I refer to this group as "the Majestuous".

Attention must now be directed to the locations under consideration (Fig. 30). The Flower Genie was uncovered within niche 142, which encircled the courtyard of *Stūpa* 140 at Tapa Kalān, while the Bodhisattva, conversely, was integrated into the ornamentation of bench B, embellishing the courtyard of *Stūpa* 68. Once again, we observe a discernible connection between the embellishments of the southernmost structure and those of the main one. While these concordant clues require further corroboration and verification, it is plausible to suggest that an observable pattern is beginning to emerge.

With their sophisticated aesthetic and majestic appearance, I draw a parallel between these two faces of Western inspiration and those of the renowned Bodhisattva Maitreya [29] (TARZI 2001, p. 66) (Fig. 31) housed at the Metropolitan Museum of Art [30], and Vajrapāṇi-Alexander[31] (Fig. 32), both adorning the niches surrounding the *Vihāra* 1 of Tape Shotor (TARZI 1976 and 1991) (Fig. 33). This striking Maitreya, well known to us, is distinguished by its luxuriant curly hair, its handsome and well-defined features, and its eyes inset with garnets, lending it a penetrating gaze. The equally famous Vajrapāṇi-Alexander is crowned with a diadem and wears long, curly hair, framing a beardless yet virile face with refined features, imbued with *pathos*: furrowed brows, a troubled gaze, and a grimace of disgust.

Likewise, I return to the group of mustached figures (Fig. 13 to 17), whose expressions I compare to the solemnity of Vajrapāṇi-Herakles[32] (Fig. 34), and whose aesthetics align with those of the face of the god Indra[33] (Fig. 35), both of which were uncovered within niche V2 (Fig. 36). Bearded, Vajrapāṇi-Herakles wears a mustache and short curls, his mature face with well-defined, regular features, exuding gravity. The god Indra presents a handsome face, with a shaved chin and a fine mustache. He wears an elaborate headdress arranged in several bands crossing over his forehead, adorned with a palm frond behind the ear and topped with a pyramidal motif crowned by a sphere. His deep gaze expresses determination and nobility of character.

The decoration of niches V1, V2 and V3, executed in clay, has been dated to the 2nd century CE by Professor Tarzi[34]. While we do not assert that the decoration in the area of benches A/B and the niches in the vicinity of *Stūpa* 140 date from the 2nd CE, this comparative examination does raise several important issues. Undoubtedly, the artistic workshop associated within niches V1-V3 appears to have served as a source of inspiration for some works in the areas surrounding *Stūpas* 68 and 140 in Tapa Kalān. It is even legitimate to question whether certain artworks from Tapa Kalān and Tape Shotor were created simultaneously, and whether an artist might have honed his skills in one monastery before creating his masterpiece in another. However, it should be noted that Professor Tarzi posits that clay production predates stucco, expressing doubts that these creations could have been contemporaneous. In any case, it can be considered that the 2nd century must be regarded as a terminus *postquem* for the creation of these modellings. And, if we may venture into this delicate ground, the question naturally extends to the others artworks we have just examined

[29] TARZI 1991 (unpublished thesis, see footnote n°1).
[30] H = 31 cm. Labelled *Head of Buddha or Bodhisattva, 5th-6th century. Afghanistan.*
[31] Height of the head around 30 cm. TARZI 1976, p. 403 and following.
[32] Height of the head around 30 cm. TARZI 2000. Regarding the identification of the model that lent its type to Herakles, see TARZI 1976, p. 394 and following.
[33] H = 27.5 cm. TARZI 1991 (unpublished thesis, see footnote n°1).
[34] TARZI, 1991 (unpublished thesis, see footnote n° 1).

from these locations. Although a more detailed examination and further cross-referencing are necessary, the question merits deeper consideration.

It is now crucial to emphasize that the second part of our analysis highlights the potential contemporaneity of the decorations found across various monuments, not only within the same sector of a monastery, but also spanning different areas of the same monastery. We shall now continue our study by examining another set of faces, applying the same considerations.

A passionate expression

First, let us observe a series of modelled faces characterized by passionate expressions, nervously rendered facial features, and pronounced wrinkles. Mustached but without a beard, the first figure, wearing a laurel crown, may depict either the god Indra or a donor[35] (Fig. 37). His hair is highly stylized and consists of perfectly round curls framing the face, reminiscent of English curls. The slightly sunken eyes lend him an expressive character. The aesthetic and stylistic characteristics of this figure bring it closer to a warrior or donor[36] (Fig. 38). One might almost wonder whether these two figures originated from the same mold, slightly reworked with a roughing tool to introduce subtle variations in the treatment of the hair curls and the modelling of the eyes. To be compared with these two expressive figures is a warrior[37] (Fig. 39) depicted as a middle-aged man, his mouth half-open in a painful grimace, as if he was being subjected to the sight of some heart-rending or unspeakable spectacle[38]. It can be compared to another moustached warrior with a shaved chin, wearing a kind of toque[39] (Fig. 40). The lobes of his ears are deformed and have thick, round rings. The facial features, with frowning eyebrows, upward gaze and parted lips, give the figure an emphatic expression, marked by Western influence.

The crowned head originates from *Vihāra* 56 in Bāgh Gaï, an isolated establishment renowned for its peculiar iconography (VANLEENE 2019, p. 153 and following). The warrior wearing the toque comes from *stūpa* 70 at Bāgh Gaï, located in a secluded enclosure to the west of the main monastery[40] (Fig. 45). Unfortunately, the provenance of the heads housed at the Victoria and Albert Museum and National Museum of Afghanistan has been irretrievably lost. However, the similarities among this group of four heads strongly suggest that they may all originate from the Bāgh Gaï monastery, and could therefore perhaps have been executed by the same artist, who might have worked across the various sectors of the site. While this hypothesis requires further confirmation, the potential connection between them certainly warrants closer attention.

---

[35] H = 10 cm. Guimet Museum. BARTHOUX 1930, Pl. 57b. HADB 133: https://haddaarcheodb.com/objet/133.

[36] H = 9.8 cm. National Museum of Afghanistan. TISSOT 2006, p. 423, K.p. Ha. 1164-231. MIZUNO 1964, p. 153.

[37] Housed at the Victoria and Albert Museum, n° 169-1929.

[38] With regard to the identification of the scene, two potential interpretations come to mind: the Attack of Māra's Army, in which demons–with their thousand appearances–are sometimes described in texts and represented in art in the manner of princes or Bodhisattvas, armed or unarmed, with or without demonic iconographic clues (in this case, it could be the teeth), or the *Mahāparinirvāṇa*, during which the Buddha's devotees and deities attending the scene show their sadness and the pain of the coming loss by shouting, crying, raising their arms, pulling out their hair, etc.

[39] H = 10 cm. National Museum of Afghanistan. BARTHOUX 1930, Pl. 82a. MIZUNO 1964, p. 155. TISSOT 2006, p. 423, K.p. Ha. 1165-232. HADB 351: https://haddaarcheodb.com/objet/351.

[40] *Stūpa* 70 is accompanied by a staircase and two symmetrically arranged secondary *stūpas*, all built on a common podium. Two further symmetrically arranged *stūpas* have been added. This configuration is similar to that of *Stūpa* 12, the main *stūpa* at Bāgh Gaï monastery.

This series can be compared to depictions of warriors wearing turbans with disc-shaped front clasps (Fig. 41[41] and 42[42]). The second figure is characterized by a cap with a puff at the back. His hair is elegantly treated in stylized curls, featuring rounded curls across the forehead and in the form of rolls around the ears. Both figures displays a moustache and a shaved chin. Their tormented and anguished facial expression recall Western stylistic influence. To this group, I associate the face of a donor[43] (Fig. 43), distinguished by an elaborate styled turban adorned with a large, ornate circular medallion at the front and smaller medallions at the temples. He appears youthful, with a thin moustache. Similarly, his features convey a solemnity evocative of Western art: furrowed brows, a serious expression, and a penetrating, brooding gaze.

Although its iconography differs, I have included within this group of "Passionates" figures a particularly expressive *brahman*[44] (Fig. 44), whose contorted, grimacing expression and anguished gaze clearly exhibit a kinship–especially with those of figures 37 and 40.

The warrior depicted in Fig. 42 originates from the Pratès monastery, although no additional contextual information are currently available (Fig. 46). The *brahman* illustrated in Fig. 44 was discovered in the vicinity of the main *Stūpa* 67 at Tapa Kalān (Fig. 47). Regrettably, the provenance of the other works has been lost. Once again, the available evidence remains insufficient for definitive conclusions; nonetheless, it raises important questions regarding the potential contemporaneity of the decoration's production in certain areas of Bagh Gaï, Pratès, and Tapa Kalān.

A shy countenance

We should now examine more closely two delicate faces: the first, a genie[45] (Fig. 47), and the second, a Bodhisattva[46] (Fig. 48). Both exude a gentle, dreamy expression of ethereal countenance, characterized by rounded features and a similar hairstyle, consisting of round curls, a very short, tight English braid framing the face. The top portion of the hairstyle distinguishes them: the genie dons a crown adorned with what appears to be gemstones and a central pearl. The upper section of the hair is wrapped in a turban, arranged in multiple knots and cascading into a broader section on the left, resembling a novice's braid. In contrast, the Bodhisattva is adorned with a tiara, featuring an intricate headband embellished with flowers and central pearls, all culminating in a palmette or bun shaped like a palmette.

This soft, feminine, refined facial depiction is apparent in the Bodhisattva[47] (Fig. 49) whose fascinating technical study was presented by Angela Chang[48], as well as in other Bodhisattvas (Fig. 50[49], Fig. 51[50] and Fig. 52[51]). The first two also feature a variant of the English curls framing the face, as well as the palmette hairstyle.

---

[41] H between 12 and 15 cm (by sight). Delhi National Museum.
[42] H = 10.5 cm. National Museum of Afghanistan. BARTHOUX 1930, Pl. 74b. MIZUNO 1964, p. 152. TISSOT 2006, p. 423, K.p. Ha. 1166.233. HADB 352: https://haddaarcheodb.com/objet/352.
[43] Unknown dimensions. National Museum of Afghanistan. BARTHOUX 1930, Pl. 95g. TISSOT 2006, p. 421, K.p. Ha. 1156-223. HADB 311: https://haddaarcheodb.com/objet/311.
[44] H = 12.5 cm. Guimet Museum. BARTHOUX 1930, Pl. 61a and a'. HADB 292: https://haddaarcheodb.com/objet/292.
[45] H = 12.2 cm. Guimet Museum. BARTHOUX 1930: Pl. 55a. HADB 153: https://haddaarcheodb.com/objet/153.
[46] Unknown dimensions. BARTHOUX 1930, Pl. 76a. HADB 71: https://haddaarcheodb.com/objet/71.
[47] H = 22 cm. Harvard Art Museums. N° 1943.57.7: https://harvardartmuseums.org/collections/object/202859. HADB 475: https://haddaarcheodb.com/objet/475.
[48] CHANG, EREMIN, DEGRYSE, RAYNER, LAURSEN 2025.
[49] H around 20 cm (by sight). Delhi National Museum, n° 49.20/57.
[50] H = 17 cm. Guimet Museum. BARTHOUX 1930, Pl. 35b. HADB 104: https://haddaarcheodb.com/objet/104.
[51] Unknown dimensions. National Museum of Afghanistan. BARTHOUX 1930, Pl. 51a. TISSOT 2006, p. 405, K.p. Ha. 1094.161. HADB 70: https://haddaarcheodb.com/objet/70.

The subsequent three figures (Fig. 53[52], 54[53] and 55[54]) may be associated with this group. The Bodhisattva depicted in Fig. 53 exhibits a remarkable delicacy, with a feminine appearance. The headdress, though missing its upper portion, consists of a circular roll of fabric decorated with medallions. The hair is intricately styled in small, curled, and twisted locks that cascade down to frame the face. He wears earrings composed of round beads. The facial features are influenced by Indian aesthetics: small eyes, nose and smiling mouth. Traces of red paint remain visible, outlining the hair, accentuating the mouth and eyes, and marking the neck and various parts of the hairstyle. With its delicate, feminine appearance, the face of the Bodhisattva in Fig. 54 is as well idealized. He is wearing a headband, decorated with circular medallions, the torsion of his posture accentuating his melancholic, romantic, or shy expression. Once again, the face of the Bodhisattva illustrated in Fig. 55 is delicate, almost feminine. The hair is treated in beautiful wavy strands. He wears an ornate headband, at the centre of which lies a rectangular plate, flanked by two medallions, with a larger disc of greater diameter appearing on either side. Apart from the variations in hairstyles and jewelry, these Bodhisattvas heads exhibit a shared feminine and delicate countenance, subtly tilted to one side, which conveys a romantic, almost timid expression.

I would also like to include four additional heads (Fig. 56[55], 57[56], 58[57] and 59[58]) into this group. The Bodhisattva depicted in Fig. 56 had hairs almost slicked back and pulled back. The *uṣnīṣa* bun is encircled by a simple but thick band of rolled fabric, and he wears earrings featuring a lion's head clasp. The idealized face is delicate and subtly feminized, exhibiting a noticeable Western influence. The posture conveys a sens of movement. The Buddhas illustrated in Fig. 57 and 58 display facial features of Indian inspiration. The *uṣnīṣa* bun is placed on the side of the skull, held in place by a ribbon, with the ends falling backward in the case of the second figure. The hair strands are treated in shallow furrows. With an almost feminine grace, the face is soft and smiling. The slight inclination of the head induces a movement. The Bodhisattva in Fig. 59 is adorned with a simple turban, a rolled-up band of cloth, and sports short hair with a bun, the waves of which are depicted in a hollow pattern. The face is soft, smiling, bearing the marks of Indian aesthetic influence. The position of the neck suggests a twist, a movement. Once again, these very delicate faces of feminine appearance displays a shy expression.

Should we venture to hypothesize, we might suggest that these modelled productions bear the distinctive hallmark of a workshop of artist-modellers. A group rather than a hand, because they do not exhibit the strict resemblance observed earlier, and because for all that, they have an indisputable stylistic kinship. Let us turn our attention once again to the Bodhisattva figure from Fig. 59. For the second time, I pondered whether this head, with its simpler rendering of the hair, might represent a “first draft”, the work of an apprentice, or a subsequent attempt to imitate the style of the “Shy expression” group.

What insights can be drawn from their location? The provenance of several of these works remains unidentified. As for those with known origins, the Bodhisattva depicted in Fig. 53

---

[52] H = 15.5 cm. Guimet Museum. BARTHOUX 1930, Pl. 44b. HADB 105: https://haddaarcheodb.com/objet/105.
[53] H around 10-12 cm (by sight). Guimet Museum. BARTHOUX 1930, Pl. 49a, a’ and a”.
HADB 102: https://haddaarcheodb.com/objet/102.
[54] H = 15 cm. National Museum of Afghanistan. BARTHOUX 1930, Pl. 54d. TISSOT 2006, p. 401,
K.p. Ha. 1079.146. HADB 101: https://haddaarcheodb.com/objet/101.
[55] H = 23 cm. National Museum of Afghanistan. BARTHOUX 1930, Pl. 30a. TISSOT 2006, p. 406,
K.p. Ha. 1098.165. HADB 103: https://haddaarcheodb.com/objet/103.
[56] H around 10-12 cm (by sight). Guimet Museum. BARTHOUX 1930, Pl. 54b.
HADB 53: https://haddaarcheodb.com/objet/53.
[57] H around 10-12 cm (by sight). National Museum of Afghanistan. BARTHOUX 1930, Pl. 54a.
HADB 52: https://haddaarcheodb.com/objet/52.
[58] H = 12.5 cm. BARTHOUX 1930, Pl. 52a. HADB 99: https://haddaarcheodb.com/objet/99.

originated from the Great *Stūpa* 1 of Tapa-i Kafarihā. The genie represented in Fig. 47 was discovered near a *stūpa* located within one of the chambers surrounding its enclosure (Fig. 60). The Bodhisattva depicted in Fig. 52, for his part, comes from Tapa-i Kafarihā as well, although the exact findspot is unknown. The Bodhisattva illustrated in Fig. 48 originates from the main *stūpa* 12 at Bāgh Gaï, while the Bodhisattva depicted in Fig. 59 is associated with its secondary *stūpa* 5. Another Bodhisattva (Fig. 51) was recovered from *stūpa* 70 of Bāgh Gaï (Fig. 62). As for the other Bodhisattvas: the one illustrated in Fig. 56 was unearthed near benches A-B surrounding Tapa Kalān's *Stūpa*s Courtyard; the one shown in Fig. 55 was found near *stūpa* 35 within the same courtyard; and the last one (Fig. 54) originated from *stūpa* 23, housed within a chamber adjacent to it. Finally, the two Buddhas (Figs. 57 and 58) were part of the decoration of the main *Stūpa* 68 (Fig. 61). Drawing any conclusions at this stage would be premature. Nevertheless, these instances prompt reflection and underscore the necessity of further investigation into the potential contemporaneity of the creation of the decor in certain areas of Tapa-i Kafarihā, Bāgh Gaï, and Tapa Kalān.

Additional artworks may tentatively be attributed to the so-called "Shy expression" workshop of Haḍḍa, characterized by delicate, feminine faces, gently tilted to one side, evoking a romantic, almost shy expression. Might the creation of these four modelled heads depicting the god Indra (Fig. 63[59], 64[60], 65[61] and 66[62]), with their strikingly similar hairstyles– except for the last one–be ascribed to the same workshop? The aforementioned characteristics are similarly discernible in this set. In any case, it remains highly plausible that this group itself was the work of a single artist. However, given the loss of most provenances, it is not possible to draw any conclusions at this juncture.

A Central Asian touch

Finally, we turn our attention to a series of modelled faces exhibiting Central Asian inspiration, characterized by a shared aesthetic rendering and kinship of proportion. Let us first observe a Indra head (Fig. 67[63]), whose complex headdress, consisting of a crown surmounted by two coiled spirals, features an Iranian crescent, possibly Hephtalite. The face has irregular features. Seen in profile, the forehead is exaggeratedly rounded. The half-closed eyes are almond-shaped. The nose is short and pointed, the mouth smiling. The lobes of his ears are elongated by the heavy pearls he was wearing. A fold is marked on the neck. Barthoux noted traces of red polychromy. The round, idealized face of the Bodhisattva depicted in Fig. 68[64] also features an exaggeratedly rounded forehead. The hair is styled on either side of a median parting and falls along the nape of the neck, barely wavy. He dons a completely stylised bun, with simple cavities suggesting curls. This combination of distinct hair treatments is quite uncommon. The bun is encircled by a tiara composed of alternating discs and crescents. The Bodhisattva in Fig. 69[65] wears a rigid turban edged with a worked headband and decorated with bands of passementerie running from front to back from a central medallion, perhaps a cabochon. The hair is medium-length and falls behind the ears in the shape of an English curl. The earlobes are elongated and he wears round, massive earrings without decoration. The round

[59] H = 12.5 cm. National Museum of Afghanistan. BARTHOUX 1930, Pl. 75b. TISSOT 2006, p. 399, K.p. Ha. 1070.137. HADB 125: https://haddaarcheodb.com/objet/125.
[60] H = 9 cm. Guimet Museum. BARTHOUX 1930, Pl. 75d. HADB 126: https://haddaarcheodb.com/objet/126.
[61] H around 12-15 cm (by sight). Delhi National Museum, n° 49.20/59.
[62] H = 19.7 cm. Saint Louis Art Museum, n° 29:1931.
[63] H = 11.2 cm. Guimet Museum. BARTHOUX 1930, Pl. 56a and a'. HADB 128: https://haddaarcheodb.com/objet/128.
[64] Unknown dimensions. BARTHOUX 1930, Pl. 50c. HADB 66: https://haddaarcheodb.com/objet/66.
[65] Unknown dimensions. BARTHOUX 1930, Pl. 74a. HADB 65: https://haddaarcheodb.com/objet/65.

face is idealized with the previously mentioned features also evident: an exaggeratedly rounded forehead, almond-shaped half-closed eyes, and a short, pointed nose.

For similar reasons, the Bodhisattva illustrated in Fig. 69 can be compared to the one depicted in Fig. 70[66]. The features exude idealization, with eyes half-closed, a gentle smile, and a rounded face. Positioned just above the eyebrows, a stucco button represents the *ūrṇā*. The headdress is distinctive: adorned with a diadem of spherical pearls, gradually increasing in size towards the central square pearl, all crowned by a fan-shaped palmette. Adjacent to the tiara, small pointed hornlets emerge at ear level. I would like to highlight the treatment of the hair, which is meticulously curled, fashioned into parallel waves that frame the forehead.

Once more, the question arises: if these modelled faces were indeed crafted by the same workshop, what does the location suggest? It is with considerable intrigue that I observed a connection emerging between the production in certain parts of the decoration in Tapa-i Kafarihā (Fig. 72), Bāgh Gaï (Fig. 74), and Tapa Kalān (Fig. 73)–the link above emphasized in the "Passionnates" and "Shy Expression" series.

A wink between two artists?

I momentarily delve back into purely stylistic considerations. The endeavor becomes more intricate and even precarious as we venture into cross-comparisons. Nonetheless, it remains valuable to explore where this inquiry may lead and the questions it may raise.

The connection between the Bodhisattva depicted in Fig. 70 and another[67] (Fig. 71) unearthed at Bāgh Gaï 56 is evident, even though the facial features exhibit a very different aesthetic, notably characterized by a complete absence of Central Asian influence, with regard to the second one. Here, the resemblance lies primarily in the treatment of the hairstyle. We note the stucco button represents the *ūrṇā* positioned just above the eyebrows. Their headdress are quite distinctive: a diadem of round pearls, whose diameter increases as they approach the central square pearl, all topped by a fan-shaped palmette. The tiara is adorned with small pointed hornlets emerging at ear level. The treatment of the hair is fashioned into parallel waves that frame the forehead. Furthermore, the proportions of facial features, the rounded contours of the chins, and the manner in which the elongated earlobes protrude from the hair exhibit remarkable similarities. In light of these markedly distinct facial appearances, how should we interpret the shared stylistic inspiration between the hairstyles? Can we attribute their creation to a single artisan, or perhaps to a workshop? Did one sculpture serve as inspiration for the other? Are they contemporaneous, or do they belong to different periods?

It is almost reminiscent of a subtle wink or a hommage between two artist comrades, playing at modelling a character in the each other's style. I am referring to a comparison whose anachronism stems from its contemporaneity. In 2004, I attended an exhibition dedicated to the worlds of Moebius, aka Jean Giraud and Hayao Miyazaki, two renowned artists of the twentieth century, with very different origins but that is beyond the point, sharing similar ideas and concerns. The breathtaking thing about this exhibition was the game the artists played, with Moebius drawing one of Miyazaki's characters and *vice versa*. The outcome was remarkable. While each character retained its distinctiveness and its iconography, it was evident that they were rendered by the other's hand. Nowadays, such exchanges give rise to performance events and are extensively documented–a far cry from the period we are concerned with. Admittedly, this analogy may be somewhat tenuous, particularly given the absence of written testimony or archaeological evidence. It is no more than a proposition I offer for discussion.

---

[66] H = 16 cm. Guimet Museum. BARTHOUX 1930, Pl. 35a. HADB69: https://haddaarcheodb.com/objet/69.

[67] Unknown dimensions. National Museum of Afghanistan. BARTHOUX 1930, Pl. 51b.
HADB 81: https://haddaarcheodb.com/objet/81.

Conclusion

This study is still at a preliminary stage, yet the concept is clear. Numerous other series are presently under examination, holding the potential for additional insights, while the proposed ones are awaiting completion, and others remain to be discovered. I will not delve into all the ones I have identified, but I will mention three. Another potential series comprises a group of warriors–some wearing a Phrygian cap, others not (Fig. 75)–whose hair are rendered in bristling curls, shaped like flames, framing the face. The facial features, marked by Western influence, convey a melancholic expression, reinforced by frowning eyebrows, a worried gaze and half-open lips. Another series emerges featuring a group of monks (Fig. 76), while yet another includes a group of genius and/or donors (Fig. 77), depicted as chubby, smiling, or laughing youths, even infants. Their joyful expression–characterized by wide-open eyes and fleshy lips half-open in a smile– could furthermore be compared to the grimacing expression of the warriors whose hair is rendered in the form of bristling curls.

At the outset of this discussion, we posed a series of question: is it possible to discern the hand of a Gandhāran artist-modeller? To identify a style? To recognize the touch of a Master, his pupils, or a specific workshop? This preliminary analysis suggests that such an undertaking is not only possible, but also holds considerable potential. We pondered the insights we could glean from this examination regarding the chronological order of construction and ornamentation of various sections of the monastery. We observed that our study bring to light the emergence of certains patterns and establish potential connections between the creation of a part of the decoration in different areas of the same monastery, and even between neighbouring monasteries. Finally, through a comparative analysis with the modellings discovered at Tape Shotor, we are able to propose a *postquem* chronological connection between specific series and the works found in niches V2 and V3. This methodological approach has proven to be an enriching opportunity for advancing our understanding of art workshops and artists' work, fostering research and exploration of related issues from different perspectives.

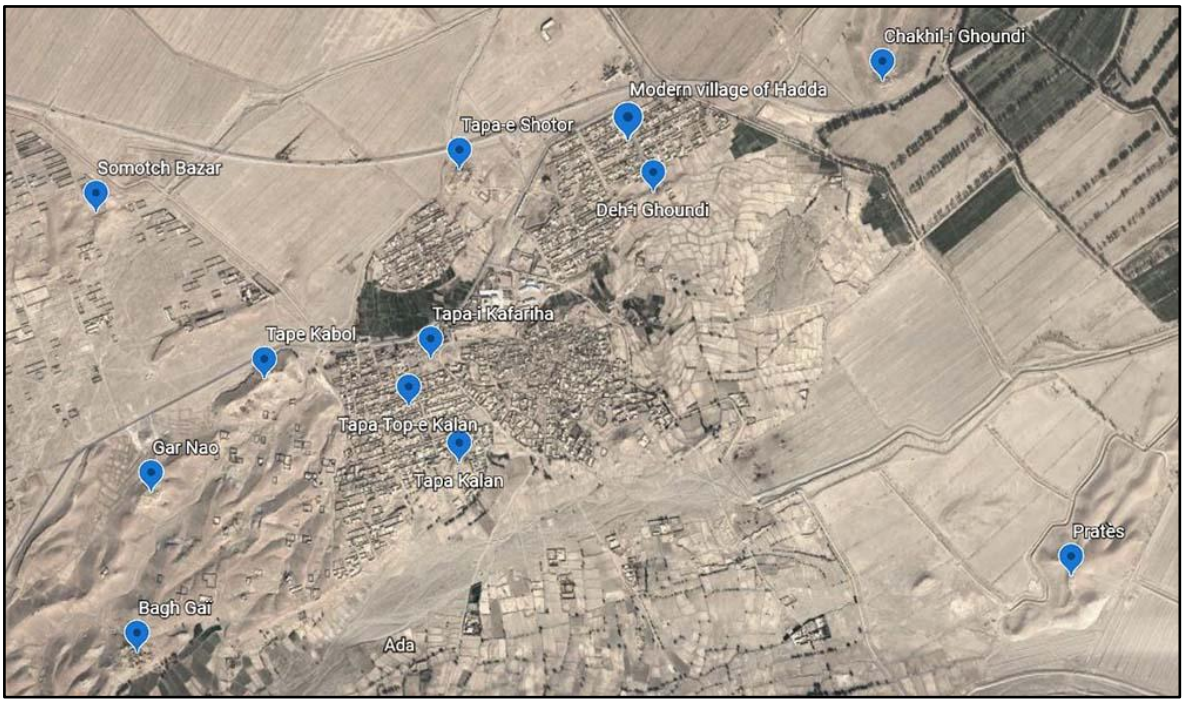


Fig. 1: The main monasteries of Haḍḍa in Google Earth satellite imagery

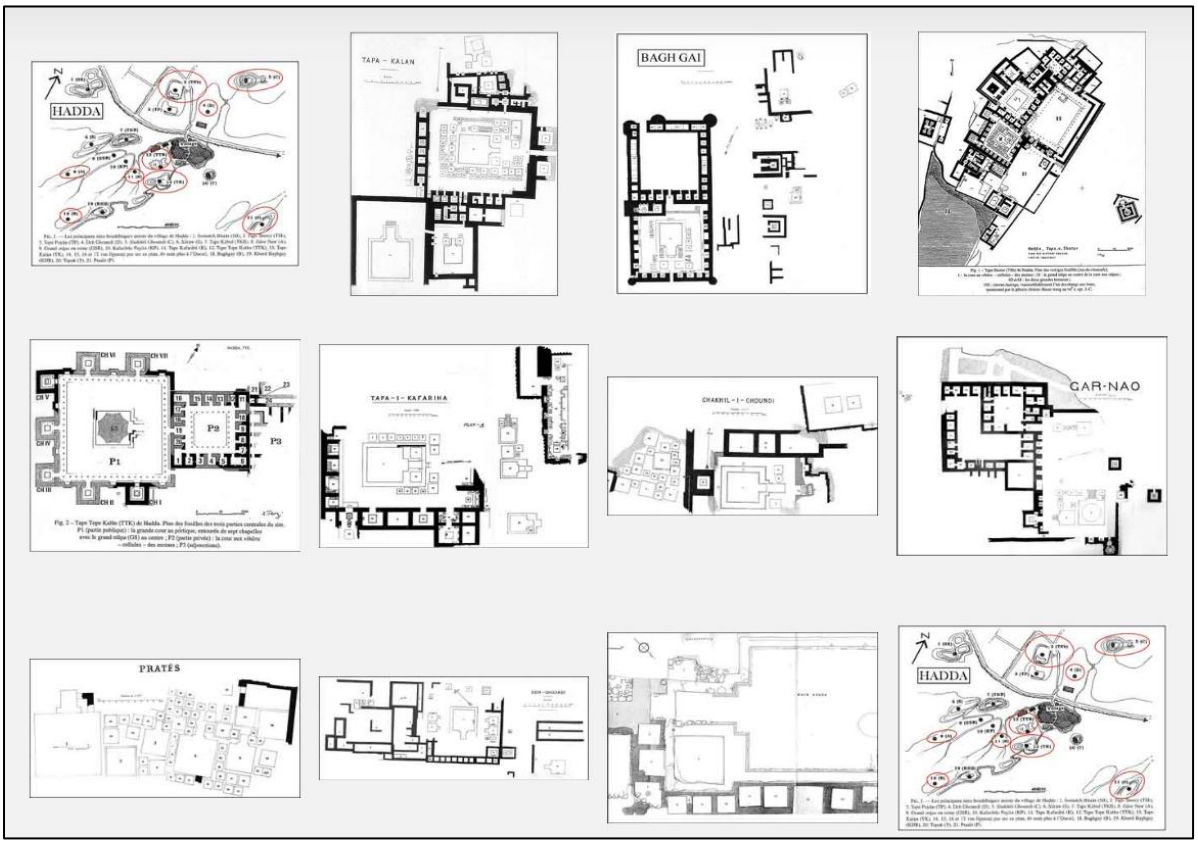


Fig. 2: Plans of the monasteries of Haḍḍa by BARTHOUX 1933, MIZUNO 1968 and TARZI 2000

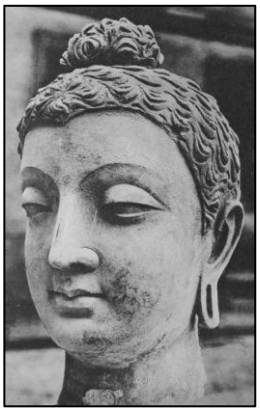
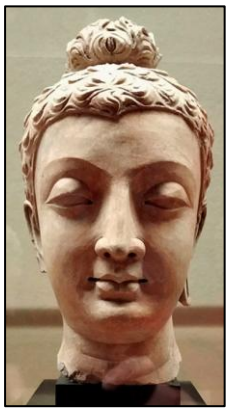



Fig. 3: HADB 16, MG 17272, TK62

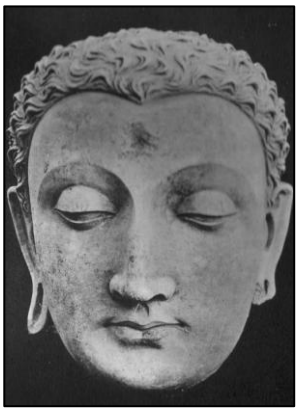
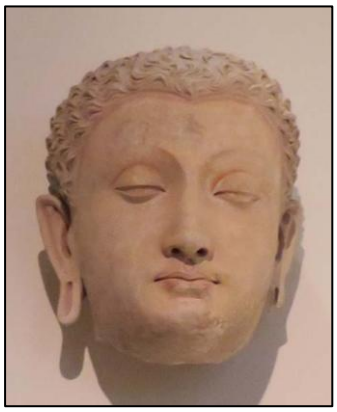



Fig. 4: HADB 24, MG 17273, TK68

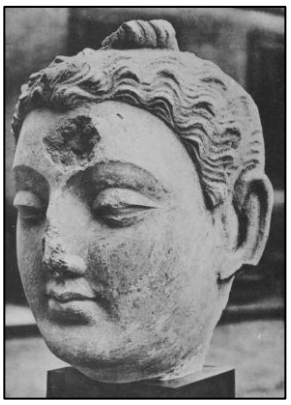



Fig. 5: HADB 23, MG 17245, TK

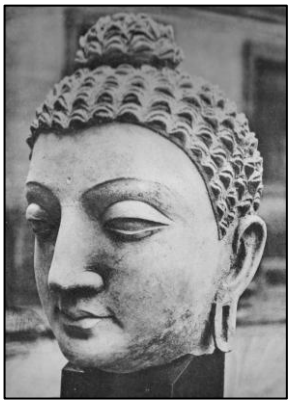
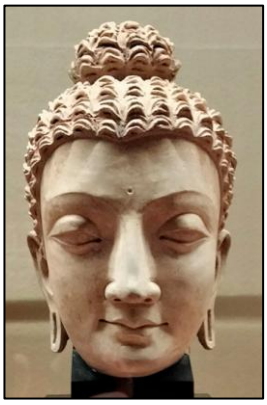



Fig. 6: HADB 17, MG 26638

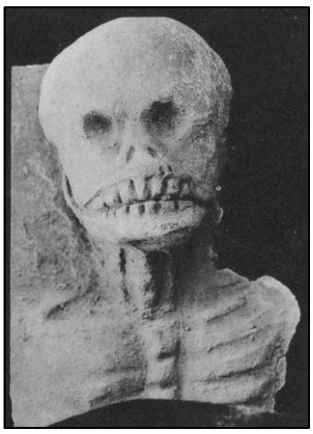


Fig. 7: HADB 184, TK68



Fig. 8: MG 17332
Photo ©RMN-Guimet, Thierry Ollivier

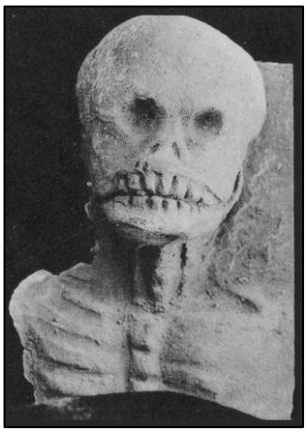


Fig. 9: HADB 184, reversed



Fig. 10: HADB 138, TK68



Fig. 11: HADB 197, TK67

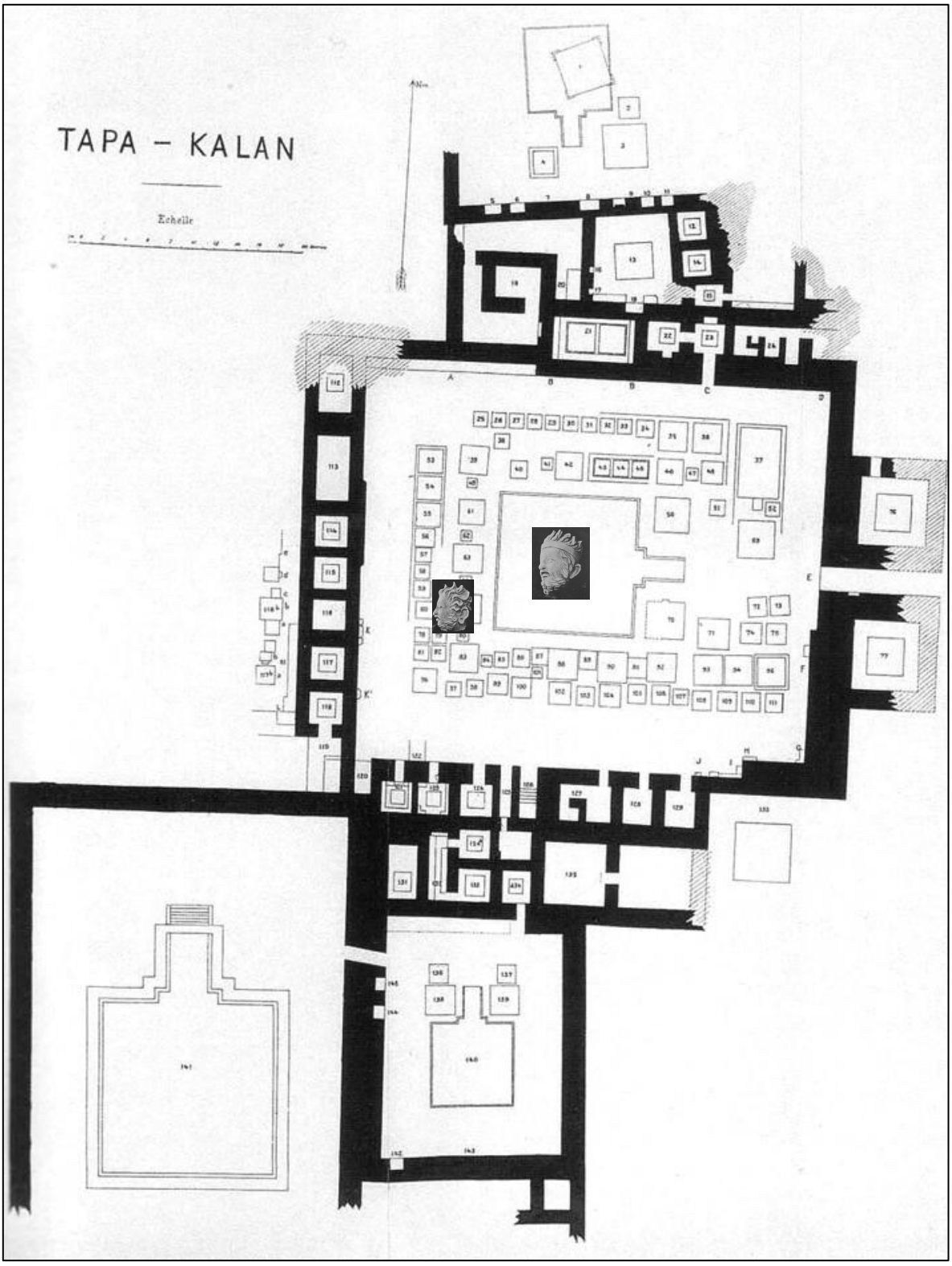


Fig. 12: Map indicating the findspots of the modellings shown in Figs. 10 and 11

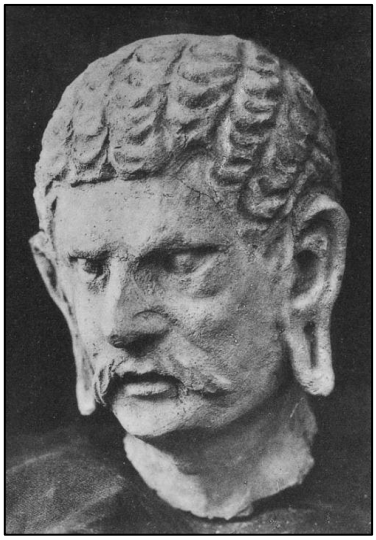


Fig. 13: HADB 355, TK67

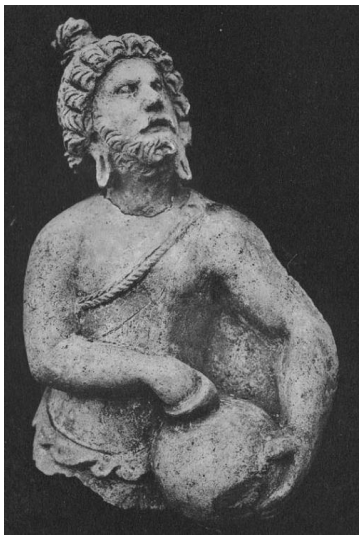


Fig. 14: HADB 239, TK68

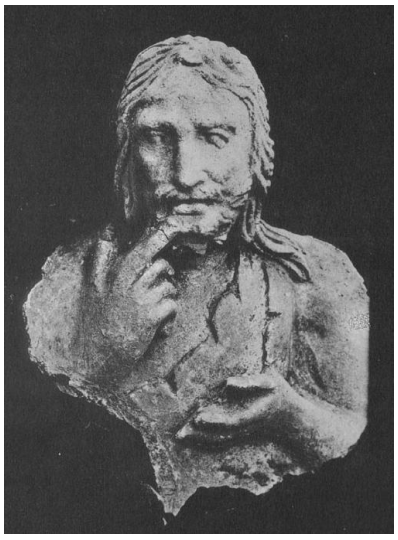


Fig. 15: HADB 295, TK68

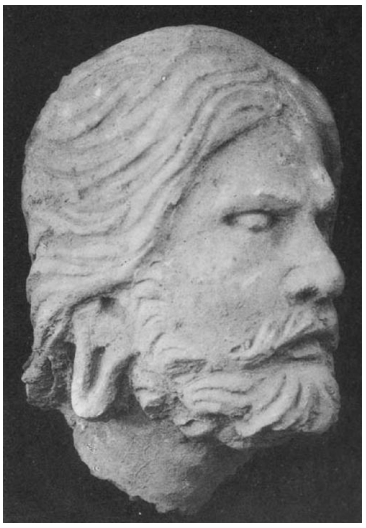


Fig. 16: HADB 297, TK68

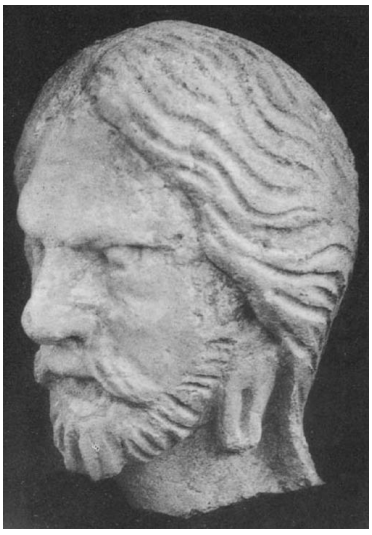


Fig. 17: HADB 298, TK68

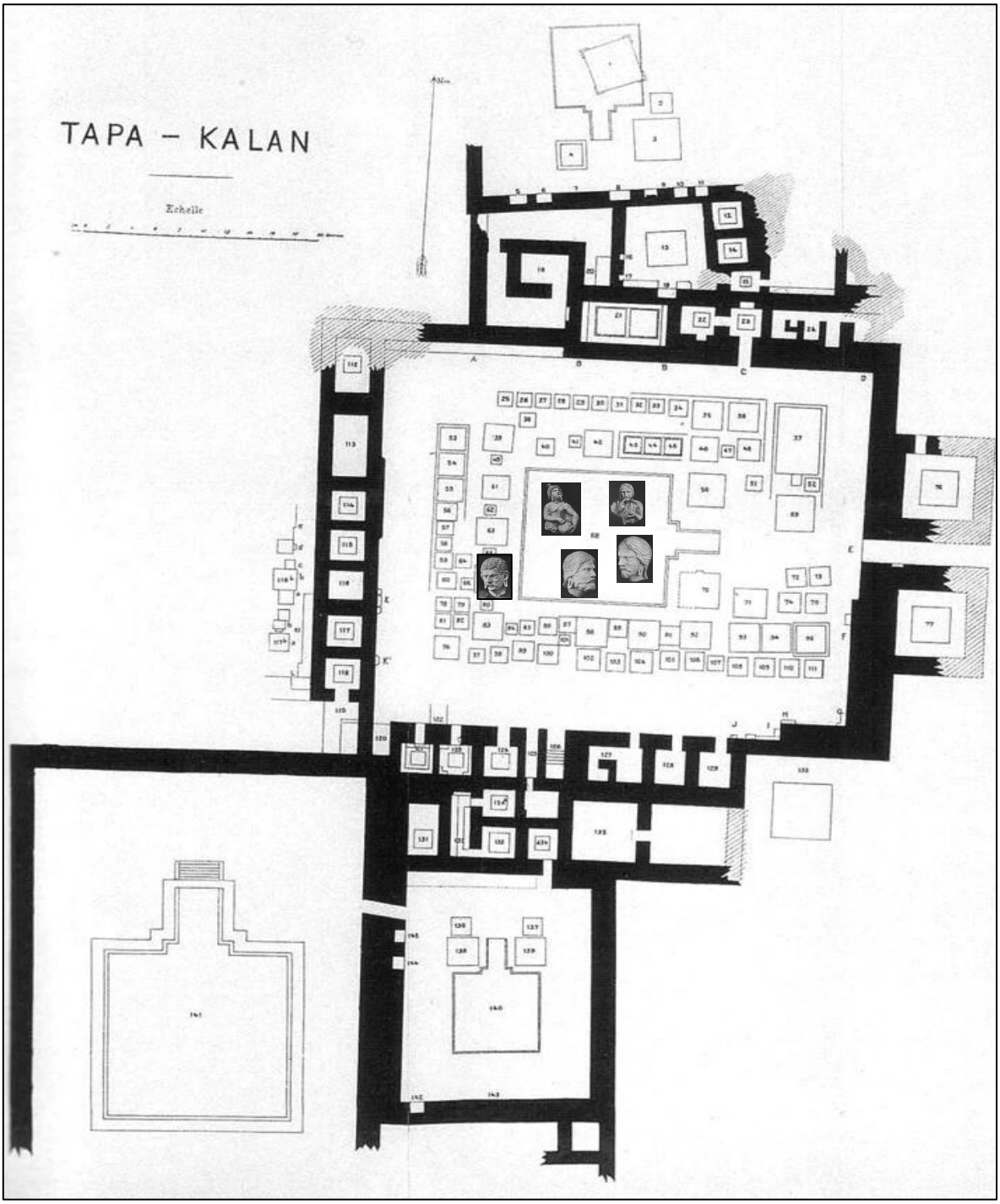


Fig. 18: Map indicating the findspots of the modellings shown in Figs. 13 to 17

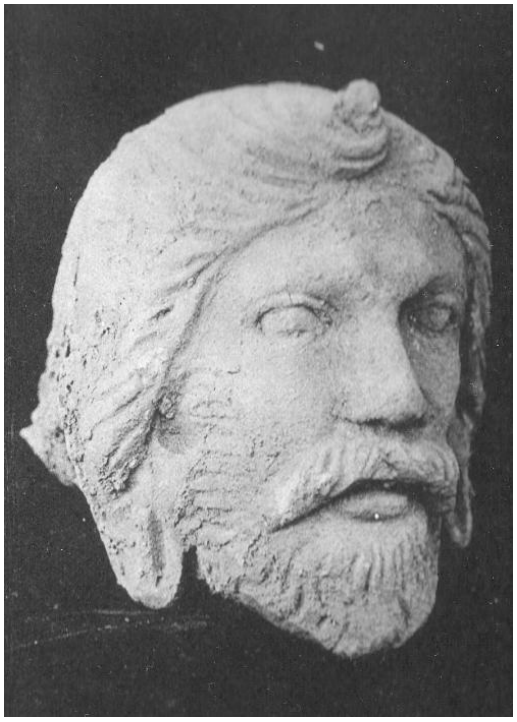


Fig. 19: HADB 296, TK68

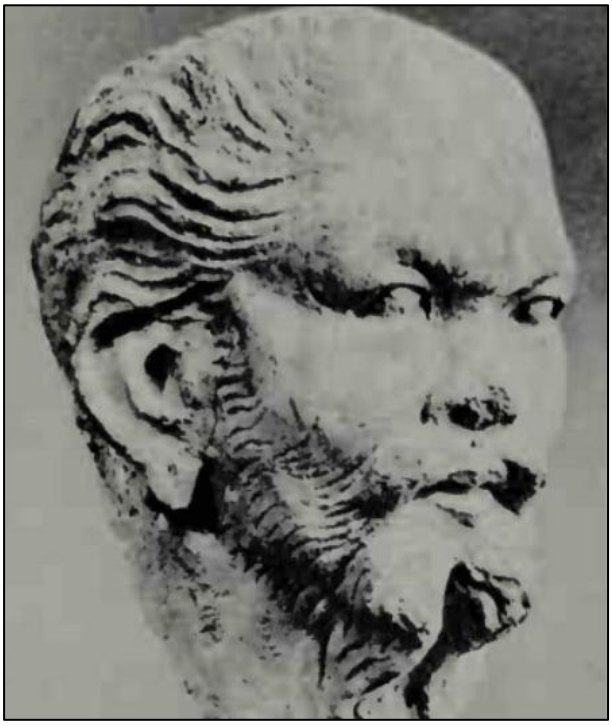


Fig. 20: HADB 453

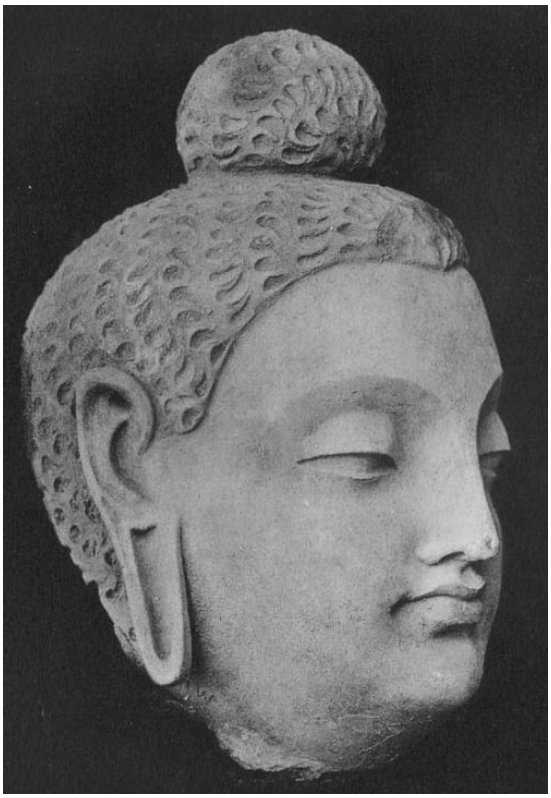


Fig. 21: HADB 39, TK92

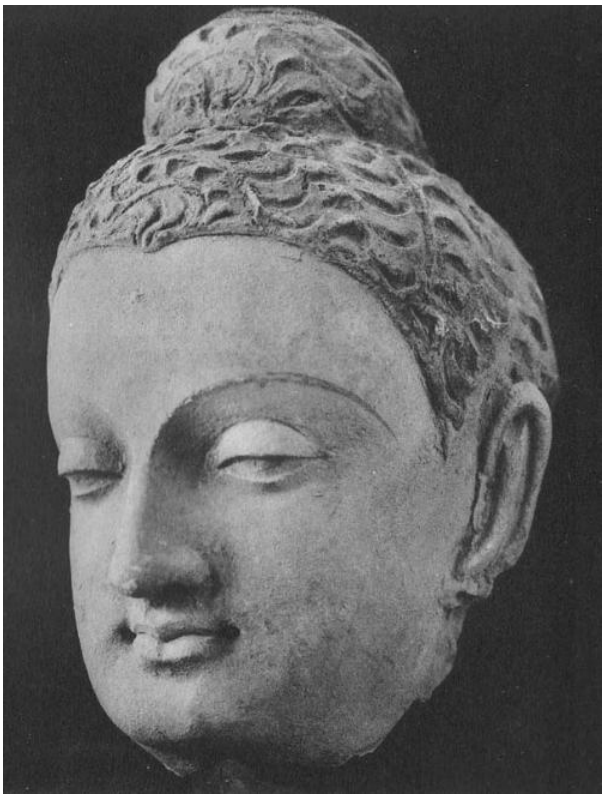


Fig. 22: HADB 40, TK142

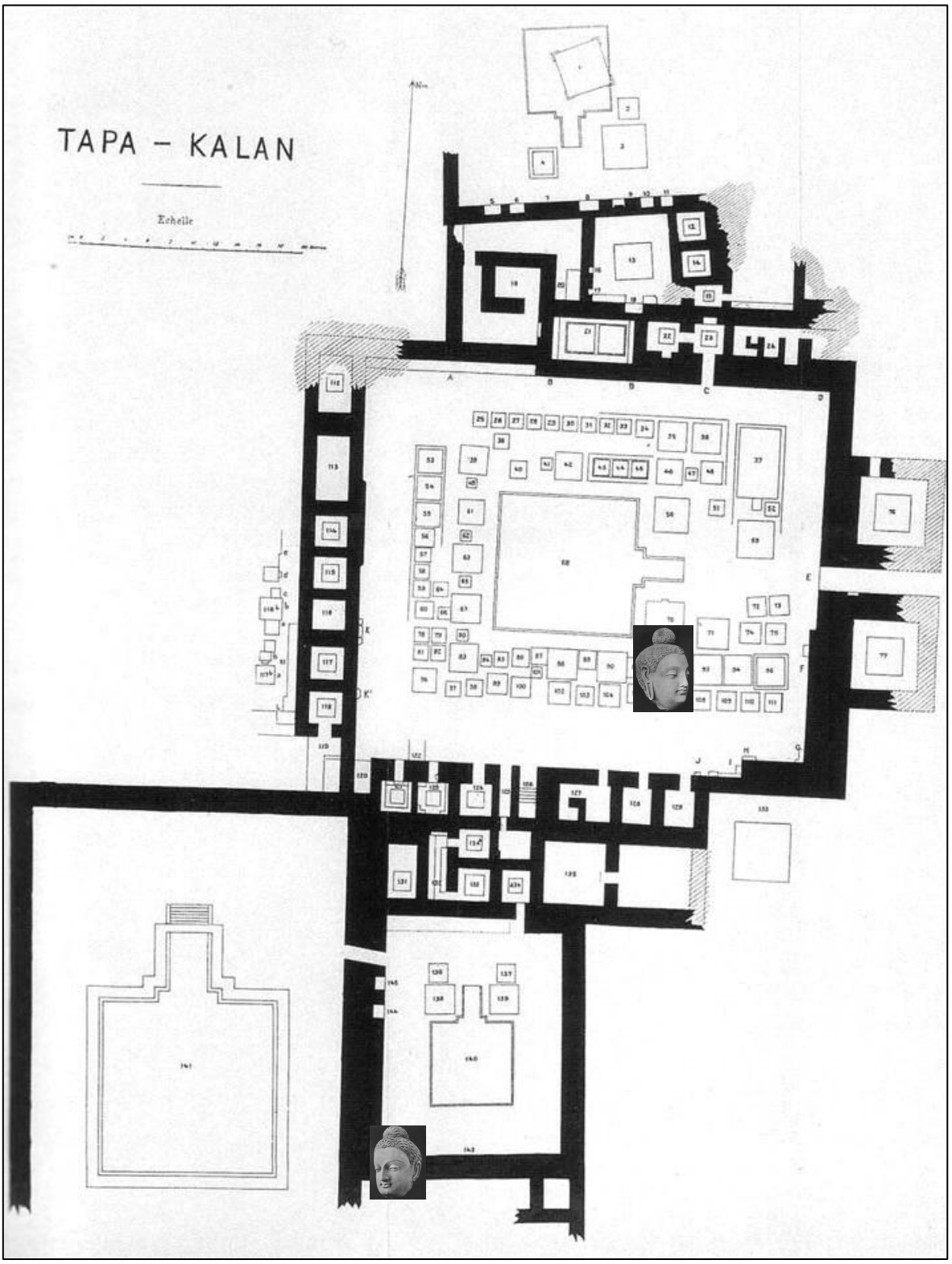


Fig. 23: Map indicating the findspots of the modellings shown in Figs. 21 and 22

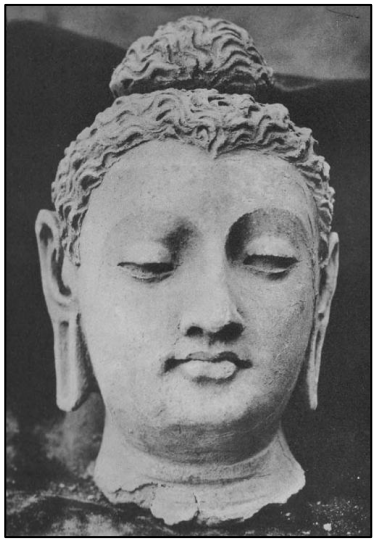


Fig. 24 HADB 36, TK

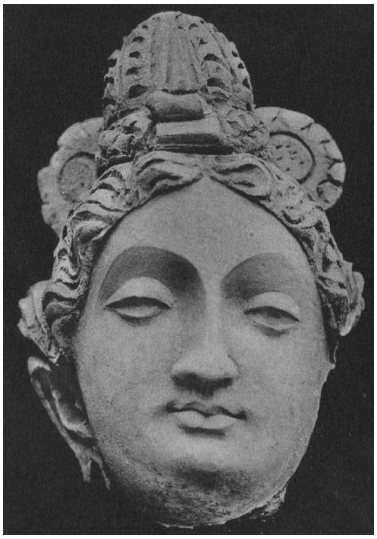


Fig. 25: HADB 68, TK142

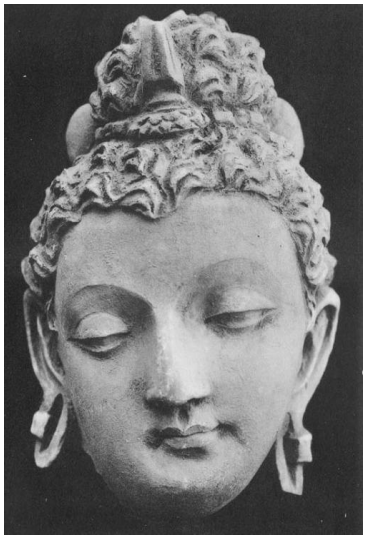


Fig. 26: HADB 67, TK A–B

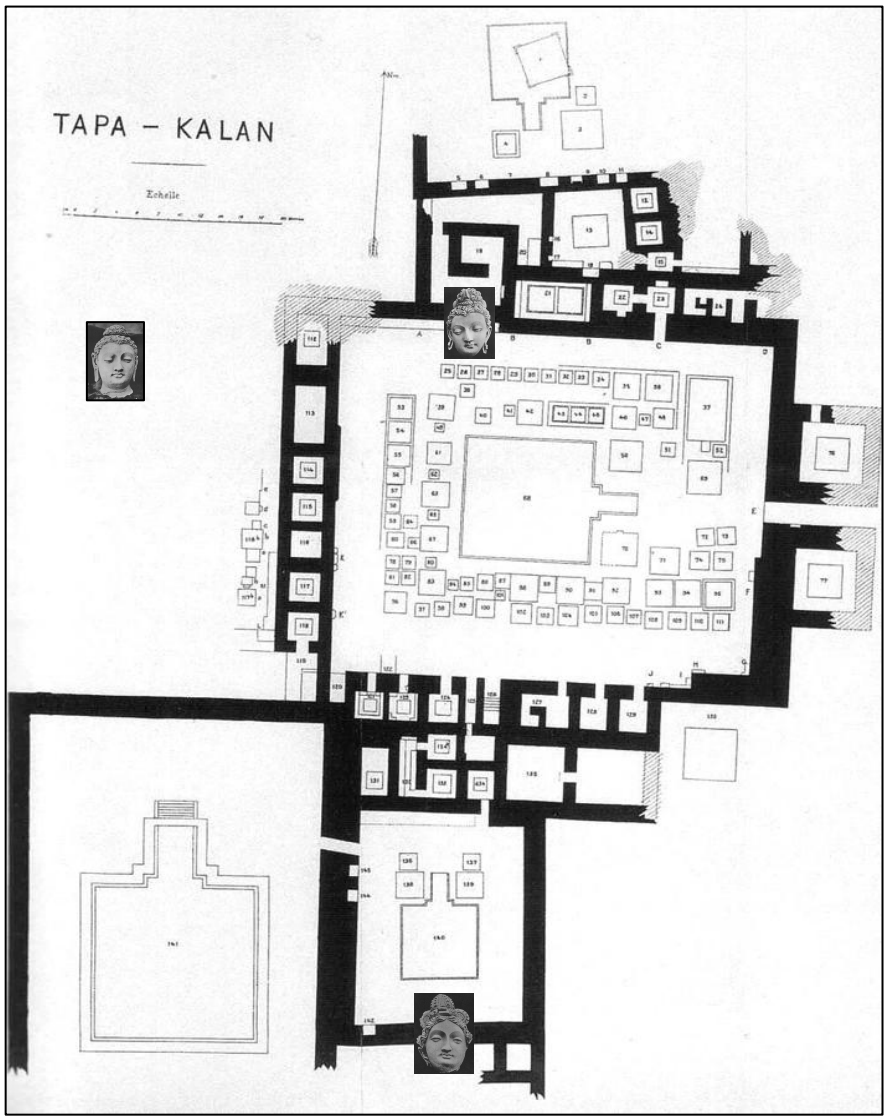


Fig. 27: Map indicating the findspots of the modellings shown in Figs. 24 to 26



Fig. 28: HADB 151, TK142



Fig. 29: HADB 286, TKB

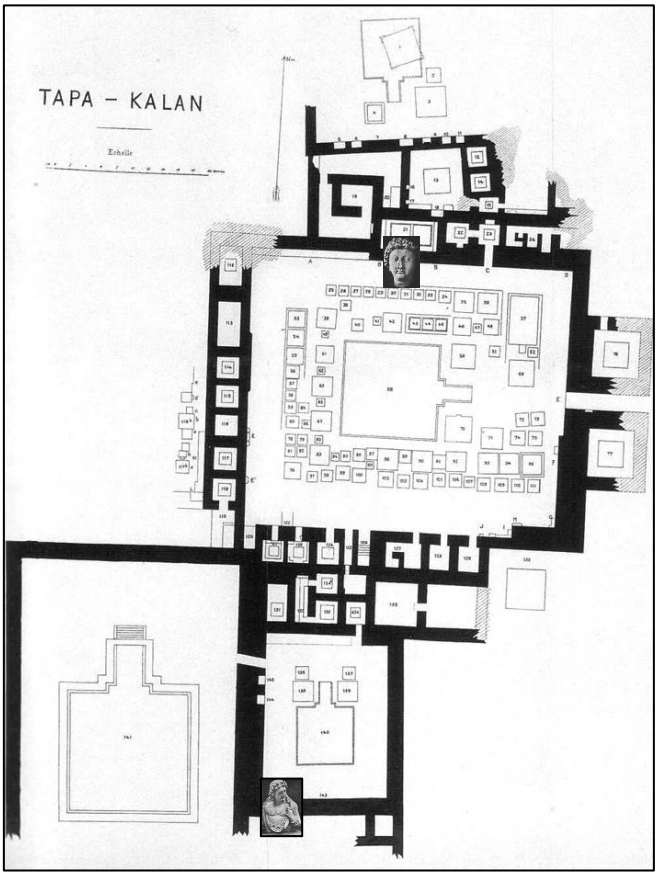


Fig. 30: Map indicating the findspots of the modellings shown in Figs. 28 and 29



Fig. 31: Maitreya, Tape Shotor, Niche V2
© Metropolitan Museum of Art

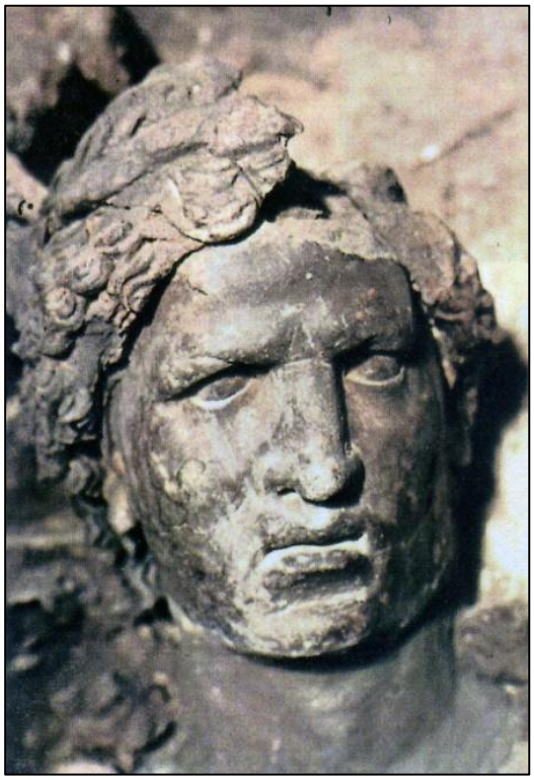


Fig. 32: Vajrapāṇi-Alexander
Tape Shotor, Niche V3 (Tarzi 1976)

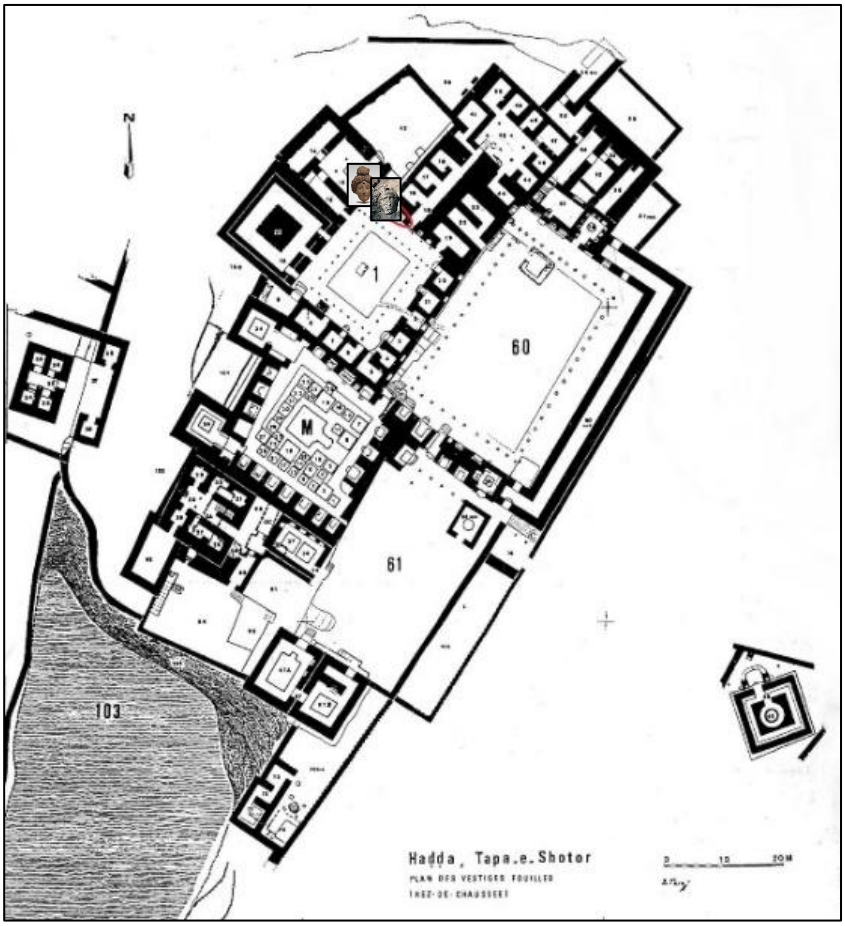


Fig. 33: Map indicating the findspots of the modellings shown in Figs. 31 and 32



Fig. 34: Vajrapāṇi-Herakles, Tape Shotor, Niche V2

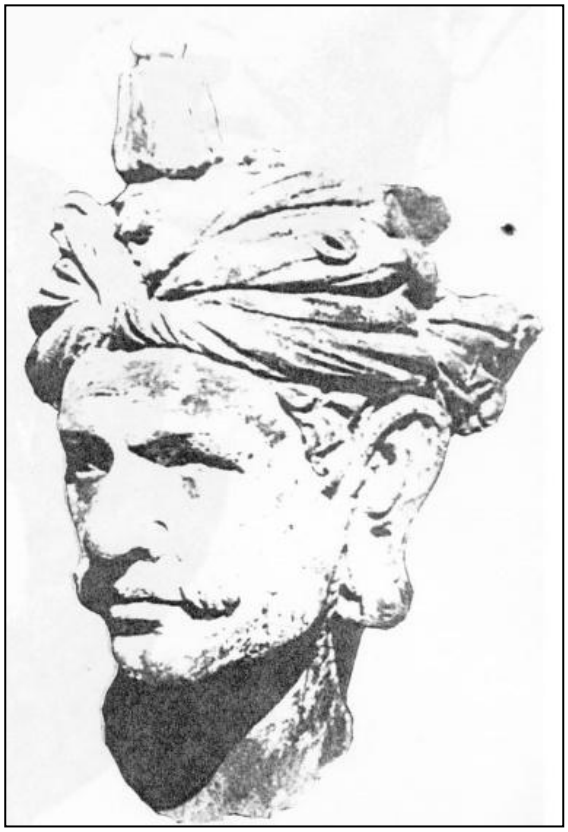


Fig. 35: Indra, Tape Shotor, Niche V2

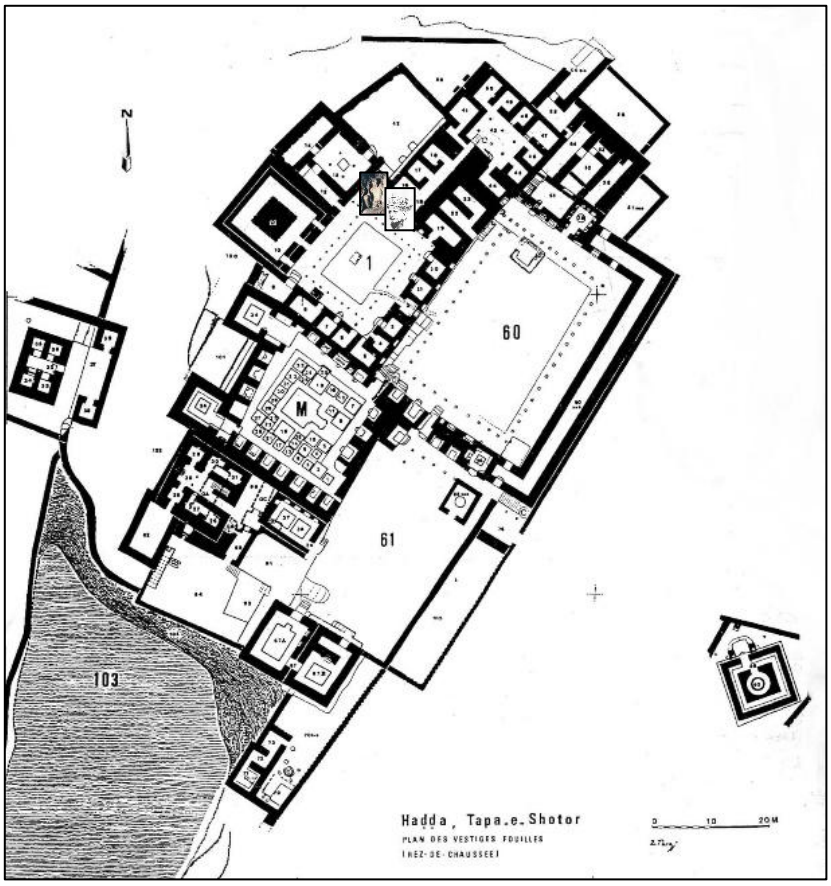


Fig. 36: Map indicating the findspots of the modellings shown in Figs. 34 and 35

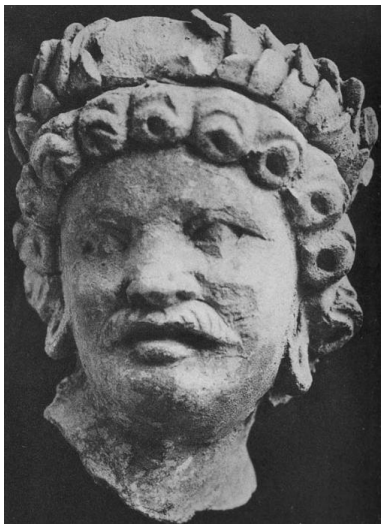


Fig. 37: HADB 133, B56



Fig. 38: K.p. Ha. 1164-231



Fig. 39: n° 169-1929



Fig. 40: HADB 351, B70



Fig. 41: housed in Delhi National Museum

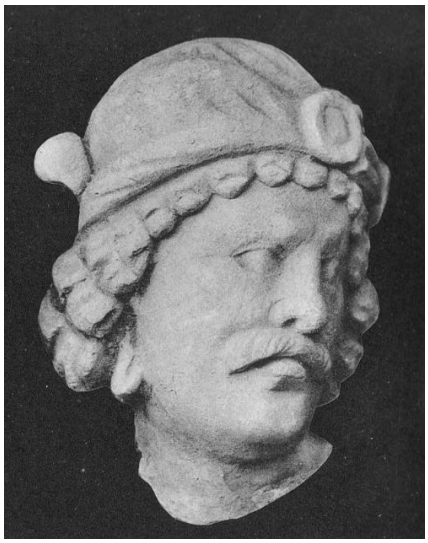


Fig. 42: HADB 352, P



Fig. 43: HADB 311

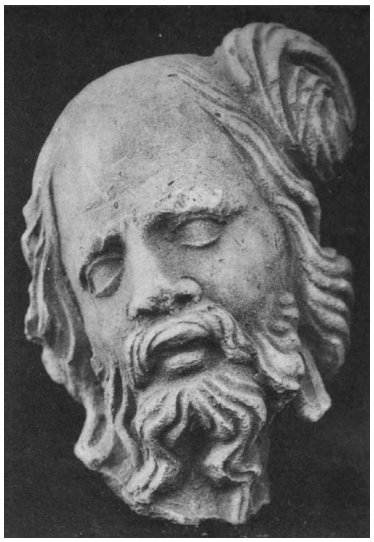


Fig. 44: HADB 292, TK67

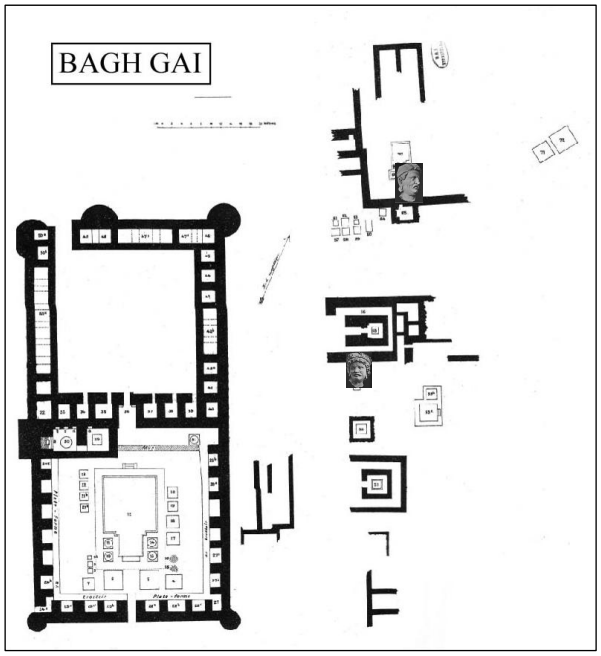


Fig. 45: Map indicating the findspots of the modellings shown in Figs. 37 and 40

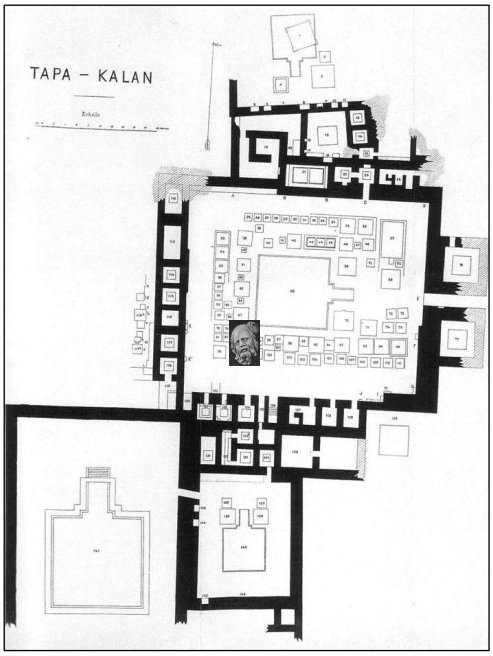


Fig. 47: Map indicating the findspot of the modelling shown in Fig. 44

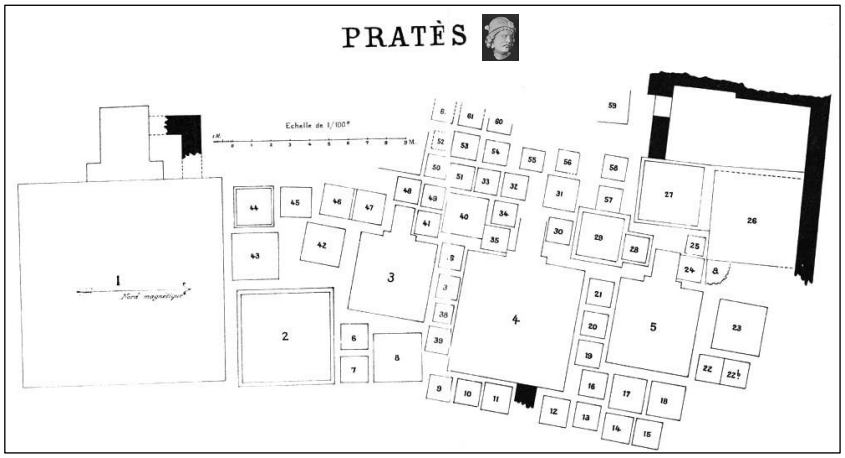


Fig. 46: Map indicating the findspot of the modelling shown in Fig. 42



Fig. 47: HADB 153, K20



Fig. 48: HADB 71, B12



Fig. 49: 1943.57.7



Fig. 50: 49.20/57



Fig. 51: HADB 104, B65–70



Fig. 52: HADB 70, K



Fig. 53: HADB 105, K1



Fig. 54: HADB 102, TK23



Fig. 55: HADB 101, TK35



Fig. 56: HADB 103, TK A–B



Fig. 57: HADB 53, TK68



Fig. 58: HADB 52, TK68

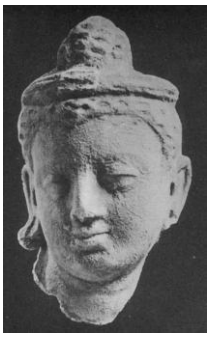


Fig. 59: HADB 99, B5

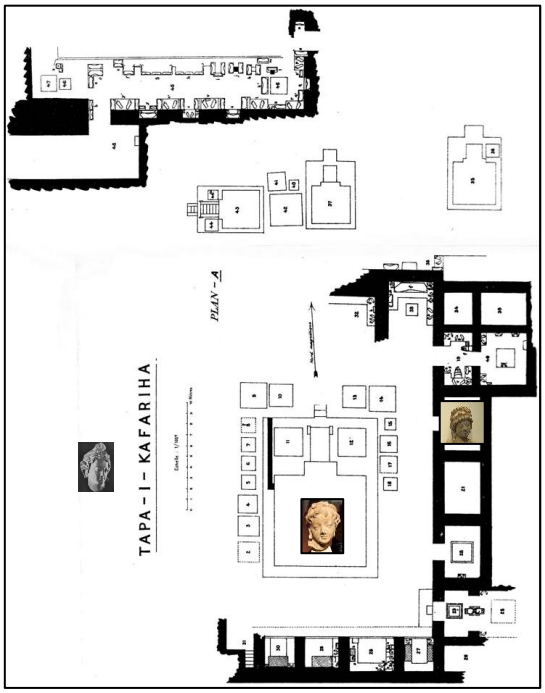


Fig. 60: Map indicating the findspots of the modellings shown in Figs. 47, 52 and 53

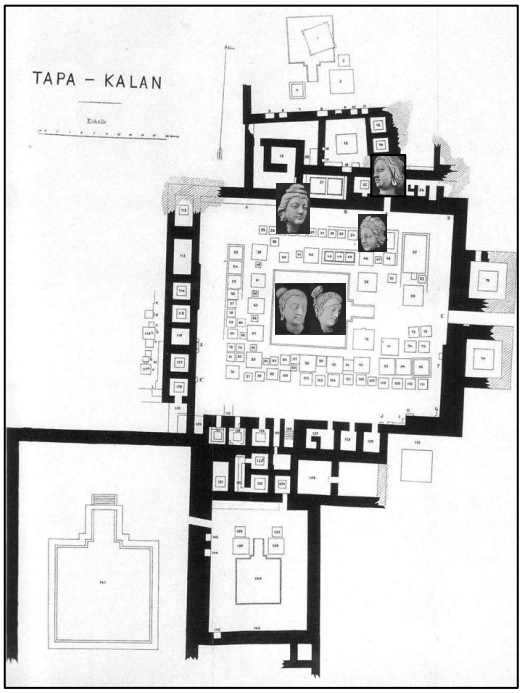


Fig. 61: Map indicating the findspots of the modellings shown in Figs. 54 to 58

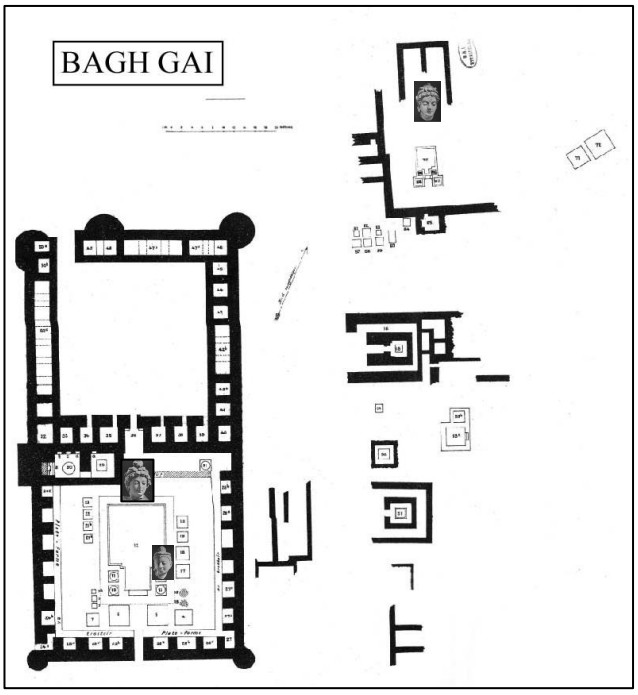


Fig. 62: Map indicating the findspots of the modellings shown in Figs. 48, 51 and 59



Fig. 63: HADB 125, B55



Fig. 64: HADB 126



Fig. 65: 49.20/59



Fig. 66: n° 29:1931



Fig. 67: HADB 128, TK68



Fig. 68: HADB 66, B56



Fig. 69: HADB 65, B56



Fig. 70: HADB 69, K1



Fig. 71: HADB 81, B56

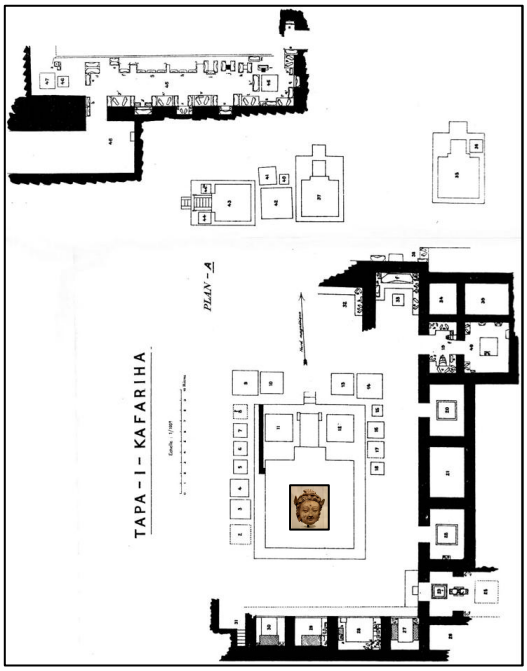


Fig. 72: Map indicating the findspot of the modelling shown in Fig. 70

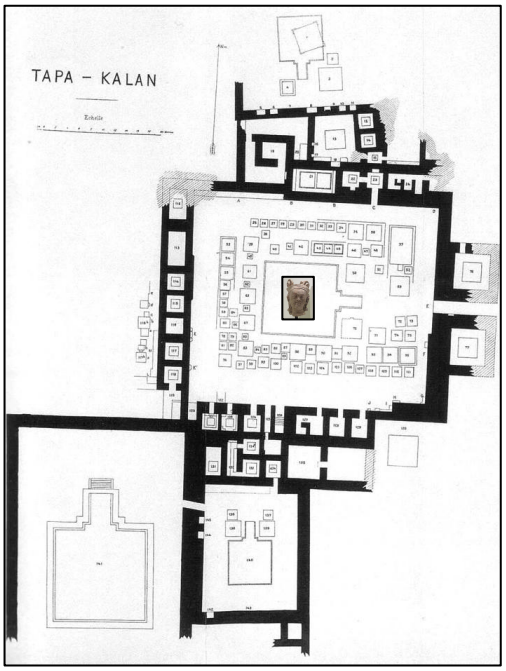


Fig. 73: Map indicating the findspot of the modelling shown in Fig. 67

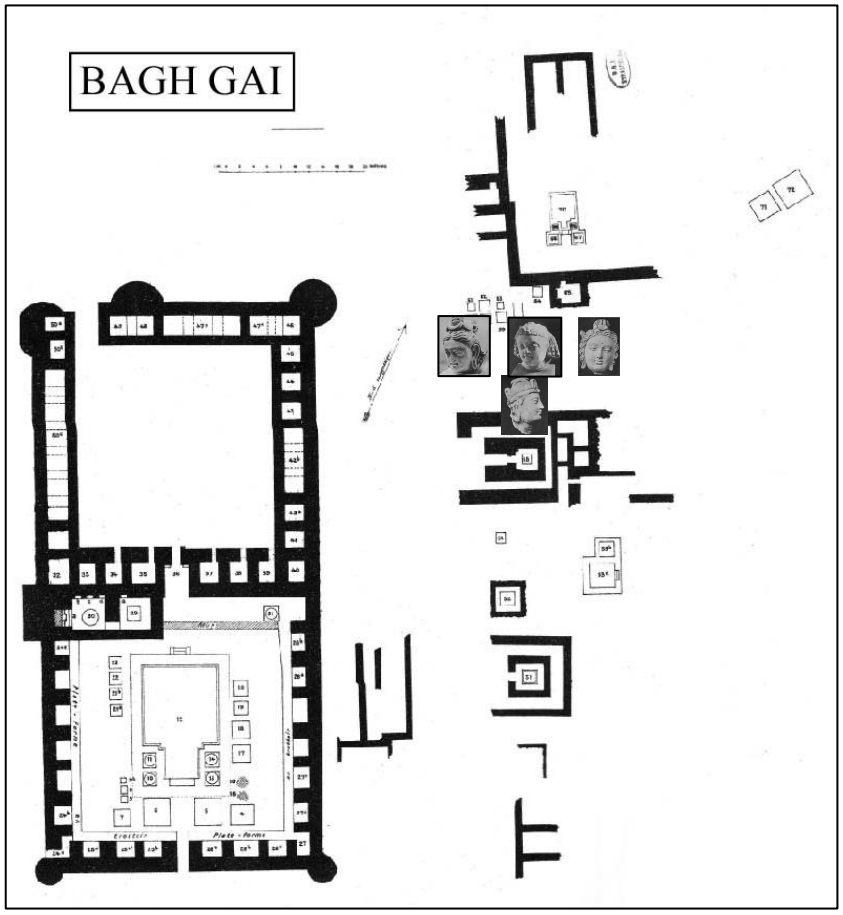


Fig. 74: Map indicating the findspots of the modellings shown in Figs. 63, 68, 69 and 71



Fig. 75: Warriors whose hair is styled in bristling curls resembling flames

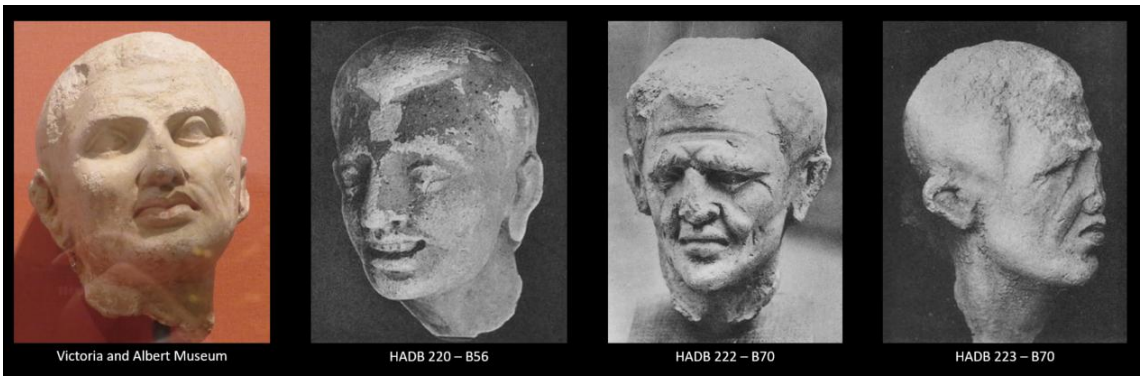


Fig. 76: Smiling and meditative monks



Fig. 77: Genies and donors portrayed with parted lips and rounded, childlike features, compared to a warrior with bristling curls

BIBLIOGRAPHICAL REFERENCES

BARTHOUX 1930

Jules Barthoux, *Les Fouilles de Haḍḍa, Figures et Figurines*, Mémoires de la Délégation Archéologique Française en Afghanistan, Tome VI, Paris.

BARTHOUX 1933

Jules Barthoux, *Les Fouilles de Haḍḍa, Stupas et Sites*, Mémoires de la Délégation Archéologique Française en Afghanistan, Tome IV, Paris.

CHANG, EREMIN, DEGRYSE, RAYNER and LAURSEN 2025

Angela Chang, Katerin Eremin, Patrick Degryse, Georgina Rayner and Sarah Laursen, "Technical findings on objects from Afghanistan in the Collection of the Harvard Art Museums", in *Proceedings from Gandhāran Artists and Artisans, Representations of an Era of Religious Images, International Colloquium*, University of Strasbourg, 22nd-23rd May 2024.

FACCENA 1962-1964

Domenico Faccena, *Sculptures from the Sacred Area of Butkara I (Swat, Pakistan)*, 2 vols., Reports and Memoirs de l'Istituto Italiano per il Medio ed Estremo Oriente, Roma.

FACCENA, KHAN and NADIEM 1993

Domenico Faccena, Nabi Khan and Ihsan Nadiem, *Panṛ I, Swat–Pakistan*, 2 vols., Reports and Memoirs dell'Istituto Italiano per il Medio ed Estremo Oriente XXVI, Roma.

FACCENA, KHAN and NADIEM 1995

Domenico Faccena, Nabi Khan and Ihsan Nadiem, *Saïdu Sharif I (Swat, Pakistan) 2*, 2 vols., *The Buddhist Sacred Area, the Stūpa Terrace*, Reports and Memoirs dell'Istituto Italiano per il Medio ed Estremo Oriente XXIII-2, Roma.

FILIGENZI 2008

Anna Filigenzi, "Late Buddhist Art in Archaeological Context: Some Reflections on the Sanctuary of Tapa Sardār", in Bautze-Picron (ed.), *Religion and Art: new issues in Indian iconography and iconology*, Proceedings of the 18th conference of the European Association of South Asian Archaeologists, 4th–7th July 2005, pp. 49-62, London.

FILIGENZI 2009

Anna Filigenzi, "The Buddhist Site of Tapa Sardār", in *Proceedings of the Symposium Fifty years of research in the Heart of Eurasia*, Istituto Italiano per l'Africa e l'Oriente, 8th June 2008, pp. 41-57, Roma.

FOUCHER 1918-1922

Alfred Foucher, *L'Art gréco-bouddhique du Gandhāra, étude sur les origines de l'influence classique dans l'art bouddhique de l'Inde et de l'Extrême-Orient*, 2 t., fasc. 1 : *Les images*, fasc. 2 : *L'Histoire*, fasc. 3 : *Conclusions*, Paris.

FOUCHER 1930

Alfred Foucher, "Buste provenant de Haḍḍa", *Monuments et Mémoires, Académie des Inscriptions et Belles Lettres*, T. XXX, pp. 101-110, Paris.

MIZUNO 1964
Seiichi Mizuno, *The Ancient Art of Afghanistan*, Nihon Keizai Shimbun (ed.), Tokyo.

MIZUNO 1968
Seiichi Mizuno, *Durman Tepe and Lalma, Buddhist sites in Afghanistan surveyed in 1963-1965*, Kyoto University.

MOSTAMINDI 1969
Shaïbaï and Mariella Mostamindi, "Nouvelles fouilles à Haḍḍa (1966-1967) par l'Institut Afghan d'Archéologie", *Arts Asiatiques*, Paris, Tome XIX, pp. 15-36, Paris.

OLIVIERI 2020
Luca-Maria Olivieri, "De-fragmenting Gandhāran art: advancing analysis through digital imaging and visualization", in Rienjang and Stewart (eds.) *The Global Connections of Gandhāran Art: Proceedings of the Third International Workshop of the Gandhāra Connections Project*, University of Oxford, (18th-19th March, 2018), pp. 251-264, Oxford.

PONS 2024
Jessie Pons, *Arts du Gandhara. Richesse, diversité et répartition des ateliers de sculpteurs sur pierre*, in Archaeologia Afghana Collection, Université de Strasbourg.

ROWLAND 1966
Benjamin Rowland, *Ancient Art of Afghanistan, Treasures of the Kabul Museum*, New York, (translated by Kohzad 1967, *Honar Qadim-e Afġānistān*, Kabul).

SECKEL 1968
Dietrich Seckel, *The Art of Buddhism*, Greystone Press.

SWĀTI 1997
Farooq Swāti, "Special Features of the Buddhist Art in the Swat Valley", *Āthāriyyāt* 1, pp. 1-60.

TARZI 1976
Zémaryalaï Tarzi, "Haḍḍa à la lumière des trois dernières campagnes de fouilles de Tapa-é-Shotor (1974-1976)", *Compte Rendu de l'Académie des Inscriptions et Belles lettres*, vol. 120, n° 3, pp. 381-410, Paris.

TARZI 1990
Zémaryalaï Tarzi, "Tapa-e-Top-e-Kalān of Haḍḍa", *South Asian Archaeology*, vol. LXVI, pp. 707-726, Roma.

TARZI 1991
Zémaryalaï Tarzi, *Haḍḍa à la lumière des fouilles afghanes de Tapa-e Shotor et Tapa-e Tope Kalān*, 4 vol., Strasbourg.

TARZI 2000
Zémaryalaï Tarzi, "Vajrapāṇi-Herakles de la niche V2 de Tape Shotor de Haḍḍa (Afghanistan)", *KTEMA*, n° 25, pp. 163-170, Strasbourg.

TARZI 2001
Zémaryalaï Tarzi, “Le site ruiné de Haḍḍa”, in *Afghanistan, Patrimoine en péril,* Centre d’Etudes et de Recherches Documentaires sur l’Afghanistan, pp. 60-69.

TISSOT 2006
Francine Tissot, *Catalogue of the National Museum of Afghanistan (1931-1985)*, UNESCO.

VANLEENE 2019
Alexandra Vanleene, “Differences and similarities in Gandhāran art production: the case of the modelling school of Haḍḍa (Afghanistan)”, in Rienjang and Stewart (eds.) *The Geography of Gandhāran Art: Proceedings of the Second International Workshop of the Gandhāra Connections Project*, University of Oxford, (22nd-23rd March 2018), pp.143-163, Oxford.

Narrative Threads: The Chinese Repertory of Buddha's Life Stories and its Relationship to Gandhāran Buddhist Panels

Chai Yee LEOW

Abstract

This paper explores the rich tapestry of Buddha's life stories as found in the Chinese Buddhist canon, focusing on their comparative aspects and relationships to Gandhāran Buddhist panels. Chinese Buddhist canon contains over ten different texts that narrate the life and legends of the Buddha, each translated during various historical periods. These variations can be attributed to differences in translation sources, as well as sectarian affiliations. Among these texts, the Fobenxingji Jing (Abhiniṣkramaṇa Sūtra) stands out for its comprehensive nature. Comprising 60 fascicles, this text offers the most complete repertoire of Buddha's life stories, closely paralleling the narratives depicted in Gandhāran panels.

The life story of the Buddha has captured the interest of many. It is prominently featured in the Gandhāran Buddhist narrative panels, which stand out among the earliest examples of Buddhist sculpture art. My PhD dissertation is about the Narrative Relief Panels of Buddha's Life Story in Gandhāra: The Repertoire Composition and its Association with Chinese Buddhist Literature[1]. In strengthening the analysis presented in this paper, I have broadened the scope of research to encompass not only Chinese but also non-Chinese literary sources. This expansive approach is crucial for a nuanced understanding and interpretation of the Gandhāran narrative panels depicting the life of the Buddha. A comparative study of the literature in Pali, Sanskrit, Tibetan, and Chinese, each representing a distinct tradition within Buddhist thought, provides a rich framework for deciphering the complex iconography and narrative compositions found in these artistic representations. This multi-lingual approach lends both depth and persuasiveness to the arguments presented herein.

Biographical texts on the life of the Buddha are extant in a variety of languages, including Sanskrit, Chinese, and Tibetan, illustrating the widespread transmission and veneration of these narratives. Certain texts, however, are preserved solely within the Pali canon, highlighting the unique position of this tradition. Each version holds distinct significance within its specific historical and cultural context, offering valuable insights into the evolution of Buddhist thought and practice.

For instance, the *Nidānakathā*, compiled by Buddhaghoṣa in the 5th century CE and subsequently translated into English by Rhys Davids in 1880, provides a comprehensive account of the Buddha's life leading up to his enlightenment. Similarly, the *Buddhacarita*, accessible in Sanskrit, Chinese, and Tibetan versions, presents another significant rendition of the Buddha's life story. The *Lalitavistara*, meaning "The Play in Full", exists in both Tibetan and Sanskrit recensions. The Tibetan translation, comprising 37 chapters, dates back to the 9th century CE, while the Sanskrit original, estimated to be from the 3rd century CE, was translated into French by P. E de Foucaux in 1884 and later by G. Bays in 1983.

The *Mahāvastu*, associated with the Lokottaravāda school and categorized as part of the *Vinayapiṭaka*, offers a unique perspective on the Buddha's life. This text, dating from the 2nd century BCE to the 4th century CE, is notable for its use of both Sanskrit and Prakrit. J. J. Jones's 1949 English translation provides wider access to this significant work.

Shifting focus to Southeast Asia, the *Mahābodhi-Vaṁsa*, a prose poem composed by Upatissa during the reign of Mahinda IV of Sri Lanka in 980 CE, presents a comparatively later

[1] LEOW 2016.

account of the Buddha's life. Similarly, the *Mālālankāravatthu*, dating back to around the 15th century CE, provides further insight into the regional variations in the Buddha's biographical narrative. Bishop Bigandet's translation, "The Story of the Burmese Buddha", makes this text accessible to a wider audience.

Notably, the Chinese Buddhist canon stands out for preserving the most extensive collection of Buddhist biographical texts. Comprising approximately twelve distinct works, as detailed in Table 1, this corpus offers a wealth of information that has been relatively understudied until recent times. Further exploration of these Chinese sources promises to yield valuable insights into the development and transmission of the Buddha's life story.

Table 1

Nº	Name	Pinyin in Taiso collection	Chinese Name	Translator	Translated Period	Fasc.	Alternative Sanskrit Name
1	*Sūtra* of the practice and original rise	T0184 *Xuxingbenqi jing*	修行本起經	Zhu Dali 竺大力 and Kang Mengxiang 康孟詳	197	2	
2	Middle *sūtra* of the original rise	T0196 *Zhongbenqi jing*	中本起經	Dharmapala (Tanguo 曇果) and Kang Mengxian 康孟詳	207	2	
3	Scripture of the Origins of the Miracles of the Prince/ *Sūtra* of the Auspicious Original rise of the Prince	T0185 *Taizi ruiying benqi jing*	太子瑞應本起經	Zhi Qian 支謙	222-228	2	*Arthavargīya-sūtra*
4	*Sūtra* of the Origin or Former History of the Bodhisattva	*T0188 Yichu pusa benqi jing*	異出菩薩本起經	Nie Daozhen 聶道真	280-312	1	
5	General radiance *sūtra*	T0186 *Puyao jing*	普曜經	Dharmarakṣa 竺法護	308	8	*Samanta-prabhāsasūtra* (*Lalitavistara*)
6	*Buddhacarita*	T0192 *Fo suo xing zan*	佛所行讚	Dharmakṣema 曇無讖	414-426	5	*Buddhacarita*
7	*Sūtra* on the Past Activities of the Buddha	T0193 *Fo benxing jing*	佛本行經	Baoyun 寶雲	421-453	7	
8	*Sūtra* on Past and Present Causes and Effects/ *Sūtra* on the cause and effect of the past and present	T0189 *Guoqu xianzai yinguo jing*	過去現在因果經	Guṇabhadra (Qiunabatuoluo 求那跋陀羅)	435-443	4	

9	*Sūtra* of the Collection of the Past Activities of the Buddha	T0190 *Fo benxing ji jing*	佛本行集經	Jñānagupta (Shenajueduo 闍那崛多)	587-591	60	*Abhiniṣkramaṇa-sūtra*
10	*Sūtra* of Vast and Grand Solemnity	T0159 *Fangguang da zhuangyan jing*	方廣大莊嚴經	Divākara 地婆訶羅	683	12	*Vaipulya-mahāvyūhasūtra* (*Lalitavistara*)
11	*Vinaya* of the *Mulasarvastivadin*	T1450 *Genben shuo yiqie you bu pinaiye poseng shi*	根本說一切有部毘奈耶破僧事	Yijing 義淨	700-711	first 9 fasc.	*Saṇghabheda-vastu*
12	*Sūtra* of Samadatta	T0191 *Zhong xu mo he di jing*	眾許摩訶帝經	Faxian 法賢	989-999	13	*Samadatta-mahārāgasūtra*

While acknowledging the undeniable value of comparative studies across existing Buddhist biographical scriptures, the interpretation of Gandhāran narrative panels presents unique challenges. The primary obstacle lies in the irretrievable loss of the Gandhāran Buddhist canon itself. This absence necessitates a critical inquiry: (1) Given the absence of a corresponding textual tradition, which of the remaining scriptures offers the most appropriate framework for interpreting Gandhāran narratives? Furthermore, (2) is it even feasible to rely on a single textual source for understanding the diverse array of narrative panels?

Addressing these questions necessitates a multi-faceted approach. A rigorous examination and selection of relevant Buddhist scriptures are paramount, involving a meticulous comparison between textual narratives and the subject matter and compositional elements of the Gandhāran sculptures. This analysis will be further strengthened through robust statistical analysis, examining the frequency and distribution of specific themes and motifs within the sculptural corpus. Such a multi-pronged methodology holds the potential to illuminate the complex relationship between Gandhāran art and the broader landscape of Buddhist literary traditions.

The legacy of Gandhāran Buddhist sculpture is evident in its global presence, with collections housed in over thirteen countries. These holdings, documented in a wealth of scholarly catalogues and increasingly accessible through online exhibitions hosted by major museums, provide a rich resource for the study of this distinctive artistic tradition. A statistical analysis of published materials reveals over eleven hundred extant Gandhāran narrative panels. Thematically, these depictions of Siddhārtha Gautama Buddha's life events can be categorized as follows: (1) The Birth of Siddhārtha, (2) Life in the Palace, (3) Renunciation and Enlightenment, (4) Preaching stories, and (5) Matters concerning *Nirvāṇa*.

This thematic organization, however, extends beyond a simple categorization of events. It is meticulously structured to reflect the visual transformation of the Buddha's representation across the Gandhāran narrative panels. This nuanced approach reveals a conscious artistic choice to mirror the Buddha's evolving spiritual journey through distinct visual markers.

(1) The initial stage centers on Siddhārtha Gautama's pre-birth existence as a white elephant and his subsequent arrival into the world as a newborn infant (Fig. 1). (2) The second stage portrays his life as Prince Siddhārtha, emphasizing his royal lineage and princely upbringing through both iconography and symbolic representation (Fig. 2) (3) A pivotal shift occurs in the

third stage, marked by Siddhārtha's renunciation of worldly life and his pursuit of enlightenment. This stage primarily depicts him as an ascetic and, more prominently, as a Bodhisattva progressing towards Buddhahood (Fig. 3). The narrative culminates in his enlightenment and the pivotal moment of turning the wheel of Dharma. (4) The fourth stage encompasses the subsequent forty-five years of the Buddha's life dedicated to teaching and guiding sentient beings towards liberation.

These narratives, spanning from his first sermon to the scene of the rock on the road to Kuśinagara [2], predominantly feature the Buddha in either standing or seated postures, symbolizing his active role as a teacher (Fig. 4). (5) The final stage depicts the Buddha's *parinirvāṇa*, primarily through images of his reclining figure (Fig. 5). This stage also encompasses events surrounding his death, such as the cremation, the distribution of relics, and the veneration of *stūpas*, marking the Buddha's physical passing and his enduring legacy.

Table 2 presents a systematic categorization of the deciphered subject matters found in Gandhāran narrative panels. Encompassing 83 distinct subject matters portrayed across over 100 scenes. To illustrate the categorization method, consider the subject matter nº 17, Athletic Contests. Siddhartha trials on “Athletic Contests” - this theme is further subdivided into five distinct scenes: (a) archery, (b) wrestling, (c) tug of war, (d) swordplay, and (e) horse racing.

Table 2

No	**Subject Matters**
	The Birth of Siddhartha
1	Māyā's Dream
2	Interpretation of the Dream
3	The Departure from Kapilavastu
4	The Birth of Chandaka and Kaṇṭhaka
5	Bodhisattva's Seven Steps
6	First Bath
7	Return to Kapilavastu
8	Welcoming the Prince
9	Visit to the Temple
10	Birth of Kanthaka and Chandaka
11	Birthday Celebration Banquet
12	Asita's Prediction
	Life in the Palace
13	Siddhartha Goes to School
14	Write and Chant in School
15	First Jhāna / First Meditation
16	Presentation of the Bride
17	Athletic Contests
	(a) Archery
	(b) Wrestling

[2] ZIN 2006.

	(c) Tug of War
	(d) Swordplay
	(e) Horse Racing
18	Throwing the Elephant
19	The Marriage of Siddhartha
	(a) Wedding Ritual
	(b) Bridal Procession
	(c) Wedding Games
20	Pleasure Life in Palace
21	The Four Omens
22	Sleep of the Harem
	Renunciation and Enlightenment
23	The Great Departure
24	Farewell of Chandaka and Kaṇṭhaka
25	Shaving Hair to Renounce
26	Exchange of Clothes
27	Chandaka and Kaṇṭhaka Return to the City
28	Meeting with Brahmins
29	Meeting with Bimbisāra
30	The Practice of Austerities
31	Sujata's offering
32	Approaching the Bodhimaṇḍa
33	Offering of the Grass cutter
34	Hymn of Praise of the *Nāga* Kālika and Wife
35	Buddha Arranges Grass Under the Tree
36	Mara's Defeat
37	Starring at Bodhi Tree
38	Protection of *Nāga* Muchalinda
39	Offering of Trapusha and Bhallika
40	Presentation of the Four Bowls
41	Solicitation to Preach by Indra and Brahmā
42	Preparing to Welcome the Buddha
43	First Sermon
	Preaching Stories
44	Visit of *Nāga* Elapatra
45	Conversion of 30 men in Senapati Village
46	Conversion of Three Kāśyapas
	(a) Subduing the Flaming *Nāga*
	(b) *Nāga* in the Bowl
	(c) Taking the *Jambu* Fruit
	(d) Igniting and Extinguishing
47	Measuring Buddha's Height

48	Entering Rājagṛha
49	The Return of Śākyamuni to Kapilavastu
	(a) Request for the Buddha's Return to the Homeland
	(b) News of the Buddha's Return to the City
	(c) Meeting with Śuddhodana
	(d) Welcoming the Buddha
	(e) Meeting with Rāhula
	(f) Meeting with Yaśodharā
	(g) Gathering of the Śākyamuni Clan
50	Nanda's Ordination
	(a) Temptation to Leave Home
	(b) Nanda's Tonsure
	(c) Nanda's Escape
51	The Request of Women's Ordination
52	Offering of the Monkey
53	Offering to Jetavana
54	Buddha's Miraculous Transformation (Srasvasti Miracle)
	(a) Dual Miracle
	(b) Multiplication Miracle
	(c) Teaching Miracle
55	The Tale of the White Dog
56	Buddha Saves the Water Buffalo
57	Buddha Eats Horse Barley
58	The Story of the Pāṭikaputta
59	Preaching in Trayastriṃśa Heaven
60	Descent at Samkassa
61	King Udayana Presenting the Image of Buddha
62	Invitation of Śrīgupta
	(a) Lotuses from Flames
	(b) Offering of the Poison Food
63	Visit of Pārāyaṇa
64	Conversion of Aṅgulimāla
65	Conversion of the *Yakṣa* Āṭavika
66	Submission of the *Nāga* Apalala
67	Consolation to Ananda at Gridhrakuta
68	The Story of the Skull-tapper
69	A Child Freed from the Tombs
70	Mākandika's proposal
71	Jyotishka Saved from the Pyre
72	Taming the Venomous Snake
73	Nursing of the Dead Woman
74	Offering of the Handful of Dust

75	Devadatta's Assassination with Stone
76	Taming of the Elephant
77	Donation of Mango Grove of lady Amrapālī
78	Indra's Visit in Indraśāla Cave
79	The Rock on the Road to Kuśinagara
	Matters of *Parinirvāṇa*
80	Buddha's *Parinirvāṇa*
81	Cremation Pyre
82	Matters of Relics
	(a) Guarding the Relics
	(b) Relic Wars
	(c) Division of Relics
	(d) Transportation of the Relics
83	Worship of the *Stūpa*

Similarly, Nº 19 "The Marriage of Siddhārtha" unfolds through three distinct scenes in sculptures: (a) Wedding Ritual, (b) Bridal Procession, and (c) Wedding Games[3].

In the theme of Nº 46 "Conversion of Kāśyapa and his Brothers," the narrative complexity is exemplified through four scenes: (a) the Buddha subduing the fire *nāga* within a hut, (b) the containment of the *nāga* within a bowl, (c) the Buddha retrieving the Yama fruit from a distant location, and (d) the display of miraculous control over fire, both extinguishing and igniting it under Buddha's manipulation.

The theme of Nº 49 "The Return of Śākyamuni to the City" presents a compelling case study in the flexible composition of Gandhāran narrative panels. Unlike themes with a more fixed visual sequence, the existing images depicting the Buddha's return to Kapilavastu exhibit fluidity in their arrangement. While approximately seven distinct scenes can be identified, their order and prominence vary across individual sculptures.

The narrative commences with (a) "Udayin's Request for the Buddha's Return to the Homeland". This scene portrays the Buddha amidst his disciples in a forest setting, with Udāyī beseeching him to return to Kapilavastu, hands respectfully clasped.

Upon the Buddha's consent, (b) the news swiftly reaches the palace, marking the anticipation surrounding his return. (c) The arrival of the Buddha is marked by his encounter with King Śuddhodana. The scene depicts Śuddhodana's awe and reverence, moved by the Buddha miraculous presence. Following this, the narrative continues with (d) the welcome accorded to the Buddha. Servants are shown washing his feet, preparing meals, and readying the palace for his stay.

The narrative further deepens with scenes portraying the Buddha's reunions with his family: (e) his meeting with his son, Rāhula, (f) the encounter with his former wife, Yaśodharā, and culminating in (g) the grand "Gathering of the Śākyamuni Clan", an event that leads to mass ordination inspired by the Buddha's teachings.

[3] KHAN 2010.

Tracing the Life of the Buddha: A Survey of Key Biographical Sources

A comparative analysis of Gandhāran narrative panels necessitates assessment of the scenes, sequences, and subject matter depicted in relation to extant Buddhist biographical literature. In this paper, I will focus primarily on part 1 through 3, and a selective subject matter within part 4.

The Sanskrit *Lalitavistara*, for instance, concludes its narrative with the Buddha's pivotal first sermon. The textual framework corresponds primarily with Part 1 through 3 of the analytical framework for Gandhāran art, which focuses on the Buddha's early life and attainment of enlightenment. The *Nidana Jātaka,* conversely, extends its biographical scope beyond the first sermon, encompassing events leading up to the donation of Jetavana Grove.

The *Mahāvastu*, while not adhering to a strict chronological structure, presents a more expansive narrative scope, encompassing events up to and including Śākyamuni's return to Kapilavastu. Notably, the *Mahāvastu* also recounts events categorized within Part 4 of this study's framework, such as the "Conversion of the Three Kāśyapas" and the "Meeting with Rāhula". This broader scope suggests a greater degree of correspondence within the Gandhāran sculptural corpus.

Chinese Texts

Turning to the Chinese Buddhist canon reveals a rich collection of biographical texts spanning from the 2nd to the 10th century CE, offering valuable insights into the evolution of Buddhist narratives. The presence of such texts as early as the 2nd century underscores the tradition's early transmission to China.

Five relatively concise texts, despite their brevity, present distinct narrative threads. The *Sūtra of the Practice and Original Rise* (T0184), translated by Zhu Dali and Kang Mengxiang, is considered a prototypical Chinese Buddha biography, concluding with the offering of Trapusha and Bhallika. The *Middle sūtra of the original rise* (T0196) encompasses approximately ten subject matters depicted in Gandhāran art, including the offering of Jetavana. Notably, T0196, along with the *Sūtra of the Auspicious Original rise of the Prince* (T0185) and the *Sūtra of Past and Present Causes and Effects* (T0189), extends beyond the first sermon, incorporating preaching narratives. In contrast, the *Sūtra of the Origin or Former History of the Bodhisattva* (T0188), despite its comparatively later compilation, concludes with the first sermon.

The *General radiance sūtra* (T0186), the *Sūtra of the Collection of the Past Activities of the Buddha* (T0190), the *Sūtra of Vast and Grand Solemnity* (T0159), the *Vinaya of the Mulasarvastivadin* (T1450), and *the Sūtra of Samadatta* (T0191) all culminate with the Buddha's return to Kapilavastu and related events. *Fo suo xing zan* (T0192) and *Fo benxing jing* (T0193), the Chinese versions of the *Buddhacarita*, present the Buddha's life in poetic prose, encompassing his birth and death.

A comparative analysis of these texts in relation to Gandhāran narrative panels highlights the significance of the T0190. Of the 83 identified subject matters in Gandhāran art, approximately 10 are found in T0196, 15 in T0188, and 30-40 in texts such as the *Mahāvastu, Nidana Jātaka*, T0186, T0191, T0185, T0189, and T0184. The *Lalitavistara,* T1450, and T0159 align with 40-45 subject matters.

Significantly, T0190 exhibits the highest degree of correspondence, with approximately 50 subject matters matching those found in Gandhāran narrative panels. Moreover, T0190 demonstrates a higher degree of congruence in the specific scenes depicted within each subject matter. This compelling finding suggests that T0190 may offer a particularly valuable framework for understanding the narrative choices and iconographic program of Gandhāran Buddhist art.

The close correlation between T0190 and the Gandhāran narrative panels extends beyond a mere numerical correspondence in subject matters. A closer examination reveals a relatively congruence in the specific scenes depicted within each shared theme.

Gandhāran representations of the Buddha's secular life, for instance, frequently depict events such as his grand return to Kapilavastu after birth, the lavish welcoming ceremonies upon his arrival, his celebratory birthday banquets, and his marriage ceremony. These scenes, often receive limited narrative attention in most Buddhist texts. The *Fo benxing ji jing*, however, stands apart in its detailed descriptions of these events, offering a level of textual resonance not found in other comparable sources.

This trend of detailed correspondence is further exemplified in the depiction of the "Athletic Contests," a popular theme in Gandhāran art representing Prince Siddhārtha's demonstration of physical prowess. There are five distinct scenes, each highlighting a different aspect of his extraordinary abilities. While several texts mention these contests, only the *Fo benxing ji jing* provides a relatively comprehensive account, detailing the prince's mastery of archery, wrestling, swordplay, and horse racing (See Table 3).

Table 3 Comparison of Athletic Contests Scenes Depicted in Buddha Biographical Texts

Athletic Contests	*Lalita-vistara*	T0191	*Mahā-vastu*	T0190	T0185	T0188	T0159	T0186	T1450	T0189	T0184
(a) Archery	✓	✓		✓	✓		✓	✓	✓	✓	✓
(b) Wrestling	✓			✓	✓		✓	✓			✓
(c) Tug of War											
(d) Swordplay				✓							
(e) Horse Racing	✓			✓			✓				

In addition, the T0190 includes unique narratives not typically found in other Buddhist texts. The story of the Conversion of the Three Kāśyapas is absent from the *Lalitavistara*, limited detail is offered in the *Nidana Jātaka*, and only partial representations in three out of four scenes is contained in the *Mahāvastu*, excluding references to the *jambu* fruit. In contrast, nearly all Chinese texts reference this event, except for the T0184, provide a comprehensive narration that aligns closely with the scenes depicted in Gandhāran sculptures.

Table 4 Comparison of the Conversion of the Three Kāśyapas Scenes Depicted in Selected Biographical Texts

	Nidana Jātaka	*Mahāvastu*	T0190	*Lalitavistara*
Conversion of Three Kāśyapas	Yes	Yes	Yes	No
(a) Subduing the Flaming *Nāga*	-	✓	✓	
(b) *Nāga* in the Bowl	-	✓	✓	
(c) Taking the *Jambu* Fruit	-		✓	
(d) Igniting and Extinguishing	-	✓	✓	

Moreover, the T0190 encompasses subject matter that are not found in other biographical texts - "The Visit of *Nāga* Elapatra"[4]. Among all the biographical accounts examined, this text uniquely contains a complete narrative of the story. In the text, *Nāga* Elapatra contemplates the appropriateness of meeting the Buddha in a transformed form, deciding that he should present himself in his true form. The Gandhāra sculpture captures the moment when *Nāga* Elapatra displays his serpent form before the Buddha's pedestal (Fig. 6). Upon recognizing Elapatra, the Buddha calls his name, prompting Elapatra to conceal his original form and transform into a human body (*mānava*). He then approaches the Buddha, bows at his feet, and remains respectfully at his side. This dual representation is essential for understanding sculpture.

Given above analysis, statistical comparisons reveal that the T0190 not only exhibits the highest correlation with the Gandhāran narrative panels across numerous subject matters, ranging from the Buddha's birth to his preaching life, but also offers a more comprehensive depiction of the scenes present in the Gandhāran narrative panels than any other text. This underscores the significance of the T0190 in the study of Gandhāra Buddhist narratives and their artistic representations.

Conclusions

In summary, T0190 encompasses a wide array of narratives that not only reflect key events in the Buddha's life but also resonate with the themes and motifs prevalent in Gandhāran sculpture.

Its unique characteristics and historical context underscore its applicability in the study of Gandhāran narrative panels. While it is neither the earliest nor the latest text in the Buddhist canon, its richness in detail and breadth of subject matter render it highly compatible with the iconographic content found in Gandhāran art.

An exploration of the provenance of the T0190 reveals its significance within the broader context of Buddhist literature. This text, originating from the *Dharmaguptaka* tradition, more commonly known as the Chinese version of the *Abhiniṣkramaṇasūtra*, has a significant scholarly pedigree. The English translation by Samuel Beal in 1875, titled *The Romantic Legend of Sakya Buddha*, reflects only a summarized version of the original, which comprises 60 fascicles–the largest collections in Buddhist biographical literature.

[4] T 190, ed. vol. 3: 828b13-828c13.《佛本行集經》卷 37〈41 那羅陀出家品〉：「「爾時，伊羅鉢龍王作是思惟：『我今若以變化之身見於佛者，此我不善，我今宜以自許報身，往見世尊。』「爾時，伊羅鉢龍王至其龍宮，以自報形而欲見佛.....「爾時，伊羅鉢龍王作如是念：『世尊已知我名字也。』復更重於如來世尊，增加歡喜，得清淨心，生愛敬心。時伊羅鉢即隱本形，別更化作摩那婆身，近世尊前，頂禮佛足，却住一面。」.

The text was translated by Jñānagupta (闍那崛多). As recorded in the Further Biographies of Eminent Monks (續高僧傳), Jñānagupta[5], a local of the region of Gandhāra, residing in its capital, Puruṣapura. He was ordained in the Mahavana (dalin 大林) monastery in his homeland[6]. Notably, there is a relic casket lid bears the kharoṣṭhī inscription of Mahavana, denoting "Great Forest"[7]. At the age of 27, Jñānagupta, along with his monastic companions and teacher, traveled through various regions, including Kapisa, Balkh, Tashqurgan, and Khotan, Tuyunhun, and eventually reaching Shan Zhou, in present-day Qinghai in 535 CE. They began translational work and *dharma* preaching.

However, the onset of persecution against Buddhism by Emperor Wu of Northern Zhou (r. 560-578) in 574 compelled Jñānagupta and his associates to seek refuge in Turkic territories. There, a group of *Qi* monks, led by Baoxian and comprising about ten members, formed an expedition to the Western Regions for scripture collection. After making seven trips, they amassed 260 Indian scriptures. During their time in the Turkic regions, the *Qi* empire collapsed, leaving them stranded. Collaborating with Jñānagupta, they checked and revised existing catalogs, discovering discrepancies from previous records, and vowed to pursue their scholarly endeavors collectively.

With the establishment of the *Sui* dynasty, Buddhism began to flourish. Baoxian and his monastic peers eventually arrived in the capital. In 585, due to inconsistencies in translations, they requested the Emperor Wendi to invite Jñānagupta back to the capital to assist in the translation efforts. The later agreed to collaborate on the translations.

According to the *Record of the Three Jewels Through the Ages* (隋費長房《歷代三寶紀》), the translation of the T0190 commenced in 587 CE and was completed in 592 CE.

Given Jñānagupta's extensive travel experience and mastery of resources from various regions in the western regions, Jñānagupta's work exhibits a distinctive connection to Northern Buddhism.

At the end of the final chapter of the T0190, a question is posed:

> "What should this scripture be called?"
> The answer was: "*Mahāsaṃghika* named it Great Matter (*Mahāvastu*).
> "*Sarvāstivādin* named it the Great Magnificence (*Lalita Vistara*).
> "*Kāśyapīya* named it the Causes and Conditions of the Buddha's Live.
> "*Dharmaguptaka* named it the Fundamental Acts of Śākyamuni Buddha (*Fo ben xing*).
> "*Mahīśāsaka* named it the Fundamental of the *Vinaya Pitaka*."[8]

The similarity in names signifies that T0190 *Fo benxing ji jing* is associated with the *Dharmaguptaka* sect, which has garnered scholarly consensus. However, within the text, differences in sectarian records of the same events are noted, alongside citations from various texts. Broadly speaking, T0190 serves as a literary compilation of five texts from the aforementioned sects. In Chinese, the term *ji* refers to a "compendium". I argue that the

---

[5] T 2060, ed. vol. 50: 433b.

[6] T 2060, ed. vol. 50: 433b19-20: 《續高僧傳》卷 2：「本國有寺名曰大林。遂往歸投。因蒙度脫。」.

[7] SALOMON 1995.4: Reliquary Lid Inscription of Khadadata Dated in the Year 157 mentioning a *stūpa* is built in Mahavana. - "The year one hundred and fifty-seven, 157, in the month Proṭha [i.e., Proṣṭhapda, day twenty-seven; at this time Khadadata (=Skandadatta?) establishes [these relics* (in?) the *stūpa* built by (?) Utara (=Uttarā?) in the Great Forest, in honor of [his mother and father, in honor of all beings, in honor of Utara".

[8] 《大正藏》第 3 卷，No. 190，页 932 上栏。

foundational narrative of this compilation is rooted in the biographical text from the *Dharmaguptaka* tradition. Jñānagupta's translations represent the collective efforts of Baoxian and other monks during their expeditions in the Western regions, resulting in a comprehensive compilation of biographical narratives. As a result, this work has emerged as a seminal text that aligns with the narrative panels of Gandhāran Buddhist carvings, encapsulating the details and storylines of five *sūtras*, endorsed by Jñānagupta, a native of Gandhāra.



Fig. 1: Prediction of Asita, PM2734, Sahri Bahlol (Excavation 1906-07), Peshawar Museum
(Photo taken by Josephine Powell, Courtesy of Special collections, Fine Arts Library,
Harvard University)



Fig. 2: Presentation of Bride, PM2745, Mardan
(Guides Mess Mardan, 1942) Peshawar Museum
(Photo taken by the author)



Fig. 3: Fasting Buddha, PM2756, Takht-i-Bahi, Peshawar Museum
(Photo taken by Josephine Powell, Courtesy of Special collections, Fine Arts Library, Harvard University)

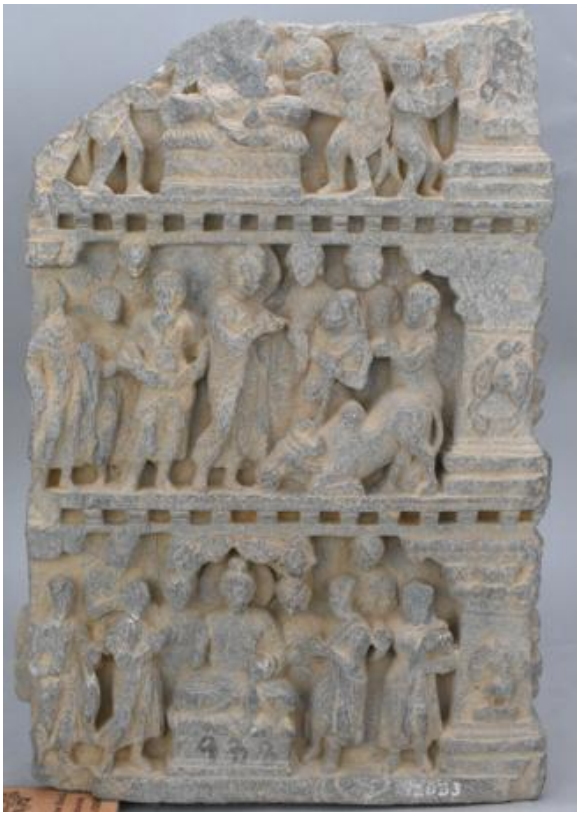


Fig 4: Panel in three registers showing the preaching scene - Offering of the Monkey, Buddha Saves the Water Buffalo, and Seated Buddha receiving worship from monks and lay persons,
PM938, Peshawar Museum (Photo taken by Harvard FAS CAMLab Digital Gandhara project)



Fig 5: Parinirvāṇa Scene, PM2827, Sahri Bahlol (Excavation 1906-07),
Peshawar Museum (Photo taken by the author)



Fig 6: Visit of Naga Elapatra, PM2811, Sahri Bahlol (Excavation ADFC; 1911-12),
Peshawar Museum (Photo taken by the author)

BIBLIOGRAPHICAL REFERENCES

T = Taishō Shinshū Daizōkyō,
eds. J. TAKAKUSU, K. WATANABE & G. ONO. Tokyo, 1924ff.

KHAN 2010
M. Nasim Khan, "Playing with rings - Siddhartha and Yasodhara A relief panel from Aziz Dheri", *Ancient Pakistan*, 21, 2010, pp. 35-47.

LEOW 2016
Chai-Yee Leow, *Narrative Relief Panels of Buddha's Life Story in Gandhāra*: *The Repertoire Composition and its Association with Chinese Buddhist Literature*. Unpublished dissertation, Peking University.

SALOMON 1995
Richard Salomon, "Three Dated Kharoṣṭhī Inscriptions", *Bulletin of the Asia Institute*, New Series, vol. 9, pp. 127-141.

ZIN 2006
Monika Zin, "About Two Rocks in the Buddha's Life Story", *East* & *West*, 56, pp. 326-58.

Decoding Buddhist Narrative Imagery in Afghanistan: A Continuation of the Kapisa Aesthetic

Xuecheng SHAO

Abstract

The Buddha legends, one of the most favorite subjects in Buddhist art, particularly prevelent in the art of early Buddhist grottoes in Afghanistan and China, is undoubtedly an essential entry point to observe the cultural exchanges along the Silk Road. Unfortunately however, there are still many blanks and ambiguities for some specific narrative representations in the current research.

The focuses on a newly discovered relief panel from the Buddhist monastery site of Kapisa in Afghanistan, and tries to identify the stories about the life transitions and miraculous moments of Sakyamuni from his asceticism to Māravijaya after the great departure.

The newly discovered depiction of Sakyamuni bathing in the Nairañjanā River not only makes up for the missing episode of the Buddha legend, comparative study of the relevent images also shows that the relief panel shares more similarities and closer relationship with the the Kapisa-Gandhāra Buddhist art in Kucha grotto China.

The *Jātaka* tales (Buddha's life stories) are one of the most important themes in Buddhist art. More than 130 narrative relief panels depicting these stories have been discovered in the Gandhāra region. Not only were they among the most popular Buddhist iconographic subjects during the Kushan dynasty, but they also had a profound influence on the Buddhist cave art of East Asia.

In Afghanistan, the largest number of such narrative reliefs have been found at the Shotorak Monastery in the ancient Kapisa region. The main themes represented include: the Dipankara Buddha's prediction, Siddhārtha's ascetic practices, the offering by the two merchants, the homage of the *Nāga* king, and the Buddha's *Parinirvāṇa*. These Buddhist narrative scenes, rich in regional characteristics, invite deeper reflection and study.

Between 2019 and 2021, the National Institute of Archaeology of Afghanistan conducted successive excavations at the Khum Zargar Monastery site in Kapisa Province, uncovering *stūpas*, monastic quarters, altars, and newly identified iconographic themes (SEDAGHATI & AHAMADZAÏ 2023). These findings have provided valuable new material for the study of Buddhist art (Fig. 1).

The Khum Zargar Monastery is located on the southern slopes of the Hindu Kush mountains, on the eastern bank of the Panjshir River, nestled in a fertile basin surrounded on the east, west, and north by mountains. The site lies approximately 9 kilometers northeast of Begram, and includes a small hill about 25 meters high along with architectural remains on the plain below (MOSTAMINDI 1968). The surrounding area is inhabited by Pashtun communities. The site was first noted by the DAFA (*Délégation Archéologique Française en Afghanistan*) in 1933, and excavations began in June 1966 (TSUCHIYA 2000).

1. The god Pharro in Buddhism

Several small structures were newly uncovered during the latest excavations, along with stone-carved images, sculptures, and coins. Notably, a stone staircase was discovered in a well-preserved state, holding significant research value (Fig. 2). The staircase is composed of a base slab, tread slabs, stair risers, and a stone lion on each side, closely resembling the architectural layout of the Shotorak Monastery (MEUNIE 1942).

The front of the stair riser is carved in relief with fourteen human figures, each depicted in

varied postures. Two standing warriors holding long spears divide the scene into three narrative sections. According to the visual storytelling logic of the relief, the central scene depicts a "pouring of coins", while the left and right sections show groups of people waiting, suggesting a ritual or offering-related context.

The "coin-pouring scene" prominently features a central figure associated with the Kushan-era worship of the deity Pharro, a belief system that originated in Western Asia. This figure is characterized by holding a money bag in the right hand and a staff or scepter in the left, matching depictions found in Kushan iconography. To the left stands a bearded elder carrying a large sack on his back, while on the right, a curly-haired man holds a jar with both hands, pouring coins onto the ground. Both wear waist-fitted, knee-length robes and tall boots, typical attire of Central Asian figures.

On both sides of this central act, four male onlookers are shown in symmetrical composition: on the left, the central figure is a military man holding a sword, with a kneeling figure beside him offering a coin in his left hand. On the right, the central figure resembles an Indian-style aristocrat or prince, with a semi-nude figure kneeling in front, presenting a jar. The entire relief composition emphasizes central symmetry, with the coin-pouring act serving as the narrative link between the two flanking scenes. The symmetry enhances the authority and prominence of the central male figure, who serves as the visual and symbolic focal point.

The god Pharro can be traced back to the ancient Iranian concept of "Khvarenah" (also spelled "Farr" or "Farrah"), found in the *Avesta*, the sacred Zoroastrian scriptures. This personified divine force carried multiple meanings: in early Iranian thought, Khvarenah symbolized "royal radiance" or divine glory, a supernatural aura that legitimated and empowered kingship. It represented sovereign might and military authority, reflected in flames shown emerging from the shoulders of royal figures on Kushan coins. It also implied material prosperity and abundance, consistent with depictions involving money bags, wealth, and ritual offerings.

The Kushan Empire, founded by an Iranian-origin nomadic people, integrated Pharro worship into its imperial iconography. From the reign of the Great King Kanishka I (127-150 CE), Pharro began appearing on coins. During the reign of his successor Huvishka (150-190 CE), Pharro became a common motif, typically shown as a youthful male in profile, dressed in a tight-fitting robe and cape, holding a spear or staff in one hand and a money bag or weapon in the other. Sometimes, he wears a round helmet or a winged headdress, further associating him with celestial or martial power.

For example, a coin of King Huvishka housed in the British Museum features the bust of Huvishka on the obverse, and the deity Pharro on the reverse (Fig. 3). The Pharro figure on Huvishka's coin (bearing the Greek inscription: ΦΑΡΟ) is shown wearing a fitted tunic and cloak, holding a round-topped scepter in the left hand and a money bag in the right.

This iconographic combination of Pharro as a symbol of prosperity and abundance also appears in stone relief narratives unearthed at the Shanaisha *stūpa* in Swat, Pakistan, indicating that Pharro worship persisted in the region (RAHMAN 1993) (Fig. 4). Additionally, this deity can be associated with Pharro imagery in the mural paintings found in the niche of the Western Giant Buddha at Bāmiyān, further supporting the continuity of this belief across sites in Greater Gandhāra (TARZI 1977) (Fig. 5). In Bāmiyān, Chinese Monk Xuanzang mention "Merchants has great power, and business was donated temple" on 630/631. According to Xuanzang's records, near the capital of Kapisa, King Kaniṣka established a monastery known as the "Monastery of the Hostage Prince" (质子伽蓝，Shotorak). To the south of the monastery's eastern gate, there stood a large image of a divine guardian king, notable for having a parrot atop his crown. Beneath his right foot, treasures were said to be hidden, specifically reserved for the repair and maintenance of the monastery when needed (FOUCHER 1905).

The divine figure described by Xuanzang appears to be a syncretic fusion of various deities such as Vaiśravaṇa (Bishamonten), Pharro, and Pañcika (a *yakṣa*), serving as guardians of temple wealth. These representations reflect a pedagogical approach within Buddhist practice–aimed at inspiring devotion and faith among lay followers–while also symbolizing the protection of the monastery's economic resources.

These richly literary accounts, filled with symbolic jewels, animals, and deities, were likely based on oral traditions circulated among local monks, and their material embodiments may have been rendered in stone reliefs or sculptures. Such elements illustrate the close relationship between temple economy and protective deity worship in ancient Buddhist institutions. They also reveal how regional deities were gradually absorbed into the Buddhist pantheon, collectively becoming the new guardians of Buddhist wealth recognized by the broader public.

Given that the main image of the altar was already missing at the time of excavation, attention turned to the architectural staircase elements. The stone lions flanking the staircase were found reclining with raised heads on rectangular pedestals, each with a horizontal groove carved along the back, likely used to secure a wooden handrail.

Interestingly, during the 1966 excavations conducted by the Afghan Institute of Archaeology, four unfinished lion sculptures were also found, and records show the monastery had suffered earthquake damage. This evidence collectively suggests that construction at the monastery was forcibly interrupted, likely due to warfare or natural disasters, and that subsequent generations lacked the means or interest to resume or complete the project.

2. Narrative Relief Panel of the Buddha's Life

A newly unearthed narrative relief panel from the recent excavations features a strong storytelling structure and can be clearly linked to the broader stylistic tradition of Buddhist sculptural art in Kapisa. The panel is horizontal in format, made of dark bluish-gray schist. Both ends show visible breakage, suggesting it may have originally formed part of a *stūpa*, staircase, or the base of a Buddha statue (Fig. 6). Based on the composition of the figures and the logic of their grouping, the panel has been preliminarily divided into five distinct narrative scenes, each depicting a key episode from the Buddha's life:

1. Ascetic Practices (*Kusyacharya*)–Depiction of the emaciated Siddhārtha engaging in extreme austerities during his six-year spiritual quest.
2. Bathing in the Nairañjanā River (*Nairañjanā Snāna*)–The moment Siddhārtha ends his asceticism and bathes in the river, preparing for his awakening.
3. Offering of Robes by the *Deva* Luminous Glory (*Devaputra* Shuddhāvāsa's Gift)–The celestial being from the Tuṣita Heaven, often named "Luminous Glory" (离垢光), offers robes to the future Buddha.
4. Grass Offering by the Grass-Cutter (Svastika the Grass-Cutter)–A local grass-cutter presents a seat of *kusa* grass, on which Siddhārtha will sit to attain enlightenment.
5. Māra's Defeat and Enlightenment (*Māra-vijaya*)–The final victory over Māra, the embodiment of temptation and illusion, marking the Buddha's enlightenment beneath the Bodhi tree.

In the second scene of the narrative panel–the bathing in the Nairañjanā River–the composition presents Śākyamuni within a small, circular pool. The pool is visually rendered with raised edges and a lowered center, indicating a confined, enclosed space, rather than a wide and turbulent river as described in the Chinese translation of the *Fangguang da zhuangyan jing* (方廣大莊嚴經 *Lalitavistara*) and *Puyaojing* (普曜經 *Lalitavistara*). This portrayal more closely resembles a pool than a natural river. In this regard, the depiction aligns more accurately with the Sanskrit *Prātihārya-vivarta-sūtra* (神通游戏經 *Lalitavistara*), where the narrative focus is

on the symbolic transformation and ritual significance of the act, rather than its physical environment (黄宝生注译 2012).

Comparable examples of the Buddha bathing and the offering of robes have been identified in the Gandhāra region of Pakistan: one is currently held in the Berlin Museum, in Germany (小泉惠英 2013) (Fig. 7). The other was unearthed at Sahri Bahlol site in the Mardan district, now kept in Hund Museum (SPOONER 1909-1910) (Fig. 8).

Due to variations in Buddhist textual traditions and selective representation in visual storytelling, it is not surprising that this is not the first time this particular episode from the Buddha's life has been found fully depicted in archaeological material.

In fact, during the 1924–26 excavations conducted by the DAFA at the Païtava Monastery in Kapisa Province, a complete narrative relief of the same theme was unearthed (CAMBON 1996) (Fig. 9). However, because the sculpture was heavily worn, its iconography had not been clearly identified until now. With the discovery of the newly excavated panel, we are now able to fill an important gap in our understanding of Kapisa–region Buddhist art.

Due to the absence of precise dating inscriptions in most of the architectural remains from this area, the chronological placement of sculptures has remained somewhat open to interpretation. Although one inscribed image dated to 301 CE has been previously deciphered, most materials from the site are undated, requiring stylistic and contextual analysis for attribution (BOPEARACHCHI 2016).

The Khum Zargar, Païtava, and Shotorak monasteries were likely constructed contemporaneously, as suggested by the iconographic consistency of their Buddhist narrative reliefs and the stylistic homogeneity of their sculptural programs. These parallels point to the possibility of a shared artistic workshop or sculptural tradition active in the region. Situated in close proximity to the ancient city of Begram (Kapisa), once the capital of the Kushan, these monasteries may also have fulfilled a court sanctioned religious function, reflecting the intersection of royal patronage and monastic devotion.

3. Only one Nairañjanā River case in China

Although the Buddhist murals, inscribed steles, and stone sculptures of Chinese sites such as the Kizil Caves, Dunhuang Caves, and Yungang Grottoes contain a vast number of Buddha narrative stories, there exists only a single known depiction of the episode of the Buddha bathing in the Nairañjanā River.

A similar narrative sequence can also be found in the murals of the Kucha region's Kizil Caves in China, demonstrating remarkable thematic consistency across vast geographical areas of the Buddhist world. In particular, within Cave 110 of the Kizil Grottoes (dated approximately to the 6th-7th centuries CE), the author has identified the same sequence of Buddha's life stories, especially the transitional episodes from asceticism to the defeat of Māra, among a total of 62 *Jātaka* and Buddha's life scenes depicted in the cave (中川原育子 1997) (Fig. 10).

The narrative mural in this cave presents a continuous composition of episodes from the Buddha's life, progressing from left to right. The sequence includes: the crossing of the Nairañjanā River, the offering of milk gruel by the two shepherdesses and Indra's act of seizing the bowl, the homage by the Kālika *Nāga* King and the grass-cutter's offering, the *Vajra* Seat beneath the Bodhi Tree, and the temptation by the three daughters of Māra (SANTORO 2003).

In the Kizil Cave depiction of the "bathing scene", the Buddha is shown bathing in the river after ending his austerities, extending his right hand to grasp the branch of a tree by the riverbank as he climbs ashore–an iconographic detail remarkably similar to representations found in Gandhāran stone reliefs.

Unlike Gandhāran imagery, which was often embedded into architectural elements of *stūpas* and monasteries, and which allowed for more flexible spatial and thematic sequencing,

the Kucha murals follow a clear linear order. The narrative unfolds from left to right, in accordance with chronological progression, guiding the viewer systematically through the life of the Buddha. Cave 110 is located in the inner valley section of the Kizil Grottoes, near modern-day Kucha (库车/龟兹). It is a small to medium-sized square cave, measuring approximately 4.7 meters wide, 5.5 meters deep, and 4.28 meters high, featuring a barrel-vaulted (longitudinal vault) ceiling. The murals within are executed in a Central Asian-Iranian style, characterized by vivid contrasts and striking colors–warm tones like red and yellow, combined with cool hues like malachite green and lapis lazuli blue–creating a rich and expressive visual impact.

Although interpretations of the narrative murals on the lateral and rear walls have been attempted by various scholars, it is now clearer that the internal storytelling logic and conceptual worldview of these images aligns closely with their counterparts in Gandhāra and Kapisa–reinforcing a shared Buddhist visual tradition that transcended regional boundaries.

Given its singular occurrence in Chinese Buddhist art, this image holds particular significance and must be analyzed within the broader political and cultural context of Gandhāran influence. In 657 CE, during the Tang dynasty sent diplomatic envoys to strengthen bilateral ties, when Wang Mingyuan (王名远) was dispatched to establish the Anxi Protectorate (西域都护府) in the Western Regions, Kucha was designated as one of its most important provincial centers. At the same time, in Kapisa, the Tang court established the *Xiuxian Dudu Fu* (修鲜都督府)–a regional military-administrative office (《新唐书·卷 43 下》) (**戴怡添、邵学成** 2022). This office exercised authority over 11 surrounding prefectures and countries, overseeing both military and civil governance in the broader region. Given this Tang-era political and administrative presence in both Kucha and Kapisa, it is plausible that Buddhist art and narrative motifs from Kapisa may have spread eastward to Kucha, influencing the design and themes of mural paintings in the Kizil Caves.

The stylistic and iconographic similarities between Kapisa buddhist reliefs and Kucha wall paintings–especially in scenes such as the Buddha's asceticism, Nairañjanā River bathing, may thus reflect actual channels of transmission, facilitated by political alignment, trade routes, and cultural exchange under the Tang Empire's transcontinental influence.

Acknowledgements

I would like to express my heartfelt gratitude to Professor Zémaryalaï Tarzi and Dr. A. Vanleene for their invaluable guidance and support. Their pioneering research in Bāmiyān and Haḍḍa has been a constant source of inspiration for me. I am also deeply thankful to M. Noor A. Noori, former Director of the Afghan Institute of Archaeology; M. Rahim Fahim, former Director of the National Museum of Afghanistan; M. Mohammad Abed, current Director of the National Museum; and M. Hasib Nasimee, Director of the Department of Historic Monuments Preservation, for their generous assistance and collaboration during my fieldwork and archaeological surveys in Afghanistan.



Fig. 1. Khum Zargars site view, Afghanistan, Kapisa province

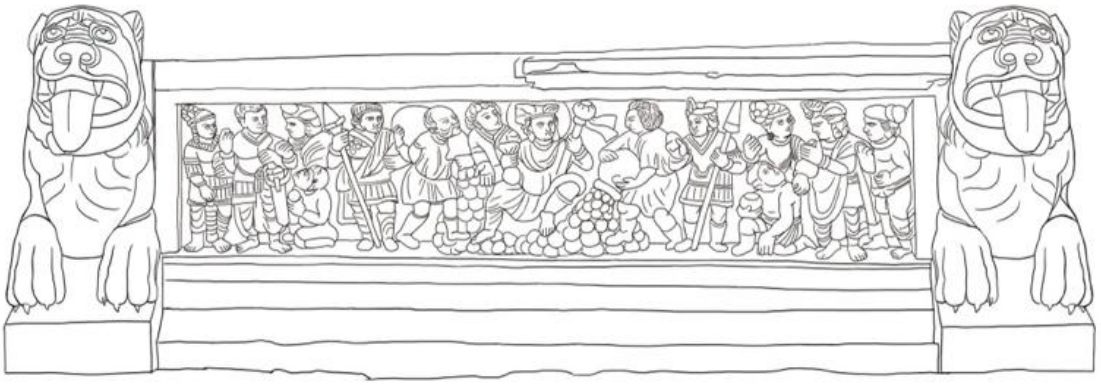


Fig. 2. Pharro god in stair relief, Khum Zargars, Afghanistan, Kabul National Museum collection



Fig. 3. Huviṣika gold coin and Pharro god, ©The British Museum



Fig. 4. Pharro god in relief, Pakistan, Shanaisha *stūpa*, Swat, Peshawar University SSAQ Museum collection

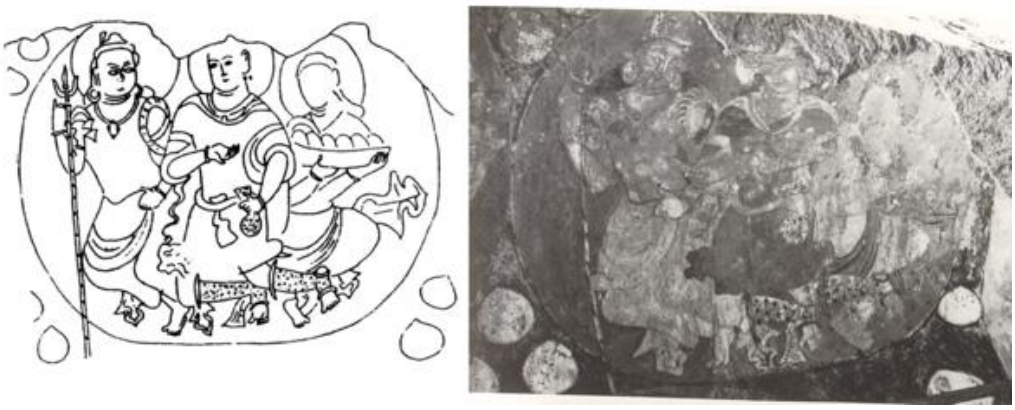


Fig. 5. Pharro god mural painting in Bāmiyān west Buddha niche, © M. Akira & Z. Tarzi

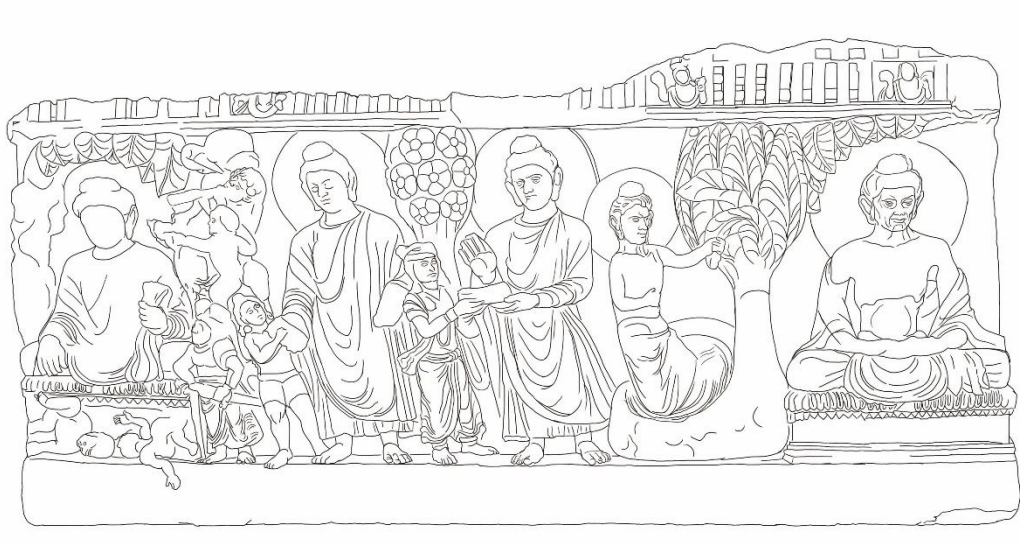


Fig. 6. From the Mortification, Nairañjanā River, Devaputra Shuddhāvāsa's Gift, Svastika the Grass-Cutter to *Māra-vijaya*, Khum Zargars, Afghanistan, Kabul National Museum collect

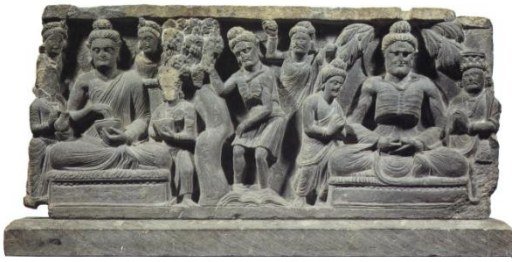


Fig. 7. From the Mortification, Nairañjanā River to the first offering, Berlin Museum collection



Fig. 8. Nairañjanā River, Sahri Bahol, Pakistan, Hund Museum collection



Fig. 9. (left) Dipankara Buddha; (middle) From Birth to Royal Life, *Mahābhinishkramana*; (right) Nairañjanā River.etc. Paitāva, Afghanistan, Kabul National Museum collection

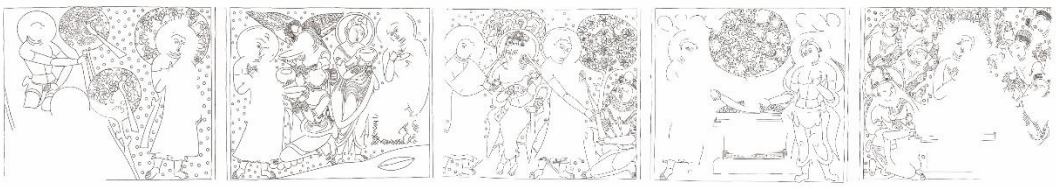


Fig. 10. Nairañjanā River, the Homage of the *Nāga* king, etc. China Kizil grotto N°110 Cave

BIBLIOGRAPHICAL REFERENCES

BOPEARACHCHI 2016
Osmund Bopearachchi, (2016) *Seven Weeks after the Buddha's enlightenment– Contradictions in Text*, Confusions in Art, New Delhi.

CAMBON 1996
Pierre Cambon, "Fouilles anciennes en Afghanistan (1924-1925). Païtāvā, Karratcha", *Arts Asiatiques* 51, pp. 13-28.

FOUCHER 1905
Alfred Foucher, *Les Bas-Reliefs gréco-bouddhiques*, T.1, Paris.

MEUNIE 1942
Jacques Meunié, *Shotorak*, Mémoires de la Délégation Archéologique Française en Afghanistan X, Paris.

MOSTAMINDI 1968
Shaïbaï Mostamindy, "Vestiges bouddhiques à Koh-i-Mori (Afghanistan)", *Archéologia*, vol. 25, pp. 50-55.

RAHMAN 1993
Abdur Rahman, "Shnaisha Gumbat: first preliminary excavation report", *Ancient Pakistan VIII*, pp. 1-124.

SANTORO 2003
Arcangela Santoro, "Gandhara and Kizil: the Buddha's Life in the Stairs Cave", *Rivista degli Studi Orientali* 77, pp. 115-133.

SEDAGHATI & AHAMADZAÏ 2023
Behzad Sedaghati & Rohullah Ahamadzaï, "Archaeological Excavations at Khum Zargar in Kapisa Province, North Afghanistan", *Ancient Iranian Studies*, vol. 2, n° 7, pp. 53-74.

SPOONER 1909-1910
David Brainard Spooner, "Excavations at Sahribahlol", *Archaeological Survey of India Annual Report*, Calcutta, pp. 46–62.

TARZI 1977
Zemaryalaï Tarzi, *L'architecture et le décor rupestre des grottes de Bāmiyān*, Paris.

TSUCHIYA 2000
Haruko Tsuchiya, "An iconographical study of the Buddhist art of Shotorak, Paitāva and Kham Zargar", *Silk Road Art and Archaeology 6*, pp. 97–114.

黄宝生注译 2012

黄宝生注译, 梵汉对勘神通游戏. 北京：中国社会科学出版社, pp.484-502,（唐）地诃婆罗译. 方广大庄严经, CBETA, T3, no.187:0583b04-0583b22, （西晋）竺法护译. 普曜经, CBETA, T3, no.186: 0512a12 -0512a16.

小泉惠英 2013

小泉惠英, 新出の携帯用龕像について. 宮治昭編, ガンダーラ美術の資料集成とその統合的研究報告書, 龍谷大学, pp. 329-343.

中川原育子 1997

中川原育子，キジル第 110 窟（階段窟）の仏伝資料について[R].名古屋大学古川総合研究資料館編名古屋大学古川総合研究資料館報告，第 13 号， pp. 91-103.

戴怡添、邵学成 2022

戴怡添、邵学成，从考古新发现观察犍陀罗到龟兹的佛传图像新解读 以阿富汗迦毕试出土石雕为例美术大观 06， pp. 35-39.

The Gandhāra's Art in Bāmiyān; from Gigantism to Obliteration (A glance of socio-historical processes and local community interventions)

Laeiq AHMADI[1]

Abstract

It is a well-known entry among the academic community of Afghanistan that Gandhāra is the second shining Buddhist land, and Bāmiyān is more impressive than any other famous Buddhist sites in Afghanistan due to its colossal Buddhist statues, thousands of famous grottoes with mural paintings, and stūpas. This huge treasure of Gandhāra artistic remains has gone through many tragic events since its inception until today.

This cultural treasure, once characterized by its tolerance and incorporation of diverse artistic styles from both Eastern and Western traditions, has, over time, suffered extensive damage due to warfare, human intervention, iconoclasm, and natural decay. Bāmiyān, formerly a pivotal crossroads of artistic exchange between Eastern and Western civilizations, has endured a complex history marked by cultural pluralism, monumental artistic achievements, iconoclastic destruction, political despotism, and socio-cultural processes impacts.

The identity of Gandhāra art in Bāmiyān varies from the popular folklore of the local people to the archaeological and historiographical documents that have been printed out for more than a century. In this article, an attempt is made to discuss the history and socio-historical process of this artistic collection of civilization and Buddhism religion with regard to the narratives of the local community and references to archaeological and historiographical documents.

Introduction

Bāmiyān, located along the ancient Silk Road in central Afghanistan, became a major center for Buddhist art and culture from the 4th to the 8th centuries CE. Although not part of the core Gandhāra region, Bāmiyān served as a critical node where the artistic and religious ideas of Gandhāra were transmitted. The spread of Gandhāra art to Bāmiyān occurred largely due to the region's role as a crossroads of civilizations and a hub for Buddhist pilgrims.

The most famous and striking example of Gandhāra's influence in Bāmiyān was the two colossal statues of the Buddha standing respectively at heights of 55 and 38 meters, carved directly into the conglomerate cliffs of the Bāmiyān Valley; as Margottini also mentioned them as the Axis of Universe with all monuments shrouding them (MARGOTTINI 2001, p. 6). These statues, unfortunately destroyed by the Taliban in 11th March 2001, epitomized the synthesis of Gandhāra artistic techniques with local traditions. The statues bore clear hallmarks of Gandhāra aesthetics, including Graeco-Roman drapery and stylized curls of hair, combined with a massive, imposing scale typical of Central Asian artistic sensibilities (NEELIS 2019, p. 87).

The sculptors at Bāmiyān incorporated Gandhāra's iconographic conventions, such as the Buddha's seated posture and *mudrā* (hand gestures), but they adapted these forms to monumental rock-cut architecture. Additionally, the interiors of the caves surrounding the statues were adorned with wall paintings and smaller relief sculptures, many of which

[1] Recently PhD fellow at University of Paris Nanterre (ED 395: Espace, Temps, Civilisations) and former head of the Archaeology Department at Bāmiyān University, alaeia@gmail.com.

reflected Gandhāran themes, like narratives from the Buddha's life and depictions of celestial beings, rendered with Hellenistic grace and detail (ZIN 2022, p. 107).

Bāmiyān's Buddhist sculptures, particularly the colossal Buddhas, were more than just religious icons; they were symbols of the region's historical role as a bridge between East and West. As a flourishing Buddhist center, Bāmiyān played a significant role in the transmission of Buddhism from India to Central Asia and China (NEELIS 2019, p. 87). The grandeur and scale of the Bāmiyān Buddhas reflected the political and economic power of the region, attracting pilgrims, travelers, and merchants from across Asia and Europe.

The importance of Gandhāra art in Bāmiyān lies not only in its aesthetic achievements but also in its role in cross-cultural exchange. Gandhāra art in Bāmiyān acted as a conduit for the blending of diverse artistic traditions, including Indian, Greek, Roman, and Persian. This synthesis, visible in both the stylistic features of the giant statues of Bāmiyān and the surrounding cave murals, is a testament to the dynamic cultural interactions facilitated by the Silk Road subway (FLOOD 2020, p. 149).

In recent scholarship, Bāmiyān is increasingly seen as a key site for understanding the diffusion of Buddhist art and iconography. Art historians have emphasized the interplay between Gandhāra and other regional artistic traditions at Bāmiyān, highlighting the ways in which local artisans adapted Gandhāra motifs to create a distinctly Central Asian form of Buddhist art (BEHRENDT 2019). Bāmiyān's role in the global history of art is further cemented by its UNESCO World Heritage status, reflecting its universal value as a cultural crossroads and a symbol of human creativity.

A Peep to Monumental Gigantism

The historical role of monumental sculpture in human societies, particularly in relation to power, political ideology and culture, contrasts how different civilizations, particularly those of the East and West, approached the construction of colossal monuments.

According to Walker, these sculptures conveyed the idea of an eternal and omnipotent empire through their size and intricate detail, reinforcing the divine and earthly authority of kings (WALKER 1990, p. 204). Through gigantism and grandeur, these civilizations communicated their values and aspirations, creating a lasting legacy that would be remembered by both their own people and future generations.

Egypt as an early example, where pharaohs built gigantic statues and temples to assert their god-like rule over the people. The colossal statues of Ramses II at Abu Simbel, for example, serve as both an expression of political dominance and religious symbolism. The pharaohs were not just rulers; they were gods on Earth. These statues were a clear display of centralized, unchallenged power (WILKINSON 2017).

In Mesopotamia’s civilization also the religion, power and culture identity was the motivation of the large scale sculpture monuments, especially under the reign of kings like Tiglath-Pileser III, Sargon II, and Ashurbanipal, colossal statues, reliefs, and gateways were commissioned to celebrate military victories, territorial expansion, and the prowess of the king. The scale of these sculptures symbolized not just the physical strength of the king, but also his connection to the divine realm, reinforcing his divine right to rule. The *Lamassu*, often placed

at entrances to palaces or temples, were not only guardians but also symbols of the king's omnipotence, acting as metaphysical gatekeepers to the royal power (BARNETT 1960).

In both Mesopotamian and Assyrian societies, religion was deeply embedded in the state's ideological framework. The monumental sculptures often depicted gods or divine figures, symbolizing the connection between the divine realm and the earthly rulers. Mallowan also discusses how sculptures of deities were not merely artistic expressions but were considered to embody the spirit of the gods, empowering rulers by legitimizing their authority as divinely sanctioned (MALLOWAN 1966, p. 58). The massive stone reliefs from the palace of King Ashurbanipal at Nineveh, which depict scenes of royal hunts, military conquests, and religious ceremonies, illustrate the way in which these artworks reinforced the king's role as the mediator between the gods and his people (MALLOWAN 1966, p. 162).

Nemrut, which is located in southeastern Turkey, stands as one of the most significant archaeological and cultural heritage sites globally due to its monumental sculptures and unique fusion of Hellenistic and Persian influences.

The colossal statues at "Nemrut Dağı" are among the most iconic features of this ancient site, showcasing the grandeur of the Kingdom of Commagene and the unique vision of king Antiochus I. These statues, each around 8-10 meters in height, depict various deities, royal ancestors, and figures that embody the syncretic religious ideology Antiochus promoted. The statues represent a blend of Greek, Persian, and Anatolian cultural elements, symbolizing a fusion that reflected Antiochus's goal of unifying Eastern and Western traditions.

According Acar, the colossal statues of Nemrut were not just decorative; they were designed as part of a sacred space that symbolized Antiochus's divine aspirations and his vision of a harmonious relationship between different cultures. The gods represented at Nemrut are intended to reinforce the idea of Antiochus as a ruler under divine protection and guidance, linking him to both Persian and Greek traditions. This fusion was likely a political statement, promoting unity among the diverse communities under his rule by emphasizing shared divine ancestors and religious icons (ACAR 2004, p. 88).

In the city of Rhodes, "Greece, around 280 BCE celebrates the island's victory over a besieging army. Standing approximately 33 meters (108 feet) high, it (the Colossus) was one of the tallest statues of the ancient world" (BRENNAN TERRY 2001, pp. 343-368). Before the creation of the 55-meter-high Buddha colossus of Bāmiyān around the 5th century, the Colossus of Rhodes was the tallest statue in the world which later had become one of the seven wonders of the world.

The Aukana Buddha statue is one of Sri Lanka's most celebrated examples of ancient Buddhist art, located in the North Central Province near Anuradhapura. Dating to the 5th century CE during the reign of king Dhatusena, this statue is carved from a single granite rock and stands approximately 12 meters tall. It is renowned for its detailed craftsmanship and serene expression, symbolizing the Buddha in the *abhayamudrā*, or "fearlessness gesture", which conveys protection and reassurance to devotees. The Aukana Buddha reflects Sinhalese architectural mastery and *Theravada* Buddhist ideals, offering insight into the artistic and religious developments of early Sri Lankan civilization (KARUNARATNE 1988, pp. 92-100).

But in more Oriental and Eastern traditions–within the classical concept of art history–monumental sculptures have been a feature of political and religious expression for millennia, especially in Asia and parts of the ancient Near East. The term "Oriental despotism" is used, albeit somewhat controversially, to describe a political system in which rulers maintained

absolute control and often deified themselves, a notion supported by the construction of massive statues."(WEERASINGHE 2019, pp. 88-95). The Giant Buddha of Leshan is the world's largest stone Buddha statue, carved into a cliff at the confluence of the Min, Dadu, and Qingyi rivers in Sichuan, China. Built during the Tang Dynasty (713-803 CE) under the guidance of a monk named Haitong, the statue stands 71 meters tall. The Leshan Buddha is an impressive representation of Maitreya, the future Buddha, seated in meditation, with symmetrical proportions and intricate detailing that reflect the artistic sophistication of the Tang period.

The construction of this statue was not only a spiritual endeavor but also intended to calm the turbulent rivers, protecting nearby communities and making the waters safer for shipping. Its strategic placement within the natural environment exemplifies the Tang Dynasty's blending of religious devotion with landscape architecture. Designated a UNESCO World Heritage Site, the Leshan Buddha is an enduring symbol of Chinese Buddhist heritage and a significant accomplishment in ancient engineering and stone-carving (HUANG 2019, pp. 65-72).

Overall, the origin of gigantism in visual art and architecture is a complex interplay of cultural, technological, artistic, and political factors. From ancient civilizations to modern times, the impulse to create monumental works continues to captivate and inspire audiences around the world.

In his Book II, written in the mid-5th century BCE, Herodotus uses the term *kolossos* nine times to refer to six Egyptian statues or groups of statues, described as standing, sitting, or lying down. Although all of them have disappeared today, it is relatively easy to form an idea of their dimensions and, in at least two cases, to imagine what they looked like (BADOUD 2011, p. 132).

The word *kolossos* is a pre-Hellenic term, originating from Asia Minor; according to linguists, the root *kol* designates an element stuck in the ground, erected like a pillar. The word is used by Herodotus to designate Egyptian statues, standing or seated, legs together, arms along the body and therefore more or less comparable to pillars by their silhouette similar to that of a mummy. *Kolossoi* also referred to statues made to replace a deceased person (idea of the double of a person), to mark the threshold of a home (idea of a link between the exterior and the interior) or to guarantee the alliance between a colony and the mother city. This is undoubtedly the association of the word with the monumental plastic creations seen by ancient travelers in Egypt, such as the Sphinx of Giseh (around 2500 BCE), the colossi of Memnon (around 1400 BCE) or the colossal statues of Ramesses II in Luxor (around 1250 BCE), which gave this word the meaning of a gigantic effigy, of superhuman scale.

Gigantism in the Art of Bāmiyān

The term "Giant" in relation to the Bāmiyān Buddhas was popularized by Alexander Burnes, a British explorer and diplomat, in the early 19th century. He referred to them as "giants" in his travel accounts in Afghanistan and Central Asia. This terminology gained traction in Western scientific sources thereafter (BURNES 1834, p. 184).

The Buddha statues of Bāmiyān, regardless of the motivations behind their construction in the 5th century CE, represent the earliest monumental example of artistic gigantism within the Gandhāra region and the Buddhist religious domain. In Bāmiyān, not only were four colossal statues, measuring 7, 10, 35, and 55 meters, intricately carved into the conglomerate cliffs, but the accounts of Xuanzang's travelogue also strengthen the hypothesis of a 300-meter Buddha statue. Additionally, during archaeological excavations led by

Zemaryalaï Tarzi between 2006 and 2011, a 19-meter reclining Buddha was discovered near the 35-meter Buddha.

Morgan, in her book *The Buddhas of Bāmiyān: The Wonders of the World*, highlights that Bāmiyān, more than any other place in the world, served as the cradle for monumental artistic creations. She even refers to Bāmiyān as the "Stonehenge of Afghanistan" (MORGAN 2012, p. 4).

The challenge has always been to convey their size, and the impulse of every visitor has been to attach a measurement to them, whether in Chinese *chi*, Persian *gāz*, or English feet. Even their most articulate detractors, like Goethe and Robert Byron, spoke of them as "crazy idols [...] on a gigantic scale," and their monstrous dimensions were such that experiencing the Buddhas of Bāmiyān in person became almost a necessity. But this makes us much like the British readers of the 6th and 13th November 1886 issues of *The Illustrated London News*, in which the famous war artist William Simpson produced a series of illustrations. (MORGAN 2012, p. 5).

The Buddhas of Bāmiyān often depicted in Arabic and Persian Islamic sources as awe-inspiring and otherworldly creations. In these accounts, the monumental statues are described not merely as physical structures but as miraculous manifestations of divine craftsmanship. For example, Mahmud ibn Wali Balkhi, in his work *Bahr al-Asrar*, offers a vivid description of the site: "There we see a building whose summit is of a prodigious height; it is supported by gigantic pillars and covered with paintings representing all the birds created by God. Inside are two immense idols dug in the rock, extending from the foot of the mountain to its summit. One is called the *Sórkh Bút*[2] (red idol) and the other the *Khíng Bút*[3] (gray idol); we can see nothing comparable to these statues in the world" *(*AL-HAMAWĪ 1866, p. 41). This portrayal underscores the overwhelming scale and grandeur of the statues, positioning them as a singular achievement in both artistic and architectural terms.

Llewelyn Morgan, in his examination of the colosses of Bāmiyān, references Mahmoud ibn Wali Balkh's account, echoing the sentiment of incredulity regarding their creation. Morgan writes, citing *Bahr al-Asrar*, "One cannot believe that these were made by human hands" (MORGAN 2012, p. 81).

This expression of astonishment emphasizes not only the monumental size and artistic complexity of the statues but also their perceived otherworldliness. The combination of their scale, intricacy, and location in the harsh terrain of Bāmiyān led many to view them as beyond the capabilities of ordinary human craftsmanship.

These descriptions reflect a broader trend in Islamic historiography, where extraordinary natural and man-made structures often inspire narratives of divine intervention or miraculous creation. The Buddhas, in this context, become symbols of the limits of human understanding and achievement, positioned at the intersection of art, faith, and the natural world. Through such accounts, these statues transcend their physical existence, becoming cultural and religious symbols imbued with deeper meanings that continue to inspire awe and reverence.

John Boardman discusses the influence of artistic styles in Gandhāran sculptures and their exchanges with the Greek world over an extended historical period. Based on his comparative analysis, the creation of colossal statues throughout Gandhāra, particularly the giant Buddhas

[2] سُرْخُ بُتّ (Red idol in Fârsî)
[3] خِنْگُ بُتّ (Gray idol in Fârsî)

of Bāmiyān, may reflect the power and grandeur of the Kushan era. This artistic magnificence appears to rival the cultural and artistic achievements of Greek civilization, showcasing the Kushans' own sense of artistic pride and sophistication (BOARDMAN 1997, pp. 1- 6).

The gigantism in Buddhist art was not merely a reflection of late Roman influences but represented an autonomous development within the Buddhist world. The Bāmiyān statues, far from simple colossal images, positioned the Buddha as an immeasurable entity, with narratives from Buddhist texts like "The Measure of the Buddha" enhancing the symbolic enormity.

Thus, the colossal Bāmiyān Buddhas stand as independent articulations of Buddhist cosmic symbolism, rooted in both early Kushan artistic traditions and the broader cultural exchange between Central Asia and the Indian subcontinent (BUSSAGLI 1979, p. 281).

The Kushan Empire's diplomatic exchanges with Rome reveal sustained cross-cultural and economic interactions, especially during the reigns of Kushan rulers Kanishka and Huvishka, from the 1st to the 3rd century CE. Evidence from sources such as the *Historia Augusta* suggests that the Kushan Empire established alliances and peace gestures with Roman emperors, notably Hadrian and Antoninus Pius, indicating that Bactrian rulers, often interpreted as Kushan emissaries, sought to engage with Rome for mutual advantage. These missions align with significant diplomatic gestures that persisted even as Rome transitioned through various emperors, including Hadrian, Trajan, and later Aurelian (BUSSAGLI 1979, p. 283).

The presence of Kushan and Roman artifacts across Gandhāra, particularly the monumental Buddha statues of Bāmiyān, underscores this exchange. The Bāmiyān Buddhas, both enormous in size and culturally significant, symbolized not only spiritual reverence but also the syncretic integration of various cultural motifs, possibly facilitated by these enduring connections with the Roman Empire and the broader Mediterranean cultural sphere (BUSSAGLI 1979, p. 283).

Not unrelatedly, medieval Islam saw a flourishing literature of Wonders, *'aja'ib*[4] and *ghara'ib*[5], records of the remarkable and outlandish. In the *eleventh* century the writer Sam'ānī from whom Zemaryalaï Tarzi indirectly drew his account of the Great *Stūpa* of Bāmiyān (which offered the Buddhas serious competition as a marvel in early Islamic accounts), records the view that the Buddhas "have no equal in this world", while according to another 7th century CE Moghul dictionary, the *Farhang-i Rashidi* (this time named after its compiler, Rashid, though it was dedicated to Shah Jahan, who built the Taj Mahal), the *Khing But* "is one of the marvels *'aja'ib* of the age". Similarly the *Surkh But*, "in the same mountain, counts among astonishing works (*ghara'ib*)".

But when Islamic texts express wonder at the Buddhas, it is never quite wonder for its own sake, but rather wonder at the infinitely creative power of God. A representative account of Bāmiyān, which will also take us back to our earlier thoughts on Islamic unease about idols, is the *'Ajā'ib al-makhlūqāt* (Wonders of Creation) by Tusi, dedicated to the last sultan of the Great Seljuk Empire in the later 12th century CE. In part of it Tusi considers "The wonders of carved and painted images" and "Strange images", and in that second category he includes the Buddhas of Bāmiyān, treading a fine line between an acknowledgment that image-making is *haram* (unlawful) and an insistence that these man-made wonders can nevertheless embody God's benign influence in the world (MORGAN 2012, p. 117).

[4] عَجَائِبُ (Wonders and Curiosities)
[5] غَرَائِبُ (Marvels and Oddities)

In the 11th century CE, Sam'ānī from Merv (now in southern Turkmenistan) noted that there is nothing like the *Surkh But* "Red Buddha" and *Kheng But* "Moon-white Buddha" anywhere in the world. They are the two colossi of Bāmiyān. Gigantism created myths about them and made them as wonders of the world for the geographers and the lovers and heroes in Persian literature (HUSSEINI 2012, p. 19).

Socio-Historical Processes of the Colossus of Bāmiyān

Bāmiyān, described by Lokesh Chandra as "the splendor of Afghanistan" and the "cultural syndrome of the region" (CHANDRA 2002, p. 33), has received limited attention from historians concerning its social, cultural, and everyday life aspects. In fact, one could argue that such descriptions are virtually absent in classical texts, later periods, and even contemporary studies. Most travellers who visited Bāmiyān throughout history focused exclusively on the colossal Buddhas and the mesmerizing murals in the caves, seemingly ignoring any signs of living culture or human presence in the region.

However, local narratives and folklore suggest a long-standing continuity of life in Bāmiyān. These accounts indicate that even after the advent of Islam, human and cultural life persisted in the region, adapting to the remnants of Buddhism while expressing Islamic beliefs through folkloric tales see (HACKIN & KOHZAD 1953, p. 21).

During the medieval period, Western and Eastern pilgrims alike reflected primarily on Bāmiyān's artistic marvels and Buddhist heritage in their surviving texts (see MARGOTTINI 2001, pp. 16-36). For instance, the Italian traveler Odorico da Pordenone, who visited Bāmiyān in 1318 CE, provided descriptions similar to those of Xuanzang, offering little to no insight into the region's social and cultural life. Similarly, Thomas Hyde and Francis Wilford documented the physical landscape of Bāmiyān in greater detail. Charles Masson, between 1830 CE and 1837 CE, along with Vincent Eyre, Milo Talbot, and P. J. Maitland–British generals who visited the Bāmiyān Valley between 1840 and 1885 CE–left extensive notes about the colossal Buddhas and the caves, but these, too, lacked attention to the region's living culture and society (BALL 2008, p. 89).

Since 1922, when the formal agreement for archaeological excavations between the Afghan government and France was signed, Bāmiyān has been predominantly studied through the lens of archaeological remains. Its social, folkloric, and intangible cultural heritage, as understood in the modern UNESCO framework, and its connection to local knowledge have not been adequately interpreted alongside its archaeological artifacts. Only Hackin and Kohzad, in their seminal work *Légendes et coutumes afghanes*, made preliminary efforts to explore these aspects.

During this period, as archaeology emerged as an academic discipline worldwide, Afghanistan's archaeological sites in general, and Bāmiyān in particular, became the focus of classical archaeological research. However, the results of these classical archaeological studies have yet to be comprehensively analyzed within the framework of local knowledge and folkloric narratives.

Significant contradictions have emerged in the works of Afghan historians and national researchers. Some have even denied the Buddhist origins of the Bāmiyān statues, attributing them instead to the mythical era of Ariana (ARIANPUR 2011, and KIANI 2015). Among researchers of Bāmiyān's archaeology, there are also those who associate its artistic and

Buddhist creations with pre-Buddhist mythological periods, such as Zoroastrianism or Brahmanism. For instance, Le Berre connects Bāmiyān's monuments to earlier religious contexts, attributing them to periods preceding Buddhism (LE BERRE *et al.* 1987).

In local sources and folklore

Buddhas likely would have been portrayed as awe-inspiring wonders, stirring the imaginations of poets, storytellers, and readers alike.

Overall, a folkloric reading of Hazara views about the Bāmiyān Buddhas reveals a rich tapestry of cultural meaning, intertwining history, spirituality, and identity in the collective consciousness of the Hazara people.

In Hazara folklore, the Bāmiyān Buddhas could be revered as sacred guardians of the land, embodying a spiritual connection to the earth and its people. Stories may depict the Buddhas as benevolent figures who watch over the region, offering protection and guidance to those who honor them.

According to Hazara folktales, the larger statue is called *Salsal*, and he was supposedly the son of a *Pahlavan*[6]. The smaller statue was called *Shahmama*, who was allegedly the daughter of the *Mir*[7] of Bāmiyān. Here we see that even across the genres and centuries separating Persian sources and Hazara folktales, still the gendered pairing of the two statues as man and woman has remained the same ; *Surkh But* and *Khing But* which were mentioned earlier are *Salsal* and *Shahmama*. The *Mir* of Bāmiyān who knew of the love of *Salsal* for his daughter was unhappy as he was not impressed by *Salsal*. He suffered from two major problems in his territory; destructive floods and the double headed dragon that ate his people. *Shahmama* too was aware of this situation and loved *Salsal*, but could not ignore her father. With the interference of nobles, the condition for marriage with *Shahmama* was declared to be a successful attempt at stopping the flood and killing the dragon. For achieving these hard conditions, *Salsal* needed a legendary weapon which should be made of steel mined from Fuladi mountain and should be forged by a wise *pir* (old man) at Ahangaran in Ghur. The protagonist of this story, *Salsal* makes this extraordinary march and returns with the legendary steel sword. He first closed the river with a dam (*band*) and then in a deadly fight killed the dragon.

He skinned the dragon and sent it (the skin) to be used as a carpet for the day of marriage, but he succumbed to the wounds inflicted by the demon spirit of the dead dragon. In a conclave of nobles, the *Mir* and his courtiers accepted him as a hero, who had earned the merit to marry *Shahmama* and thus the day of marriage was announced. The *Mir* and nobles ordered the carving of two memorial niches on the facade of the mountain to celebrate their marriage and to remember the triumph of *Salsal* over the dragon.

The niches were painted and the bigger one was covered by red embroidered curtains while the small niche was decorated with green curtains. The lovers were supposed to remove these curtains by sunrise to let the people see them as a couple standing in the niches and then they should walk on the carpet made of dragon skin towards their future house. But it never happened. When the curtains were removed people saw *Salsal* and *Shamama* had turned into stones and were dead! The people screamed on seeing that and thereafter they lighted candles in those niches and recited tragic poems in their memory. They called it the enriches of love and told this story to the travelers and also named their children after the lovers (HUSSEINI 2012, p. 24).

[6] Hero.

[7] Traditional title denoting leadership or local governance in Hazara's regions.

Furthermore, the concept of gigantism, both literal and metaphorical, could have played a significant role in the mythology surrounding the Bāmiyān Buddhas. Their immense stature may have been exaggerated in stories, representing not only their physical size but also their cultural and spiritual significance. They could have been portrayed as guardians or protectors, towering over the landscape and inspiring reverence in those who beheld them.

Overall, the Bāmiyān Buddhas would have been celebrated as marvels of the world in Persian literature, serving as symbols of human creativity, resilience, and the enduring power of art to transcend time and space (CHANDRA 2012, p. 8).

According to Lokesh Chandra, cults were part of the web of politics. The imperial image as a colossus was the personification of power, which kept the ruler ever present in the eyes of his people, in an integration of charisma and religious reverence. Classical Greek influences gave rise to the concept and representation of Buddha as Cosmocrator, the Rocana of the *Avatamsaka sutras*. Monumental Apollo of Delos in the 7th century BCE and frequent references to *kolossoi* by Herodotus in the 5th century BCE, and other statues made colossus a living tradition. The most famous colossus was the bronze statue of the Sun-God Helios, 105 feet high, made from melted down weapons of a defeated enemy. It stood astride the entrance to the harbor of Rhodes. It was broken up by the Arabs during the raid of Rhodes in 653 CE and the broken up metal totaled 900 camel loads. The Greater Colossus of Bāmiyān surpassed them all by being thirty times life-size (5.83 x 30 = 175 feet) (CHANDRA 2012, p. 9).

The smaller colossus of Maitreya of Bāmiyān evolves into the larger colossus of *Rocana,* though the two are at a distance of more than half a mile. Rocana is also called *Abhyucca-deva* in *Gandavyuha* 443.9. *Abhyucca-deva* means a colossal image. The Larger Western Colossus at Bāmiyān is known as *Surkh But* (Red Buddha) in Iranian literature. He wore a red drapery and Hackin recovered fragments of red-painted stucco at his feet. There are countless allusions to the *but-e ārāste* (adorned Buddha) by early Persian poets. They also detail the ceremonies of presenting of gold-threaded draperies, bejewelling and crowning of the colossus. Situated in a region dominated by Iranian light cults, the colossus was the Supreme Light God who endowed the king with his spirit. Xuanzang refers to the Great Colossus: its golden hues sparkle on every side, and its precious ornaments dazzle the eyes by their brightness. He was *Rocana*, from the root *ruc* (to shine). Bāmiyān was the glory of classical Afghanistan, sanctified imperium, splendor shared by its ruler and its people, stabilization and prosperity of the state in a common cultural syndrome with neighboring kingdoms, in the majesty of the colossi (CHANDRA 2012, p. 13).

Originating in the post-Gupta period, gigantism in *Mahāyāna* Buddhist art found its way to Bāmiyān around 5th century CE and remained remarkably connected to rituals in time and content. Their identification and chronology has been a continuous debate among the art historians and it is thought that the idea of all gigantic Buddhist statues of Central Asia and China originated from the Bāmiyān Valley (HUSSEINI 2012, p. 16).

The Encounter Between Buddhism and Islam in Bāmiyān

The interaction between Buddhism and Islam in Bāmiyān raises multifaceted and complex discussions: were the local community's responses driven by an ideology, or were they shaped by a particular mindset, such as the one held by Babur Shah or Khān Abdul Ghaffar Khān? It is also essential to consider that written sources and historical evidence, relying on accounts from travelogues and records of the 8th to 12th centuries–such as those of Xuanzang–describe one

phase of history. However, the attitude of the predominantly Muslim local society toward these Buddhist religious relics and the official strategies of political authorities in later periods differ significantly.

A key question arises for archaeologists across Afghanistan: did the advent of Islam mark an abrupt cessation of Buddhist art? Archaeological evidence indicates that after the arrival of Islam, even in its early days, no significant artistic activity related to Buddhism is observable. For instance, Mihrakula, the Hunnic king of the 5th century, undertook deliberate efforts to destroy Buddhist monasteries in parts of the Indian subcontinent, particularly within the Gandhāran cultural sphere. This highlights that the destruction of Buddhist remnants in Afghanistan was a prolonged process shaped by both political and religious dynamics (refer to DANI 1999, pp. 210-229).

This type of cultural, social, and artistic rupture appears remarkable. Could it signify an escalation of hostility and cultural cleansing imposed by Islamic rulers upon the local community? Notably, historical accounts also document instances of mistreatment toward Buddhism and its monasteries in Afghanistan even before the advent of Islam.

According to the 7th century travelogue of the Chinese Buddhist pilgrim and student Xuanzang, Mihirakula who ruled several hundreds of years before his visit, was initially interested in Buddhism, and sought a Buddhist teacher from monasteries in his domain. They did not send him a learned Buddhist scholar. Feeling insulted, he became anti-Buddhist and destroyed the monasteries in his kingdom" (SINGH 2017, p. 241).

Could it then be argued that religions and faiths in Afghanistan, from the Buddhist period onwards, lacked deep roots and organic connections to the local population, serving instead as political tools imposed by ruling powers upon cities and communities? (The process of Islamization is a separate discussion that falls outside the scope of this text[8]) Alternatively, as MacLean suggests, could Buddhism in Bāmiyān have been more of an economic-commercial religion? Evidence of such a perspective exists even today among Afghan communities, where the *Sikhs*, adherents of *Guru Nanak*'s teachings in India, are typically associated with trade and sustain themselves through this profession (MORGAN 2012, p. 89).

Relatively noteworthy insights about the presence of Islam in Bāmiyān are found in the travel accounts of the Korean pilgrim *Hyecho*, who visited Bāmiyān in 727 CE. He observed that Buddhist followers and monks were still living in the region, although he depicted a subdued political atmosphere. Hyecho also referred to a monarchy in the region, and later, the scholar Yaqut al-Hamawi described these rulers as the "Lions of Bāmiyān", identifying them as a powerful family connected to the royal court in Baghdad.

[8] As a local researcher born and raised in central Afghanistan, with a deep understanding of its social fabric, cultural dynamics, and collective spirit, I have observed that religion does not have an inherently deep-rooted connection within this community. The rapid political transformations in Afghanistan have demonstrated that the people of this central region tend to adapt their religious customs and practices to meet contemporary demands. Over the past two decades, coinciding with the expansion of democracy in Afghanistan, the Bāmiyān community has emerged as one of the more secular-minded groups in the country.
Drawing on the insights presented in Llewellyn Morgan's The Buddhas of Bāmiyān, one could argue that Buddhism in Bāmiyān may have functioned more as a religion of commerce than as a deeply spiritual tradition. In contrast, during the Islamic period, religion took on a more political and compulsory role in shaping the region's identity.

However, archaeological and radiocarbon data from Bāmiyān reveal that Buddhist remnants maintained their normal presence in central Bāmiyān until the 9th century CE, and even until the 10th century in the valleys of Kakrak and Folādi. This suggests that Islam's presence was initially superficial.

Throughout Afghanistan's history, we observe official and local contradictions in how non-Islamic remnants were treated. For example, pre-Islamic cultural values became prominently celebrated during the era of Mahmud of Ghazni, as evidenced by Ferdowsi's *Shahnameh*. This period is often described as the "Persian Renaissance". Yet, Mahmud of Ghazni also destroyed numerous statues during his campaigns in India, including the infamous destruction of the temple at Somnath.

The question arises: were pre-Islamic cultural values truly appreciated, or was hostility toward Buddhism unique? One possible answer lies in Islamic doctrine, which fundamentally disapproves of representing living beings, particularly through statues. A similar aversion existed in early Buddhism and has been a matter of debate in all four Abrahamic religions as well.

Monumental Evidence of Bāmiyān

Despite the efforts of notable explorers and scholars such as the Chinese pilgrim Xuanzang in 630 CE, the Korean monk Hyecho in 727 CE, the Arabic geographer Yaqut al-Hamawi in 1218 CE, the Arabic scholar Abu'l-Fida in 1273 CE, the Italian explorer Odoric of Pordenone in 1318 CE, the Persian geographer Hamdallah Mustawfi Qazwini in 1340 CE, the English orientalist Thomas Hyde in 1760 CE, and Francis Wilford of the East India Company in 1798 CE, no scholar up to the 18th century exhibited a comprehensive or fundamental concern for the study of Buddhism and its architectural and social heritage in Bāmiyān.

The presence of mud brick and earthen structures in the form of defensive fortresses in Bāmiyān represents a unique architectural feature within the Gandhāra region. Notable examples include *Ġolġola, Šahre Zohāk, Kafir Qala, Čehel Burj*, and Barbar Fortress. These structures suggest a shift from religious to military and defensive priorities over time (LE BERRE 1987, p. 91.) As previously noted, the neglect and destruction of Buddhist remnants may have begun during this period or perhaps even earlier, during the reign of Mihirakula.

The current landscape of Bāmiyān indicates that this small geographical area has undergone a complex historical and social process. This transformation includes the Islamization of Bāmiyān through state-driven initiatives and its localization via socio-cultural processes, as reflected in folkloric narratives see (HACKIN & KOHZAD 1953).

Numerous academic debates and discussions have been held regarding the civilization and art of Gandhāra. However, Bāmiyān, with its distinct artistic features, continues to be a focal point of study for archaeologists and researchers. Its sculptural art, architecture, principles of iconography, and other aspects demonstrate both similarities and differences across the region, from Kabul to Taxila (BOARDMAN 1997, p 7). This distinction underscores the need for Bāmiyān to be studied within its unique context.

Morgan refers to Bāmiyān as the "Stonehenge of Afghanistan" (MORGAN 2012, p. 4) and highlights that Buddhist institutions played an integral role in the local economy, investing in

agriculture and even industry. He draws a parallel with Mes Aynak, southeast of Kabul, where ongoing archaeological excavations have uncovered a network of Buddhist shrines surrounding a copper-rich mountain. This site faced attacks during the Soviet occupation in the 1980s and was later used as a training camp by Osama bin Laden in the 1990s, producing individuals involved in the 9/11 attacks (MORGAN 2012, p. 50).

Comparing Bāmiyān to Mes Aynak in Logar Province, which has yielded an astonishing array of Buddhist artifacts, Morgan hints at Bāmiyān's strategic and economic importance, which likely fostered the creation of its monumental artistic heritage. Unfortunately, much of this invaluable artistic legacy has been destroyed, losing significant evidence over time.

From Xuanzang's travel accounts, as well as later pilgrims' and geographers' writings, it is evident that Bāmiyān was a central hub of Buddhist culture from the 4th to the 8th century CE. One might wonder how such an extraordinary cultural and civilizational phenomenon, if still intact today, would be perceived and engaged with by local communities and the ruling Islamic systems.

The Director of the Archaeological mission for the survey and excavations of Bāmiyān, led by Zemaryalaï Tarzi since *2002*, aimed to verify Xuanzang's accounts. Tarzi discovered a reclining Buddha measuring 19 meters in length, lying near the two monumental standing Buddhas. This reclining Buddha was referenced in Xuanzang's accounts and Islamic sources like the *Ain-i-Akbari*, where Abu'l-Fazl described the statue as "a reclining ancient sage in his final repose". While Tarzi's efforts were partially successful, finding the remains of the 300-meter Buddha remains elusive. Local folklore attributes a natural formation west of Bāmiyān, known as the "Dragon" to Imam Ali, a key figure in Shia Islam.

As Bāmiyān transitioned from a glittering center of Buddhist devotion, efforts to create an Islamic counterpart to its monumental identity emerged. Deborah Klimburg-Salter, author of the most detailed study of Buddhist Bāmiyān, makes a bold further argument to the effect that the whole complex of Buddhas were designed to represent to the visitor a lesson in 3 dimensional form.

Mahmud ibn Wali of Balkh, in his *Bahr al-Asrar* (The Ocean of Secrets), remarked: "One cannot believe that these were made by human hands". Despite Babur's frequent travels through the Bāmiyān Valley, his writings, notably the *Baburnama*, make no mention of the Buddhas, even as he discussed the region's rivers and other features. Rory Stewart, retracing Babur's route in 2002, noted a similar lack of interest among locals toward the Buddhas, possibly reflecting Islamic opposition to idols. Early British accounts, such as those by Charles Masson in 1832 (actually deserter from the British army under the alias James Lewis), also suggest that religious opposition influenced the damage inflicted on the Buddhas. Masson noted the absence of the Buddhas' faces, though whether this was intentional remains debated (MORGAN 2012, p. 88).

Historically, there were indeed religiously motivated attacks on the Buddhas prior to 2001. George Lawrence, a British captive in Bāmiyān in 1842, recalled Afghan guards firing at the statues while cursing them as idols. Some damage to painted and sculpted images within the caves was clearly deliberate. However, natural erosion, earthquakes, and neglect-such as the use of the Buddha niches for rifle and archery practice-have been equally, if not more, significant causes of their deterioration over time.

Despite Babur's apparent disinterest in the Bāmiyān Buddhas, his appreciation of art and architecture was complex. In the *Baburnama*, he described Jain rock-cut statues at Gwalior, noting their nudity and aesthetic appeal. His commitment to formal gardens and artistic endeavors further complicates any attempt to label him doctrinally opposed to such relics.

As Llewellyn Morgan observes, discerning the interplay between religious bias and artistic appreciation in figures like Babur remains a nuanced challenge. While Bāmiyān was once a radiant center of Buddhist art and devotion, its historical transformation into an Islamic stronghold required adapting and reinterpreting its monumental identity. The legacy of Bāmiyān, shaped by its unique historical, cultural, and religious trajectory, continues to inspire both scholarly inquiry and global fascination.

Conclusion

Gandhāra art's influence on Bāmiyān underscores the region's significance as a focal point of cultural and artistic exchange along the Silk Road. While the Bāmiyān Buddhas no longer stand, their legacy remains as a testament to the enduring power of Gandhāra art to transcend regional boundaries and create a lasting impact on the development of Buddhist art in Central Asia. Recent efforts to reconstruct and preserve the remnants of Bāmiyān's artistic heritage speak to the ongoing relevance of Gandhāra art in contemporary discussions about cultural preservation and historical memory.

In sum, the significance of Gandhāra art in Bāmiyān lies in its role as a visual manifestation of cross-cultural syncretism, embodying the complex exchanges of ideas, forms, and symbols that characterized the ancient world. The fusion of Graeco-Roman artistic techniques with Buddhist iconography in Bāmiyān not only expanded the aesthetic vocabulary of Buddhist art but also contributed to the global diffusion of Buddhism, reinforcing the region's status as a nexus of spiritual and artistic innovation.

Bāmiyān holds significant global dimensions in the history of arts for numerous reasons. Although considerable temporal gaps are observed, its colossal statues can be compared to the artistic giants of the classical world, such as the Pyramids of Egypt, the *ziggurats* of Mesopotamia, and the Colossus of Rhodes in Greece. The beauty of its thousands of caves and *stūpas* from the 2nd to the 7th centuries CE is also comparable to the Temple of Artemis in Asia Minor. However, due to its isolation in contemporary global discourse and literature, it has remained excluded from lists of the wonders of the world or has received little to no mention.

The convergence of Gandhāran and Central Asian artistic traditions in Bāmiyān reflects a broader historical and cultural synthesis that occurred along the Silk Road. The Gandhāran region, encompassing modern-day Pakistan and Afghanistan, was a center for Buddhist art and culture during the Kushan Empire (*circa* 1st to 3rd century CE). Its fusion of indigenous, Hellenistic, Persian, and Indian artistic traditions profoundly shaped the creation of the cave monasteries and the Buddhas of Bāmiyān, monumental Buddhist sculptures carved into the cliffs of the valley in the 6th century CE.

BIBLIOGRAPHICAL REFERENCES

ARIANPUR 2011
Muhammad Ali Arianpur, "Bamyan the Land of Myths", in *History and Historical Monuments of Bamyan* (in Persian) compilation of articles, Salam-cultural and social center, Kabul.

ACAR 2004
Gülcan Acar, *Nemrud,* Ankara.

AL-ḤAMAWĪ 1866
Yāqūt ibn 'Abd Allāh al-Ḥamawī, Mu'jam al-Buldān, vol. 1, F. A. Brockhaus, p. 41.

BACON 1951
Elizabeth Bacon Eager, "The Inquiry into the History of the Hazara Mongols of Afghanistan", *South western Journal of Anthropology,* vol. 7, pp. 230-247.

BADOUD 2011
Nathan Badoud, "Les colosses de Rhodes", *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres,* nº 155, p. 132.
https://doi.org/10.3406/crai.2011.93113.

BAKER & ALLCHIN 1991
Piers Baker and Frank Raymond Allchin, *Shahr-i Zohak and the History of the Bāmiyān Valley*, Oxford.

BALL 2008
Warwick Ball, *The monuments of Afghanistan*: *History, archaeology and architecture*, Tauris (ed), New York.

BAREAU 1955
André Bareau, *Les sectes bouddhiques du Petit Véhicule*, Paris.

BARFIELD 2001
Thomas Barfield, "Idol Threats", *Religion in the News*, vol. 4, nº 2.
https://www3.trincoll.edu/csrpl/RINVol4No2/Idol%20Threats.htm.

BARNETT 1960
Richard David Barnett, *Assyrian Palace Reliefs and Their Influence on the Sculptures of Babylonia and Persia*, London.

BEAL (trans.) 1906
Samuel Beal, *Si-yu-ki*: *Buddhist Records of the Western World*, vol. 1, K. Paul, Trench, Trübner & Co., London. Digitized by Google, Internet Archive Identifier: OL19596324W.

BEHRENDT 2019
Kurt Behrendt, *The Art of Gandhāra in the Context of the Silk Road*, Los Angeles.

BOARDMAN 1997
John Boardman, "Classical Figures in an Indian Landscape", in Raymond Allchin, Bridget Allchin, Neil Kreitman, Elizabeth Errington (eds.), *Gandhāra Art in Context*; *East-West Exchanges at the Crossroads of Asia*, Cambridge, pp. 1-16.

BOSWORTH 2008
Clifford Edmund Bosworth, "The Appearance and Establishment of Islam in Afghanistan", in Étienne de la Vaissière (ed.), *Islamisation de l'Asie centrale*, Paris, pp. 97-114.

BOSWORTH 2010
Clifford Edmund Bosworth, *The Ghaznavids*. Edinburgh.

BRENNAN 2001
Terry Brennan, "The Colossus of Rhodes: A New View of Its Real Significance", *Classical Philology*, nº 96 (4), pp. 343-368.

BURKE 2007
Jason Burke, *Al-Qaeda*, 3rd ed., London.

BURNES 1834
Alexander Burnes, *Travels into Bokhara: A Narrative of a Voyage of Discovery Across the Western Region of Asia*, John Murray (ed), London.

BUSSAGLI 1979
Mario Bussagli, *Arte del Gandhāra*, Sadea/Sansoni.

BYRON 1937
Robert Byron, *The Road to Oxiana*, London.

CHANDRA 2002
Lokesh Chandra, "The Bāmiyān Colossi a historical perspective", *Archaeological survey of India, Bāmiyān Challenge to World Heritage*, New Delhi, pp. 33-34.

CHANDRA 2012
Lokesh Chandra, "Bāmiyān: The Jewel of Afghânistân's Glory", *Himalayan and Central Asian Studies: Journal of Himalayan Research and Cultural Foundation*, vol. 16. pp. 6-14.

DANI 1999
Ahmad Hasan Dani, "The History of the Buddhist Monasteries in Gandhāra and their Destruction by Mihrakula", *Journal of South Asian Studies*, nº 15(3), pp. 210-229.

DEYDIER 1954
Henri Deydier, *Contribution à l'étude de l'art du Gandhāra, essai de bibliographie analytique et critique des ouvrages parus de 1922 à 1949*, Paris.

ELIAS 2007
Jamal J. Elias, "(Un)making Idolatry: From Mecca to Bāmiyān", *Future Anterior*, vol. 4, nº 2, pp. 12-29.

ELPHINSTONE 1815
Mountstuart Elphinstone, *An Account of the Kingdom of Kabul*, London.

ENCYCLOPEDIA OF ISLAM 2005
"Bāmiyān", *Encyclopedia of Islam*, 2nd ed., vol. I, p. 1009, Leiden.

ERRINGTON, CRIBB & CLARINGBULL 1992
Elizabeth Errington, Joe Cribb & Maggie Claringbull, *The Crossroads of Asia*: *transformation in image and symbol in the art of ancient Afghanistan and Pakistan*, Cambridge.

EYRE 2018
Vincent Eyre, *The Military Operations at Cabul*, *Which Ended in the Retreat and Destruction of the British Army*, *January* 1842, 3rd ed., Cambridge.

FERGUSSON 2010
James Fergusson, *Taliban*, London.

FLOOD 2020
Finbarr Barry Flood, *The Great Transference*: *Buddhist Art in Central Asia and the Silk Road Connections*, London.

FREDRIK 2002
Flood Fredrik, "Between Cult and Culture: Bāmiyān, Islamic Iconoclasm, and the Museum", *The Art Bulletin*, vol. 84, pp. 641-659.

FOUCHER 1923
Alfred Foucher, "Account of Bāmiyān, Letter to the President of the Société Asiatique", *Journal Asiatique*, vol. 202, pp. 354-368.

GERARD 1833
D. Gerard, "Letters describing his visit to Bāmiyān", *Journal of the Asiatic Society of Bengal*, vol. 2, pp. 1-22.

GILLMAN 2010
David Gillman, *The Idea of Cultural Heritage*, rev. ed., Cambridge.

GODARD & HACKIN 1928
André Godard, Yedda Godard & Joseph Hackin, *Les Antiquités Bouddhiques de Bāmiyān*, Mémoires de la Délégation Archéologique Française en Afghanistan, vol. II, Paris.

GORSHENINA & RAPIN 2001
Svetlana Gorshenina & Claude Rapin, *De Kaboul à Samarcande*, Paris.

GRENET 1993
Frantz Grenet, "Bāmiyān and the Mir Yasht", *Bulletin of the Asia Institute*, vol. 7, 1993-1994, pp. 87-94.
https://archive.org/details/bamiyan-and-the-mihr-yasht-frantz-grenet-bulletin-of-the-asia-institute/page/93/mode/1up.

GUTMAN 2008
Roy Gutman, *How We Missed the Story*, Washington DC.

HACKIN & CARL 1933
Joseph Hackin & Jean Carl, *Nouvelles recherches archéologiques à Bāmiyān*, Mémoires de la Délégation Archéologique Française en Afghanistan, vol. III, Paris.

HACKIN & KOHZAD 1953
Ria Hackin & Ahmad Ali Kohzad, *Légendes et Coutumes Afghanes*, PUF, Paris.

HUANG 2019
Li Huang, "Cultural and Religious Significance of the Leshan Giant Buddha", *Asian Art and Archaeology Journal*, nº 18(1), pp. 65-72.

HUSSEINI 2012
Said Reza Husseini, "Destruction of Bāmiyān Buddha: Taliban Iconoclasm and Hazara Response", *Himalayan and Central Asian Studies*: *Journal of Himalayan Research and Cultural Foundation*, vol. 16, pp. 15-50.

KARUNARATNE 1988
Wijesinghe Sugathadasa Karunaratne, *Buddhist Sculpture of Sri Lanka*: *An Art Historical Study*, Singapore.

KLIMBURG-SALTER 2003
Deborah Klimburg-Salter, "Bamiyan: An Obituary and a Glance Towards the Future", *Oriental Art*, vol. 49, pp. 2-12.

KLIMBURG-SALTER 2008
Deborah Klimburg-Salter, "Buddhist Painting in the Hindu Kush ca. VIIth to Xth Centuries", inÉtienne de la Vaissière (ed.), *Islamisation de l'Asie centrale*, Paris, pp. 131-159.

KLIMBURG-SALTER 1989
Deborah Klimburg-Salter, *The Kingdom of Bāmiyān*, Naples.

KIANI 2015
Muhammad Fazil Kiani, *History and Civilisation of Bâmiyân*, Kabul.

LE BERRE *et al.* 1987
Marc Le Berre, Henri Marchal and Jean-Claude Gardin, *Monuments pré-islamiques de l'Hindukush central*, Paris.

MALLOWAN 1966
Max Mallowan, *The excavations at Nimrud: 1955-1963*, British School of Archaeology in Iraq, London.

MARGOTTINI 2013
Claudio Margottini (ed.), *After the Destruction of Giant Buddha Statues in Bāmiyān* (*Afghanistan*), Berlin.

MASSON 1836
Charles Masson. “Notes on the Antiquities of Bāmiyān”, *Journal of the Asiatic Society of Bengal*, vol. 5, pp. 707-720.

NEELIS 2019
Jason Neelis, *Early Buddhist Transmission and Trade Networks*: *Mobility and Exchange within and beyond the Northwestern Borderlands of South Asia*, Leiden.

PETZET 2009
Michael Petzet (ed.), *The Giant Buddhas of Bāmiyān*: *Safeguarding the Remains*, Berlin.

SINGH 2017
Upinder Singh, *Political Violence in Ancient India*, Harvard University Press.

SNELLGROVE 2021
David Llewellyn Snellgrove (ed), *The Image of the Buddha*, London.

STONEMAN 2008
Richard Stoneman, *Alexander the Great*: *A Life in Legend*, New Haven and London.

TARZI 1977
Zémaryalaï Tarzi, *L’architecture et le décor rupestre des grottes de Bāmiyān*, Paris.

TARZI 2007
Zémaryalaï Tarzi, “Bāmiyān (Afghanistan) : Récentes fouilles françaises (2002-2006)”, *Comptes rendus des séances de l’Académie des Inscriptions et Belles-Lettres*, pp. 877-925.

WILKINSON 2017
Richard H. Wilkinson, *The Complete Temples of Ancient Egypt*, Thames & Hudson (ed), London.

WEERASINGHE 2019
Jagath Weerasinghe, “Symbolic Significance of the Avukana Buddha Statue in Sri Lankan Buddhism”, *Journal of South Asian Art History*, n° 11(2), pp. 88-95.

ZIN 2022
Monika Zin, “Gandhara and Beyond: Iconographic Adaptations in Bāmiyān”, *Journal of Buddhist Art and Archaeology*, vol. 5, n° 1, pp. 102-110.

The Buddha of Berenike: The History Unfolded by a Single Object

Michael RAKOTOZONIA

Abstract

What does the Buddha of Berenike, fashioned in Gandhāran style, have to do with the distant shores of Egypt? Did it travel from India on a ship laden with the precious pepper that the Roman world coveted? Who set sail? The artefact itself? The artist? The faithful? In this single discovery lies the story of the first globalization, linking territories together. In this article, using this Buddha statue as a centrepiece and the geopolitical chessboard in force at the time as a backdrop, we propose to reconstruct part of the "Great Game" taking place in this globalized Antiquity.

"*I was working hand in hand with Hassan Mohammed*, *an Egyptian worker*, *when we discovered it*. *The sun had just risen*, *and the light reflecting off the shiny surface of the white marble was quite striking when we saw the Buddha's face*. *The first thing that came out of the ground that day was the Buddha's head*. *We were very touched*. *All those years of research*, *materialised in a single discovery*, *only happens once in a lifetime*". These are the words of Marina Castro, published in a National Geographic article on 8 June 2023, following the successful excavation campaign in the port of Berenike, Egypt, at the end of 2022. Anyone who has worked on an archaeological site and had the privilege of seeing the features of this type of idol appear as they patiently scrutinised the ancient soil at the bottom of their section will understand in their bones the thrill felt by the New York University researcher. The emotion is almost tangible, even more so because the scene takes place far from the Indian world, on the African continent, on the shores of the Red Sea. "*The discovery of a lifetime of research*". Did this mean that Marina Castro expected to unearth an idol of this nature in this very place? That she had been hoping for it for a long time? So had I! Ten years earlier, in 2012, at a conference in Gandhinagar, Gujarat, where I was presenting my research on the ancient port of Barygaza, I had cautiously venture this hypothesis. I had been eagerly awaiting this Buddha on the east coast of Africa. It was indeed the "materialisation" of the intellectual evolution of my last ten years of research.

Its presence in this Egyptian port is not at all surprising to anyone who has studied the geopolitics of the time. On the contrary, this statue is exactly where it belongs. In this article, I shall attempt to explain how the Buddha of Berenike is material evidence of one of the first phases of the phenomenon of globalisation and illustrates the intense commercial and cultural exchanges between the Indian sphere and the rest of the broader world-system from the first century CE onwards.

I. Berenike: a port bound for India and its riches

There are many ways to interconnect territories and people. The most effective is undoubtedly to unite them under a single power. This was the colossal work of an individual who, thirsting for greatness, kept it as an epithet forever. Alexander wanted more than anything to embrace the whole world. And this, at a time when, in order to make progress, enemies were to be defeated at every turn. If you think about it, his Asian adventure (334-323 BCE) is more akin to an expedition to the edge of the known world than a military campaign aimed at conquest (Fig. 1). Instinctively, we understand that no single entity could have exercised true power over such a vast territory, encompassing such heterogeneous populations. However, the experience left a lasting mark on people's minds and profoundly transformed their

relationship with the world. Peoples met on the battlefields and learned to respect each other despite being opponents. Cities were built, families of mixed blood were formed, knowledge was exchanged, and faiths clashed. A new wind blew and insufflated changes. Nothing would ever be the same again. Never had a sovereign been as involved in a quest as Alexander was. And he bore the physical scars of it. Not an ounce of his body was free of the scars left by his front-line fighting alongside his companions. He had created great enthusiasm. He was adulated. People were devoted to him for his total commitment. However, when he reached the Punjab, on the western border of the Nanda kingdom, his troops refused to follow him beyond (326 BCE). Tired, demoralised and battle-weary, his men convinced him to end his mad adventure, turn back westward, and return to the pacified territories. But the dreamer in him would not be silenced. He had to hold on to something of the distant world he had touched with his fingertips. Therefore, he decided to sail down the Indus to its mouth, build a fleet of 120 ships, and put Nearchus in command of 10,000 men[1]. The aim was to open up a new shipping, commercial, and maritime route linking the Indian world to the Persian Gulf, a direct maritime outlet from the centre of his newly formed empire. After sailing for 80 days and 1,300 km, Nearchus' fleet reached the Strait of Hormuz (325 BCE) and joined Alexander, who had taken the land route across an arid desert that cost him thousands of good soldiers. Alexander had abandoned India. Admittedly, he had. But he had connected it by sea. And he had left behind colonies that would grow into a glorious future and leave a lasting imprint. Specialists in the Greco-Buddhist art of Gandhāra are well aware of this.

Alexander, "the best of men", died from dreaming too much. No sooner had he closed his eyes on the world than Reality reclaimed its rights. His empire, too big even for him, who was the greatest, exploded. His loyal generals, the diadochs, inherited parts of it, the borders of which were fixed at the Babylon Accords. It was on this occasion that the African regions, conquered by the Macedonian armies almost without a fight in 332 BCE, were merged into a single satrapy and granted to the general Ptolemy. His line retained power in Egypt until the death of his famous descendant, Cleopatra, in 30 BCE.

Although Alexander's two generals, Ptolemy I of Egypt and Seleucus I, master of Babylon and guarantor of the Indian margins, were close allies, their direct successors soon clashed over control of Syria around 274 BCE. Antiochus I, the Seleucid, had a clear advantage over his Lagid rival, Ptolemy II Philadelphus. It was due to the massive use of fighting elephants on the battlefield, taken from India, formidable weapons that Seleucus had incorporated into his military strategy following his painful experiences against the Mauryas. As the Seleucids had banned the trade in Indian pachyderms to retain this significant advantage over their western enemies, Ptolemy II decided to remedy this imbalance by creating a port on the shores of the Red Sea, in the southern part of his kingdom, to serve as a base for collecting African elephants. Thus was born the port of Berenike Troglodycta, named in honour of Ptolemy II's mother, Berenike I (Fig. 2). "Troglodycta" referred to the Red Sea coastline. The elephants were taken mainly from Eritrea, Ethiopia and Sudan. They were loaded onto specially designed ships (*elephantagoi*) at the port of Adulis. Arriving by sea at Berenike, they were then taken across the desert to Apollinopolis (Edfu), where they were loaded back into ships that took them up the Nile toward Alexandria[2]. The initiative must have been a success, as the Lagids won the following battles. It is true that African elephants were less docile than Indian elephants. But they were larger and more robust, with huge tusks. The battle of Raphia in

[1] On Nearchus'journey, see DIODORUS SICULUS, 104, 3; PLUTARCH, *Life of Alexander*, 66, 2; QUINTE-CURCE, *History of Alexander*, 10, 3-4; ARRIEN, *Anabasis*, 19-21.
[2] CUVIGNY 2017.

217 BCE, where Ptolemy IV imported 73 African elephants to defeat the Indian elephants of his Seleucid rival Antiochus III, serves as a historical reference[3].

From the outset, Berenike was a port designed to provide the West with what India had to offer. Initially a regional port, focusing primarily on trade through the Red Sea, the Lagid port quickly extended its horizons to the vast "Eritrean Sea" (the Indian Ocean) and its wonders. Unfortunately, the Greek and Egyptian sailors of the time had little mastery of the monsoon winds, dangerous currents, and deadly sandbanks. Knowledge was lacking. But the desire to reach India was intense. Especially as the political situation there was changing in their favor: after Antiochus III, the great rival of the Lagids, had led his famous Anabasis into the Indian territories, he suffered serious setbacks at the hands of a valiant Greek ruler from Bactria, Demetrius I. The latter, on the strength of his victories in the Indian territories, was able to take control of the region. After his successes and inspired by the Anabasis, Demetrius I embarked on a major campaign of conquest in north-west India around 200 BCE, an act that earned him the right to wear the "elephant scalp" on his coins, a mark of honour only bestowed upon conquerors of the subcontinent[4] (Fig. 3). Until now, only Alexander had held this privilege. Now, the Saurashtra peninsula, its coasts, and its ports were in the hands of a potential ally[5]. For a short time, it seems, since one generation later, the most famous Indo-Greek sovereign, Menander I, a native of Kapisa and a great protector of Buddhism, had to lead military campaigns to maintain access to this coastline around 150 BCE[6] (Fig. 4). After him, the new master of the important Gandhārian metropolis of Taxila, a certain Lysias (120-110 BCE), aware of the crucial importance of securing a maritime outlet for his kingdom and probably also spurred on by Gandhārian merchants eager to export their goods to new markets, decided to undertake a fabulous expedition to the south. There is no doubt that Lysias' "race to the Sea" was victorious: one of his coins was found at the site of Dewas, 46 km from Ujjain in Malwa, one side depicting him bearing an "elephant scalp" and the other showing the "triple-arched hill," symbol of Saurashtra[7]. It was precisely at this time, during the reign of Lysias, that, according to research, an Indian pilot who had survived a shipwreck came to the Egyptian court to offer Ptolemy VIII his services as a guide for a maritime expedition to India. Coincidence? The Lagid ruler then commissioned a certain Eudoxius of Cyzicus, an experienced Greek merchant and sailor, to take charge of the mission. The convoy left Berenike in 118 BCE[8]... Where exactly? It is a safe bet that Eudoxus of Cyzicus landed in the Gulf of Cambay, adjacent to Saurashstra, in one of the busiest ports even then: Barygaza.

The *Periplus Maris Erythreai*, a major work dating from the first century CE, which we will discuss in detail later, states that traces of "Alexander's expedition" survived in Barygaza and the surrounding region. The description mentions fortifications, temples and drinking water wells[9]. Historiographers are well aware that Alexander and his Macedonians troops never ventured that far south. It would therefore be more reasonable to think that these Greek remains, still visible to observers in the 1st century, were the work of Demetrius, Menander and/or Lysias. How can we not assume that the Lagid sovereign had been informed, by missive, that a friendly port, in the hands of fellow Greeks, was ready to welcome him on the other side of the Indian Ocean? Would he have risked sending ships without this crucial

[3] POLYBIUS, *History*, V, 79-87; HERMAN & BERG 1992.
[4] WILL 2003.
[5] TARN 1951.
[6] NARAIN 1980.
[7] BHATT 1975, pp. 13-17, Pl. I, 4.
[8] STRABO, *Geography*, II, books 3-4.
[9] SCHOFF 1912, chap. 41.

piece of information? In 116 BCE, Eudoxius of Cyzicus returned to Egypt with his holds full of perfumes, spices, and precious stones. The operation was so successful that the widow of Ptolemy VIII, who had died in the meantime, almost immediately asked him to set sail again (116-115 BCE), this time without his Indian guide. Thus was born, under the shared impetus of the Greek powers reigning on either side of the ocean, the famous maritime route linking Egypt to India. Its success would grow over the centuries.

This is the theme of the famous *Periplus Maris Erythreai*, a travel diary written in the 1st century CE by an anonymous Greek merchant from Berenike. He embarked from his native port, which had by then become the Roman Empire's outpost to the Indian Ocean, and travelled to India for business. His account is extremely valuable, as it provides a sort of geopolitical map of the entire coastline of the Red Sea, India and East Africa. A real mine of knowledge. If you study this work carefully, you will realize that, at the time, the nerve center of trade in the Indian Ocean was the port of Barygaza, on the banks of the Narmada, in what is now the state of Gujarat. There are no fewer than 29 references to it in the text. In the language of today's globalised world, we would speak of a commercial hub. The system was running smoothly: Barygaza concentrated in its storage areas all the products from the different regions of India, imported there by land, by river (Narmada) or by sea. Products from the East African coast and China could even be sourced here. Western ships would arrive in July, driven by the summer monsoon, and leave around January, when the winds reversed to take them home. In the meantime, as temporary residents, merchants from the Roman world enjoyed the pleasures the city had to offer while buying merchandise to fill their cargoes. In short, Barygaza was "*the Dubai of antiquity*"[10]. As we saw earlier, the Greco-Bactrian and Indo-Greek rulers were quick to understand the importance of owning this port as a strategic maritime outlet. Hence their epic campaigns to the South. This would become a concern shared by almost all the great kingdoms and empires of North-West India. For whoever controls Barygaza, controls international maritime trade.

At the time the *Periplus* was written, the sovereign who held the emporium was called Nahapana. He was of Scythian extraction, from the Kshaharata dynasty, and his kingdom was known as Ariaca. His coins tell us that he governed these lands only as a great satrap (*Mahākshatrapa*), in the name of the more powerful[11]. There is every reason to believe that, like his forebears before him, he was the vassal of the Indo-Scythians, whose capital was Minnagara in Gandhāra. After a long reign, Nahapana was finally defeated by his sworn enemy, Gautamiputra Satakarni of the Satavahana Andhra dynasty, who took control of all his territories; and therefore the precious port of Barygaza. Wasn't control of the main maritime interface and its benefits the underlying reason for the rivalry between these two dynasties? In his *Natural History*, Pliny the Elder states that at least 100 million sesterces were taken from the coffers of the Roman Empire and sent to India.

As it happens, Gautamiputra's son, Satakarni, lost the territories won by his father to a new enemy from the North, from Bactria, a certain Chastana of the Karmadaka dynasty (the name of a Bactrian river, Karmada)[12]. We know next to nothing about him. But there is a statue of him at the temple of Mat, near Mathura (Fig. 5), alongside those of the great Kushan kings Kanishka and Wima Kadphises[13]. What could such an honour mean? Could it be that Chastana, having become master of a highly strategic zone (the coastline), did so in the name of the Kushans? That he, too, was the great satrap of a significant power centred further north?

[10] RAKOTOZONIA 2014.
[11] MAJMUDAR 2010.
[12] PHAI, 363, fn. 3.
[13] MAJMUDAR 2010, Pl. XIII.

Ptolemy, the Greek geographer who travelled in the middle of the second century CE, refers to the Indian coast as a single immense state, which he calls Indo-Scythia, stretching from Patalene in the West to Barygaza in the South, with the city of Ujjain as its capital[14] (Fig. 6). However, on the Rabatak inscription, discovered in 1993 in Afghanistan, Kanishka is presented as the ruler of Ujjain[15]. All these elements suggest that the port of Barygaza was in the hands of the Kushan dynasty, at least from the reign of Kanishka onwards. This would explain the colossal influx of gold from Egypt that the Kushan princes used for their coins. Above all, it would explain the presence of objects from the West in the famous Treasure of Begram, including the only known representation of the Alexandria Lighthouse[16]. It was long thought that the Treasure of Begram had travelled along the overland Silk Road, over which the Kushans already had control. But it seems more likely that all these objects travelled by sea: from Berenike to Barygaza. By securing the coast of the Gulf of Cambay, the Kushans became the powerful protectors of maritime trade in the Indian sphere. In synergy with the overland Silk Road, the Kushan Empire became a veritable ancient trading power capable of competing economically with Rome (Fig. 7).

The archaeological mission, known as the Berenike Project, has been carried out jointly since 1994 by the American University of Delaware and the Polish Centre for Mediterranean Archaeology (PCMA), under the direction of Steven Sidebotham and Iwona Zych. The results argue that the city of Berenike was inhabited until the 6th century and that it experienced two peaks of activity during its history: the first during the 1st and 2nd centuries CE, under Roman rule, and the second during the 4th and early 5th centuries, under the rule of a Nubian-origin people called the Blemmyes. Literature tells us that Emperor Diocletian was relentless in his efforts to combat the incursions of the Blemmyes into southern Egypt. As the pressure becoming too great and the province of Dodecaschene, of which Berenike was a part, made little profit at the time and became too expensive to defend, he abandoned it to the Nobates in 298 as a buffer zone, in return for subsidies to maintain a semblance of a limes[17]. When, exactly, did the Blemmyes gain the upper hand over the Nobates for control of the Red Sea coast? The question remains unanswered.

The testimony of Cosmas of Alexandria[18], a Greek Christian merchant who acted as a geographer during his voyage to the Erythrean Sea around 550 CE, tells us that the White Huns, then masters of a vast empire stretching from Central Asia to the Indian coast of Gujarat, led by the powerful King Gollas with his 2,000 fighting elephants, wore emeralds on their crowns, which they obtained through the Blemmyes. Recent archaeological research has revealed that the Blemmyes may have taken possession of the emerald mines in the Wadi Sikait region (known as Mons Smaragdus in Roman times) at the end of the fourth century[19]. This confirms that the Blemmyes were able to maintain Berenike's role as the Egypt-India interface right up to its final days.

II. A sanctuary dedicated to international trade

The Buddha statue at the centre of our study was discovered twice, during two different excavation campaigns: the body in 2018, and the head and nimbus in 2022. All three parts

[14] *Geographia*, I, 7.
[15] SIMS-WILLIAMS 1998.
[16] DELACOUR, 1993.
[17] *History of Augustus, Life of the Divine Aurelian*, XXXIII; EUSEBIUS OF CAESAREA, *Life of Constantine*, 4, 7.
[18] COSMAS INDICOPLEUSTES, *Christian Topography*, text established and translated by J. W. Mac Crindle, 1897.
[19] TALIK 2022.

were excavated in the forecourt of the Great Temple of Berenike. The body was extracted from section BE 18-113, running parallel to the north wall of the forecourt (Fig. 8). The head and nimbus come from section BE 22-150. This is exactly the same excavation area. Only the referencing changed from one campaign to the next. The sculpture, originally probably leaning against the north wall of the courtyard, must have fallen from its parallelepiped pedestal and broken. The head lay face down on the ground; the nimbus, fragmented into four pieces, a little further south, reflecting the forward movement of the fall (Fig. 9). It should be noted that the head and nimbus were directly adjacent to a stele bearing an inscription in Brahmi (Fig. 10)[20].

The Great Temple was the first monument in the city to attract the attention of researchers. It was first noticed by the man nicknamed "the marvellous giant of Padua" because of his whimsical past as a "strong man" performing in the circuses of Europe. Giovanni Battista Belzoni, a romantic adventurer and explorer, fell in love with Egypt and its marvels, becoming an improvised archaeologist. After several experiments in the Valley of the Kings, he set his sights on the Red Sea port and began the first "excavations". Almost in spite of himself, since it was actually the work of a young clerk who dug with a large shell during the night and unearthed a stele and a bas-relief[21]. This was in 1818. His work attracted the curiosity of John Gardner Wilkinson, a renowned member of the Royal Society and the father of British Egyptology. He went to Berenike and focused his research on the building in the 1830s. More rigorously this time. The discovery of a dedication in Greek and a bust of Serapis led him to conclude that the sanctuary must have been dedicated to this deity[22].

Shortly afterwards, the Lieutenant of the East India Company, James Raymond Wellsted, an experienced cartographer, reached this isolated shore and drew up the first plan of the site, as well as numerous views of the remains (1838)[23]. Following in their footsteps, many specialists from all walks of life flocked to Berenike in search of understanding throughout the second half of the nineteenth and early twentieth centuries, but made little progress in their excavations.

When the Berenike Project began in 1994, the Temple of Serapis, known by the explorers of the past was buried under the desert sands. The study was restarted from the beginning. Throughout the campaigns and the discoveries, knowledge of the edifice gradually increased. A fragmentary inscription seemed to indicate that it was built in the Lagid period, during the reign of Ptolemy VIII, the same king who sponsored the voyage of Eudoxus of Cyzicus to India. The sanctuary reached its peak of activity in the early Roman period, in the 1st and 2nd centuries CE. To the south of the entrance, near the wall, excavations uncovered a large block, 1.04 m. high, bearing an inscription stating that the monument had been dedicated to the goddess Isis at the instigation of a certain Eirenaos, Greek secretary to the city's tax collector, in the ninth year of the reign of Emperor Claudius (49 CE). In the forecourt, on the north side, a 70 cm.-high block bore a similar inscription: dated to year 15 of the reign of Trajan (112 CE), it indicated that the monument had been ordered by Gaius Iulius Eucharistos, secretary of the shop of spices, in honour of Gaius Iulius Faustinus, "collector of Berenike"[24].

In 2000, excavations at a large house (BE 00-37) near the temple unearthed another inscription from a shop secretary. This monument had been dedicated to Isis by an interpreter

[20] SIDEBOTHAM *ET AL*. 2023, Taf. XIII-XXIX.
[21] BELZONI 1820, pp. 229-230.
[22] MEREDITH 1957.
[23] WELLSTED 1838.
[24] AST & BAGNALL 2015.

and secretary whose name is lost, once again during the reign of Trajan[25]. In light of these clues (the hieroglyphic inscriptions found in the holy of holies and the presence of characteristic idols) the joint teams from the University of Delaware and the PCMA concluded that the sanctuary must in fact have been dedicated to the goddess Isis and that the monument itself likely had some tenuous link with the port's commercial institutions. Dedications in honour of Septimius Severus and Caracalla support the theory that it was a place of intense activity at least until the early 3rd century.

Excavation reports tell us that the roof of the courtyard, made of heavy stone slabs weighing around 4,500 kg each and around 4.50 m long, collapsed at the end of the 4th or beginning of the 5th century. As the demolition layer of the roof rested on a layer of sand about twenty centimetres thick, it is assumed that the building had already been abandoned some time before. In fact, it is easy to understand that the period of neglect led to the plasterwork crumbling, as it was left uncared for and exposed to the damp maritime air, while the walls weakened to the point where they could no longer support the weight of the colossal roof slabs. One can easily imagine that the destruction did not occur all at once but was a gradual process that stretched over several years. After that, there was a period when the area was filled in with gravel, and a small wall was built at the entrance to the temple, most likely to prevent material from falling as the level rose around the building. The ceramics and cowrie shells found on the top of the fill, against the low wall, suggest that the temple resumed its activity for a time, probably under the impetus of the Blemmyes.

At the end of the 5th century, the building was abandoned and used as a stone quarry for the neighbouring houses along the main street to the east of the temple. The rooms of the temple were themselves used as living quarters: coral block walls were built over the roof. It is thought that the monument was finally abandoned during the 6th century, during which it was covered by sand carried by the winds[26].

The event that caught our attention is the discovery of an enormous quantity of pepper, preserved in large Indian jars, buried in the 1st century CE and stored in a courtyard located directly to the north of the Great Temple that was excavated in 1999[27]. One of these jars contained no less than 7.5 kg of the precious spice, that is, the largest quantity ever found in the Roman Empire. As Steven Sidebotham himself says: "*If we accept that this area was part of the sacred compound*, *we can deduce that the temple was used as a safe place to store precious commercial goods*, *and*/*or that the sanctuary itself was an agent of international trade at the time*"[28]. Could it be the same "*shop of spices*" mentioned in the inscription quoted above? Are we to assume that the office of the "tax collector" mentioned above was also part of the same compound? Far from being a traditional sanctuary, the Great Temple of Berenike and its annexes could thus have been a trading post with multiple functions: receiving valuable goods, storing them, setting the taxes to be levied, and organizing their transport by caravan across the desert to the Nile, or their departure off the coast.

It was therefore in its vicinity, or even within it, that import-export administrative procedures and financial transactions relating to freight were carried out. The fact that the Great Temple of Berenike is dedicated to Isis is no coincidence. The goddess was worshipped by the ancient dynasties and the first Lagids as the devoted wife of Osiris and beneficent mother of Horus. She was a healing magician and protector of the dead. But over the course

[25] SIDEBOTHAM 2007, p. 127 and p. 129.
[26] HENSE 2018.
[27] SIDEBOTHAM 2007, pp. 74-75.
[28] HENSE 2018, p. 48.

of the Ptolemaic generations, some of the attributes of her husband, Osiris, merged with the features of the Greek gods Zeus and Hades to give birth to a syncretic deity: Serapis. The Isis-Serapis pairing quickly became a resounding success (Figs. 11-12). The centre of their devotion was Alexandria, a major commercial hub. For Alexandrian merchants, Isis and Serapis were associated with prosperity as well as life after death, healing and fertility.

Ptolemy VIII dedicated the temple of Berenike, located on the shores of the Red Sea, to this glorious duo in order to help the port dedicated to trade with India, achieve its long-awaited success and so that the city's sailors and merchants could pray for successful endeavours. Fueled by this fundamental notion of prosperity, the cult of Isis spread *via* the trade routes to reach the coasts of Syria, Turkey, Lebanon, Greece, Sicily, Italy and even Spain. By the 1st century CE, Isis had become the flagship symbol of Ptolemaic hegemony, and was worshipped as the goddess of luck, sea and travel. In the Roman world, she was worshipped by sailors[29].

A festival held every spring was associated with it and became famous throughout the Empire: the *Navigium Isidis* (Fig. 13)[30]. Cities dependent on maritime trade turned to Isis to defend them against the whims of Neptune. Berenike was obviously no exception to this tradition. We can well imagine that the Great Temple was not only frequented by Western merchants but must also have welcomed merchants from overseas. And while the port was unique in that it traded with India, its commercial hub also had to accommodate this "part-time resident" population. Because the navigation system was subject to the rhythm of the monsoon, foreign sailors and merchants inevitably had to spend part of the year in Berenike. This could explain how a statue of Buddha could be found there.

In March 2023, at Delhi's India International Centre, the great scholar Osmund Bopearachchi gave a brilliant lecture in which he highlighted the crucial role played by merchant navigators in the expansion of Buddhism in South Asia. In fact, he could have applied his argument to all the places frequented by this community. According to him, "*unlike Hinduism*, *Buddhism favoured trade*". He explains that "*Buddhism promotes itself as a promoter of trade*. *Buddhist communities were systematically established along trade routes*, *linking important political and economic centres*". He adds that "*Buddhists invited donations from wealthy merchants*, *and merchants tended to finance the construction of votive monuments*, *thus spreading their faith wherever they travelled*"[31]. Buddhist monasteries were themselves involved in trade and provided services to merchants.

Third century documents from North-West India, in Karmadaka territory, show that monasteries functioned as financial institutions, taking deposits and making interest-bearing loans[32]. This was the beginning of a symbiotic relationship between Buddhism and merchants. It should not be forgotten that in Pali and Sanskrit literature, the Buddha is often referred to as *Mahāsārthavāha* (Great Caravan Leader), a way of saying that he guides his followers as they pass from the material world of perpetual reincarnation to the other shore where Enlightenment resides and existence ceases[33]. The holy monk Nagasena taught the good Indo-Greek king Menander, whom we mentioned earlier, that the Buddha "is like a caravan owner for men, for he leads them beyond the sandy desert of rebirths"[34].

[29] BRICAULT 2006.
[30] ALFÖLDI 1937.
[31] MATHARU 2023.
[32] LIU 1988, p. 125.
[33] NEELIS 2011.
[34] RHYS-DAVIDS 1890-4, p. 274.

The comparison is meaningful. Xinru Liu observes that "*the many experiences of long-distance trade inspire images of a Buddha guiding travellers and merchants*" [35]. The Kushans were well aware of this, as they favoured and even embraced this religion at the very moment when it could be used for political and economic ends. The newly constituted doctrine of the *Mahāyāna* allowed the greatest number of people to adhere to it. Less abstract and philosophical, more coporeal, it was fully in line with the religions that emerged at the beginning of the first millennium of our era, placing the individual at the centre of devotion. The Roman emperor was Augustus, literally "worthy of veneration". The Chinese emperor was "Son of Heaven". Christ was "Son of God". Why couldn't the Great Kushan use the Buddha's glory to establish his power over this world? This was the origin of the gold coins associating Buddha and the Kushan emperor Kanishka (Fig. 14). More importantly, this was the origin of the well-known Buddha idols in majesty, reminiscent of imperial statuary. One of these is enthroned in the forecourt of the Great Temple of Berenike: a *Mahāsārthavāha* Buddha, "Protector of travellers, leader of caravans, patron saint of Indian merchants, and a worthy allegory of the Kushan imperial power".

III. A statue conveying the "Mystery"

It is now time to concentrate on the work itself. The body of the Buddha, whose right-hand side is missing (it was not found during the excavation – perhaps taken by local people during the abandonment phase and reused in the construction of a house somewhere), stands on a pedestal adorned, it seems, with an incomplete lotus flower. He is dressed in the traditional *saṃghāṭi*, a long monastic cloak covering the entire body down to the ankles. The folds are well defined and finely worked, giving a fabulous sense of lightness to the drape. The left hand firmly holds a section of the cloak. The body and its pedestal measure 60 cm. The head measures 11.4 cm, or 13.5 cm including the chignon (*ushnīsha*). The nimbus is 19.7 cm in diameter. The face has suffered extensive damage due to the fall. The nose is missing, the upper lip is altered, and the superciliary arches are damaged. It is however noticeable that the eyes did not have irises nor pupils. As for the ears, they are stretched, a reminder of the heavy pendants Siddhārtha wore when he was a prince in the palace.

At first glance, we are tempted to think that this is a typical Gandhāran statue from the classical Kushan period, which we would chronologically situate between the end of the 1st century and the beginning of the 3rd century CE. This would mean that the work would have travelled by boat to Berenike, from the main Indian hub of Barygaza or perhaps from Barbarikon, located at the mouth of the Indus and geographically closer to the stylistically defined zone. However, a number of details force us to consider other avenues.

First and foremost, the material of the sculpture itself: white marble of average quality. To date, we know of no other similar work, carved in this material, belonging to the Indian sphere. At least not from that time. The works that have been identified originate from eastern Afghanistan; they were made later and all serve a Hindu iconography. They adorned shrines that cannot be dated earlier than the 7th century CE, the period of Shahi domination, centred in the Kabul region. Worthy of note is the statuette of Surya on his chariot, unearthed at Khair Khana in 1933 (Fig. 15)[36] and the small head of a female deity, found by chance by farmers in their field at Tagao in 1960[37]. In these rare cases, the material seems to have been extracted locally. Can we assume that the marble mines in this region were already known and exploited in earlier times? In 2021, at the Galerie Zacke in Vienna, Austria, a small white

[35] LIU 1996, pp. 114-115.
[36] HACKIN & CARL 1936, p. 38, Pl. XXIV, ills. 14, map 1.
[37] FISCHER 1964.

marble Hāritī statuette from a private French collection was auctioned. Experts dated it to the Kushan period and labelled it as coming from Mathura[38]. On what criteria? Can we give credence to this artefact and use it as a basis for any kind of reasoning? The Gujarat region, of which Barygaza (now Bharuch) was the main port in ancient times, is still famous for its white marble mines. When Barygaza declined due to sand silting, port activity shifted further north, to Cambay. And Cambay was famous for its marble exports throughout the Indian Ocean during the Middle Ages. Sculpture in this material flourished throughout the area[39]. But there is no evidence to suggest that the situation was similar before the period we are focusing on. While the possibility of a work imported directly from India is not impossible, it seems unlikely given our current knowledge.

Steven Sidebotham suggests that the marble came from the famous imperial quarries at Prokonnesos, an island in the Sea of Marmara not far from Istanbul, which supplied the entire Roman world from the 1st century CE onwards[40]. This material was used extensively, particularly in the rebuilding of Pompeii after the earthquake of 62 CE. Mass production of architectural elements, sarcophagi, and decorative sculptures was carried out here. The various products were designed on-site according to the customer's wishes, transported by sea to their various destinations, and finalised upon arrival at the order points[41].

According to the American professor, the Buddha of Berenike was sculpted on-site, within the walls of the Red Sea port, to be incorporated as a votive idol in the Great Temple. But to whom do we owe this achievement? Was it a craftsman from Gandhāra or North-West India who travelled by boat to Egypt, bringing with him all his craftsmanship, and worked *in situ* on the block of marble imported from Prokonnesos for the occasion? Or was it the work of a local craftsman under the orders of a patron of Buddhist faith? If this is the case, the latter must have been provided with a reference model that, anyhow, travelled by sea. Unless the sculptor was working from a very detailed drawing supplied by the patron or patrons? There are many possible scenarios.

What is important to bear in mind is that the statue we are talking about is not the only Buddhist representation in Berenike: first of all, there is this small headless body, 15.8 cm high, draped in a *saṃghāṭi* and holding a piece of its garment in his left hand, which was unearthed in the northern complex (section BE 18/19-116). It almost looks like a miniature version of our central figure. And then, there is this modest 9.3 cm head, discovered in section BE 19-126, adjacent to the south wall of the courtyard of the Great Temple **(**Fig. 16**)**. Its bun, gathered at the top of the skull, leaves no doubt about its identification. It is indeed a Buddha figure, albeit one clumsily made. And it is interesting to note that there are other small heads on the site that betray the "hand" of the same workshop. For example, the head of Isis from section BE 18-113 in the forecourt of the Temple, the area that housed our *Mahāsārthavāha* Buddha. Or those of a helmeted soldier (BE 19-116) and a woman (BE 18-113). All are carved from the same material: local gypsum, which the builders used to construct the city.

There is every reason to believe that a modest local workshop was responsible for producing small idols at low cost for the faithful believers who frequented the site, whether they were worshippers of Isis, Buddha or other divinities. That is the beauty of the Roman world and its eclecticism. In the case of our idol, however, the sculptor was on a completely different scale. He was working on marble and had very precise instructions to follow.

---

[38] https://www.lot-art.com/auction-lots/A-WHITE-MARBLE-FIGURE-OF-HARITI-MATHURA-KUSHAN-PERIOD/676-white_marble-10.3.23-zacke.
[39] LAMBOURN 2003.
[40] SIDEBOTHAM *ET AL*. 2023, *loc. cit.*, p. 24.
[41] PENSABENE 2002.

Then the nimbus comes into play, with its distinctive appearance and fundamental importance.

The great originality of Berenike's Buddha lies in its "radiated" nimbus. This is very rare in Buddhist iconography. However, this type of nimbus is fairly common in the caravan city of Palmyra. It appears almost identically on the famous Maliku funerary relief in the Louvre (Fig. 17). It adorns the heads of Aglibol, a lunar deity, and Malakbeil, an entity associated with the sun, both framing the tutelary god of the city of Palmyra, Baalshamin. In fact, it can be found framing the heads of numerous figures in Palmyrene funerary reliefs from the 2nd century CE, always associated with the solar and lunar stars (Fig. 18). The link between Palmyra and Berenike is well established. Let us take a moment to explain: once goods were unloaded at the port and passed through customs, they could be transported down the Nile to its Mediterranean mouth at Alexandria. But to do this, a caravan service made up of dromedaries was needed to cross the desert. The inscriptions of Berenike[42] describe in great detail the routes, participants, fees and practicalities of this traffic. Most of the caravans were managed and organised locally by the families of the town's notables. But we also know that the Palmyrenians, who mastered this type of transport, played an active part in this overland leg of the trade. Their role and presence in the city of Berenike was of such importance that a late temple (4th-5th centuries) was specifically reserved for them[43]. The quickest conclusion would be to think that the sculptor was a renowned craftsman, working for one of the highly reputed workshops in charge of funerary statuary in Palmyra, and that he was sent specially to Berenike to make the Buddha. Or even that the Proconesis marble was sent directly to Palmyra with a model to be copied and designed there before being brought back to Berenike. What is more, the commissioners did not even bother to place a special order for the marble seeing that, since Hadrian's reign, the Syrian city had been importing and stockpiling marble in large quantities for its own needs[44]. Everything was within easy reach: the workshop, the craftsman and the material. The sculptor, informed by his patrons of the attributes of the idol he was to create, would have taken the liberty, with or without approval, of endowing his statue with a radiated nimbus, thus making Buddha, *de facto*, the glorious star, the source of all light.

This version of the story is not impossible. But in my opinion, there is a deeper explanation for the presence of this very special nimbus. Though its role seems limited to highlighting the "astral" nature of its bearer, a hidden meaning can be detected, even in Palmyra. Or rather, an assimilation to a divinity gradually passing from shadow to light. An entity containing all the mysteries. We are talking here about Mithras. His cult echoes down the ages, across India, Afghanistan, Iran and Anatolia, shedding its light on the Achaemenids, Seleucids and Parthians. Many believe that he was introduced to the West during the 1st century CE by soldiers who dominated the eastern fringes of the Empire, or through merchants acting as intermediaries. In any case, Mithras swept through the Roman world and took on considerable importance, particularly among the elite. Wherever he went, he appeared with his distinctive radiating nimbus (Fig. 19). His followers were bound together by induction, initiation, sacrifice and mystery. It resulted in an extremely close-knit community, intimately linked by a form of mutual clientelism. Because of this, Mithra was seen as the god of contracts[45]. He sealed agreements, secured investments and sealed everyone's word. Under his tutelage, it was impossible to shirk a responsibility or betray someone. It ensured trust, the key capital to all transactions and the driving force behind economic growth. Adhering to its cult and practising its mystery meant joining the dominant network. It meant joining a brotherhood that

[42] AST 2018.
[43] SIDEBOTHAM 2011, pp. 64-66, 84-86, 226-227, 230, 259-260, 264-268; SIDEBOTHAM 2014, pp. 611-613.
[44] WIELGOSZ 2010.
[45] GASQUET 1899.

united its members across borders and seas. Today, we would speak of an international consortium.

By all accounts, the Kushan emperor Kanishka himself must have been part of this network, as he indicated on the side of some of his coins (Fig. 20)[46].This "state" within states became so influential that, in the course of the 3rd century, the Roman emperors were almost forced to assimilate themselves to Mithras, to the point of becoming "*Sol invictus*", the unconquered Sun, in order to avoid any outbursts (Fig. 21). And let us not forget the key role played by Aurelian (270-275) in this process, in countering the revolt of Queen Zenobia of Palmyra. A whole history. The key date of 25 December, the day of the winter solstice, of the triumph of the Sun over darkness, of its rebirth, would later be taken up by another religion as marking the beginning of a new era of Redemption[47].

Thereby, in the sanctuary of Berenike, the choice to crown the Buddha idol with a radiant nimbus has an eminent symbolic value. There was a real desire on the part of those who commissioned the work to convey a clear message: that the Buddha himself was an emanation of Mithras, and that his devotees in these places adhered to the Mystery. Claiming to be members of the brotherhood, they became trustworthy and were to be seen as intimately linked to their Western partners. All the more so as the local authorities did them the honour of displaying their idol in a sanctuary dedicated to the goddess Isis, whose cult was, at the time, also subject to the Mystery. Did they share the same rites within this enclosure, to strengthen their ties and seal their agreements? Could there have been a religious syncretism specific to the merchant "guild"? In essence, the port of Berenike was not just a Western-Eastern commercial interface. It should be seen more broadly as a zone of civilizational contact and exchange; what contemporary geographers call a hyper-place[48], where people from all over the world, from all walks of life, come together to form a composite, globalized culture.

To conclude this analysis, we still have one detail to clarify: the treatment of the hair on the Buddha of Berenike. If the sculptor had been asked to reproduce a piece of art typical of the Kushan period Gandhāra, he would certainly have carved a beautiful head of hair with wavy locks (Fig. 22), almost forming waves that meet at the top of the head in a voluminous bun. But this is not the case. The hair here is uniformly curly, repeating the pattern of a ring with a hole in it. We could certainly find a similar hair pattern in Gandhāra. Except that it would belong to a later school and, in reality, would be closer to the "snail" curl (Fig. 23). It could also be said that the sculptor, who belonged to the Palmyrene school, took the liberty of endowing the head of his Buddha with the distinctive curls that were fashionable in the 2nd century CE on figures from the funerary iconography of the Syrian city. Except that the pattern used in Palmyra is more sophisticated, more refined and, here again, closer to the "snail" curl. No. If we really want to get closer to the motif seen on our work, we need to look to India, to Mathura. And there, according to the specialists, the series bearing this particularity must be dated between 178 and 239 CE[49]. One thing is striking: it was this type of simplified hairstyle that was subsequently adopted in Gupta art in India (Figs. 24-25), and exported to virtually all the new Buddhist "colonies" founded in South-East Asia, China, and Indonesia. In other words, in all the areas frequented by Indian merchant-navigators. It was as if they

[46] GÖBL 1984.
[47] MARTIN 2000.
[48] LUSSAULT 2017.
[49] Buddha from Anyor dated to year 51 of the Kanishka-era = 178 CE: VAN LOHUIZEN-DE-LEEUW 1949, pp. 196-198, Figs. 39-40 (with older era-dating); Jina from the year 12 = 112 of the Kanishka-era = 139 CE: VAN LOHUIZEN-DE-LEEUW 1949, pp. 237-241; Dating of Kanishka-era to 127 CE: FALK 2001; CRIBB 2018; Change from kapardin-type to Buddha at Mathura: FALK 2012.

were travelling with a standard idol on board, which they asked to be reproduced *ad infinitum* wherever they landed.

Let us say, then, that the Buddha of Berenike is the Western version of the typical idol that may have originate from Mathura and was spread around the Indian Ocean by Indian traders. The latest report from the Berenike Project places the statue in a chronological range from 90 to 140 CE[50]. Certainly to coincide roughly with the reign of Kanishka. And it is easy to see why. In doing so, it rules out any association with the Brahmi inscription, which was found in a common context and is dated 248/249. But if we take into account the style of the hair, inspired by what was done in Mathura toward the end of the 2nd and the beginning of the 3rd century, and which became a "classic" spread by merchants, it seems more sensible to me to bring the two artefacts closer together chronologically, without making them coincide exactly.

Conclusion

Located on the shores of the Red Sea in Egypt, Berenike is currently the western site the most known for its Indian-language inscriptions, whether on stele or *ostracae*. Two coins were found during the excavations: the first was in lead and was found in the forecourt of the Great temple. It belongs to the Satavahana dynasty and is dated from the middle of the 2nd century CE; it is potentially attributable to Vasithiputa Siri Satakani or Gotamiputa Siri Yajna Satakani, and marked with the symbol of Ujjain. The second is a silver coin minted in the Saurashtra (recognizable by the three hills symbol) in the name of Rudrasena III (388-415), of the Western Satrap dynasty. Both coins bear witness to the intense trade between this port and Barygaza, the main hub of the Indian Ocean during Antiquity located in the Gulf of Cambay. On the desert road linking Berenike to the Nile pier at Apollinopolis (Edfu), in the Fort of Dios (founded 115-116 CE), a renowned stopover for caravans transporting goods, a French archaeological mission in 2007 even discovered a square coin characteristic of the Tamil dynasty of the Cheras[51], whose main port was Muziris. Muziris, the leading spice exporter of the time, is known from literature but has not yet been identified by archaeologists. It was certainly responsible for the large quantity of pepper stored in the spice shop.

The discovery of various Buddha figures and a stele featuring Indian iconography on the outskirts of the sacred complex of the Great Temple, all carved locally from a material abundantly available in the area, provides evidence of the presence in Berenike of a community of devotees of Indian origin and artists willing to meet the demands of these foreign patrons. It is assumed that these were merchants who lived in Berenike for much of the year, as they had to follow the natural calendar of the monsoon winds, which enabled them to sail. These merchants, who likely had a special relationship with *Mahāyāna* Buddhism in their home regions and were probably involved in subsidizing monasteries and providing offerings, spread the faith wherever their business took them. This is how they spread throughout Ceylon, South-East Asia, China and Indonesia, along the maritime and trade routes they used. Their dedications can be found in the natural caves on the island of Socotra in Yemen, certainly one of their favoured stops on their journeys to the trading centres of the West[52].The Buddha of Berenike, a beautiful marble statue enthroned at the heart of the port's sacred complex, is proof that the community of Indian merchants was intimately involved in the city's economic and political affairs. The idol played the role of *Mahāsārthavāha*, the "Great Caravan Leader" and patron saint of international trade. His radiant nimbus likened

[50] SIDEBOTHAM *ET AL* 2023, p. 25.
[51] BHANDARE, CUVIGNY & FAUCHER 2022.
[52] STRAUCH 2011.

him to Mithra, the god of contracts, under whose eye no one could betray a given word. The sculpture appears to have been carved *in situ* during the Kushan period, based on a model from the Mathura school. Mathura was at that time a major religious centre and a meeting point between the central power residing in Afghanistan and its vassals, the western satraps, masters of the coastline that served as the maritime interface for the vast empire. The Great Kushans must have been heavily involved in this trans-sea trade with the Roman world *via* Egypt (and thus Berenike), as gold poured into their coffers in droves. This explains why they were virtually the only Indian sovereigns to mint gold coins in great quantities. And if a marble statue of Buddha, standing in the manner of a Kushan emperor, found its place on Egyptian shores, a representation of the famous Alexandria lighthouse could just as easily have enriched the treasury of these sovereigns in their capital of Begram.

This is indeed a globalised system, crisscrossed by flows of people, goods, credit, and data. There, some metropolises led the global movement (Rome, Alexandria, Begram, Mathura) and interfaces enabled contacts (Berenike, Barygaza). On the seafront, these interfaces, were intense centres of cultural exchange where populations mixed and interbred. Excavations have shown just how cosmopolitan Berenike was. Given how the elites of the Roman world coveted Indian goods, the thirst for gold in the Indian world, the proselytizing of merchants loyal to the *Mahāyāna* doctrine, and the pivotal and opening role of Egypt, located at the crossroads of continents, it was almost "natural" to find a statue of Buddha in one of its ports. Berenike, the gateway to the Sea of Eritrea, was the perfect place to make this discovery. The excavators from the American-Polish team were anticipating it. And so was I. The presence of a Huvishka coin in Inyanga, Zimbabwe[53], has even led me to believe that ancient Indian merchants must have ventured far beyond the "traditional" routes and had traded in the ports of the East coast of Africa, probably in search of gold. Hence my peregrinations between 2014 and 2020 in the area, in search of convincing clues. The archaeological evidence I found shows that they were indeed present throughout the medieval period. In fact, they left a clear imprint of their civilization on these lands. For now, there is no trace of anything resembling Gandhāri culture. But let us not forget that "the two most powerful warriors are patience and time".

[53] HORTON 1994.



Fig. 1: Conquest of Alexander the Great
© Encyclopaedia Britannica

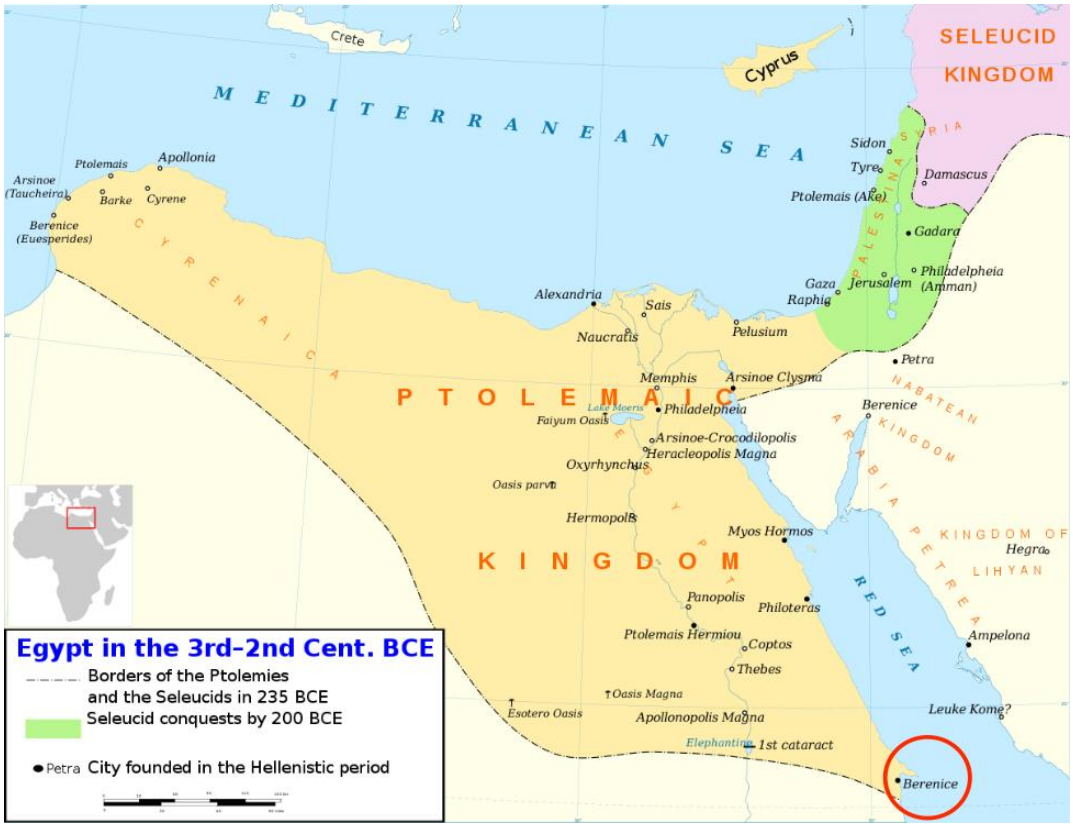


Fig. 2: Localisation of Berenike.
https://www.worldhistorymaps.info/civilizations/



Fig. 3: Silver coin of Demetrius bearing the elephant skin headdress.
© Metropolitan Museum of Art



Fig. 4: Map of the Indo-Greek Kingdom and its conquests in India.
https://www.worldhistorymaps.info/ civilizations/



Fig. 5: Statue of Chastana found at the Temple of Mat.
Majmudar 2010, Pl. XIII



Fig. 6: Western Kshatrapas Kingdom at the time of the Ptolemee.
https://www.worldhistorymaps.info/ civilizations/

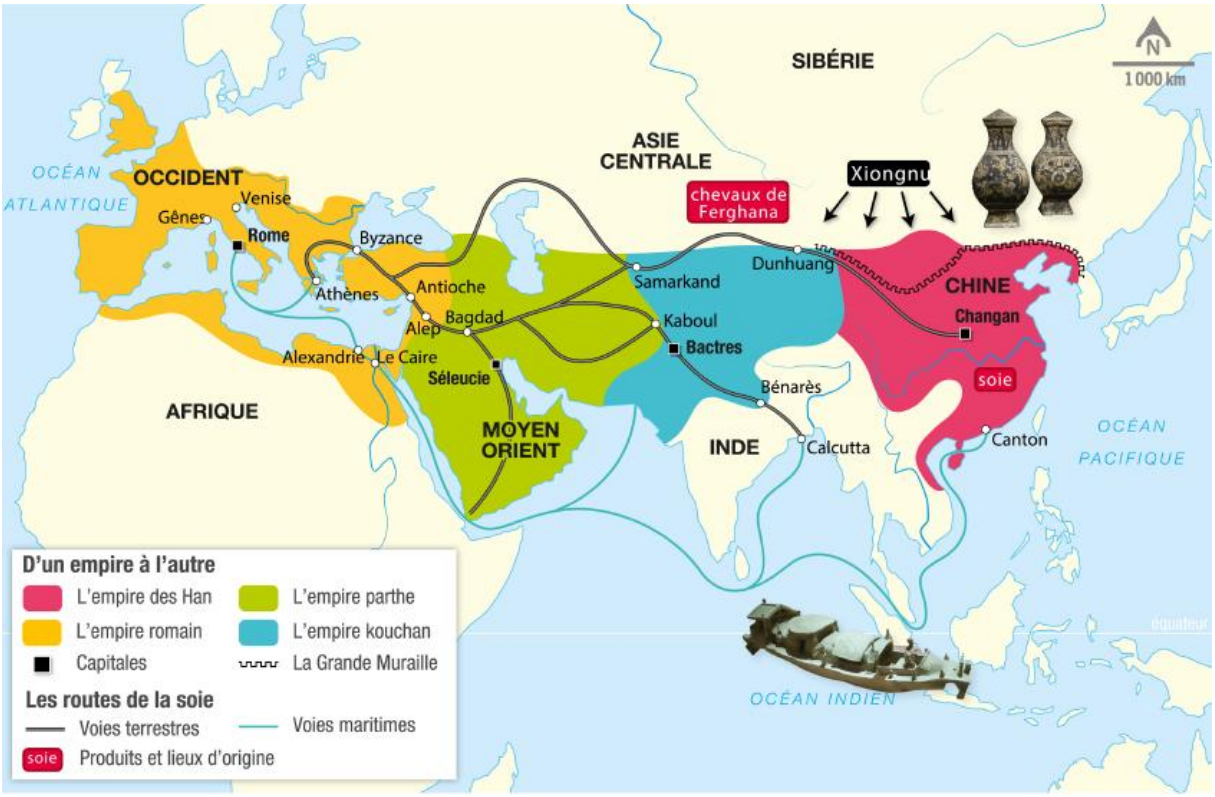


Fig. 7: The world in 1st century CE. The four big empires linked to Silk Road.
(Les relations de l'Empire romain avec les autres mondes anciens, map by Alexandre Pau)

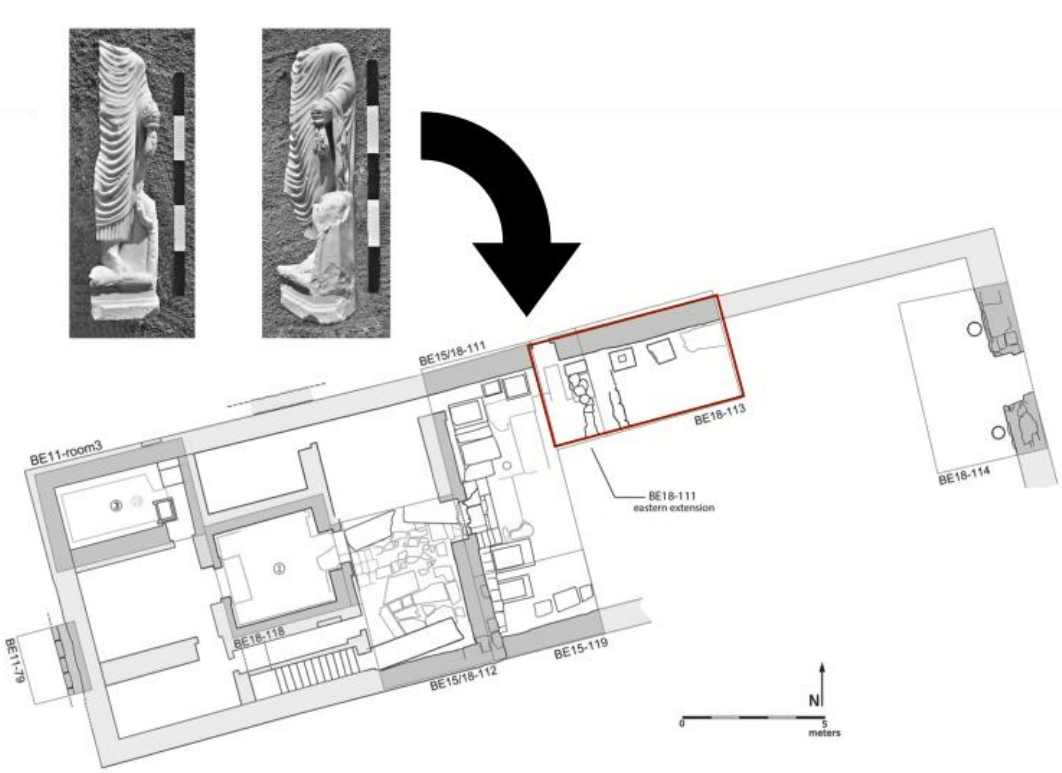


Fig. 8: Plan of all trenches thus far in the Isis Temple (drawing by M. Hense),
in Sidebotham, Zych et al. 2019, Tafel X.
Figure in marble in himation with parallel folds (from trench 113), scale = 50 cm
(Photo by S. E. Sidebotham), in Sidebotham, Zych et al. 2019, Tafel XXV



Fig. 9: 3D Reconstruction of Buddha head with marble body found in the same area. (Reconstruction by S. Poplawski)

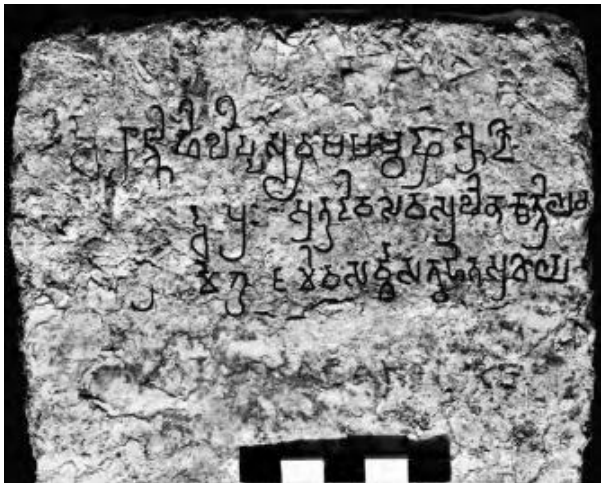


Fig. 10: Bilingual Brahmi/Sanskrit-Greek dedication from the Isis temple courtyard.
Black overwrite added by S. Bhandare.
Scale = 20cm (photo by S. E. Sidebotham)

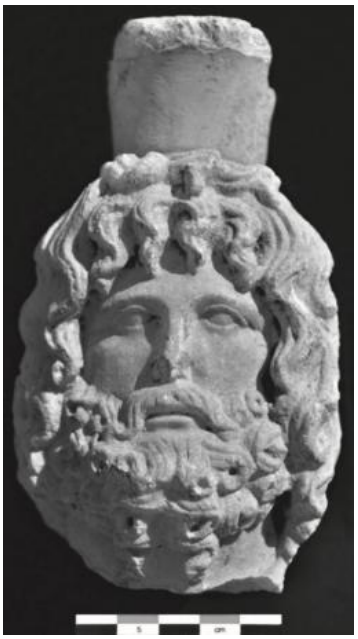


Fig. 11: Alabaster head of the god Serapis
Scale = 5 cm
(photo by S. E. Sidebotham)



Fig. 12: Head of Isis in stone
Scale = 5cm
(photo by S. E. Sidebotham)



Fig. 13: Wall painting – Navigium Isidis – Pompeii (VIII 7 28 – Sanctuary of Isis – Sacrarium)



Fig. 14: Coin of Kaniṣhka
in *CNG*, Triton VIII, Lot. 676



Fig. 15: Surya of Khair Khana



Fig. 16: From left to right,
Helmeted warrior from Trench BE 19-116,
Half head of female from Trench BE 18-113,
Buddha head from Trench BE 19-126.
Scale = 10cm (photo by M. Bergmann)



Fig. 17: Maliku relief,
Louvre Museum



Fig. 18: Niche lintel from the sanctuary of Baalshamin,
Palmyra



Fig. 19: Mithra Banquet.
Marble, 2nd-3rd century CE,
Grandola (Private collection)



Fig. 20: Kaniṣka gold coin with Miiro on the reverse,
CNG coins



Fig. 21: Sol Invictus,
Silver leaf disc,
Pessinus Bala-Hissar, Turkey,
3rd century CE



Fig. 22: Gandhāra, Schist, 2nd-3rd century CE,
Claude de Marteau Collection



Fig. 23: Gandhāra, Schist,
3rd-4th century CE, Collection Van



Fig. 24: Gupta Art, Sandstone,
5th century CE, Sarnath Museum



Fig. 25: Devni Mori,
Gujarat, Terracota,
3rd-4th century

Bibliographical References

Alföldi 1937
Andreas Alföldi, *A Festival of Isis in Rome under the Christian Emperors of the IV*th *Century*.

Ast 2018
Rodney Ast, "Bérénice à la lumière des inscriptions, des ostracas et des papyrus", in *Le Désert oriental d'Égypte durant la période gréco-romaine* : *Bilans archéologiques*, Collège de France, Institut des Civilisations, Paris.

Ast & Bagnall 2015
Rodney Ast and R. S. Bagnall, "The Receivers of Berenike: New Inscriptions from the 2015 Season", *Chiron*, *Mitteilungen der Kommission für Alte Geschichte und Epigraphik des Deutschen Archäologischen Instituts* 45, pp. 169-183.

Belzoni 1820
Giovanni Battista Belzoni, "Narrative of the operations and recent discoveries within the pyramids, temples, tombs, and excavations, in Egypt and Nubia, and of a journey to the coast of the Red Sea", S*earch of the ancient Berenice*, 1 & 2, Murray.

Bhandare, Cuvigny & Faucher 2022
Shailendra Bhandare, Hélène Cuvigny and Thomas Faucher, "An Indian coin in the Eastern desert of Egypt", in *Networked Spaces*, *The spatiality of networks in the Red Sea and Western Indian Ocean*, MOM édition.

Bhatt 1975
S. K. Bhatt, "A unique Indo-Greek coin from Malwa", *Indore University Research Journal* IV, Oct. 1975, pp. 13-17.

Bricault 2006
Laurent Bricault, *Isis*, *Dame des flots*, CIPL, Liège.

Cribb 2018
Joe Cribb, "Numismatic evidence and the date of Kanishka I", in W. Rienjang and P. Stewart (eds.), *Problems of chronology in Gandharan art*. *Proceedings of the first international workshop of the Gandhara Connections Project*, University of Oxford, 23rd-24th March 2017, pp. 7-34.

Cuvigny 2017
Hélène Cuvigny, "Les ostraca du désert Oriental", *L'Histoire*, November 2017.

Delacour 1993
Catherine Delacour, "Redécouvrir les verres du trésor de Begram", *Arts asiatiques*, 48, 1, pp. 53-71.

Falk 2001
Harry Falk, "The yuga of Sphujiddhvaja and the era of the Kushanas", *Silk Road art and archaeology* 7, pp. 121-136.

FALK 2012
Harry Falk, “Small scale Buddhism”, in F. Voegeli, V. Eltschinger, D. Feller, M. P. Candotti, B. Diaconescu, M. Kulkarni (eds.), *Devadattiyam - Johannes Bronkhorst congratulation volume*, pp. 491-517.

FISCHER 1964
Klaus Fischer, “Une tête shivaïte en marbre de l'Afghanistan oriental”, *Arts Asiatiques* 10-1, pp. 35-42.

GASQUET 1899
Amédée Gasquet, “Le culte et les mystères de Mithra”, *La Revue des Deux Mondes*, vol. 152, n° 3, pp. 530-562.

GÖBL 1984
Robert Göbl, *Münzpragung des Kušanreiches*, *Vienna*: *Verlag der Österreichischen Akademie der Wissenschaften*, 25.

HACKIN & CARL 1936
Joseph Hackin and Jean Carl, “Recherches archéologiques au col de Khair Khaneh près de Kābul”, *MDAFA* VII, Les Éditions d’art et d’Histoire.

HENSE 2018
Martin Hense, “Le Grand Temple de Bérénice”, in *Le Désert oriental d’Égypte durant la période gréco-romaine*: *Bilans archéologiques*, Collège de France, Institut des Civilisations, Paris.

HERMAN & BERG 1992
Mark Herman and Richard Berg, *SPQR*, *Elephants of War*, GMT Games, 7.

HORTON 1994
M. C. Horton, “Swahili architecture, space and social structure”, in M. Parker-Pearson and C. Richards (eds), *Architecture and Order*, pp. 147-169, 446-448, Routledge.

LAMBOURN 2003
Elizabeth Lambourn, *La production de marbre sculpté à Cambay au Gujarat et son exportation dans l’Océan Indien* (XIIIe-XVe siècle ap. J.-C.).

LIU 1988
Xinru Liu, *Ancient India and Ancient China*: *Trade and Religious Exchanges* AD 1-600.

LIU 1996
Xinru Liu, *Silk Road and Religion: An exploration of Material Life and the Thought of People, AD 600-1200*, New York.

LUSSAULT 2017
Michel Lussault, *Hyper-lieux*. *Les nouvelles géographies politiques de la mondialisation*, Seuil, coll. La couleur des idées.

MAJMUDAR 2010
Majmudar, *Inscriptions of Karle and Nasik*. *Inscription of Pandu-Iena caves near Nasik*, *sponsored by his son-in-law Ushavadata*.

MARTIN 2000
Jean-Pierre Martin, “Sol Invictus: des Sévères à la tétrarchie d’après les monnaies”, *Cahiers du Centre Gustave Glotz*, XI, pp. 297-307.

MATHARU 2023
Sonal Matharu, “Unlike Hinduism, Buddhism promoted trade. Rich merchants were mediators”, *The Print*, 7 March 2023.

MEREDITH 1957
D. Meredith, “Berenice Troglodytica”, *Journal of Egyptian Archaeology* 43, pp. 56-70.

NARAIN 1980
Awadh Narain, K. Narain, *The Indo-Greeks*. *Revisited and supplemented*, Oxford University Press, London-Delhi.

NEELIS 2011
Jason Neelis, *Early Buddhist Transmission and Trade Networks*: *Mobility and Exchange within and beyond the North western Borderlands of South Asia*, Brill.

PENSABENE 2002
Patrizio Pensabene, “The main white marble quarries”, in Lucrezia Ungaro and Marilda De Nuccio (eds.), *I marmicolorati della Roma imperiale* (*catalogo mostra*), pp. 203-205.

RAKOTOZONIA 2014
Michaël Rakotozonia, “Bharuch, the Pearl of the Indian Western coastline. How this port-town made the wealth of the greatest empires that ruled over Northern India in the Early History”, in *Conference at the Vibrant Gujarat Global Summit*, Gandhinagar.

RHYS-DAVIDS 1890-4
T. W. Rhys-Davids, *Questions of King Milinda*, Clarendon Press, Oxford.

SCHOFF 1912
W. H. Schoff, *Periplus of the Erythrean Sea-Travel and trade in the Indian Ocean by a merchant of the first century*, translated from the Greek and annotated by W. H. Schoff, Longmans, Green & co., New-York.

SIDEBOTHAM 2007
Steven E. Sidebotham, “Excavations”, in Steven E. Sidebotham and W. Z. Wendrich (eds.), *Berenike* 1999/2000: *Report on the Excavations at Berenike*, *including excavations in Wâdi Kalalat and Siket*, *and the Survey of the Mons Smaragdus Region*.

SIDEBOTHAM 2011
Steven E. Sidebotham, *Berenike and the Ancient Maritime Spice Route*, California World History Library.

SIDEBOTHAM 2014
Steven E. Sidebotham, “Religion and Burial at the Ptolemaic-Roman Red Sea Emporium of Berenike, Egypt”, *African Archaeology Review*, 31, pp. 599–635.

SIDEBOTHAM *et al*. 2023
Steven E. Sidebotham, Rodney Ast, Olaf E. Kaper, Marianne Bergmann, Shailendra Bhandare, Arnoud Maurer, Rita Hartmann, Szymon Popławski, Jerzy Oleksiak, Nicholas Bartos, Roderick C. A. Geerts, Renata Kucharczyk, Mariana Castro with contributions by Martina Stoye, “Results of the Winter 2022 Excavation Season at Berenike (Red Sea Coast), Egypt”, in *Thetis*, *Mannheimer Beitrage zur Archäologie und Geschichte der antiken Mittelmeerkulturen Herausgegeben von Reinhard Stupperich und Corinna Stupperich*, Band 27.

SIMS-WILLIAMS 1998
Nicholas Sims-Williams (ed.), “Further notes on the Bactrian inscription of Rabatak, with an Appendix on the names of Kujula Kadphises and Wima Taktu in Chinese”, in *Proceedings of the Third European Conference of Iranian Studies Part* 1: *Old and Middle Iranian Studies*, pp. 79-93.

STRAUCH 2011
Ingo Strauch, “Du Gandhāra à Socotra”, *Annuaire de l’École pratique des hautes études* (*EPHE*), *Section des sciences historiques et philologiques*, 142.

TALIK 2022
Lola Talik, “Des nomades auraient possédé des mines d’émeraude de l’Empire romain en Égypte”, *GEO*, 4 March 2022.

TARN 1951
W. Tarn, *The Greeks in Bactria and India*, Cambridge.

VAN LOHUIZEN-DE-LEEUW 1949
J. E. Van Lohuizen-de-Leeuw, *The* “*Scythian*” *Period*. *An approach to the history*, *art*, *epigraphy and palaeography of North India from the* 1st *century BC to the* 3rd *century AD*.

WELLSTED 1838
James Raymond Wellsted, *Travels in Arabia*, J. Murray.

WIELGOSZ 2010
Dagmara Wielgosz, “Marble sculpture at Palmyra”, *Studia Palmyrenskie* IX, p. 79.

WILL 2003
Édouard Will, *Histoire politique du monde hellénistique* 323-30 av. J.-C., Seuil, Points Histoire, Paris.

(Derivative) images of Eros: the spread of Western themes and adaptations to oriental aesthetics in Taxila and Butkara I

Claire CHESNEAU

Abstract

The richness of its iconographic production is linked to the figure of Eros himself, whose representations underwent metamorphoses in both East and West, especially from the end of the Hellenistic period, making identification and interpretation more complex. Especially as Eros is depicted in a wide range of media, from architectural reliefs to small sculpted objects and goldsmith. Taxila and Butkara bear witness to this and allow us to question the ways in which these exogenous images were received and adapted by artists and craftsmen, while taking into account the local substratum and the contribution of Eastern aesthetics, from Gandhāra and beyond, not forgetting the Near East and Bactria.

Images of Eros were very popular in the Mediterranean world, and the wealth of iconographic production is linked to the complexity of the god of love. It is related to a wide range of iconographic themes and appears in a wide variety of media, making the image of Eros perfectly suited to diffusion. Identifying and interpreting Eros is not easy, as can be seen from the images associated with Eros in Taxila and Butkara I, which open up the vast question of Greco-Roman gods and the relationship between Mediterranean and Oriental civilisations. The usage of images of Greco-Roman god in Gandhāra exposes the introduction of the divinity and the translation that may have been made of its iconographic characteristics, the adaptation of its roles and attributions in a different environment.

In this sense, the archaeological sites of Taxila and Butkara I are well-suited to a study of these themes (Fig. 1). Despite their obvious different functional characteristics, I have chosen these two sites in particular because they have been the subject of extensive excavations and publications, and above all because they have yielded a large number of images linked to Eros.

Based on their respective excavation reports, I catalogued eighteen objects from Butkara I and thirteen from Taxila, mainly from Sirkap, which may represent Eros or be related to his iconography. Most of these objects date from the 1st century CE and this list is not exhaustive.

As we know, Butkara I (Swāt Valley) comprises a monumental complex in use from the 3rd century BCE to the 10th century CE which includes a sacred space dominated by a large *stūpa*, a surrounding wall as well as monasteries (*saṅghārāmas*). Taxila (Rawalpindi district), was a city at the crossroads of major trade routes, it comprises three cities: Bhir Mound dating back to Achaemenid period and abandoned in the 1st century BCE), Sirkap (built most probably in the 2nd century BCE) and Sirsukh (built in the 2nd century CE).

It is mainly in Sirkap, in the urban environment, that small objects can be found, presenting iconographic themes directly linked to Eros. We will examine these first, before presenting themes that could derive from the iconography of Eros particularly from Butkara I, mainly sculpted schist reliefs. The two sites could therefore reflect two different ways of adapting and using the same images.

Themes directly linked to the iconography of Eros

Among these themes, Eros and Psyche appears twice in Taxila: on a gold brooch dated to the 1st century BCE or the 1st century CE (Fig. 2) and on a carnelian seal dated to the 1st century CE (Fig. 3); however, in both cases, none of the figures are winged. On the brooch, the two figures are holding each other. The seal representing Eros and Psyche has a

similar posture but a small figure who looks like Eros is added next to Psyche.

Parallels can therefore be drawn. In fact, in the famous group in the Capitoline Museums, winged Eros and Psyche are depicted hugging and kissing; and this iconography is quite similar to the terracotta figurine from Seleucia on Tigris[1]. Although they are less close to each other, Eros and Psyche are shown hugging on the Taxila examples too. At Susa[2] and also at Kampyr tepa (1st century BCE) (Fig. 4), the embrace is more hesitant and the position more frontal, but Eros and Psyche are recognisable. These iconographic similarities make it possible to identify Eros and Psyche despite the absence of wings. The absence of wings could mean that the artist was more concerned about the theme of love that we can recognise in these everyday objects than the mythological theme of Eros and Psyche. Nevertheless, this seems to imply an understanding of the meaning and probably the provenance of this iconographic theme and scheme.

Another theme is Eros asleep. It appears twice in Taxila, on a gold earring (Fig. 5) and on a medallion (Fig. 6) dating from the 1st century CE. The iconographic scheme is the same in both cases: Eros is lying on a flower. The representation on the earring is more elaborate and complex; it is associated with the lower part representing an amphora whose handles are formed by two children who can be identified as Eros riding a sea monster. The sleeping Eros is a common theme in the Greek world, although it appears less often in a flower. It can be found on Greek bronze mirrors and also on silver vases' *emblemata* from the 3rd or 2nd centuries BCE. These include two pairs of dishes and bowls belonging to the al-Sabah collection and are thought to have come from Bactria[3]. On the second one, Eros wears jewellery on his arms, wrists and ankles (as is the case in Taxila). The craftsmen who produced this ware were therefore familiar with Bactrian Hellenism, and the sleeping Eros motif would have reached Bactria as early as the 2nd century BCE, and then Taxila.

Eros is also associated with the aquatic world on two occasions at Sirkap, as we have just seen on the ear pendant, where he is riding a sea monster, and also on a toilet tray where he appears carried at arm's length by a Nereid seen from the back and riding a sea monster (Fig. 7).

On the ear pendant, the position of the Erotes is reminiscent of the Erotes represented on two pairs of clasps found in Tillya tepe (in northern Afghanistan), riding two dolphins[4].

The iconographic pattern of the toilet tray can also be seen on gold-ware of Hellenistic art: on a silver casket from Taranto[5], where a Nereid also seen from the back, but without Eros, for example; or on the medallions of phials from the Sarmatian tomb at Sadoviy[6], where Eros appears in the waves accompanying a Nereid riding a seahorse[7].The themes directly linked to the iconography of Eros are therefore found only in Taxila and in an urban context, as we shall see now it cannot be applied to the representations of Erotes garlandophores.

The garland-bearing Eros motif is common theme in Buddhist decorative vocabulary. It was already known in the Greek and Roman worlds and the Eros garlandophore motif also appears in Khalchayan in Uzbekistan (Fig. 8) and Surkh Kotal in Afghanistan[8]. Among many, we have

[1] MENEGAZZI et al. 2014, 1. G161 (tav 19). Terracotta figurine, Ann Arbor, Kelsey Museum of Archaeology.
[2] MARTINEZ-SÈVE 2002, p. 127, cat. 108. Terracotta figurine, Musée du Louvre (inv. Sb 8566).
[3] CARTER *et al.* 2015, p. 179, cat. 39; pp. 236-237, cat. 64.
[4] CAMBON, JARRIGE 2007, p.173, n°59.
[5] DE JULIIS *et al.*, 1986, pp. 58-59, cat.8.
[6] SCHILTZ 2001, pp. 197-198, n° 219-221.
[7] FRANCFORT 2016, p. 315.
[8] SCHLUMBERGER *et al.*, 1983, pl. 55. 156. F 4.

selected two to three examples of garland-bearing Erotes for each site. In Taxila, two frieze fragments from Kālawān[9] and Dharmarājikā (Fig. 9) show a similar pattern.

And the fragments from Butkara I[10] are distinctive in that they are carved on both sides, indicating that they were reused. In the case of two of these fragments, side b is a doorjamb depicting scenes with the Buddha or themes related to Buddhism arranged in two or three superposed registers[11]. Side b of the other fragment is the base of a statue. From the state of preservation of these first two reliefs, we can assume that the theme of the possible garland-bearing Erotes belonged to the first use, while Buddhist themes were chosen for the second use.

The garland-bearing Eros was already known in the Greek and Roman worlds and have come from the west via trade routes, but it may also have spread to Gandhāra from Bactria, where the Greek tradition was already well established[12]. The garland motif has a particular resonance in Buddhism, as it evoked real garlands offerings that were hung on the *stūpas* by worshippers and held in place by brackets, some of which depict figures, winged or otherwise, adopting gestures or attributes that led me to link them to Eros. We will be talking here about derived types that are open to discussion.

Derived themes and subject to discussion

These themes include brackets from Butkara I, including Harpocrates (from Butkara I and Taxila); Eros and a bird (Butkara I and Taxila); winged figures referring to Eros and Buddhist scenes (Butkara I).

The brackets were originally simple supports attached at regular intervals to the *stūpa* that later took the form of winged dedicants holding fruit or even flowers[13]. For this study, I have selected five *stūpa* brackets found in an archaeological context in Butkara I that could bear the image derived from Eros[14]. The winged figures on the brackets emerge from a lotus flower and hold an offering which can be a rolled-up garland, a box, a spherical object in each hand (Fig. 10), a bouquet of lotus flower buds in one hand and the other hand on her hip, for example. Interestingly, the figure depicted in one of the brackets could be identified as Harpocrates[15], the child god often compared with Eros. However, in this sculpture, the boy places his index and middle fingers on his lower lip and his ring and little fingers are folded in the palm of his hand. This gesture is attested in the Gandhāran art. Male figures, making this gesture, in the presence of the Buddha, can be interpreted as a sign of fear and joy[16]. The Buddhist significance of this theme seems all the more likely given that a bronze image of Harpocrates was found in Taxila dated to the 1st century CE (Fig. 11), where only his index finger is placed over the lip and he is shown wearing the *pschent*, the Egyptian crown. Identification with Harpocrates is therefore unquestionable in Taxila and remains uncertain in Butkara I.

---

[9] MARSHALL 1951, vol.III, pl. 216, no.72.
[10] FACCENNA & TADDEI 1962, vol. 2, pl. DXI a, b, *ibid*, pl. DXII a, b ; *ibid*, pl. DXIII a.
[11] For the first one (FACCENNA & TADDEI 1962, vol. 2, Pl. DXI a, b), the upper register depicts the Buddha's alms bowl and the lower register Buddha in the *vihāra*. Side b of the other fragment (FACCENNA & TADDEI 1962, vol. 2, Pl. DXII a, b) is also a doorjamb, divided into three registers representing from top to bottom, an arch with birds housing a *stūpa*, the Buddha, and an arch with birds.
[12] BROMBERG 1988, pp. 71-72.
[13] BROMBERG 1988, p. 79.
[14] FACCENNA & TADDEI 1962, vol.2, pl. DXIX ; pl. DLXXIIb ; pl. DLXXVIb ; pl. DLXXVII ; pl. DLXXVIII.
[15] FACCENNA & TADDEI 1962, vol.2, pl. DLXXVII.
[16] PROVENZALI 2005, pp. 160-161.

This brief study of the brackets shows that the garland-bearing Eros found on the *stūpas*, whether on a bracket bearing a real garland or represented on a sculpted frieze, could be understood as an adaptation of the Indian ritual of worshipping the *stūpa* with flowers, as Carol Bromberg explained in her article on "The Putto and Garland in Asia"[17]. In this way, the brackets may have led to the introduction of sculpted friezes with garland-bearing Erotes.

Eros is also attested in the company of birds. However, birds are one of his favourite prey (this hunter's attitude can also be seen on the Taxila seal impression where the figure attempts to catch the bird[18]).

In Taxila, three statuettes (two in stone and one in copper) show the boy holding a bird[19], reminiscent of the "skyphos aux amours" in the treasure from Buner[20], where several Erotes appear, including one holding a bird not far from a tree, perhaps alluding to the Dionysian world. The bunches of grapes and the birds on the Butkara I bracket[21] also recall the bronze fittings from Takht-I Sangin (Tajikistan)[22], which were intended to decorate a box and depict birds, bunches of grapes and Erotes playing musical instruments. All of these symbolize abundance and fertility as well.

One may also wonder about the significance of the presence of Eros on another frieze from Butkara I. On this frieze of the entablature of the cornice of *stūpa* no. 14, lion *protomes* alternate with eagles and Erotes. These winged Erotes are depicted standing: one on a lotus flower the other with a sword in hand. All the more so as this is a theme found on tapestries at Noin-Ula in present-day Mongolia[23], and on paintings at Miran in present-day Xinjiang[24]. In Miran, the entrance to the M.V. temple features, above the lower entablature depicting busts of winged figures that could be likened to Eros, a boy also likened to Eros, fighting two griffins with a club. As Henri-Paul Francfort points out[25], Eros' feet overlap the lower band somewhat, as do the figures on the Noin-Ula tapestries. These last, which are from Bactria and dated from the 1st century CE, also use bands featuring Eros fighting or associated with a dragon. The association of Eros with the griffin, as well as the theme of Eros fighting, is widespread in Roman times, particularly in the Greek and Roman worlds. This is a theme that we wish to explore in depth, asking ourselves to what extent it was chosen to form part of a particular iconographic program.

As this theme of Eros requires more in-depth research, I will not elaborate on it any further than I will on the last theme, because of my uncertainties. Now we will discuss the winged figures referring to Eros and Buddhist scenes, found in Butkara I.

I have identified three doorjamb fragments (Fig. 12)[26] with a similar iconographic pattern, composed of two superimposed registers, one representing an architectural structure housing the Buddha and the other representing a couple placed under an arch or pediment, above which two winged figures are depicted on either side. These two winged figures could be associated with the god of love simply because of their association with the embracing couple. Still at Butkara I, we have listed four other fragmentary reliefs with a winged figure in flight,

[17] BROMBERG 1988, p. 76.
[18] MARSHALL 1951, vol. III, pl. 207, no. 6.
[19] MARSHALL 1951, vol. III, pl. 213, no. 9; *ibid,* pl. 186, no. 419; *ibid,* pl. 213, no. 10.
[20] FRANCFORT 2020, pp. 48-49; BARATTE 2001, pp. 271-275.
[21] FACCENNA & TADDEI 1962, vol. 2, pl.DLXXIX.
[22] MAKARIOU 2021, p. 106, cat. 64.
[23] RUDENKO 1969, pl. LXV, LXVII.
[24] STEIN 1921, vol.IV, pl.XL-XLI.
[25] FRANCFORT 2014, p. 30, footnote 28.
[26] FACCENNA & TADDEI 1962, vol. 2, pl. CCXCI; *ibid,* pl. CCXCII. ; *ibid,* pl. CCLXXXIX-CCXC.

approaching Buddha depicted in the centre of the scene (Fig. 13). Further research is needed on these themes.

Eros in architectural reliefs at Butkara I and Eros in small objects at Taxila: two distinct perceptions?

These are two sites that are difficult to compare because they have different uses and functions; but because of their major position in Gandhāran art and the number of objects recorded, I have chosen to compare them in order to observe the ways in which images of Eros are interpreted. At Butkara I, only architectural sculptures in schist were so far recorded, whereas at Taxila there were more supports and materials (pieces of gold jewellery, toilet tray, architectural reliefs, statuettes in bronze, copper and stone, and seal (an intaglio).

At Butkara I, the iconographic themes are limited to the garland-bearing Eros, winged male figures associated with Buddhist scenes or in the form of a bracket. At Taxila, Eros is accompanied by Psyche or asleep in a flower or riding or accompanying sea monsters or holding a garland.

The study of these two Gandhāran sites thus testifies to the integration of the image of Eros in a process of transfer and interpretation; it also offers the possibility of demonstrating the multiple forms that this adaptation can take. We see this particularly in Taxila and Butkara I, where images derived from Eros are used in different contexts and for different purposes.

In Taxila, and more particularly in the urban area of Sirkap, these objects, intended for personal use, were designed to adapt to the tastes and lifestyles of laypeople by incorporating typically Greco-Roman images whose meaning, or at least provenance, was known *a priori*. In Butkara I, in a religious space, the aim was to adapt an image that corresponds, in whole or in part, to the function and symbolism of the monument.

It seems that the images directly linked to the iconography of Eros are the result of the residual presence of Greeks and imported objects. We can also ask to what extent the use of characters and iconographic themes derived from Eros reflects choices linked to the function of the monument and its place in the urban organisation; to what extent it reflects choices linked to the tastes or needs of the people for whom these productions were destined. It is therefore a question of understanding the image of Eros by artists, craftsmen and patrons. In our case, the starting point is the same: Eros. Each production responds to different needs, whether for personal or public use. The symbolism of the image, closely linked to the iconographic theme, is also different. In Taxila, we mainly find typically Greek images (direct testimony to the local perception of Mediterranean civilisations), while in Butkara I, we find images whose Greco-Roman origin is more difficult to recognize. In this case, however, the iconographic characteristics of Eros would have been considered sufficiently clear to justify their inclusion in the production in question. All of this suggests two mechanisms for adapting the iconography of Eros, and these are questions that I would like to ask in my future research.

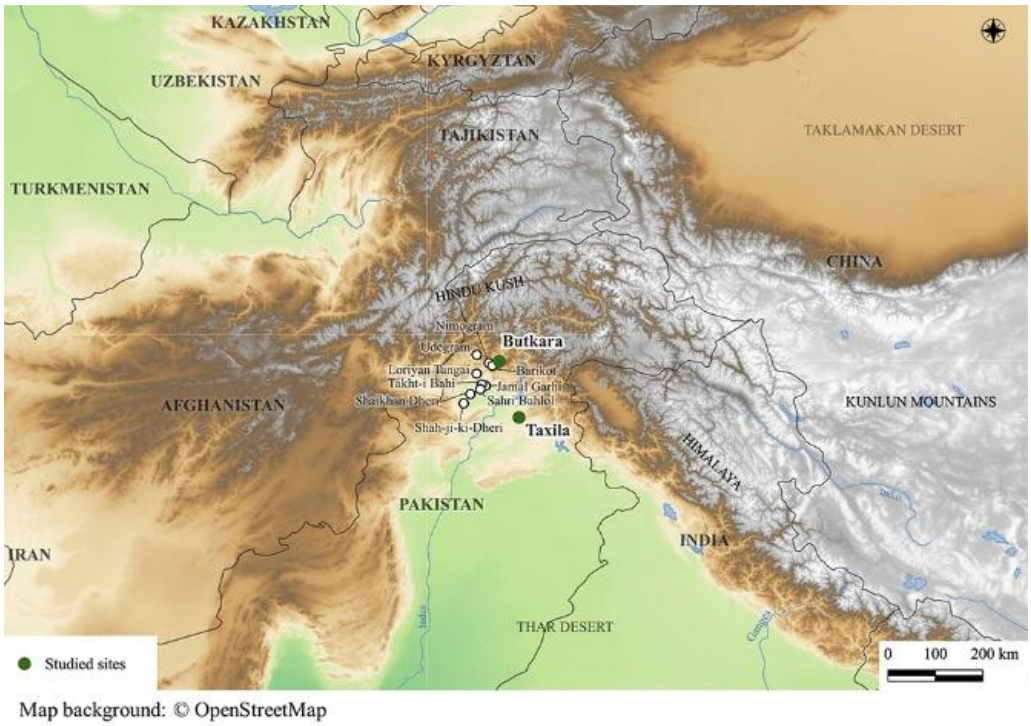


Fig. 1: Map of Gandhāra: Taxila and Butkara © P. Bombled



Fig. 2: Eros and Psyche, Taxila, h= 4.5 cm
© Wikimedia



Fig. 3: Eros and Psyche accompanied by a small Eros, Taxila (Sirkap), h= 3.42 cm
© Courtesy of C. Luczanits



Fig. 4: Eros and Psyche, Kampyr Tepa, h= 9.5 cm.
© C. Chesneau, from "Archaeological Treasures of Uzbekistan" Exhibition at the James Simon Gallery and the Neues Museum in Berlin, 2023



Fig. 5: Eros on a flower, Taxila (Sirkap), 9.5 x 5.3 cm (total earring and pendant)
© Courtesy of C. Luczanits



Fig. 6: Eros on a flower, Taxila (Sirkap), diam. 2.8 cm,
© Drawing reworked by the author in CAD,
after FALK 2009, p. 33, fig.12



Fig. 7: Eros with Nereid riding a sea monster, Taxila (Sirkap), diam. 8 cm
© Courtesy of O. Bopearachchi



Fig. 8: Male garlandophore figure, Uzbekistan, Khalchayan, h. approx. 30 cm © C. Chesneau, from “Archaeological Treasures of Uzbekistan” exhibition at the James Simon Gallery and the Neues Museum in Berlin, 2023.



Figure 9. Erotes guirlandophores, architectural Taxila (Dhārmarājika), l= 57 cm © Courtesy of O. Bopearachchi



Fig. 10: Winged male figure emerging from a lotus flower and holding a spherical object in each hand, Saïdu Sharif I, 10 x 2.5 x 7 cm © FACCENNA & TADDEI 1962, Pl. DLXXVIb.



Fig. 11: Harpocrates, Taxila (Sirkap), h= 12.7 cm
© Courtesy of O. Bopearachchi



Fig. 12: Erotic scene with two winged figures and Buddha under a tree, Butkara I, 50 x 18 x 6.5 cm
© Courtesy of O. Bopearachchi



Figure 13. Buddha head and flying winged figure, Butkara I, 22 x 25.5 x 06 cm
© Courtesy of O. Bopearachchi

Bibliographical References

Baratte 2001
François Baratte, "Orient et Occident : le témoignage d'une trouvaille d'argenterie d'époque parthe en Asie centrale", *Journal des Savants*, 2, pp. 249-307.

Bromberg 1988
Carol Bromberg, "The Putto and Garland in Asia", *Bulletin of the Asia Institute 2*, pp. 67-85.

Cambon and Jarrige, 2007
Pierre Cambon and Jean-François Jarrige, *Afghanistan, les trésors retrouvés*, MNAAG, Réunion des musées nationaux-Grand Palais, Paris.

Carter *et al*. 2015
Matha L. Carter *et al*., *Arts of the hellenized East: precious metalworks and gems of the pre-Islamic era dar al-Athar al-Islamiyyah, the al-Sabah collection, Kuwait*, Thames & Hudson, London.

De Juliis *et al.*1986
Ettore M. De Juliis *et al., Les ors hellénistiques de Tarente : Paris, Musée Jacquemart-André, novembre 1986-février 1987; Tarente, Museo Archeologico Nazionale, mars-septembre 1986; Milan, Brera 2, décembre 1984-mars 1985*, Arnaldo Mondadori Editore, Milano.

Faccenna 1980
Domenico Faccenna, *Butkara I (Swat, Pakistan), 1956-1962*, Reports and memoirs III, IsMEO, Rome.

Faccenna 2001
Domenico Faccenna, *Il fregio figurato dello stupa principale nell'area sacra buddhista di Saidu Sharif 1 (Swat, Pakistan)*, Reports and memoirs 28, IsIAO, Roma.

Faccenna 2007
Domenico Faccenna, "Chapter Seven. The Artistic Center of Buktara I and Saidu Sharif I in the Pre-Kusana Period", in D. M. Srinivasan (ed.), *On the cusp of an era: art in the pre-Kuṣāṇa world*, Brill's Inner Asian library 18, Leiden Boston.

Faccenna & Taddei 1962
Domenico Faccenna and Maurizio Taddei, *Sculptures from the sacred area of Butkara I (Swāt, Pakistan)*. Istituto poligrafico dello Stato, Libreria dello Stato, Roma.

Falk 2009
Harry Falk, "Greek Style Dedications to an Indian God in Gandhara", *Indo-Asiatische Zeitschrift*, 13, pp. 25-42.

Falk 2016
Harry Falk, "Buddhist metalware from Gandhara", *Bulletin of the Asia Institute*, 26, pp. 33- 60.

FRANCFORT 2013
Henri-Paul Francfort, "Les nomades installés dans la Bactriane (IIe s. av. J.-C.- Ier s. ap. J.- C.) : nouvelles découvertes", *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres*, 157e année, 4, pp. 1543-1586.

FRANCFORT 2014
Henri-Paul Francfort, "Les peintures de Mirān et l'art de l'Asie centrale", *Monuments et Mémoires de la Fondation Eugène Piot*, 93, 1, pp. 23-64.

FRANCFORT 2016
Henri-Paul Francfort, "Figures emblématiques de l'art grec sur les palettes du Gandhāra", in J. Jouanna, V. Schiltz and M. Zink (eds.). *La Grèce dans les profondeurs de l'Asie*, Cahiers de la Villa Kérylos n° 27, De Boccard, Paris.

FRANCFORT 2020
Henri-Paul Francfort, "Vestiges et indices nouveaux de l'hellénisme dans l'Orient lointain", *Journal des Savants*, 1, pp. 3-114.

KAHIL (ed.) 1986
Lilly Kahil (ed.), *Lexicon Iconographicum Mythologiae Classicae: LIMC, III. Atherion-Eros*. Artemis, Zürich München.

MARSHALL 1951
John Marshall, *Taxila: an illustrated account of archaeological excavations carried out at Taxila under the orders of the governement of India between the years 1913 and 1934*, University Press, Cambridge.

MARSHALL 1960
John Marshall, *A guide to Taxila*. Cambridge University press, Cambridge.

PROVENZALI 2005
Anna Provenzali, "La figura infantile nella prima arte gandharica: modelli e corrispondenze significanti", *Parthica*, 7, pp. 1-23.

RUDENKO 1969
Sergej Ivanovič Rudenko, *Die Kultur der Hsiung-Nu und die Hügelgräber von Noin Ula*, Antiquitas Band 7, R. Habelt, Bonn.

SCHILTZ (ed.) 2001
Véronique Schiltz (ed.), *L'or des Amazones. Peuples nomades entre Asie et Europe. VIe siècle av. J.-C. - IVe siècle ap. J.-C.*, Paris musées, Éditions Findakly, Paris.

SCHILTZ 2015
Véronique Schiltz, *De Samarcande à Istanbul : étapes orientales*, CNRS Editions, Paris.

STEIN 1921
Aurel Stein, *Serindia: detailed report of explorations in Central Asia and westernmost China carried out and described under the orders of H. M. Indian government*, Oxford.

VAN AERDE 2018
Marike E. J. J. Van Aerde, "Revisiting Taxila: A New Approach to the Graeco-Buddhist Archaeological Record", *Ancient West & East*, 17, pp. 203-229.

TABLE OF CONTENTS

TRIBUTE TO PROFESSOR ZÉMARYALAÏ TARZI 1

ACKNOWLEDGEMENTS 3

CONTRIBUTORS AND CHAIRMEN 5

PREFACE 9

Zémaryalaï TARZI
The Art and Metal Industry at Haḍḍa as Observed in the Afghan Excavations of Tape Shotor (TSh) and Tapa Tope Kalān (TTK) 13

Olivier BORDEAUX
Artists or performers? Die-engravers under Indo-Greek rule in Gandhāra 29

Arnaud MARGUIER
Considering the frame: an attempt to classify Gandhāran sculptures 43

Vydhegi BRICE
Preliminary observations on a few Buddhist schist reliefs from Mes Aynak, Logar 59

Angela CHANG *et al.*
Technical Findings on Objects from Afghanistan at the Harvard Art Museums 71

Mònica LÓPEZ-PRAT *et al.*
Exploring Indian Traditional Knowledge for the Technological Understanding of "Monumental Terracruda Sculpture": New Evidence for the Study of Archaeological Examples along the Silk Roads 107

Giulia FORGIONE
Pigments and painting techniques of the Buddhist clay sculpture in Afghanistan: some preliminary observations 129

Birgit Angelika SCHMIDT
Technical Analysis on Buddhist Clay-based Sculptures from the Northern Silk Road. A Preliminary Comparison with Greater Gandhāra 147

Satoshi NAIKI
The Analysis of Narrative Reliefs Found in Mekhasanda in the Gandhāra Region 167

Gil STEIN, Alejandro GALLEGO *et al.*
The Nma-Isac Hadda Sculptural Project – Conserving and Restoring Early Buddhist Sculptures in the National Museum of Afghanistan 191

Alexandra VANLEENE
Tracing a Gandhāran Artist-Modeller's Hand: Uncovering Haḍḍa Monasteries' Chronological Sequence via Modelled Works Examination 215

Chai Yee LEOW
Narrative Threads: The Chinese Repertory of Buddha's Life Stories and its Relationship to Gandhāran Buddhist Panels 251

Xuecheng SHAO
Decoding Buddhist Narrative Imagery in Afghanistan: A Continuation of the Kapisa Aesthetic 267

Laeiq AHMADI
The Gandhāra's Art in Bāmiyān; from Gigantism to Obliteration (A glance of socio historical processes and local community interventions) 279

Michaël RAKOTOZONIA
The Buddha of Berenike: The History Unfolded by a Single Object 297

Claire CHESNEAU
(Derivative) images of Eros: the spread of Western themes and adaptations to oriental aesthetics in Taxila and Butkara I 323

TABLE OF CONTENTS 335

ARCHAEOLOGIA AFGHANA

Vol. 1 Guillaume DUCŒUR (éd.), *Autour de Bâmiyân. De la Bactriane hellénisée à l'Inde bouddhique*, Actes du colloque de Strasbourg (19-20 juin 2008), Paris, De Boccard, 2012, 444 p. (réimp. Université de Strasbourg, 2024).

Vol. 2 Zemaryalaï TARZI, *Les fouilles des sites de Tape Maranǰān I et II. Recherche sur les relations entre les anciennes villes de Kābol et les monastères bouddhiques de la région*, Strasbourg, 2022, 457 p.

Vol. 3 Jessie PONS, *Arts du Gandhara. Richesse, diversité et répartition des ateliers de sculpteurs sur pierre*, Strasbourg, 2024, 465 p.

Vol. 4 Guillaume DUCŒUR and Osmund BOPEARACHCHI (eds.), *Sacred Texts and Iconographies relating the Life of the Buddha. Contradictions and Confusions*, Strasbourg, 2025, 344 p.

Vol. 5 Jessie PONS (éd.), *De l'Oxus au Gange. Études en l'honneur de Francine Tissot*, Strasbourg, 2025, 385 p.

« La collection *Archaeologia Afghana* s'inscrit dans les travaux de l'Institut Thématique Interdisciplinaire HiSAAR du programme ITI 2021-2028 de l'Université de Strasbourg, du CNRS et de l'Inserm qui bénéficie du soutien financier de l'IdEx Unistra (ANR-10-IDEX-0002), ainsi que du financement du programme SFRI (projet STRAT'US, ANR-20-SFRI-0012) dans le cadre du Programme d'Investissements d'Avenir du gouvernement français. »

ISBN 978-2-494259-29-4

Tous droits réservés
Toute reproduction, même partielle de cet ouvrage,
est interdite sans l'autorisation préalable de l'éditeur.

Département imprimerie
Direction des Moyens Généraux
Université de Strasbourg

Dépôt légal – 1er semestre 2025

This volume, arising from the International Colloquium held at the University of Strasbourg in May 2024, reexamines the exceptional artistic production of the so-called Gandhāran Art through the lens of the work of artists and artisans, in an effort to renew our understanding by emphasizing the objects themselves and the techniques employed by their creators, but also the daily realities of the artisans, their aspirations, and their representations.

At the time of the first discoveries of Gandhāran Art, exploration brought these works to light before archaeology had developed as a formal discipline. Many lack clear provenance, and even more are without stratigraphic context. The result was a heterogeneous collection that presents significant challenges for study. A century of archaeological research has shown that Gandhāran Art cannot be reduced to simplistic concepts. From this art, there remains only a conventional name applied to an exceptional artistic production. Fortunately, artists and artisans have left a message through their works, which may help illuminate this complex picture.

Since the mid-20th century, systematic archaeological surveys have uncovered numerous objects now more reliably linked to their discovery contexts. Acknowledging both the abundance of poorly documented works and the advances of recent research, this volume seeks to renew our understanding of Gandhāran Art through scientifically grounded approaches.

The purpose was to start from the objects, either directly or indirectly associated with the label of Gandhāran Art, recognizing that this production extends far beyond the borders of modern Pakistan and Afghanistan and must be reconsidered within a wider art historical context, shaped by connections to distant regions and religious traditions. Given the unprecedented opportunities offered by digital technologies to gather and cross-reference sources at scale, it seemed timely present, once again, the Art(s) of Gandhāra.



The publication opens with a tribute to the late Professor Zémaryalaï Tarzi, a pioneer of Afghan excavations, followed by what would become his final scholarly contribution.

Contributors to this volume include Laeiq AHMADI, Olivier BORDEAUX, Vydhegi BRICE, Angela CHANG, Claire CHESNEAU, Giulia FORGIONE, Alejandro GALLEGO, Chai Yee LEOW, Mònica LÓPEZ-PRAT, Arnaud MARGUIER, Satoshi NAIKI, Michaël RAKOTOZONIA, Birgit Angelika SCHMIDT, Gil STEIN, Zémaryalaï TARZI, Alexandra VANLEENE and Shao XUECHENG.

Histoire, sociologie, archéologie
et anthropologie des religions | HiSAAR
Les Instituts thématiques interdisciplinaires
de l'Université de Strasbourg & CNRS & Inserm
dans le cadre de l'Initiative d'excellence

ASSOCIATION FOR THE PROTECTION OF AFGHAN ARCHAEOLOGY