

The Oasis of Bukhara

Volume 1

# Arts and Archaeology of the Islamic World

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# The Oasis of Bukhara

*Volume 1: Population, Depopulation and Settlement Evolution*

*By*

Rocco Rante

Djamal Mirzaakhmedov



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## Avant-propos

La parution du premier des trois volumes prévus de *The Oasis of Bukhara* constitue un moment capital pour le département des Arts de l'Islam du Musée du Louvre. En effet dès 2008, à la demande du Président-directeur Henri Loyrette, ce nouveau département, créé pour porter au cœur du musée du Louvre le discours universel depuis les contrées orientales, s'est engagé dans la recherche archéologique, d'abord en Iran, puis dès 2009 en Ouzbékistan. Cette volonté a été renforcée dès 2013 par Jean-Luc Martinez et moi-même dans nos fonctions respectives. Ce choix est à vrai dire original pour un département de collections d'art islamique, au regard des projets de recherche des autres grandes collections muséales au monde. Il démontre notamment la volonté du musée du Louvre d'être fidèle à sa tradition séculaire d'engagement archéologique dans les pays du Moyen-Orient, qui a toujours inclus l'époque islamique dans ses investigations archéologiques. C'est ainsi que la très riche collection de la ville iranienne de Suse témoigne aujourd'hui dans notre galerie d'art islamique de la vitalité de cette ville au début de l'époque islamique. L'archéologie islamique nous permet ainsi d'étudier sur le terrain les contextes de provenance de nos œuvres et d'éclairer les modes de vie et d'usages culturels ainsi que les échanges régionaux et internationaux des villes importantes du début de l'Islam jusqu'à la fin du Moyen Âge.

Le lien avec nos collections est donc primordial dans le choix des régions et des sites d'investigations archéologiques du département. Le monde iranien représente la grande majorité de nos collections, et notamment pour l'Iran médiéval, la fameuse région historique du Khorasan. Cette région qui prospère dès l'Antiquité et durant tout le Moyen Âge, comprend géographiquement l'Iran oriental, l'Afghanistan et une partie de l'Asie

centrale. Beaucoup de nos chefs-d'œuvre proviennent vraisemblablement des grandes villes de ce territoire comme Hérat, Samarcande, Boukhara, Nichapour. En 2008, il semblait donc évident d'engager Rocco Rante, qui avait alors fait sa thèse sur la ville ancienne de Rayy en Iran, pour entreprendre ce programme dans le Khorasan. Le choix de s'implanter géographiquement en Ouzbékistan, dans l'oasis de Boukhara, fut aussi une belle réussite. Le chaleureux accueil des autorités et des collègues ouzbèques et la généreuse compréhension des collègues du musée de l'Ermitage si longtemps investi dans cette région ont été favorables au développement de cette mission archéologique française du musée du Louvre, dirigée par Rocco Rante.

Ainsi, grâce à de nombreuses collaborations universitaires européennes et au soutien de la Commission pour les recherches archéologiques à l'étranger du ministère français de l'Europe et des Affaires étrangères, dix années après le démarrage de cette mission, je suis heureuse que ce premier volume des fouilles du musée du Louvre à Boukhara paraisse. Rocco Rante nous y présente de remarquables résultats sur les transformations naturelles et humaines de cette région au cœur des routes commerciales entre la Chine et le Moyen-Orient. Cette vision régionale de l'oasis de Boukhara désormais très précise permet notamment de mesurer les continuités et les ruptures sociétales et culturelles entre l'Antiquité et les débuts de l'époque islamique marquée par la conquête arabe et l'islamisation des élites du Khorasan.

*Yannick Lintz*

Directrice du département des Art de l'Islam  
Musée du Louvre

## Préface

À la demande du Musée du Louvre, Rocco Rante, archéologue au département des Arts de l'Islam du Musée depuis 2008 et chercheur associé au CNRS (équipe « Archéologie de l'Asie centrale » de l'UMR ArScAn – Archéologies et Sciences de l'Antiquité) depuis 2015, est responsable de la Mission archéologique franco-ouzbèke de l'oasis de Boukhara (MAFOUB). Outre celui du Louvre, la mission a bénéficié du soutien du ministère français de l'Europe et des Affaires étrangères. Dans ce cadre, les travaux conduits par Rocco Rante nourrissent une réflexion centrée sur l'archéologie et l'histoire du Grand Khorasan – vaste entité géoculturelle à cheval entre Iran oriental et Asie centrale occidentale (de Nichapour à Merv, Herat, Bactres et Boukhara). Cette réflexion, amorcée lors de travaux antérieurs en Iran, s'est développée autour de thématiques privilégiées : dynamiques de peuplement, processus d'urbanisation et urbanisme, modalités d'adaptation à un environnement en équilibre fragile, gestion des ressources en eau. Ayant franchi l'Oxus pour élargir ses travaux iraniens à la portion de l'Asie centrale s'inscrivant dans cette zone d'influence du monde iranien, c'est dans les sables du désert du Kyzyl Koum, dans la partie terminale du delta endoréique du Zerafshan, que R. Rante a initié en collaboration avec ses partenaires un programme d'études pluridisciplinaires consacré à l'oasis de Boukhara (Ouzbékistan), intéressant aussi bien les recherches sur l'Antiquité tardive et le haut Moyen Âge que l'archéologie islamique en Iran et en Asie centrale.

Consacré à l'étude des systèmes de peuplement sur la longue durée à travers celle des occupations humaines et de leur évolution, des derniers siècles avant J.-C. jusqu'à l'époque timouride (xv<sup>e</sup> siècle), le présent volume est le premier d'une série de trois ouvrages dédiés aux recherches menées dans l'oasis de Boukhara par l'auteur et son équipe depuis 2009. D'un grand intérêt, tant pour la perception des dynamiques territoriales et spatiales et la constitution de réseaux que pour la compréhension de l'impact des changements environnementaux (désertification) sur les occupations humaines et pour celle du fait urbain et des relations entre villes et territoires, il illustre aussi l'efficacité de l'approche de R. Rante, clairement pluridisciplinaire et collaborative. L'ouvrage affine la vision des vastes aires chrono-culturelles considérées : étude géomorphologique et mise en évidence du réseau paléohydrographique, datation par OSL des paléochenaux ; étude historiographique et analyse de cartes et des images satellitaires ; prospections archéologiques systématiques

assorties de relevés topographiques, fouilles ciblées sur des sites diagnostics (Romitan, Paykend et Iskijkat, notamment), construction d'un système d'information géographique (SIG). Ce volume apporte ainsi de manière convaincante des éléments de réponse à des questions majeures liées à la coévolution des ressources en eau et du mode d'implantation des établissements humains. Il fournit en outre un corpus remarquable de données relatives à l'histoire de l'occupation humaine, aux dynamiques socio-culturelles et à la culture urbaine et matérielle d'une région couvrant près de 5000 km<sup>2</sup>. Plus de 1000 sites et une multitude de cours d'eau, naturels et artificiels ont été recensés ou découverts. Ils présentent des dynamiques de destructions et de reconstructions anciennes et actuelles, attestant la difficulté de la méthode adoptée et des interprétations. L'ouvrage a le grand intérêt d'en présenter une lecture globale sur le temps long : distribution, chronologie et transformation des occupations à l'intérieur de l'oasis, typologie et organisation territoriale des établissements étudiés à la fois dans leur complexité (contexte de fondation, conception structurelle, système défensif et cadre urbain, etc.) et dans une perspective comparative. Cette démarche féconde permet à R. Rante de proposer un nouveau cadre chronologique et de mettre en évidence une dynamique d'occupation des territoires qui faisait jusqu'ici défaut. Grâce à l'ampleur des travaux réalisés par la mission et au fructueux croisement des disciplines opéré, l'auteur et son équipe sont ainsi en mesure d'ajouter de nouvelles pages à l'histoire de Boukhara et de son oasis, fondées sur la synthèse des données archéologiques anciennes et celles de la MAFOUB. En comblant d'importantes lacunes dans la connaissance de cette oasis majeure de l'ancienne Sogdiane, ces données nouvelles permettent à R. Rante de réévaluer, voire corriger nombre d'interprétations ou d'en proposer de nouvelles.

L'approche multiscalaire (site, oasis de Boukhara, delta du Zerafshan) montre ici son potentiel heuristique. Le croisement des données archéologiques et paléoenvironnementales permet à R. Rante de faire remonter les premières occupations de l'oasis au III<sup>e</sup> siècle avant J.-C., le long du chenal principal du Zerafshan et dans les zones occidentales de l'oasis, et d'exclure la possibilité d'une occupation antérieure. L'accroissement progressif de la population s'accompagne par la suite du déplacement des zones occupées au sein de l'oasis et de la transformation du mode de peuplement dont on suit l'évolution, des occupations

de type villages ouverts à la superficie réduite du 1<sup>er</sup> siècle de notre ère jusqu'à l'apparition de centres – comme Romitan, doté d'une résidence royale, ou Boukhara – puis d'établissements structurés autour d'une forteresse et enfin de villes, associées à des banlieues (*rabad*). Cette étude nous en donne à suivre non seulement l'évolution de la distribution dans l'oasis mise en lien avec celle du réseau hydrographique, mais aussi celle de la structuration interne des établissements (sites « tripartites », sites « bipartites » et *tepe* uniques), jusqu'à leur déclin, voire leur abandon. Il en souligne aussi les transformations du fonctionnement socio-économique, en partie liées à celles des grands axes routiers et commerciaux après la chute des Kouchans : déclin de la route de Bactres et ouverture du bras nord-est de la route de la Soie reliant directement Merv à Boukhara qui favorisa les liens entre le Khorasan partho-sassanide et l'oasis. Un autre intérêt de cette approche régionale est la mise en lumière de regroupements ou d'écarts au sein de l'oasis, dont témoigne par exemple le mobilier céramique. Les disparités culturelles relevées entre Boukhara, au sud/sud-est, et Romitan, Kakištuvan et Iskijkat, à l'ouest/nord-ouest, durant les premiers siècles de notre ère suggèrent ainsi, notamment, l'existence de deux entités politiques séparées par le cours

principal du Zerafshan. La méthode favorisée par R. Rante permet aussi d'évaluer l'impact territorial des invasions ou des arrivées de populations extérieures dans l'oasis de Boukhara, et notamment celui de la conquête islamique au début du VIII<sup>e</sup> siècle, qui se traduit par le contrôle militaire des villes, une restructuration sociopolitique et une nouvelle organisation des zones péri-urbaines, sans affecter ni le tracé, ni l'orientation des bâtiments, exception faite des mosquées. Cette vision globale, sur la longue durée, permet enfin de mesurer l'importance relative des différents centres urbains de l'oasis et la manière dont le dépeuplement progressif de zones rurales généra, à partir du X<sup>e</sup> siècle, l'apparition de nouvelles entités urbaines, contribuant à faire de Boukhara la « métropole » de l'oasis, capitale du vaste royaume samanide où se concentrèrent la production, le commerce – et, par conséquent, une large partie de la population au détriment des autres villes –, jusqu'à ce qu'une reprise démographique, à l'époque timouride (fin XIV<sup>e</sup>–XV<sup>e</sup> s.), se manifeste dans les sites principaux et les plus anciens de l'oasis.

*Corinne Debaine-Francfort*

Directeur de recherche CNRS, Directeur de l'équipe Asie Centrale, MAE, UMR 7041

A ces paroles je veux embrasser l'âme de ma mère chérie; trois fois je m'élançai, poussé par le désir, et trois fois elle s'échappa de mes mains comme une ombre légère ou comme un songe. Je me sens alors affligé, et j'adresse à ma mère bien-aimée ces rapides paroles:

Pourquoi m'échappes-tu quand je désire te saisir? Ne pourrions-nous pas, ô ma mère, dans les demeures de Pluton, nous entourer de nos bras et soulager nos cœurs par les larmes? La divine Proserpine ne m'aurait-elle offert qu'un vain fantôme pour accroître encore mes chagrins et mes gémissements?

HOMÈRE, *Odyssée*, livre XI, trad. E. Baresté 1842.



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*Rocco Rante*

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## Introduction

This book presents the results of the numerous research projects realized by the Franco-Uzbek Archaeological Mission in the Oasis of Bukhara (MAFOUB), also through a global reflection on the oases of this vast cultural area. It gives broad and detailed cultural and historical information on a wide territory through geo-archaeological activities. The work on such a large area is prolonged, complex and the book does not pretend to be a final point of knowledge on it. Other research will certainly contribute to complete this huge cultural and historical framework. This book gives, however, a solid and well-structured substrate from which one can extrapolate topics for further studies.

With its source in the Alai Mountains, the Zerafshan River (fig. 1), as Maurizio Tosi observed, is “a green bridge of farmlands and pastures that stretches between the two large rivers [the Syr Darya and the Amu Darya] that flow parallel to the mountains along the southern rim of the Kyzyl Kum” (Tosi 2003: 19). The final section of this river, today the endorheic delta of the Zerafshan, corresponds to the Bukhara Oasis (fig. 2). It is currently oriented southwest, towards the Amu Darya, and is framed by the Kyzyl Kum and the Qara Kum. This geographical setting linked the region with the core of the Iranian lands to the south, with Khorezm and the nomadic regions to the north, and with China and the Far East to the east. Over millennia the Zerafshan delta has witnessed different kinds of human occupation, which have always depended on water resources. But, did these water resources and geo-climatic events change over time? How did they adapt to geo-climatic changes? How did these human settlements use water resources, and how did they manage them? Once we have explored and understood the links between human behaviour and water, how do we define human evolution in this region, and what has happened in the urban agglomerations? Finally, since this region is located at the crossroads between Mediterranean and Far Eastern civilisations, how have all these aspects contributed to the global development of these civilisations? And, more specifically, in what way have these been influenced by the neighbouring Irano-Khorasanian cultures?

To attempt to answer these questions, in 2009 the Department of Islamic Art of the Louvre Museum, in collaboration with the Ministry of Foreign Affairs, the Archaeological Institute of Samarkand and the Uzbek Academy of Sciences, opened an archaeological mission in the Bukhara Oasis. This archaeological mission follows earlier archaeological activities in Nishapur (Rante and

Collinet 2013), which later also included the whole Khorasanian area, in which similar cultural aspects have been identified also behind the Amu Darya, especially in the Zerafshan delta (Rante et al. 2016).

In essence, the goal of this program is to study the population and depopulation of the oasis. The primary object of the investigation is the “oasis space”, followed by the urban and domestic spaces, and then the socio-economic factors of the cities in the oasis. Its aim also is to reconsider the urban and cultural phenomenon in this region, treating and comparing it to the “Khorasanian cities” and to the more distant Iranian ones. In this context, an in-depth study of the material culture is indispensable – an understanding of the local and imported manufacturing production, as well as of the commercial exchanges with Iran, and with the west and the east, is crucial in this research.

The scientific programme comprises several research axes. A geomorphological study of the region, realised with the collaboration of Eric Fouache (La Sorbonne, Paris IV) and Claude Vella in 2013 (Aix-Marseille University, CEREGE<sup>1</sup>), focused primarily on the study of the paleo-hydrographic network of the oasis, with the aim of developing a geomorphological map. An archaeological excavation is at present concentrated on Ramitan, Paykend and Iskijkat (fig. 1); the systematic survey of the region (oasis and its neighbouring areas) combining archaeological and satellite approaches; the topographical work on the main sites of the oasis, of which a large part is carried out with aerial techniques; the study of the ancient landscape carried out in collaboration with Valérie Andrieu-Ponel (Aix-Marseille University, IMBE<sup>2</sup>). A historiographical study, in collaboration with Florian Schwarz (Institute of Iranology of Vienna), is focused on identifying the main cities of the oasis in relation to different written sources of the 10th, 12th, 16th and 19th centuries. A socio-archaeological study, in collaboration with Luigi Tronca (Verona University), is conducting a network system analysis of some of the cities in the oasis. An ethno-archaeological study, in collaboration with Ilaria Scerrato, is studying the relations between 9th-century and contemporary domestic spaces in Paykend, as well as some of the cooking utensils. A study of the material culture is being carried out by different teams: the

1 CEREGE refers to the Centre Européen de Recherche et d'Enseignement en Géosciences de l'Envi, Aix-en-Provence.

2 IMBE refers to l'Institut Méditerranéen de la Biodiversité et d'Ecologie Marine et Continentale.

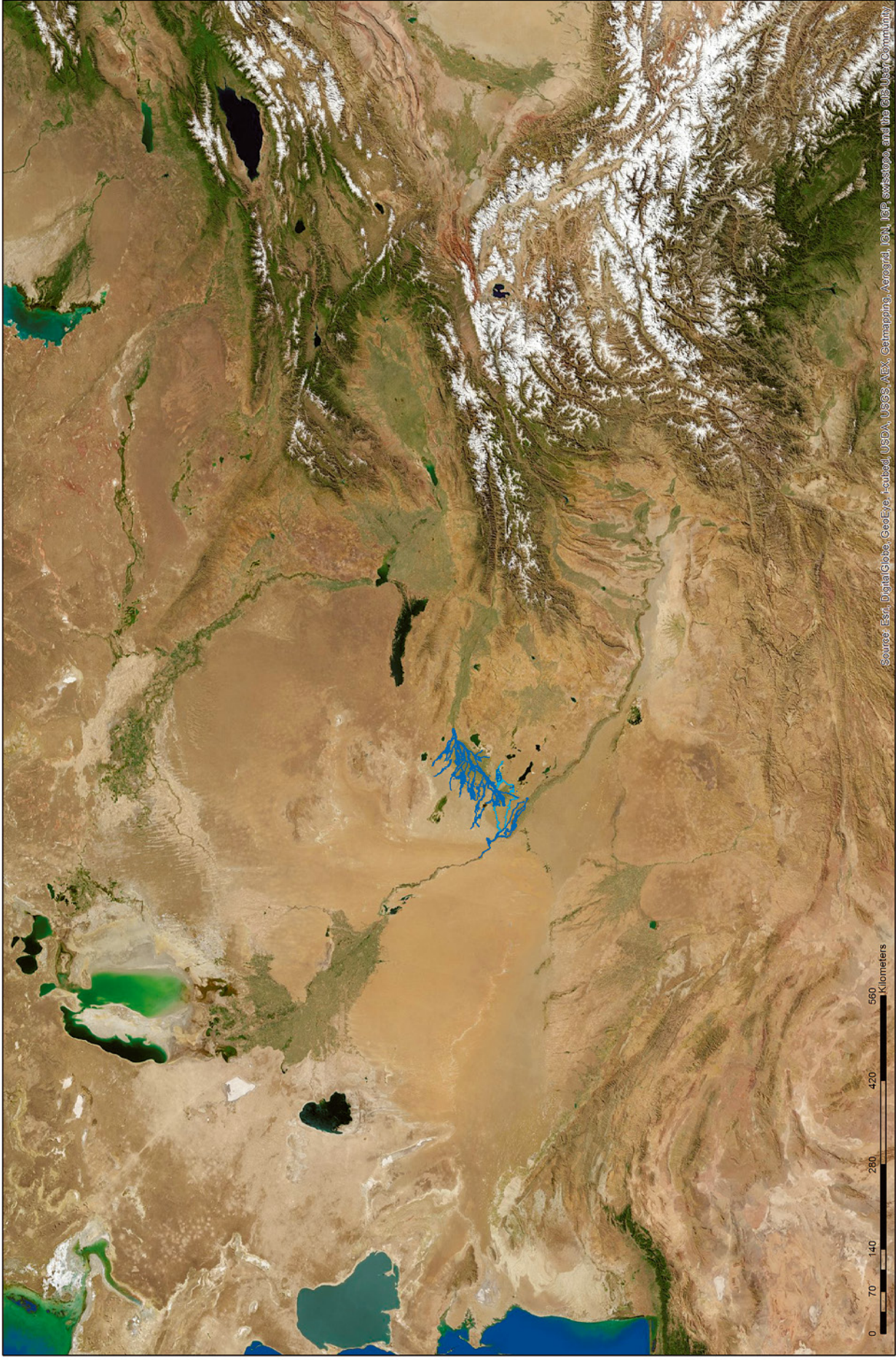


FIGURE 1 Geographical map of western Central Asia and Zerafshan  
ESRI IMAGERY 2018

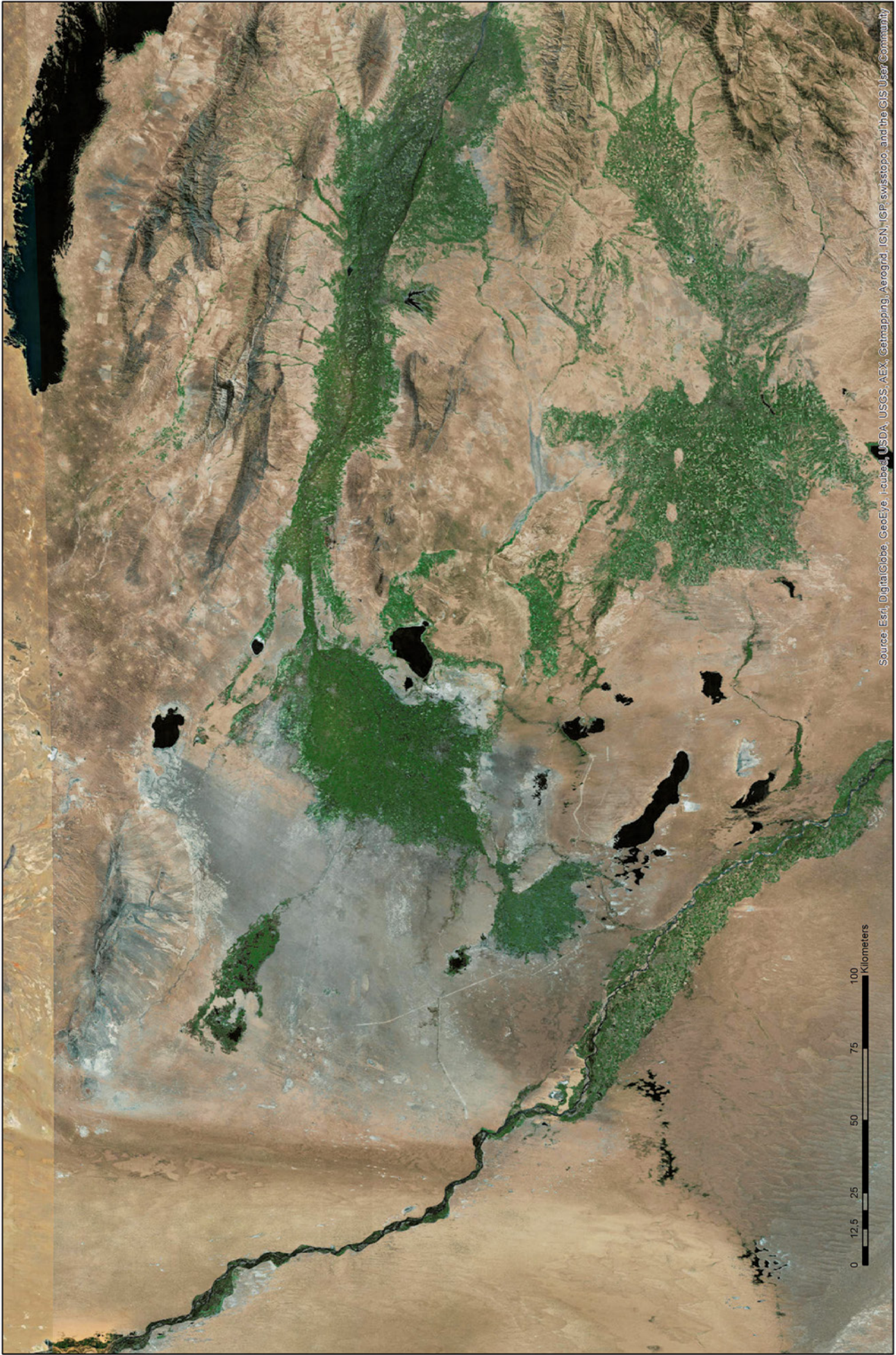


FIGURE 2 Geographical map of the oasis  
ESRI IMAGERY 2018

ceramics are being studied by a CNRS<sup>3</sup> team; the glass is the responsibility of Yoko Shindo, in collaboration with Waseda University; and the GIS and Web-GIS are being elaborated with the collaboration of Rilievi s.r.l.

The aim of this monograph is not to analyse each of the elements that make up the contents of this programme, nor is it to introduce more accurately the different scientific axes referred to above. A section of these activities is yet to be completed. Rather, its aim is to understand the evolution of the population, depopulation and settlement in the oasis. As such, it focuses primarily on the geomorphological activities (Fouache et al. 2016) that have brought to light the several transformations in the landscape, and on the surveys carried out by the French-Uzbek Archaeological Mission in the Bukhara Oasis (MAFOUB) which, since 2011, has been recording the various human occupations of the oasis.

More than a thousand sites, a multitude of watercourses (natural and artificial), the dynamics of destruction and reconstruction (in the past as well in the present) and all the other elements that have characterised the occupation of the oasis, illustrate the difficulty of this approach, and the difficulties involved in choosing the best methodology. This book therefore has its limiting factors, the major one residing in a survey of such a vast area, and of such a large number of sites. Another such factor has been the extreme dynamics of construction and destruction that have always characterised the oasis, sometimes necessitating a delicate exercise in interpretation, supported nevertheless by solid archaeological data.

This methodological approach is based on lengthy and substantial work in the field, which guarantees the most important feature required: robust archaeological data brought to light from excavation, and intense laboratory analyses, underpinned by hard science, able to support solid comparisons, reconstitutions or hypotheses. This approach, therefore, differs greatly from those based on interpretations issuing from subjective beliefs, whether from contemporary or ancient sources. Moreover, modern technology has strongly supported the surveys conducted, notably employing different types of satellite imagery, which has produced solid data, comparable in the field.

The merit of this book is therefore that it delivers as detailed as possible a set of data relating to the evolution of human occupation, socio-economic dynamics and urban and material cultures in an area covering circa 5,000 km<sup>2</sup>. From a wider perspective, the other merit of the scientific programme is to have worked in a pluri-disciplinary field, in which different specialists have shared data and experiences in order to achieve the best results.

Although the book is divided into two parts, “The Survey” and “The Excavation”, all results are the synthesis of both operations, which have been conducted together from the very beginning. Thus, the survey presented in Part 1 benefited from the precious archaeological results, which are presented in Part 2.

Earlier scientific literature has been crucial to the understanding and pursuit of the study, and will be referred to throughout the text. Pioneering works, such as those conducted by Shishkin between the 1930s and 1950s, have been very important and a source of inspiration. This book, however, produces new and additional results to complete and correct earlier publications. It also completes a large framework of regional investigation, something that is unprecedented (global comparisons between the oasis of Bukhara and the other geographical areas of Central Asia, which will be presented in further studies).

## 1 Methodology

The scientific programme comprises a comprehensive geo-archaeological operation, as well as different historical, social scientific and material culture programmes, but this book deals only with the geo-archaeological operation, which can be divided into different phases: (1) a geomorphological survey of the territory; (2) an archaeological survey of the settlements of the region, in which are included an extensive work on topography; (3) and an excavation of the main sites.

The survey of the Bukhara Oasis – both archaeological and geomorphological – was achieved in three steps. The initial step was to collect maps, ancient as well as recent, and all kinds of documents concerning the region. The second, was to carry out an archaeological survey, site by site, which would depend on the nature of the earlier data. The last step involved digitalising all the data and integrating them into a GIS model.

During the first step, several maps were employed. The first was a geographical map based on Esri Imagery. Its resolution, better than that of Google Earth, permitted us an initial check of the sites, which we later verified on other maps, as well as in the field. The 1893 (fig. 6) and 1989 maps (fig. 7<sup>4</sup>), the most complete maps of the oasis, were very useful in establishing the evolution of the site and its differing conditions. While the former map was especially helpful for identifying the watercourse network and its limits in the 19th century, as well as for understanding ancient city toponyms, the Soviet map was useful for identifying the *tepe* of the oasis and the territorial evolution of the watercourse

3 CNRS refers to the Centre National de la Recherche Scientifique.

4 The data for this map were collected between the 1960s and 1970s.

network. In relation to the sites, here identified as *tepe*, it must nevertheless be stressed that the Soviet map in no way indicated all of the archaeological sites; often, they were either not taken into consideration or else forgotten. Moreover, that topographical map was the fruit of a large-scale topographical survey, so it also recorded several sand or ground mounds that were the result of modern works. Furthermore, many archaeological mounds had been destroyed, for a variety of reasons, before the inception of this 20th-century Soviet territorial programme.

A topographical map, the *ASTERDEM\_1*, has also been used as graphic support because of its detail (30 m), greater than that of the other types of map, such as *SRTM3* (90 m) or *SRTM30* (1 km).<sup>5</sup> Even if this topographical map alone is not really adapted to the precise identification of the *tepe*, considered alongside the other maps, it has provided good support.

Different satellite images have also been used, such as *Landsat 7 ETM+* with different colour combinations, so as to provide a more efficient background for the surface cover, such as sand, green or marshy areas. It has proved very useful for the survey in the field.

Finally, different *SPOT* satellite images have also been used. The images were very useful in desert areas where identification via satellite was unavailable, and where the old military maps had not identified all the sites. As can be observed in Figure 3, the *tepe* of *Varakhsha*, today in a flat sandy and arid steppe area, is perfectly detectable.

The second step involved a survey of the whole oasis. This operation followed on from a survey carried out in 1990 by the Archaeological Institute of Samarkand under the aegis of the Academy of Science of Tashkent (fig. 4), which the latest research, with the aid of advanced technologies, has revealed as largely incomplete. A first reconnaissance carried out by *MAFOUB* in 2009, in the field as well as via satellite, had already shown that the sites were much more numerous than described in former surveys. A new, more in-depth survey was therefore required, as will be shown below. Once all the data was acquired and studied, a selection and a typological division of the sites will be carried out. The different typologies will be organised into a chronological sequence and then studied in the context of their individual water and road networks.

In Part 2, all data are studied together with the excavation contexts. The extensive archaeological activity over several sites within the whole oasis (fig. 5) provides us with data with which to identify this settlement distribution within a chronological scale. One of the results is a superposition of settlement layers related to every geographical element recorded. Finally, human settlements are studied

in their complexity, dealing with their foundation, structural conception, defensive system and urban setting.

Accurately identifying the sites within the oasis to be excavated has been one of the most important considerations. It has, in fact, been possible to compare the results obtained with those of the other sites, which globally have shown a homogeneous cultural evolution (obviously including specific markers) within the oasis over the centuries. This trend continued until the 10th century, when Bukhara became the capital of the extensive Samanid Emirate, concentrating within its area production and commerce, and thus a large part of the population of the oasis and from elsewhere. Each site excavated, therefore, was chosen for its territorial, topographical and historical peculiarity, and every site differs from the others, thus providing cultural markers to be taken as references for the global study.

These operations were directly linked to the last step, the creation of a GIS of the Bukhara region,<sup>6</sup> which today seems to be a trend in the discipline, and which unfortunately often is badly conceived, or badly managed, or poorly thought out at the beginning and much too complex and therefore never completed.

So, why a GIS? Basically, a GIS is an information system designed to collect, stock, manage, analyse and present data that, when their nature is cartographical, are geo-referenced by spatial co-ordinates. It therefore is a databank in which files are geo-referenced in the space, and an environment that manages spatial graphic objects connected with the databank. Every traditional operation associated with data archives is connected to this. It means that each GIS is conceptualised on the basis of the characteristics of the precise objective of the research, determining it, first, by its geographical or territorial – but also administrative – peculiarities, then by means of all data involved in the objective of the research.

It is therefore necessary, first, to develop a system in which “all” characteristics are considered, and in which the aims are well determined. I should add that the conception of the former system should also consider the priorities of the research, because it is very difficult, or even impossible, formally to provide a system for all possible developments. A GIS could, however, constantly be fed new data. I thus suggest a GIS conceived in different steps, each one conceived specifically for its purpose, guaranteeing that the final package is more useful.

In relation to our research, the need to create a GIS is the result of three specific factors: the extensiveness of the area studied, the complexity of the geo-archaeological

<sup>5</sup> SRTM refers to NASA's Shuttle Radar Topography Mission.

<sup>6</sup> In this framework, I constituted, with the collaboration of the Rilievi s.r.l., a Web-GIS, which can be consulted at [www.mafoub.com](http://www.mafoub.com).

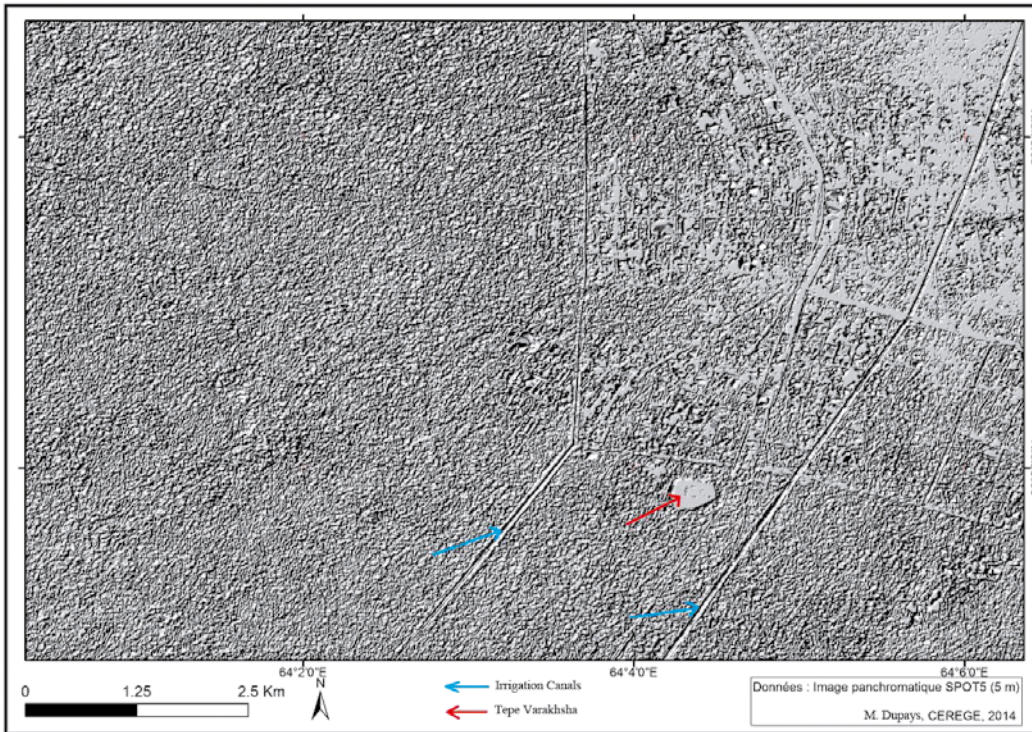


FIGURE 3 SPOT image of the area of Varakhsha



FIGURE 4 Maps of the largest Uzbek surveys concerning the eastern side (Mirzaakhmedov et al. 2002) and the western side (Shishkin 1940) of the oasis



FIGURE 5 Map showing the excavated sites  
ESRI IMAGERY 2018; RANTE 2016

aspects of the region, and the significant quantity of data collected. Specifically, in terms of our geo-archaeological research, the GIS database will consist of two macro sections: the surveyed sites and the excavated sites.

All archaeometric analyses are indicated through the reference of the report received or the sample reference number. No graphs are provided in this book, because they will be globally presented in *The Oasis of Bukhara* Volume 3, which is consecrated to material culture and analyses of the materials.

## 2 Earlier Works

There are a number of earlier investigations of the Bukhara Oasis.<sup>7</sup> Without relating all of the pre-20th-century activity, which could often better be described as explorations rather than archaeological activity, some examples of these can, however, be proposed. After the 16th–17th centuries, when investigations conducted by a *marchand-diplomate* (Gorshenina 2003: 32) were the best reason to be in the field, the investigations, especially from the 18th century onwards, had a pluri-disciplinary profile, as in the case of Alexander Fedorovich Negri (1784–1854), chief counsel of the Russian Embassy, of Greek origins, who on 3 July 1820 was put in charge of a diplomatic mission in Bukhara, with the aim of finalising commercial agreements between Saint Petersburg and Bukhara (Eversmann 1823). Negri's expeditionary force in fact comprised different specialists in different disciplines, of which Meyendorff, Volkonsky, Timoteev, Tafaev and Artjukov were charged with making the strategic observations and a map; Eversman was the expedition's doctor, and K. Pander the naturalist. Another example of an earlier investigation of the Bukhara Oasis are the first archaeological notes made by the British diplomatic agent Alexander Burnes (1805–41), who was sent to Lahore for diplomatic purposes and who then travelled into the Hindu Kush, Bukhara and Persia, returning to London in 1833 (Burnes 1834). John Arrowsmith drew a geographical map from Burnes's observations. One expedition in particular marked the end of the epoch of diplomatic travellers. This was conducted by the military topographer N.S. Sitnjakovskij in 1896, and still today provides us with a wealth of information about how the oasis was administered, as well as a good deal of

precious geographical and historical data (Sitnjakovskij 1899).<sup>8</sup>

In the first decade of the 20th century, L.A. Zimin investigated different areas of the oasis, focusing especially on Paykend, where he opened an excavation (Zimin 1913, 1914, 1915). From the 1920s, investigations were accompanied by more in-depth surveys, as well as excavations. Between 1920 and 1934, a survey and a study for protecting the monuments of the oasis were organised by the Committee for the Protection of the Historical Monuments (Bukhkomstaris). From the 1930s, these territorial investigations finally passed into the hands of specialists and archaeologists (Shishkin 1963: 13–31).

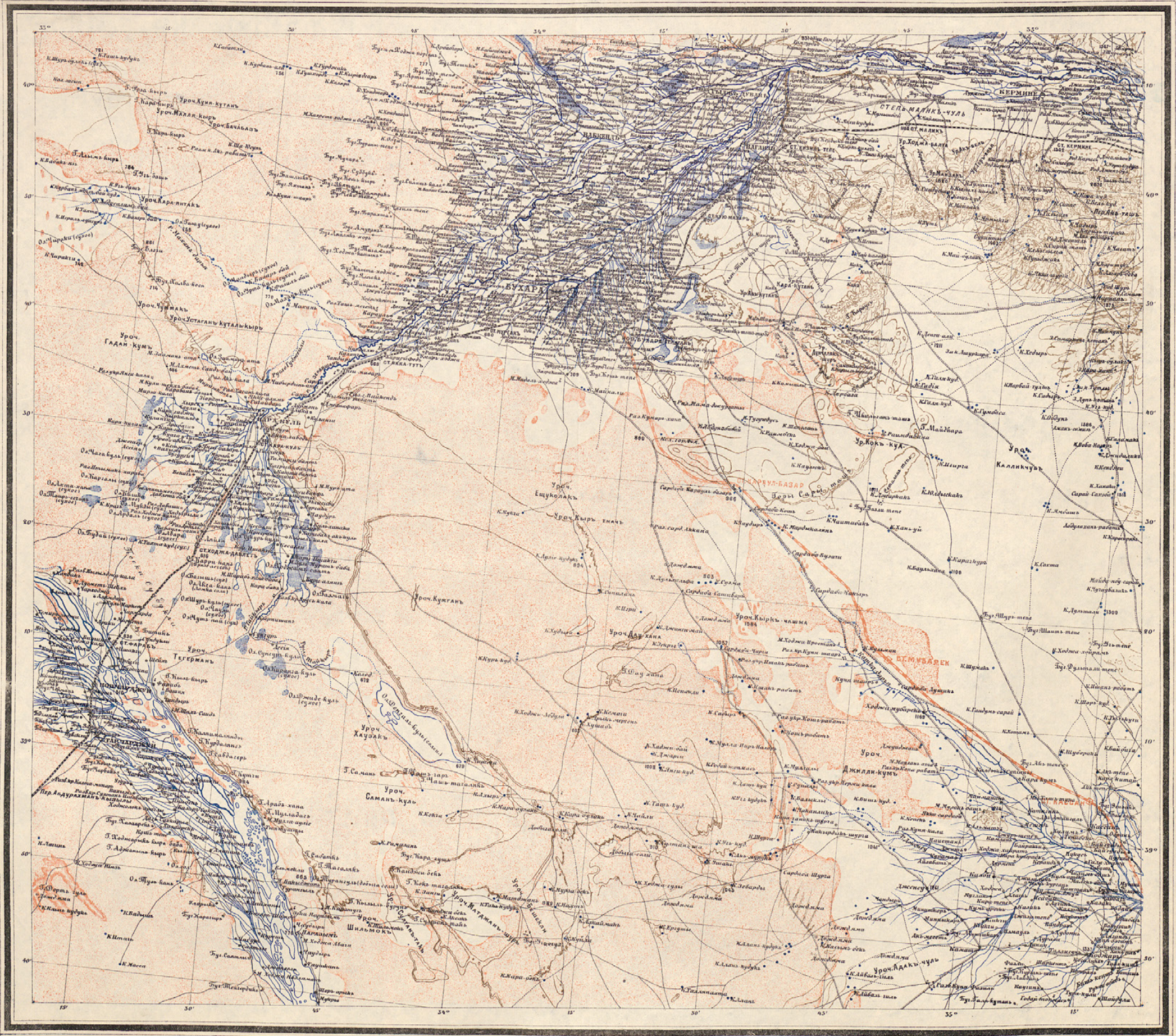
The first extensive survey organised by Soviet archaeologists, under the aegis of the Hermitage Museum, was directed in 1934 by A.J. Yakubovskij (1940: 95–125). Since the 1950s, there have been several studies that could be referred to, Soviet specialists being very active in Central Asia. As far as surveys of the Bukhara Oasis are concerned, and focusing especially on its hydrographic network, the studies of Mukhamedjanov (1975 and 1978) should be one of these references, followed by that of Adilov (2006). Other archaeological studies, especially that of Guljamov, Islamov and Askarov (1966), provide further information on chronology. After 1937, Shishkin carried out an extensive survey, especially of the western area of the oasis (Shishkin 1940). The archaeologist rapidly published the results, which consisted of topographical sketches of some of the historical sites, as well as descriptions of the monuments observed. In 1985, the Archaeological Institute organised an expedition in this western area and recorded more than 80 monuments, which have been the object of a typological study (Mukhamedjanov et al. 1990).

More recently, two Italian missions have engaged with this territorial study. The first one, directed by Bruno Genito, of the University "L'Orientale" of Naples, aimed to survey the whole oasis. Unfortunately, no part of this ambitious programme was accomplished, and only 42 sites in the Shafurkam area were recorded (Genito et al. 2001: 73–74). The second mission, directed by Chiara Silvi Antonini, was less ambitious than the earlier one, but it reached its objective of publishing the Uch Kulakh excavation (Silvi Antonini and Mirzaakhmedov 2009: 43–180) and a circumscribed but very useful survey of the Varakhsha area (Cerasuolo 2009: 189–210).<sup>9</sup>

7 In relation to the numerous explorations of – and journeys to – Central Asia from the Middle Ages to contemporary times, see Gorshenina 2003. For a complete study on Central Asia, globally defining its topography, climate and geography and minutiously investigating its political, social and economical history, see Paul 2012.

8 As Barthold reminds us (Barthold 1981: 113, n. 3, 6), Sitnjakovskij also identified historical vestiges.

9 Concerning this, see also Shishkin 1940, fig. 18.



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FIGURE 6 Geographical map, 1893  
STAATSBIBLIOTHEK, MUNICH 1926

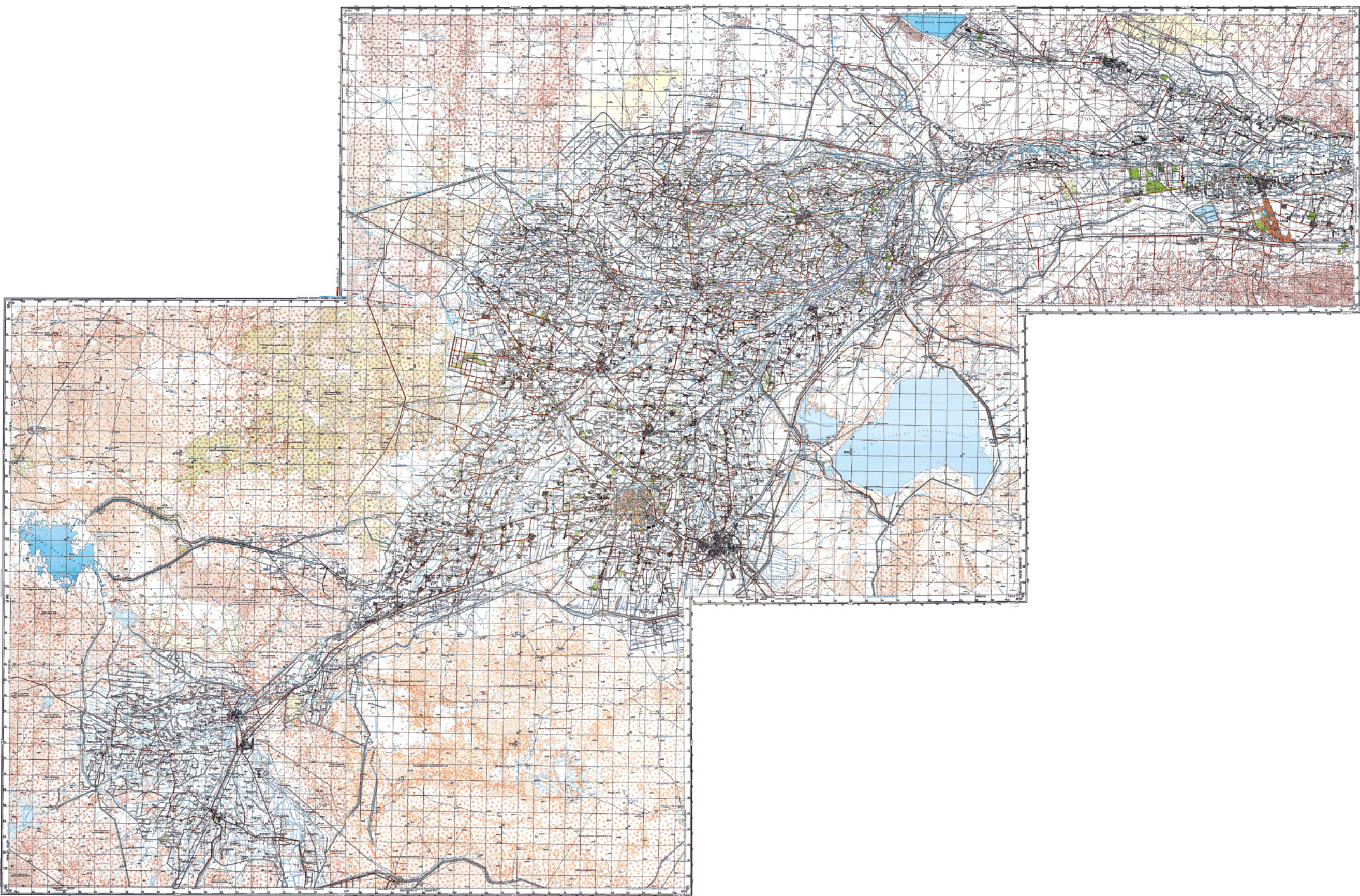


FIGURE 7 Topographical military map, 1950s–1980s  
URSS 1989

**PART 1**  
*The Survey*

∴



# Landscape and Human Dynamics

## 1 The Zerafshan Landscape and Its Evolution

Today the final section of the Zerafshan River flows along a north-east/south-west main channel, to which is connected a dense network of irrigation and drainage channels. Looking at a regional map or satellite image (fig. 8), a large number of these canals obviously follow paleochannels of the Zerafshan River, and this river clearly underwent important changes during the Pleistocene and Holocene.

Geological, tectonic, geomorphological, climatological and hydrological aspects of this area have been surveyed by the geomorphologists of the Franco-Uzbek mission since 2011.<sup>1</sup> This has facilitated the reconstitution of the channels occupied by the Zerafshan River since the Pleistocene, and samples for OSL dating have been retrieved from various paleochannels (fig. 9). Taking into account the scale of geomorphological dynamics is a necessary prerequisite for any attempt at reconstructing the location and chronology of irrigated soils during different periods.<sup>2</sup> The geomorphological survey demonstrated the extreme mobility of the channels of the Zerafshan River, and the scale of those shifts of a transect of 100 km over the past 10,000 years, these shifts inducing a displacement of the human settlements and main roads.

As previously observed, the joint oases of Bukhara and Qaraqöl are located in the south-eastern part of Uzbekistan (fig. 10). Covering approximately 5,000 km<sup>2</sup>, it is bound to the north by the Kyzyl Kum, a huge erg, and to the south by the Qara Kum. To the west flows the Amu Darya River, with a south-north course. To the east, the Zerafshan Valley is bordered by ranges of cretaceous limestone.

This area is affected by the Himalayan collision (fig. 11). Active south-east/north-west slip faults can be observed, as well as overlapping fronts in a context of compression, as can be seen along the Kouldouktou chain, north of the Bukhara Oasis and between the oases of Qaraqöl and Bukhara, where a Neogene plateau corresponds to a horst. The area studied corresponds to alluvial plains (fig. 12) with an average altitude of 260 m in the east and 200 m in the west, on a 200 km-long transect, linked to

an area of active subsidents during the Plio-quaternary period.

During the last glacial period (between around 115,000–11,700 years ago), the Zerafshan River had a regime of torrential spring and summer discharges that built a vast alluvial plain. From the tardo-glacial period the river became an endorheic periannual river with a permanent discharge.

The climate of the Bukhara Oasis, a cold desert, is arid. The Zerafshan River is the only source of water for agriculture and human activities. With a drainage basin of 143,000 km<sup>2</sup>, the river originates 741 km upstream from the Alai Mountains and the Zerafshan Glacier in Tajikistan. It has a nivo-glacial hydrological regime, and 97 per cent of its discharge is generated in Tajikistan. At the border between Tajikistan and Uzbekistan, the average discharge rate is 170 m<sup>3</sup>/s. Until the 1960s, the Bukhara Oasis only received water for irrigation from the Zerafshan River, but in the early 1970s, a canal was created from Amu Darya to the oasis. Today, some 1.2 million people live in the oasis, and more than 230,000 ha of land are irrigated. At the end of the 1980s, the oasis began to suffer from serious water-related environmental problems, such as land salinity, waterlogging (Abdullaev 2004) and anthropogenic pollution (Olsson et al. 2013). Seasonal flooding was a benefit and was never seen as a hazard.

For 3,200 years climatic conditions have marked a gradual aridification of Central Asia, as shown by Lioubimtseva (2005). At present, the climate in Central Asia is defined as semi-arid.<sup>3</sup> In the Bukhara Oasis annual precipitation amounts to approximately 160 mm, and “dry-crop” agriculture is more or less impossible. In this climatic framework, settlements in oases and irrigation have proved necessary.

Geomorphological mapping of paleochannels within the Bukhara and Qaraqöl plains relied on Russian topographical maps on a 1:50000 scale and on spatial imagery drawn with ArcGIS for GIS and with IDRISI Selva software for geoprocessing satellite images. Multi-source geodatabases, Russian topographical maps, satellite images, Landsat, SPOT and others were also employed. All data were georeferenced in the same geographic reference (GCS-WGS1984).

<sup>1</sup> For a more complete and detailed article, in which OSL tableaux also are included, see Fouache et al. 2016.

<sup>2</sup> See Gardin and Gentelle (1979) for the Ai Khanum region and Fouache et al. (2012) for the Balkh River in Afghanistan.

<sup>3</sup> See Francfort and Lecomte 2002.

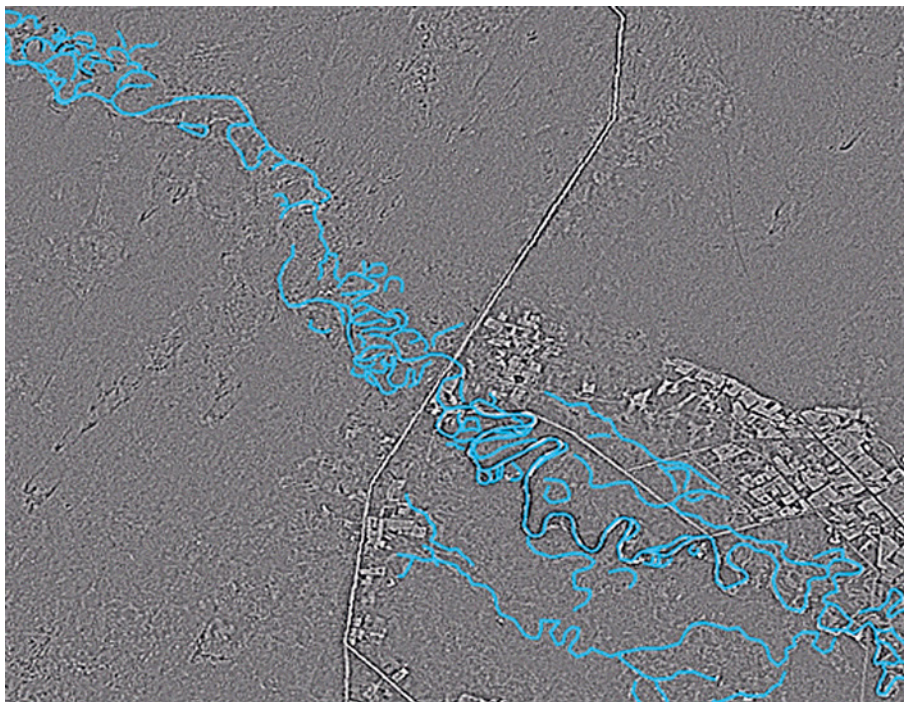


FIGURE 8  
Satellite map of paleochannel  
FOUACHE AND RAGALA 2015

The map (fig. 13), validated by field observations, revealed eight generations of paleochannels, which we attempted to date in two ways – in relative and absolute terms. We argue that the location of the settlements in relation to the channels allows for the dating of some of the generations of paleochannels relatively, essentially from the Neolithic to the Bronze Age. In order to establish an absolute date, we used OSL on samples taken to a depth of 2 m from different sedimentary layers of silty sand from five paleochannels identified on the image and in the field. These two chronological approaches (archaeological mapping and OSL dating) allowed us to reconstruct the generations of paleochannels and to shed some light on the geomorphological evolution of the Bukhara and Qaraqöl plain since the end of the Upper Pleistocene.

Eight sedimentary beds, on five paleochannels, were sampled for luminescence dating (OSL) carried out by Antoine Zink and Elisa Porto.<sup>4</sup>

Basing ourselves on correlations between the periods identified through archaeological data and OSL dating, we obtained some very remarkable data (fig. 14), through which we determined that one paleochannel dated to -188300, one to -129600 and one to the last glacial period. Two paleochannels were active during the Neolithic, and two other paleochannels were active from the Late

Neolithic to the Bronze Age. Human occupation located along the Zerafshan's present main channel, especially those along its upper section, such as Iskijkat, and lower section, Paykend, as well as those around the Qaraqöl micro-oasis, cannot be dated earlier than the 3rd century BCE, the last established translation of the Zerafshan main channel.

Generally speaking, a translation of the Zerafshan River was observed from an active fan centred channel on the Bukhara Oasis to, more recently, a more active one centred on the Qaraqöl oasis, showing the river's extreme mobility, a dynamic due to a classic avulsion process (Fouache et al. 2016).

During the Last Glacial Maximum, an acceleration in the decrease of glaciers caused the melting of the glaciers in the upper Zerafshan Valley, which is at the origin of mass-movement on its slopes, possibly triggered by earthquakes that generated temporary dams.<sup>5</sup> When a temporary dam is broken, it generates a wave sufficiently powerful to generate an avulsion some 400 km below.

Most authors explain the abandonment of the archaeological sites, especially during the Neolithic and late Bronze Age, as having been the result of global climatic changes and regional and local aridification (e.g. Francfort and Lecomte 2002). MAFOUB's results suggest,

<sup>4</sup> Luminescence researchers of the Research and Restoration Centre of the French Museums (C2RMF).

<sup>5</sup> Russian geologists have mapped a series of this mass movement. See Strom 2013.



FIGURE 9 Map of the drainage basin of the Zerafshan River  
ESRI IMAGERY 2018; FOUACHE AND RAGALA 2015

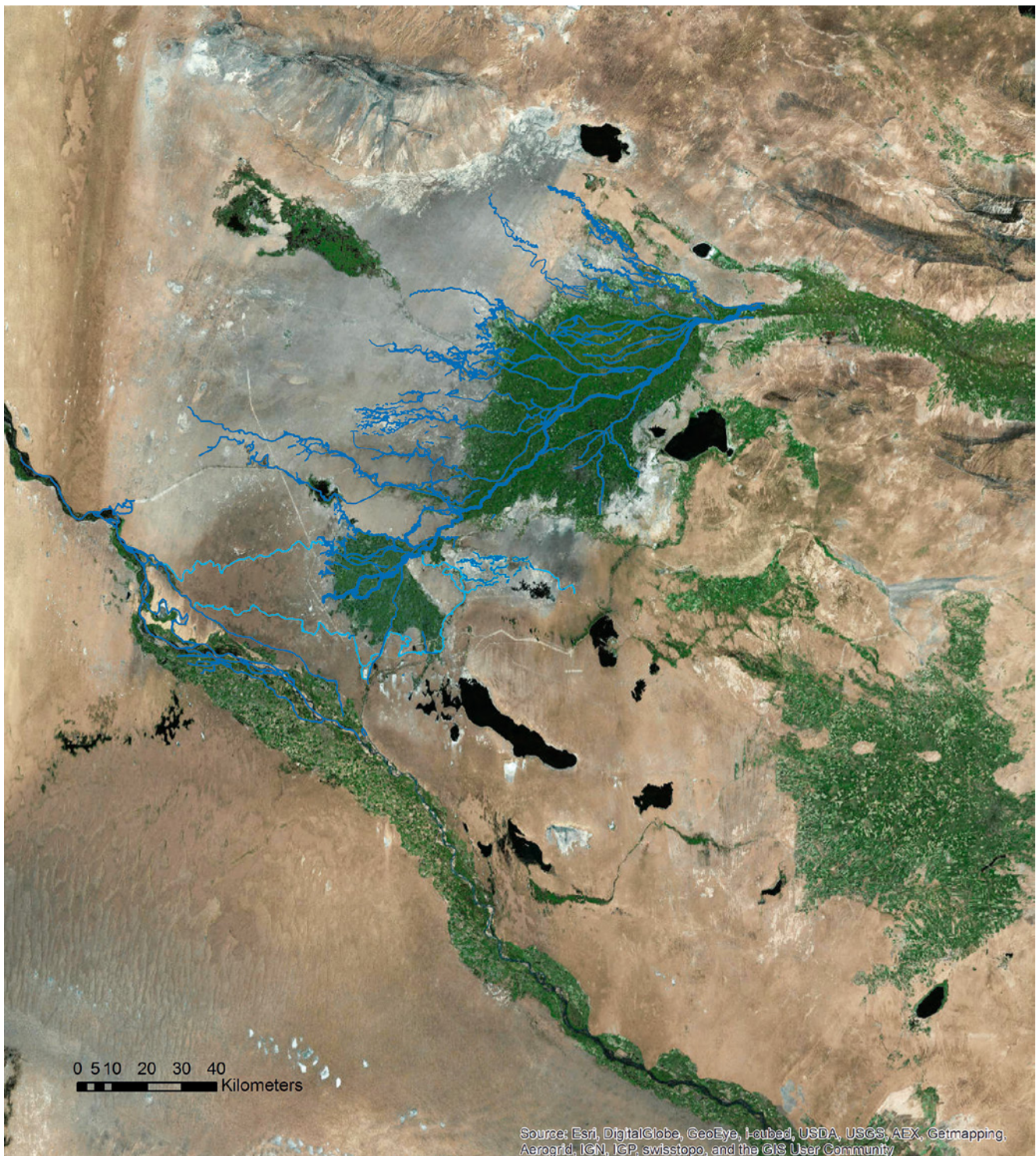


FIGURE 10 Map of the oasis of Bukhara and Qaraqöl with paleochannels  
ESRI IMAGERY 2018; FOUACHE, RAGALA AND RANTE 2015

however, that in some cases a change in the course of the Zerafshan River may also have been the cause of a drastic alteration.

In this new geomorphological dynamic, how have these changes influenced human settlements? MAFOUB'S recent archaeological excavations and surveys, together

with a study of the earlier works, elaborated different archaeological maps presenting the evolution of human settlement in the oasis region from the Neolithic to the early medieval period (10th–12th centuries CE). I will give an overview of the more ancient periods and examine this evolution in depth from the 4th century BCE.

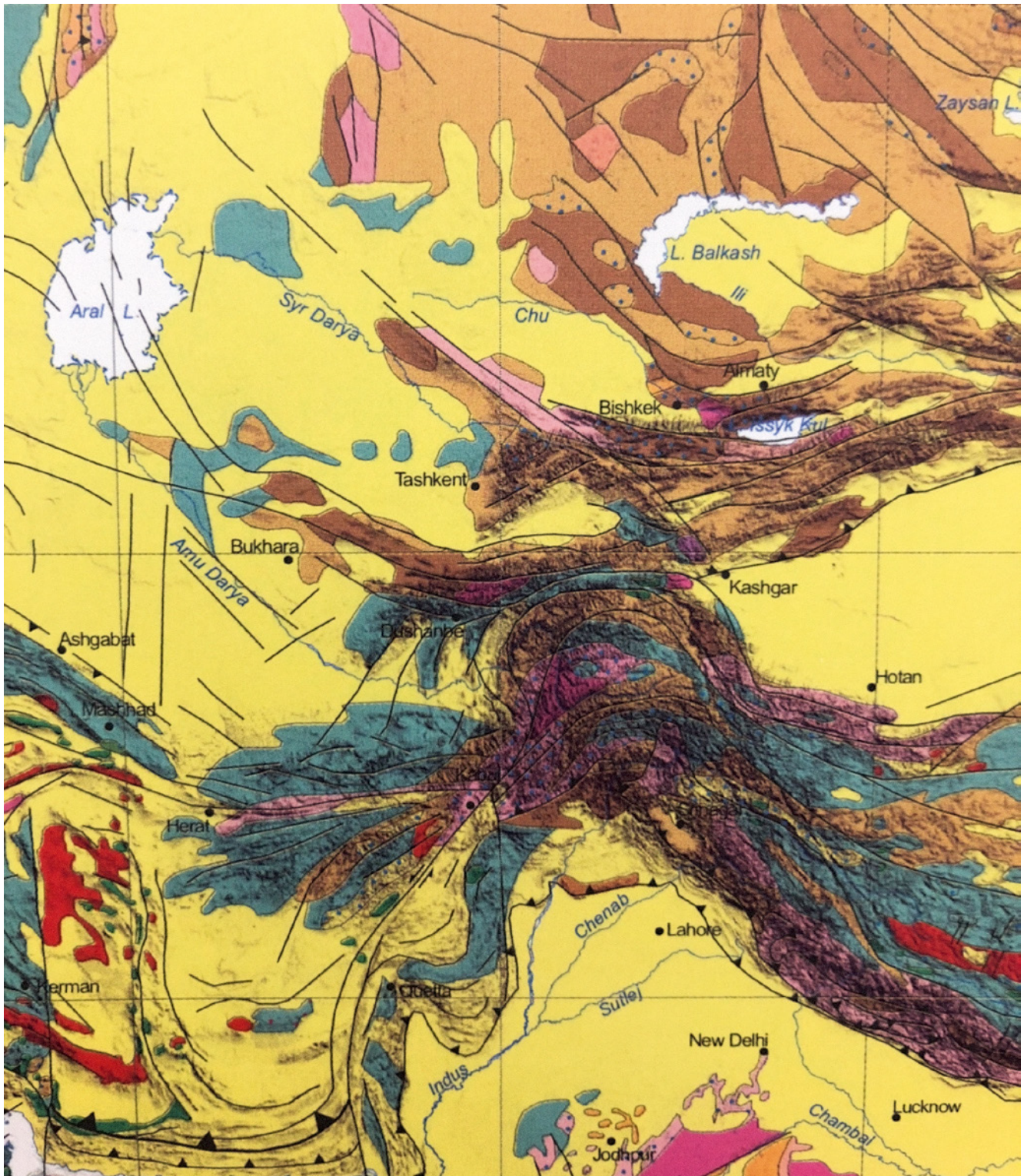


FIGURE 11 Geological map of western Central Asia  
GEOLOGICAL MAP OF THE WORLD, BOUYSSÉ 2014 CGMW

## 2 Human Occupation from the Neolithic to Antiquity

Before the 4th-century transformation of the main channel of the Zerafshan River, mostly during the Neolithic

and Bronze Ages, human occupation was concentrated mainly at the ends of channels or around lacustrine areas (fig. 15). As previously observed, the surveys carried out by Frédérique Brunet identified important Neolithic settlements north of the oasis, which I am indicating only with

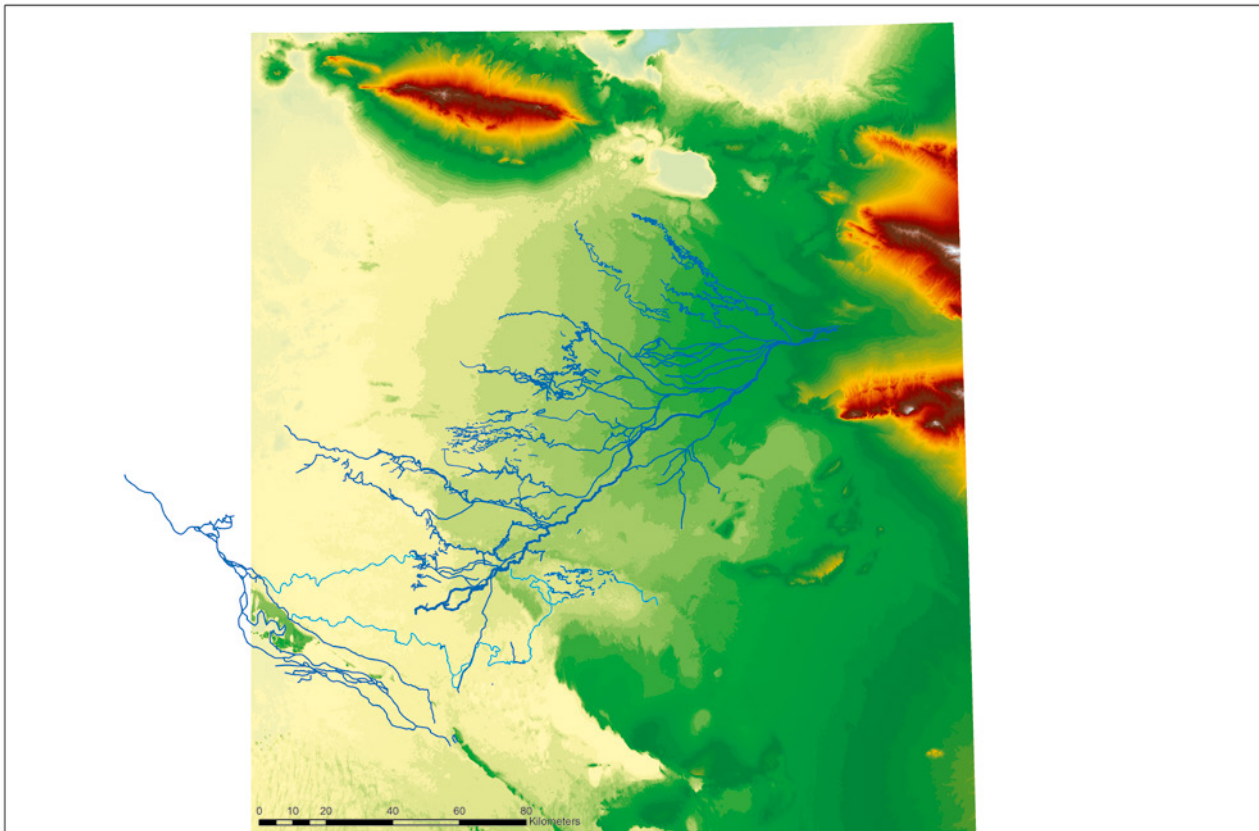


FIGURE 12 SRTM map of the drainage basin of the Zerafshan River  
FOUACHE ET AL. 2015

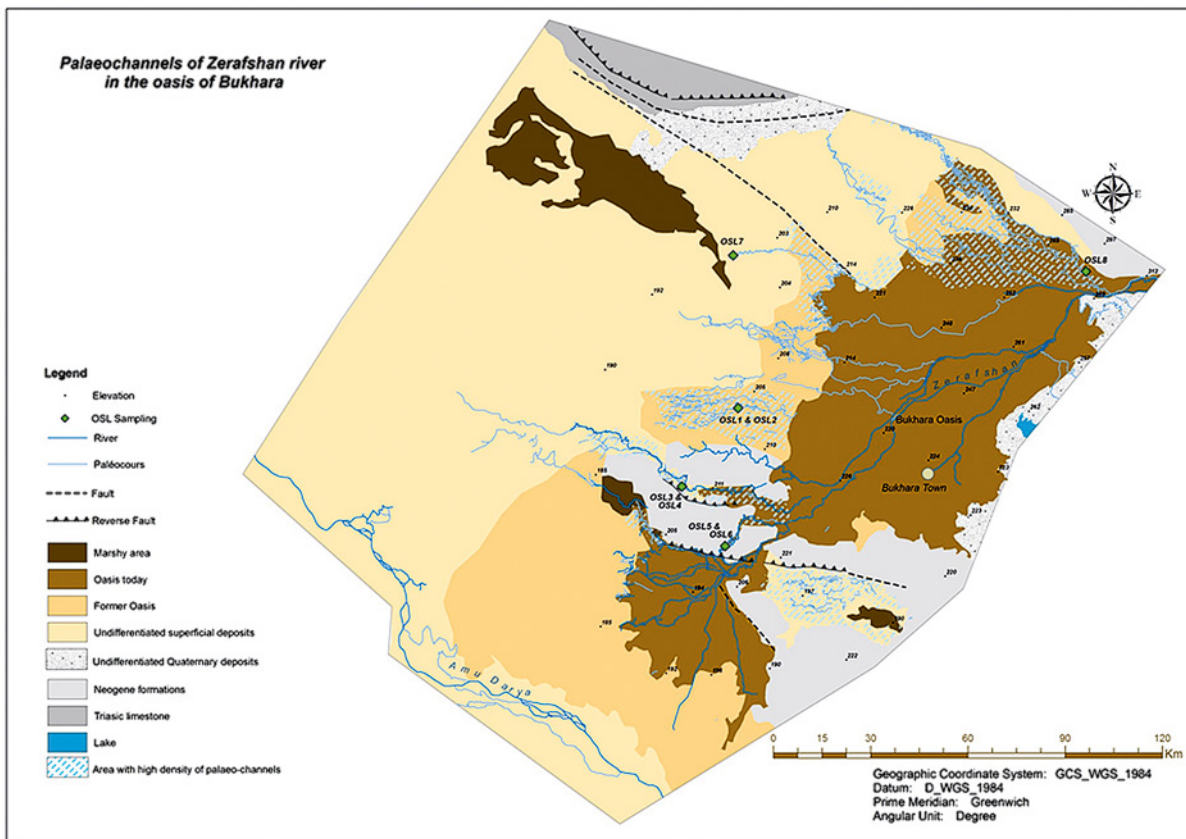


FIGURE 13 Geomorphological map  
FOUACHE ET AL. 2016

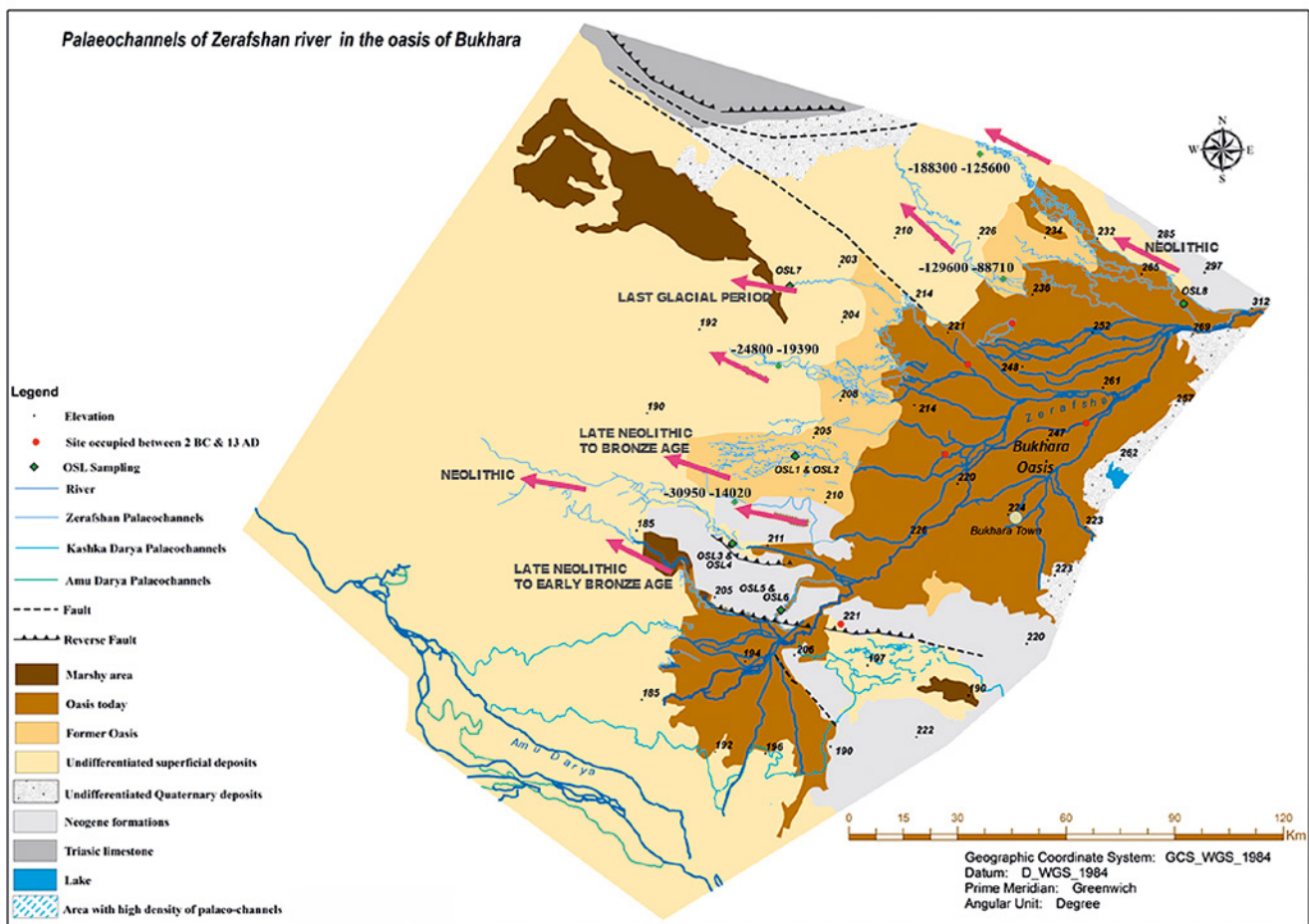


FIGURE 14 Geomorphological map with OSL dates  
 FOUACHE, CEZ, RANTE, ZINK AND PORTO 2017

a pale red circle.<sup>6</sup> Old surveys, confirmed and to some degree completed by MAFOUB's more recent ones, showed Neolithic human concentrations in the south-western area (Guljamov, Islamov and Askarov 1966: 17, fig. 3; 20, fig. 4) and in the eastern area, also called the Kum Sultan area (Guljamov, Islamov and Askarov 1966: 41, fig. 17),<sup>7</sup> where remains of the Kashka Darya ancient path are still visible today in the presence of paleochannels, as well as small lakes.

Bronze Age culture could be identified in the south-western and western areas (fig. 16). In the current state of research, no traces from the Bronze Age have been identified, either inside the oasis or elsewhere. To date, all sighted settlements have been identified in the same areas that were occupied during the Neolithic. This cultural practice of settling at the ends of channels, as well as in lacustrine areas, seems to have been customary until the Iron Age. Moreover, according to the archaeological data,

no pre-4th-century occupations have been identified inside the Bukhara Oasis. This fact, together with the geomorphological data and interpretations, seems to suggest strongly that the inner areas of the oasis were uninhabited because of its swampy and marshy ground. It is also possible that the main Zerafshan stream almost divided the oasis into two parts, of which the south-eastern one, where later Bukhara and other important sites were erected, might have developed later than the north-eastern one, probably because of the presence of branches of the Kashka Darya delta, which rendered the area unsuitable for settlement. In fact, since at least the Neolithic, the Kashka Darya River flowed almost parallel to the Zerafshan River, both oriented east-west, with some other channels of the Zerafshan River also flowing towards the north. This means that the Kashka Darya flowed south of the Zerafshan, meaning that the Qaraqöl alluvial fan could not have existed.

The following transformation, which fixed the last change of the Zerafshan delta, and which determined the definitive orientation of the Zerafshan River towards the south-west, still visible today, was dated not with an OSL

6 For a complete study of the Neolithic population and culture of this large area, see Brunet 2005 and 2011.

7 I would like to thank Frédérique Brunet for her kind suggestions with regard to the material found in these areas.

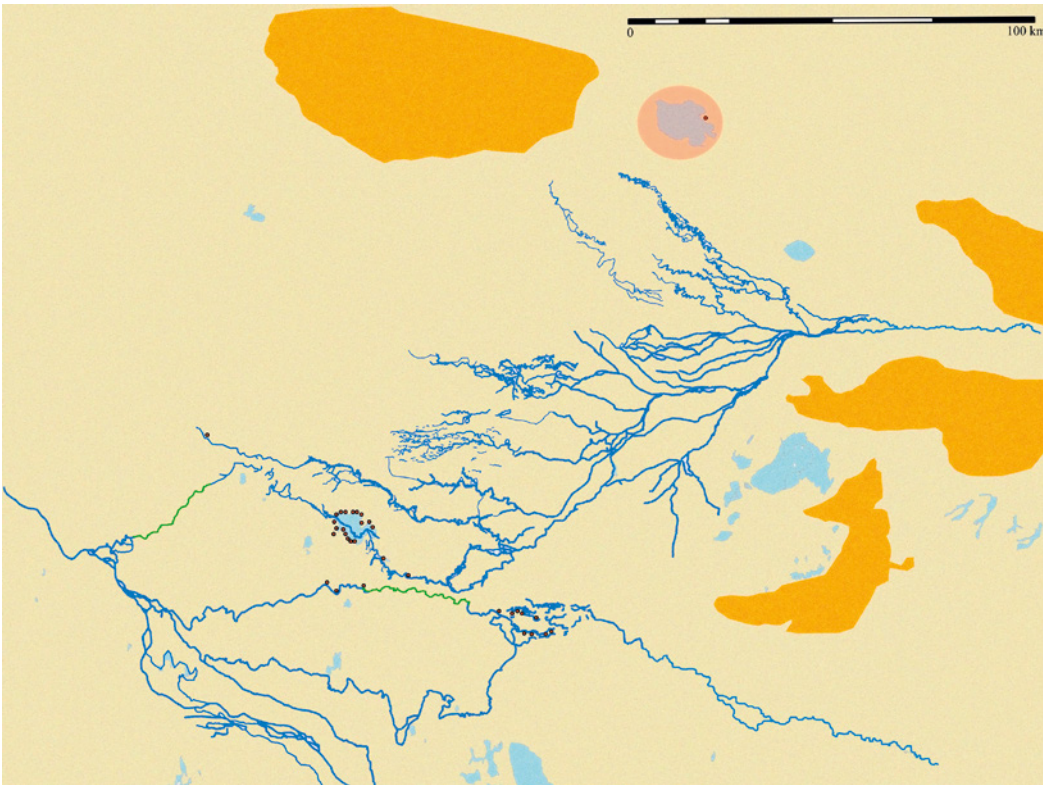


FIGURE 15 Map showing paleochannels and Neolithic settlements  
RANTE, FOUACHE AND MIRZAAKHMEDOV 2016



FIGURE 16 Map showing paleochannels and Bronze Age settlements  
RANTE, FOUACHE AND MIRZAAKHMEDOV 2016

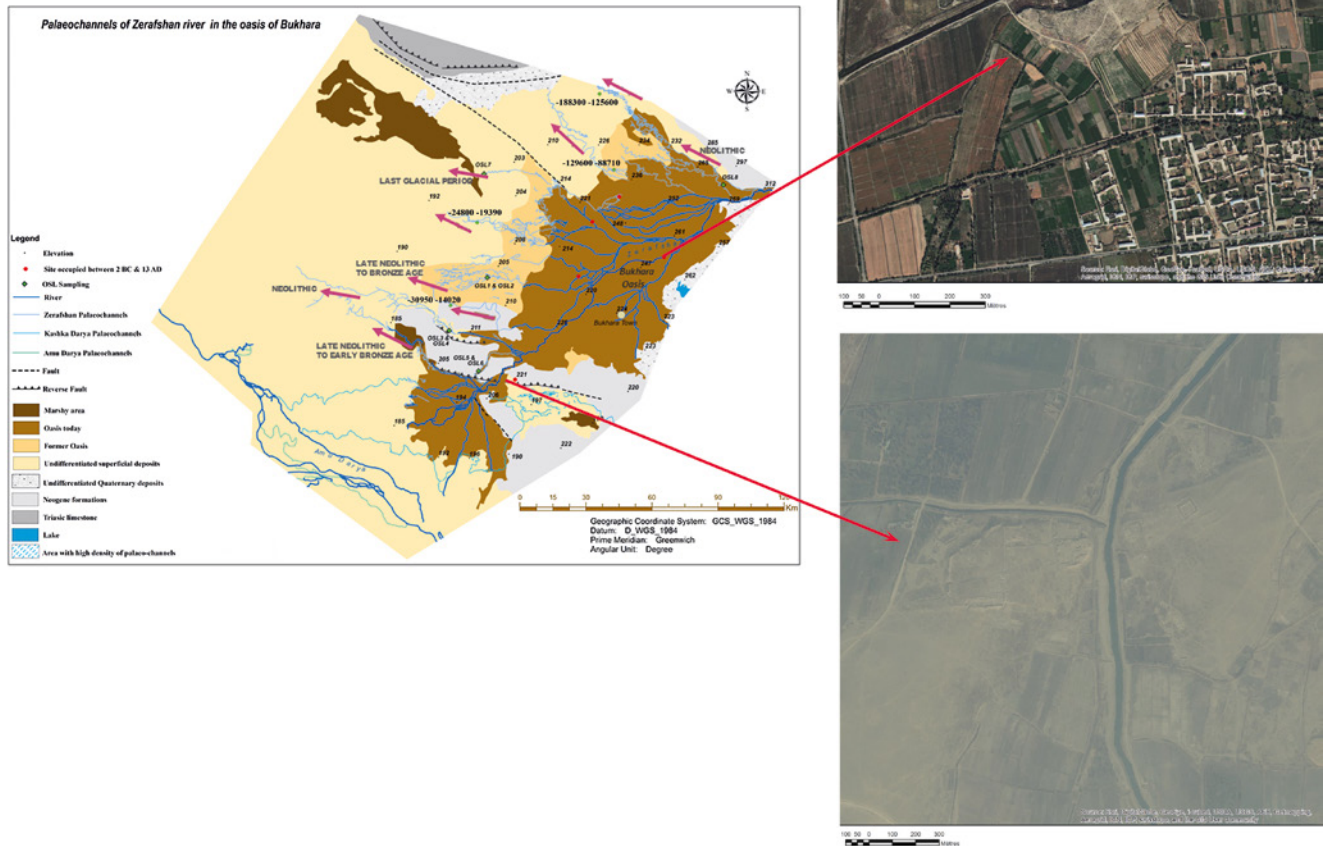


FIGURE 17 Geomorphological map showing the settlements of Paykend and Iskijkat RANTE 2016

sample but through stratigraphical data originating from archaeological excavations.

Two sites were taken into consideration: Paykend and Iskijkat (fig. 17),<sup>8</sup> the former because it is located at the last naturally oriented branch of the main course of the Zerafshan River, from which the micro-oasis of Qaraqöl originated further down; the latter because it is located along an ancient meander of the same main stream of the Zerafshan, in the upper part of the oasis. Both were dated by absolute dating (C<sup>14</sup>, C<sub>2</sub>RMF report 30082, and

thermoluminescence analysis). The first occupation of Paykend occurred approximately in the 3rd century BCE,<sup>9</sup> and it can be stated with confidence that the last modification of the Zerafshan River took place slightly before or during that period. The first occupation of the upstream site of Iskijkat was dated to the early 3rd century BCE, evidence that the main arm of the Zerafshan River only rotated downstream, slightly above Paykend. Moreover, the several sites excavated to date inside the oasis of Bukhara cannot be dated to before the chronologies referred to above, suggesting with very little doubt that the Zerafshan delta provided an advantageous ground on which to establish settlements from the 3rd century BCE (fig. 18).

8 The discovery of the city of Iskijkat, which disappeared from the written sources by the 16th century, and of which until now no traces had been identified, has been realised thanks to the collaboration with Florian Schwarz, Director of the Institute of Iranian Studies, and will be treated in another publication. The identification of this city depended on the discovery of another city that had disappeared and has also now been identified: Shargh.

9 Recent studies attested rather to the occupation of a village during the 2nd century BCE, but here I report the whole span of the C<sup>14</sup> and TL dates.

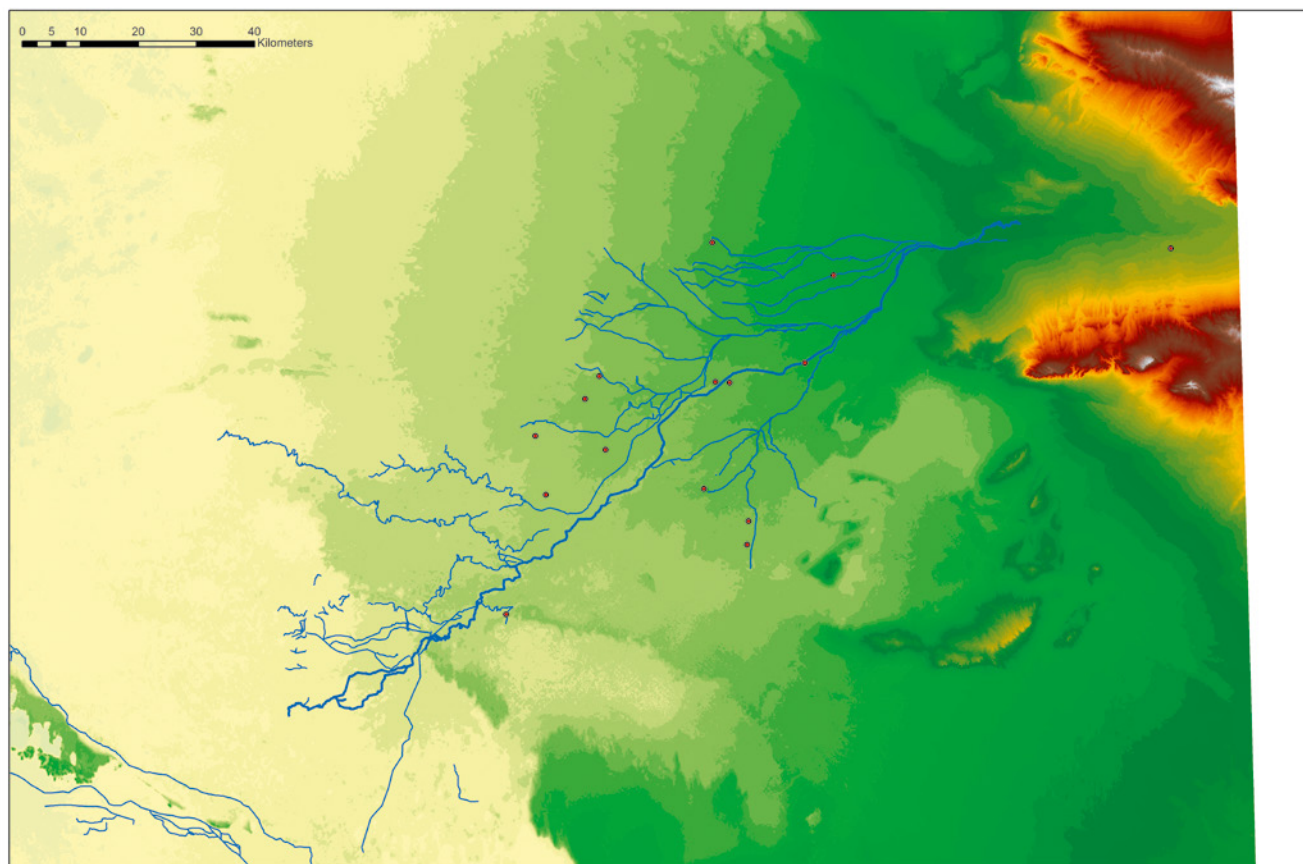


FIGURE 18 SRTM map showing the earliest settlements of the oasis  
RANTE 2016

Once this had been established, a further survey was undertaken in the Qaraqöl oasis. Although no stratigraphical tests were carried out, the ceramic assemblages seem to confirm that the Qaraqöl oasis was largely unoccupied before the 4th century BCE.

The data acquired to date has led us to reflect further. As noted, the data suggests that before the 4th century BCE, the Zerafshan delta was mostly oriented westwards, and that the final section of the Kashka Darya, mostly oriented east-west, flowed almost parallel to the former. The data show that both rivers reached the Amu Darya south-west of the Bukhara Oasis between the parallels 39°40'16.52" N and 39°21'15.68" E. The geomorphological studies show that in this configuration the area between the Bukhara Oasis and the Amu Darya was very swampy and therefore suitable neither for habitation nor for crossing.

What were the effects of such a landscape, and what issues can be deduced from the new archaeological discoveries? Before analysing the human and urban settlement of the oasis as a whole, these recent data need to be inserted within a broader perspective, taking into account

not only the oasis itself but also the wider geographical area, as well as the historical context in which these main changes occurred. To this end, a short historical footnote, beginning in the 4th century BCE and concerning the itineraries across Central Asia undertaken by caravans, later called the Silk Road, and the urban settlements along it, is required.

### 3 The “Silk Road” in Archaeological Surveys and Historical Sources<sup>10</sup>

According to Henri-Paul Francfort, speaking of exchanges between the Orient and the West through Central Asia, ancient itineraries already existed during the late Bronze and Iron Ages between East and West, as well as between North and South (Francfort 1990: 125–26; 1994: 39–42; 2005:

<sup>10</sup> I am employing the term “Silk Road” in this book in its more “nostalgic” sense, basically intending the whole caravan network of exchanges and trade.



Source: Esri, DigitalGlobe, GeoEye, Earthstar, United States, USDA, Esri, AeroGRID, IGN, Esri, Swirestop, and the Esri Community

FIGURE 19 The Silk Road main routes  
 ESRI IMAGERY 2018; RANTE, FOUACHE AND MIRZAAKHMEDOV 2016

253–58, 264). These routes connected distant geographical regions, with the aim of having political relations, communicating and exchanging goods. The itineraries (fig. 19), traced through surveys and excavations, traversed and joined regions such as the Indus Valley, the Swat Valley and Tibet to Xinjiang,<sup>11</sup> or to Bactria and Margiana through the Oxus Valley (Francfort 1994: 39–40). Over and above confirming these exchanges, which occurred largely before the first known written sources, our research confirms the existence of a route running East-West, south of the Amu Darya and around the 40th parallel north (Francfort 1990: 126), and of a route running North-South, crossing the Pamir, Ferghana, northern Indus (Francfort 1990: 126) and Oxus valleys.<sup>12</sup> During this period, connections between Chorasmia and Bactria or southern Turkmenia were also confirmed (Rapoport 1991). These exchanges most probably were possible across the Oxus River, or the Caspian Sea bank.

As for Silk Road trade through Sogdia, according to Étienne de la Vaissière (2005: 13) the Achaemenid sources (6th–4th centuries BCE), as well as the later Greek ones (4th–3rd centuries BCE), are not particularly useful for Central Asia, so it is necessary to look to the Chinese sources from the end of the 2nd century BCE, as well as to Ptolemy (mid-2nd century CE), to obtain significant information.<sup>13</sup> According to the former Chinese sources, in fact, trade through Sogdia seemingly began during the 2nd century BCE, when Chinese armies occupied the region of Gansu and a part of the Tarim basin, advancing as far as Ferghana, in 108 (Bernard 2005: 964; de la Vaissière 2005: 24). This proximity to western Central Asia, and also to the more distant eastern Iranian territories, stimulated political and economic contacts with the populations of these regions, as is mentioned in the *Shiji* (Watson 1993: 234). In this area, the source refers to the countries of Daxia, Bactria, Anxia and Parthia, confirming knowledge of and contact with Iranian lands, most probably through the Amu Darya, as do Hansen and Rassamakin (2012: 83–111). The same Chinese source, moreover, also refers to a “commerce antedating the arrival of the Chinese” (de la Vaissière 2005: 33), confirming later that Bactria (Lanshi) was an important trading platform at which “all sorts of goods are bought and sold” (Watson 1993: 235).

Furthermore, several historical sources relate diplomatic or commercial journeys that followed the caravan routes across Bactria during that period.<sup>14</sup> The Chinese emperor’s emissary, Kan Ying, was sent to the Roman countries in 97 BCE. The source reports the itinerary of his journey, through Arachosia, most probably crossing Bactria, up to the Persian Gulf, and then back, traversing the Parthian Empire and the Kushan territories to China (Chavannes 1907: 176–77). Two centuries later, Maès Titianos undertook a long commercial journey from the Euphrates River to China. Once he arrived in Merv, he took the route through Bactria and then northwards crossing Termez, Dalverzin tepe, and Kaltchayan towards Kashgar and further to the east (Bernard 2005: 929–69; fig. 7).

According to these sources of the 1st century BCE to the 1st century CE, the route engaged by caravans to reach China from the Middle East, and vice versa, traversed Bactria from Merv and then followed to the north through Termez and Dalverzin tepe, or crossed the Oxus (Amou Darya) further to the east, probably through Ai Khanoum, and then towards Kashgar. According to recent studies on Alexander the Great’s conquest of Central Asia, even in the 4th century BCE the Macedonians took the route from Bactria through Termez, and northwards towards Samarkand (Rapin 2013: 52–79).

Overall, the route employed for the exchanges between the East and the West in the watershed of our era, seems to have been that traversing Bactria. To date, I have found no historical data mentioning an itinerary dating to that epoch which takes a direct route between Merv and Bukhara and continues towards Samarkand and China,<sup>15</sup> as is the case at a later date. De la Vaissière (2005: 37) confirms this, corroborating that the regions south of Sogdia, especially Bactria and north-west India, had “pre-eminence” in commerce. Paul Bernard (2005: 967) rightly reminds us that the political stability in this region, as well as that in China and in the Roman Empire, and also that in Mesopotamia, but especially that in the Oxus Valley managed by the Kushans, was the reason at the root of the routes taken. Why does western Sogdia, which is certainly closer to Merv than Bactria, seem to be omitted from this travel dynamic? Could it mean that the region was politically unstable?

11 With reference to Xinjiang and the commercial routes around the 1st millennium BCE, see Debaine-Francfort and Idriss 2001.

12 With regard to the Silk Road, see also Francfort 2011: 459–64.

13 Concerning this topic, see the very interesting and knowledgeable article of Briant (2012: 185–201), in which the author does not hesitate to refer to modern authors such as Machiavelli or Montesquieu.

14 See also the very fruitful work of Hill (2015), which gives an updated version of the several years work on Chinese historical sources, with useful information on merchandise, stopover points and routes.

15 Concerning the exchanges with China, Valerie Hansen (2012: 113–39) gives a detailed and very useful description of the Silk Road history.

At the turning point of our era, according to the Hanshu, Sogdia (Suxie) seemed to be a vassal kingdom of Kangju State, which occupied the lands between the present southern Kazakhstan and the oasis of Tashkent. Later, the Hu Hanshu mentions Sogdia (Suyi) as a unique vassal kingdom of Kangju (Grenet, Podushkin and Sims-Williams 2007: 1026, 1028–29). Moreover, the study of the Kultobe inscriptions, among others, has indicated that from the 2nd century BCE, the political environment in these regions comprised the nomadic Kangju State to the north-east and the sedentary Sogdia to the south-west. In the Kultobe inscriptions, which should be dated to the 2nd–early 3rd centuries CE, among the Sogdian cities there is also a reference to Bukhara (Grenet, Podushkin and Sims-Williams 2007: 1026, 1030).<sup>16</sup>

Finally, from the 3rd century BCE Sogdia, occupied by the Saka populations, seems to have been fairly stable. This state of affairs is confirmed by the recent archaeological excavations, which attest to the birth of powerful cities with strong regional power. Travellers may very well have chosen to undertake the caravan journey through Bactria and further towards the north-north-east, traversing the Pamir to reach Kashgar, because it had been the “usual” route for ancient societies, and because it offered substantial pastureland.<sup>17</sup> The reason behind this specific route through the mountains might also, however, be in the landscape morphology of the regions that the caravans avoided. This is the case with the Bukhara Oasis, which, by the last years before the Common Era was one of the main crossroads of the Silk Road. Why was such a route only identified so late?

#### 4 The Birth of the North-eastern Route of the Silk Road

As previously observed, the landscape morphology radically changed from the 4th century BCE. It was constituted of the Zerafshan delta, oriented towards the south-west,

blocking the ancient path of the Kashka Darya, and so permitting the progressive desiccation of this area.

On a larger scale, including Turkmenistan and Eastern Iran, this geomorphological setting shows the Bukhara Oasis oriented towards the Merv Oasis, south-westwards, and further towards Iranian Khorasan (fig. 20). This configuration constituted not only a well-oriented sequence of separate oases and cities, but rather the possibility of joining eastern Iran to China via a single route directly crossing Nishapur, Merv and Bukhara.

The few archaeological surveys that have focused on the area between Merv and the Amu Darya (Masson 1966: 57–162) have brought to light archaeological evidence testifying to human traces datable no earlier than the medieval period. According to the latest archaeological research in this area, carried out by Paul Wordsworth, “the 1950s study, reinforced by the recent survey work, confirms that this southwest-northeast corridor between Merv and Amul formed a “high road” of travel between the 9th and the 12th centuries at least” (Wordsworth 2015: 51). These data have been brought to light chiefly by the surveys of caravanserais along this route, demonstrating the difficulty of surveying such a large and heterogeneous region. However, according to the 1866 account and drawing by Henri de Blocqueville (de Blocqueville 1866), a similar route follows a sequence of water points leading from Merv to the city of Amul, through the Qara Kum, which was most probably known before the medieval period. It would be evidence that this path of circa five to six days’ march crossing the Qara Kum, although this could also be true for other similar desert routes, did not depend exclusively on the existence of urban or rural settlements, as has been observed, for example, for the medieval period. Water points, as well as human capabilities, have been necessary elements throughout human existence.

The final translocation of the Zerafshan delta, towards the south-west, and the progressive desiccation of the landscape between the delta’s core and the Amu Darya, most probably would have engendered a massive human occupation and, later, urbanisation. This could have stimulated and provided an incentive for caravans to undertake this north-eastern route rather than the route through Bactria, as it offered pastureland, as well as several commercial sectors. It does not exclude at all the exchanges realized through the Oxus, westwards and possibly also in the other direction. See Burkhanov 2007 and Pilipko 1972.

We turn now to the settlements previously referred to, and to their evolution over the centuries.

<sup>16</sup> This information should be qualified as some doubts exist as to the Sogdian toponym interpreted as Bukhara.

<sup>17</sup> In an article on the Aryas in India, mentioning the possible movements of the Indo-Arians, Fussman traces the paths of these peoples through Bactria and the Indus Valley (Fussman 2005: 226; in part. n. 69). Concerning pastoralism interactions in Central Asia, see Frachetti 2008.



## Settlements and Their Evolution

### 1 The Archaeological Survey

As observed earlier, the archaeological survey was closely linked to the geomorphological and hydrological studies. The identification of the sites was thus connected to the modifications of the Zerafshan River and its channels through time, the analysis of which is yet to be completed, although the data acquired to date provides good direction for work in the field.

Recent publications,<sup>1</sup> as previously observed, hypothesized a maximum of 493 sites (Genito et al. 2003: 68–9).<sup>2</sup> These were later dated, referring to old assemblages of pottery brought to light in older excavations, between the 3rd century BCE and the 16th century CE. The sites were divided thus: 64 sites within the oblast of Bukhara, 71 sites within the oblast of Vobkent, 27 sites within the oblast of Shafrikan, 47 sites within the oblast of Gijduvan, 60 sites within the oblast of Navoy, 27 sites within the oblast of Pesku, 56 sites within the oblast of Kyzyl tepe, 36 sites within the oblast of Kagan, 43 sites within the oblast of Kenimeh and 62 sites within the oblast of Ramitan.

The Franco-Uzbek Archaeological Mission of the Louvre Museum has to date recorded 1,040 sites (fig. 21). These sites correspond mostly to sites that are characterised by tepe. Some “open sites”, such as areas of ceramic distribution zones or areas in which prehistoric artefacts were discovered, were also recorded. Since the number of the tepe in the oasis is very large, I have characterised all of them, but I have focused the survey and the study on the most complex categories. Once these occupations have been determined and corroborated by the identification of other ones, different tools, for instance those of socio-archaeology, can help us to connect all of the urban organisation of the oasis.

As one of the main elements of this study is the urban phenomenon, the selection of sites that aims to propose primarily urban structures, was well defined. Therefore, the initial analysis concentrated on categorising the sites

of the oasis. It was decided to determine categories by urban entities, which also means the degree of development over the centuries. The first to give a classification of tepe was Shishkin (1961), who recognised a “monolithic” type, constituted of vertical fortified walls, and a “two levels” site, constituted of two urban entities of different elevation, that is a citadel and a *shahrestan*.<sup>3</sup> In such a vast panorama of sites and morphologies, this classification evidently is much too reductive and, in any case, imprecise. The archaeological mission of Chiara Silvi Antonini (Cerasuolo 2009: 206) brought this problem to light and tried to expand the panorama by proposing a classification comprised of “fortified tepe”, “fortified tepe with village”, “unfortified tepe”, “unfortified tepe with village”, part of a broader interpretative category of “castle, caravanse-rai, military or functional sites”; “cities” and “open sites, agriculture sites and sparse ruins”, belonging to an interpretative category of “unfortified settlements, agriculture and nomad sites”.

In this heterogeneous archaeological panorama, it is difficult to establish clear urban categories for the Bukhara Oasis, in a limited space such as in the Varakhsha area, as well in the whole oasis. Moreover, although each classification and approach is subjective, in Silvi Antonini’s analysis, nevertheless, it is unexpected to find “cities” in the category “unfortified settlements, agriculture and nomad sites” and distinct from “fortified tepe with village” or “unfortified tepe with village” (Cerasuolo 2009: 206), even more so when the same analysis, according to her interpretation, refers to a category “city” as “power settlements” (Cerasuolo 2009: 201). I agree that Silvi Antonini’s hierarchical interpretation could make sense, even if no concrete archaeological data exist to identify the nature of the occupation.

What appears much clearer, instead, is the classification adopted for the survey, in which the sites are divided into a higher part (citadel), with or without a village, recalling Shishkin’s “two type levels”.<sup>4</sup>

1 One of the most interesting historical studies was conducted by Florian Schwarz in the 1990s and published in 1999.

2 These data belong to the archaeological operations organised by the IAUAS during the Soviet period and were published also in the cited article. See also Cerasuolo 2009: 193, who attests to having recorded 220 in the only area of Varakhsha (140 km<sup>2</sup>). The author also illustrates a very useful digital map (D 46), in which the development of cotton culture of this specific area is shown.

3 I employ the term *shahrestan* as indicated in the Hudud ‘Alam (131), in which it appears as opposed to the central political part, *qohandez*. This sense has been employed since the beginning of the 20th century to define the urban entities of a city in Central Asia. See Tskitishvili 1971: 31–12. Here, I therefore employ this term as the part of the city around the citadel, *qohandez*, which I also identify as a sort of village depending on the central, political part.

4 See the sketches in Cerasuolo 2009: 194–209.

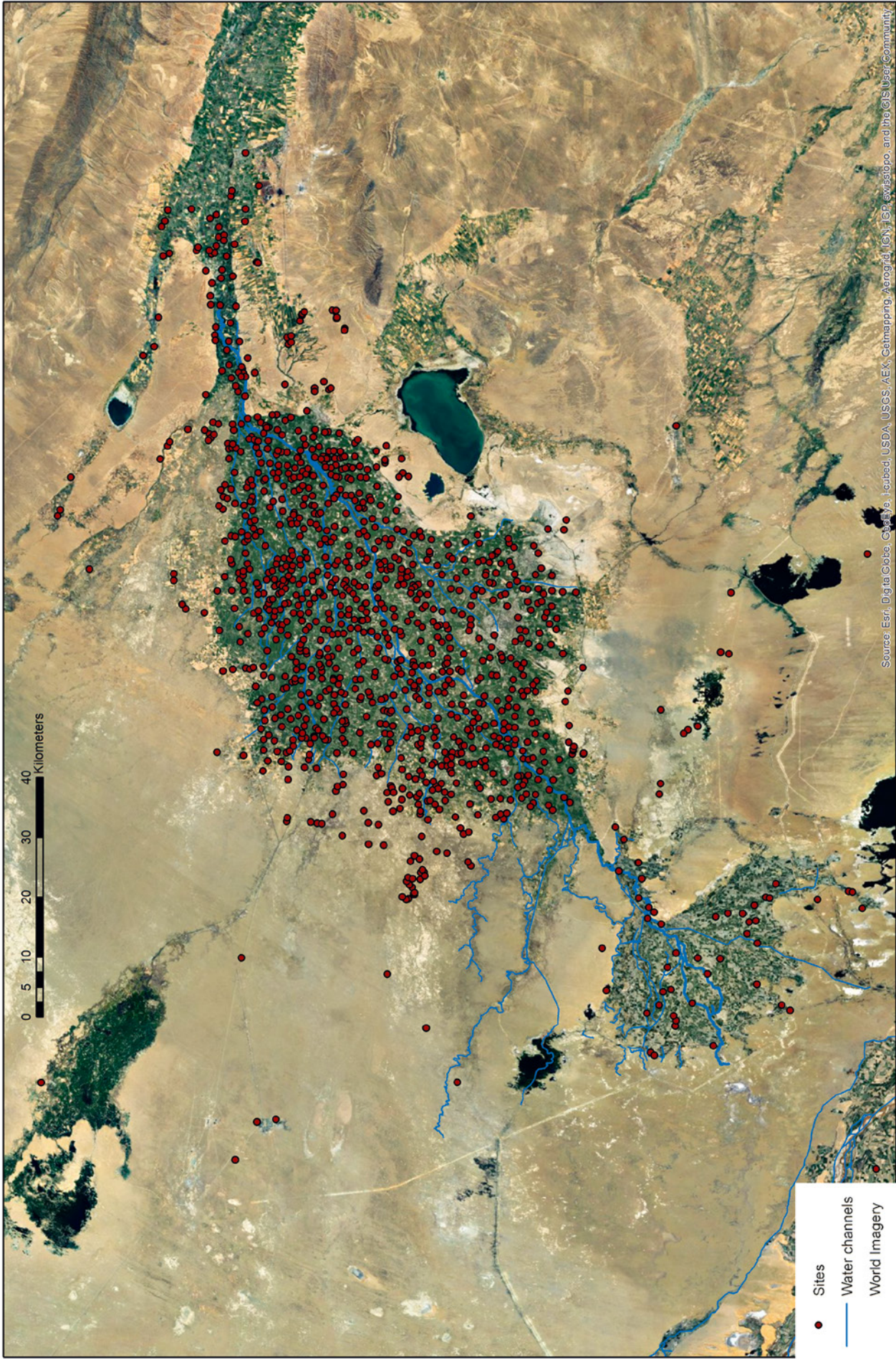


FIGURE 21 Map showing every identified human trace of the oasis  
 ESRI IMAGERY 2018; RANTE 2016

In this framework, MAFOUB's survey first brought to light the difficulty of decoding the nature of a tepe, or a group of tepe without excavation, which for example could confirm or not the real presence of ramparts, basing its analysis solely on a ceramic overview, and therefore on a previously fixed chronological classification.

To avoid all ambiguities, in my opinion, a primary broader classification, exclusively by urban entities, should be adopted. Thus, the Franco-Uzbek survey categorised the sites as follows: cities with a citadel, shahrestan and *rabad*, called "tripartite cities" (fig. 22); cities with two urban entities – a citadel and shahrestan – called "bipartite cities" (fig. 23); sites with a unique mound, called "unique tepes" (fig. 24); "kurgans"; "forts"; "caravanserais" and "mills". Within "open site" can be found "production areas", "ceramic distribution zones" and other kinds of human occupations that are not yet identifiable or else belong to nomadic settlements.

It is necessary to stress that on the maps some of the points corresponding to the 1,040 sites identify urban structures and not individual tepes. It means that a "tripartite city" constituted of at least three distinct occupied areas is identified with only one point. The total number of single tepes of the oasis, cut off from their urban context, is therefore much higher than 1,040. Moreover, as the archaeological mission is still working on surveys of all kinds of sites, this number could obviously evolve, without however any significant changes.

It might appear curious to distinguish unique tepes from kurgans, forts, caravanserais and mills, as the latter also constitute unique tepes. For the moment, it seems more judicious to identify unique tepes as all aristocratic or residential complexes, both castles and manors, in rural areas. The unique tepes identified in urbanised areas are included in the larger urban complex, and therefore are neither marked with a point nor numbered. With regard to the kurgans, they were selected through previous surveys (Obelchenko 1992). As for forts, caravanserais and mills, at present only a summary and undoubtedly imprecise selection has been made. Further operations and studies will focus on these to produce correct and complete documentation.

Within the framework of urban phenomena, the study especially concentrated on tripartite and bipartite sites, considering that both categories have urban features, in which one finds a royal or governmental part, a functional and administrative area and, for the tripartite sites, a suburb. A priority among the multiple aims of this study is establishing the interconnections between sites of the

same and different types, as well as a chronology for these different types.

To embark on a serious study of site categories in the context of numerous entities, it is necessary to have well-defined data, which is possible only through excavation. The terms of comparison resulting from the excavated sites will therefore more precisely define the characteristics of those that have been surveyed only. Concretely, the excavations at Paykend, Ramitan, Iskijkat, Kakishtuvan, Bukhara and site 0250, located in four geographically and administratively different areas of the oasis, and the study of the material culture for all epochs, provided strong tools with which to observe in depth the nature of the other sites, as well as their evolution through different periods.

Before discussing in more detail the organisation of the sites within the boundaries of the oasis, ancient as well as modern ones, it is necessary to set out the geomorphological setting to show the settlements and their urban distribution, and begin the discussion. The latest research conducted by MAFOUB brought to light several data useful to a better understanding of human migration and settlement in a region in which the landscape has been modified several times.

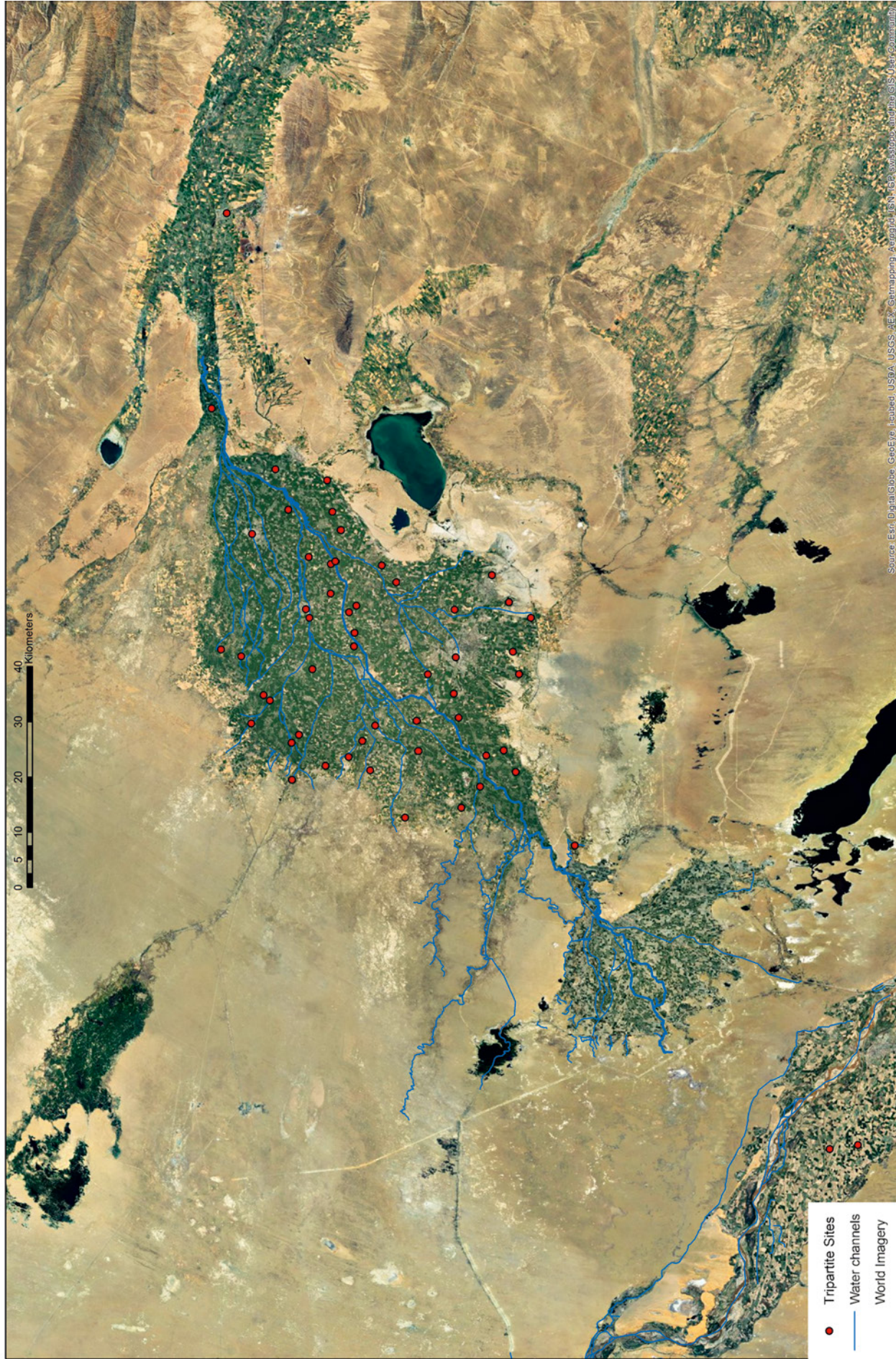
## 2 Settlement Distribution within the Oasis

The area concerned by this study corresponds to that identified by the geomorphological analysis, extending north-east/south-west from Karmana, the limits of which have been determined by historical sources, to the Qaraqöl micro-oasis; and east-west extending from the recognised paleochannels and human occupations, to the desert lands between the Bukhara and the Karshi oases. The area of the Bukhara Oasis therefore also comprises several – once inhabited – desert zones.

According to the geoarchaeological results referred to above, this study focuses on the cities of the oasis in the period stretching from the 3rd–2nd centuries BCE to the medieval period.

In this framework, the goal is to study the urban centres of the oasis, which means to consider exclusively entities constituted of several urban elements connected to each other. The categories examined here are therefore the tripartite and bipartite ones (fig. 25). In this context, the "unique tepe" category (fig. 26) cannot be considered as an "urban centre".

In a global perspective, in which all sites are determined by inhabited centres (tripartite sites, bipartites



Source: Esri, DigitalGlobe, GeoEye, IGN, GeoEye, JPL, USGS, AeroGRID, IGN, ICB, GEBCO, and the GIS User Community

FIGURE 22 Map showing the tripartite sites  
 ESRI IMAGERY 2018; RANTE 2016

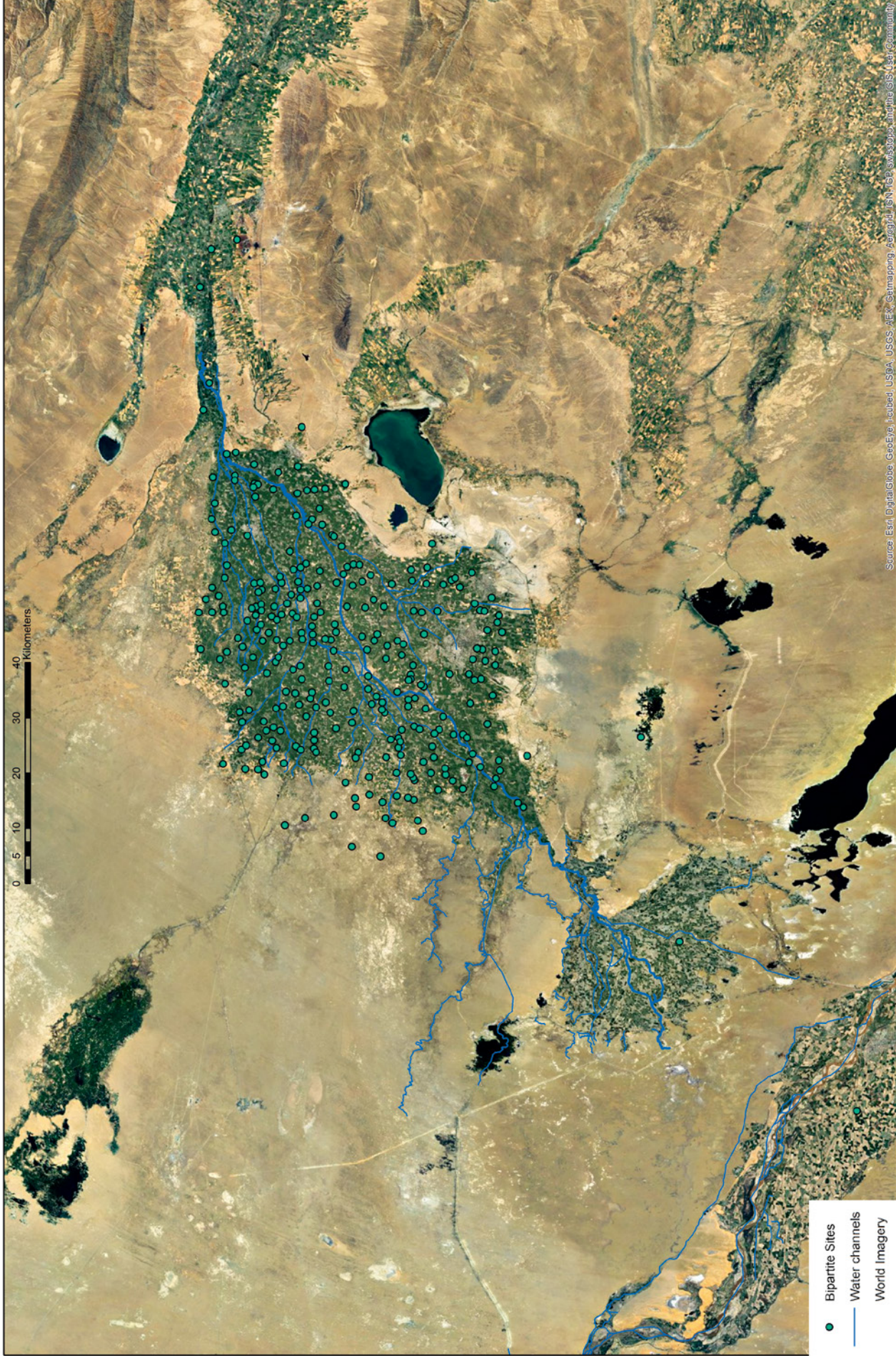


FIGURE 23 Map showing the bipartite sites  
ESRI IMAGERY 2016; RANTE 2016

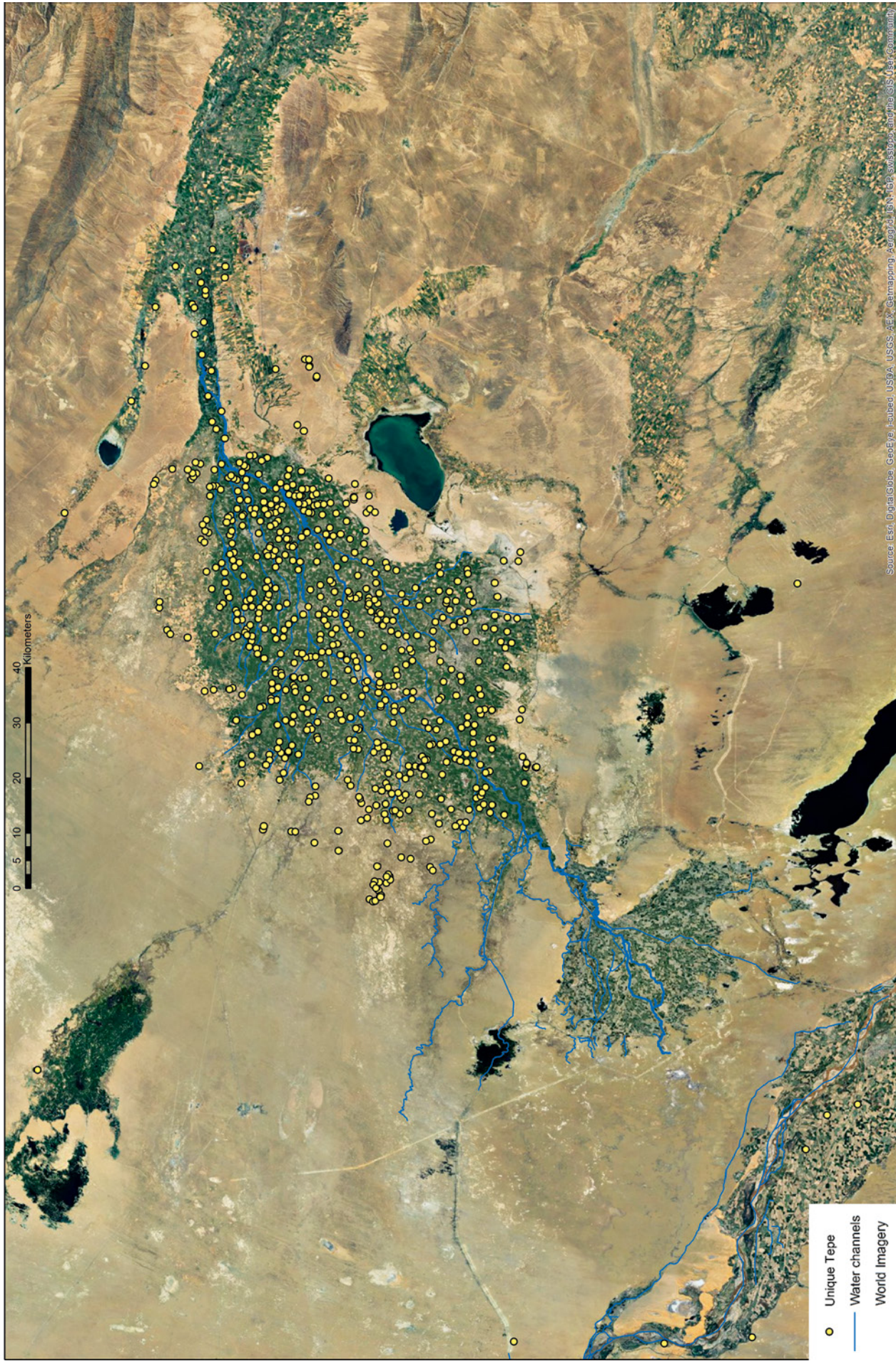


FIGURE 24 Map showing the unique tepe  
ESRI IMAGERY 2018; RANTE 2016

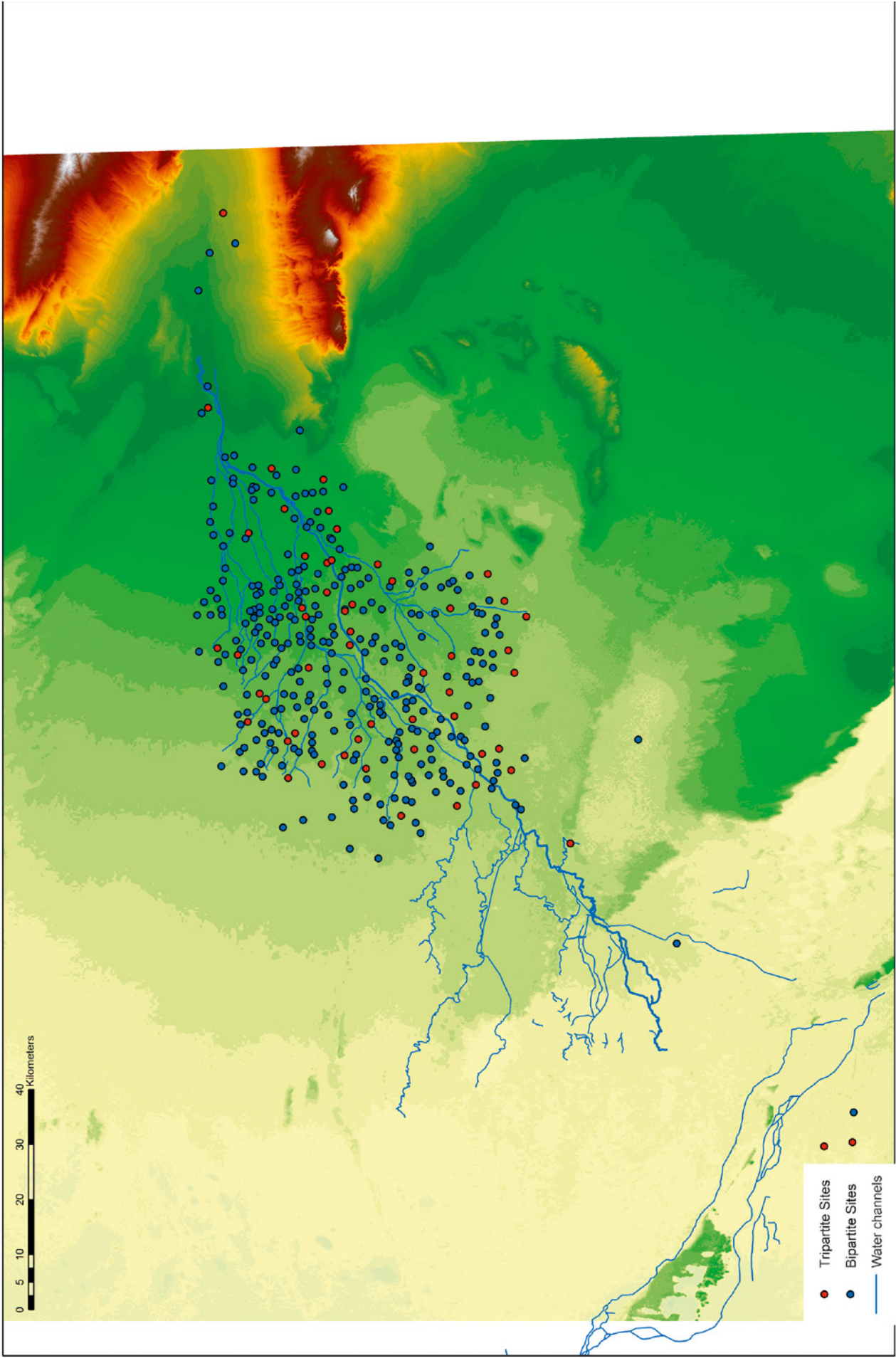


FIGURE 25 SRTM map showing the tripartite and bipartite sites  
RANTE 2016

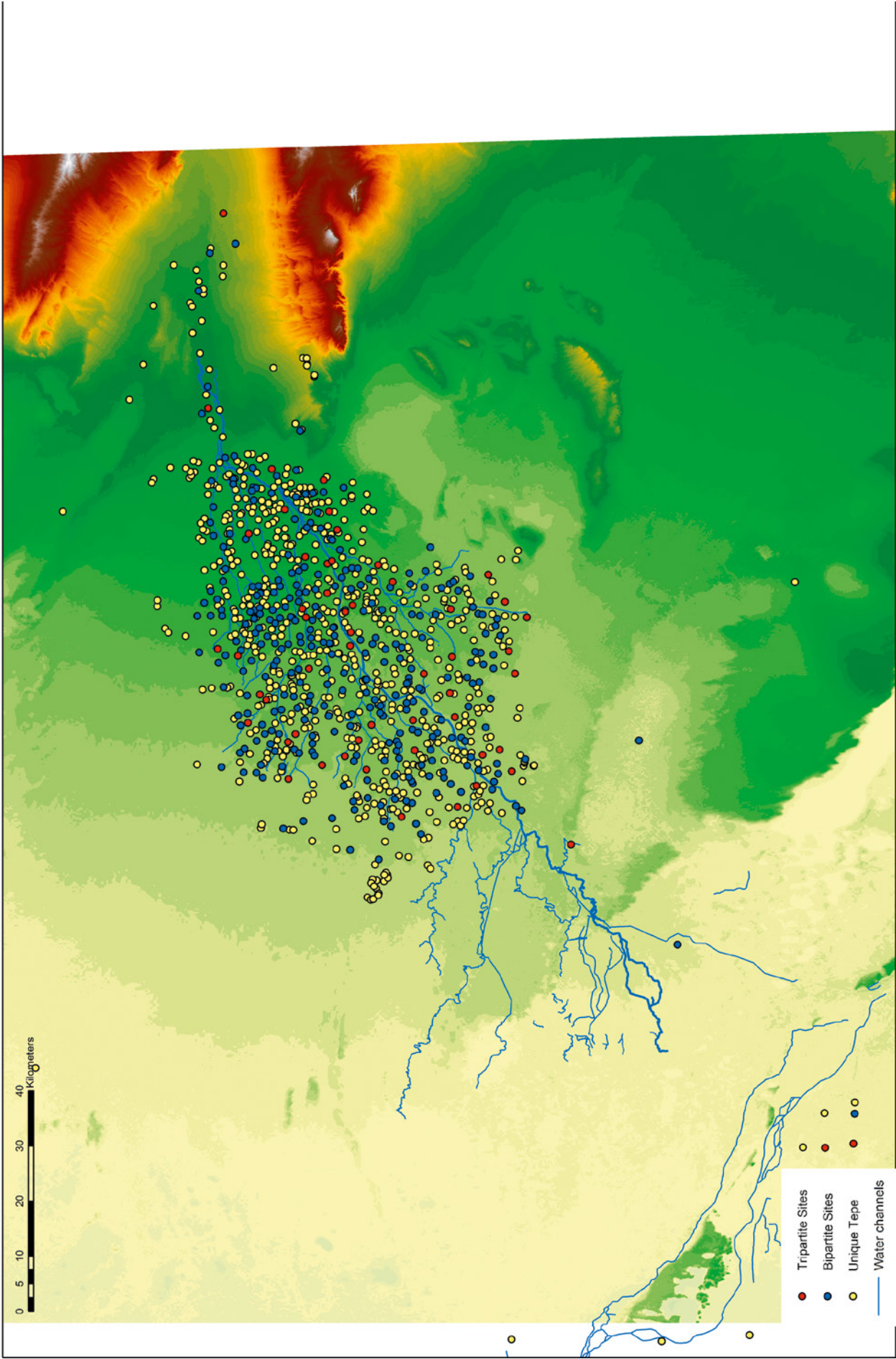


FIGURE 26 SRTM map showing the tripartite and bipartite sites and unique tepe  
RANTE 2016

sites and unique tepes), the sites are quite homogeneously organised within the limits of the oasis. The distribution of urban agglomerations follows the composition of the geographical morphology, and this situation is well highlighted by the fact that we are in a river delta. Every settlement is associated to a river and a canal, or both. The hydrographic setting of the oasis gave, and currently gives, therefore, the tempo of the urbanisation (fig. 27). Nevertheless, inhomogeneous distributions of settlements are also observable. In the northern part of the oasis, an area lacking in inhabited centres is observable around the western part of the city of Gijduvan (site 0002) (fig. 28). South of the same city, several branches from the lower Kharqan Rud irrigated a zone in which only unique tepes are observable. The whole area is irrigated by two major channels, the Lower and Upper Kharqan Rud,<sup>5</sup> and it is framed by two other major channels, the Sultanabad to the north and the Khitfar to the south. The geomorphological study showed that this area, especially its northern and north-western parts, is constituted by swampy fields, as well as by large areas of meanders, inhospitable for settlements. This important factor would have impacted on human occupation. With regard to the southern section, apart from Gijduvan and some unique tepes, it is curious to observe the absence of more substantial urban centres, such as the bipartite cities. Geographical factors, to which the more northerly position of Gijduvan in relation to the surrounding area should be included, can also be imputed to this distribution, but it may not be the only factor. In fact, Gijduvan was an important centre, corroborating what is related by historical sources (Barthold 1981: 119–20), and geographically it is located at the end of the oasis. Moreover, the main roads for caravans to reach the most eastern part of the oasis, before exiting to reach Karmana and then Samarkand, crossed Tavovis, through the eastern side of the oasis, or crossed Gijduvan, through Vobkent. Marzangon tepe (0089), up to the Khitfar and south of this “not-urbanised” area, is mostly connected to the large river flowing to the west, probably controlling this main area of river forks, rather than having a function connected to caravans. This framework might suggest that the zone was a crossing area, in which the creation of urban centres was considered of no use.

Outside the limits of the oasis, the areas previously irrigated, where paleochannels have been identified, display

differences in occupation. The two paleochannels in the northern part of the oasis, oriented north-west, present several occupations along their course. The same is true for the western paleochannels, crossing the Bash tepe group of settlements, and for the south-western paleochannel, crossing the Zamanbaba group of settlements (Gulyamov, Islamov and Askarov 1966; Sarianidi 1979: 23–8). The paleochannel in the north-western side of the oasis, as well as the one in the south-western side, display a scarce degree of occupation, which could be explained by the hydrological transformations that occurred during the last glacial period, for the north-western arm, and during the Neolithic, for the south-western one. The southern part of the oasis presents a group of sites, called the Kum Sultan group, which are connected with the ancient Kashka Darya. The survey of this region showed occupation from the Neolithic to the 10th–11th centuries.

In conclusion, with reference only to the urban framework (in which only tripartite and bipartite sites are considered), the Bukhara Oasis presents a homogeneous occupation, presenting zones in which this occupation was denser and others in which it was more scant. The urban distribution within the oasis follows the hydrological natural dynamic, which from the Neolithic through the Bronze Age has driven human occupation. Natural causes engendered a modification of the landscape, which was followed by changes in human behaviour, as observed above. This dynamic permitted the establishment of a much denser water network from the last part of the first millennium BCE. From this period onwards, and over the following centuries, this water network gave the tempo for urbanisation.

But how has the distribution of the settlements within the oasis evolved since the 3rd century BCE?

### 3 Chronology and Evolution of Settlements

MAFOUB's recent discoveries in the Bukhara Oasis show that most tripartite sites date to the 3rd–2nd centuries BCE. Their suburbs can be dated to no earlier than the 5th century CE. It has been observed that the tripartite sites were continuously occupied from the 3rd century BCE until the Mongol or Timurid periods (13th–15th centuries CE) (not enough precise material can be mentioned to attest the Mongol presence within the oasis). The tripartite sites, therefore, show a greater longevity than other sites, which were in part contemporaneous, or else founded later. It might be that the presence of a suburb, and therefore the presence of a production or commercial area, or both, would inevitably have extended the urban limits and at the same time given the city further importance

5 The toponyms (of cities, water channels, administrative areas, etc.) are studied in collaboration with Florian Schwarz, who is working on historical and hagiographical material from the medieval to the modern periods. I therefore set aside all other data for future publications.

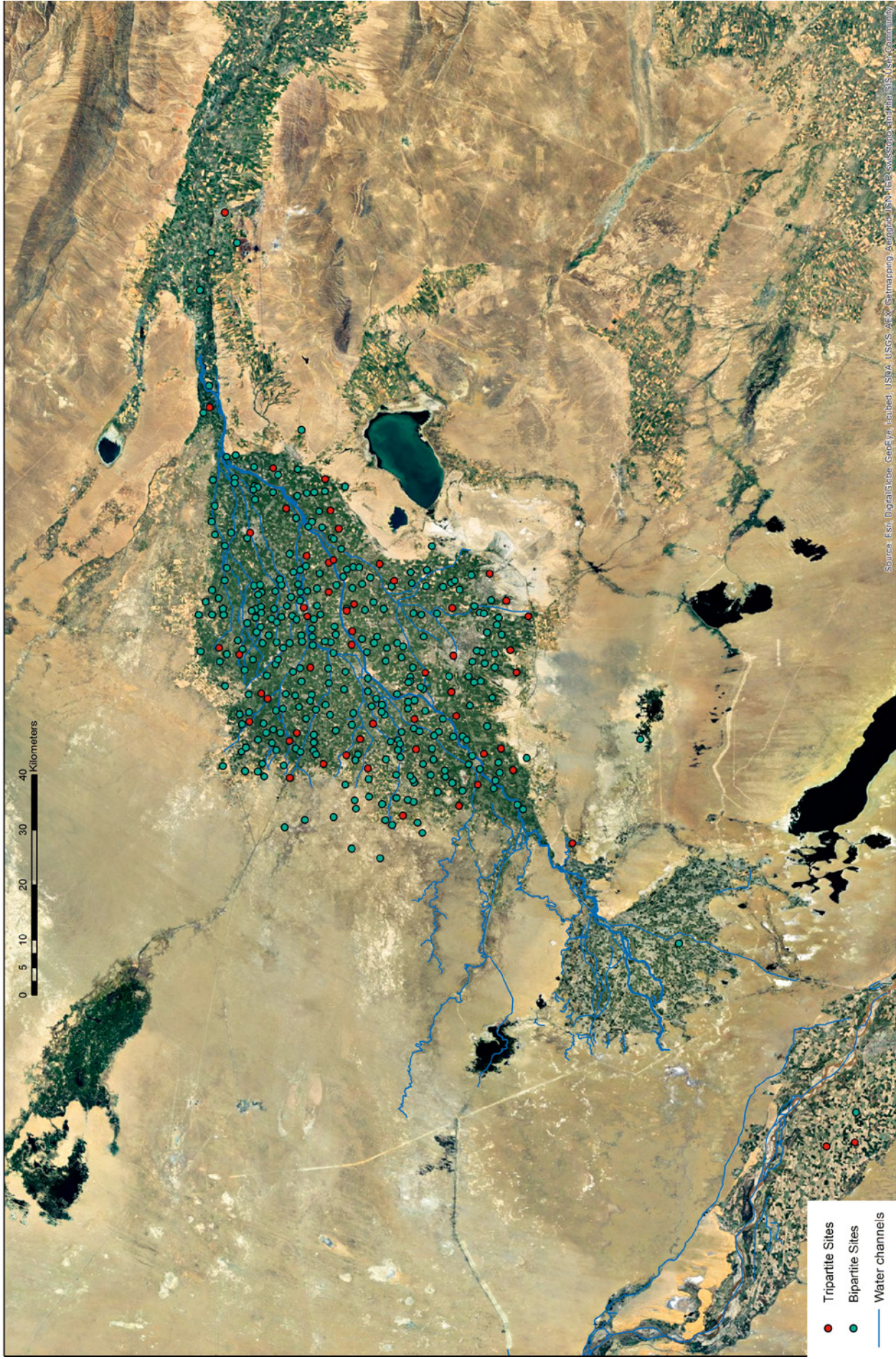


FIGURE 27 Map showing the tripartite and bipartite sites  
ESRI IMAGERY 2018; RANTE 2016

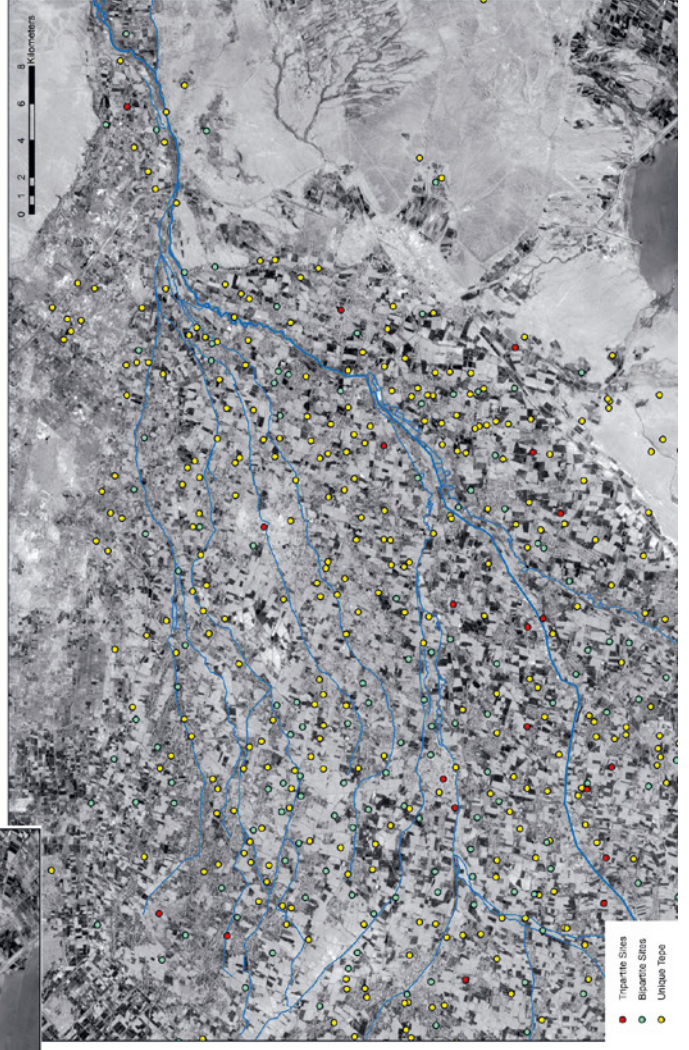
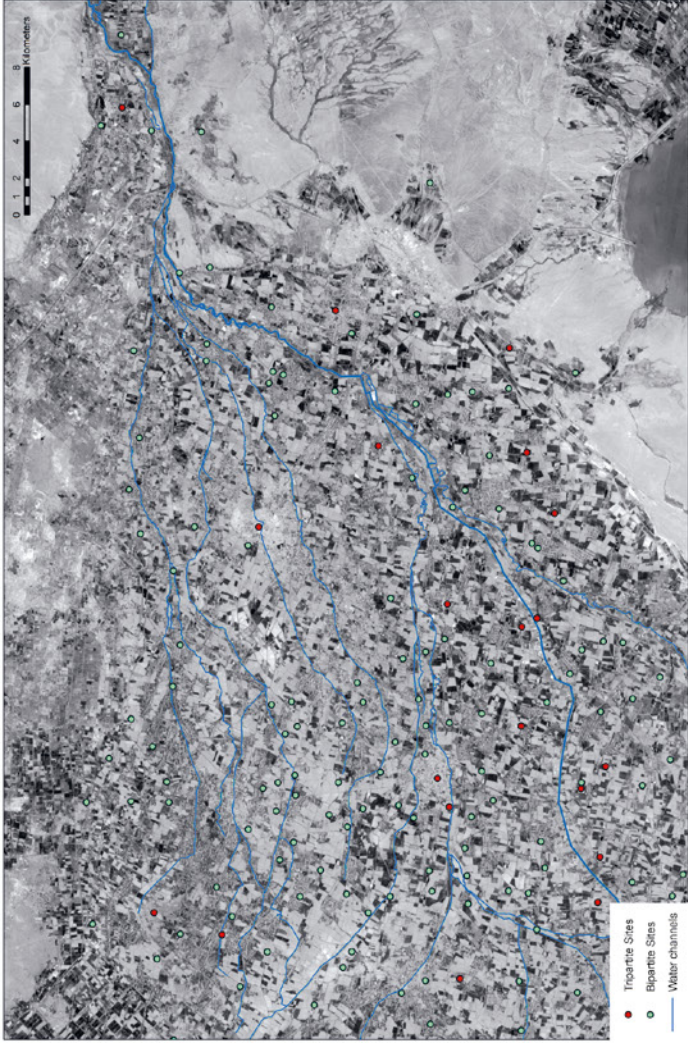


FIGURE 28 Satellite maps of the Gijduvan area: tripartite and bipartite sites; tripartite and bipartite sites and unique tepe

compared to the other urban centres, in terms of economic and social life. Considering this particular “oasis space”, as compact and homogeneous as that of an endorheic delta, it has been observed that this large irrigated region was well divided into different administrative micro-districts around these main cities (fig. 29), or local capitals, able to produce and make exchanges: the tripartite sites and the smaller, bipartite sites, which seem to play the role of small urban agglomerations dependant on the main city. In this particular case, it is therefore possible to determine the dynamic of the exchanges in terms of city connections between the tripartite producer cities and the smaller neighbouring bipartite cities.

Beginning with this framework, the settlement organisation of the tripartite sites represents the chosen model by which we are able to identify and demonstrate the evolution of settlements. By means of regular archaeological surveys and always in comparison with archaeological excavation data, a consistent increase in settlements within the oasis has been observed. This dynamic has been analysed and divided into different chronological phases.

### 3.1 Phase 1

The first phase dates to the 3rd–1st centuries BCE (fig. 30). At that epoch, settlements probably evolved from an early, unfortified occupation to a defended area, which later became the citadel,<sup>6</sup> as will be examined later.

The territorial organisation shows a concentration of settlements near the main water channels, with a few exceptions.<sup>7</sup> This concerns site 0231, the possible city of Sivanj, which was probably supplied with water by canals coming from the upper Khitfar Ramitan channel, sites 0003 and 0005, Warka (0644), Tavovis (0751) and site 0518. These latter two cases were certainly supplied with water by the canal called Kam-i Abu Muslim during the Islamic period, but probably not before, according to the recent geomorphological data. It is, however, certain that this canal has been too much interfered with today to really be able to establish its antiquity. Moreover, its path follows the eastern profile of the irrigated lands, which seems to suggest its human conception. With regard to sites 0003 and 0005 and Warka (0644), their location bordering the southern limits of the oasis, as well as their fortified character, suggest a

6 This has been proposed by our Russian colleagues in relation to Paykend (Mukhamedjanov et al. 1988: 8–17).

7 In figure 30, as for the following ones, I prefer to include sites 0002 and 0016, which have not been surveyed because of the modern city, but which present to my eyes all the characteristics of the other ones.

defensive role in order to protect from incursions from the south and south-east, from the Karshi Oasis. The historical water network, which nevertheless is characteristic of the situation during the late Islamic period, shows several small canals supplying water to all these sites. In that earlier epoch, this area possibly was still irrigated by the remains of the ancient Kashka Darya. In fact, this southern and south-eastern zone, where these sites were founded and grew, is characterised by the end of the alluvial layer and the Neogene relief to the south and by the mountain range to the east. The sites are therefore located in a kind of slight depression that on one side situates the sites nearer the water table, and on the other situates them in a kind of reservoir in which water coming from the oasis flows, coming to a stop on reaching the relief.

It is therefore not a surprise to remark – taking into account the water network at that epoch – that the greatest concentration of settlements is located along the Zerafshan River, which flows in the middle of the oasis, and especially on the western side of the oasis, because of the density of its water channels.

### 3.2 Phase 2

The second chronological phase dates to the 1st–3rd centuries CE (fig. 31). Over the course of these three centuries, a global reoccupation of the earlier sites was observed, as well as the foundation of new sites, which later developed as tripartite sites. But the major event in this period was the foundation of many other sites, which are located around these main ones and which developed as bipartite sites, creating already at that epoch a dense network of city connections and socio-economic interdependence. The impossibility of establishing a total and exhaustive, absolute date for all 291 bipartite sites encouraged us to attempt a simulation of the global human occupation (fig. 32). In this map the tripartite sites were dated through excavations and surveys. Dating for the bipartite ones was proposed globally on the basis of comparisons made between the few excavated sites and comparisons with the 150 surveyed sites. Although this urbanisation process does not correspond to reality, which would require the excavation of the 291 sites, I am quite confident that it represents globally the dynamics of the evolution of the settlements. This topic will be treated below.

In the western side of the oasis, at the limit of the irrigated area, Barkad (0944) and site 0320 developed close to branches of the Khitfar Ramitan and Khitfar Zandana. In the heart of the oasis, the birth of site 0560 and Kumijkat (0090) were observed, developing along major channels, respectively the Zerafshan and the Khitfar. Tarab (0043)



FIGURE 29 SRTM map showing the socio-economic connections between the tripartite and bipartite sites  
RANTE 2017

and site 0133 were founded in the south-western part of the oasis. The former is located where the flow of the Tarab channel<sup>8</sup> totally changes its direction, turning towards the west. The latter is located at the end of the alluvial area and the beginning of the Neogene relief, as sites 0003 and 0005. Both Tarab (0043) and site 0133 were strongly fortified. In a global view, Tarab (0043), site 0133 and Khujada (0149), each one fortified, seem to have formed a defensive belt at the entry of the densely irrigated area. Probably, this frontier would be consolidated a few centuries later with the oasis wall, Kampirduval. However, at that epoch every settlement was defended by strong ramparts (fig. 33). Moreover, except for the agricultural settlements, in addition to the other buildings consecrated to ground or water exploitation, every residential settlement was characterised by defensive walls. What the difference has been between them will be examined later.

In the historical analysis of that epoch, according to the recent studies on the Sogdian inscriptions at Kultobe

carried out by Frantz Grenet, Aleksandr Podushkin and Nicholas Sims-Williams (2007: 1005–34), it has been confirmed that this historical moment corresponded to an increase in the power of the sedentary and meridional Sogdiana and Chach against the northern nomadic entities of the vast Kanju State. Until this period, Sogdiana, and therefore the Bukhara Oasis, was a vassal of the large Kanju State. It is therefore quite normal that in the oasis of Bukhara, the population began a dynamic policy of urbanisation and fortification.

### 3.3 Phase 3

The third chronological phase dates to the late 3rd–early 8th centuries CE (fig. 34). It was observed that the exponential dynamic of urban increase began some centuries earlier than indicated by the earlier research. The first part of this period corresponded to the erection of new fortified urban entities around an ancient fortified nucleus, or shahrestan, which stressed a need to expand, and at the same time defend, the previous urban limits, certainly due to a demographic increase. Ramitan presents an interesting case study, and is examined in detail later (fig. 35).

<sup>8</sup> The watercourse has been conventionally called the “Tarab watercourse” because its path traverses the ancient site of Tarab.



FIGURE 30 Map showing paleochannels and settlements from the 3rd–2nd BCE centuries  
ESRI IMAGERY 2018; RANTE 2018



FIGURE 31 Map showing paleochannels and settlements from the 1st century BCE to the 2nd century CE  
 ESRI IMAGERY 2018; RANTE 2018



Source: Esri, DigitalGlobe, GeoEye, Earthstar, USGS, AeroGRID, IGN, SPT, Swire, and others. Esri Community.

FIGURE 32 Map showing paleochannels, 1st century BCE – 2nd century CE settlements and the bipartite sites  
 ESRI IMAGERY 2018; RANTE 2018



FIGURE 33 Ramitan, rampart of the late 2nd century CE square city  
 ICONEM 2014

The second part of this period was also marked by a number of fortified additions in different cities. The case of Paykend, as will be seen later, is highly emblematic and perfectly synthesizes this dynamic with the foundation of shahrestan-1 in the 4th century, and that of shahrestan-2 in the 7th century (fig. 36). Moreover, in this epoch, some urban agglomerations were provided with well-conceived *extra muros* commercial, artisanal or simply domestic areas, the *rabad* of the Islamic period. The recent discoveries in Ramitan have brought to light a section of this housing, commercial and artisanal area, characterised by a series of rooms oriented north-south along a street, as will be examined below (fig. 37). Not so far to the south, a pottery quarter was brought to light through geomagnetic surveys. When excavated, the largest furnace of a quadrangular kiln gave us material that can be dated almost certainly at least to the 6th–8th centuries CE. The commercial

and artisanal character of this quarter endured until the 12th–13th centuries.

In the heart of the oasis, the sites of Marzangon (0089), Narshak tepe (0457) and Banab (0567) were founded along the two main watercourses of the oasis – the Zarafshan and the Khitfar, before the Khitfar fork. On the north-western side, at the end of the Khitfar Zandana and the northern arm of the Khitfar Ramitan, were founded sites 0330, 0247, 0357, 0896 and Zandana (0083), confirming the importance of this area, from which caravans joined Khorezm. This significant urbanisation was probably stimulated also by this key geographical situation. On the opposite side, to the east, sites 0531 and 0609 confirmed the dynamic urbanisation on this border area of the oasis. A significant proportion of the several tumuli excavated around the oasis by Obelchenko (1992) were found in this eastern area, beyond the irrigated limits. Their location

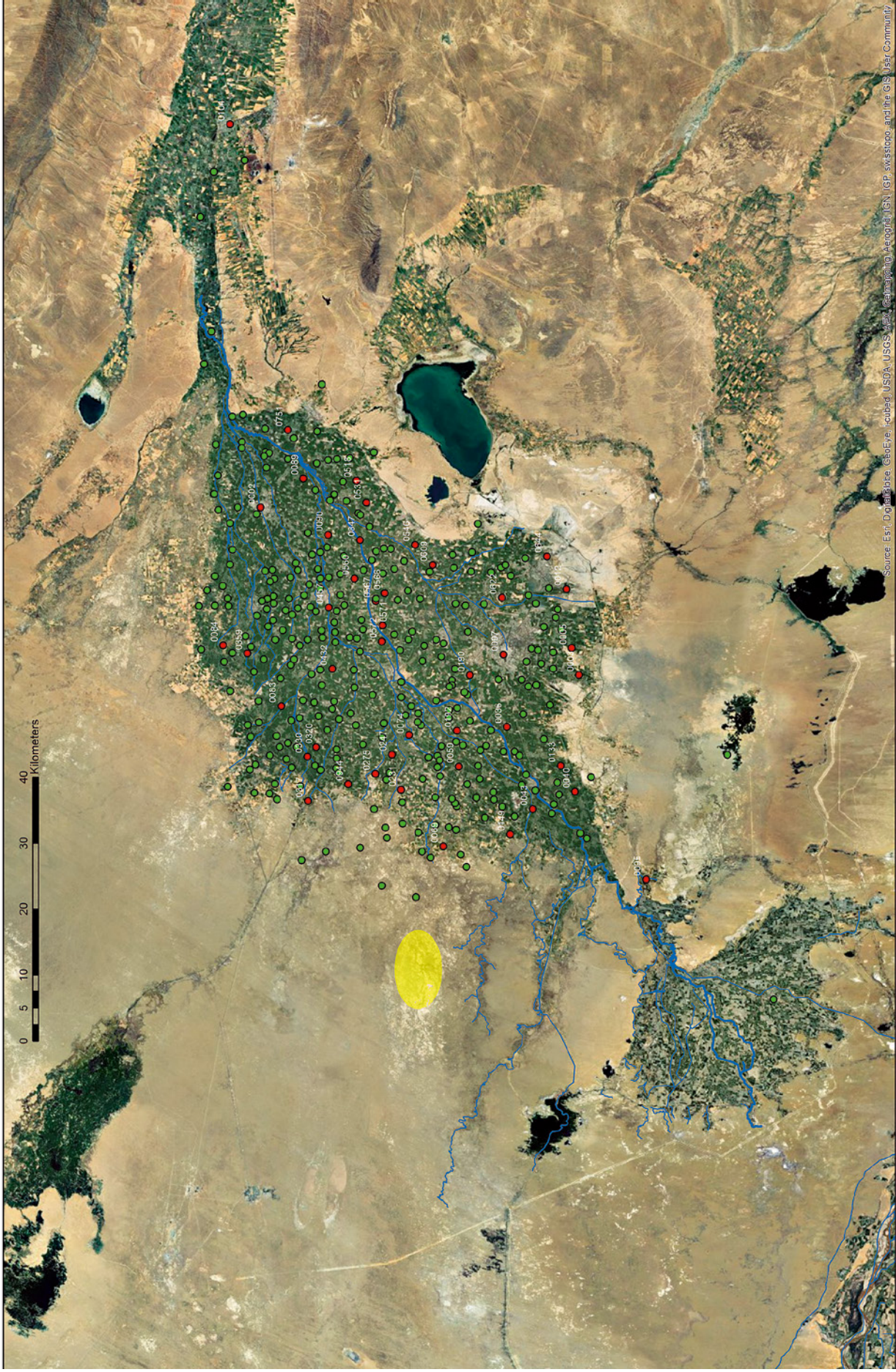


FIGURE 34 Map with paleochannels and 3rd–early 8th century CE settlements (Esri Imagery 2018; Rante 2018). The pale yellow ovoid marks an inhabited area, probably seasonal, but in any case weakly inhabited comparing with the urban centres within the oasis

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FIGURE 35 Ramitan, satellite view of the 2nd century CE square city and the late 3rd–early 4th century CE shahrestan  
ESRI IMAGERY 2018



FIGURE 36 Paykend, aerial photo, view from the west  
SAGORY 2011



FIGURE 37 Ramitan, western rabad and destroyed kilns under the Islamic city  
 ICONEM 2014; SAGORY 2017; RANTE 2013



FIGURE 38 Ceramic sherds with black vertical splash, layer dated to the 3rd century CE  
 DAURE 2017

since the first centuries of the Common Era would confirm this eastern limit of the irrigated lands, as well as the urban organisation around this border. The site of Khunbun (0040) marks once again the importance of this south-west axis crossed by the Khorasan Road. Site 0190 was founded in a junction zone between Bukhara and the western side, through which one could reach cities such as Ramitan, Ramish tepe and Varakhsha.

Quite well known by historians, this epoch was characterised by the massive occupation of populations coming from the north-east (Buriakov 1991: 197–204; Obelchenko 1992: 90–8, 227–28; Zeimal 1983: 232, 250, 257; Grenet 1996: 370–72) and from elsewhere (Grenet 2010). With regard to the ceramics, some scholars, exhaustively quoted by Grenet (1996: 370–71 and n. 10–1), have pointed out that the second half of the 4th century CE was marked by a “brutal change regarding archaeological material”. The authors specify, moreover, the diffusion of a new typology of pottery called Kaunchi, characterised by splash traces on the body of the object, as well as by numerous unturned forms, which have been linked to nomad intrusions. As far as the Bukhara Oasis is concerned, according to the recent excavations, the dynamic seems to have differed. In fact, according to the absolute dates of the layers in different sites of the oasis, such as Iskijkat, Ramitan and Kakishtuvan, the pottery associated with these layers should be dated to a period around the 3rd century CE (fig. 38). This typology can be found as late as the 7th–8th centuries.

Moreover, in the Bukhara Oasis, this period was characterised by the dynamic foundation of new sites, as well as by a dynamic of extension of the ancient urban limits, rather than by an urban crisis, as might have been observed in Bactria or elsewhere in Sogdia (Grenet 1996: 370). According to Jakubov (1988), the diffusion of a fortified habitat has also been observed in the Bukhara Oasis, where I would divide it into two different categories: the fortified residences, which also constituted a village, becoming the bipartite sites; and those that remained isolated fortified residences.

This phase seems to have been the key moment for the urbanisation of the oasis. Probably induced by the new strategic location on the now frequently traversed north-east passage of the Silk Road, there was a massive settlement in the oasis of populations coming from the north-east, which brought about the extension of the earlier cities, and the building of new ones.

### 3.4 Phase 4

The Islamic period, from the 9th to the 12th centuries CE (fig. 39), was characterised by a massive reoccupation of

ancient settlements and, it would seem from the present state of research, by no new foundations. All the surveyed sites, with or without rabads, presented evidence of pre-Islamic pottery, confirming an earlier occupation. Nonetheless, this period was characterised by a dynamic of occupation that is proper to the Islamic presence for some sites. In fact, especially between the 9th and 10th centuries, some cities were in part depopulated or suddenly abandoned by people who moved outside the ancient walls and founded new entities around the central fortified nucleus (fig. 40). As Hugh Kennedy so rightly observed, “Continuity of site did not mean continuity of urban topography” (Kennedy 2008: 104). It should therefore be stressed that the dynamic of “no new foundations”, referred to above, only concerned the foundation of new Islamic cities outside the limits of previous urban agglomerations.

Although sociopolitical and religious factors must be taken into consideration,<sup>9</sup> this dynamic of depopulation could also be imputed to the difficulty of supplying the city with water, and the problems attached to conserving the mud-brick structures. Paykend and Ramitan are two emblematic cases, although they present different occupation dynamics. In Paykend (fig. 41), which was founded on a weak Neogene relief, thus protecting structures from the water table, the water supply has always come from the northern canal outside the city. In this case, human occupation remained within the ramparts. In Ramitan, founded directly on the alluvial Holocene soil (fig. 42), mud-brick structures always suffered from the proximity of the water table, and the water supply later suffered from the overlaying of artificial layers by human occupation. Ramitan represents an interesting example of the Islamic occupation dynamics of urban territory. According to our excavations, in the 9th century, the ancient fortified square city was definitively abandoned. The core of political power moved to the south-west. A citadel and a shahrestan were formed. In this framework, it is interesting to note that the pre-Islamic suburb to the west, in which the overlapping of human occupations was already considerable, was not re-employed as the core of the city, but kept its function as a suburb.

Finally, this long period was marked, at least in its final stages, by some depopulation, which very quickly turned into abandonment. The best-known example is Varakhsha, which presented pottery datable up to the 12th–13th centuries. This particular case seems to have been the result of a scarcity of water flowing from the end branches

<sup>9</sup> Bulliet 1994: 67–70.



FIGURE 39 Map with paleochannels, 9th–12th century CE settlements and bipartite sites (Esri Imagery 2018; Rante 2018). The pale yellow ovoid marks an inhabited area, probably seasonal, but in any case weakly inhabited compared with the urban centres within the oasis  
 RESEARCHES UNDER THE DIRECTION OF SÖREN STARK



FIGURE 40  
Ramitan, satellite view showing the Islamic city  
GOOGLE EARTH 2017



FIGURE 41 Paykend, 3D view of the site  
RILIEVI SRL 2012

of the Khitfar Ramitan. At a later date, the whole area of Varakhsha was abandoned because of the absence of water resources. The limit of the oasis is located 8 km to the east of Varakhsha. As can be observed clearly in the 1893 map, at that epoch the site was completely surrounded by steppe. It was only with the irrigation work carried out by the Soviet Union in the 1960s and 1970s that the area was once more inhabited. Varakhsha is today situated between the irrigated lands and the steppe.

In the north-western part of the oasis, sites 0896, 0357 and 0247 seem to have become depopulated, and even quickly abandoned. Globally, nevertheless, this region remained populated enough. In the heart of the oasis, site 0571 and Banab (0567) also seem to have been abandoned. Interestingly, the eastern side of the oasis presented several depopulated sites: Sites 0531, 0546, 0609 and 0622, all founded along or very near the important Rud-i Zar flowing into Bukhara. It would not be difficult to imagine that,



FIGURE 42 Ramitan, 3D view of the site  
RILIEVI SRL 2013

for a variety of reasons, the people of these cities left them to reach and live in Bukhara, which from the 10th century expanded notably in terms of territory and political-administrative influence.

### 3.5 Phase 5

As has already been observed, by the 13th century (fig. 43), the following periods were once again marked by dynamics of depopulation of the ancient cities, at times in favour of new settlements close by, which are better identifiable in the 16th century. The phase corresponding to the 13th–14th centuries was characterised by the first of the two periods of depopulation and abandonment. This period followed that of the 12th–13th centuries, during which a slow depopulation of the main sites of the oasis was observed.

Marzangon (0089) in the north-eastern part; site 0566 and Afshana (0432) in the core of the oasis; site 0330 in the far-western part; and site 0005 to the south, were observed to have experienced a dynamic of depopulation, because of the absence of characteristic pottery.

Although this epoch coincided with important historical events, such as the Mongol and Timurid invasions, as

well as with two climatic warmer periods in western Central Asia, it is not yet possible to globally, and better, identify the causes of this urban depopulation.<sup>10</sup>

### 3.6 Phase 6

The last phase identified corresponds to the 15th–16th centuries (fig. 44). This epoch marked the end of the depopulation phenomenon of the ancient tepe, which does not mean the total abandonment of the oasis, because other occupations occurred around them, as observed above.

In the western zone of the oasis, Kakishtuvan (0317), Barkad (0944), Pinjan (0275) and site 0320 were abandoned, evidence of what was now extreme difficulty in supplying water from the ancient channels. In the core of the oasis, or better along the course of the Zerafshan, Kumijkat (0090) and sites 0560, 0572 and 0190 seem to have become depopulated at that epoch, probably evidence of a high degree of water depletion in the Zerafshan basin, as

<sup>10</sup> In collaboration with Florian Schwarz, different scenarios concerning this depopulation dynamic are being elaborated.

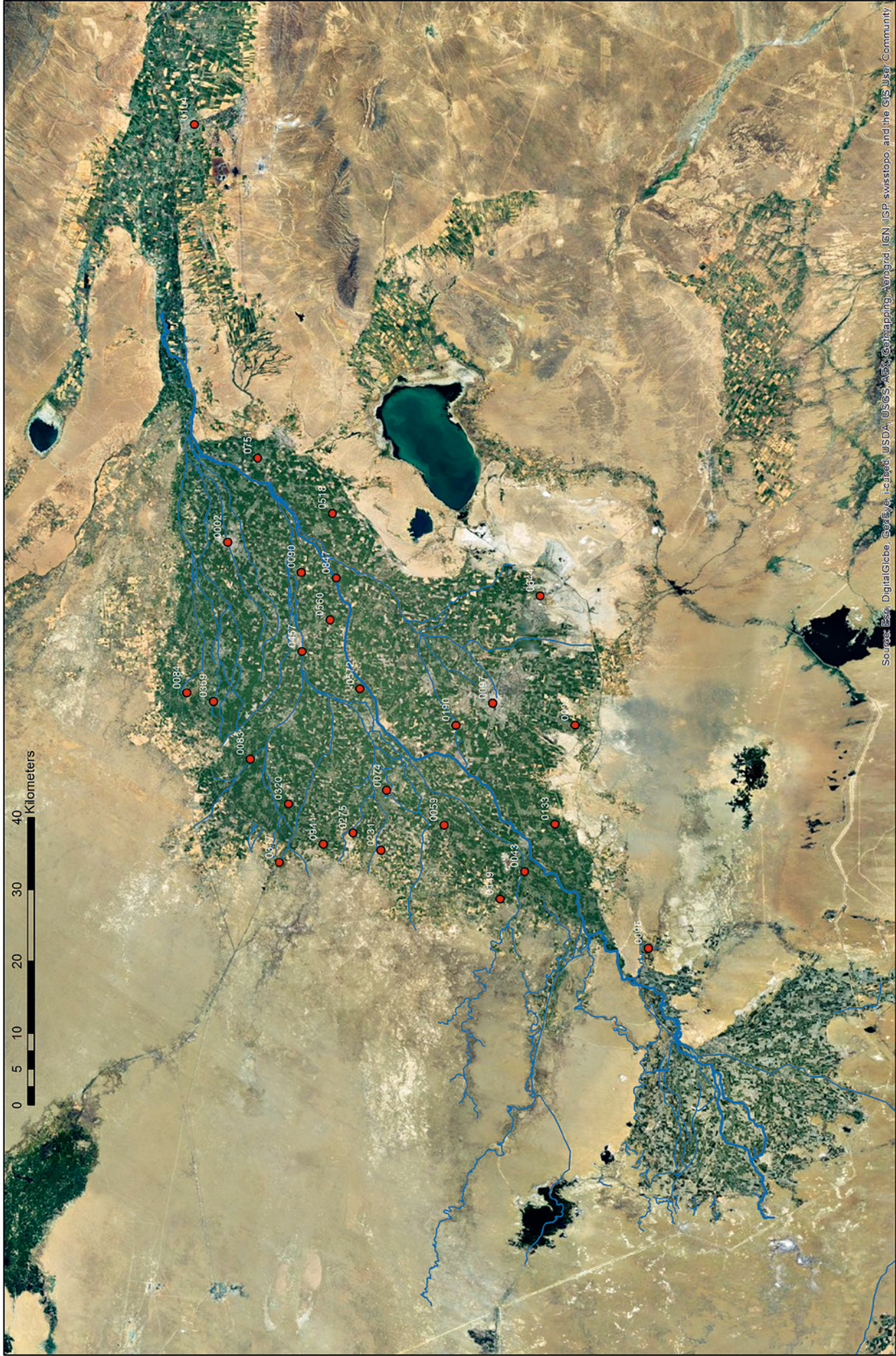


FIGURE 43 Map with paleochannels, 13th–14th century CE settlements  
 ESRI IMAGERY 2018; RANTE 2018

could be observed clearly at Iskijkat, where at that epoch the meanders of the main river apparently lost their water capacity. In the eastern part, Tavovis (0751) and site 0518 once again were marked by the depopulation of the ancient tepe. To the south, sites 0003 and 0133 also were depopulated at that epoch. Finally, outside the delta, but still within the oasis, at least according to the written sources (Frye 2007: 13), Karmana (0104) was also abandoned, and the inhabitants moved elsewhere, probably in the same area that benefited from the passage of caravans linking Bukhara to Samarkand.

Although not recorded as a phase, because no archaeological traces could really be distinguished, between the 16th and 19th centuries all the tripartite sites mentioned were definitively abandoned, except, at least according to our latest research, Bukhara, Gijduvan and Vobkent,

in which the ancient tepe was absorbed by the new foundations.

Why were these sites abandoned? Different causes can be imputed to this phenomenon. One such cause could have been the difficulty of supplying water to these ancient tepes, which presented too substantial an overlapping of layers. This trend of site transformation concerned more or less all the most ancient sites. Another cause could have been the exponential expansion of Bukhara, which implied a concentration of the other economies of the oasis, inducing a slow depopulation of the other provinces. No doubt, more global historical phenomena have to be taken into consideration, but this phenomenon generates not a depopulation of the oasis but a slow abandonment of the older sites, for which, I believe, principally local causes should be considered.

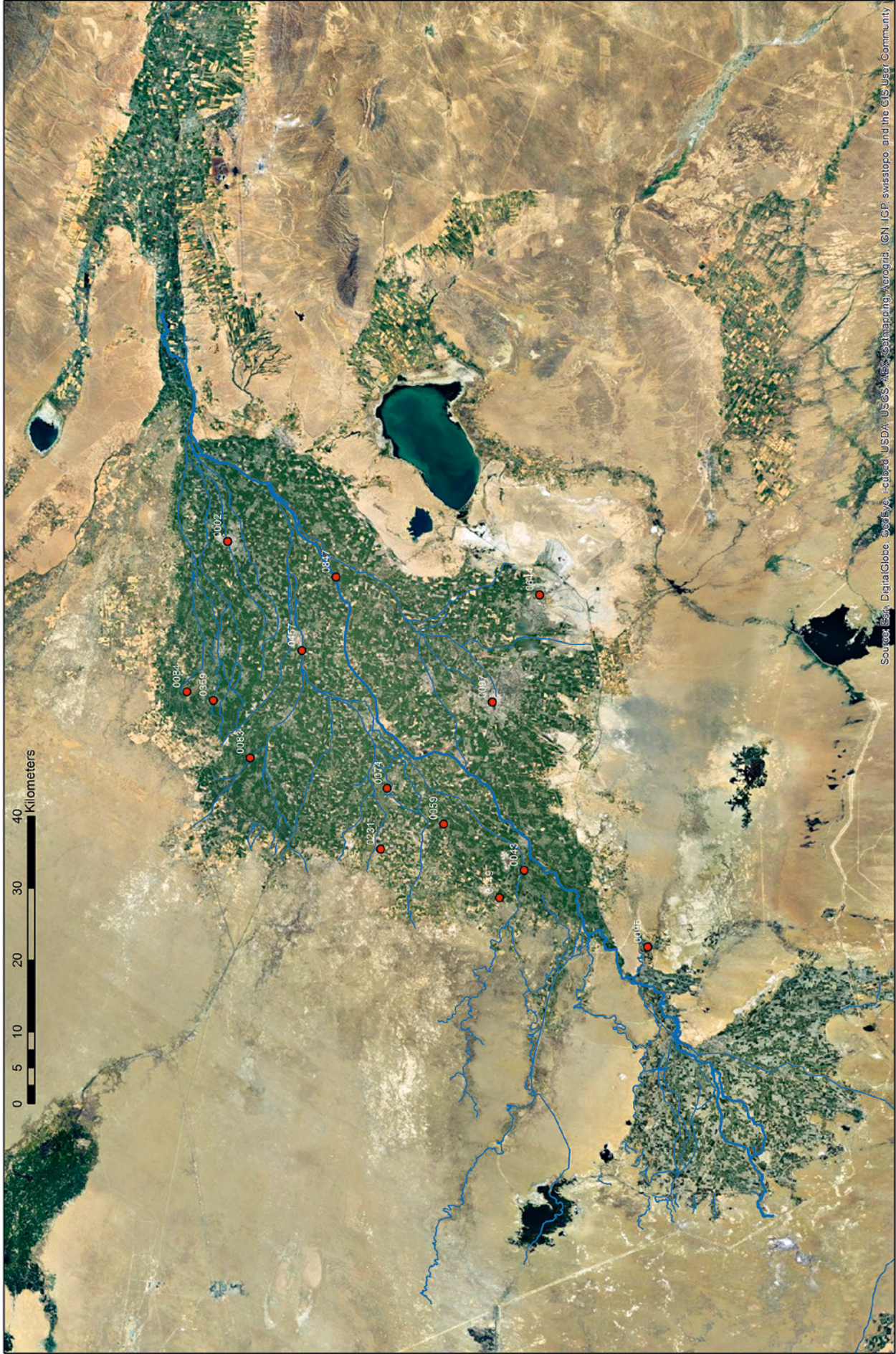


FIGURE 44 Map with paleochannels, 15th–16th century CE settlements  
 ESRI IMAGERY 2018; RANTE 2018

# Morphology of Cities

## 1 Urban Topography

Investigating ancient fields and settlements is crucial to understanding in depth the geo-archaeological situation in which people settled and how that situation evolved. Such investigations involve a geomorphological analysis, as well as analysis of the relief of the territory. Analyses should be carried out, as Margueron reminds us (2013: 371), following as closely as possible geomorphological methods for analysing landscapes. Optimal procedures guarantee a precise and correct understanding of the environment in which peoples settled in the past.

The topographical analysis of a site consists, first, in determining the perimeter of the whole area to be studied; then, the topographer, with a strong archaeological background if possible, acquires geospatial points with the support of adapted instruments, as for example a georeferential GPS or a simple theodolite. The aim is to model the morphology of the ground and, if the analysis is well conducted, to show mounds, furrows, holes, and so forth. This analysis helps to read the surface of the ground and brings to light traces beneath the surface, which are often invisible to the naked eye.

This study belongs to the initial approach to the ground, and it provides us with the tools for an initial understanding of the landscape. Later, archaeological activities verify the data of the different traces, explain it, and if needed (often, archaeological traces suffice), interpret it.

The topographical work realised by Danilo Rosati (Rilievi srl) and myself in the Bukhara Oasis since 2009, has inventoried – as previously noted – 1,040 sites. The study of each site brought to light different types of settlements, of which the accurate study of the topography identified true urban entities, cities and other types of settlements. “A city is made of nothing, but the relations between the dimensions of its spaces and the events of its past” (Calvino 1972: 3; *Non di questo è fatta la città, ma di relazioni tra le misure del suo spazio e gli avvenimenti del suo passato*). Calvino’s words, relating Marco Polo’s words to Kublai Khan about the city of Zaira while he was above its high walls, is, to my eyes, the best synthesis through which to excavate and understand a city: to determine the events of the past and study the relations that exist between them and the dimensions of the urban spaces. Such a study is necessary to identify a city in its complexity and

determine its characteristics, which will then generate urban categories.

This is the case with the present analysis. Through an accurate topographical study and an accurate analysis of human traces, it has been possible to categorise the cities and divide them into two categories: the tripartite and the bipartite. The other sites within the oasis cannot be considered cities, simply because they are missing urban peculiarities, such as a central and governmental place and a lower city, sometimes called a village.

## 2 The Tripartite Sites<sup>1</sup>

As previously noted, the tripartite sites are the urban agglomerations constituted of three main parts: a citadel (the political centre), a shahrestan (the village) and a suburb. At this juncture, it is not yet possible concretely to identify every characteristic of each urban section. True, markers exist that are characteristic of this or that urban entity, but globally the earlier and recent excavations brought to light a complexity of features in each urban section, so it would be perilous indeed to try and rigidly identify a group of markers exclusively for one section but not for the others. To establish this, it would have been necessary to excavate all the sites. Thus, among the tripartite sites, the topographical composition has been the only feature considered for this initial identification.

The tripartite sites, according to our surveys, excavations and ceramic studies, cover a range of dates between the 3rd century BCE and the 15th–16th centuries CE.<sup>2</sup> The tripartite urban organisational feature was one that was acquired in the early medieval period, as has at times been stated by certain scholars (Barthold 1903: 8–9; 1966: 173–74). According to our excavation results, several cities within the oasis comprised a suburb the origins of which date back to the 5th century CE. This was, for example, the case with Ramitan, in which, as will be shown below, the western suburb, unwallled, presented substantial

<sup>1</sup> The study of toponyms conducted with the collaboration of Florian Schwarz brought to light new information about the cities of the oasis and their administrative connections. Further details and data will be presented in further publications. It was also based on the broad and very useful study carried out by S. Adilov and C. Babaev 2011.

<sup>2</sup> The Timurid occupation often was sporadic and temporary.

occupation over several hectares. Inhabitants may nonetheless have lived outside the walled cities also before the 5th century. In fact, according to our investigations, traces of scattered habitats outside the fortifications date to the last centuries before the Common Era, as in Ramitan, Kakishtuvan and Varakhsha. Social entities confined to living outside the walled cities therefore existed. It is probably only in the historical framework of the 5th century that, for demographic reasons, the city expanded outside the fortified limits and settled into more structured areas, with separate habitats and commercial or artisanal zones.

Although MAFOUB's recent excavations were carried out across five sites, several other earlier excavations were compared with these, and on occasion redirected, taking our results into consideration. Each material and element of data collected during the surveys was compared with those resulting from the excavations. Some surveyed material was analysed with TL or physico-chemical processes better to determine its characteristics or chronology.

Finally, according to our results, 22 of the 53 tripartite sites were founded between the 3rd and 1st centuries BCE, but it is absolutely not excluded that the other sites also were founded at the same time. The fact that no material from the 3rd–1st centuries was found does not confirm that it does not exist; only excavations could complete this lacuna.

It is, however, important to stress that all 22 of the earliest foundations (3rd–1st centuries BCE) were characterised by a continuity of human occupation until the 15th–16th centuries. It can therefore be attested that in this sample, and probably also in the others, the tripartite sites represented the evolution of the earliest foundations within the oasis. Or even, that the tripartite character could be considered as a chronological element. It could thus be stated that the tripartite sites were also the most ancient settlements within the oasis. As shown below, the connections between settlements and the water network give us further elements to corroborate this theory.

### 2.1 Methodology

In an initial satellite analysis, in which different images were used, 123 tripartite sites were identified within the Bukhara Oasis. The archaeological surveys realised between 2013 and 2014 concerned every one of the 123 sites. Of these, only 53 proved to be true human occupation mounds, demonstrating that the archaeological survey for verification is a *sine qua non* in presenting a serious and rigorous framework. On the whole, the rejected sites corresponded to flat land, well framed and identifiable, which often contained modern cemeteries, artificial modern mounds of sand and soil, natural mounds, or swampy

ancient irrigated areas. Sites 285 and 276 are two of the multiple examples of this (fig. 45). In the satellite view, the former is well defined and presents a relief, suggesting a tepe. The survey confirmed the presence of a relief, but of a mix of soil and sand. A more in-depth inspection proved its recent creation. Site 276, as was the case for many others, is undoubtedly a modern cemetery, without relief and with no ancient human traces.

### 2.2 Territorial Organisation of the Tripartite Sites

Figure 46 shows a 3D view of the distribution of the 53 tripartite sites within the oasis, also trying to show a different point of view. In this urban global framework, the distribution of cities and villages appears not to be homogeneous. In fact, large empty zones and areas with grouped sites can be observed. In the former instance, four areas were identified: in the northern part of the oasis, in the central-western part, in the western part, and in the central-southern part. These four areas relate to well-established administrative regions, in which the survey showed the presence of main cities, probably controlling and organising the district.

Before dealing with the urban distribution, the connections with water channels, and the administrative, political and especially economic features deriving from this specific distribution, an in-depth description of this group of cities is indispensable.<sup>3</sup> An individual and disconnected study of each site would be much too long and probably useless. The risk is that each site would be taken out of the context of its own topographic and material culture characteristics, as well as from the characteristics shared with the other cities, *de facto* then missing the information relating to its function in a global view of the oasis.

The method employed involved grouping the 53 sites into macro-categories that could be reassembled into a common urban evolution. The idea was to group the sites based on their topographic similarities, of which the main feature is their territorial expansion. In fact, although the sites are constituted of three urban entities, they presented differences with regard to their urban evolution, which was primarily observable from their topographic extension. A study of these topographic measurements allowed me to identify different categories of cities. These were subsequently compared with the ceramics collected during the survey of the site. In this context, each urban entity was studied separately, mixing the observation of pottery and topographical extension, and then comparing these with the others. Some sites presented, especially on

<sup>3</sup> Although regarding other geographical areas, see Lamberg-Karlovsky 2012: 23–54.

Site 285



Site 276

FIGURE 45 Examples showing the visual limits of an exclusive satellite survey  
GOOGLE EARTH 2017

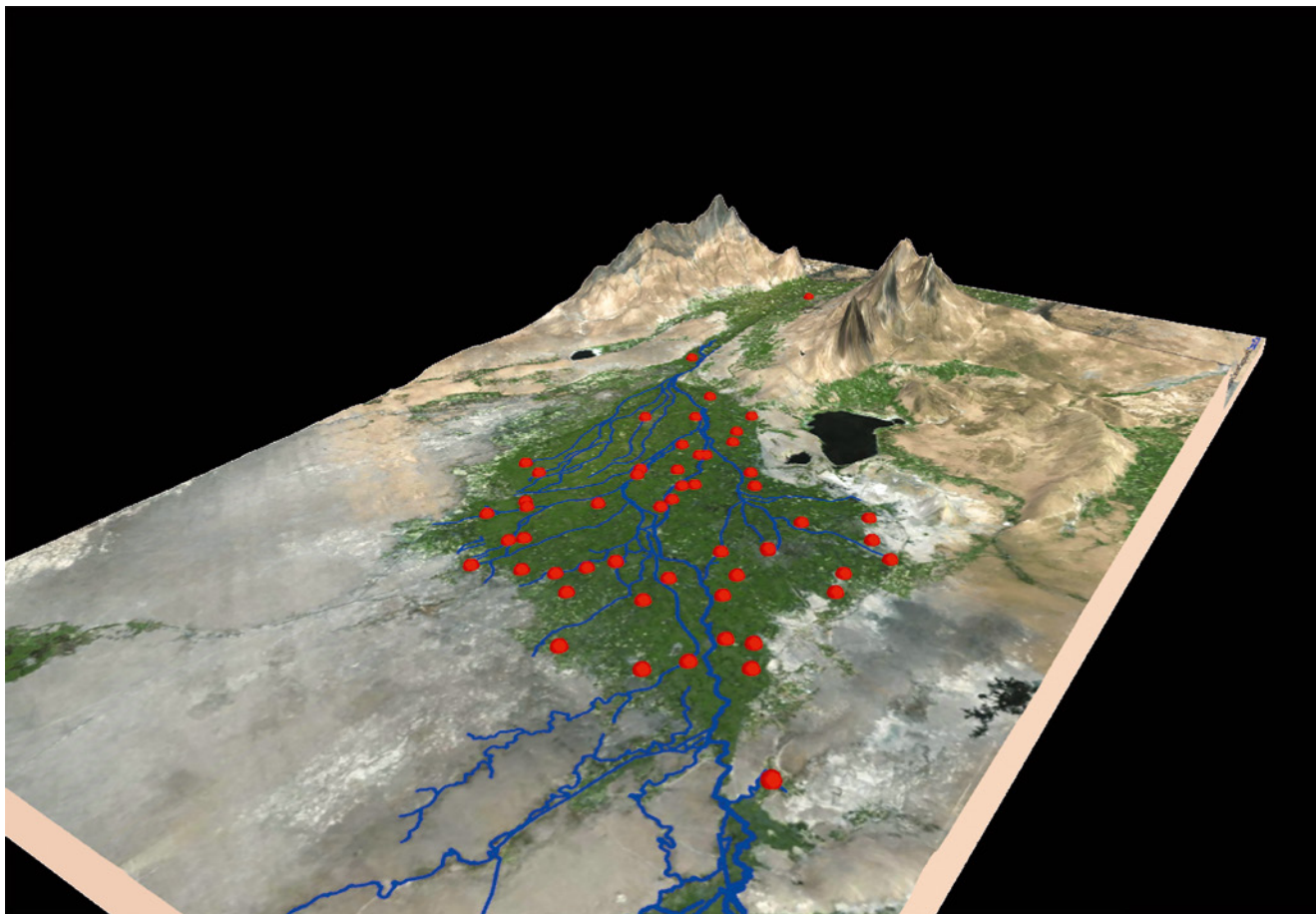


FIGURE 46 3D satellite view of the oasis with paleochannels and tripartite sites  
QGIS 2017

the shahrestan, a 5–10 cm salty layer covering the pottery evidence. In these cases, we proceeded to a reduced-scale survey, in which we removed this salty layer.

This analysis brought to light four broad categories of territorial extension, ranging from a minimum of 3 ha to a maximum of circa 1000 ha (fig. 47). Evidently, these areas correspond to the present topography, but the main goal here was to bring to light the urban centres showing a higher degree of population density. The measurements made, therefore, took into consideration, whenever possible, the ancient limits of the urban entities, excluding the debris perimeter, which inevitably would enlarge the original surfaces. When it is possible, a chronological division will also be presented, showing the topography in its own chronological context. As a first step, the hydrographic context considered was the geomorphological one rather than the one ensuing from the 1893 map. The former, in fact, presented a hydrological setting that took into consideration only the natural watercourses. The latter presented a hydrographic situation that would be the result of centuries of artificial canals and, in any case, will be employed later, showing a global view of the oasis between urban and hydrographic networks.

### 2.3 *Urban Category 1 (>30 ha)*

Urban category 1 comprises five cities: Bukhara, Paykend, Ramitan, Vobkent and Gijduvan (fig. 48). With reference to the last two sites, since their modern urbanisation, a triple investigation was necessary: through satellite images, research on ancient documents relating to urbanism and a survey of the ancient town. As was the case for Bukhara (Beleniskij 1973: 232–55; Gaube 1999: 20–8; Gangler, Gaube and Petruccioli 2004: 40–2), in both cities – Vobkent and Gijduvan – an old town was identified and outlined.

For these cities, it was observed and verified in the field that they were larger already at the moment of their foundation than the other tripartite cities. As will be stressed below, one of the main aspects of this investigation was the constant urban evolution that characterised the cities of the oasis.

#### 2.3.1 Bukhara

This short section about Bukhara presents previous archaeological data. A new history of the city is treated in the part consecrated to the archaeological excavations (see below). Although Bukhara represents an “outsider”

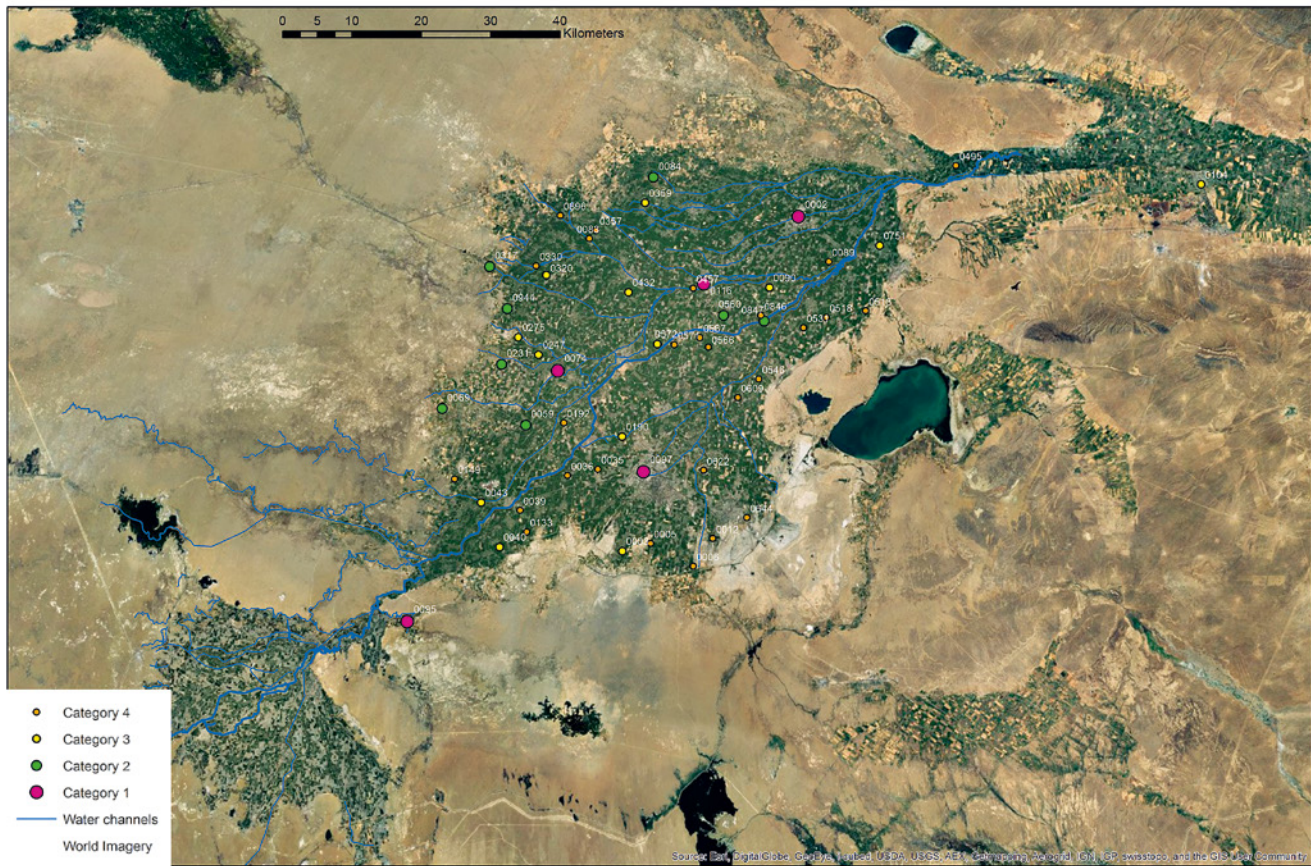


FIGURE 47 Map of the oasis showing the tripartite sites divided into four categories by size  
ESRI IMAGERY 2018

because of its longer urban evolution, as well as because of its status of city-capital from the early medieval period, it is the city in this group of cities with the largest territorial extension. In the 10th century, its surface already represented circa 1,000 ha *intra muros*, including the citadel, the ancient town and the very large walled rabad (fig. 49).<sup>4</sup> According to Nekrasova (1999: 61–9; Gangler, Gaube, and Petruccioli 2004: 42), the most ancient occupations would have occupied the present citadel,<sup>5</sup> a portion of the northern half of the shahrestan and a portion of the central

4 With regard to the size of Samanid Bukhara, see the exhaustive work of Naymark (2007: 153–59), who has roamed across the numerous studies on this topic.

5 Nekrasova (1999b: 64) shows a cross section in which she identifies the most ancient rampart of the Ark (indicated with the number 4 in the figure) and dates it to the 4th century BCE–8th century CE. She also mentions (1999b: 62) an area equal to 1–2 ha for the Ark at its foundation. Whatever a deep and interesting study could have been realised about the most ancient city, since no traces of the whole perimeter have been found, I cannot consider this element as an archaeological one, but rather coming from other urban comparisons.

part of the shahrestan, thus confirming the previous interpretations presenting the earliest city between the Ark and the north-western part of the current shahrestan (Beleniskij 1973: fig. 94 II; Gangler, Gaube, and Petruccioli 2004: fig. 4.03) (fig. 50). According to this earlier information, this first settlement would have extended over circa 22.5 ha (Nekrasova 1999: 67). Once again according to Nekrasova, some centuries later, from the 3rd to the 1st centuries BCE (Nekrasova 1999: 61–9; Gangler, Gaube, and Petruccioli 2004: 43), while the central part of the current shahrestan continued to be occupied, a second half of the current shahrestan was also occupied to the south, thus completing the almost square shahrestan of Bukhara.

### 2.3.2 Paykend

The city of Paykend<sup>6</sup> covers an area of circa 67 ha, including the citadel, the double-walled shahrestan and the unwalled rabad, which is divided into the southern and eastern rabad (fig. 51). If one adds the to-date lesser known

6 With reference to this site, see Mukhamedjanov et al. 1988; Semenov 2002; Rante 2013; Omelchenko 2015.

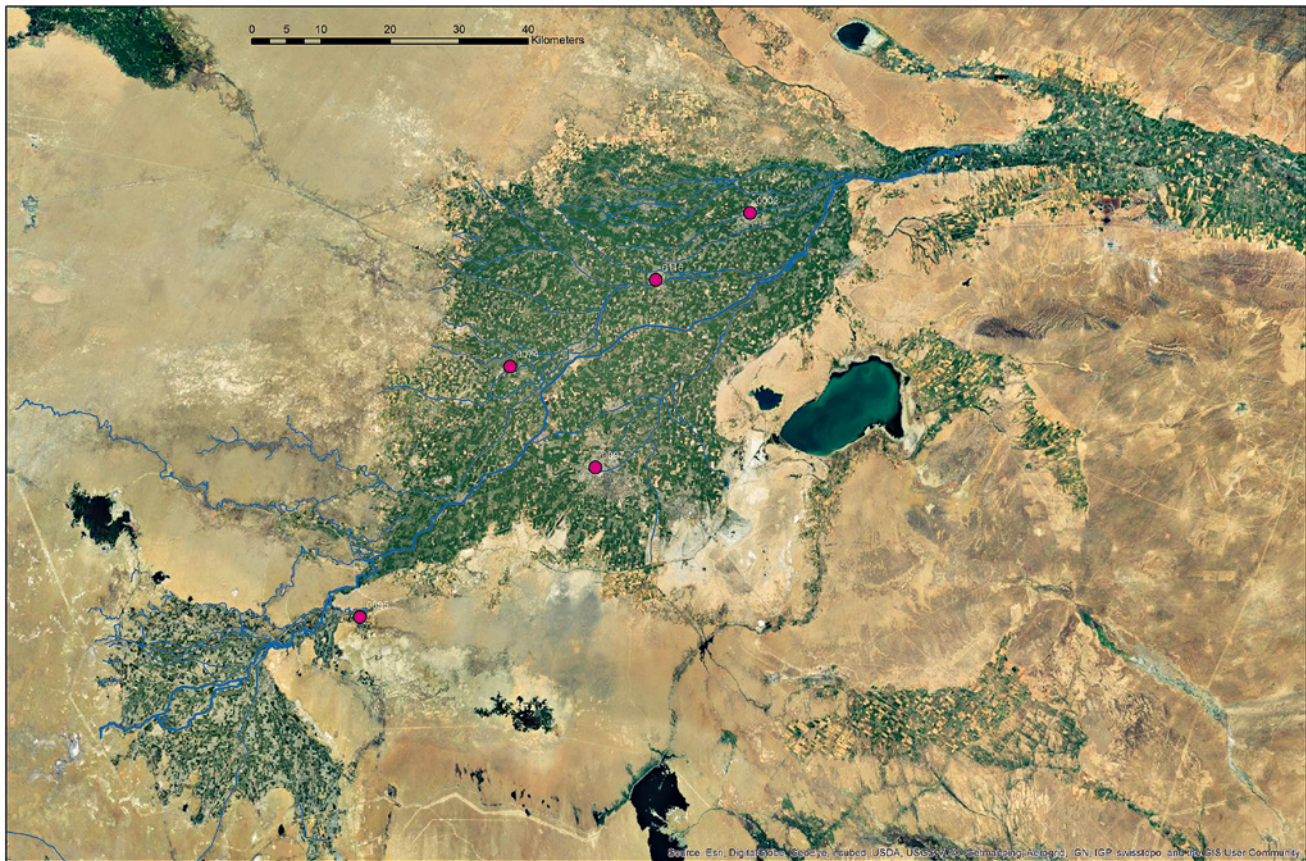


FIGURE 48 Map showing urban category 1  
ESRI IMAGERY 2018



FIGURE 49 Bukhara, perimeter of the Samanid (10th century CE) city  
BELENISKI, BENTOVIC AND BOLSHAKOV 1973; RANTE 2018

eastern side to the global settlement, then it might cover an area of circa 82.5 ha (Rante 2013). The site is situated between the end of the Bukhara Oasis and the Qaraqöl micro-oasis, on the weak Paykend relief east of the course of the Zerafshan River.

According to our recent research and absolute dating carried out in collaboration with the team from the

Hermitage Museum,<sup>7</sup> the first settlement dated to the 3rd–2nd centuries BCE. It was located east of the Zerafshan River, south of a topographical depression that most probably benefited from the periodical flooding of an arm of the Zerafshan, flowing to the east, situated to the north of this geographical depression (fig. 52). The early human occupation thus settled on a weak relief, which borders this “water reservoir” depression, an ideal place for agriculture (fig. 53). Although at that epoch men were used to digging water canals to supply places with water, this first occupation seems to have repeated Neolithic and Bronze Age models, according to which human groups settled around lacustrine places, as well as around the ends of watercourses.

7 Mukhamedjanov et al. (1988: 45, 110) dated the city between the 4th and 2nd centuries BCE. In a recent article (Rante 2013: 235 n. 27), written during the excavations, I state that the TL dating of one ceramic fragment indicated a first human presence between the 5th century BCE and the 3rd century CE, leaving more detailed dates to subsequent archaeological operations, which are published in this book.

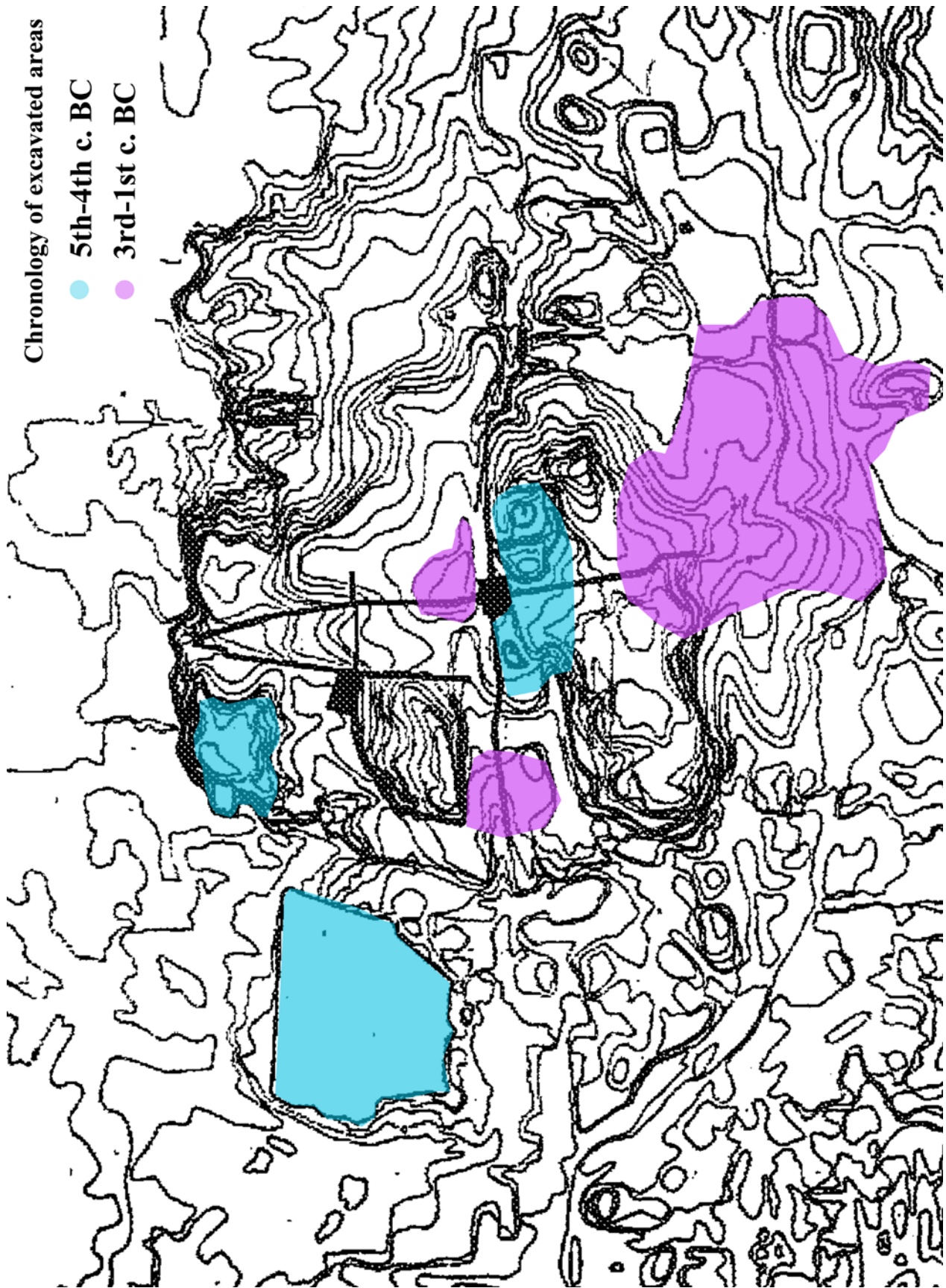


FIGURE 50 Bukhara, evolution of the urban plan  
GANGLER, GAUBE PETRUCCIOLI 2004; RANTE 2018



FIGURE 51 Paykend, topography  
RILIEVI SRL 2011

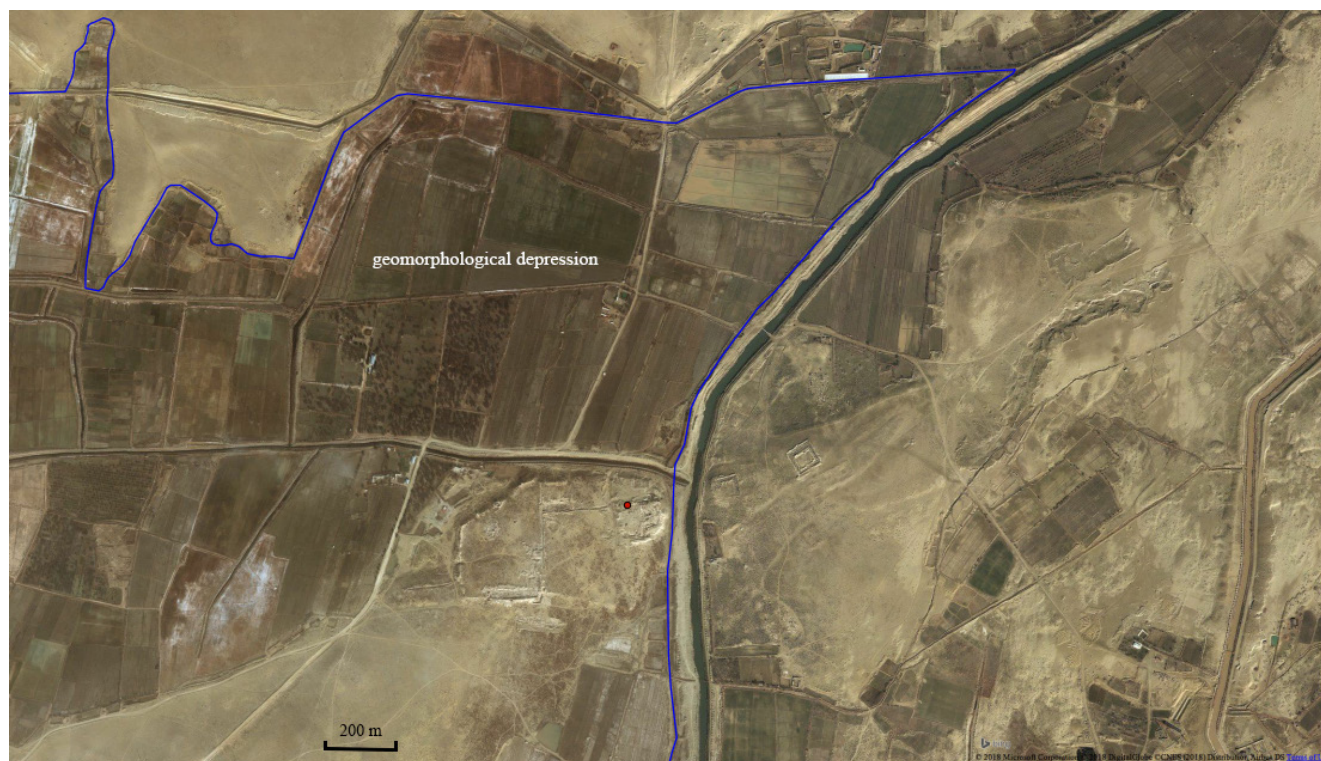


FIGURE 52 Paykend, satellite view showing the earliest channel traversing the ancient city

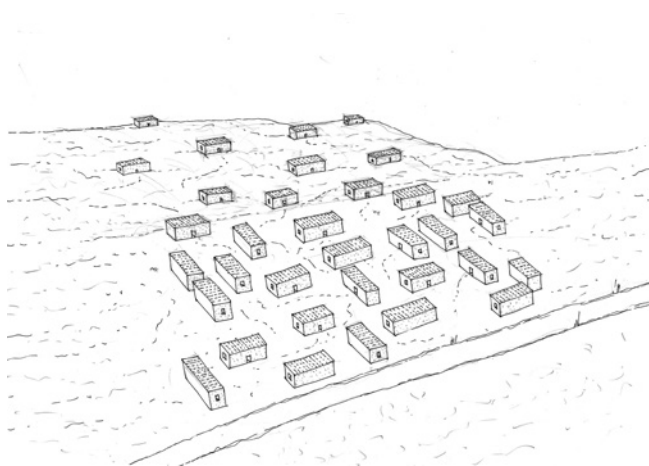


FIGURE 53 Sketch showing the possible earliest settlement of Paykend  
RILIEVI SRL 2017

The first fortified entity, which is yet to be satisfactorily dated, likely to have been built a little later, was probably composed of a single walled entity, later the citadel, covering an area of circa 1 ha (fig. 54). Probably at the same time, or a little later, the main watercourse oriented north-south was dug to supply the inhabitants with water.<sup>8</sup> In the second half of the 4th century a walled shahrestan was

<sup>8</sup> The canal was smaller than the present-day one.

added to the west of the citadel. In that period, the whole surface corresponded to circa 14 ha (fig. 55)<sup>9</sup>. The city thus took on a morphology that is well known in that epoch, comprised of an upper part (the citadel) and a lower town (shahrestan-1). Both urban entities were defended by a strong rampart. The second shahrestan, covering a total area of circa 21.5 ha, was added to the western part of the city (fig. 56) only in the late 6th–7th centuries. The southern and eastern suburbs showed occupation from the early 9th century (fig. 57). The pottery quarter also showed occupation from the beginning of the 9th century. Since this period, the inhabited city has attained a total surface area of 67 ha.

### 2.3.3 Ramitan

Ramitan covers an area of circa 45 ha, including a walled citadel and shahrestan, and external mounds with no walls, which will be considered later (fig. 58). Previously excavated by Suleymanov, who only dug one stratigraphical test area in the square city, never attaining the natural substrate, it has been surveyed and excavated by MAFOUB since 2011. The earliest settlement dates to the

<sup>9</sup> The global section W-E of the city shows National Altitudes, which were not at my disposal in the section, which I presented in a recent article (Rante 2013: fig. 8).

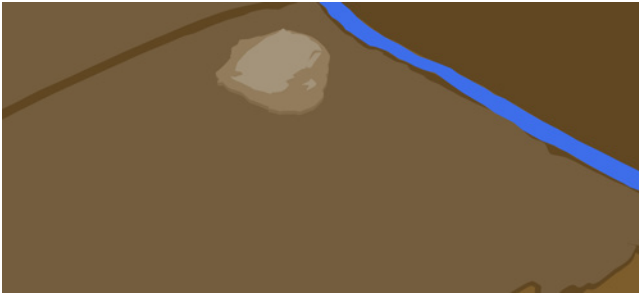


FIGURE 54 3D view of the earliest settlement of Paykend, the future citadel  
RILIEVI SRL 2017

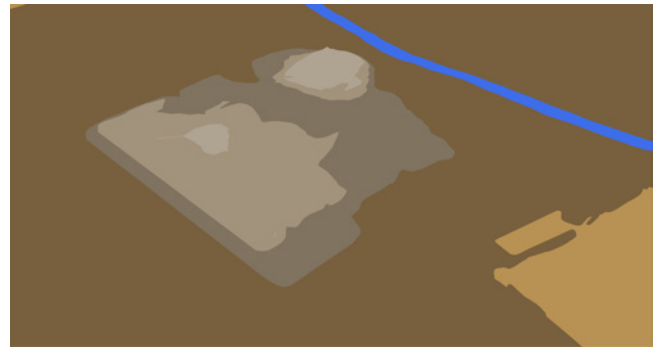


FIGURE 55 3D view of the citadel and the shahrestan of Paykend  
RILIEVI SRL 2017



FIGURE 56 3D view of the citadel and the two shahrestans of Paykend  
RILIEVI SRL 2017

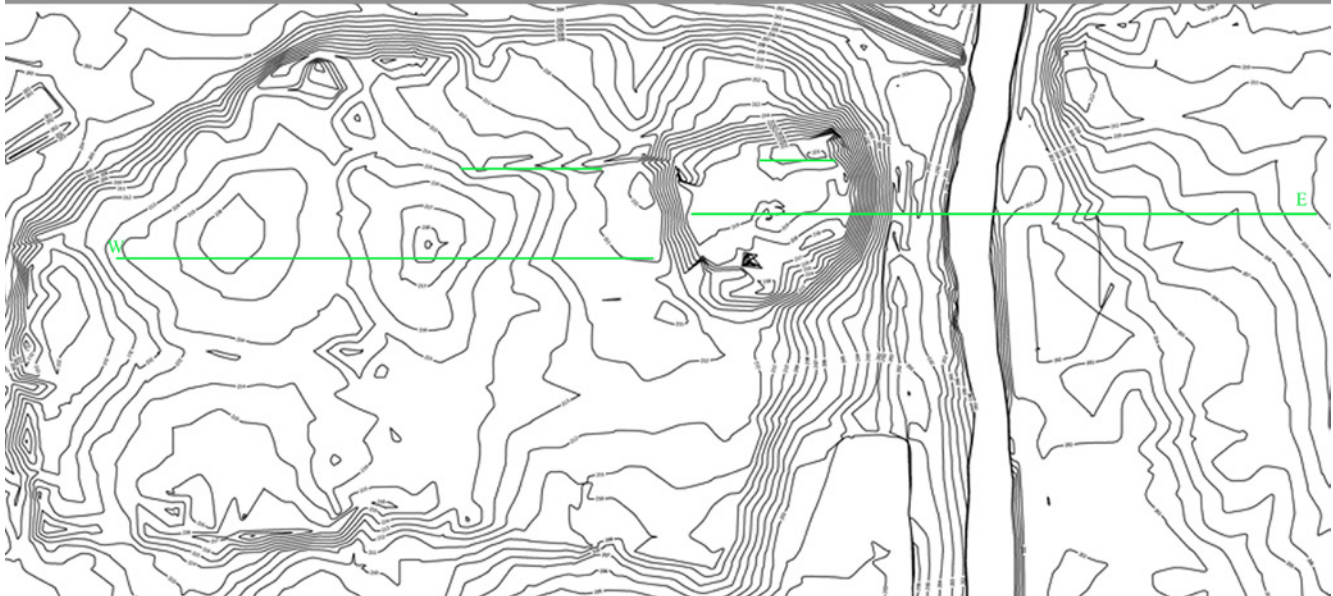
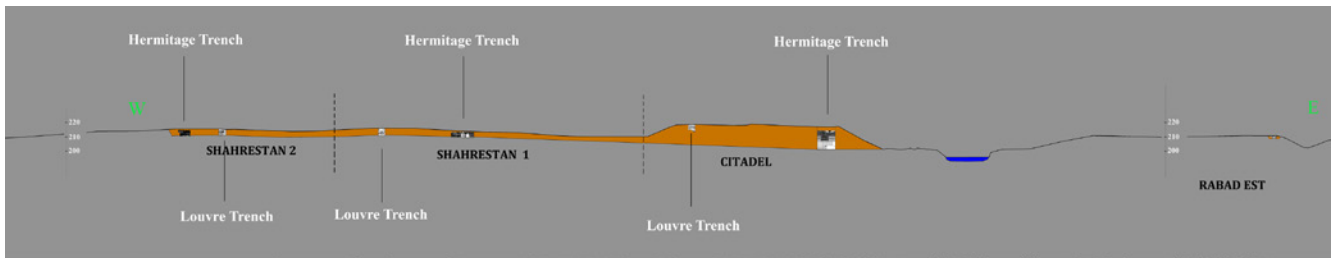


FIGURE 57 Cross section of Paykend (above) and topography of the selected area  
RILIEVI SRL AND RANTE 2017



FIGURE 58 Topography of Ramitan  
RILIEVI SRL 2014



FIGURE 59 3D view of the earliest settlement of Ramitan  
RILIEVI SRL 2017



FIGURE 60 3D view of the extended earlier settlement of Paykend,  
the future citadel  
RILIEVI SRL 2017



FIGURE 61 3D view of the citadel and the shahrestan of Ramitan  
RILIEVI SRL 2017

3rd–2nd centuries BCE, but this would have concerned a first, non-urban occupation, as yet not well identified. The first city was quadrangular and dated to the early 1st century CE (fig. 59). A strong wall composed of square towers defended the city. This first urban entity covered an area of circa 1 ha. In the 2nd century CE, the quadrangular city was enlarged and was defended by a strong wall and round towers (fig. 60). At that epoch, the city covered 3 ha. In the 4th century a shahrestan measuring 5.3 ha was added to the south, covering a part of the southern rampart of the earlier city (fig. 61). By the end of the 4th–5th centuries an unwalled suburb developed west of the old city (fig. 62). Overall, at that period, the city extended over circa 22.5 ha. With the Islamic occupation, a new city was founded south of the suburb. Since that time, the rabad has expanded to the east (fig. 63).



FIGURE 62 3D view of the citadel, the shahrestan and the suburb  
(later rabad) of Ramitan  
RILIEVI SRL 2017



FIGURE 63 3D view of the ancient city (citadel and the shahrestan),  
the rabad and the Islamic city of Ramitan  
RILIEVI SRL 2017

The main water supply flowed, and still today flows, north-south alongside the ancient city to the east, and traversing the southern rabad. Two other, smaller water canals flowed along the eastern and western sides of the area dating to the 4th–5th centuries, joining the main canal to the south. The main and ancient road traversed the urban agglomeration from north to south, dividing the oldest city from the main western suburb.

#### 2.3.4 Vobkent<sup>10</sup>

The old centre of Vobkent (fig. 64),<sup>11</sup> in which the 12th-century minaret still stands today, and which covers circa 30 ha, seems to have settled on the northern side of the natural canal called in the medieval period, *Khitfar*. According to the survey carried out inside the city, the western part of the old urban entity appears to be higher than the rest. Although it is difficult to establish a rigorous topographical plan, it could be suggested that a higher part of the city settled to the west and the shahrestan to

<sup>10</sup> With reference to Vobkent, surveys of the old town and contacts with the authorities showed us fortuitous discoveries of pottery sherds and other materials, which gave us some elements suggesting this early chronology.

<sup>11</sup> The illustration I am proposing takes into consideration the ancient town and not the original perimeter of the ancient city, which has been totally destroyed. See also Adilov 2012: 110.

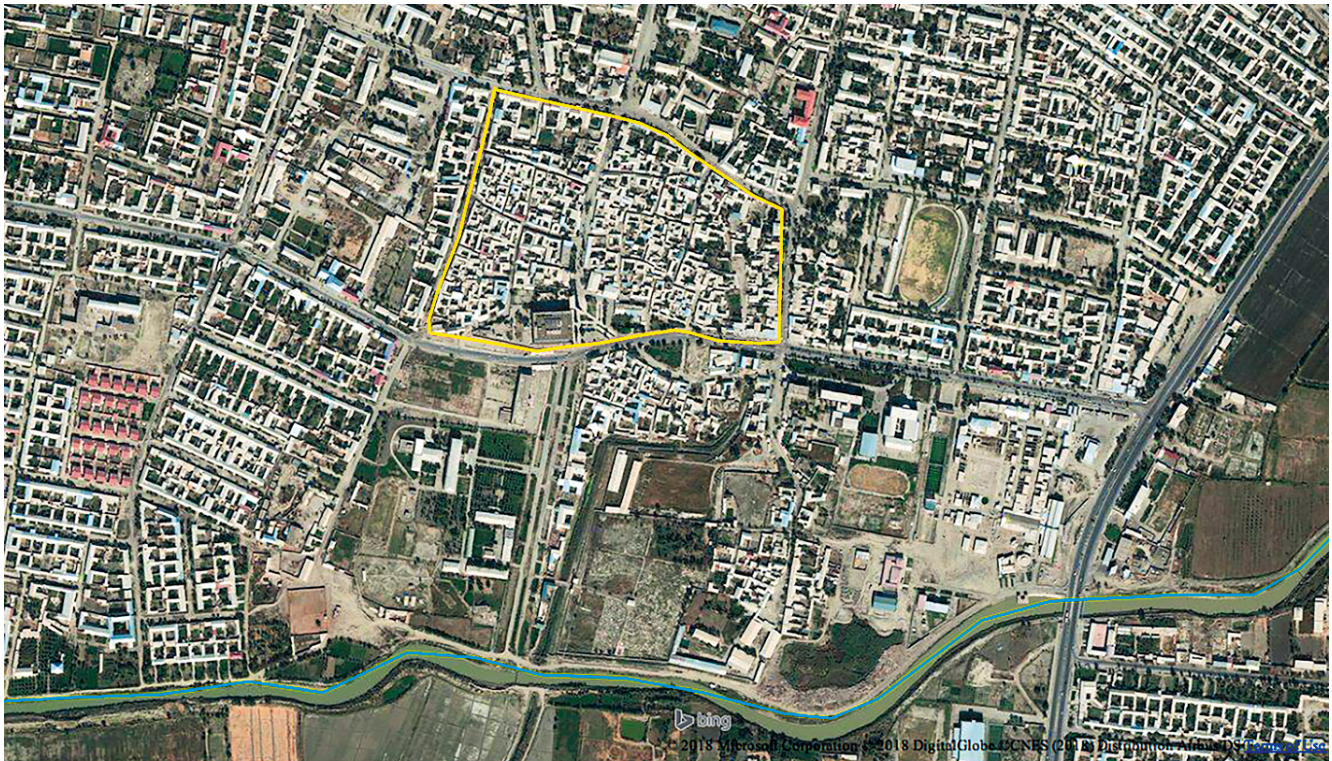


FIGURE 64 Satellite view of Vobkent with possible ancient area  
DIGITAL GLOBE CNES 2018

the east. References to the rabad can be found in 16th-century historical sources, which attest also to Vobkent's role as a marketplace in the northern part of the oasis (Schwarz 1999: 89, fn. 18). The existence of a commercial or production area around the old city is at present only a hypothesis.

### 2.3.5 Gijduvan<sup>12</sup>

The old centre of Gijduvan (fig. 65), as was the case with Vobkent, was brought to light by the 2014 survey. Two watercourses frame the old city, as is also visible in the satellite images.<sup>13</sup> The southern one seems to correspond to the Upper Kharqan Rud,<sup>14</sup> while the northern one is a natural watercourse that is separated from the former in the east of the city, before rejoining it in the western part. The whole of the most ancient urban nucleus covers circa 30 ha. The subsequent urban evolution extended

the city over more than 100 ha. Although it is impossible to carry out rigorous topography, because of urbanisation, the inner old urban agglomeration presents in its central-eastern part a compact area that is higher than the rest of the city. Its plan covers circa 1 ha and seems to have been square. The shahrestan most probably rose around it. The location of the rabad is, here also, unknown, but its existence was related by Narshakhi (Barthold 1981: 119–20). It could, however, have been situated to the east, where the Upper Kharqan Rud divides into two arms. This eastern zone is today separated from the old city by a highway going to the north of the oasis. In the 16th century, the commercial area was said to be “inside the town”, as Florian Schwarz (1999: 82) reminds us.

### 2.4 Urban Category 2 (10–29 ha)

Urban category 2 comprises eight sites: Iskijkat (0847), Vardana (0084), Varakhsha (0069), Kakishtuvan (0317), Barkad (0944), Ramish tepe (0059), Sivanj (0231) and site 0560. The cities selected cover an area between 10 and 29 ha (fig. 66). With the exception of Iskijkat and Varakhsha, less strong chronological information are available about of the cities in urban category 2 than are available about that of the cities in urban category 1. Nonetheless, ceramic comparisons help complete this category's chronological framework.

<sup>12</sup> With reference to Gijduvan, surveys of the old town and contacts with the authorities showed us fortuitous discoveries of pottery sherds and other materials, which give us some elements suggesting this early chronology.

<sup>13</sup> Esri image in this case, but Google Earth also suffices.

<sup>14</sup> Barthold (1981: 120) calls it the Lower Kharqana, but after the recent geomorphological studies, this should correspond to the Upper Kharqana.



FIGURE 65 Satellite view of Gijduvan with possible ancient area  
DIGITAL GLOBE CNES 2018

#### 2.4.1 Iskijkat

The site of Iskijkat covers 11 ha (fig. 67). The site comprises a square citadel of 1.2 ha; an unwalled sharestan to the east of 3 ha; a western part, also unwalled, of 2.5 ha; and a rabad to the south-east covering 4.3 ha.

The main characteristic of this site is its location. It leans, in fact, on the southern riverbank of the ancient meander of the Zerafshan (fig. 68). The excavations, as will be described later, showed that the settlement has been occupied since the 3rd–2nd centuries BCE. The earliest occupation was situated on the riverbank and did not involve any walled structure. The first walled city, of square morphology, rose a few metres south of the riverbank (fig. 69). The shahrestan, unwalled, is of heterogeneous morphology, extending to the east, following in part the Zerafshan meander. In the easternmost side of it, a circular structure rises up that seems to belong to a late period. Still today, some approaches to the river are visible in this part of the city. The excavation showed that the area where the shahrestan was later established was occupied at the same time as the square citadel. The western part of the site comprises a large depression in the ground, probably recently dug to supply the earth to fill the ancient Zerafshan bed and to construct the new canal. Behind it, a part of the city rises like an isolated mound; this is the western corner of the site. All the

south-western part, to the west of the square citadel, is today occupied by a large modern rubbish dump. The suburb, located to the south and south-east, is today occupied by vineyards.

#### 2.4.2 Vardana

The site of Vardana is located in the northern part of the oasis (fig. 70). Its complex urbanisation, its material culture and especially its location in an area where nomadic incursions into the oasis were a constant (fig. 71), all suggest that it was one of the main cities of the oasis. The site comprises a citadel of circa 0.7 ha, a shahrestan of circa 1.8 ha and perhaps another shahrestan of 8.5 ha. The suburb, or rabad, in which there rose a market (Frye 2007: 16–7), was established outside the ramparts, in a location around both shahrestan, probably in its eastern part.

It is not yet possible to determine correctly the date of the earliest occupation. The various archaeological operations have to date excavated layers between the 5th century CE and the Islamic period. No stratigraphical tests have so far been carried out.<sup>15</sup> Some ceramic fragments

<sup>15</sup> I would like to thank Silvia Pozzi, director of the current archaeological mission, for the information about the site and the excavations and for her kind visit on the site. She is right now publishing all the data relating to this city.

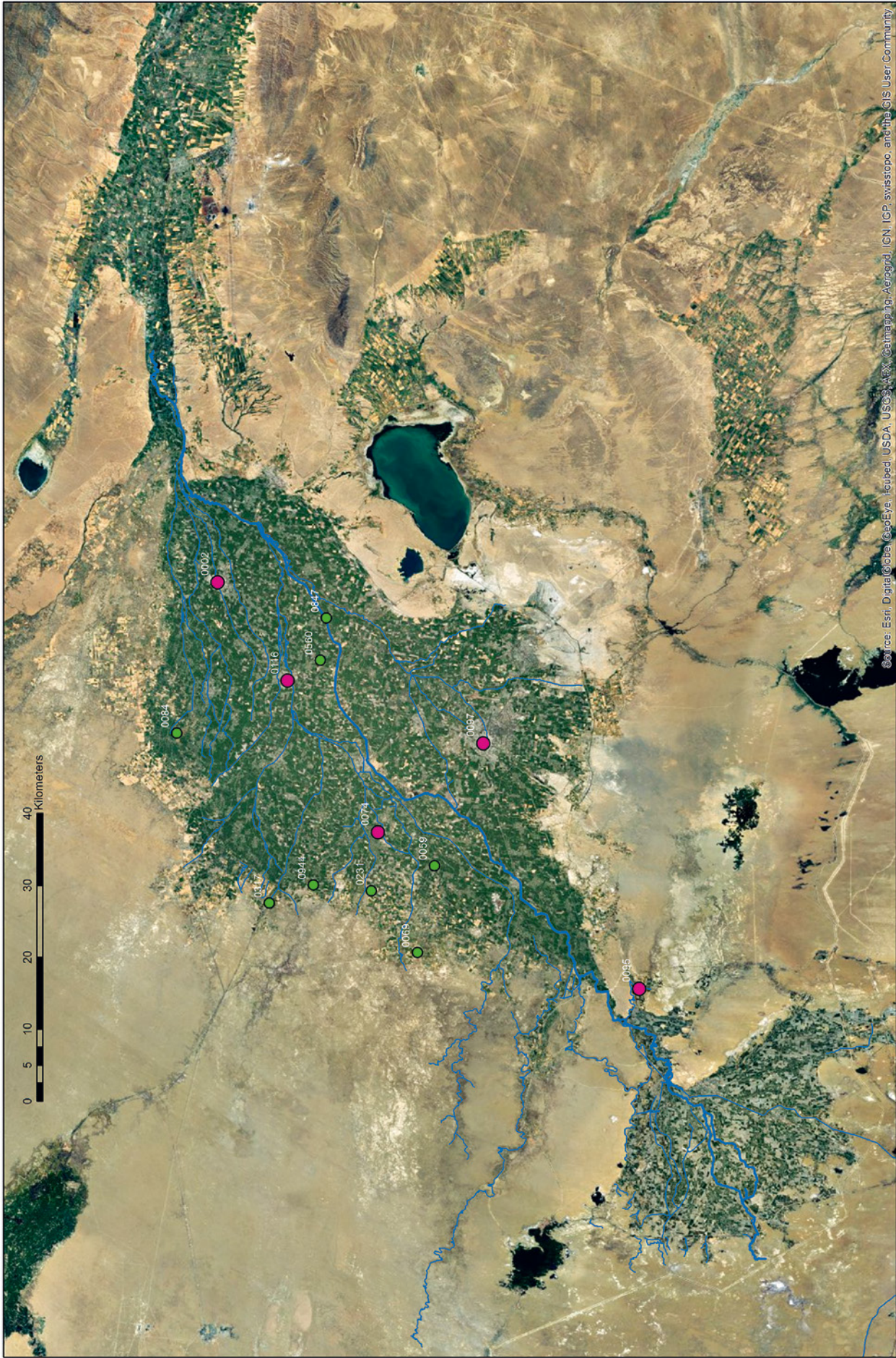


FIGURE 66 Map showing urban categories 1 and 2  
 ESRI IMAGERY 2018; RANTE 2017

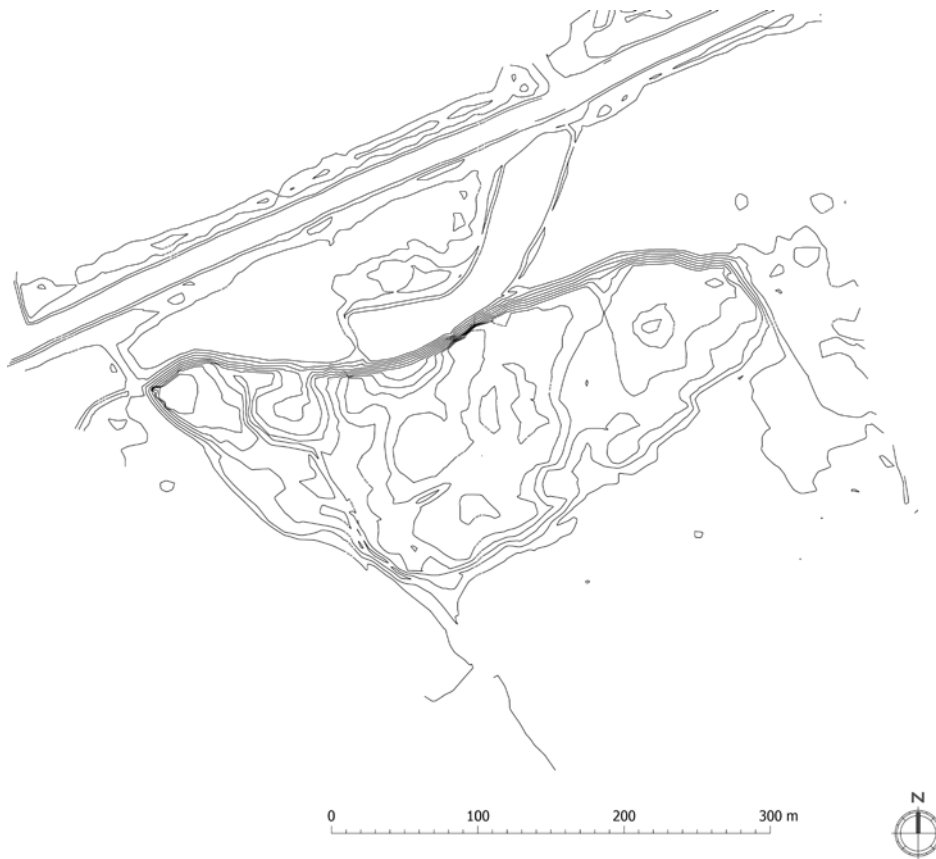


FIGURE 67 Topography of Iskiakat  
RILIEVI SRL 2015

from the citadel, however, might belong to a period between the 2nd century BCE and the 1st century CE. I adopt the hypothesis that the site was occupied during this time. Later, the city developed in the same way as the other examples described above.

#### 2.4.3 Varakhsha

The site of Varakhsha is situated at the western limit of the current oasis (fig. 72). The earliest occupation can be dated, according to a stratigraphical test in the shahrestan carried out by Shishkin (1963: 118), between the 2nd century BCE and the 1st century CE. The excavation of the most ancient rampart, on the other hand, brought to light a later dating, mostly around the 5th century CE (Shishkin 1963: 111), or possibly slightly earlier. Recent MAFOUB data at Ramitan has brought to light ramparts with the same typology of semicircular towers dated to the 3rd century CE, not earlier. The site comprises a citadel covering circa 0.66 ha, in which a huge palace was discovered (Shishkin 1963: 85–96; Naymark 2003); a large shahrestan that covers circa 10.65 ha; and a suburb – the existence of which is attested by Shishkin, and also by Narshakhi (Frye 2007: 18) – unwalled, and located around the ramparts of the

city (Shishkin 1963: 51). The walled site covers circa 11 ha. The whole site, with the addition of the approximate area of the surrounding suburb, might have covered 17 ha.

The major characteristic of Varakhsha was the contrast between the small, compressed citadel and the very large fortified shahrestan. Varakhsha's citadel was also significantly larger than the citadels of other cities, suggesting how important Varakhsha was in the historical panorama of that epoch.

#### 2.4.4 Kakishtuvan

The site of Kakishtuvan is located on the north-western limit of the current oasis (fig. 73). The complex comprises a rectangular, strongly fortified citadel covering 0.25 ha, a shahrestan of 1.1 ha and a large surrounding suburb of circa 9.65 ha. The excavation brought to light early layers dated to the 1st century CE. Data convincingly indicated that in this case the whole fortified structure arose during that epoch.

The site, as in a few other cases within the oasis, presented a notable quantity of ceramic fragments on the surface, not only above the citadel but also over the shahrestan. The surrounding area, the suburb, also presented



FIGURE 68 Aerial photo of Iskijkat  
ICONEM 2014

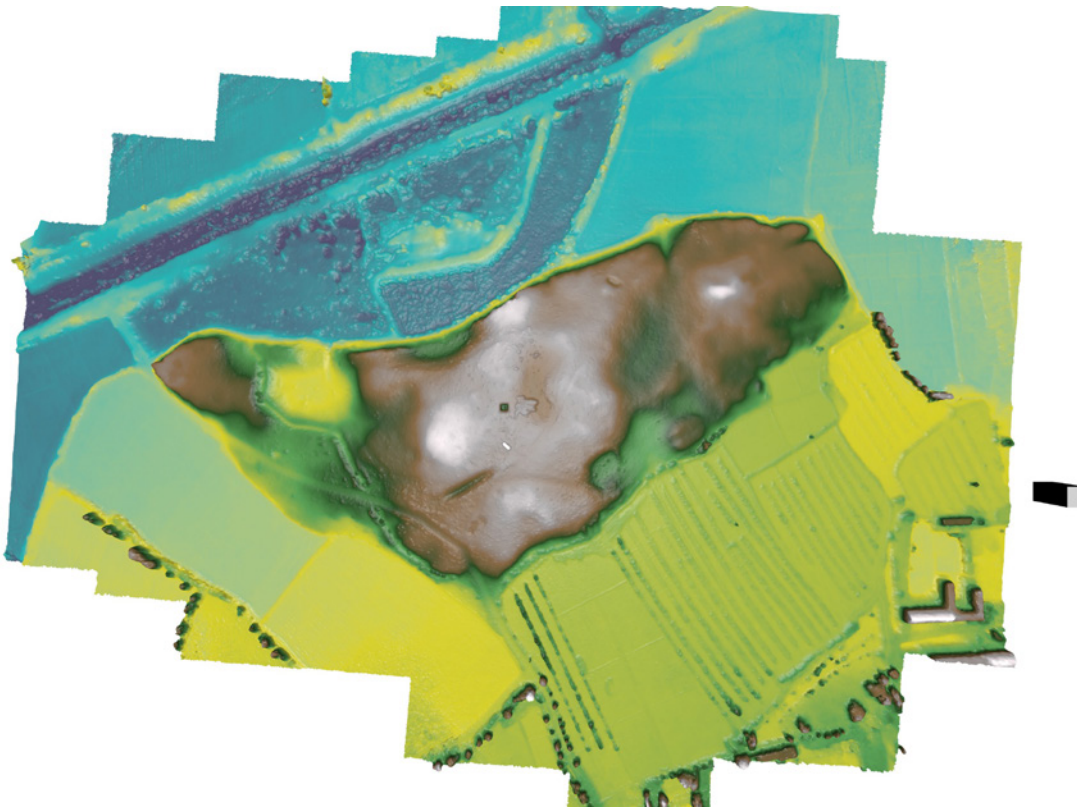


FIGURE 69 Thermo-topographical view of Iskijkat  
ICONEM 2014



FIGURE 70 Topography of Vardana  
RILIEVI SRL 2017

pottery fragments, but in lesser quantity. Here, the sandy layer covering the territory made the survey harder than elsewhere (fig. 74). This remarkable quantity of ceramic fragments is probably due to the geographical position of the site, which grew along an important road axis joining the Bukhara Oasis to Khorezm. This location would have given the site the role of a border commercial platform before reaching Bukhara or the other sides of the oasis. Moreover, once arrived at Kakishtuvan, from Khorezm, 37 km were needed to reach Bukhara. These data could corroborate the hypothesis that the site comprised most probably since the early medieval period, as in other examples, a large suburb with an active commercial life, including an area for the production of pottery.

#### 2.4.5 Barkad

The site of Barkad is located to the western side of the current oasis, a few kilometres south of Kakishtuvan (fig. 75). The site comprises a citadel in a central position covering circa 0.3 ha, a shahrestan to the south covering circa 2.5 ha and a very large and heterogeneous suburb, which extends to the north and to the north-east, covering 11.5 ha.

The global surface area of Barkad would correspond to 14.3 ha, including the zones outside the mounds, which are between and therefore part of the whole settlement.

The characteristic of the settlement is its heterogeneous plan, in which the irregular mounds are situated in different zones, as in a development originating in different periods, thus probably without a regular increase in the urban plan (fig. 76).

The survey showed, through the pottery collected, a chronology from the early centuries CE until the 15th century. Although the fragments collected were clear in terms of the last occupation of the site, those relating to the early occupations were scattered. It is, therefore, not impossible that the origin of the site belongs to a more ancient period.

#### 2.4.6 Ramish Tepe

The site of Ramish tepe (Shishkin 1940: 34–5; Suleymanov and Urakov 1977: 55–64) is located 8 km south of Ramitan and 12 km east of Varakhsha. It comprises a fortified citadel covering 2 ha, a shahrestan covering 1.9 ha and a suburb covering 2.9 ha (fig. 77). The whole area, in which the roads and the canals are also included, extends over 10 ha. As in other cities, the citadel of Ramish tepe was quadrangular, even though today it is more or less circular because of the profile of the mound (fig. 78). Its large surface comprised a higher part situated in the north-western part and an area, 1–3 m lower, around its eastern and southern sides. It could correspond to the development of the citadel around its higher part, in which the political centre probably was erected.

According to MAFOUB's recent discoveries, the origins of the settlement could date to the 2nd century BCE, with a strong urban development around the 1st century CE.<sup>16</sup>

#### 2.4.7 Sivanj

The city of Sivanj is located at the western limit of the oasis, circa 8 km west of Ramitan. It comprises a fortified citadel covering 0.73 ha, a shahrestan covering 2.3 ha and a suburb of 4 ha. The whole urban area covers 14.5 ha (fig. 79).

The citadel was rectangular, with the addition of a small mound on its southern side. The survey carried out on this settlement brought to light ceramic material very close to that dating the other settlements of the same area to the 3rd–2nd centuries BCE and the 1st century CE. This material clearly showed the chronological evolution

16 The archaeological operations carried out on the citadel in the 1970s dated the site to the 4th–3rd centuries BCE (Suleymanov and Urakov 1977: 58).

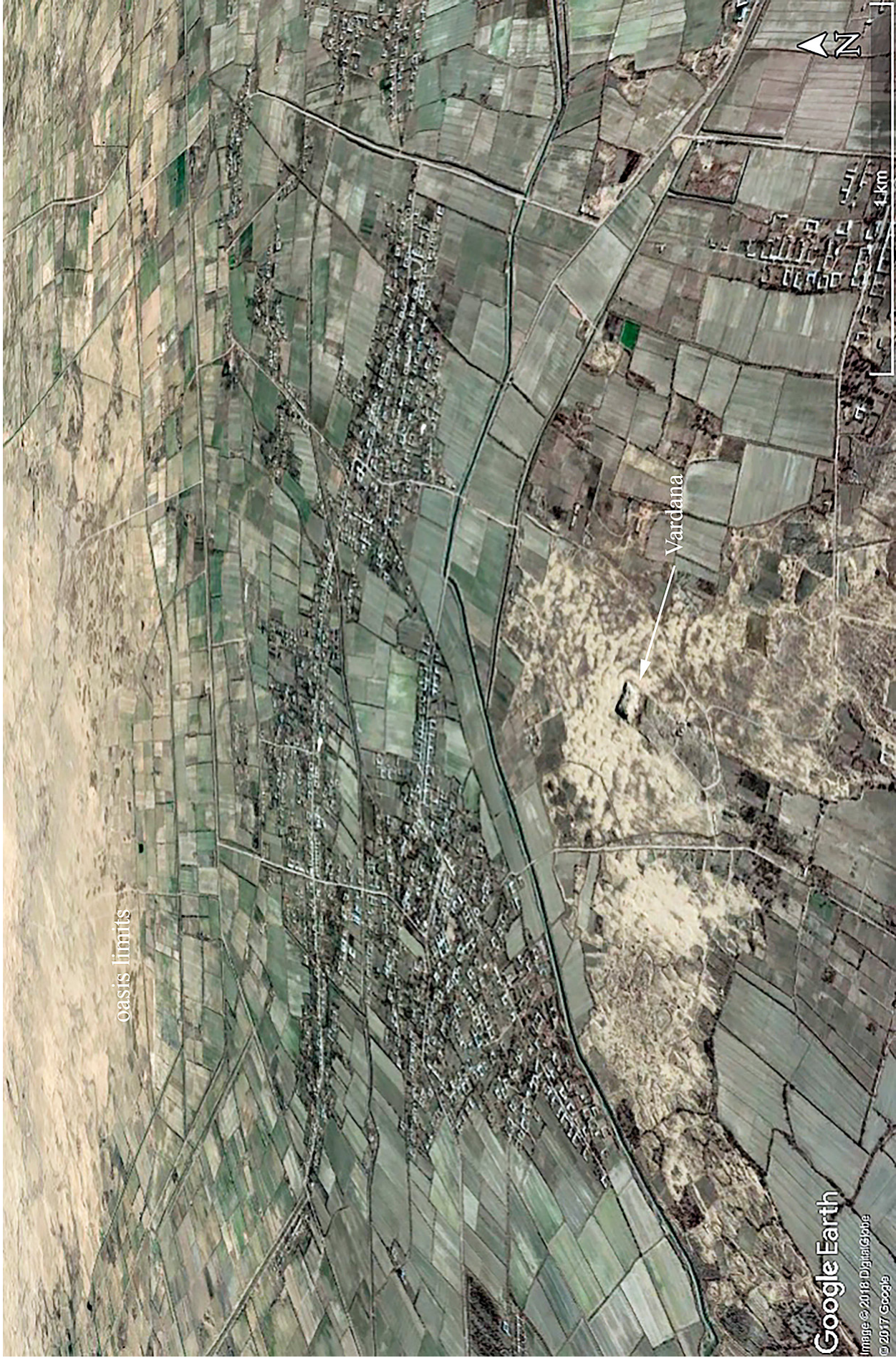


FIGURE 71 Satellite view of Vardana  
GOOGLE EARTH 2017



FIGURE 72 Topography of Varakhsha  
RILIEVI SRL 2017

of the city through the centuries until its abandonment (revealed by the total absence of material post the 17th century). The site today is enclosed by marshy areas that were already present in the 1950s. It might be that, with the retreating vegetation and the advancing desert, the ground destabilised, permitting the water table, as well as the salinity, to rise regularly and to reach the mud-brick structures of the city. The process of dessication and subsequent depopulation of this area might therefore have begun around the 16th–17th centuries CE, before coming to a halt with the irrigation and landscape reassessment carried out by the USSR.

#### 2.4.8 Site 0560

This settlement, which is much less well-known, is of major interest because of its location and composition. It is situated in the core of the oasis, 5 km south-east of Vobkent and 2 km from a major watercourse, the Zerafshan. It comprised a citadel of 0.48 ha and a shahrestan of 2 ha.

The suburb comprised three separate mounds, covering respectively 0.6 ha, 0.8 ha and 0.9 ha. The whole area of the settlement, including also streets and canals, covers 11 ha (fig. 80).

The chronology of this site is still hard to define because of the scant fragments of pottery on the mounds. The few fragments collected showed that the site could belong to a period between the 1st century CE and the Timurid epoch (14th–early 16th centuries CE). It could, however, belong to an earlier period, as previously noted for the other sites. In this type of site, only stratigraphical tests can give data to confirm it.

#### 2.5 Urban Category 3 (6–9.9 ha)

Urban category 3 comprises 13 sites: Tavovis (0751), Karmana (0104), Kumijkat (0090), Gulyamata (0359), Afshana (0432), Tarab (0043), Khunbun (0040), Pinjan (0275), Kaththa (0320), Mughkan (0247), 0572, 0190 and 0003. The cities selected cover 6–9.9 ha (fig. 81).

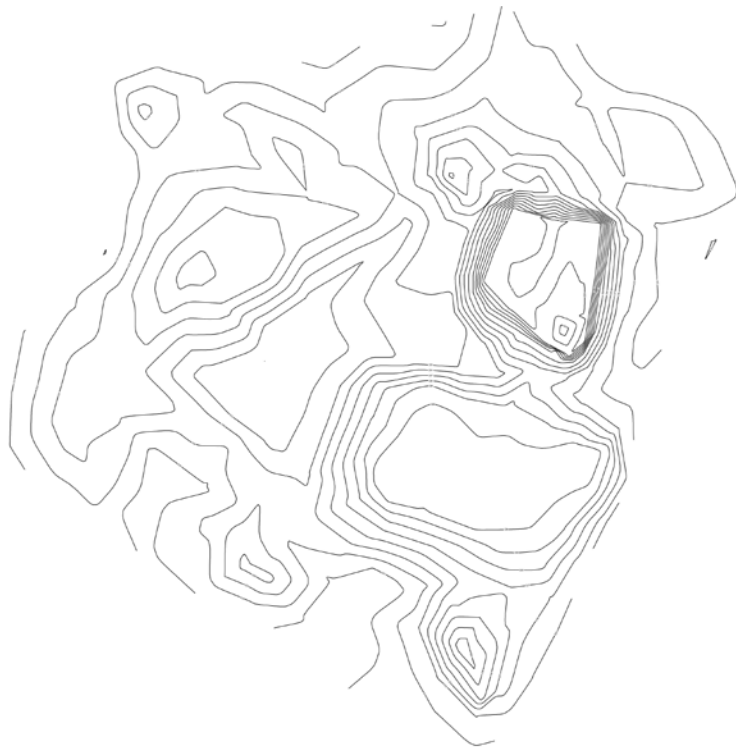


FIGURE 73  
Topography of Kakishtuvan  
RILIEVI SRL 2017



FIGURE 74 Aerial photo of Kakishtuvan  
SAGORY 2017

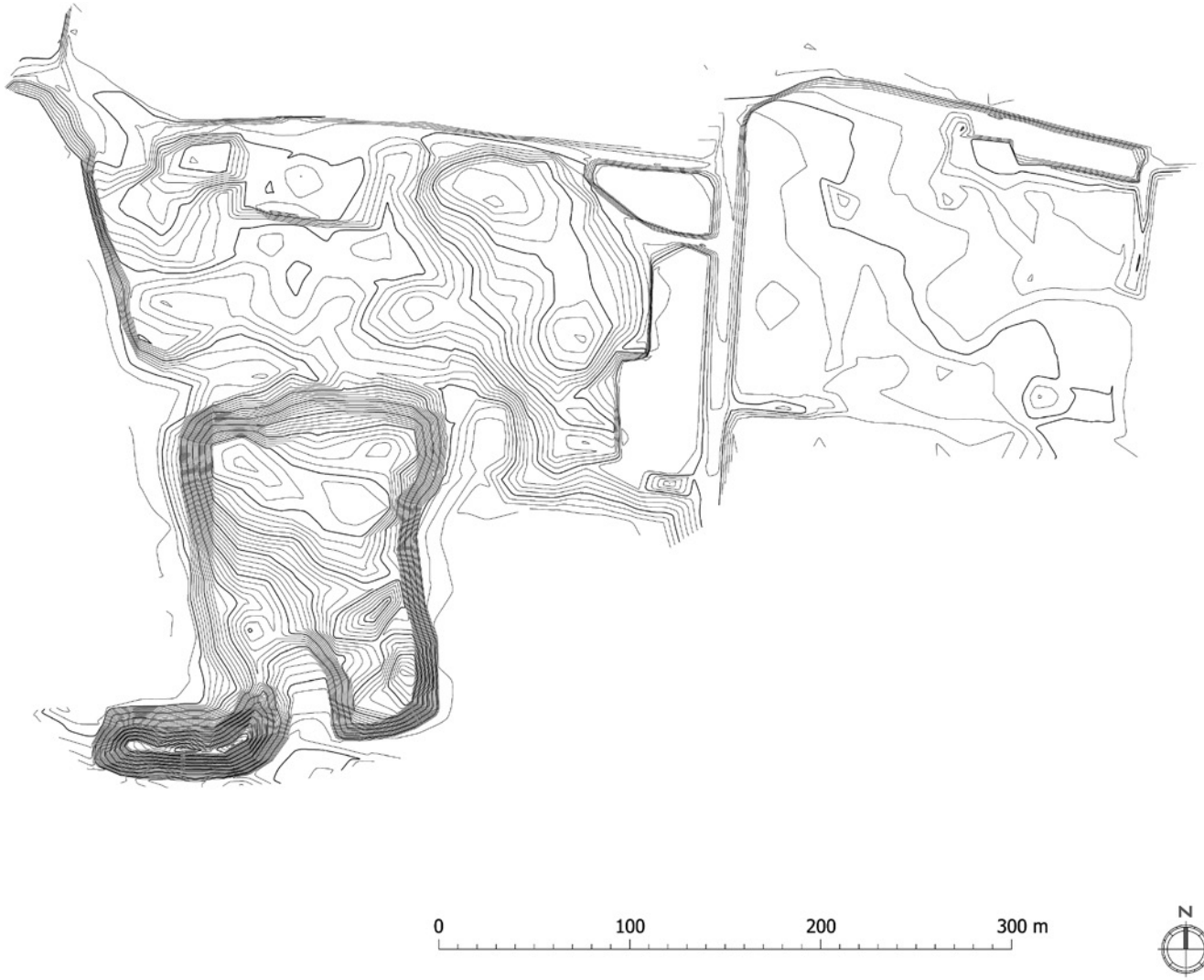


FIGURE 75 Topography of Barkad  
RILIEVI SRL 2017



FIGURE 76  
Satellite view of Barkad  
GOOGLE EARTH 2017

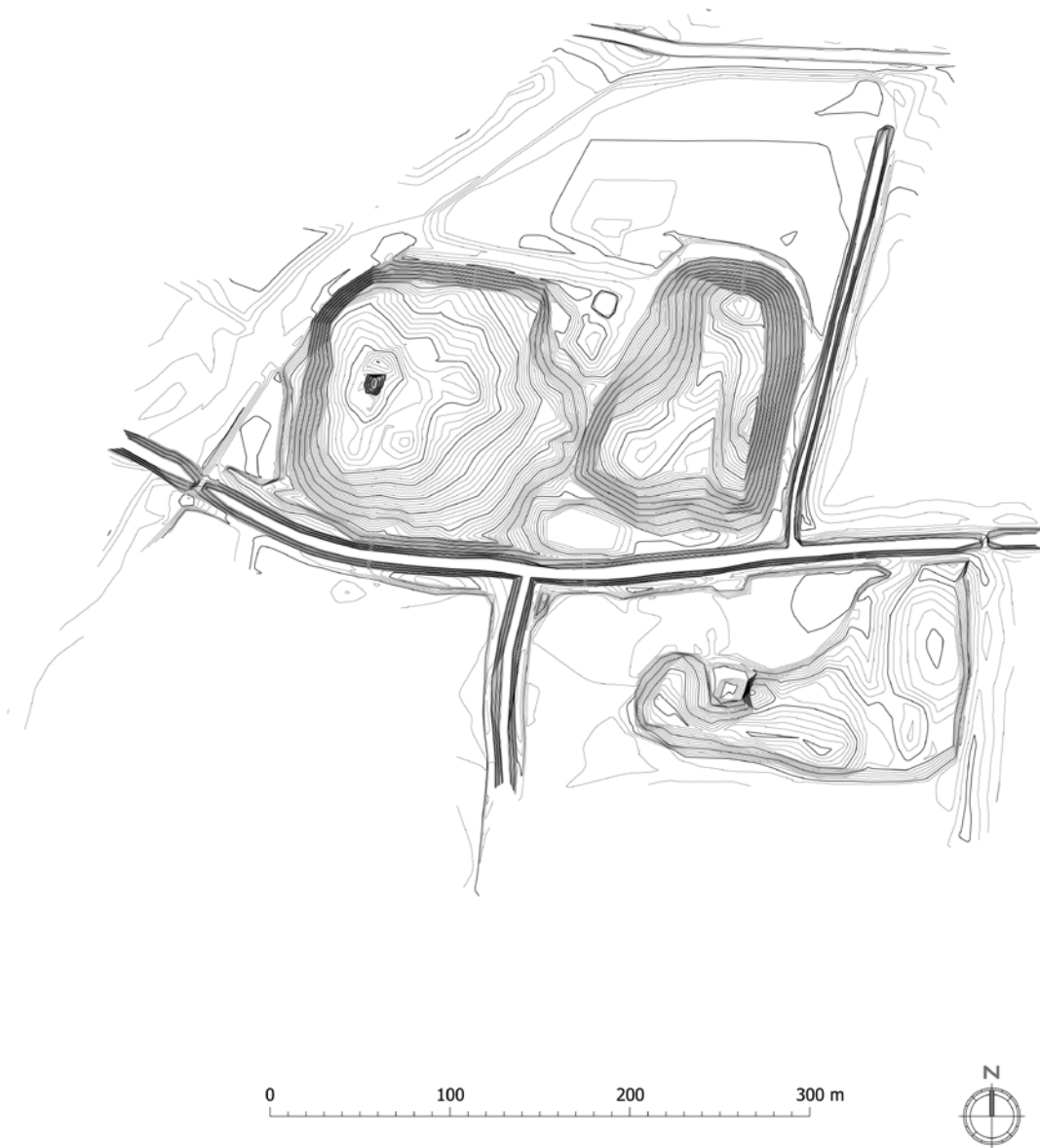


FIGURE 77 Topography of Ramish tepe  
RILIEVI SRL 2017



FIGURE 78 Satellite view of Ramish tepe  
DIGITAL GLOBE CNES 2018

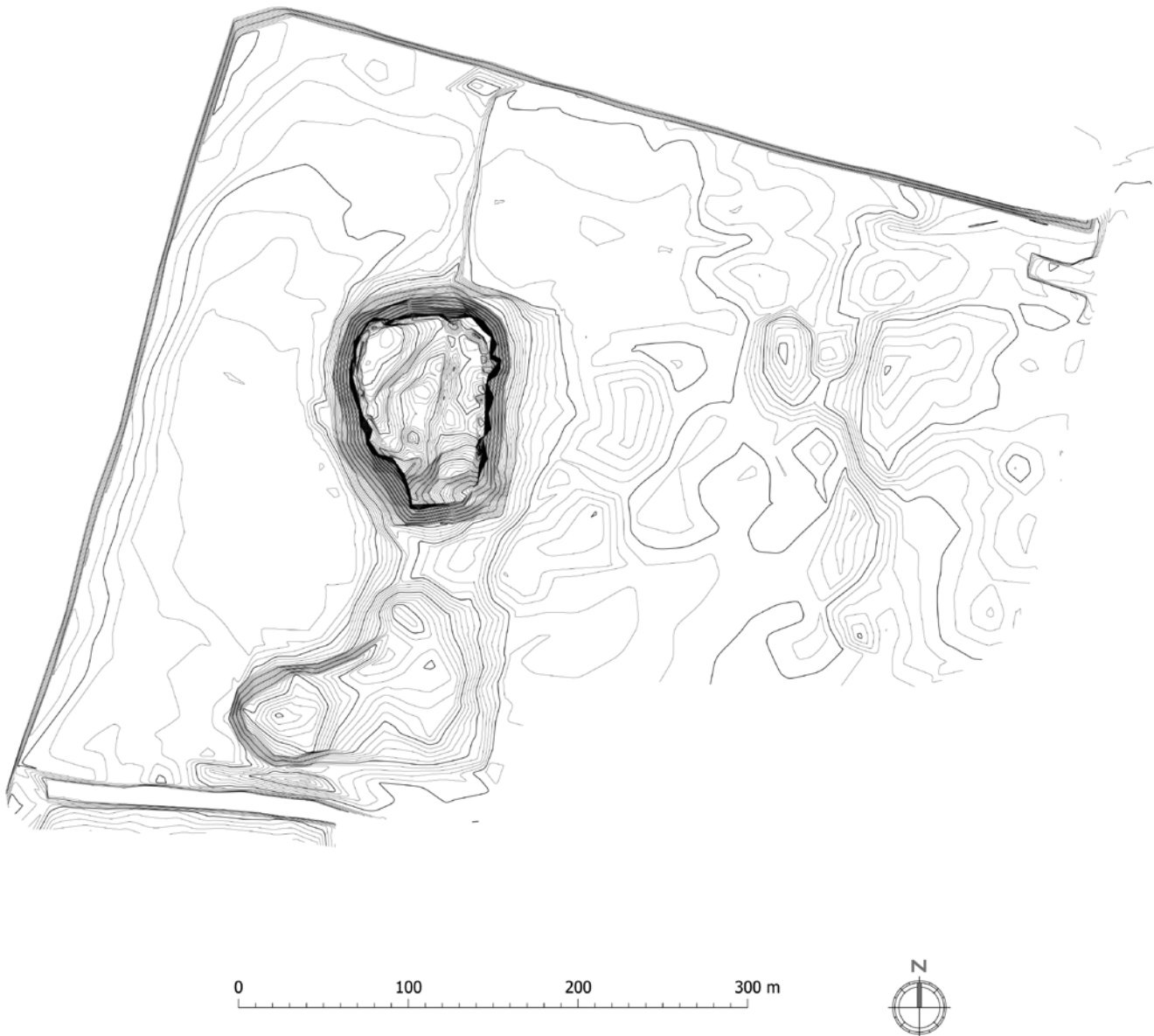


FIGURE 79 Topography of Sivanj  
RILIEVI SRL 2017

### 2.5.1 Tavovis

The site of Tavovis,<sup>17</sup> identified in 2016, is located in the north-eastern part of the oasis. It is today very damaged (fig. 82), which makes hard work of the topography and measurement. The walled citadel, half of which has been destroyed, might have covered circa 1 ha (fig. 83). The shahrestan is, at present, hard to identify, but it would have risen south of the citadel. It would have been rectangular and unwalled. The suburbs are located on the eastern side of these two parts. The whole area of the city as it can be seen today is circa 13 ha.

The survey and an initial study of the pottery dated the origin of the site to the last centuries BCE. According to these elements and the global context of the urbanisation of the oasis, the earliest settlement could be dated to the 1st century CE or earlier. As will be stressed later, the settlement grew in a location not very distant from the main water resource. The nearest natural watercourse, the Zerafshan, is in fact circa 3 km from the settlement. Although canals supplied water to the site, the settlement's role within the oasis is linked mostly to the road networks.

### 2.5.2 Karmana

The site of Karmana is one of the most important of the oasis, especially because of its location. It is situated, in

<sup>17</sup> For more information about the toponym of the city, see Barthold 1981: 98–9.

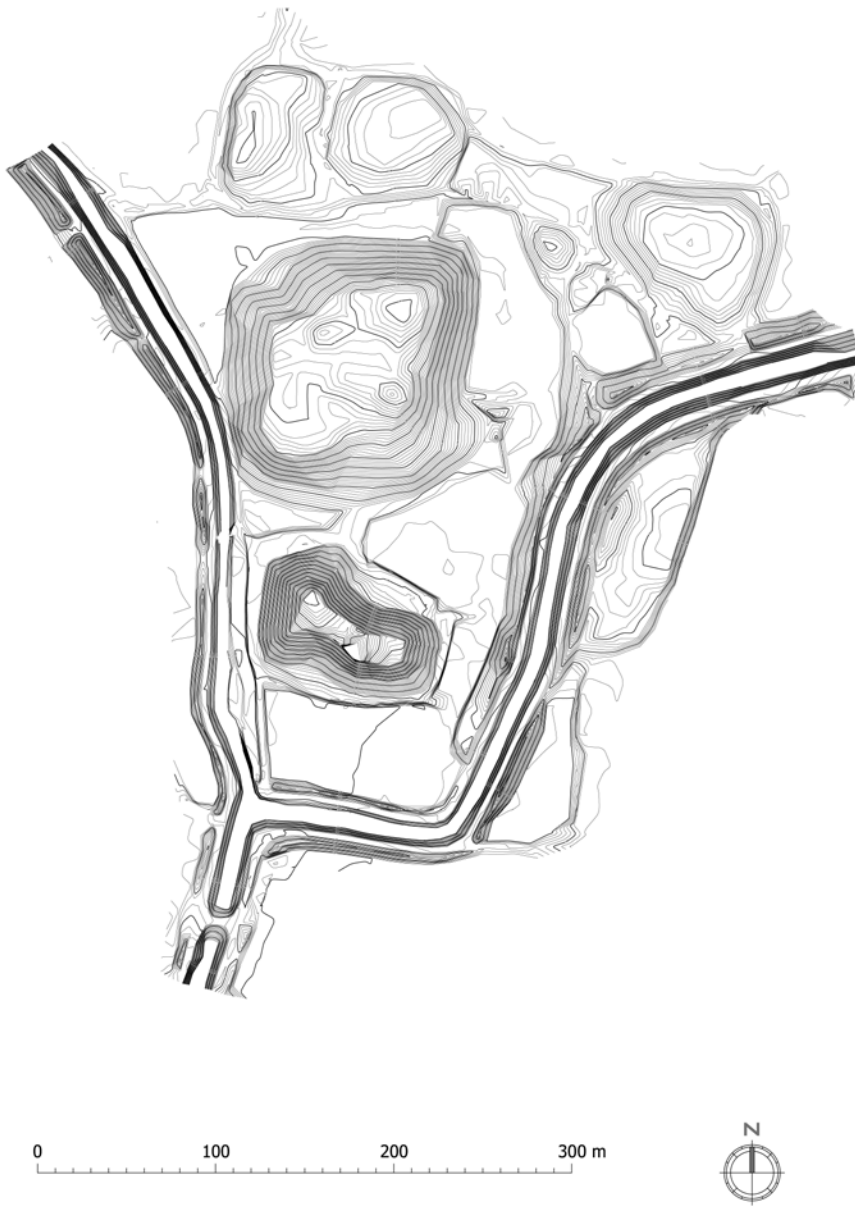


FIGURE 80  
Topography of site 0560  
RILIEVI SRL 2017

fact, outside the Zerafshan delta but, as Narshakhi states (Barthold 1981: 97–8; Frye 2007: 13), it belongs to the oasis. Earlier research directed by Professors Grizina and Khudjanazarov treated the morphology of the city as constituted of only two entities: a citadel, also called Burkut tepe, and a shahrestan, 140 m to the east.

The recent surveys and topographical work have brought to light another setting, in which the site comprises a fortified citadel (Burkut tepe) covering 0.12 ha, a square shahrestan covering 3.3 ha and a suburb of 2.7 ha. The whole area, taking into account the zones in between, covers 8 ha (fig. 84). According to our data, the shahrestan has totally disappeared. It should therefore not correspond to that identified in earlier research as the current cemetery (Khudjanazarov et al. 2001: 186–92; Khudjanazarov,

Grizina and Mirzaakhmedov 2002: 179–87; Grizina and Khudjanazarov 2005: 42–8), but it could be identified in the north-western side of the citadel, of square shape, in which modern buildings today stand. The excavation in the cemetery, bringing to light ceramics from only the 10th–13th centuries, and the substantial distance between it and the citadel, indicates that this part of the city could not correspond to the shahrestan.

The recent survey and topographical study carried out by MAFOUB suggested an origin no earlier than the 3rd–2nd centuries BCE.<sup>18</sup> As for the other settlements, this earliest occupation, in which no real defensive structures

18 Previous investigations (Khudjanazarov et al. 2001: 186–92; Khudjanazarov et al. 2002: 179–87; Grizina and Khudjanazarov

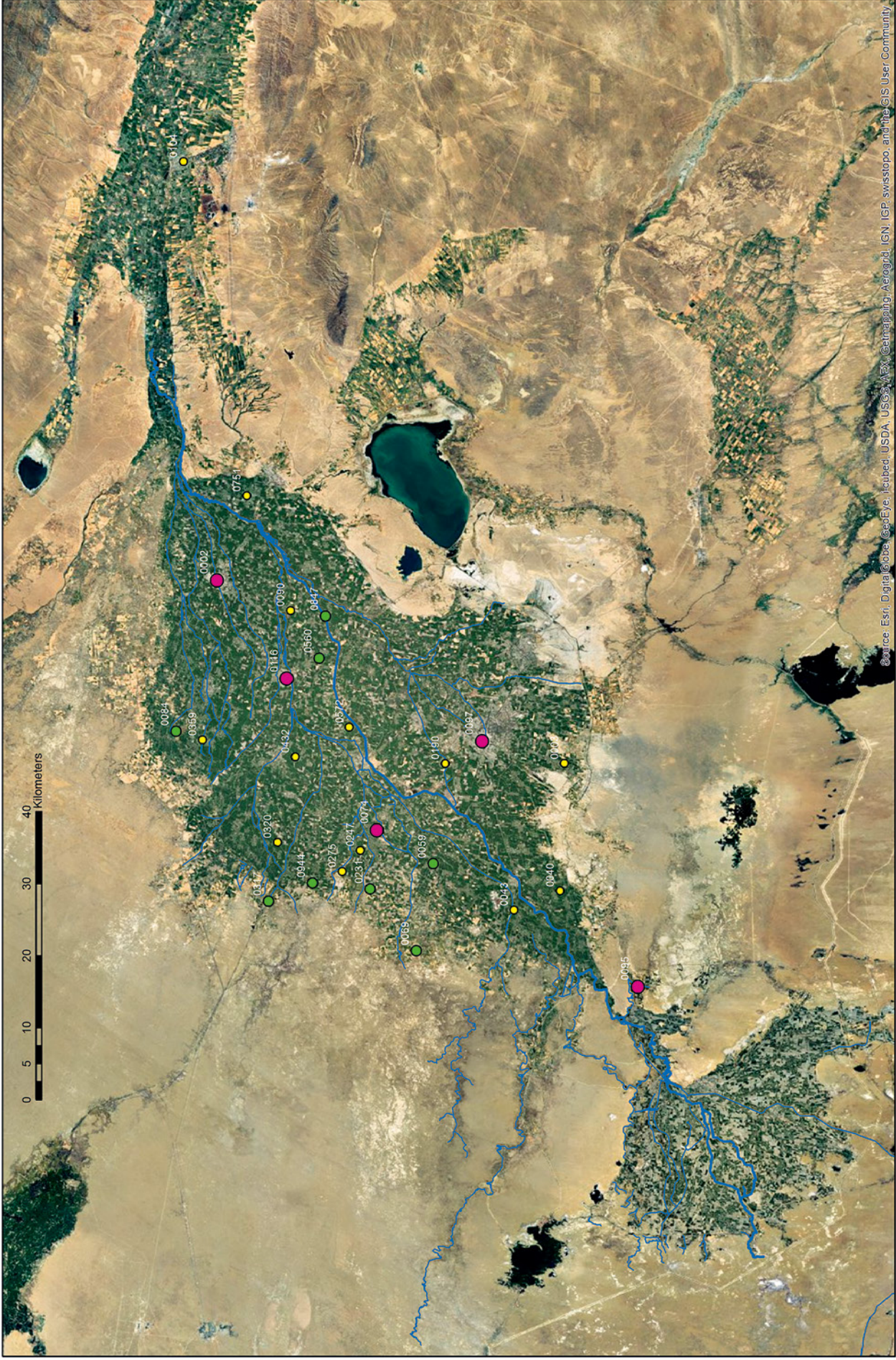


FIGURE 81 Map showing urban categories 1, 2 and 3  
 ESRI IMAGERY 2018; RANTE 2017



FIGURE 82 Photo of Tavovis  
RILIEVI SRL 2017

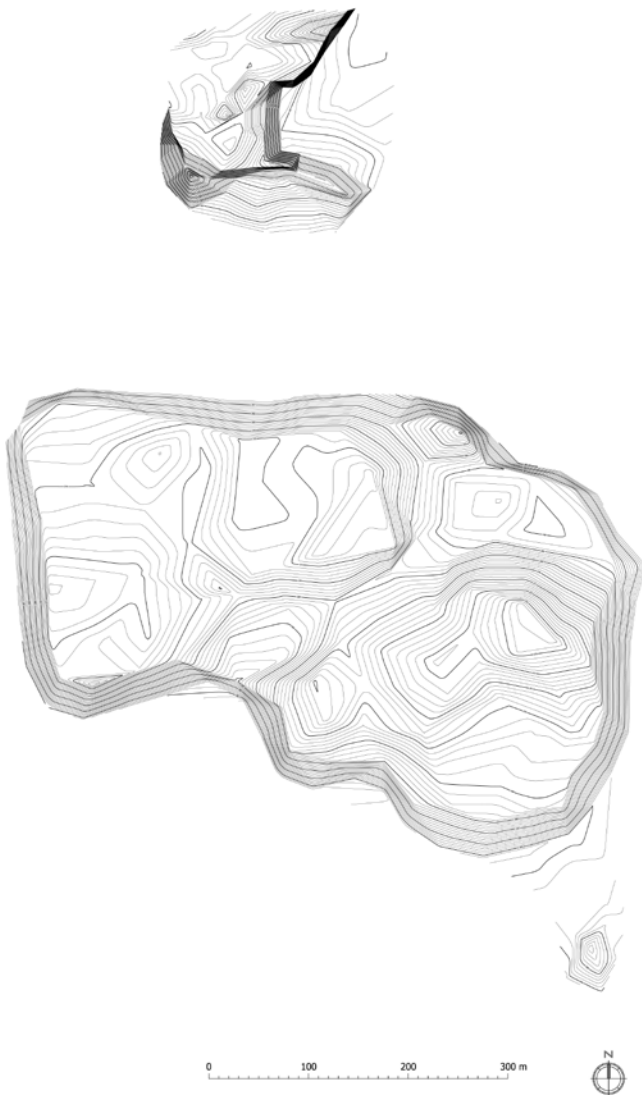


FIGURE 83 Topography of Tavovis  
RILIEVI SRL 2017



FIGURE 84 Satellite view of Karmana  
DIGITAL GLOBE CNES 2018

were visible, was followed by a true urban structuration that, through comparisons, I would situate tentatively between the 1st century BCE and the 1st century CE.

### 2.5.3 Kumijkat

The site of Kumijkat is located in the north-eastern part of the oasis. It was founded on the southern side of the Khitar River, which also supplies water to Vobkent. Even though it was not founded on the riverbank, the settlement benefited from enough water from the canal issuing from the Khitar.

Today the site is very damaged, except for the fortified square citadel, which, with its high and strong ramparts, extends over 0.7 ha (fig. 85). The shahrestan and

2005: 42–8) attested that the settlement was founded between the 4th and 3rd centuries BCE.



FIGURE 85 Satellite view of Kumijkat  
GOOGLE EARTH 2017

the suburbs are hard to understand because of the destruction and the new buildings. It could be estimated as covering 8.14 ha (fig. 86). Here, it is only possible to attempt to identify the suburbs with the northern mound, currently occupied by a cemetery, which alone covers 4.5 ha.

At present, it is impossible to determine the chronology of the site. The very scattered ceramics found on the citadel were insufficient to date the settlement, but some fragments could belong to chronological ranges between the 1st century CE and the 5th–6th centuries CE, and between the early Islamic period and the 12th century. As was the case for other settlements within the oasis, it is also possible that the city continued to be inhabited until the 16th–17th centuries, since the modern *qishlaq* developed all around it.

#### 2.5.4 Gulyamata

Gulyamata is situated north of the oasis, only 3.5 km south of Vardana, but it takes its water from the Sultanabad River, not from the Shafurkam as does Vardana. The settlement comprises a square, fortified citadel covering 0.6 ha, a shahrestan covering 2.4 ha and a suburb covering 2.18 ha. The shahrestan is divided into two parts separated by a slope. The northern part rises circa 2 m higher than the southern, larger part. The whole settlement covers 6.44 ha (fig. 87).

Even though it is hard to determine a chronology through comparisons between pottery assemblages, some grey ceramics can apparently be compared with the sites of Ramitan and Iskijkat, so could date Gulyamata at least to the 1st century CE, with a chronology reaching into the 17th century.

#### 2.5.5 Afshana

The site of Afshana is located in the core of the oasis. Canals from the Khitfar Zandana River supplied the city with water. It comprises a citadel covering circa 0.5 ha that might have been square, a shahrestan – damaged by the supply of mud bricks for agricultural fields and by modern urbanisation – covering circa 3 ha and a small suburb covering 1.2 ha. The whole area corresponds to 7.66 ha (fig. 88).

The ceramics were dated to the 4th–7th centuries CE, as well as to the Islamic period. More difficult was to find pottery datable to an earlier period, even though there were elements with a red clay body and a polished surface, with some traces of black slip, that could date to the early centuries of our era.

#### 2.5.6 Tarab

The site is located in the south-western part of the oasis, taking water from one of the major watercourses, a branch of the Khitfar Ramitan. It is also only 1.6 km north-west of



FIGURE 86 Topography of Kumijkat  
RILIEVI SRL 2017

the Zerafshan. Tarab comprises a large, rectangular and fortified citadel covering 1.17 ha, a shahrestan of 1.3 ha and a very small suburb to the north covering an area of circa 0.48 ha. The whole area extends over 7.14 ha (fig. 89).

Tarab has not yet been systematically excavated, and the survey could only provide scattered information (Shishkin 1940: 31–4). Pottery belonging to the 6th–8th centuries was widely observed in the field – as Shishkin also remarked (1940: 34) – but some fragments could even be compared with 1st century CE material coming from other sites. According to Shishkin (1940: 34), apparently the city was abandoned in the 16th century.

#### 2.5.7 Khunbun

The site of Khunbun is located in the south-western part of the oasis, on the opposite side of the Zerafshan River from Tarab and at the limit of the current oasis. It comprises a square, fortified citadel of 0.42 ha, a shahrestan

of 1.63 ha and a large suburb of 3.5 ha. The whole area extends over 7.5 ha (fig. 90).

The survey brought to light ceramic fragments that date from the 1st century CE until the 13th century, with a strong occupation datable to the 10th century.

#### 2.5.8 Pinjan

The site of Pinjan is located in the western part of the oasis. Partly destroyed, the complex comprises a more or less square citadel of 1 ha, a very damaged shahrestan (of which few vestiges are today observable) of 1.4 ha and a suburb of 1 ha (fig. 91).

The survey brought to light typologies such as black slip over a red clay body that can be dated confidently to the 1st–2nd centuries CE; some sherds can be dated to the 2nd–1st centuries BCE. The occupation of the site continued until the Timurid period.

#### 2.5.9 Kaththa (0320)

Site 0320, Kaththa, is located in the north-western part of the oasis and is supplied with water by canals issuing from a significant branch of the Khitfar Ramitan flowing westwards. The site comprises a square, fortified citadel of 0.68 ha, a shahrestan of 3.3 ha and a suburb of 0.87 ha. The whole area, including zones between the mounds, covers 8.45 ha (fig. 92).

The pottery collected during the survey showed a chronology ranging from the first centuries CE to the Timurid period. The ceramics collected on the site show a strong continuity of occupation from its foundation until the end of the medieval period.

#### 2.5.10 Mughkan (0247)

Site 0247, Mughkan, is located in the western part of the oasis, only 3 km north-west of Ramitan, along another important watercourse issuing from the Khitfar Ramitan and flowing to the west. It comprises a small, square, fortified citadel (which is probably just the royal residence) of 0.25 ha, a shahrestan of 3 ha and a suburb of 1 ha. The whole area covers 6.6 ha (fig. 93).

The very few pottery fragments observed on the site provided us with a confident chronology lasting from the 5th–6th centuries until the 12th century CE. It is at present impossible to give more chronological elements for this settlement. However, because of its location in this area of ancient structures, it the site may have been founded earlier.

#### 2.5.11 Site 0572

Site 0572 is located in the core of the oasis, only 650 m north of the Zerafshan. The site comprises a rectangular citadel of 0.66 ha, a shahrestan (contouring the citadel on

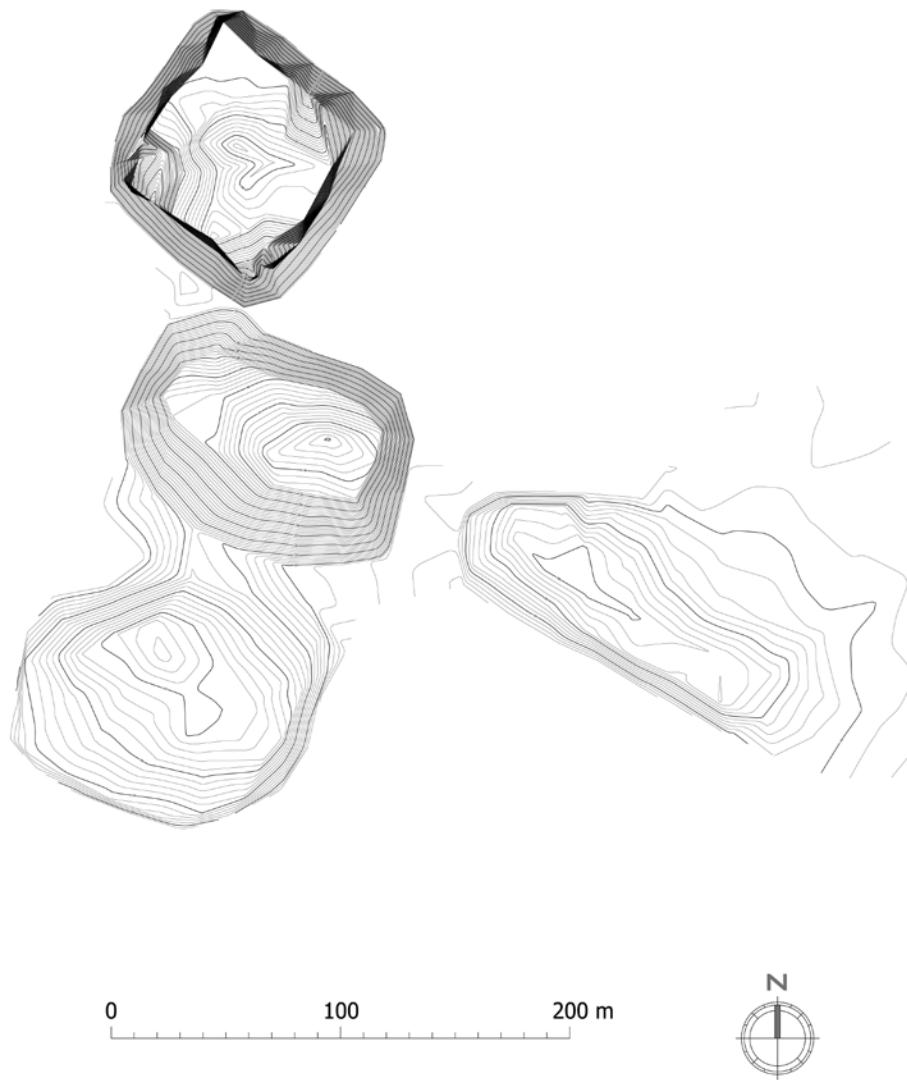


FIGURE 87  
Topography of Gulyamata  
RILIEVI SRL 2017

its northern, western and southern sides) of 3.64 ha and a suburb, today divided by a small stream, of 3.1 ha. The whole area covers 8 ha (fig. 94).

The pottery observed and collected during the survey showed that the site was occupied for a long time, certainly until the Timurid period, and probably from the 2nd century BCE. Relating to this latter chronology, only one fragment with red slip covering a yellow clay body can be compared with other examples, found in Ramitan, as well as in Iskijkat and Kakishtuvan, confirmed by layers dated by radiocarbon analysis to the 2nd century BCE. I am also quite confident that there are strong chances that this early date will be confirmed.

#### 2.5.12 Site 0190

Site 0190 is located in the core of the oasis. The site, interesting for its prismatic shape, comprises a citadel of 0.45 ha, a shahrestan of 3.8 ha and a further, northern

suburb of 2.65 ha.<sup>19</sup> The characteristic prism-shape that is today visible from the satellite view is due to the presence of a small depression in the middle of the shahrestan, giving the latter a peripheral form resembling a prism. Most probably, this depression is the result of providing soil and mud bricks. The whole site covers 8 ha (fig. 95).

No fragments collected during the survey attested to an early occupation. The material showed a chronology that began in the 3rd century CE and lasted until the Timurid period. Moreover, as will be shown later, this site was supplied with water by a watercourse that could have been conceived artificially from a natural stream issuing from the Rud-i Zar, probably from the 3rd century CE.

<sup>19</sup> The suburb is not represented on the plan because of its very weak relief.

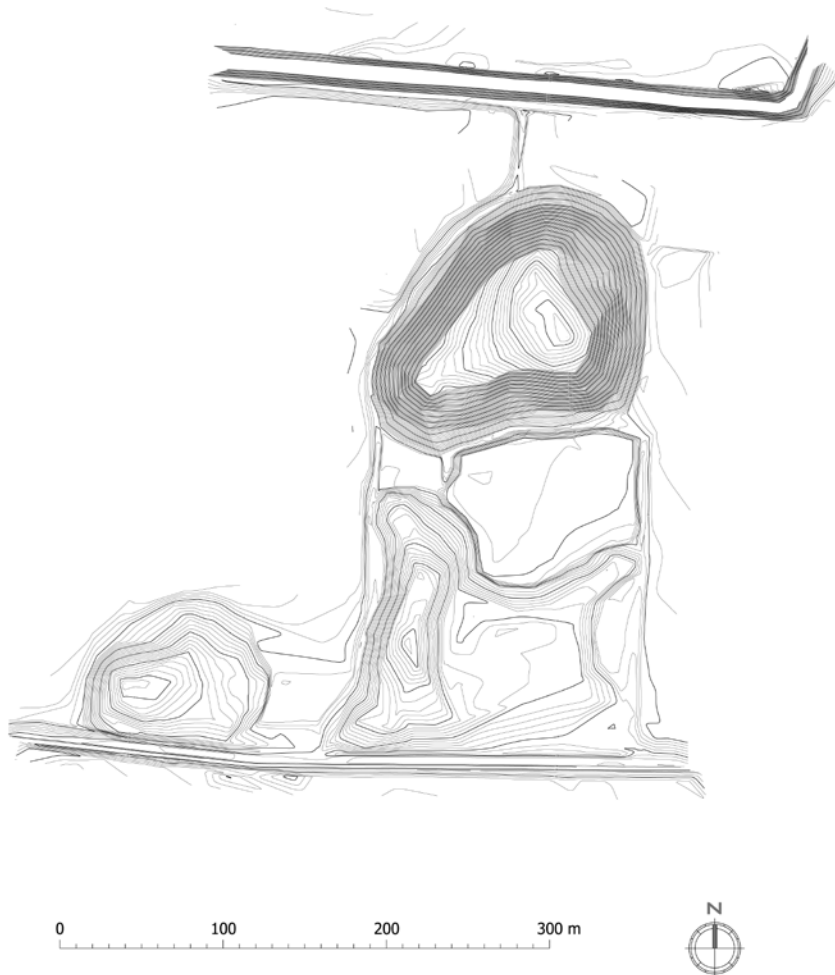


FIGURE 88  
Topography of Afshana  
RILIEVI SRL 2017

### 2.5.13 Site 0003

Site 0003 site is located in the southernmost part of the oasis, at the limit of the irrigated lands. It comprises a more or less square, fortified citadel (destruction at times makes description uncertain) of 0.4 ha and a surrounding shahrestan of 3.72 ha. The suburb, identified some metres to the east of the central urban nucleus, covers 2.2 ha (fig. 96).

The investigation of the site showed the presence of pottery fragments mostly belonging to the Islamic period. Nevertheless, some material datable from the 3rd century CE was found, and the chronology can be confirmed until the Timurid period.

## 2.6 Urban Category 4 (3–5.9 ha)

Urban category 4 comprises 27 sites: Marzangon (0089), Shargh (0846), Zandana (0083), Mamastin (0036), Farghandad (0622), Warka (0644), Khama (0012), Narshak tepe (0457), Daymun (0039), Banab (0567), 0005, 0006, 0513, 0518, 0531, 0495, 0571, 0566, 0546, 0609, 0035, 0133, 0192, Khujada (0149), 0330, 0357 and 0896. The cities selected cover between 3 and 5.9 ha (fig. 97). A few smaller

settlements cover a little less than 3 ha, but this tiny difference does not exclude their belonging to this category.

### 2.6.1 Marzangon

The site of Marzangon is situated in the north-western core of the oasis, a few metres north of the Khitfar River but upstream of the watercourse, in order to benefit from the high capacity of the river. Its position is also important as it is very close to the point where the Khitfar and the Rud-i Zar divide from the Zerafshan. It comprises a square, fortified citadel of 0.14 ha, a fortified, square surrounding shahrestan of 0.43 ha, a second fortified shahrestan to the south of 1 ha and a suburb of 1 ha (fig. 98). Marzangon presented a topography very similar to that of Ramitan. In fact, as in Ramitan, the city comprised a large, square base, called here shahrestan-2, in the centre of which rose a small citadel, most probably only the royal palace, here called the citadel. Shahrestan-2 had been damaged, especially in its western part. More to the west, the space between shahrestan-2 and the suburb seemed also to have been recently destroyed. The whole site covers 3.2 ha.

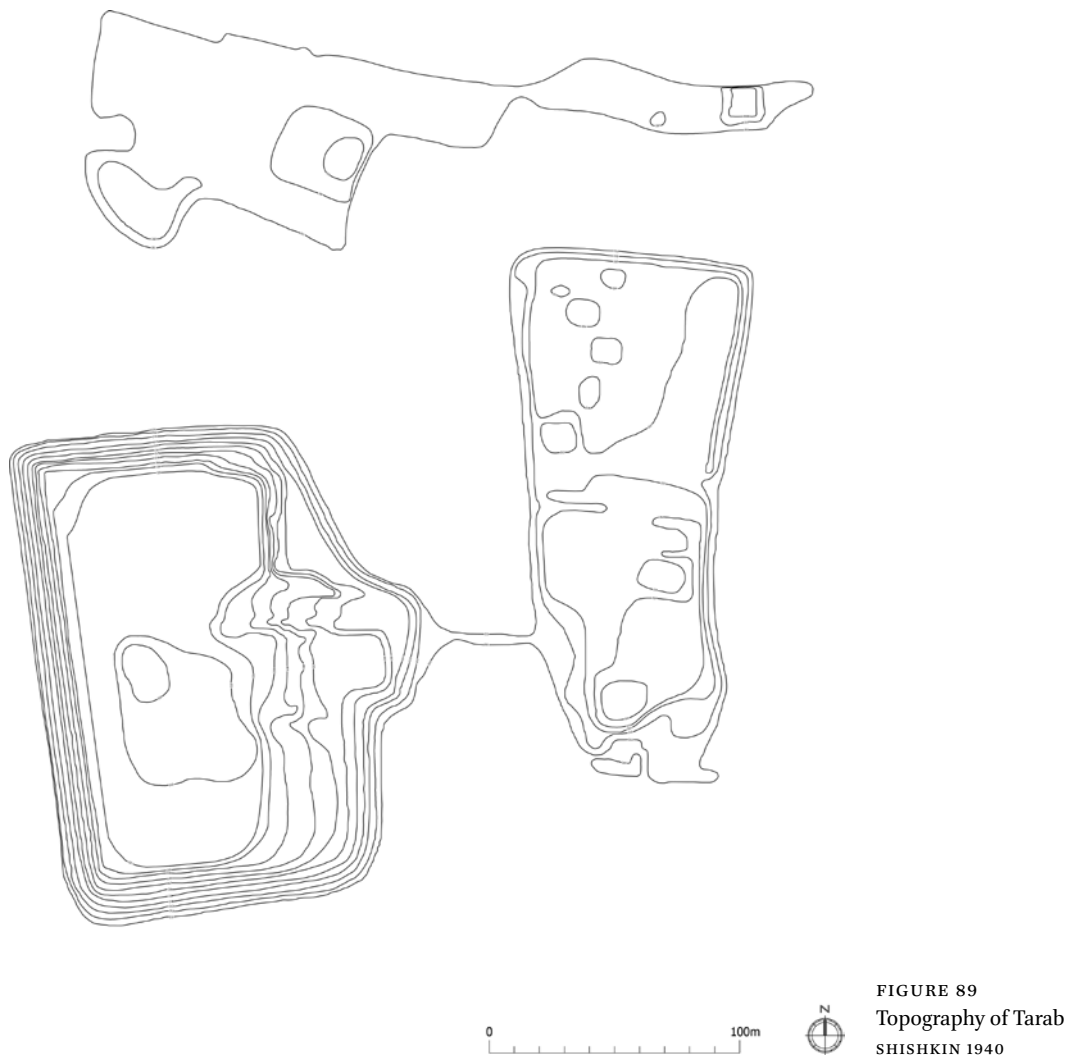


FIGURE 89  
Topography of Tarab  
SHISHKIN 1940

The ceramics were very difficult to observe in the field. Fragments probably belonging to the first centuries of our era, as well as fragments belonging to the Islamic period, are surely present, but they are too scattered and too few in number to give a clear idea of the chronology.

### 2.6.2 Shargh

Shargh is located in the western core of the oasis, just in front of Iskijkat, to the north-west, on the right side of the Zerafshan. The site is today totally destroyed and is occupied by a cemetery. It was observed, thanks to the Soviet map drawn in the 1950s, on which this precise site was indicated with the shape of a tepe (fig. 99). Ceramic fragments were still present on the surface. A long and interesting survey between tombs had at least the merit of highlighting the existence of the site and of suggesting that its chronology could be as ancient as Iskijkat's. Nonetheless, as this survey was not systematic, and as it is impossible right now to define the topography of the different reliefs, any commentary would be pure speculation.

Instead, the global history of Shargh can be extrapolated, at least for the Islamic period, or more precisely for the 10th century, through the histories of Narshakhi (Frye 2007: 15–6). The site has been included in this tripartite category because of Narshakhi's description of the markets.

### 2.6.3 Zandana

The site of Zandana is located in the north-western part of the oasis. The settlement is supplied with water by a watercourse issuing from the Khitfar Zandana. It comprises a fortified citadel of 0.26 ha, a southern shahrestan of 0.9 ha and a suburb (today destroyed) of circa 0.6 ha. The whole settlement covers 3.5 ha (fig. 100).

The few ceramic fragments collected in the field showed a short chronology ranging from at least the 4th century CE until the 16th century. Narshakhi (Frye 2007: 16) wrote of this city as having a great citadel – at least for its fortifications, as was remarked during the survey – and a marketplace, which today is totally erased (fig. 101). Narshakhi, however, completed his short description referring to the

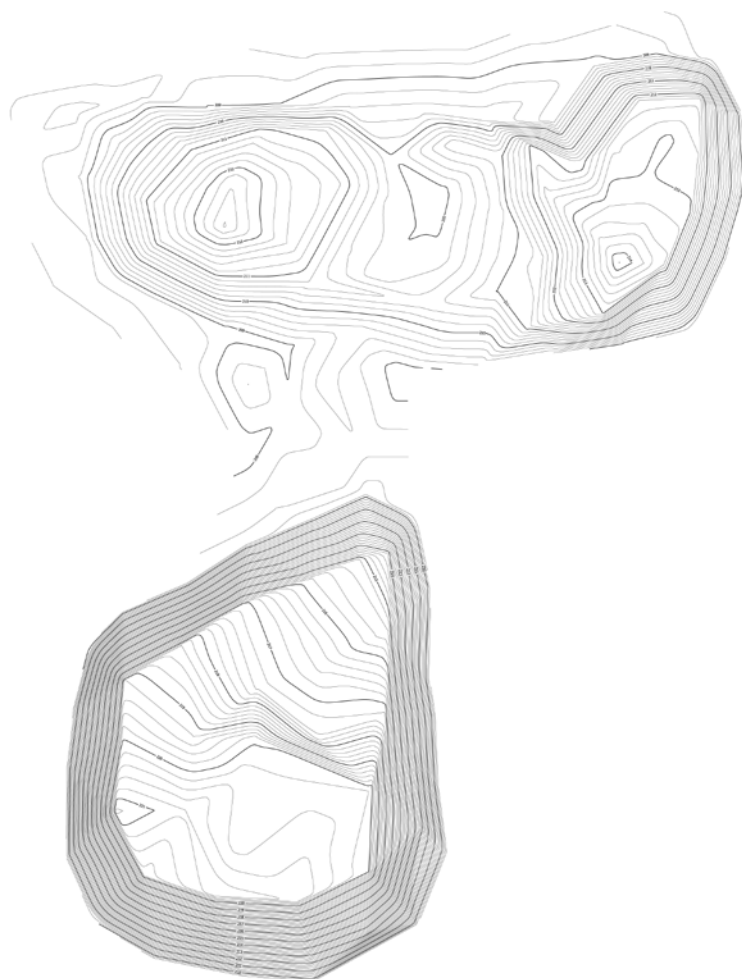


FIGURE 90  
Topography of Khunbun  
RILIEVI SRL 2017

great Friday mosque and to the production of Zandaniji cloth, which will be the distinguishing feature of this city.

#### 2.6.4 Site 0035

Site 0035 is located in the core of the oasis, 6 km west of Bukhara. The site was supplied with water by canals issuing from the Rud-i Zar. It comprises a square, fortified citadel of 0.73 ha, a shahrestan measuring 1.4 ha and a small suburb of 0.45 ha. The whole area covers 4.36 ha (fig. 102).

The ceramic fragments collected in the field showed only a broad Islamic chronology. Only a few small fragments might belong to a pre-Islamic period, but there was absolutely not enough to establish even an approximate chronology.

#### 2.6.5 Farghandad

The site of Farghandad is located in the south-eastern part of the oasis, only 7 km east of Bukhara. The site comprises a large, square citadel of 0.5 ha, a quadrangular shahrestan measuring 2 ha and a destroyed suburb situated north-east of the citadel, in which today rises a factory of baked bricks. The whole site covers an area of 3.4 ha (fig. 103).

The pottery fragments observed in the field, especially in the citadel, can be associated to a broad Islamic period reaching the 12th century. No characteristic ceramics of the pre-Islamic period were observed, although some damaged red fragments could be associated to these early periods.



0 100 200 m



FIGURE 91  
Topography of Pinjan  
RILIEVI SRL 2017

#### 2.6.6 Warka (0644)

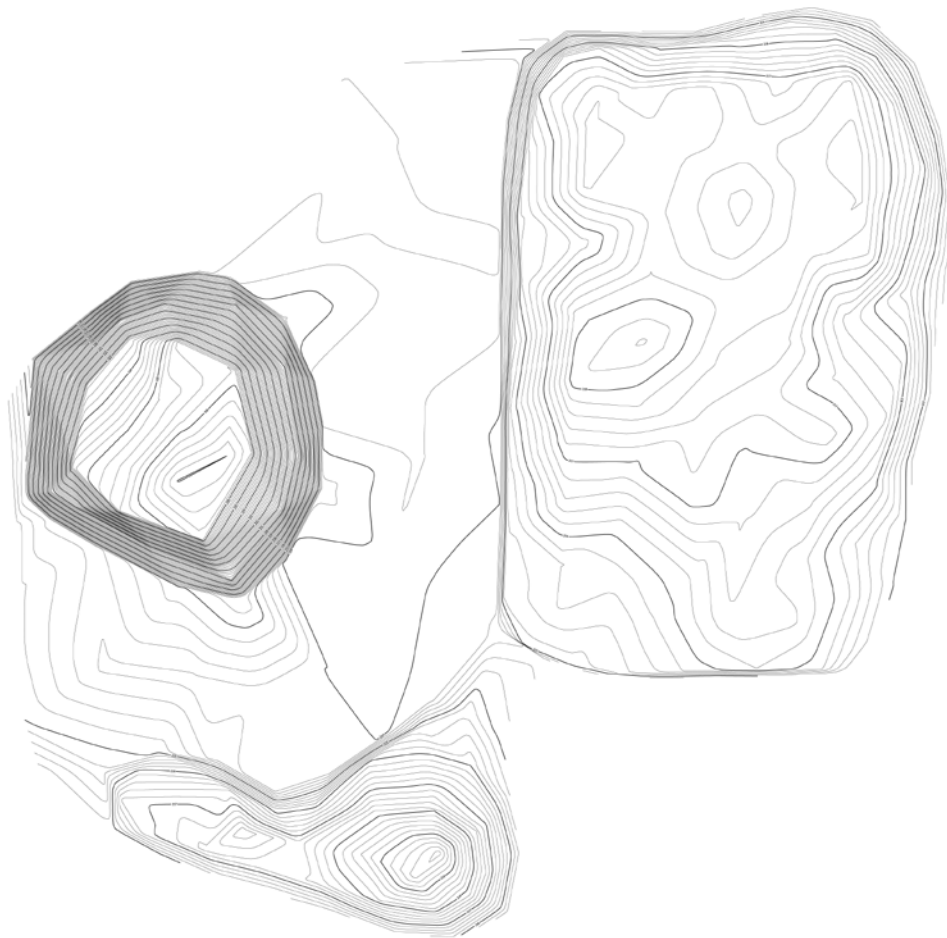
The site of Warka (0644) is situated at the south-eastern limit of the oasis and was probably supplied with water by one of the most eastern watercourses issuing from the Rud-i Zar. The site comprises a large, square citadel covering 0.65 ha, a shahrestan (which occupies the northern and eastern areas) measuring 2.55 ha and a small, southern suburb of 0.5 ha (fig. 104).

The survey in the field showed a large number of ceramic fragments that gave a broad chronological range. The site was occupied at least from the 1st century CE and was characterised by long-lasting chronological continuity, at least until the Timurid period.

#### 2.6.7 Khama

The site of Khama is located south of the oasis, currently at the limit of the irrigated lands. The area was supplied with water by a larger watercourse and by canals issuing from the Rud-i Zar. It comprises a square citadel (probably fortified, as is possible to observe on its northern side) of 0.7 ha, a shahrestan of 1.9 ha and a suburb of 0.59 ha. The whole settlement extends over 4.66 ha (fig. 105).

The ceramic fragments observed in the field showed that the site was occupied at least since the early centuries of our era. At present, no sherds have been identified as belonging to the 2nd–1st centuries BCE. Some examples of pottery, however, could be more ancient and probably



0 100 m 200 m



FIGURE 92  
Topography of Kaththa  
RILIEVI SRL 2017

show the same configuration as in Warka (0644). At the present state of research, the site shows a chronology until the 12th century CE.

#### 2.6.8 Narshak Tepe

The site of Narshak tepe is located in the core of the oasis, only 1.5 km west from Vobkent. It comprises a rectangular, fortified citadel of 0.6 ha,<sup>20</sup> a shahrestan of 2.2 ha and a western suburb of 0.82 ha. The whole area covers 4.5 ha (fig. 106).

<sup>20</sup> In an article concerning this site, Abdimirov (1983: 149) attests that the area of the citadel corresponds to 0.3 ha. Our measurements show that it would have been slightly larger.

The site was studied by an Uzbek team during the 1980s (Abdimirov 1983: 148–54). Those excavations showed, through the pottery and the morphology of the site, a chronology from the 5th century to the 12th centuries CE. The ceramic fragments collected during the surveys showed a slightly earlier chronology, beginning in the 2nd–3rd centuries CE.

#### 2.6.9 Daymun

The site of Daymun is located in the south-western part of the oasis, circa 1 km from the left bank of the Zerafshan. It is situated, as for sites 0035 and 0036 (Mamastin), along the Khorasan Road, which joined – and still joins today – the oasis and Bukhara to Khorasan. It comprises a fortified citadel of 0.33 ha, a shahrestan of 1.3 ha and a suburb,

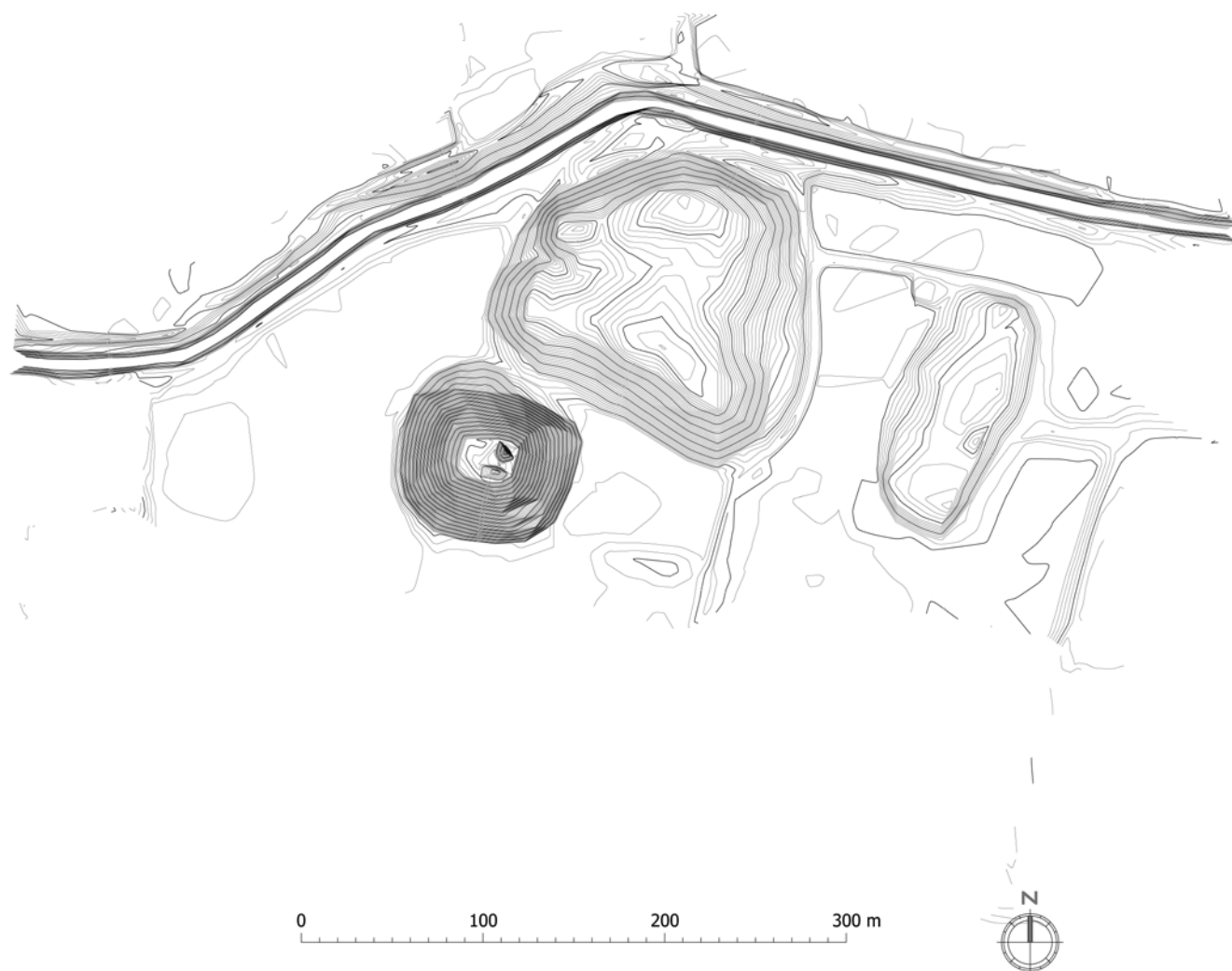


FIGURE 93 Topography of Mughkan  
RILIEVI SRL 2017

today seriously damaged, which would have covered 2 ha. The whole site extends over circa 4.5 ha (fig. 107).

The pottery was scattered, and no diagnostic fragments were observed among those collected. The historical sources do not describe the site, attesting only that it was an “ancient village two and a half farsakh from Bukhara” (Barthold 1981: 114, 117).

#### 2.6.10 Banab (0567)

The site is located in the core of the oasis, circa 900 m south of the left bank of the Zerafshan. It comprises a quadrangular, fortified citadel of 0.33 ha, a shahrestan of 1.3 ha and an eastern suburb of 1.7 ha. The whole area extends over 3.3 ha (fig. 108).

The site was rich in ceramic fragments. A quantity of ceramic slag was found in the suburb, to the east, testifying

to pottery production. Among the ceramic fragments no clear examples could confirm an early period of occupation. The chronology could range from the 4th–5th centuries to the 12th–13th centuries CE.

#### 2.6.11 Site 0005

Site 0005 is located south of the oasis, in a zone in which the ancient watercourses of the Kashka Darya flowed before the 4th century BCE, later replaced by ancient canals issuing from the Rud-i Zar (Fouache et al. 2016). The site comprises a fortified citadel of 0.354 ha, a shahrestan of 2.1 ha and a suburb circa 100 m to the east of 0.5 ha. The whole site covers 3.6 ha (fig. 109).<sup>21</sup>

<sup>21</sup> Only the citadel and the shahrestan are represented on the plan because of the very weak relief of its suburb.

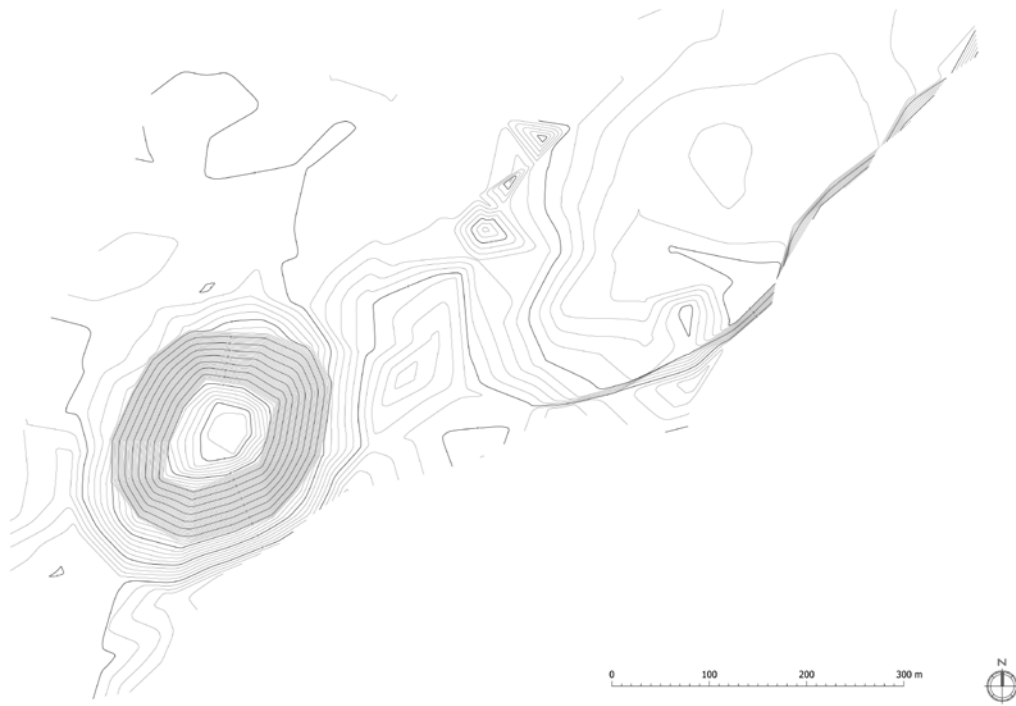


FIGURE 94 Topography of site 0572  
RILIEVI SRL 2017

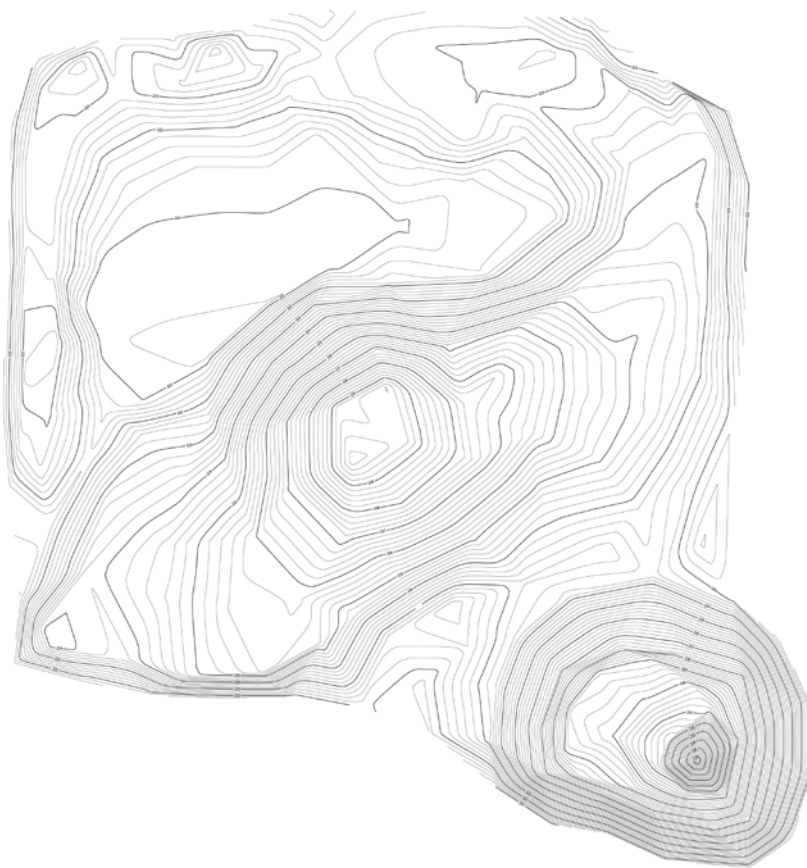


FIGURE 95  
Topography of site 0190  
RILIEVI SRL 2017

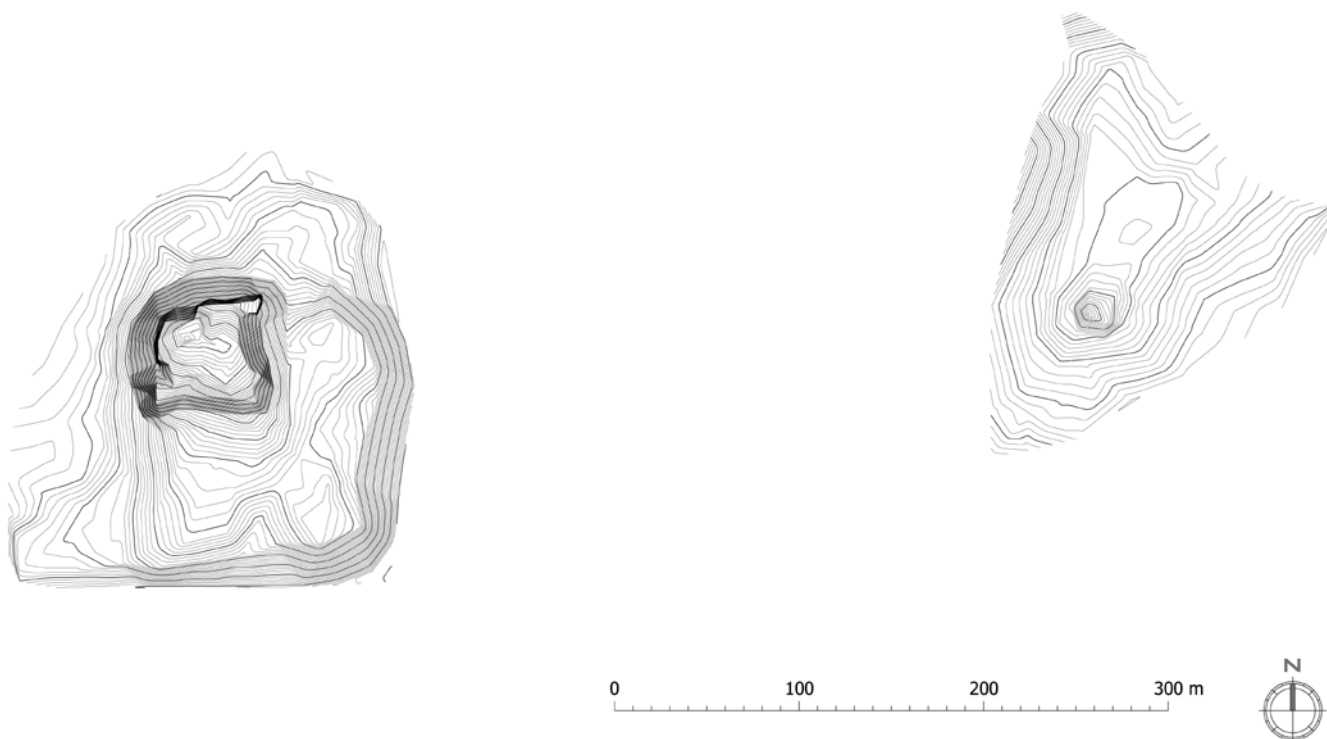


FIGURE 96 Topography of site 0003  
RILIEVI SRL 2017

The pottery collected was not very representative. Fragments belonging to the 4th–5th centuries CE, as well as Islamic pottery, were observed.

#### 2.6.12 Site 0006

Site 0006 is located in the southern part of the oasis. This area is irrigated by one of the numerous canals issuing from the Rud-i Zar, which traverses Bukhara. It comprises a high, fortified citadel – although today this fortification is difficult to observe – of 0.87 ha, a shahrestan to the south of 1 ha and a suburb of 1.1 ha. The whole area corresponds to 4.52 ha (fig. 110).

The pottery observed presented sherds datable to the first centuries of our era. At present, no more ancient typologies have been identified, but a stratigraphical test on the citadel could confirm or disprove this preliminary observation.

#### 2.6.13 Site 0513

Site 0513 is located in the eastern part of the oasis, at the limit of the irrigated areas. Since MAFOUB are working on this site, we do not dispose to date of the topography, awaiting its publication by them. MAFOUB have, however, calculated the area through satellite images. The site

comprises a citadel of 0.35 ha, a shahrestan of 1 ha and an eastern suburb of 3 ha. The whole site covers 5 ha (fig. 111).

The site presented the particularity of having a circular citadel, to which was attached a rectangular shahrestan in its south-western part. The shape of the citadel recalls ancient Iranian military traditions, which are numerous in Iran as well as in Turkmenistan.

The eastern area of the oasis, in which Zarmitan is the main modern city, has already been studied, through surveys as well as some excavations, by the Uzbek team directed by Djamal Mirzaakhmedov and recently by Sören Stark, from the University of New York. A book on this work has been published (Mirzaakhmedov et al. 2002), in which the specialists explored the whole area, also giving a schematic plan of each ancient mound. This earlier research relates to sites 0513, 0518 and 0531 presented in this work.<sup>22</sup>

<sup>22</sup> Unfortunately, the very approximate plan, and the damage suffered by the sites in the past few years, did not allow one to find the direct parallels with the book.



FIGURE 97 Map showing urban categories 1, 2, 3 and 4  
 ESRI IMAGERY 2018; RANTE 2017



FIGURE 98 Topography of Marzangon  
RILIEVI SRL 2017



FIGURE 99 Aerial photo showing the remains of Shargh  
ICONEM 2014



FIGURE 100 Topography of Zandana  
RILIEVI SRL 2017



FIGURE 101 Satellite view of Zandana  
ICONEM 2014

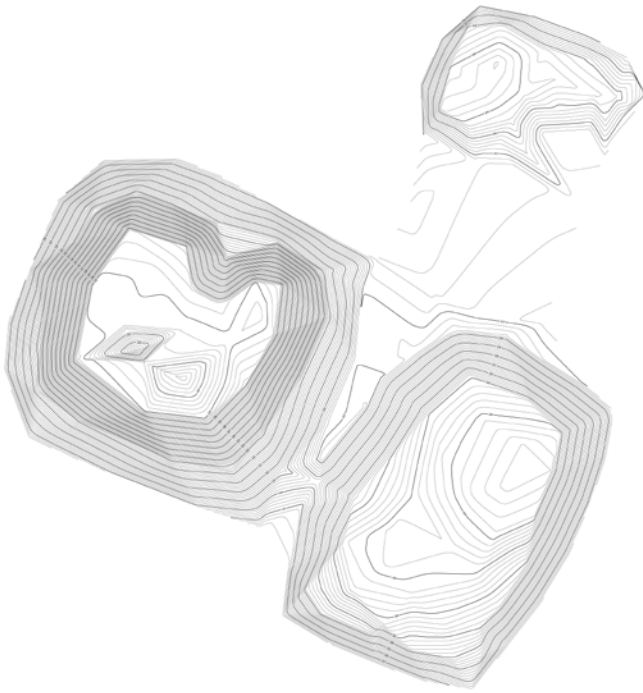


FIGURE 102 Topography of site 0035  
RILIEVI SRL 2017

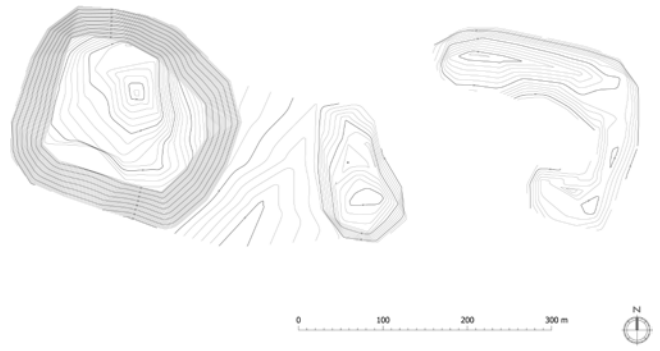


FIGURE 103 Topography of Farghandad  
RILIEVI SRL 2017

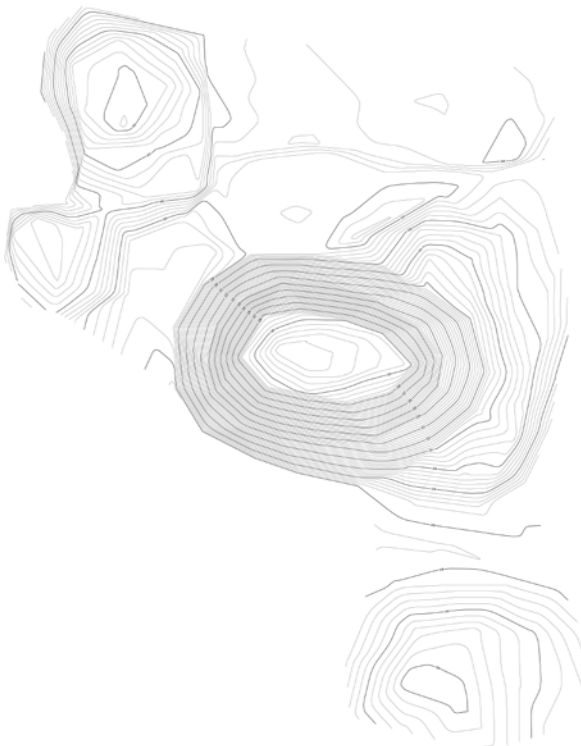


FIGURE 104 Topography of Warka  
RILIEVI SRL 2017

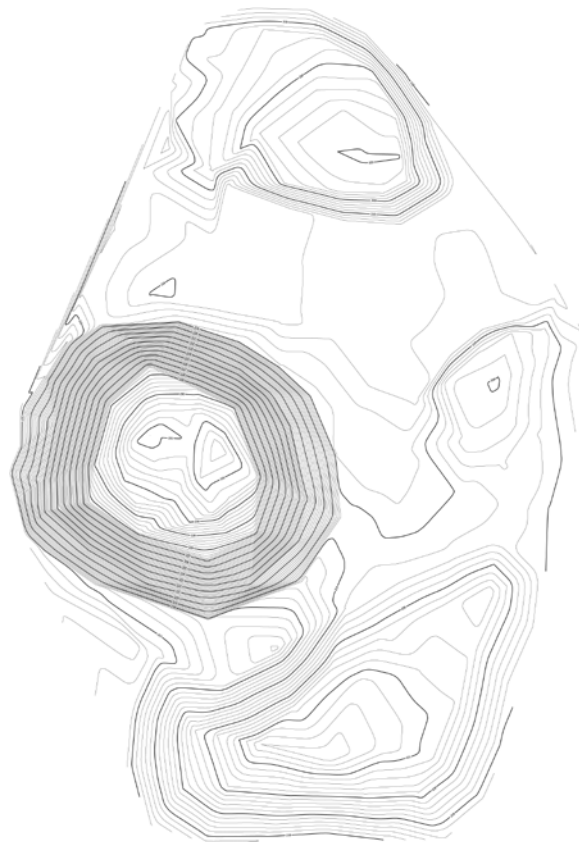


FIGURE 105 Topography of Khama  
RILIEVI SRL 2017

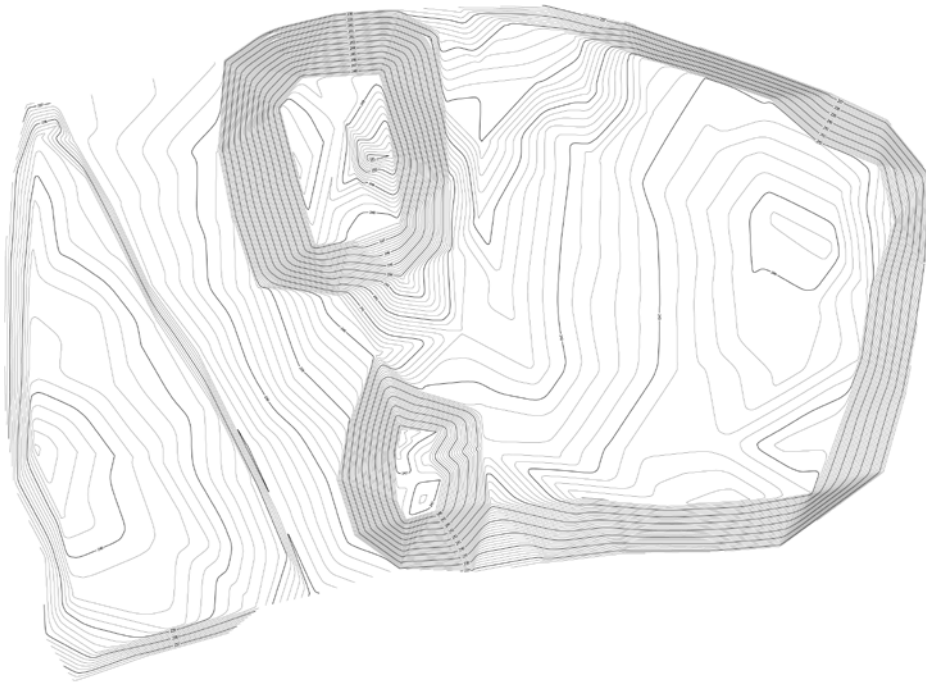


FIGURE 106  
Topography of Narshak tepe  
RILIEVI SRL 2017



FIGURE 107 Topography of Daymun  
RILIEVI SRL 2017

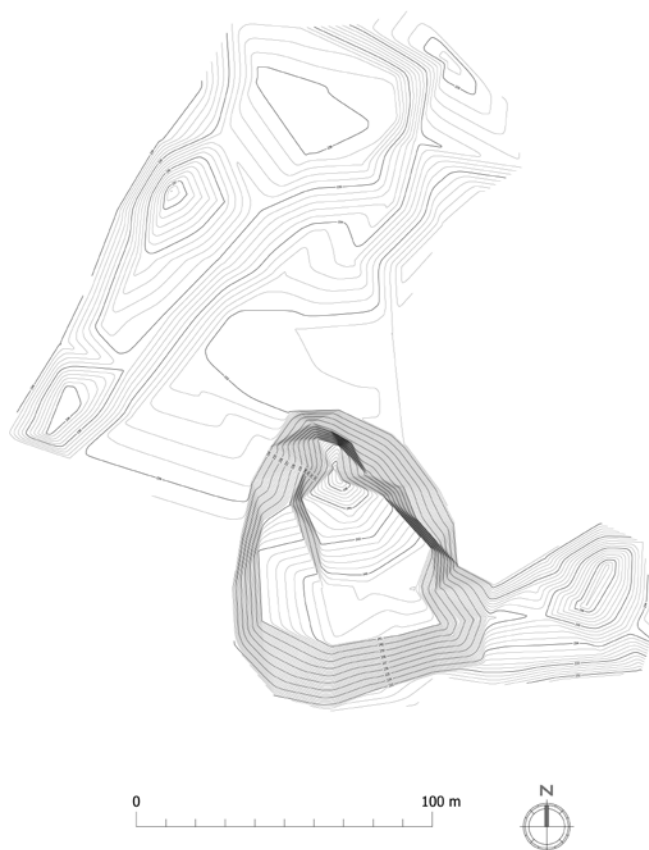


FIGURE 108 Topography of Banab  
RILIEVI SRL 2017

#### 2.6.14 Site 0518

Site 0518 is located in the eastern part of the oasis. It comprises a citadel in its north-eastern part, quite square in shape, of 0.45 ha; a shahrestan of 1.3 ha; and a suburb to the west of 1 ha. The whole site covers 3.89 ha (fig. 112).

The survey and the collection of ceramic fragments showed a complete chronology from the 1st century CE to the Timurid period. A wealthy occupation attested by ceramic typologies dated to the 10th–11th centuries was also observed.

#### 2.6.15 Site 0531

Site 0531 is situated in the eastern part of the oasis. It comprises a citadel of 0.43 ha, a rectangular shahrestan of 0.7 ha and an eastern suburb of circa 1 ha. The whole site extends over 3.3 ha (fig. 113).

The pottery collected was too scattered to have a correct idea of the chronology. It can only be stated that ceramics datable to the 4th–5th and 6th–7th centuries CE were observed, as well as Islamic ceramics datable to the 11th–12th centuries. I believe – in theory – that the site was continuously occupied through these phases.



FIGURE 109 Topography of site 0005  
RILIEVI SRL 2017

#### 2.6.16 Site 0495

Site 0495 is located in the north-eastern part outside the oasis, before the Zerafshan becomes a delta, and on its right bank. It comprises a square, fortified citadel (today severely damaged) of circa 0.3 ha, a shahrestan of circa 0.7 ha and two separate suburbs, of which the southern one is occupied by a cemetery, which taken together would cover 0.7 ha. Taking into consideration the areas between the four ancient urban entities, the whole area would cover circa 3 ha (fig. 114).



FIGURE 110  
Topography of site 0006  
RILIEVI SRL 2017



FIGURE 111  
Satellite view of site 0513  
GOOGLE EARTH 2017



FIGURE 112 Topography of site 0518  
RILIEVI SRL 2017

Unfortunately the pottery fragments collected were too few and too damaged, and were difficult to identify. Nonetheless the site, by reason of its geographical location – it is in a zone irrigated since the Neolithic, before the constitution of the delta and on the right bank of the Zerafshan – could represent an important centre in the 1st millennium BCE.

#### 2.6.17 Site 0571

Site 0571 is located in the core of the oasis, close to the left bank of the Zerafshan. It comprises a quadrangular, fortified citadel of 0.45 ha, a shahrestan (situated around the northern and western sides of the citadel) of 1.55 ha and a southern suburb of 0.57 ha. The whole area covers 3 ha (fig. 115).

The site was particularly rich in ceramics. Many fragments were collected and studied. Comparing this pottery with the pottery from the stratigraphy of the other sites of the oasis, as well as with some examples found in Afrasyab for the most ancient (Lyonnet 2013: 273–74, fig. 9a–c),

showed a chronology that extends from the 2nd–1st centuries BCE to the 11th–12th centuries CE.

#### 2.6.18 Site 0566

Site 0566 is located in the core of the oasis, south of the left bank of the Zerafshan. It comprises a rectangular, fortified citadel of 0.35 ha, a shahrestan of 1.25 ha and a suburb of 0.67 ha. The whole area covers 3.4 ha (fig. 116), also taking into consideration the flatter zones between the mounds which, as previously noted, are part of the whole urban entity.

The pottery collected revealed an extended chronology, beginning in the 1st century CE and ending in the 12th–13th centuries CE. Because the origins of the site were represented only by two small fragments – even if they were clearly datable – it is better to remain cautious.

#### 2.6.19 Site 0546

Site 0546 is located in the western part of the oasis, 900 m from the left bank of the Zar-i Rud. It comprises



FIGURE 113  
Topography of site 0531  
RILIEVI SRL 2017

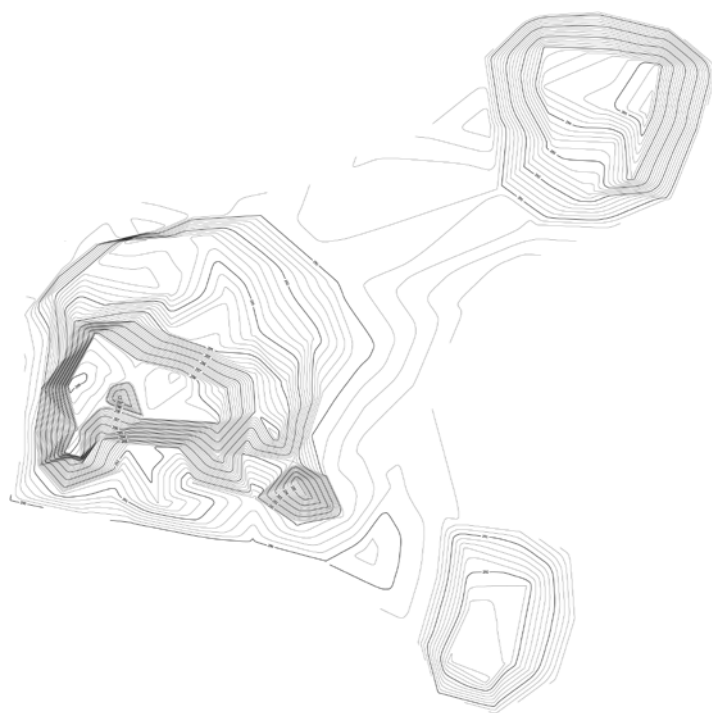


FIGURE 114  
Topography of site 0495  
RILIEVI SRL 2017



FIGURE 115  
Topography of site 0571  
RILIEVI SRL 2017



FIGURE 116  
Topography of site 0566  
RILIEVI SRL 2017

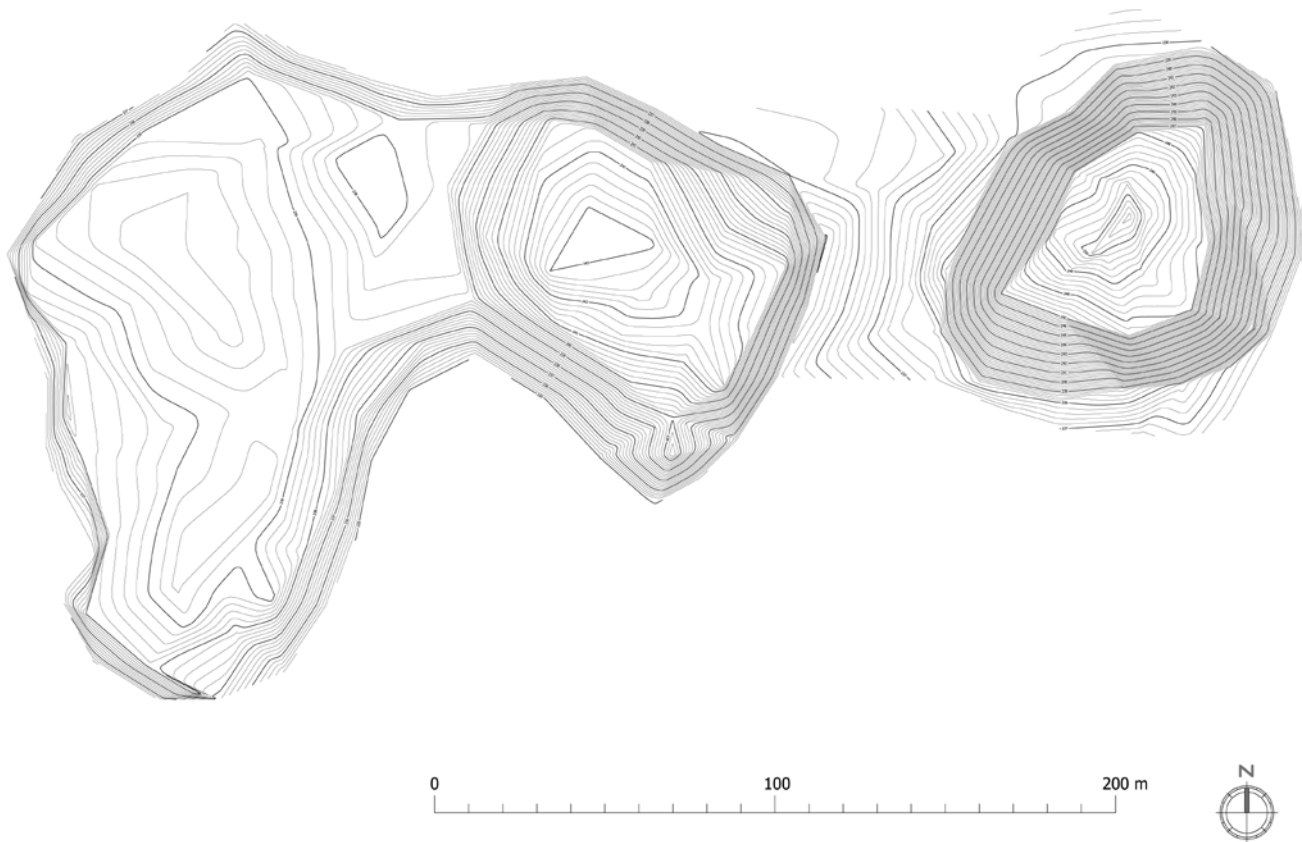


FIGURE 117 Topography of site 0546 (Rilievi srl 2017)

a rectangular, fortified citadel of 0.27 ha, a shahrestan of 1 ha and a suburb of 1.5 ha. The whole area covers 4.42 ha (fig. 117).

The ceramic fragments collected during the survey showed an ancient origin, which could be confirmed as the 1st century CE. Sherds belonging to the Islamic period were observed, but were very rare. The chronology could continue until the 12th–13th centuries CE.

#### 2.6.20 Site 0609

Site 0609 is located in the western part of the oasis, 2 km east from the left bank of a branch of the Zar-i Rud, which flows to the south. It comprises a quadrangular, fortified citadel of 0.035 ha (which seemed more to have been a single fortified palace), a shahrestan of 0.61 ha and a suburb of 0.86 ha. The whole area covers 3 ha (fig. 118).

The few ceramic fragments collected nonetheless showed a chronology that apparently extends at least from the 4th–5th century to the 12th–13th centuries CE.

#### 2.6.21 Mamastin (0036)

Mamastin (site 0036) is located 10 km west of Bukhara and only 1 km from the left bank of the Zerafshan.

According to the Soviet military map from 1952, the site is only 500 m from the ancient meander of the Zerafshan, which has now disappeared. It comprises a quadrangular, fortified citadel of 0.2 ha, a shahrestan of 1.3 ha and a suburb of circa 1 ha. The whole site extends over 3.47 ha (fig. 119).

The very few ceramic fragments found during the survey allowed us to have only a global idea of the chronology of the site. Fragments datable to the 4th–5th centuries CE were observed, as well as fragments belonging to the 12th–13th centuries CE.

#### 2.6.22 Site 0133

Site 0133 is located in the south-western part of the oasis, at the limit of the Kampir Duval. It is also situated on the Khorasan Road. It comprises a small, fortified citadel of 0.17 ha, a shahrestan of 1.3 ha and a small suburb of 0.38 ha. The whole area corresponds to 3 ha (fig. 120).

The significant quantity of ceramic sherds collected gave us enough data to establish a continuous chronology from the 1st–2nd centuries CE to the Timurid period. The pottery shows a substantial occupation between the 9th and 10th centuries.

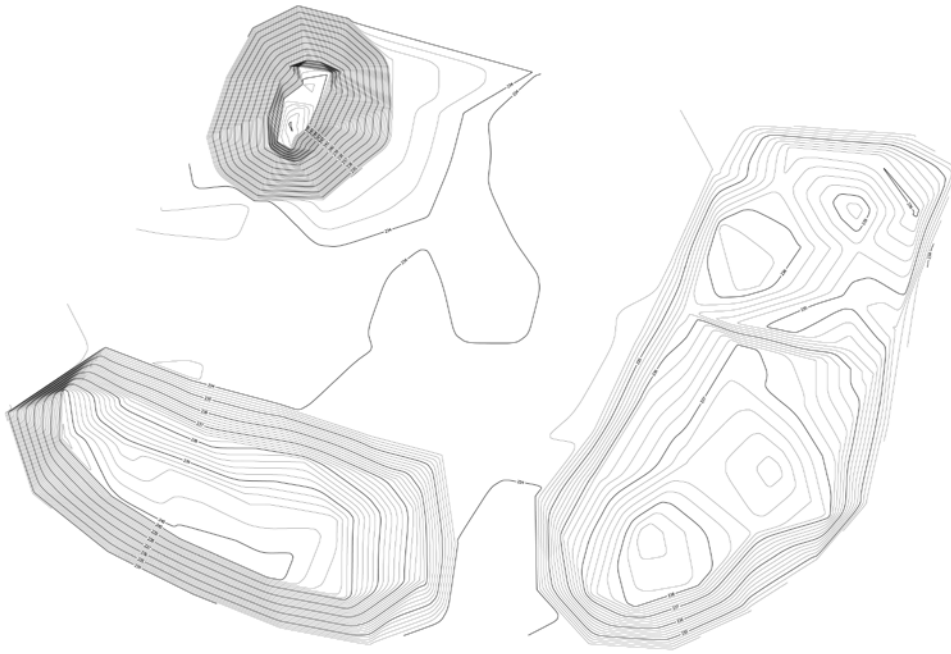


FIGURE 118  
Topography of site 0609 (Rilievi  
srl 2017)



FIGURE 119  
Topography of Mamastin (Rilievi srl 2017)  
RILIEVI SRL 2017



FIGURE 120  
Topography of site 0133  
RILIEVI SRL 2017

#### 2.6.23 Site 0192

Site 0192 is located in the core of the oasis, only 1 km from the “Tarab watercourse”, which from the Khitfar flows south/south-west until it reaches the city of Tarab, where it turns to flow to the west. It comprises a citadel of 0.2 ha, a shahrestan of 1.18 ha and a large suburb of 2.43 ha. The whole site covers 5.1 ha (fig. 121).

The very few ceramic fragments collected showed characteristics of Islamic production only.

#### 2.6.24 Khujada (0149)

Khujada (site 0149) is located in the south-western part of the oasis, at the limit of the irrigated areas, along the Tarab watercourse, after it turns to the west. The site is also situated along what should be the southern limit of the Kampir Duval. It comprises a strongly fortified rectangular citadel measuring 0.5 ha, a shahrestan of 1.3 ha and a suburb covering 1.15 ha. The whole area covers 5.5 ha (fig. 122).

Some fragments of the pottery collected revealed a chronology that, compared with that of Afrasyab, could begin at the end of the 2nd century BCE<sup>23</sup> and last until the 15th–16th centuries CE. Because of the assemblages, it

is not impossible that the early occupation dates back to the 2nd century BCE. But only a stratigraphical investigation can confirm this hypothesis.

#### 2.6.25 Site 0330

Site 0330 is located in the north-western part of the oasis, close to a branch of the Khitfar Zandani. It comprises a citadel measuring 0.12 ha, a shahrestan covering 1.4 ha and a suburb of 0.55 ha. The whole site covers 3.4 ha (fig. 123).

The ceramics observed clearly show occupations dating from the 4th–7th centuries up to the 12th–13th centuries CE. Unfortunately, the site is today covered by several layers of a modern cemetery, rendering the survey problematic.

#### 2.6.26 Site 0357

Site 0357 is located in the north-western part of the oasis, along the Khitfar Zandani. It comprises a citadel measuring 0.11 ha, a shahrestan covering 1 ha and a suburb in the far west of 1.5 ha. The whole site, taking into account also the large space between the urban entities, covers circa 4 ha (fig. 124).

The high density of the graves present on the surface of the three different urban entities made the collection of ceramic fragments difficult. At present, therefore, no precise chronology can be given for this site.

<sup>23</sup> With regard to this time span, see Lyonnet 2013: 271–74.



FIGURE 121  
Topography of site 0192  
RILIEVI SRL 2017



FIGURE 122  
Topography of Khujada  
RILIEVI SRL 2017

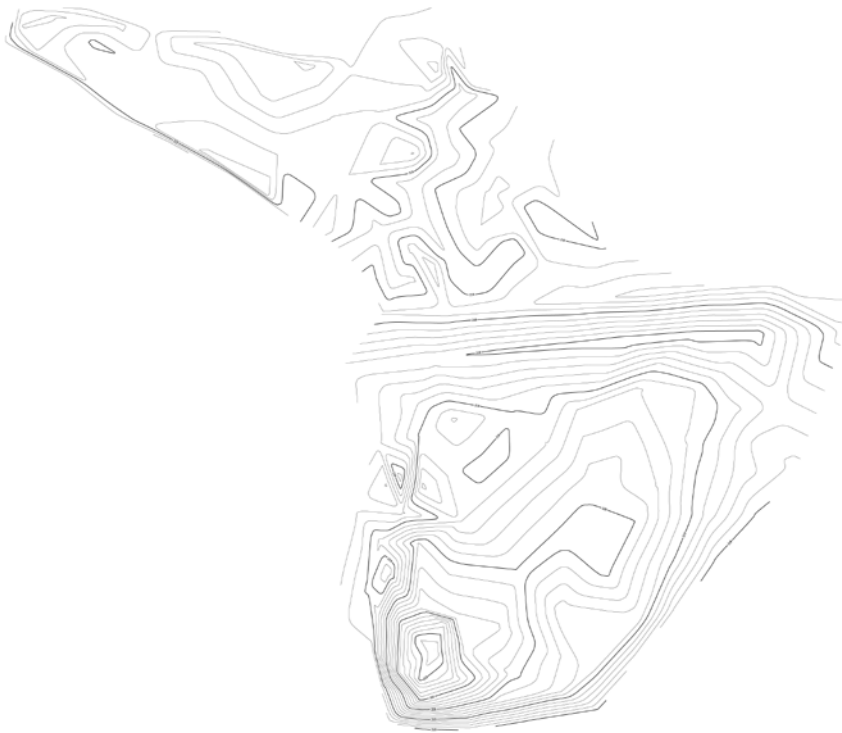


FIGURE 123  
Topography of site 0330  
RILIEVI SRL 2017

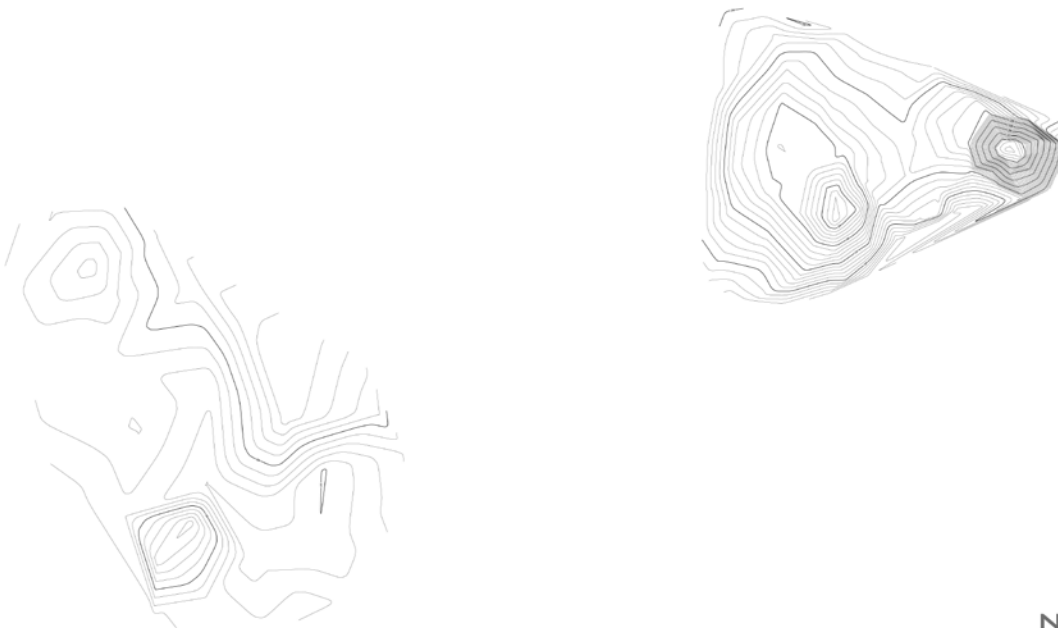


FIGURE 124 Topography of site 0357  
RILIEVI SRL 2017

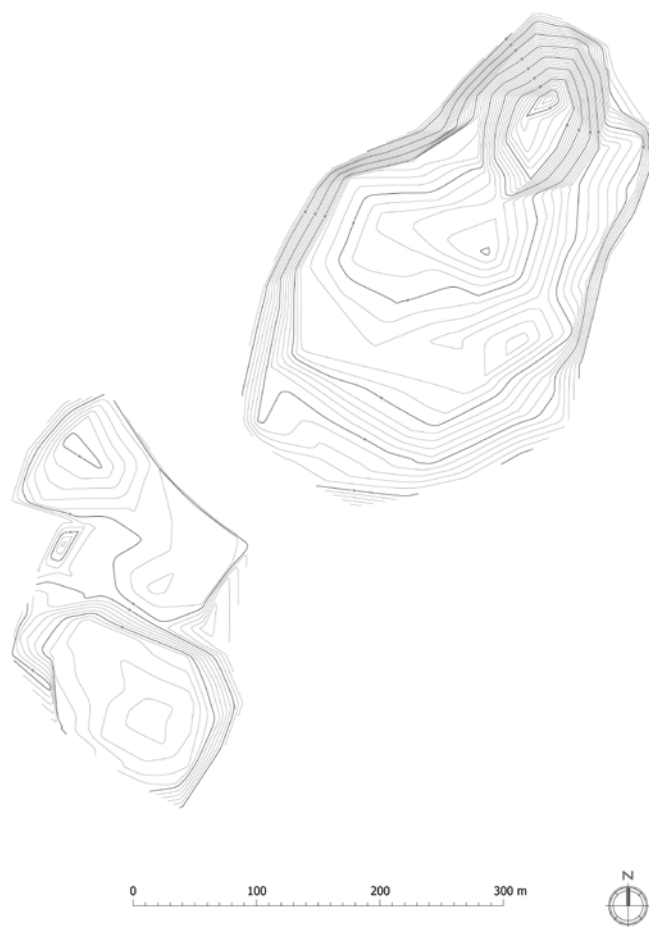


FIGURE 125 Topography of site 0896  
RILIEVI SRL 2017

#### 2.6.27 Site 0896

Site 0896 is located in the north-western part of the oasis, along the Khitfar Zandani. It comprises a citadel of 0.2 ha, a large shahrestan covering 1.6 ha and a suburb of 0.9 ha. The whole site covers 3.5 ha (fig. 125).

The high density of the graves present on the surface of the three different urban entities, as well as the salty layer on the surface, made the collection of ceramics difficult.

### 3 Urban Categories and Water Resources

#### 3.1 Category 1

In the hydrographical framework relating to the geomorphological discoveries previously noted, these five main and larger cities were connected with the natural arms of the Zerafshan delta. Except for Paykend, every city was settled on a major river, probably testifying that at the moment of their foundation (from the 2nd century BCE) people followed the main watercourses, likely avoiding the channels with a lower water capacity. The first occupation in the area where Paykend later arose, occurred south of

a topographical depression that benefited from the periodical flooding of the Zerafshan. For this reason, the area was ideal for agriculture, as well as for a settlement. North of this micro-oasis, a *talweg* – of which the profile is in equilibrium with the Kashka Darya paleochannel – seems to have flowed at least until the Bronze Age into the plain south of Paykend. The arrival of the Zerafshan, in the 4th century BCE, closed this talweg and steadily raised its bed and banks, which transformed the talweg upstream into a topographical depression. Before the widening of the canal of Paykend (flowing north-south) in the beginning of the 1960s, the only possibility of transporting water from the Zerafshan was a canal bringing water from its left bank (today observed at Yangimazar), circumventing the basin from the north (still visible today), and then flowing southwards, up to the fortified city and further to the south (Rante 2018, forthcoming). Paykend presents a different case, in which the foundation of the city was connected not directly with a natural watercourse but with water that was brought to it by an ancient talweg.

The cities belonging to this category were all founded at the beginning of the early settlement of the oasis, which occurred around the 3rd–2nd centuries BCE. They were not alone; other centres were also being created, but their distribution, covering different main areas of the oasis, confirms that, already in the beginning, there was a political and an administrative intention to divide the oasis into different sections, each under the control of an important urban centre.

#### 3.2 Category 2

By the 3rd–2nd centuries BCE, other areas were occupied. As shown in the general map relating to category 2, the western side of the oasis presented not only the earliest occupation but also an important concentration of long-term chronological sites. This was the case also for the northern part, with Vardana, and for the central part along the Zerafshan, with Iskijkat and site 0560. In the south-western core of the oasis emerges Ramish tepe.

The western side of the oasis was more specifically occupied along the limits of the irrigated land by Varakhsha, Sivanj, Barkad and Kakishtuvan. All these sites, except for Sivanj, were directly connected with watercourses: Khitfar Ramitan and its arms irrigated the whole area of Ramitan, Varakhsha, Sivanj and Barkad. On the northern side, Vardana was traversed by the Shafurkam. In the eastern core of the oasis, along the Zerafshan, we find Iskijkat and Site 0560, as noted above.

The specificity of this category is above all that 6 of the 8 sites mentioned were organised around the limits of the oasis and that all these sites were defended by

strong ramparts around the city. Moreover, Varakhsha and Vardana, in part also Barkad and Ramish tepe, also presented well-fortified shahrestans, carrying out their defensive function not only for the city itself but also for the whole oasis.

Within this framework, the organisation of the sites that settled mostly in the north-western side of the oasis can be observed. Of the 18 sites investigated in this south-eastern part, only 5 are datable to the earliest foundations, and only one (Bukhara) belongs to the larger, and thus most developed, cities.

### 3.3 *Category 3*

Settlements included in this category were organised always along ancient watercourses, except for site 0003, south of the oasis, and Khunbun, south-west of the oasis. Tavovis, north-east of the oasis, depended on smaller water resources issuing from the Zerafshan, the Kam-i Abu Muslim being, according to our geomorphological investigations, a later canal.

This category is constituted of 13 sites, of which 10 are dated to the early period, between the 2nd century BCE and the 1st century CE. Except for Khunbun and site 0003, south of the oasis, the others were directly connected with ancient watercourses. Afshana and site 0320 were undoubtedly supplied with water by small canals from the Khitfar Zandana.

It is important to observe that the southern part of the oasis is characterised by the presence of sites belonging to this category: Khunbun, Tarab and sites 0003 and 0190. Only three sites, Khunbun and sites 0003 and 0190, settled in the south-eastern part of the oasis. Among the latter, only site 0190 was directly connected with a natural watercourse. Most of the other settlements belonging to this category were founded in the north-western side of the oasis.

### 3.4 *Category 4*

In this category are included sites that were not characterised by a strong urban development, as a result of a number of different causes, among which late occupation or an early abandonment. In fact, among the 27 sites selected, only 6 date to the earliest time. The increase in settlements appears to have begun in the 4th–5th centuries CE and to have continued at least until the 12th century. Although the dynamic of settling along ancient watercourses persisted, the organisation of settlements of this large category was characterised by a rupture of the earlier organisations.

First, the six most ancient sites of this category – Warka and sites 0518, 0571, 0566 and 0546 – are concentrated

mostly in the eastern part of the oasis, which is lacking in sites belonging to the previous categories. Sites 0571 and 0566 are situated in the core, along this segment of the Zerafshan, which changed direction to the west and then again plunged back to the south-west. Khujada (0149) is located at the western border of the oasis. Excepting probably site 0513, located just inside the border of the eastern oasis, the ancient eastern sites were supplied with water from the canals issuing from the Rud-i Zar. As is the case with sites 0571 and 0566, Banab (0567) is located also along the left bank of the Zerafshan.

The southern part of the oasis is also characterised by an increase in the number of settlements belonging to this category. Except Warka, which is larger, its location depending on other factors as will be discussed later, sites 0005, 0006 and 0012 trace the southern limit of the oasis. Unfortunately, as previously observed, no dating elements were available for these mounds. They were supplied with water by canals coming from the Rud-i Zar and its southwards flowing arms.

Sites 0035 and 0036 (Mamastin) are situated west of Bukhara and were supplied with water by arms of the Rud-i Zar rather than by the closer Zerafshan watercourse.

The northern sites of this category, Zandana and sites 0357 and 0896, today are settled along an artificial canal which, nevertheless, geomorphologists convincingly identified with an ancient watercourse. According to our data, they were founded by the 5th–6th centuries CE. Their particularity is to have settled along a watercourse of which the paleochannel has been dated by OSL analysis, revealing its dessication during the Last Glacial Maximum, probably announcing a long-term landscape transformation. It could also imply that probably since the early occupations within the oasis, this area was reclaimed to permit human occupation. Although – for now – dated a bit later (4th century CE), site 0330 belongs to this organisation along the western limit of the oasis. Narshaki tepe and Marzangon are located along the Khitfar, and site 0495 is located just before the delta, where the Zerafshan is still a single main watercourse.

## 4 **Water Network and Tripartite Sites between Hydrological and Historical Surveys**

### 4.1 *Global Overview of the Tripartite Sites within the Water Network*

The settlement organisation appears more clearly if it is linked to the water network. As previously noted, the GIS map with which these data were elaborated is composed of the Esri image with sites and with the hydrological

network. Another GIS map combines the sites with the 1893 water network (fig. 126).

The organisation of all the recorded sites covers the whole water basin of the Zerafshan delta, irrigated and unirrigated. The unirrigated lands are in the northern, north-western and western parts. The limits of the irrigated lands, and thus the limits of the oasis observed in the 19th century, are outlined by the western water network. It can be established clearly from the map that these lands suffered important changes that pushed people to migrate to the east. According to our recent geomorphological studies (Fouache et al. 2016), this dynamic of land dessication began even before the Last Glacial Maximum (Zink et al. 2017: 46–54), but it was observed to a more significant degree especially since the early Neolithic.

Almost all the tripartite settlements were connected with the main watercourses. From the upper side of the oasis, the Shafurkam channel supplied site 0084 (Vardana) with water. Southwards, the Sultanabad channel supplied site 0359 (Gulyamata). Further to the south, Gijduvan (0002), as previously observed, was supplied with water by the Kharqan Rud, which I have tentatively divided into the Upper Kharqan Rud (flowing inside the city) and the Lower Kharqan Rud (flowing below it). The Khitar channel, southwards, with its several branches, supplied water to the city of Marzangon (0089), Kumijkat (0090) and also site 0560 through smaller canals, Vobkent (0116), Narshak tepe (0457). Then it divided into two branches, which I prefer to distinguish as the Khitar Zandana, flowing to the north-west, and the Khitar Ramitan, flowing to the south-west. The former channel supplied water to important cities and villages like Afshana (0432), and through canals it also supplied Zandana (0083) and sites 0357, 0330 and 0320, its course halting at site 0896. The Khitar Ramitan supplied the important city of Ramitan and, in the same area, sites 0247 and 0275. Through canals, it also supplied sites 0231 and 0944. One of these branches, in its upper part, reached the site of Kakishtuvan (0317) in the west; a southern branch reached Varakhsha (0069).

Southwards, the Tarab channel left the Khitar's main watercourse and flowed to the south/south-west, almost parallel to the Khitar Ramitan, supplying water to site 0192 and Ramish tepe (0059), then turning to the west and irrigating Tarab (0043) and Khujada (0149), before continuing to the west and becoming endorheic.

The Zerafshan River running north-east/south-west cut the oasis into two parts. Its water upstream supplied important sites such as Shargh (0846) and Iskijkat (0847), as well as Banab (0567) and sites 0566 0571 – which were probably irrigated also by canals coming from the Rud-i Zar – and sites 0572, 0039, 0133 and 0040. Probably one of

its numerous canals also irrigated site 0036. It continued its path until it reached the city of Paykend (0095), which was irrigated by one of its arms that branches off where today stands the village of Yangimazar, and again flows to the south-west, generating the micro-oasis of Qaraqöl, before becoming endorheic further along its course.

With regard to the south-eastern side of the oasis, the Rud-i Zar channel, with its numerous smaller channels, supplied the whole area with water, probably irrigating sites 0566, 0546, 0190, 0035, 0036 (the Zerafshan also contributes to its irrigation) and 0622 and flowing through Bukhara (0097), from the eastern side, where it divided into many smaller canals. Further south it reached the sites bordering the oasis, sites 0003, 0005, 0006, 0012 and 0644. The more eastern part of this side of the oasis was irrigated by the Kam-i Abu Muslim canal which, according to the recent geomorphological investigations, should not be included within the natural watercourses or, at least, it is too artificial to be defined clearly. It supplied the site of Tavovis (0751) and sites 0513, 0518 and 0531.

In this global overview of the oasis landscape, and taking into consideration the settlement data noted above, different settlement dynamics can be distinguished. The first observation is that the sites were concentrated in several zones. The clearest data was provided by the settlement concentration in the western area of the oasis. The concentration of settlements in the core of the oasis, along the Zerafshan, was also clearly observable. Two southern areas also were easily identifiable, that around Bukhara and that in the south-west, which in all likelihood marked the limit of the oasis, probably crossed by the oasis wall, Kampir Duval.

As remarked above, and as is clear on the map, many tripartite sites were connected directly with natural watercourses, and only a few were connected through canals issuing from these.

To conclude, that the natural water network connected directly with the tripartite sites corroborates the archaeological observations, which indicate that a large number of the tripartite sites, according to the study of the surveyed material compared with that obtained through excavation, were the earliest settlements in the oasis, as noted above.

Nonetheless, this consideration cannot be completely verified without considering the size of the settlements, and therefore their human and urban evolution.

#### 4.2 *Tripartite Sites in the 1893 Hydrographical Layout*

Since the hydrographic map resulted from work based on recognising exclusively natural watercourses, as previously observed, water resources supplying all the tripartite

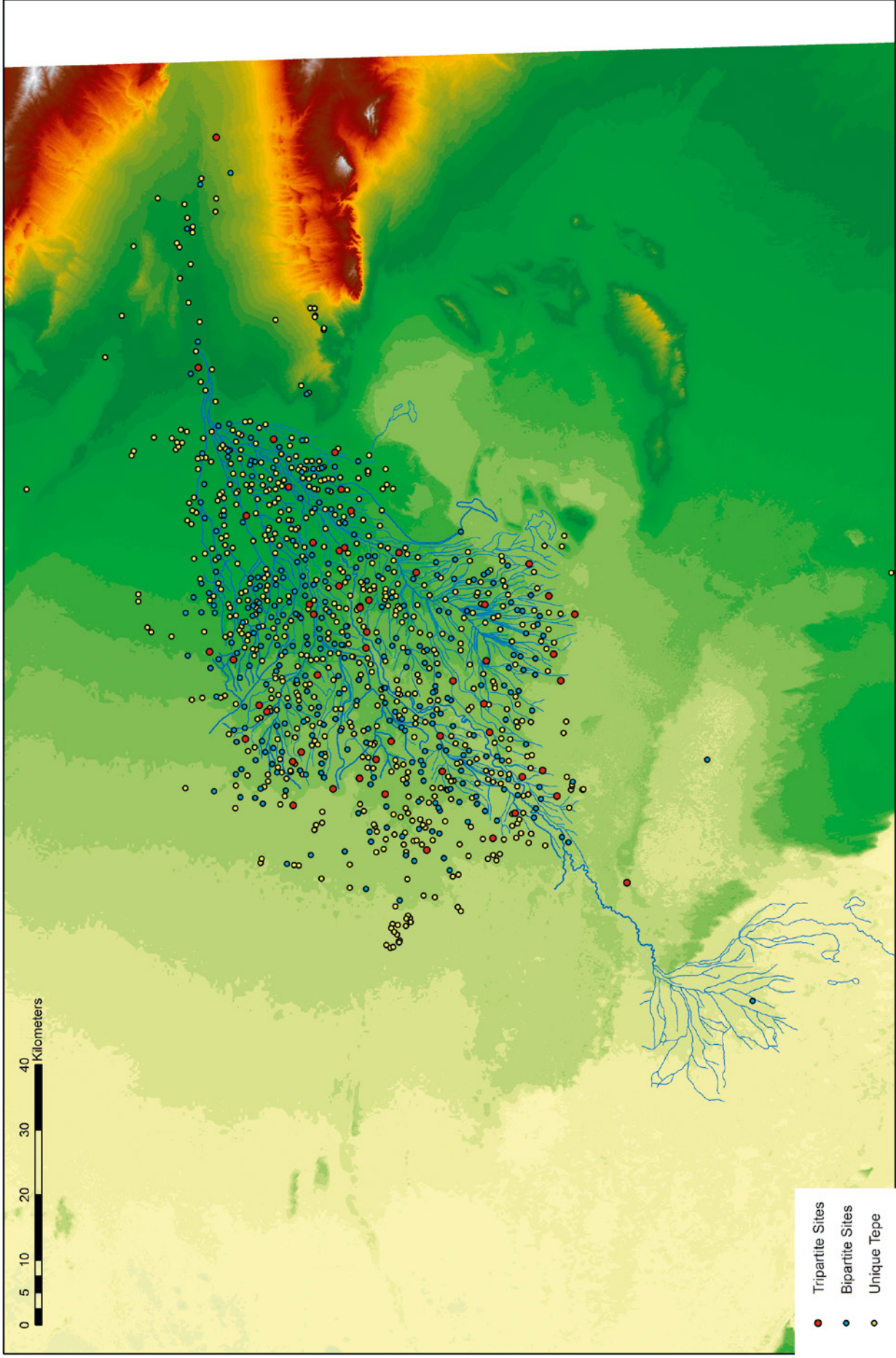


FIGURE 126 Map showing all urban settlements (the tripartite and bipartite sites and the unique tepees) with the 1893 hydrological network  
SRTM MAP 2018

sites are not available on this map. To draw all the canals, more or less significant, supplying water to these sites, would imply a vast study on artificial resources that have been – and still are today – in constant transformation.

Nevertheless, the links that exist between the tripartite sites and old canals were useful to fill the lacunas left by our geomorphological maps. For this, a global view of the 53 sites over the hydrographic 1893 map<sup>24</sup> allowed us to understand details, but also incongruities and landscape transformation. Although water resource transformations within the oasis were observed since the late Bronze or Iron Ages, the 19th-century map presented a hydrographic layout that excluded the large and intensive landscape work undertaken during the 20th century. This resulted in a framework that was much closer to earlier centuries than what is represented on the Soviet 1989 map, or the current one.

Placing the 1893 map over the current satellite image of the area, the differences in the limits of the oasis were quickly identifiable. They concern the whole of the western and northern sides. Already shown by Shishkin (1940: fig. 1), the western part suffered more than the other borders of the oasis from land dessication. As is visible on the map (fig. 127), the hydrographic network moved back eastwards circa 12 km from the current green limit of the oasis, leaving important sites such as Varakhsha outside the irrigated area. The north-western side also suffered from this dynamic. Between Kakishtuvan and site 0896, the green tongue shown on the satellite image, deprived of water canals, testifies to this eastwards desertification.

Circa 22 km west of Kakishtuvan, in the middle of the desert, while studying one of the numerous paleochannels, several areas of occupation were observed. They presented pottery sherds datable from the Bronze Age to the early Islamic period. Such late occupation in what is today a completely desert zone is evidence of a strong and rapid dessication dynamic in this specific area, which occurred between the first centuries of the Islamic period and the 19th century. But in this framework, a resounding case is represented by the strongly fortified city of Subbuk tepe (0239), a bipartite<sup>25</sup> site located in the middle

of the desert, just a few metres east of the Kampir Duval (fig. 128). During the survey, pottery sherds from the 1st to the 13th centuries CE at least were collected. Here, such a chronology, and the considerable number of pottery fragments found, testified to a clear occupation of this area since early times, dependent on watercourses issuing from the Khitfar Ramitan and crossing site 0275. So late an occupation would also testify to the rapid dessication that caused the desertification of this area. The fact that Subbuk tepe was a well-constituted city, with a fortified citadel and a shahrestan, occupied seasonally (as has also been observed in the area of Bash tepe), implies a durability of water resources and underlines the importance of this area.

The northern part of the oasis presented a vast area of meanders (fig. 129), in which no settlements were observed. Vardana represented the most northern settlement among the tripartite sites, which today is in the middle of the desert. Some watercourses or canals originating from the right bank of the Shafurkam were not drawn in the 1893 map, testifying to their dessication. The recent surveys by MAFOUB have recontextualised these in a geomorphological framework, bringing to light their course, and thus completing the global hydrographic network of this area.

In the 1893 map, the eastern side of the oasis was bordered by a canal, Kam-i Abu Muslim, which is not represented on the geomorphological map. Avoiding an in-depth investigation of the historical toponym of this canal, its current course does not present natural characteristics, and for this reason it has not been drawn. Nevertheless, it has been, and it still is today, a water resource from which the whole eastern side of the oasis depends. But from which epoch? The toponym Kam-i Abu Muslim could lead us to interpret it as a canal dug during or after the period of Abu Muslim (8th century). However, simple observation of the landscape provides us with more precise data to better situate this water resource chronologically. In fact, the area under consideration reaches from Tavovis, a zone in which the canal leaves the Zerafshan, and site 0518, a zone through which the Kam-i Abu Muslim flows southwards, irrigating the eastern border of the oasis. The 2nd century BCE settlements located in this area are Tavovis and site 0518. Tavovis clearly received

24 Only the hydrographic network of this map has been extrapolated.

25 The survey of this important site showed typical characteristics corresponding to the bipartite category. However, the site apparently also presented occupied areas surrounding it. The thick sand layer prevented any clear observation of a possible suburb, and no sherds were observed within it, but their presence cannot be at all excluded. These areas could, for example, have corresponded to agricultural fields. The satellite view also showed this unclear framework, but only a substantial cleaning of the

area can provide an answer. If this site also presented a suburb, its geographical location and its urban typology give it further importance in the context of the oasis. For the moment, I have decided to include Subbuk tepe within the bipartite sites rather than within the tripartite ones, but further surveys and observations would inform my current opinion.



FIGURE 127 Urban settlements within the area of Varakhsa  
 ESRI IMAGERY 2017; RANTE 2017

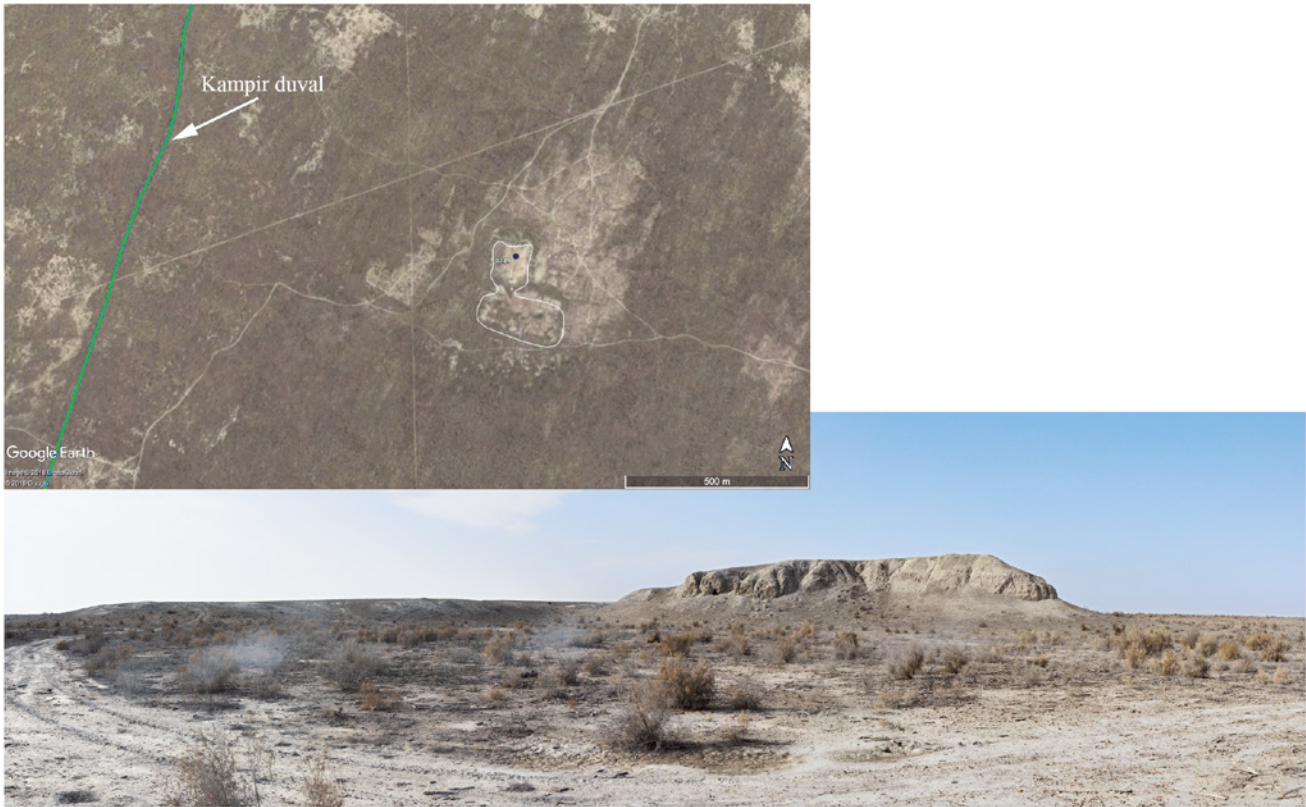


FIGURE 128 Satellite view of the Kampir Duval and Subbuk tepe (GOOGLE EARTH 2018) AND PHOTO OF SUBBUK TEPE (RILIEVI SRL 2014)

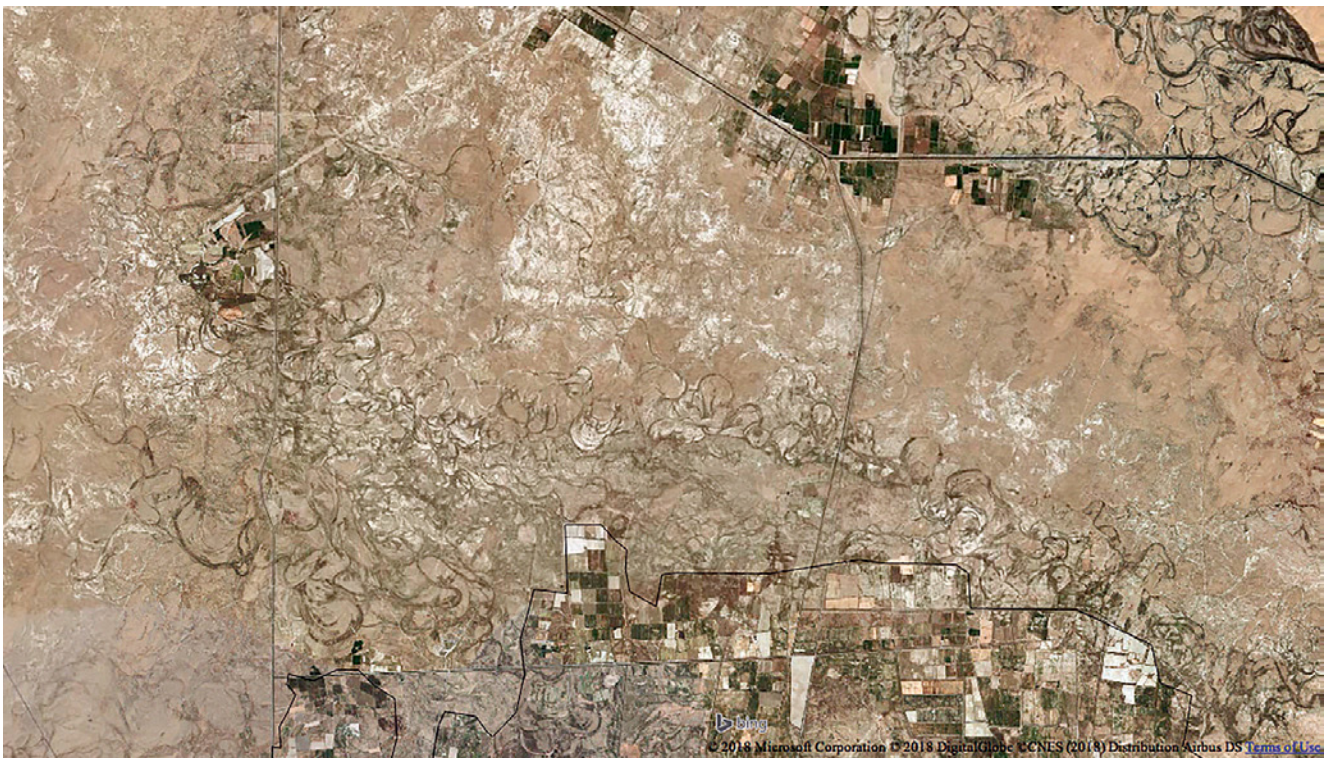


FIGURE 129 Satellite view of the northern part of the oasis DIGITAL GLOBE CNES 2018

water from branches issuing from the Zerafshan. Site 0518 is in the middle, between the Kam-i Abu Muslim and one arm of the Zerafshan. The five bipartite sites located in this area and directly connected with the Kam-i Abu Muslim, presented pottery sherds datable no earlier than the 4th century CE, suggesting that the Kam-i Abu Muslim was dug later, probably before the early Islamic period, and perhaps was redrawn during the Islamic period. Therefore, the area east of the Zerafshan seems to have been poorly occupied in the beginning, and in any case initially was irrigated by the Zerafshan and its arms.

## 5 The Road Network

I present here the main roads resulting from the interlacing of historical sources, satellite views and the 1893 and 1989 maps (fig. 130). Each road path identified on the map was then measured and compared with the data provided by the sources. With regard to the major routes, like Bukhara-Tavovis or Bukhara-Ramitan, experiments in the field with the help of ancestral transports (donkey and small carriage) were also carried out.

The network we have elaborated is composed of main roads, avoiding all small and alternative routes, much too hard to identify and verify. The global view of the oasis presents a clear major urban centre, Bukhara, which, from the beginning of the medieval period, represented the capital of the region (Frye 1999: 16–7). During the 9th–10th centuries, the city became a capital of a region much larger than the oasis itself, including Khorasan and Transoxiana. Apparently, Bukhara rapidly linked itself with all the other cities, directly and indirectly, and the main caravan route that linked Iran with China also passed through Bukhara.

On the map, another nerve centre seems to have been Gijduvan (0002). Although referred to less often by the historical sources as an important centre on the roads leaving for Samarkand or Khorasan, Gijduvan has continuously played an important economic role since at least the 10th century. Nevertheless, the road network pertaining to this city should be taken with a degree of caution. In fact, the map (fig. 131) showing all the 1,040 sites shows that the road axes joining Gijduvan with the other sites were not directly complemented by the ancient tepe, which mostly followed the water channels; except for the road linking Gijduvan with Tavovis, which seems well framed by ancient sites. Without denying the existence of an ancient road network, this road network may therefore have been a later creation.

### 5.1 *The Bukhara-Samarkand Road*

The road that leaves Bukhara outside the oasis to reach Samarkand is often mentioned by historical and geographical sources. According to these sources (Barthold 1981: 98–9), one to two days' running (7–8 *farsakh*) were necessary from Bukhara (0097) to Tavovis (0751), which was the site from which the caravans left the core of the oasis. Actually, this route required a march of circa 50 km, which at a human speed of 4–5 km/h required circa 9–10 hours walking for a caravan. A caravan, walking, would cover 30–40 km a day, sometimes as much as 50 km. A break for the night between the two points was thus sometimes necessary. Ancient sources identified this stopover as Iskijkat and Shargh (Barthold 1981: 99). On the map, two routes of roughly the same length led to Tavovis (0751), one traversing the sites of Iskijkat and Shargh (which would correspond respectively to sites 0847 and 0846), leaving Bukhara from the gateway that is today situated in the northern part of the city; the other route, not referred to by ancient sources, reached Tavovis (0751) following the channel Rud-i Zar, through sites 0609, 0546, 0531 and 0518. With regard to the former, the caravan reached Iskijkat following a route traversing, it seems, only smaller cities and villages, probably in part following the Shimal-yi Rud.

Regarding the second road joining Tavovis (0751) from Bukhara following the Rud-i Zar channel, the presence of a large site between the two cities, today called Taytal tepe (0546), should be noted. In a zone where settlements are not numerous, this tripartite site of 7 ha appears to have been larger than the others. Moreover, the survey of the tepe showed a discrete presence of pottery. It might therefore be possible to consider Taytal tepe as a sort of stopover on the eastern road travelling to Tavovis (0751) – the tepe was separated from Bukhara by 23 km and from Iskijkat/Shargh by about 28 km.

It is impossible to state which of the two routes was the main one, as their length was similar, and both had a stopover, if needed, mid-journey. If one considers that the ancient sources often refer to Iskijkat and Shargh rather than another site (which could be interpreted as Taytal tepe), one could envisage that the main road crossing the Bukhara Oasis to reach Samarkand was the one traversing Iskijkat and Shargh.

Globally, it appears that all tripartite sites were connected to a road. A group of cities south of Bukhara (sites 0003, 0005, 0006, 0012 and 0644) were connected with roads linking to the Kashka Darya region. These sites intentionally bordered the southern limit of the oasis. Possibly, these sites were military and trading points following the road encircling the southern side of the oasis. From there,

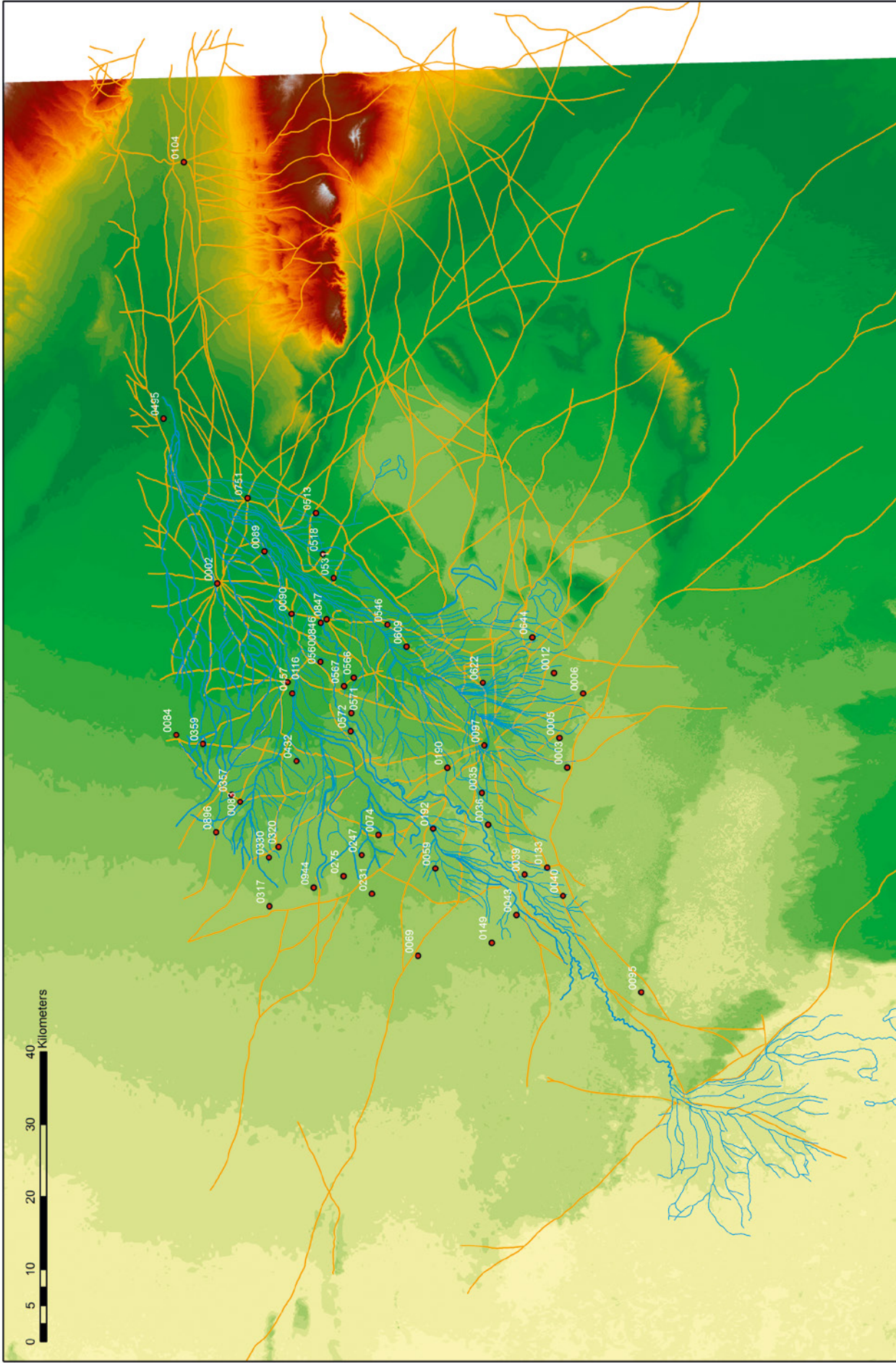


FIGURE 130 Map showing the tripartite sites within the 1893 hydrological and road networks  
SRTM MAP; RANTE 2018

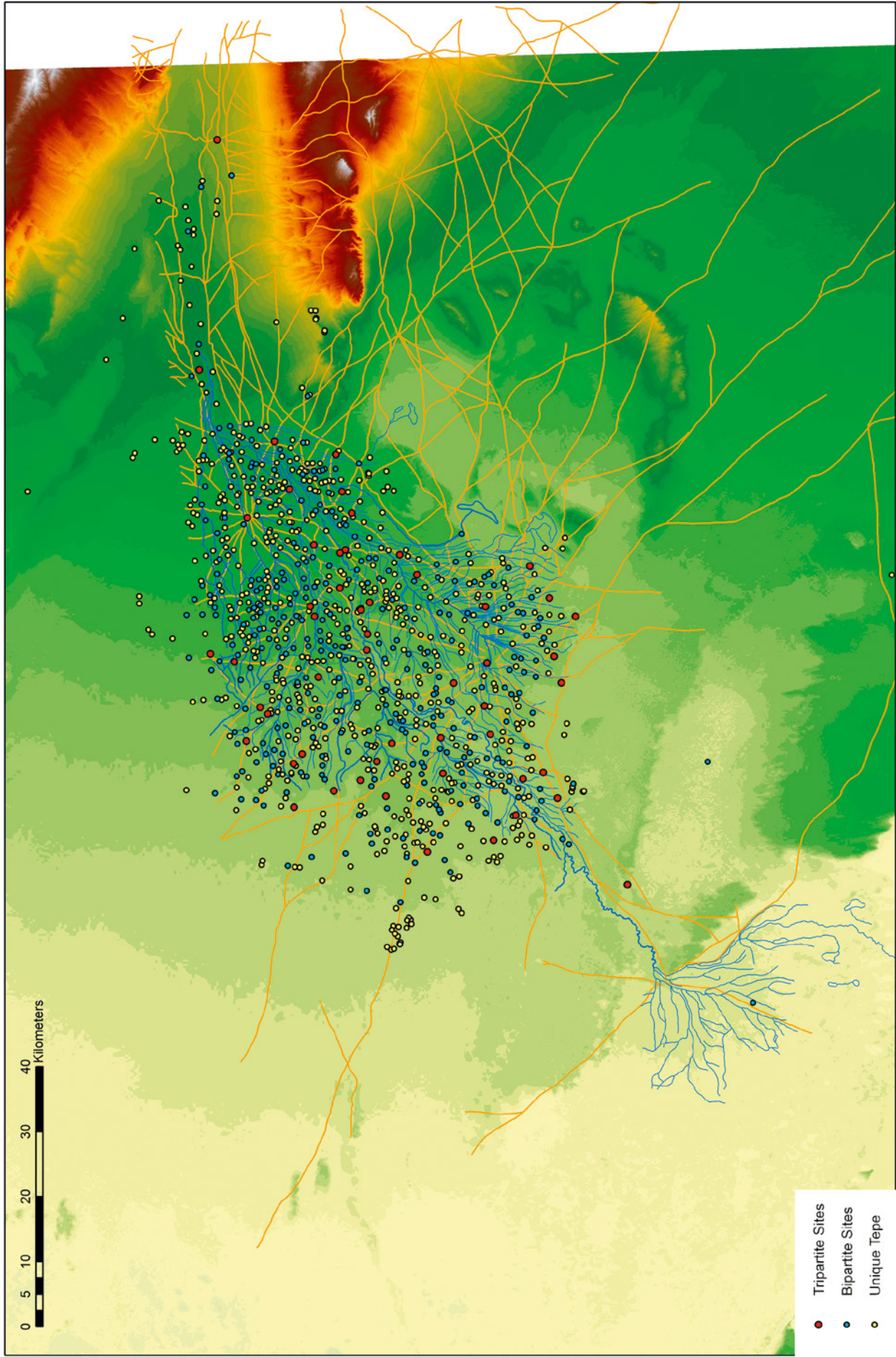


FIGURE 131 Map showing the urban settlements within the 1893 hydrological and road networks  
 SRTM MAP; RANTE 2018

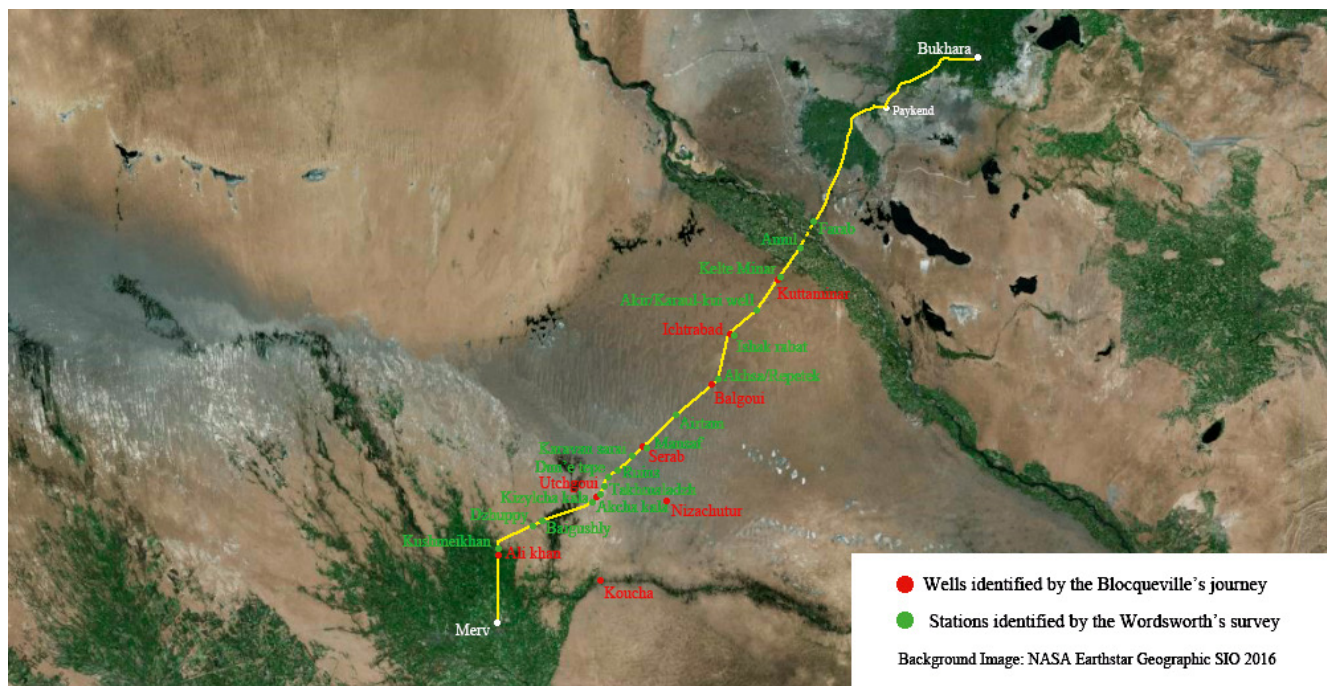


FIGURE 132 Khorasan route joining Merv to Bukhara  
RANTE 2017

it was possible to reach Bukhara, the northern part of the oasis following the irrigated lands, or Nakhshab.

### 5.2 The Khorasan Road

The Khorasan road was the most important road globally connecting the west with the east, more precisely Iran with China, travelled by migrants, traders, nomads or sedentary, diplomatic delegations or armies. Referred to too frequently by ancient sources – during the last centuries BCE and especially during our era – to give here an exhaustive bibliography, the Khorasan road crossed the main cities from the Near East to Central Asia, providing each one with wealth and strategic and political importance.

From Bukhara (fig. 132) two days were needed to reach the Oxus River (Amu Darya), then Amol, before finally undertaking the journey through the Kara Kum (Wordsworth 2015), to reach the Merv Oasis. Within the Bukhara Oasis, from Bukhara to the Oxus River, one route was the best known. It did not directly cross sites 0035 and 0036 (Barthold 1981: 117),<sup>26</sup> but it passed just 1.5 km south of them. It pursued its path to the west crossing site 0039, which today would correspond to Jandoor, then suddenly turned south to cross site 0133, in which area one probably crossed the oasis wall, then the road again turned westwards, crossing site 0040. After some kilometres the road

reached Paykend, an important city outside the oasis wall and an important marketplace. From there, roughly two days' travel were needed to reach the Oxus and Amol, to officially enter into the Khorasan.

According to the survey and the GIS map exploration, from Bukhara probably three, and not two stopovers as related by Ibn Ḥawqal (1967: 494), were needed to reach Firabr, which today is connected by the railroad coming from Kagan. In any case, from Paykend to the Oxus, a stopover was necessary in the micro-oasis of Qaraqöl, before engaging the few kilometres of desert in order to reach Firabr. No in-depth archaeological survey was carried out on the Qaraqöl oasis, but according to the sites studied, the people and caravans possibly traversed sites 1053, 1059, 1061 or 1057, and probably stopped over in this last site (1057) which, with a surface area of circa 15 ha, seems to have been adapted to host people and caravans.

### 5.3 The Khorezm Roads

Ibn Ḥawqal (1967: 494; Shishkin 1963: 37) already in the 10th century related the journey from Bukhara to Khorezm, mentioning two possible routes: one through the Kyzyl Kum crossing Varakhsha, another through Amol, crossing the Oxus. The former route involved eight days' travel into the desert from Varakhsha, and a total of nine days from Bukhara. The Arab geographer described the difficulty of this route, in which it was not possible to come across a ribat or people, and in which travellers randomly chose stopover points; the latter route involved

26 Regarding the sites of the oasis, Florian Schwarz and I are studying the toponyms between historical sources and archaeological survey, with the aim of creating a historiographical map.

12 days, but travel was much more pleasant, and everywhere along the route was cultivated.

As Shishkin showed in a sketch map in the 1937 (fig. 18), a trail beginning from the village of Lukman crossed Varakhsha and the Kampir Duval and for a short distance continued to the north-west. Just a few kilometres from the oasis wall, this path crossed a group of ancient settlements dated to the last centuries of the first millennium BCE, of which the Bash tepe group is the most famous, without forgetting a few sporadic occupations dated as far back as the Bronze Age, and perhaps also the Neolithic (Mukhamedjanov et al. 1990). On the GIS map (fig. 133), circa 30 km from the Kampir Duval, a first stop-over can be observed, site 1023. After that, some 40 km would have to elapse before reaching a group of small and as yet unstudied sites. Here the phreatic table is very close to the surface, thus rendering the supply of water possible. From there the long journey across the desert began, following for circa 50 km a large marshy area on the right side of the route, and then continuing to the north-west to reach the Oxus after roughly four days' travel. Finally, circa 330 km of travel were needed for a caravan to reach Kath (Agodin 2002: 14–5), one of the first large settlements at the edge of the oasis of Khorezm.

But it was not the only path. In fact, the satellite maps, as well as the survey maps carried out in this zone, and the geomorphological study, brought to light a second possibility to reach Khorezm. This second route differed from the former only in the first segment. Once the site that corresponds to present-day Gazli was reached, the road followed the same path. This second choice did not cross Varakhsha, but from Bukhara left north-west towards Ramitan. Then it continued to the area where the tripartite site 0944 is situated, at the limit of the oasis, and turned more towards the north-west to reach Gazli in two stopovers. This path also followed the traces of a paleochannel. As previously observed, once this path crossed the group of sites of Gazli (1109, 1110, 1040, 1118), the route intersected with the one coming from Varakhsha. Even though difficult to determine more precisely, and to have more details, Ibn Ḥawqal (1967: 464) referred to seven doors in Bukhara, of which those of Baghashkur, Ramithana and Djadasarun opened towards the Khorezm.

The road traversing the Oxus was, as observed above, longer than the others but more pleasant, as the length of the route was cultivated, thus making it easier to stop and rest. From Bukhara, as we have noted above, three days were required in order to reach Firabr. Then, having crossed the Oxus, the caravan traversed Amol and turned to the north/north-west following the river. With

this route, people reached the oasis of Khorezm by the left side of the Oxus, arriving into the oasis by Hazarasp.

#### 5.4 *The Karshi Road*

As Barthold wrote (1981: 134), “The roads uniting Bukhara and Samarkand with Balkh passed through the valley of the Kaška Daria, which [...] was nevertheless remarkable for its fertility”. The ancient sources (Ibn Ḥawqal: 494) related that four days' travel were required to reach Karshi (Nasaf) from Bukhara, corresponding to circa 145 km (30 farsakh according to Maqdisi; Barthold 1981: 137).

On the map, from the eastern side of medieval Bukhara, leaving from the Karshi Gate, which is situated south-east of the Samanid rampart (Naymark 1999: 41), the route passed near site 0644, at the south-eastern limit of the oasis (fig. 134), where today stands the city of Kagan. The road pursued its path to the south-east, crossing small settlements (0862, 0645 and 0863), then into arid lands, until it reached site 1025. This last is a *sardab* located circa 50 km from Bukhara and circa 30 km from site 0644, which is situated in the first irrigated area, which owes its existence to a branch of the Kashka Darya, and which was earlier connected with the north-western limits of the Karshi Oasis. From site 1025 one day's travel was needed to reach the western limit of the Karshi Oasis, probably crossing the modern village of Mubarek and then following the Kashka Darya channel to reach the ancient site of Maymurch, which I tentatively identify with the modern village of Maymanak.<sup>27</sup> From there, only one day's travel was necessary to reach Nasaf, of which the vestiges are today 11 km north from the modern Karshi.

Although not specifically mentioned by ancient sources, nevertheless there was another road that one could travel along, which led directly from Paykend to the Karshi Oasis, endowing the city of Paykend with major commercial and strategic prominence, thus playing the role of fulcrum for the caravans coming from Khorasan and directed to Karshi or Surkhan Darya and Balkh. Nevertheless, even considering that during the ancient and medieval periods there was a great abundance of water in this area, this route seems to have been harder than the other, although not really longer, as it avoided the necessity of a stopover at Bukhara. From Paykend, almost a day's travel was required to reach the area of Kum Sultan (0158), a settlement that, even though it was situated in an arid area, was long inhabited until circa the 12th century, as the material on

<sup>27</sup> Barthold signalled that Maqdisi related in one of his manuscripts an intermediary stopover between the last two stations, corresponding to Miyankal and Maymurch (Barthold 1981: 137 n. 6). The whole journey would have thus required five days.



FIGURE 133 Khorezm route joining Bukhara to the oasis of Khorezm  
RANTE 2017



FIGURE 134 Karshi route joining Bukhara to the oasis of Karshi  
RANTE 2017

the surface showed, thanks to the marshy zones around, which belonged to the ancient Kashka Darya channel and the phreatic table. From there, site 1024 ensured another stopover before reaching the western limits of the Karshi Oasis. It is difficult to identify how many stations were needed from Paykend to site 1024, as the distance between them is roughly 50 km. Then, from site 1024 the route reached the modern village of Mubarek, and followed the same path,<sup>28</sup> previously referred to, until it reached Nasaf.

From a temporal/spatial perspective, the caravans coming from Khorasan and directed to Karshi, Surkhan Darya or Balkh probably benefited from one day less travel if beginning the journey directly from Paykend and not from Bukhara. It is difficult to identify with any exactitude the landscape of the Kashka Darya area during that period, even though, thanks to the latest geomorphological studies, some data and interpretations agreed in considering this area as still slightly irrigated, thus allowing caravans to have sufficient water for the journey.

## 6 The Bipartite Sites

All bipartite sites comprise a citadel and a shahrestan. In contrast to the tripartite sites, these cities did not present any suburbs in which one could confirm the presence of artisanal or commercial activities. As far as their size is concerned, it is not always the case that they were smaller than the tripartite sites. Important bipartite sites could, for example, be larger than some other tripartite sites. Globally, however, they covered no more than 3–4 ha.

The importance of these villages was partly their rural context, which will be discussed later, and partly also that they were not producer sites or marketplaces, so depended for some of their needs on the tripartite sites. As will be shown, their chronology, identification and location can be crucial elements in order to determine the antiquity and age of a main city or area.

Some bipartite sites were fortified (e.g. site 0165 near Varakhsha) or not, as in the majority of sites within the oasis (e.g. site 0250 near Ramitan) (fig. 135). In this latter case, it does not mean that the site was totally unwalled. In fact, each site of this category lacked defensive external walls, but the main buildings, especially on the citadel, were fortified. This structure was quite common in the oasis, as in the other category, called unique tepe, among which Uch Qulak is a good example.

### 6.1 Methodology

As for the tripartite sites, an earlier satellite observation was conducted to identify all sites of this category. This first observation, realised through different Esri images, identified 467 sites. Subsequently, other satellite images such as Corona images and, for certain areas, SPOT images were employed. A number of non-archaeological mounds were identified and thus rejected. Sometimes, in satellite images, cemeteries, dunes and modern ground mounds can present similar characteristics to those of archaeological sites. Finally, the archaeological surveys carried out between 2013 and 2016 brought to light 291 bipartite sites within the oasis. In this particular case, the survey had two major aims: to verify the bipartite urban plan and to observe, but not select or collect, the ceramic remains to compare them with the other assemblages.

In this framework, as previously observed, the limitations of this procedure revolves around the scale of the oasis, the huge number of sites and the survey which, in our particular case, cannot be exhaustive for each site.

However, the several bipartite sites that were topographically surveyed, studied in their historical context and excavated, provided enough documentation to be able to make a robust study of this urban category, and bring to light good comparative data.

### 6.2 Territorial Organisation of the Bipartite Sites

The spatial occupation of this category concerned not only the Bukhara Oasis, which was the case for the tripartite sites, but also the micro-oasis of Qaraqöl (fig. 136). There, one site was identified, site 1045. It was located along one of the ancient courses of the main arm of the Zerafshan, as well as along the Khorasan road. Globally, the Qaraqöl micro-oasis presented very weak urbanisation compared with the larger oasis of Bukhara. In ancient times, apparently no significant producer-sites were located in this area.

This urban setting is mostly to be imputed to the path of the Silk Road (see Rante 2016) joining Firabr on the Oxus to Paykend. This journey was circa 50 km, which may have been possible in certain cases, although caravans habitually walked circa 30–5 km per day. Roughly following the main modern road from Firabr to Paykend, caravans would stop at site 1045, circa 30 km from Firabr. Some written sources located the site of Umm Jafar on the Firabr-Paykend route, at a distance of 6 farsakhs from Firabr, which would correspond to the site referred to earlier, even in the absence of other data to confirm this hypothesis.

The micro-oasis of Qaraqöl, which certainly also included scattered residences along the watercourses or the

<sup>28</sup> This route could also have turned south to reach Kasba, which is one day's travel from Nasaf (Barthold 1981: 137).



FIGURE 135 Two examples of fortified and unfortified bipartite sites  
RANTE 2016; SAGORY 2017

Khorasan road, depended economically mostly on Paykend (fig. 137), which was only a few hours walk away. Its location outside the Kampir Duval, and thus outside the main oasis “affairs”, clearly delayed its social and economical development.

Within the main oasis, globally, the bipartite sites were homogeneously organised. Only the Gijduvan area presented a very curious layout. In fact, the area around this site, especially its southern part, was empty of bipartite occupations. Instead, there were numerous unique tepe occupations, along the natural arms of the Zerafshan River, later called the Lower Kharqan Rud, as well as along its numerous smaller branches or canals flowing southwards. What reason could explain this phenomenon? In the 1893 map, circa 5 km west from Gijduvan, a large area was geomorphologically identified as swampy, and it was empty of any sites, whether bipartite or unique tepes. This area is today occupied by agricultural fields and encircled by modern towns. The area north of Gijduvan, which is today located on the northern limits of the oasis, corresponds to a meander and a swampy zone, which is also lacking any tepe. In my opinion, it would seem that the southern area is poorly occupied because of its natural background, which did not permit easy settlement, at least until the

medieval period, when Gijduvan represented one of the most important cities of the oasis, linking different routes and being a well-known market place. I have no other data to confirm this hypothesis, and only an in-depth study of the unique tepe around Gijduvan, especially in its southern part, as well as a specific geomorphological study of this zone, could provide significant data to verify this hypothesis.

In this context, certain sites outside the irrigated area, but within the oasis wall (Kampir Duval),<sup>29</sup> attracted my attention. Taking only a few examples into consideration, sites 239, 941 and 216 to the west are located a few metres from the Kampir Duval. These sites were surveyed, and ceramic remains were collected and compared with those of other sites in the oasis.

All sites comprise a fortified citadel and an unwallled shahrestan. Site 239, the largest one, would seem to present some external archaeological traces, which cannot be clearly identified as a suburb. There is a strong possibility that this site, as well as the others in this area, were

29 The Kampir Duval and the area called Bash tepe westwards is studied by Sören Stark (NYU).

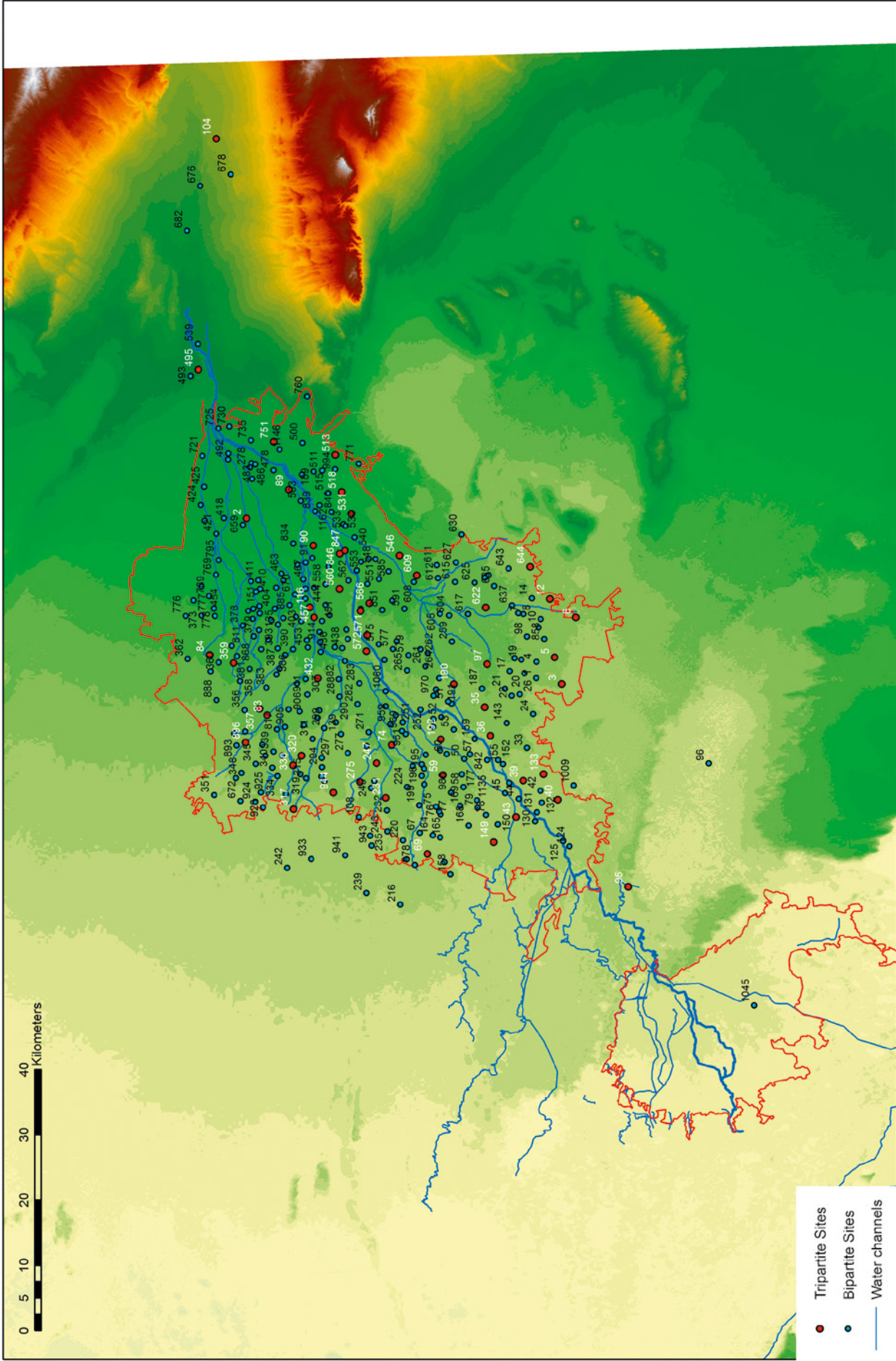


FIGURE 136 Tripartite and bipartite sites within the oasis limits

SRTM MAP; RANTE 2018



FIGURE 137 Map showing the urban distribution in the micro-oasis of Qaraqol and the oasis of Bukhara

ESRI IMAGERY 2018; RANTE 2018

surrounded by encampments. Each site were located circa 5 km at most from the irrigated oasis, which enabled them to be supplied with agricultural or food products. Often, they are distant 5 km from each other. It is, in my view, manifest that these sites developed thanks to exchanges with nomad encampments that settled along the Kampir Duval. It is also possible that some bipartite settlements benefited from the passage of commercial routes. They were, of course, also employed as the first, outlying military outpost. These social and economic dynamics probably meant that smaller military outposts developed into villages, in which the citadel conserved its military characteristics, also developing its urbanism, and the shahrestan was the result of the increase in population, constituting the external social apparatus of the urban structure.

The ceramics found on the sites was mostly of a utilitarian nature, often coarse-ware, grey, red and beige in colour. Glazed pottery was well represented. In the absence of stratigraphical excavation, it is impossible for me to give a solid chronological horizon. The pottery observed could, however, date at least from the 6th to the 12th–13th centuries CE. The Kampir Duval having been dated by Sören Stark (pers. comm.) to the 6th century CE, it seems that these sites were born and grew also thanks to this dynamic of economic exchanges between the inner and outer areas.

Is it possible, rather, that these groupings of western sites settled there simply because the irrigated oasis also covered these areas at the foot of the Kampir Duval? It cannot be excluded. However, archaeological and geomorphological evidence seems to show that these areas between the area irrigated today and the oasis wall were not traditionally irrigated by canals and watercourses, but depended on the water table, which also guaranteed the existence of the “Bash tep” settlements, even after the dessication of the ancient western watercourse traversing this area (Fouache et al. 2016).

### 6.3 *Morphology of the Bipartite Sites*

Although it is established that bipartite sites comprised two urban entities – a citadel and a shahrestan – and that they belonged to the rural framework in which the oasis was rich, their morphology was nevertheless not always the same. First, their location depended on different elements, among which the landscape and its socio-geographical setting were the most important. The bipartite sites can be considered as having depended economically on the tripartite sites, which implies that they were founded and grew around a main city. Bipartite sites did not exist thanks only to the tripartite sites, their life

depending essentially on self-production of raw materials, such as milk, meat, fish, agricultural food and so on, and thus self-sufficient. But their growth within the Bukhara Oasis since their foundation was due to the socio-economic connections generated between them and the tripartite sites. This differs from the reasons relating to their foundation, probably also dependent on sociopolitical factors, but which will not be treated here.

Globally, from the morphological point of view, the structure of a bipartite site could be composed of a citadel enclosed within a shahrestan, as in site 0483 (which remains quite rare); a citadel attached to the shahrestan, as in site 0250 (the most common example); or a citadel divided by its shahrestan, such as in sites 0045 or 0165. The shape of both urban entities is more difficult to perceive. The outline of the mound, in fact, does not represent the true profile of the architectural structure, but of its destruction. With regard to the citadel, globally a quadrangular shape can be distinguished, even if a circular example can be observed in tripartite site 0513. Amongst the quadrangular shapes, the citadel of sites 0250 or 0577, among many others, is easy to distinguish. More difficult to perceive is for example the case of site 0060, in which the citadel presents an almost circular shape, but which according to the survey is clearly quadrangular. Here, the fortifications of the citadel are the same as that of the main building, the governmental one.

The current state of research indicates that the shahrestan is always unwallled, even if, here also, it is arduous to establish this feature purely from observation of the mounds. The few bipartite sites that have been investigated, and the comparisons with the others, show however an absence of fortified lower cities. Although no archaeological investigations were carried out on this topic, it seems that the shahrestan grew in front of the gate of the citadel. In fact, among the tripartite sites also, evidence of fortified shahrestans is rare, as in the case of Ramitan, Paykend or Varakhsha.

In general, after the erection of a fortified residence – a small castle or fortified manor – quite possibly people began to settle in front of the gate of the latter. Instead of trying to put forward a unique Central Asian character for the foundation and development of the shahrestan, as some great scholars have attempted in the past,<sup>30</sup> in this specific context I consider only that there was a global demographic, and thus socio-economic dynamic, that engendered the constitution of a small entity (e.g. a village) at the foot of the ruler's residence, as has also been the

30 On this topic, see the interesting and useful historiography by Tskitishvili 1971: 318–20.

case in other civilisations. This area later developed and was structured into an inhabited area – the shahrestan – which assumed different forms and sizes. In this precise context of bipartite sites, this part of the city apparently was empty of any main administrative buildings. This kind of building was concentrated within the citadel, if possible, or else within the limits of the closest main city, tripartite obviously.

#### 6.4 Chronology

The excavation and survey of different bipartite sites brought to light results that will considerably change the general framework, as it is known today relating to the oasis, and probably also to Sogdia. I will not throw myself here into a global reinterpretation of the geographical area, as the data is still much too scarce. I will, however, leave some of the data from the latest research and link these to a more general framework, also with regard to the tripartite sites.

Initially, I accepted without any doubts the postulates advanced by great scholars, such as Marshak, Raspopova, Grenet<sup>31</sup> and others, affirming the existence of an urban crisis in Sogdia from the end of the 4th century CE, or even later if one takes into consideration the beginning of the medieval period. In line with these postulates, I therefore accepted the possibility that in the Bukhara Oasis, after an earliest occupation now dated to the 3rd–2nd centuries BCE (Rante, Fouache, and Mirzaakhmedov 2016), a massive human occupation characterised the end of the 4th century CE, also confirmed by several ceramic studies and comparisons (Buriakov 1991: 197–204).

The interest of MAFOUB in the area of Ramitan and the interactions between this main city and its neighbourhood led me to open an excavation in a bipartite site close to it. As I will detail later, the aim of this investigation was to identify the whole sequence of human occupations and study the material brought to light in a narrow context of comparison with Ramitan and its own material.

The chronological sequence brought to light showed that the bipartite site was founded in the 1st century CE.<sup>32</sup> The ceramics corresponding to these layers were different from the earlier one, in which the red slip on beige body and black slip on red body were the main characteristics. They were also very different from the following period, in which the famous pottery with splash vertical slips appeared. The ceramics of that period were mainly characterised by the presence of grey pottery, with the

appearance of red-bodied pottery covered with a thin, black and very fragile slip. The same typology of pottery was found also in Ramitan.

This chronology was compared with other bipartite sites scattered within the oasis. Although it has not been possible attentively to compare it with all 291 bipartite sites, the substantial campaign of comparisons made, in my view left solid data with which to propose a historical interpretation. It seems, in fact, that after an earliest occupation during the 3rd–2nd centuries BCE, the massive occupation of the oasis took place in the 1st century CE. It was in this period that a clear change in the pottery could be observed. It does not mean that at the end of the 4th century no human occupation can be attested. However, with regard to the Bukhara Oasis, it was not the first, and it seems also that it was not as massive as the earlier one. As will be shown below, this massive occupation and urbanisation is identifiable not only in the bipartite sites but also in the tripartite ones. Moreover, the results show that the 4th century CE represented, rather, a significant dynamic of expansion and reorganisation of the cities.

#### 6.5 Bipartite Sites and Tripartite Cities in Their Territorial Layout

As previously stated, in the 3rd–2nd centuries BCE in the Bukhara Oasis, ready to “welcome” stable human occupation within the irrigated Zerafshan delta, we observed significant settling and urbanisation. Apparently, this first took place along the main watercourses of the delta, as well as along the western and northern limits of the irrigated area, where watercourses flowed more slowly and where there was the need to protect the oasis. This occupation is represented mostly by the tripartite cities.

This territorial occupation continued at least until the Islamic period, showing two major moments of urbanisation, the first one datable to the 1st century CE and the second to the 4th–7th centuries CE. Without excluding the possibility of some Islamic foundations within the oasis, in the current state of research, I did not identify any purely and exclusively Islamic foundations. Every city excavated and surveyed showed the presence of pre-Islamic materials.

The earlier period of occupation, that datable to the 1st century CE, can be considered to have been a massive migration of people coming from outside the oasis combined with the dynamic of urbanisation generated by the populations that had already settled since the 3rd–2nd centuries BCE. The one does not exclude the other.

The result is that since the 1st century CE the main cities, whose urban and social evolution continued, were surrounded by smaller sites – the bipartite ones – engendering

31 Marshak and Raspopova 1990: 179–85; Grenet 1996: 367–90.

32 Radiocarbon analysis: conventional radiocarbon age (1980±30); calibrate date (95.4%) 45 cal BC–77 cal AD (1994–1873 cal BP).

another social dynamic, which took place outside the limit of the main city and covered a territory that administratively depended on the tripartite site. This territorial and administrative organisation is clear on the archaeological map, for example looking at sites such as Ramish tepe, Ramitan, Varakhsha, Vobkent and Vardana (fig. 138).<sup>33</sup> It was composed of an earlier geographical division dependent on watercourses: the general division of these groupings or social networks depended on watercourses that generated administrative entities, as is also stated by the 10th-century Arabic historians (Barthold 1981: 113–20).<sup>34</sup>

In this context of regional or local social network analysis, through different field experiments, I take into consideration a radius of 7 km linking main cities with bipartite sites.<sup>35</sup> In this framework, the tripartite cities of Ramish tepe, Varakhsha and Khujada shared a vast territory included within the border of the irrigated area to the west, the northern watercourse separating the Ramitan province, the Zerafshan to the east and the Tarab watercourse, which at the location of the city of Tarab turns to the west, creating a sort of southern limit to this zone. This context did not depend on an administrative division, at least from what the documents at our disposal tell us, this province covering a vaster territory to the south. I specifically consider this limited area to better show “site catchment analysis”, avoiding any provincial separation that could oblige sites to link with others through a purely administrative network rather than through socio-economic factors.

In this framework, Ramish tepe was linked to bipartite sites 0060, 0061, 0193, 0194, 0197, 1095, 0075, 0076, 0077, 0986, 0169, 0058 and 0177. The sites on the northern border – 0193, 1094, 0195 and 0197 – can also be shared with another main city, Ramitan. So, the bipartite sites may have been connected with several tripartite sites, depending especially on distances and on services offered by the main city, also probably creating a kind of commercial competition between main producer cities. Khujada was connected with sites 0150, 0078, 0079, 1135 and 0168.

33 Bukhara presented a very different organisation, especially as a result of its huge development and concentration of people from the 10th century.

34 On the subject of the administrative division of the oasis in a toponymical and historical point of view, see the second volume of this series.

35 The so-called site catchment analysis, involving estimation of the production capacity of the immediate environs of the site, is considered to lie within an approximate radius of 5 km. In our context of the Bukhara Oasis, I consider 7 km the maximum radius because of the specific territorial division, and also taking into account experiments in the field.

Finally, Varakhsha was connected with sites 0968, 0067, 0164, 0165, 0161 and 0158. Interestingly, Varakhsha was also linked to a site located outside the irrigated limit to the west, site 0216.

Some way to the north, site 0250 presented an emblematic case that will be explained in more detail later. It was circa 5 km from the main city, Ramitan, and was also included within the administrative limits of this district, observed since the 10th century. As a bipartite site, it was not a producer and it was not provided with markets, nor with other public services. It was a classic rural settlement that essentially lived off its own food products. Moreover, the site was located in a zone that was originally swampy, later reclaimed, but in which the water table is situated very close to the surface, still today. Quite probably, the site also lived off fishing, as indeed it still does. In essence, some of its products were exchanged or sold, and the population was supplied with any secondary products in the markets. The excavation of this site showed the presence of specific stocking pottery produced in Ramitan, usually impossible to produce at home, found directly in kilns brought to light in the southern suburb. This pottery type was produced following a precise method, with specific decorative motifs, and following precise directions for assembly. The study of this pottery, especially of its fabric and typology, confirmed the dynamics of commercial and social exchanges between these sites. This custom was surely observed from the 4th century, but it probably existed earlier. Current research brought to light in Ramitan only pottery production dated to the 4th–5th centuries, and it is therefore at the moment impossible to attest to such a practice before that date.

In this context, all other sites around Ramitan were intensively surveyed. Petrographic analyses demonstrated that the fabrics identified within the whole oasis changed little, the Holocene alluvial substrate mostly covering the whole area studied. But some specific decorative motifs employed in Ramitan, the firing technique and the comparisons with other materials such as the glass, show close connections between these bipartite sites and the main city.

It is interesting to note that the most western tripartite site, Sivanj (0231), shared this large area with Ramitan, mostly supplying the western villages. The other main sites – sites 0247 and 0275 – also shared this area, probably connecting the north-western sites, although in my opinion their development, and thus their “tripartite status”, depended mainly on the socio-economic power of Ramitan. It would mean that Ramitan directly propelled their economic increase, thus creating a kind of “bridge” towards the most north-western sites, as with site 0108 for

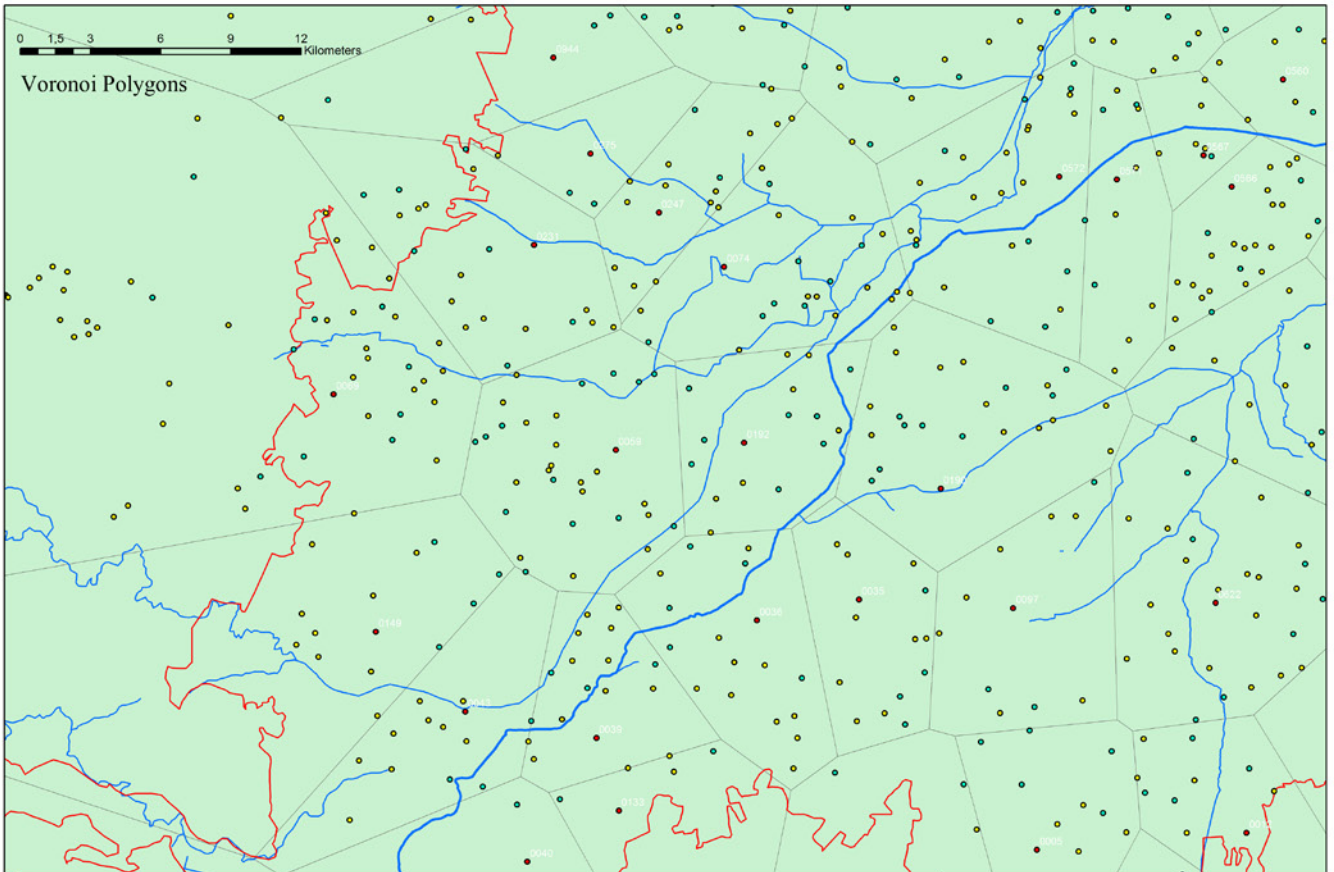
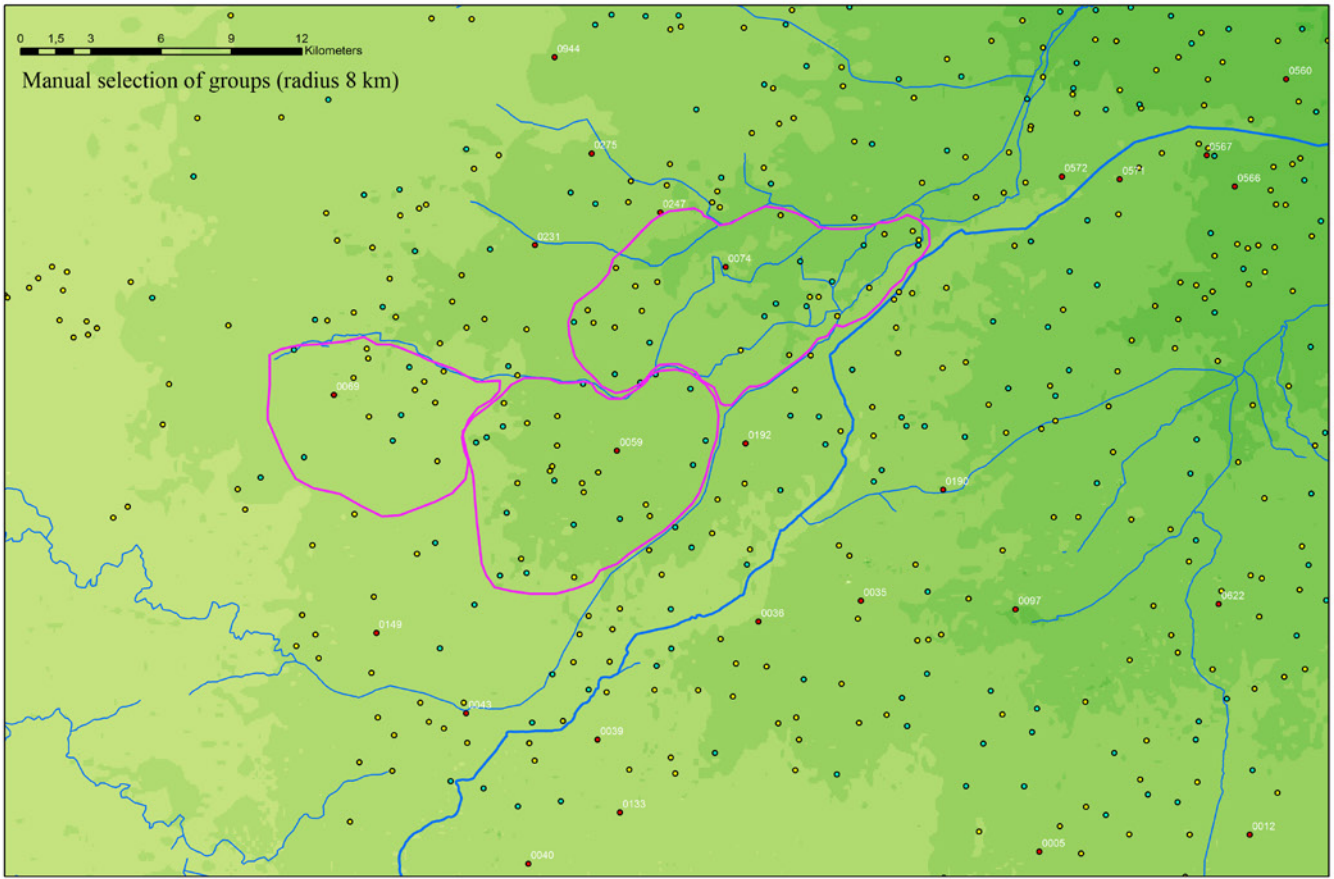


FIGURE 138 Socio-economic connections between the tripartite and bipartite sites  
 RANTE 2017

example. It is very probable that these latter two sites were not provided with the same services from Ramitan, which in this case remained a central socio-economic power in a network of bipartite and smaller tripartite sites.

The settlement of bipartite sites around a main city was highly organised, which in my opinion was driven primarily by the landscape and sociopolitical factors, and then developed through economic factors.

## 7 Water Network and Bipartite Sites between Hydrological and Historical Surveys

### 7.1 *Global Overview of the Bipartite Sites within the Water Network*

As previously elaborated with regard to tripartite sites, this section is consecrated to observing the relation between the bipartite sites and the water network, according to the elaborations realised in collaboration with Eric Fouache (fig. 139), as well as the historical network based on the 1893 map (fig. 140).

With regard to the oasis map in its current irrigated limits, as noted above, the western side, the area of Varakhsha, presented a large region that over time suffered serious dessication, engendering a depopulation that can be traced today in the surveys and excavations. According to the material brought to light during surveys, as well as from the excavations (see e.g. Silvi-Antonini and Mirzaakhmedov 2009: figs. C106, C108), this depopulation can be dated to circa the 15th–16th centuries, or in any case after the 13th century in those places in which 15th–16th centuries pottery was not observed.

There, well-organised groups of bipartite sites were located around their own main city (Ramish tepe, Varakhsha, Khujada or Sivanj), in an area in which the water network existed until the periods referred to above (the 15th–16th centuries). Obviously, these villages settled along or near watercourses, which are not however visible in the maps we dispose of, as is the case for the other areas of the oasis.

In a more global perspective, the bipartite sites were organised in places in which the supply of water was possible and easy. On the map, they seem to have been concentrated especially within the water network at the western and northern sides of the oasis. In this portion, in fact, there was a concentration of 192 bipartite sites, while in the other sector there were 85 – fewer than half. The most urbanised area was that west of Gijduvan and south of Vardana, at the end of the watercourses of the Sultanabad and the Lower and Upper Kharqan Rud. Incidentally, only

one tripartite site, Vobkent, was observed to the south, within the limits of identifiable vestiges.

In the southern part of the oasis, in Bukhara province, the bipartite sites were more scattered, and their organisation appears to have been more systematic. In fact, it is easily observable in the area south of Bukhara, in which several villages settled in line vertically, respecting the orientation of the watercourses flowing to the south from the Rud-i Zar. At the end of this water network, and at the limit of the irrigated area, tripartite sites seem to mark the end of the oasis and the beginning of the desert. Probably, their development depended mostly on exchanges with the population settling outside the oasis, nomads or semi-nomadic peoples.

## 8 The Road Network

Within the oasis, roads connected cities and villages, whether large or smaller. This section is, however, consecrated to the identification of the road network on a macroscale, since it is impossible today to define the whole of the ancient rural street network (fig. 141).

After careful observation of the organisation of the bipartite sites within the road network, it is evident in my view that, in contrast to the main cities, these did not depend on the road structure. In fact, while the ancient tripartite sites were connected with roads, even on a map as recent as 1893, the villages were scattered without a previously well-conceived network. Even when villages followed a road, as was the case to the south of the oasis, it depended on the water rather than the road network.

## 9 Socio-economic Aspects

### 9.1 *City-state and Its Own District*

This topic will be treated in the second volume to this series, to be co-published with Florian Schwarz and Luigi Tronca, in which a part is consecrated to socio-archaeology. In the present volume, however, I will give an overview of the organisation of the tripartite sites within their own local limits, or better, within their own local system of economic and political influence.

According to the settlement organisation previously brought to light, it could be suggested that, at least from the 1st century BCE and until the 1st century CE, the oasis was organised as a series of city-states. Why city-states? This concept has been employed too often to identify or describe different political or administrative situations, in

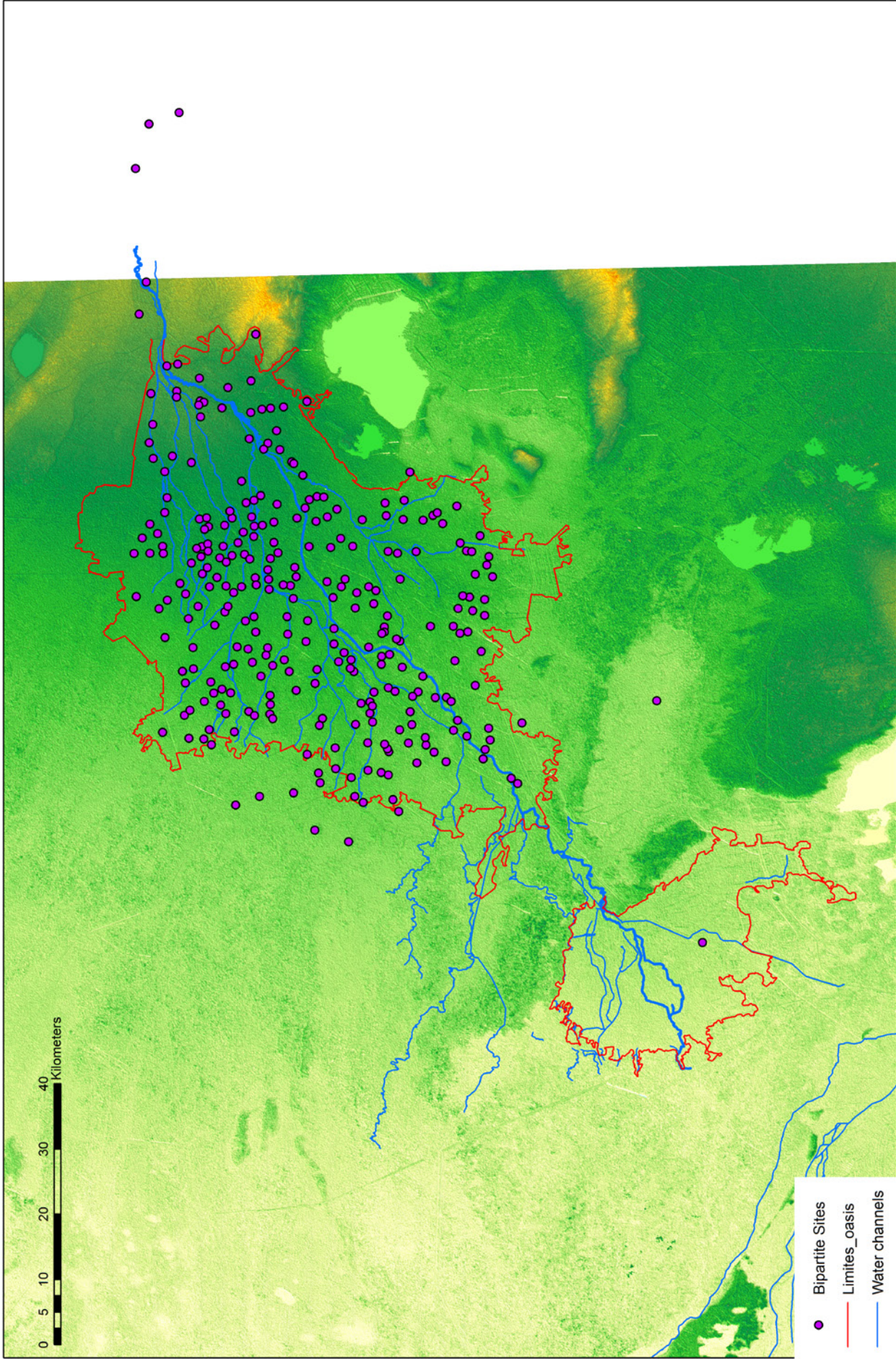


FIGURE 139 Map showing the bipartite sites in the hydrological network  
ASTGMT2 MAP; RANTE 2017

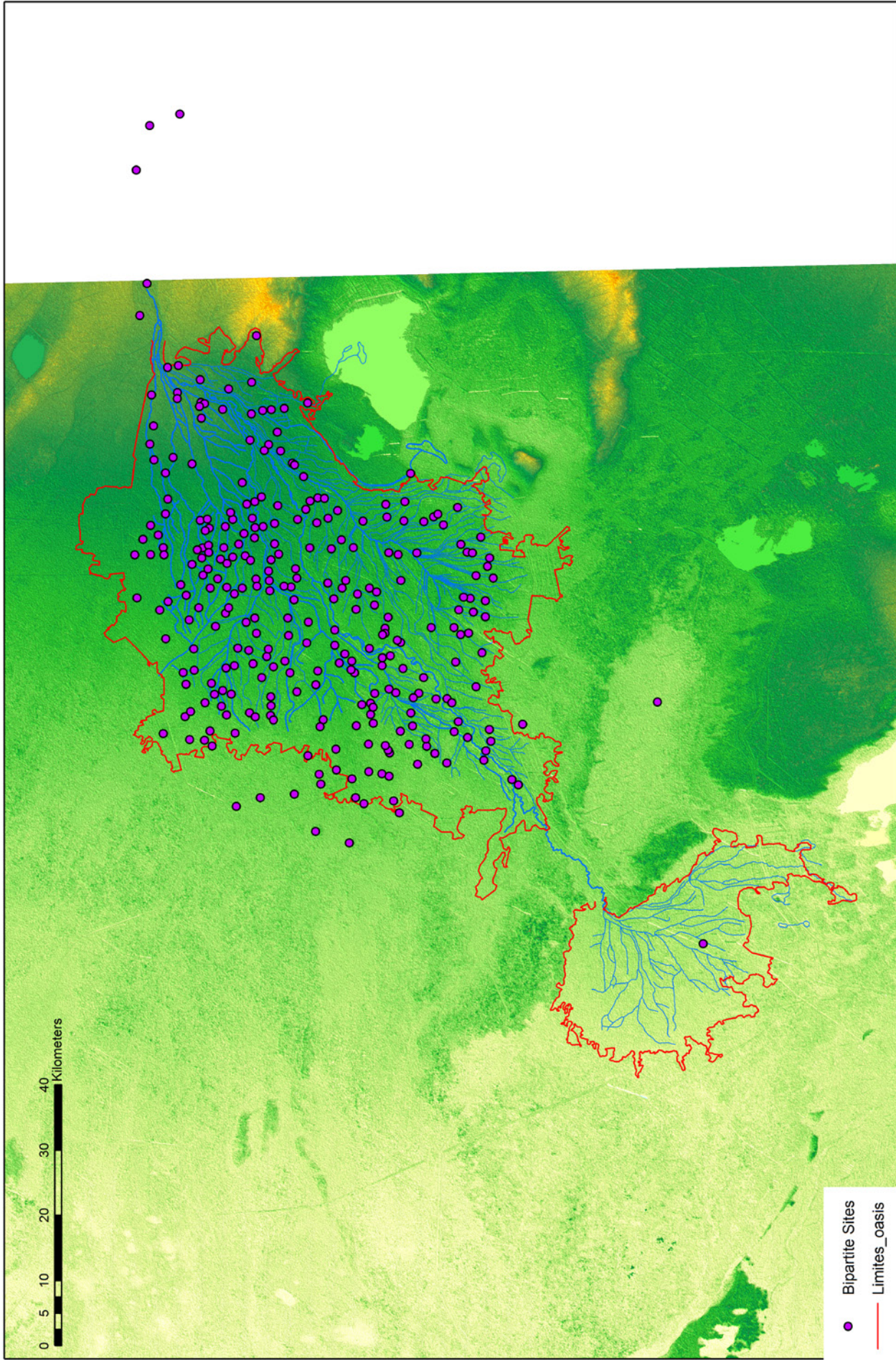


FIGURE 140 Map showing the bipartite sites in the 1983 hydrological network  
ASTGMT2 MAP; RANTE 2017

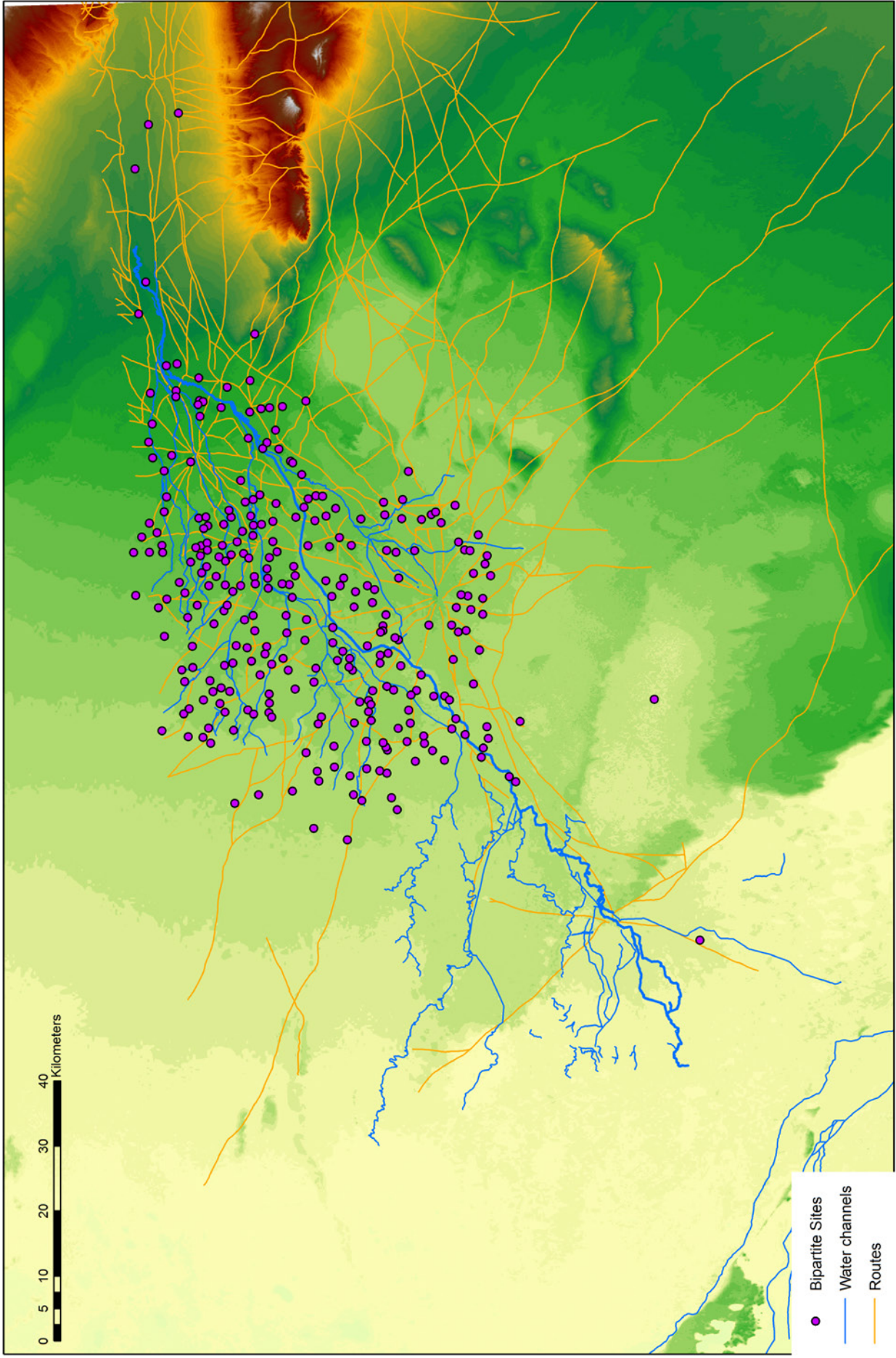


FIGURE 141 Map showing the bipartite sites in the hydrological and road networks  
ASTGMT2 MAP; RANTE 2017

different geographical areas and in different epochs, from the end of the Neolithic. And too often this concept has been employed in an equivocal sense. Just one example will suffice: even though level viid of Tell el-Fara'ah shows a Hippodamean plan, with its streets oriented north-south/east-west, and even though its pottery lacks any non-Phoenician influence, it cannot be accorded a city-state structure when nothing is known about its political and administrative organisation (Niemeyer 2000).

Basically meaning “the city structured as state”, the concept is ambiguous in relation to both terms, “city” and “state”. Without going back to the Greek *polis*, or the Roman terminologies, *urbs*, *civitas*, *respublica*, which could de facto clarify the concept, it is enough to turn to the present-day French terms of *cit * and *ville* to better understand that *cit * is a juridical term referring to the notion of the community, different from that of *ville*, determining its urban character constituted of its qualitative and quantitative aspects. *Cit *, therefore, better defines this concept, in which a civic community should be economically and politically autonomous. This autonomy is thus able to generate commerce in the territory that depends on it, creating a politico-socio-economic structure that can be seen as a “micro-state” structure.

The peculiarity of the oasis of Bukhara is that, even after the 6th–7th centuries, when Bukhara became the political centre of the oasis, the substrate of the territorial administration continued to be organised in this way, according to archaeological as well as historical data (Barthold 1981: 113–20). In this particular case, therefore, it is less probable that the concept of city-state represents a sort of “primitive state”, in which the decline of the several micro-structures, and the growth of one centre, generated a bigger and unique state. In the case of the Bukhara Oasis, the crucial point is the autonomy of the main cities, able to produce and sell from the earliest times, as the chronology of the bipartite sites shows. At the same time, and not later, they were also able to exchange and generate commerce, earlier in a local context, later developing it through different provinces, oases, regions, kingdoms and continents. I am not excluding the sociopolitical aspects that also characterise this concept of city. The cult, the language, the ethnicity and system for the succession of power are all involved in the generation of this concept. In this specific case, nevertheless, also according to the previous studies on Sogdia<sup>36</sup> and the latest discoveries, globally from the 3rd–2nd centuries BCE, the oasis of Bukhara was characterised by Zoroastrian cults, a majority of Iranian speakers and ethnic people, and probably a similar tradition in the system for the succession of power,

which was distinct to the parental one, and belonged to a clan system. The crucial feature characterising de facto these entities remains their economic independence, and the commercial activities realised by the people living there. The economic and city network was actually the motor of this dynamic. The role of the merchant was later determining in generating increase in the economy.

In more detail, looking at the map, Ramitan, Ramish tepe, Varakhsha and Khujada were organised within a water network that structured the city network well, which later became the administrative district. Although it is impossible to have exactly the same hydrological map as in those epochs, the water network established by the MAFOUB investigations characterises well this dynamic, which can also be identified in the historical sources, as noted previously. In this framework, the territory was characterised by tripartite sites, bipartite sites and isolated buildings (unique tepes) constituted into groups. These groups were determined through the “site catchment analysis”,<sup>37</sup> which is calculated in this specific context on the basis of  $\leq 8$  km. The main cities referred to above, located in the centre of a smaller network of bipartite sites and isolated buildings, at a distance of  $\leq 8$  km, generated an independent economic and administrative group. This entity, comprising a main independent city and its rural system, in that epoch could be identified as a city-state, which became more important and larger depending on the importance of the main city. Through this dynamic, at a later date, the districts agglomerated into provinces. It does not mean that the city-state totally lost its prerogatives. Especially around the 6th–7th centuries CE, when Bukhara became the main city of the oasis, and even more so during the Islamic period, they kept an economic independence but were administratively and politically linked to Bukhara. But, to what exactly and concretely does the economy of these cities correspond, and how was it generated? As Marshak reminds us (1996: 238), although the Sogdians were known as silk merchants, the basis of the Sogdian economy was agriculture in artificially irrigated lands. But the main cities also produced services, at least from the 5th century CE, generated links between cities and villages, between the urban centre and the rural neighbourhood, regularly cadenced by the water network and the distances between settlements, the former generating an administrative organisation, the latter generated by human and social capacities and resources.

A purely economic approach would probably bring to light, and explain, the qualitative and quantitative data, better to understand these dynamics (Rante and Trionfetti, forthcoming).

36 See, among others, Marshak 1996: 237–261; de la Vaiss re 2011.

37 With regard to this method, see Roper 1979: 119–40.

## 9.2 *Geographical Location, Economic Increase and Urban Development*

According to the earlier urban evolution, the urbanisation of the oasis was quite rapid and was generated first by massive migrations, as well as by the interconnections between settlements. Within this framework, how did this settlement distribution, and thus the geographical location, influence the urban development and the population distribution? And how did this dynamic influence the local economy?

In this case, the socio-economic model concerns the tripartite site, the bipartite sites and the unique tepes. Basically, according to the archaeological research and the written sources previously quoted, the tripartite sites were also provided with a suburb, which comprised a place of commerce and/or production, as well as a habitat. In this context, it has also been shown that, as in the cases of Paykend and Ramitan, the area of production was physically separated from the commercial area, or bazaar, even if it is also possible to imagine a less significant commercial activity directly from the workshops.

Chronologically speaking, according to our research and dates for Ramitan, these dynamics started before the 5th century, but became more structured around the beginning of the 5th century CE, when these extra-urban areas were formally established and organised around the ancient fortified urban nucleus.

Within the global framework, it appears that the first two size categories (1 and 2), dated from the 3rd century BCE to the 3rd century CE, also the most ancient and in which the suburb developed from the beginning of the 5th century, display in their latter expansion in the Islamic period, the largest suburbs and often more than just one. It emerges therefore that in the most ancient sites at the beginning of the 5th century the demographic increase, and probably a certain cultural substrate, as well as the trade increase, inaugurated a well-organised policy of occupation of the extra-urban areas. These areas developed to a greater degree in the most ancient sites, which is not surprising if one considers that an ancient urban nucleus acquired importance over centuries and consequently was – and is – constantly inhabited, except if external causes (e.g. climatic) intervene to halt this dynamic and begin a process of depopulation.

Except for Vobkent (0116) and Gijduvan (0002), which did not present ancient tepes, all the sites belonging to these first two categories presented significant quantities of pottery sherds on the surface, as well as in the stratigraphy in relation to the excavated sites, confirming their wealth. As previously observed, these sites apparently were organised along the main channels, and especially

along the western limits of the oasis. With regard to this latter point, this dynamic of occupation appears to have been for defensive reasons. However, in a context of economic or demographic development, this would seem unusual.

Moreover, it is in this period, more precisely from circa the 1st century CE, that many bipartite sites were founded, distributed around the bigger and more important tripartite sites.

The geographical distribution of category 3 is more homogeneous within the oasis. The global trend seems to have been, however, a major density of settlements, with more developed suburbs in the western and southern zones of the oasis, and in a few cases also in the north-eastern part. This category would present a subcategory composed of Karmana (0104), Marzangon (0089) and Tavovis (0751) and sites 0190, 0320 and 0572, in which the suburb was more developed than the other sites of this same category. The other sites presented small to medium-sized suburbs but a more developed shahrestan. Taking into consideration in this context only the settlements with a more developed suburb, it is interesting to observe that they were crossed, as were most of the sites in categories 1 and 2, by the main roads of the oasis leading towards Khorezm and Samarkand.

The sites included in category 4 presented a very small suburb. Their distribution was concentrated in the north-western and south-western sides of the oasis, and especially along the eastern side, confirming the substantial development of this area adjoining Bukhara, and further south-west, with the eastern exit of the oasis, which led to Samarkand through Karmana.

Except for site 0495, which is outside the delta, the majority of the sites of this category 4 developed in the provinces around Bukhara. Globally, the province of Bukhara seems to have been only concerned by small to medium-sized sites belonging to categories 3 and 4. This would confirm the main economic status acquired by Bukhara in the whole province on the south-eastern side of the Zerafshan, already from the pre-Islamic period, but even more so through the Islamic one.

According to this analysis of urban size, development and chronology, a trend becomes evident, which has been deeply analysed in a further article (Rante and Trionfetti, forthcoming). The great development, wealth, and therefore demographic growth of the cities of the oasis were not the result of their own productivity (because of the absence of high technology or mechanism of mature economics), as was the case during the Industrial Revolution in the 19th century. The main cause of this demographic growth and subsequent territorial expansion of the cities was,

first, the result of human behaviour relating to the lands that subsequently developed a dynamic commerce. The wealth of a city is linked to its commercial power, which becomes an attraction for people, engendering a dynamic of demographic increase and a phenomenon of urban agglomeration. It was not productivity, therefore, that created urban agglomeration; human behaviour and trade were the true vector of this dynamic. Within the oasis, the development of urban commerce was more characteristic of those cities that were crossed by trade routes, as well as cities located at the limits of the irrigated lands, this permitting exchanges with nomads or semi-sedentary populations settled outside the oasis. It does not come as a surprise that the more developed suburbs, and therefore the larger urban agglomerations, concentrated on the western boundaries of the oasis, where exchanges were frequent between sedentary and nomadic peoples.

This specific case shows how geographical location within the oasis was important for the development of the cities. This was the case also for Bukhara on a larger scale, especially during the Islamic period, when it became the capital of the Samanids, controlling a very large state comprising several main capitals and territories. During that period, at least according to earlier archaeological research (Mukhamedjanov, Mirzaakhmedov Adilov 1982: 81–97; Nekrasova 1999c: 37–54; Nekrasova 1999b: 61–9),<sup>38</sup> Bukhara considerably developed in trade and certainly in production. This idea of the centralisation of Bukhara was due to a growth of services rather than of technology (evidenced by the absence of large-scale production), although by the standards of that epoch Bukhara was a highly developed city.<sup>39</sup> This development stimulated an increase in demography, engendering a huge territorial expansion. This massive population moved from the closer cities and villages, as well as from sites outside the oasis. On a provincial scale, this phenomenon engendered not only the growth of Bukhara but also, and at the same time, the impoverishment of the neighbourhood of Bukhara. The settlement framework of this region perfectly shows this dynamic.

38 With regard to the urban development of Bukhara, see also Belenskij, Bentovic and Bolshakov 1973; Gangler, Gaube and Petruccioli 2004: 38–52.

39 It must be not forgotten that since the Islamic period, new technologies of production appeared, especially with regard to pottery, glass, metalwork and others. Here, I am not dealing with the techniques of specific productions, which generally would have engendered not a population dynamic but rather the arrival of specialised artisans. Here, I am dealing with the high quantity of production, to which would be imputed the growth of the distribution of the population.

Could the development of Bukhara since the pre-Islamic period be imputed to its geographical location within the oasis, linking directly and by the shortest route both extremities of the oasis, the itinerary from Paykend to Karmana, and vice versa? Certainly, it was one of the causes, but it was not the sole one. However, it is evident, in my opinion,<sup>40</sup> that Bukhara reached its rank as the main city of the oasis only around the end of the pre-Islamic period, and not before. And it is only during the Islamic period, especially during the Samanid period, that the city achieved the role of political, and therefore economic, centre. Demographic growth was only one of the effects of this dynamic.

In the context of city growth, economists, but also other scholars in the social sciences, are aware of the ratio between the logarithm of Population and the logarithm of Rank, which shows a model of local growth. Called Zipf's law for cities, it is one of the most conspicuous empirical facts in economics, or in the social sciences generally. Zipf's law provides a very tight constraint on the class of admissible models of local growth. It says that for most countries, the size distribution of cities strikingly fits a power law: the number of cities with populations greater than  $S$  is proportional to  $1/S$ . Supposing that, at least in the upper tail (the upper tranche which would result more rare), all cities follow some proportional growth process.<sup>41</sup> Beyond these calculations, which for some are uncommon and at times displeasing, this approach was followed in order to observe the global population distribution within the oasis territory. From the purely economic point of view, this approach proves that Zipf's law could also be used in these cases, which are chronologically ancient. In this specific archaeological and socio-archaeological case, this approach shows that within the Bukhara Oasis

40 My opinion reflects, but only in part, an earlier statement of Richard Frye (1998: 13–8), who pointed out the relative “modernity” of the importance of Bukhara. Recent studies (Grenet, Podushkin and Sims-Williams 2007: 1024) have shown that a Sogdian inscription found at Kultobe, Kazakhstan, bore the names of different cities, of which one has been read as *nvkmytn*, *Nōk Mēthan* (lit. the new residence), interpreted as Bukhara. In the same article Frantz Grenet (1025) dates this inscription to between the 2nd or early 3rd centuries CE. I will not engage in a discussion of these results and interpretations, leaving the work to the more appropriate specialists, but according to our recent research, geomorphological and archaeological, there are no elements to assign to Bukhara a rank of main city or capital, at least before the 6th century CE, or even later.

41 The complete study of this case, using an archeo-economic approach, is forthcoming (Rante and Trionfetti).

the population distribution would correspond to the pre-industrial growth of cities, mostly characterised by a human behaviour dynamic. It supports the statement above, which indicates that the economic development of the sites could not be due to the technology because it would impose a high degree of production by assembly line. This specific case has to be imputed to commercial exchanges and trade on either a small or large scale.

These results bring to light specific socio-economic data, but they also confirm the trend observed above relating to the connections between cities and their geographical distribution within the oasis. I mean that this specific geographical setting of the oasis, and this specific geographical distribution of the cities within the oasis generated – thanks to the commercial activity that ensued from these realities – an increase in wealth and, consequently, in population.

## 10 Urban Fortifications within the Oasis

Previously referred to in this book, the fortification characterising the sites within the oasis was very important and useful in distinguishing the key cities and their different functions in the global oasis-space. It is not the intention here to survey all fortifications of the oasis, even among the restricted number of tripartite sites. An entire book should be consecrated to this topic, in which all features concerning the defence systems are considered. Here, the intention is to identify particular features that could characterise groups or categories of fortified cities and their function within the oasis. This will be done only through the topographically and archaeologically surveyed sites.

First, it could prove useful to do this following a chronological path and see the evolution of the fortification of the oasis, also taking into account the element referred to above regarding the concept of the city-state.

Although insufficient data are available to describe the earliest settlements in depth, the archaeological data obtained, compared with the huge quantity of settlements within the oasis, can give some elements. The earlier archaeological literature is also useful in this analysis, especially for the later epochs (Semenov 1996). The earliest settlements within the oasis seem to have lacked strong ramparts, at least according to the archaeological documentation that I have, and in relation to the studied sites.<sup>42</sup>

<sup>42</sup> Concerning fortifications in Central Asia, see the works realized by Henri-Paul Francfort (1976, 1979, 1985), which considers

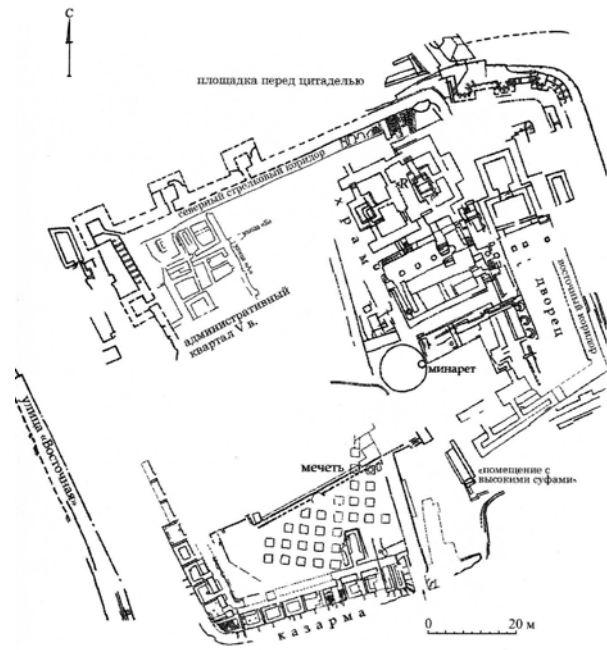


FIGURE 142 Paykend, citadel, general plan of the discovered architecture  
OMELCHENKO 2015

According to our data, the 1st century CE was characterised by the erection of several walled cities, in which the ramparts were built with mud brick and encircled by quadrangular towers. These features were excavated in Paykend<sup>43</sup> (fig. 142) and Ramitan<sup>44</sup> and were observed

a huge quantity of information on a wide chronology, from the Protohistory to Kushans, and on a large geographical area.

<sup>43</sup> The early occupations in Paykend are described as fortified since the beginning (Mukhamedjanov et al. 1988: 12, 79), although comparisons with other structures within the oasis, for example in Ramitan, showed that the earliest fortifications were built a little later, probably since the 1st century BCE or 1st century CE. I would like to suggest that the earliest occupations were structured into villages or urban agglomerations, in which the main buildings were fortified but deprived of strong ramparts encircling the whole city. It is difficult to confirm, and probably some cities might have been the exception, but the discovery of pottery dated to the 3rd–2nd centuries BCE in layers situated in an unwalled context, as in Ramitan, Kakishtuvan and Iskijkat, suggest a pre-walled occupation.

<sup>44</sup> From the 3rd century CE, as will be shown in depth below, in Ramitan a new city was brought to light, larger but always square in plan. This new city presented quite different defensive characteristics. First, the towers became circular. The new fortification surrounded the earlier one, leaving less space for circulation, at least on the eastern side. If the shape of the towers can be taken as a chronological element, although in my opinion the reliability of this method is not so robust, it could be suggested that the external ramparts of Varakhsha (Shishkin 1963: 107–11)

in Kakishtuvan and Iskijkat. The global plan of the city, which later became the citadel, was not always the same. The quadrangular plan of the fortified city was very common within the oasis, as well as in Central Asia, and cities such as Kumijkat (0090) and many others presented an almost square plan (50 × 50 m). But in other cases it was rectangular, as in Vardana (90 × 50 m)<sup>45</sup> and Tarab (130 × 90 m).

As referred to above, this is also the period (from the 1st century CE) when a significant increase in rural foundations – bipartite cities – was observed. These smaller settlements were not protected by ramparts, although fortified residences or castles were observed.

In this framework, it is noticeable that during the earlier phases of occupation, the major fortified cities were mainly organised along the western and southern sides of the oasis, as well as in its centre, along the major watercourses. In greater detail, the peripheral areas, those at the frontiers with the desert, were characterised by the cities the function of which was, first, to organise the defence of the oasis. It should be remembered that cities at the frontiers benefited from exchanges with cities within the oasis, as well as with entities outside irrigated lands.

At Ramitan, the 4th century marked the birth of the shahrestan, built in the southern part of the square city. According to the architectural and ceramic studies, it did not depend on the arrival of new populations. It was built because of a demographic need, but the material culture did not present any variance with the earlier one. Ramitan was not a unique case; shahrestan-1 at Paykend also dated to that epoch, and probably also that of Bukhara, even if no solid archaeological material was available concerning this point. The shahrestan of Vardana could also have been built in that period, but again no archaeological material was available.

In this framework, it is important to observe that in all the cities mentioned, the shahrestan was also encircled by a rampart, but this was not the case for the remaining settlements of the oasis – at least in the present state of research – where the shahrestan was always unfortified. This phenomenon cannot be explained by the construction of the Kampir Duval, which according to recent research

should be dated to the 6th century<sup>46</sup> – many of the cities lacking ramparts were largely built earlier than this. The location of Paykend, Vardana, Varakhsha and other settlements along the oasis's frontiers testifies, at least during these earlier epochs, to the need to defend the oasis. To summarise, the earlier defence of the oasis was the responsibility of the peripheral cities. Ramitan and Bukhara differed substantially from the other cases, which led me to imagine a scenario other than that of defending the irrigated lands: the construction of ramparts in every inhabited part of the city highlighted mostly their political rank within the oasis. Moreover, their geographical situation located them within two areas that are well defined by the Zerafshan. This natural and permanent division probably characterised two major political spaces, managed by the two major political entities of the oasis at that epoch.

The following centuries were characterised by the construction of the Kampir Duval. In a broader perspective, this further and strong protection would have limited the need to fortify single urban entities within the oasis. This is still unknown at the time of writing, but further research will undoubtedly complete the lacuna.

While the northern part, leading towards Samarkand, seems to be benefiting from the accurate reflection and activities of our colleagues, the southern part seems to show more data to suggest the presence of a kind of southern fortified frontier, which probably anticipated the construction of the Kampir Duval. Since the earliest centuries of our era, the tripartite sites of Khujada, Tarab, Khunbun and site 0133 (no datable material has been found in Daymun, 0039) – but also site 0033 among the bipartite ones – are located at the south-eastern part of the oasis, creating a sort of barricade north-west/south-east (fig. 143). Their strong defences are still visible today (fig. 144), and their organisation perpendicular to the Khorasan road leading from the south-west, would seem to corroborate their function of “protectors of the Oasis Gate”. Probably from the 6th century, this early imaginary limit became reality, marking the entry to the oasis, so frequently mentioned by historical sources (Barthold 1981: 117).

should not be dated before the 3rd century CE. Moreover, in Ramitan, the slits pierced on the ramparts were rectangular and measured 1.30 m. The defensive system comprised several floors inside the ramparts. It seems that there were also lines of blind slits.

45 I am considering here the upper limits of the ramparts, not its base.

46 In 2011 Sören Stark (oral communication for the Workshop in Hamburg – October 2015; see also Stark and Mirzaakhmedov 2015: 77–99) dated the eastern oasis wall (Kampir Duval near Kyzyl tepe) to the 6th century CE.

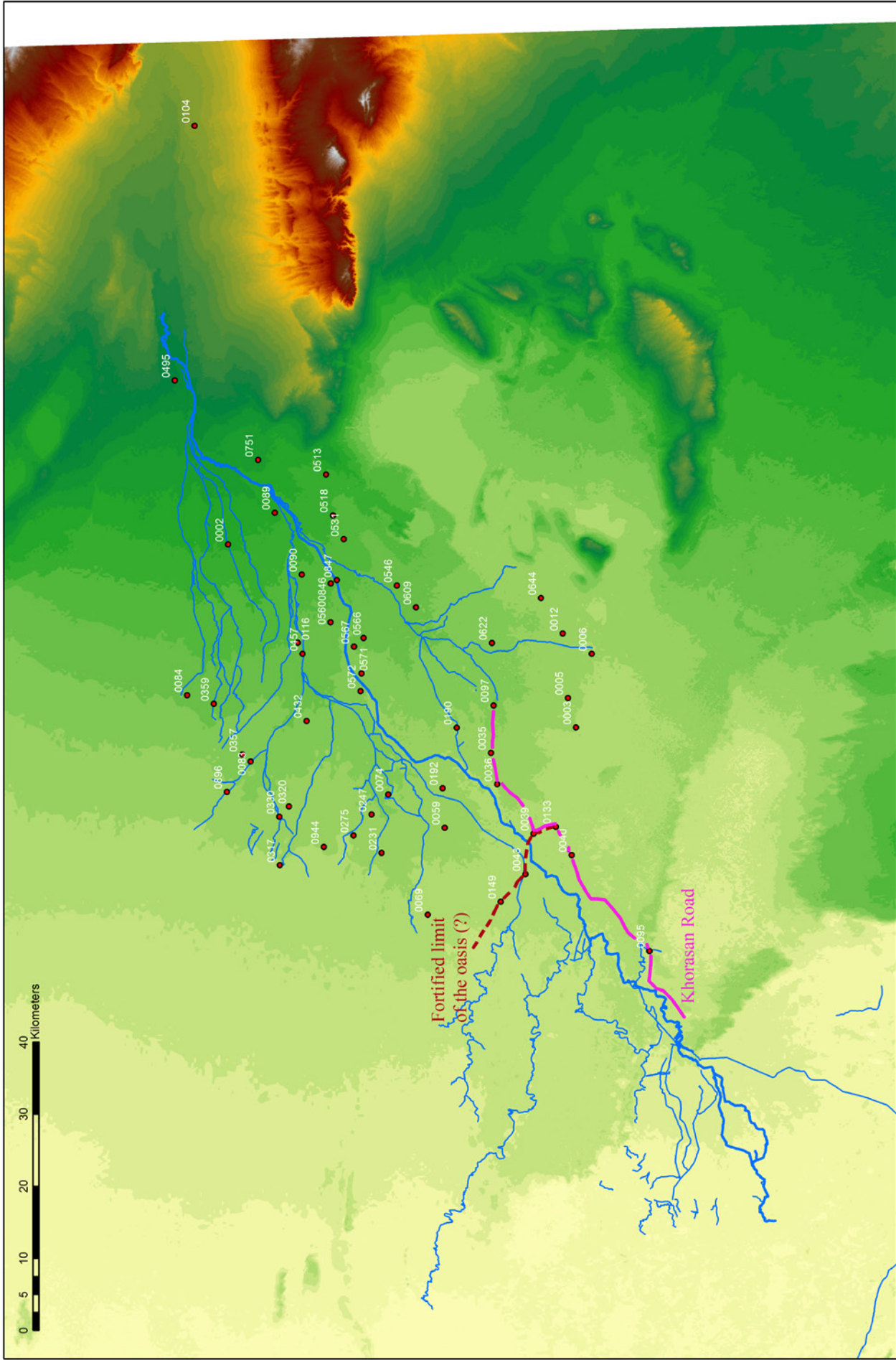


FIGURE 143 Map showing the tripartite sites, the Khorasan road and the possible "Maginot Line" of the southern part of the oasis  
 SRTM MAP; RANTE 2017

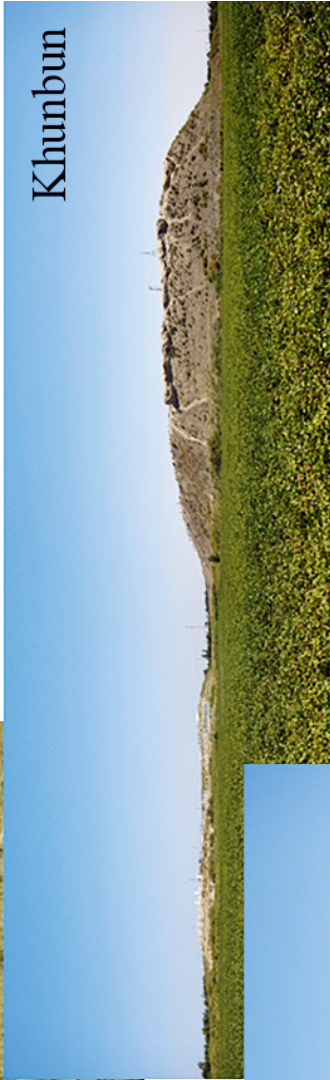


FIGURE 144 Photos of the fortified cities located south of the oasis  
RILIEVI SRL 2014



**PART 2**

*The Excavation*

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## Introduction to Part 2

This part is consecrated to the excavation activities included in MAFOUB's scientific programme. It is, therefore, not dedicated to earlier archaeological work carried out in the oasis. A short section will be dedicated to the earlier operations relating to the sites recently excavated by MAFOUB, but only those. The sites excavated and thus presented in this part are Ramitan, Bukhara, Paykend, Iskijkat, Kakishtuvan and site 0250 (fig. 145).

Why these sites? From the beginning, the main aim was to undertake a regional study that included the whole oasis of Bukhara, not only that presented by the written sources but also that brought to light by our recent studies on the oasis's geomorphology, survey and archaeology. My primary interests, therefore, were to cover the larger area of the oasis; to zig-zag between the previously excavated sites, for which there is therefore available documentation; to choose the sites based on the new geomorphological data and the new archaeological results that show divergences or variants to a greater or lesser degree than the earlier ones; to identify settlements presenting interesting material culture through the survey; and to identify the sites that showed connections with watercourses and main roads. Moreover, the selection of the sites to be excavated was not made in a single phase, at the beginning. Each site was selected through the results of the

earlier archaeological activities in an "oasis-framework", not in isolation, and through a process of considered reflection, during which the new data were compared with earlier data, with the aim not of excluding either but of finding the best explanation, always based on solid scientific elements. It does not mean that this work presents infallible results and demonstrations. On the contrary, it can be but the beginning of further research, through which other results will complete and – why not? – reject some of my interpretations. Research is not a personal affair in which the specialist develops his own image, but a common scientific platform in which every specialist is involved to complete an enormous mosaic constituted of thousands of small pieces.

I would like only to elucidate some of the points referred to above, to be more precise about my initial intentions. The first surveys and excavations have shown sometimes smaller, sometime larger differences with regard to earlier published data. The zig-zag that I began, thus concerned the choice of those sites that required revision in order to reconstitute a more appropriate historical and cultural framework, to avoid conducting a whole investigation that rejected all earlier results. There has never been the need, and it has never been my aim. Finally, one of the first objectives was to cover the largest area of the oasis,

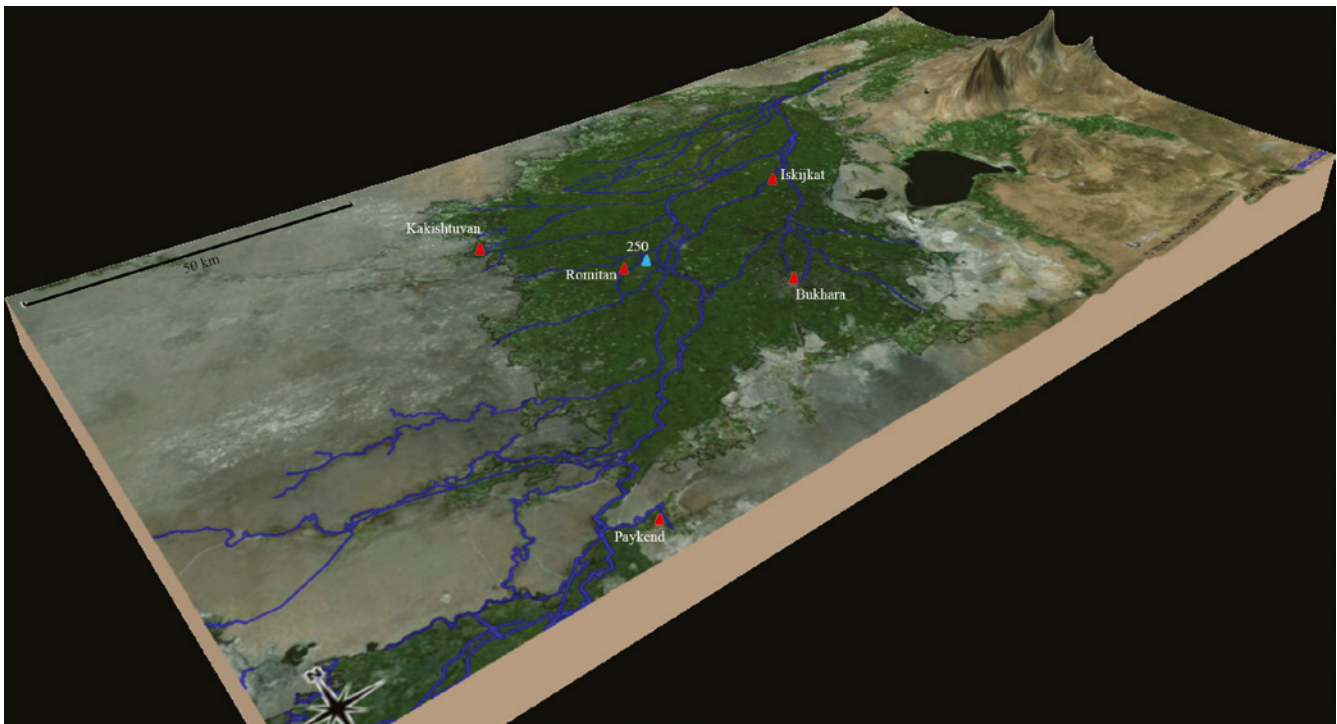


FIGURE 145 3D satellite view of the oasis with paleochannels and the excavated sites (QGIS 2017)

selecting the more interesting and appropriate zones. Paykend was obviously the first step, as I was coming from Iran. Avoiding for a while the huge wealth visible on the mounds, the city is on the Khorasan road, along the narrow Zerafshan Valley and in an area previously characterised by the confluence of the Zerafshan and Kashka Darya deltas (Mukhamedjanov et al. 1988: 8–17; Fouache et al. 2016). Ramitan is located in the core of the oasis, thus it is not marginal as is Paykend. Here also, again avoiding for a while the wealth of vestiges visible today, the whole site is one of the most significant in terms of size within the oasis, together with Bukhara and probably Vobkent (although the latter do not show the whole of the ancient topography, as today they are submerged by the modern towns). Moreover, Ramitan is in a key position within the western road network of the oasis, connecting the two main roads leading to Khorezm, the one through Varakhsha and the other through Kakishtuvan. Iskijkat, according to the detailed identification accomplished in collaboration with Florian Schwarz, is located

in the core of the oasis, along the main meander of the Zerafshan. The site, although not of real topographic interest, remains a key city within the road network leading to the east, as well as a key city in the written sources. Kakishtuvan, also identified thanks to the work carried out in collaboration with Florian Schwarz, is located at the north-western limit of the irrigated lands, as it has been since at least antiquity, as our recent geomorphological activities have shown. This city is also interesting for its contacts with the “outer oasis”, with nomads or caravans coming or going to Khorezm. Bukhara has been studied in depth. Our current study of the oasis is informed by many of the earlier results. Nevertheless, in my opinion, and in view of the results acquired from the other cities, I believe that Bukhara also merits further study, at least on its stratigraphy, to acquire the precise data required to make a global framework of the oasis. Site 0250 is located near Ramitan. It was chosen to study the districts within the oasis, as well as the socio-economic links between tripartite and bipartite sites.

## Ramitan

### 1 Landscape and Archaeological Vestiges

Today, approaching from the north along the small road that joins the main road A380 going north-west towards Khorezm to the mausoleum of Ali Ramitani (12th century CE), a huge tall mound appears in front of the traveller (fig. 146). This square mound rises over 16 m from the plain around it, up to the highest point of the central citadel. Following the small road, in front of the main entrance of the mausoleum of Ali Ramitani, a small path to the east leads to the southern mound. Here, a modern bazaar occupies a third of its area (fig. 147). Because of this modern structure, the mound's ancient layers have suffered much from this occupation. A small 20th-century mosque to the south is located on top of a very small relief corresponding in part to the remains of the original levels of the mound, namely 3 m above the current level. Assuming that this structure was probably erected over a higher part of the original mound, it is however notable that such a part of the ancient city presents similar destruction layers. At the eastern limit of the tepe, a rectangular area is cultivated with fruit trees. It seems to be dissociated from the rest of the mound, even if no topographical and landscape elements were observed to confirm this impression. This southern mound (fig. 148), the shape of which seems irregular, leads to the former square mound on its southern side. Both are therefore joined, and the vestiges tell us that both were encircled by ramparts. South of this complex, a narrow canal flows north-east/south-west. According to the geomorphological studies and interpretations, this canal is a branch of the ancient Khitfar Ramitan. North of the city, it flowed away from the main canal to the south-west, and south of the city, where it once more joined the Khitfar Ramitan main canal.

From the small road, this time to the west, behind the Ramitani mausoleum, the largest mound of this area rises up. It is today occupied by a modern cemetery but, as the excavation has shown, this cemetery goes back several centuries. It is quadrangular and presents several topographical irregularities, which will be analysed below. The mound is framed to the east and west by two drainage canals; the western one seems to have been modified several times in its function.

South of this large, square mound, two other mounds rise up. The northern one is long and is covered by a thick layer of salty sand and earth. The southern mound,

smaller than the former, is today completely destroyed because of the construction of an underground drainage canal. It was destroyed in 2013, after we had completed our topographical survey. The mound was cut into two parts, which enabled me to analyse the sections created by the bulldozers and retrieve interesting material. These operations allowed me to reconstruct the complete history of the city.

The mounds described above are all located on the north-western side of the canal. The other side of the main canal presents two smaller mounds. The first one is very close to the destroyed tepe, which seems to demonstrate clearly its historical connection. The second one is located further to the east, unconnected to the former mounds, suggesting a later occupation or a kind of later artisanal quarter, located further from the urbanised entities.

Ramitan Kurgan is the current name of this site. The 19th-century map still shows the name of Ramitan in this geographical location. It is today surrounded by the modern villages of Dacha to the north-west and Khusanabad to the south-east. Only very recently has the name of Ramitan corresponded to a major city, more in the core of the oasis, which is crossed by the Khitfar Ramitan, the Tarab watercourses and the Zerafshan.

#### 1.1 *Some Data from the Earlier Historical Studies*<sup>1</sup>

The toponym of Ramitan has several roots and was often written in different ways. In the 10th century, Narshakhi mentions the village<sup>2</sup> of Ramtin (Frye 2007: 17), while later Sa'mani and Yaqut mention the village of Ramithan or Armithana. Al-Istakhri mentions Ramithana as the village that was connected with the canal (Yusupova, Kamoliddin and Nekrasova 2011: 200). Al-Moqaddasi writes that the village of Ariamithan was more ancient than Bukhara and was the siege of the Bukhar-Khudat (Collins 1994: 282).

From the toponyms Ramithan and Ariamithan, Markwart (1938: 139–41) divided it into two parts: *meθan*, the second part, which he translated as “village” or “place”;

1 The second volume of *The Bukhara Oasis* is entirely consecrated to the historico-archaeological and social setting, according to the recent archaeological investigations.

2 Narshakhi writes “village” for every urban entity of the oasis, in contrast with Bukhara, the unique city. In this case, I call the tripartite sites “cities” in contrast with the more rural entities, which I call “villages” or small “cities”.



FIGURE 146 Ramitan, mausoleum of Ramitani on the ancient suburb  
RANTE 2016

and *arya*, an Iranian ethnonym that means “the place of the *aryei*”. In accordance with the second part of the toponym (*methan*), Frye (1954: 116) preferred to translate the first part of Ramithan with the Persian *ram*, meaning “happy”. Lurje (2004: 44, 57, 115–16, 210–11) preferred Frye’s suggestion and suggested three possible readings: “quiet village”, “village consecrated to the divinity of the quietude” and “village of the market, the 21st day of the month”. Iskhakova (Yusupova, Kamoliddin and Nekrasova 2011: 200) read the toponym Ramitan, among others, as constituted of *rah*, meaning “path, road”, and *methan*, meaning “cultic place” or “the path of the temple”. Adilov and Babaev (2011) read the combination of two Iranian words: *rakh* and *methan*, meaning “a dwelling on the road”.

Narshakhi told of the strong citadel of Ramitan, and he attested that the city was more ancient than Bukhara. The ruler, in fact, settled in Ramitan and only once Bukhara was founded, did the ruler pass only the winters in Ramitan (Frye 2007: 17).

Ramitan was also the place in which was erected the pagoda for the Chinese princess, sent there as a bride (Frye 1954: 8).

## 2 Earlier Works

In 1940, V.A. Shishkin published a very useful small book on the surveys carried out within the oasis in 1937. This huge project involved not only the classic pedestrian surveys but also an aerial recognition of the territory, carried out during the 1930s and 1940s. The archives of the latter have recently been published in a collection of written documents, notes, pictures and other things (2015: 5–115).<sup>3</sup> As the archives demonstrate, in fact, Shishkin flew over

<sup>3</sup> This reference corresponds to one of the articles collected in this book. For more details, see in the bibliography under *Arxeologija zentralnoi azii*.



FIGURE 147 Ramitan, aerial photo of the modern bazaar within the shahrestan  
SAGORY 2017

different sites of the oasis, but he did not cover the whole oasis. According to his archives, among the sites mentioned, Ramitan was observed in 1949 (Shishkin 1940: 87, 92; Figs. 21–27). But previously, in 1937, Shishkin not only carried out a survey at Ramitan but also sketched a plan (1940: fig. 17). A few documents describe the history and the current state of the site (Shishkin 1940: 34–9).

Since this first investigation, the site apparently remained unstudied until the 1960s, although it was surveyed by the Uzbek teams (Mukhamedjanov 1975: 157–58). In 1972, Suleymanov undertook a stratigraphical trench, which he located at the southern foot of the highest citadel, in the middle of the square fortified city (Suleymanov 1984: 118–29). The Uzbek scholar is the only one to have offered some preliminary results to the scientific community relating to the chronological sequence of the city. Already accustomed to large territorial surveys, he incorporated this project within a broader regional context, in which he also studied the southern city of Ramish tepe. In

the publication, Suleymanov gave some introductory elements on the city, as well as a detailed ceramic sequence that brought to light the city's chronology. According to his results, Ramitan was dated between the 4th century and the 7th century CE. As I will show below, these results are not wrong, but they are incomplete. Of course, the city crossed this period, but its foundation needs to be put back several centuries, as does its abandonment.

### 3 Plan of the City

The topography of the site shows, as previously noted, the existence of seven mounds (fig. 149). The most important is the square mound located north-east of the urban complex. It comprises two topographical levels and covers 3.81 ha. The first level concerns the larger square mound, which rises from an altitude of circa 221 m of the plain by at least 8 m. In fact, its surface is topographically irregular,



FIGURE 148 Ramitan, limits of the shahrestan  
AERIAL PHOTO SAGORY 2017; RANTE 2017

depending on the human occupation. The four corners present quadrangular zones that rise to an altitude of 234 m for the northern ones, and 233 m for the southern ones.

This large square apparently is cut into two unequal parts. The larger, northern one presents an altitude of over 232 m, while the southern, smaller part rises to an altitude of over 231 m, with the exception of the south-eastern part, which represents a depression descending to a height of 229 m. As will be shown below, this last level represents the level of the complete abandonment of the earliest square city, today completely underground.

Topographically visible from an altitude of 233 m, but actually founded at an altitude of circa 231 m, the central mound, corresponding to the citadel, rises up over 5 m and is chronologically associated with the upper structures of the square city. Although it is quite ovoid, the original form would have been more or less square and covered 4,470 m<sup>2</sup>. Chronologically associated with the larger square city and with the other southern mound, this higher part corresponds to the palace-fortress within the square citadel of Ramitan.

The southern side of the square city visually presents a lesser elevation, due to the fact that the southern mound leads onto the square city, covering in fact a part of its southern rampart. This large mound, covering circa 6 ha, represents the shahrestan and is surrounded by strong ramparts. As previously noted, this part of the city has suffered from its occupation in modern times by the bazaar, because of the numbers frequenting it. (Apparently, it is one of the most important bazaars of this central region of the oasis.) Because of this destruction, it is only possible to give here an estimated maximal altitude, corresponding to 228–230 m. The shahrestan, however, was not regular. Although erected in only one phase, since the ramparts surrounding it are all homogeneous, the level of the eastern area could be considered as the original level, with an altitude of 228 m. The northern side of this eastern area, the single cultivated part referred to above, is rectangular and covers 6,500 m<sup>2</sup>. Topographically, this eastern area presents, in my opinion, the characteristics of a well-conceived space, the functions of which were adapted to be outside the main city. Could it have been a

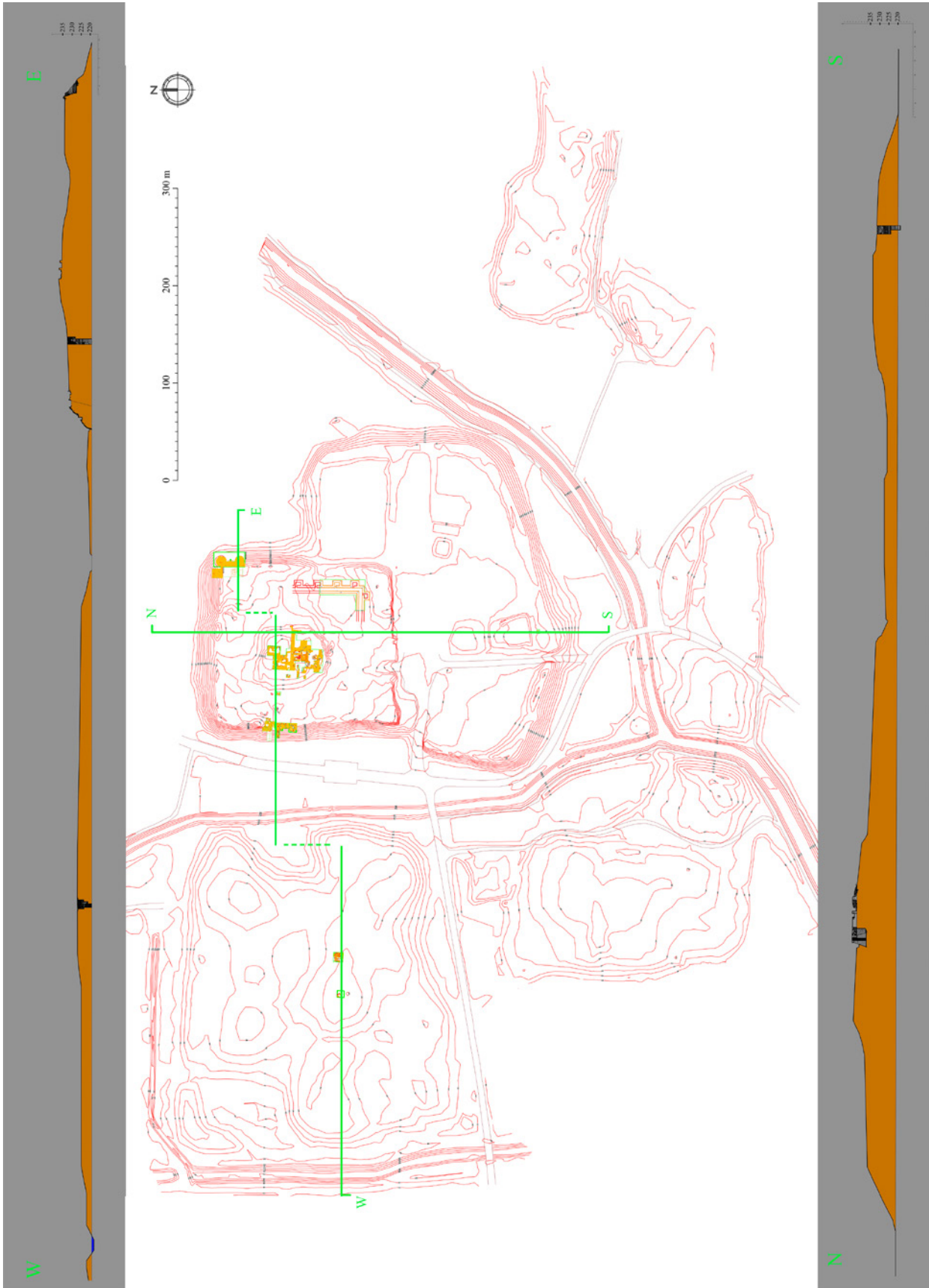


FIGURE 149 Ramitan, north-south and east-west cross sections of the city  
RILIEVI SRL AND RANTE 2017

space reserved for specific religious rituals? Or was it an area in which an important building was erected? Only an accurate excavation can provide answers to these questions, but such an excavation would be difficult because of the presence of agricultural fields.

More or less at the altitude of the plain, 221 m, a small road separates this part of ancient Ramitan from the other part, which rises on its western side. At the opposite side of the ancient square city, a large quadrangular mound rises. It covers circa 12.5 ha and represents the largest mound of the city. The mausoleum of Ali Ramitani has been erected on its eastern, eroding roughly 5,000 m<sup>2</sup> of the tepe. This mound comprises two main sections, separated by a long east-west depression, which represents an ancient thoroughfare. The southern part is the larger section and rises from the plain, at an altitude of 221 m, to 228 m. This part is also characterised by two parts, the eastern one the higher, and the western one, the lower, of which the maximal altitude is 225 m.

In the other part, on the other side of the thoroughfare route, located at an altitude of 225–224 m, two parts also appear. The eastern one, the higher, reaches an altitude of 227 m, with a light slope to the west until it reaches the level of the plain. A very small mound appears in the north-western corner, reaching a height of 224 m. The mound was not surrounded by ramparts and, according to the archaeological discoveries, it can be considered as having been the suburb of the city, the *rabad* of the Islamic period. As previously noted, this mound is occupied today by a cemetery, although this does not cover its total area. Large zones are free. I concentrated the excavations here, obviously in agreement with the local political and religious authorities.

Further to the south, two large mounds should be considered together, because they were part of a unique historical phase, as will be discussed below. The southern mound, adjacent to the watercourse, is the higher one and from the plain (221 m) reaches an altitude of 227 m. It is quadrangular, even if today it is impossible clearly to establish its original shape. Joined to it, from the northern side, a larger mound extends to the north. From the plain it reaches an altitude of 225 m. In total, this complex covers 6.2 ha. According to the excavation, the area was unwallled and can without any doubt be defined as the Islamic city, constituted of a citadel to the south and a shahrestan to the north.

To the eastern side of the watercourse, a mound most probably connected with the Islamic city covers 2.56 ha. Until 2015, it was used as a large dump. Today it has disappeared, not through cleaning – it has been covered by a thick layer of earth over which a small factory has been

built. The mound can also be divided into two parts, the western part reaching an altitude of 225 m, and the eastern one an altitude of 223 m.

The most eastern mound, although seriously damaged, reached a height of 225 m from the plain. It is isolated, and for now it is difficult to identify it any better. In this complex settlement, it is also considered as part of the suburb.

## 4 Stratigraphy

To understand the whole chronological sequence of the settlement, and to have sufficient material to study and compare, three stratigraphical trenches were dug in the whole urban area of Ramitan. The first one, trench A, was dug in the square city, near the western slope of the citadel; the second one, trench C, in the shahrestan, in the southern part close to the rampart; the third one, trench F, in the large western suburb. Each stratigraphy will be presented considering the ordinary sequence of human occupation, from the earliest occupation on virgin soil to the current surface.

### 4.1 Trench A

Trench A was opened in 2012 and at first covered an area of 5 × 4 m. The virgin soil, corresponding to the Holocene alluvial soil, was reached at circa 13 m from the surface (fig. 150). As luck would have it, the trench was opened above the most ancient rampart of the city, the vestiges of which are not visible. It led to an understanding not only of the stratigraphical sequence but also of the earliest fortified urban foundation.

At an altitude of circa 219.85 m, a *pakhsa* (rammed earth) platform (USM 220) is located on top of the virgin soil and measures almost 2 m in depth. It was built with *pakhsa* and straw, with the addition of small river pebbles. This large platform comprises a higher section, on which the rampart was erected, and a lower section, which probably served as the earliest external urban floor. Above the higher part, at an altitude of 221.30 m, the earliest rampart of Ramitan was erected. Its vestige is 8.32 m high, and at the base it is 2.30 m wide. Obviously, this does not correspond to its entire width, as it is composed of a large corridor separating two massive wall constructions, as its excavation in another part of the city will show (see below). Its whole width in its upper section (circa 229 m) would correspond to 7.50 m, leading me to calculate an approximate width at the base of circa 9 m. The interface of its destruction layer was observed at a height of 229.62 m.

As luck would have it, the trench held another surprise for me: the excavation also traversed one of its towers, which later proved to be square. The rampart was constructed with the usual mixed architecture, alternating mud-brick and pakhsa structures (USM 213 = 211 = 209 = 205). A thin clay layer covered its external façade, over which lent the tower. The latter was also composed of a mixed architecture of mud-brick and pakhsa structures (USM 214 = 212 = 210 = 207). Its construction apparently began not from the higher part of the platform, as was the case for the rampart, but from the urban floor, at an altitude of circa 220.20 m. The interface of its destruction layer was observed at a height of 227.98 m, showing that it suffered more significant destruction than the rampart itself, at least in this excavated area. I preferred, during the excavation, to record every structure with different stratigraphical unities. They were, nevertheless, erected in a single process, the tower following the construction of the rampart.

The inner side of the rampart was massive and constituted of similar structures from its origin to an altitude of circa 227.90 m, inside of which would probably have been conceived the corridor for the soldiers. Structure USM 206 corresponds to a specific organisation of the corridor, which was probably interrupted by walls at regular intervals, giving the corridor structural solidity. The C<sup>14</sup> analyses of samples (C2RMF report 27177) taken from the earliest structures of the rampart date it to the first half of the 1st century CE. According to the stratigraphical data, the tower corresponds to the same date.

The earliest layers of the corridor would have been US 161, 164 and 165, from which ceramic fragments with orange-rose medium-coarse fabric were recovered. Layer US 157 covers the interface of the destruction layer of the wall of the corridor (USM 206), marking the first phase of the abandonment of the corridor for military purposes. From the exterior, more or less at the same altitude, layer US 156 covers the interface of the destruction layer of the tower, thus also marking the earliest abandonment of the structure.

The following phases were characterised by a constant overlapping of human occupation layers, testifying not only to the definitive abandonment of this rampart but also to a significant overlapping of the ground levels outside the earliest city.

US 139 marks the last period of this constant overlapping and the beginning of a new function of the area, dated by C<sup>14</sup> (report 27177) to the early 3rd century CE, a chronology that corresponds perfectly to the first construction of the new larger rampart, still visible today. Above US 139, the ruin of the wall USM 202 attests to the erection of new

buildings dedicated, according to the material found, to a usual urban space. The earliest occupations of this phase are represented by US 134 and 131 = 126 and are recorded at an altitude of circa 229.75–229.90 m. The first well-conceived floor is US 158, at an altitude of 229.90 m. The ceramics collected are composed of red, orange or beige fabrics covered by red slip, dated to the 3rd century CE. The characteristic red-slip pottery with introflexed rim, as well as the jars with black splashed-slip decoration, appear in the oasis of Bukhara exactly at that epoch, between the 2nd and 3rd centuries CE.

This phase was followed by other constructions, of which the different conception, it would seem more accurate, also shows a different occupation. The very poor conservation of these structures prevented any possibility of better understanding their function. I can note only that the orientations of the buildings follow the same orientations as the earlier structures. US 116 represents the destruction of these structures.

Walls USM 204, 203 and US 116 are all covered by US 112, which marks another sequence in the chronology of this area. This phase was characterised by sporadic hearths, probably testifying to temporary occupations, and was dated by C<sup>14</sup> (C2RMF report 25121) to the end of the 4th century CE. And now, the last two occupations can be documented, the first, constituted by the occupations just above wall USM 202, was dated by C<sup>14</sup> (C2RMF report 25121) to the 6th century CE; the second one, characterised by structures consecrated to workshops, was dated much later, to the 19th–20th centuries.

#### 4.2 Trench C

Trench C was opened in the southern part of the shahrestan, just beyond the old 20th-century mosque, now abandoned, and close to the southern rampart. This peripheral place was chosen because of the modern structures within the shahrestan, in which a modern bazaar occupies more than 50 per cent of the entire area. The rest is occupied by modern buildings and by old train wagons and containers, and the north-eastern part is cultivated.

The trench was opened at an altitude of 228 m and measured 4 × 3 m. As with the other trenches, the aim was to study the whole occupation sequence, from the virgin soil to the abandonment of the site.

The earliest occupation is situated just above the virgin soil (fig. 152), which is located at an altitude of 219.70 m, and was characterised by a thick pakhsa layer (US 557), conceived as a platform on which to settle. Above it, different thick layers seemed to show non-architectural occupations, in which material was abundant and hearths scattered. In US 554 a huge quantity of ceramic fragments,

which seem to be different from later ones, was recovered mixed with animal bones. This overlapping of layers rich in material, but in which no structures were present (in neither were traces of destruction observed), continued up to an altitude of 222.81 m. From the virgin soil, this whole occupation was dated by C<sup>14</sup> (C2RMF report 27177) to the 2nd–3rd centuries CE. This occupation was at that precise epoch *extra muros*, since the rampart of the shahrestan was dated by TL analyses to no earlier than the 4th century CE. In my view, people settled in this area from the earliest occupation of Ramitan, close to which fragments datable to the 3rd–2nd centuries BCE were observed. This demographic concentration and growth of population probably led to a better structuring of the space, and the area was encircled by a rampart in the 4th century CE.

US 560 is the first layer in which mud-brick fragments from earlier structures were observed. This layer was cut by US 550b, in which traces of mud-brick structures *in situ* were observed. From layer US 550a, at an altitude of 223.10 m, until layer US 540, at an altitude of 224 m, a thick level of refuse clearly indicated the function of this area of the shahrestan. It comprised a first refuse layer, later burnt (US 550a) and covered by a layer of soil (US 543b). Above it was another refuse layer, later burnt (US 543a) and covered once again with soil (US 544b). As before, a refuse layer, again burnt (US 544a) and covered by soil (US 543), seems to have existed for a little longer. It was characterised by a hard clay sediment, like pakhsa but not structured. The material found in pit US 548 testified to the destruction of earlier structures that filled the pit. US 542 corresponded mostly to a destruction layer, the surface of which was once again used by people as a dump that they later burnt, to erase any traces of rubbish, and then covered with soil (US 540) to remove the smell. After this layer, the function of this area as a waste disposal site seems to have ended.

This dump phase was born when the rampart of the shahrestan was definitively erected, in the early 4th century CE. Although one can generally expect dumps outside the city ramparts, it is not so strange to find a dump also inside a city, especially when it is situated in a peripheral area of an urban space.

The upper occupation layers were characterised by US 538, a strong earth level probably conceived definitively to cover the earlier refuse, and a large pit (536 = 537), containing fragments of mud brick, small stones, charcoal, moist soil and ceramic sherds. It was also dated by C<sup>14</sup> (C2RMF report 27177) to the early 4th century CE.

Layer US 531 was the first well-conceived floor to be observed in this modest trench. A domestic space was

brought to light here comprising this floor, wall USM 606 and a small pit (US 530bis), in which a significant quantity of chicken bones were found. The ceramic assemblages gave me sufficient data to date this phase to the 5th–6th centuries CE. The destruction of this domestic space was characterised by a thick layer (US 528), later levelled and covered by another well-conceived floor (US 525) at a height of 225.65 m. Although very probable, no structures were observed in the small trench belonging to this phase. The layer covering it, US 524, was the result of wholesale destruction, in which were found not only fragments of mud bricks and other materials but also entire mud bricks. In this case also, the layer had been levelled to allow for the construction of walls USM 605 = 602 and USM 603, which correspond to another domestic space.

This phase is constituted of the aforementioned walls, USM 603 running perpendicular to USM 605 = 602, and of different layers (US 522, 515, 514) associated with those mud-brick and pakhsa structures on one side, and leading onto the destruction (US 511) of the same walls on the other. The overlapping of these seems to show the long use of this phase. Pit US 513, corresponding to the last floor (US 514) of the domestic space, marks the end of it. The next phase was characterised by the filling of the pit and the reconstruction of the wall, completed by USM 600. US 507 and 508 seem to correspond to the destruction of this wall, later levelled and destroyed by several pits (US 504, 509, 506), US 503 marking the end of this domestic space. This phase can be dated, according to the material found, to the 7th–9th centuries CE.

A last thin, slightly burnt layer (US 502) was found at a height of 227.40 m to end this occupation, leaving the area to scattered accumulations of earth mixed with different kinds of material. Modern activities within the shahrestan have also considerably damaged this ancient urban area over a long period.

### 4.3 Trench F

Trench F was opened in the western large tepe of Ramitan, in the centre of the mound, in a large zone without graves. To a depth of 50 cm, the trench was 7 × 7 m to eliminate the sandy surface layer. It was then reduced to 5 × 5 m, and the excavation of sealed layers started at a height of 227.29 m (fig. 153). The virgin soil was found at a height of 219.09 m, more than 8 m down. As can be observed, the virgin soil in this area was approximately 80 cm lower than that found in trench A, which was at 219.85 m. It is unsurprising, in fact, that in this western area the water table seems to be closer to the surface. As I will detail, the excavation has shown that this phenomenon also existed in the past.





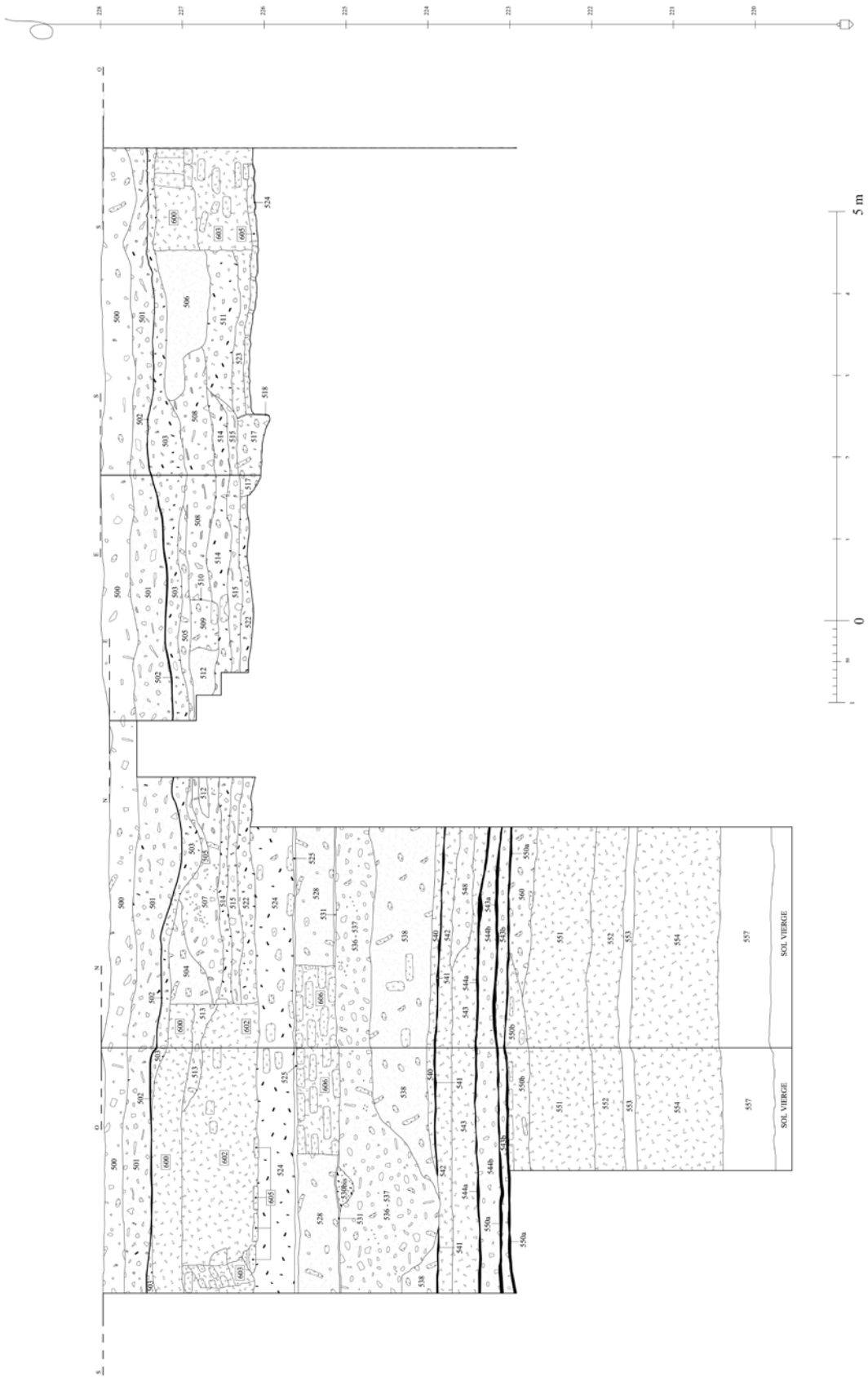


FIGURE 152 Ramitan, Trench C, cross section  
BONORA ANDUJAR, RILIEVI SRL, RANTE 2013

The first occupations of this area seem to have been characterised by a slight overlapping of the layers (US 1149, 1151). The interface of US 1149 represents the first floor found here, on which charcoal and a significant quantity of pottery fragments were collected. Above, other layers with ceramic sherds and charcoal testified to intense occupation in this phase, which showed the first architectural structure (USM 1218) at a height of 220.15 m. In relation to the architectural structures, this epoch was characterised by walls oriented north-east/south-west. This was the only case in which walls presented such an orientation in Ramitan. This trend continued up to the upper layers, evidence of the tradition of superposing walls keeping the same orientation, even if elsewhere there are other orientations. Moreover, only a few metres westwards, a large trench (see below) presented walls oriented north-south only, as was the case for the other excavations of this city.

Floor US 1145 and upper layer US 1143 were the base for the construction of another wall (USM 1217 = 1216). Its destruction corresponded to layers US 1141 = 1142, 1140 and 1139. The interface floor of layer US 1139 covered the previous structures and wall USM 1214. The destruction of this wall, US 1137 and US 1131a, marked the end of this chronological phase, which according to C<sup>14</sup> (C2RMF report 30082) analyses dates to the 5th century CE.

Layer US 1215, mixed with traces of previous destruction layers, leads off USM 1214 and constitutes the floor on which another phase started. USM 1211 must represent an earlier structure used for a very short time. Wall USM 1207, constructed above the previous USLM 1211, and wall USM 1208 constitute the habitable space of this phase, which can be dated to the end of the 5th and 6th centuries CE. USM 1213 probably corresponds to a bench-sofa. This inner space was later characterised by an overlapping of layers, US 1135, 1134, 1133, 1132, 1130, contemporary to US 1131, 1122, 1115 for the external side. US 1125, 1121 and 1116 covered bench-sofa USM 1213 and mark the end of this period.

Walls USM 1207 and 1208 are still used. Wall USM 1210 traces the north-western limit of the habitable space. US 1102 and 1102a, as well as pits US 1103–1104, 1120–1119 and 1109–1108, show the destruction and abandonment of this wall, on which USM 1209 was later constructed. Floor US 1101, as well as external walls USM 1205 and 1206, belong to this last phase, dated to the 7th century CE.

The following period (8th–9th centuries CE) was characterised by a weak occupation. This decline can most probably be explained by the Islamic occupation and the construction of a new “city” south of this suburb, comprising a citadel and a shahrestan. This phase was thus characterised by an overlapping of layers, which in part reused some earlier walls (e.g. USM 1208). Other walls were, how-

ever, erected (e.g. USM 1203). This dynamic of weak occupation over a long period continued over the following centuries. The 10th–11th centuries CE were marked by the presence of baked bricks and some slip-painted fragments of ceramic.

The last human occupation (14th–15th centuries CE) was characterised in this quiet little area by small baked-brick structures the function of which is unknown. Several destruction layers followed, the final layers characterised by the cemetery.

## 5 Evolution of the Urban Plan

From the topographical study and the data stemming from excavation, as well as from the various dating analyses carried out on different materials, the evolution of the city from its origin can be established.

The earliest human occupation of this area took place during the 3rd–2nd centuries BCE in a large area between the square city and the canal. Several ceramic fragments analysed by TL,<sup>4</sup> and contextualised into stratigraphy, date from this period. This occupation cannot be better established because of its scattered nature. Human occupations in this area at that epoch, however, were sedentary and most probably comprised an agglomeration of houses along the right bank of the canal.

Around the time of the switch between the last years before and the early years after our era a change in ceramic material can be observed. As in other sites, such as Iskijkat, among other examples the coarse red ceramic with chip thin polished black slip, or the beige stem-foot cup decorated by horizontal narrow black lines, characteristic of the 2nd–1st centuries BCE, were replaced by thicker black and dark-red slip on fine ceramic of red or beige fabrics. The early major migration within the oasis probably dates from that epoch, generating changes not only in ceramics but also in military and political requirements. During the earliest years of the 1st century CE, the first walled city was erected (fig. 154a). It was square and incorporated square towers. The vestiges of this early urban and military phase are completely underground but still *in situ* more than 8 m underground, over the entire perimeter (fig. 154b).

In the 3rd century CE, certainly as the result of a change in political and military requirements, as well as a demographic increase, and in my opinion also as a result of the proximity of the water table, another square city was erected, larger and comprised of semi-round towers (fig. 154c).

4 A. Zink and E. Porto. 2016. *TL Analyses Report 2016*, C2RMF Paris.

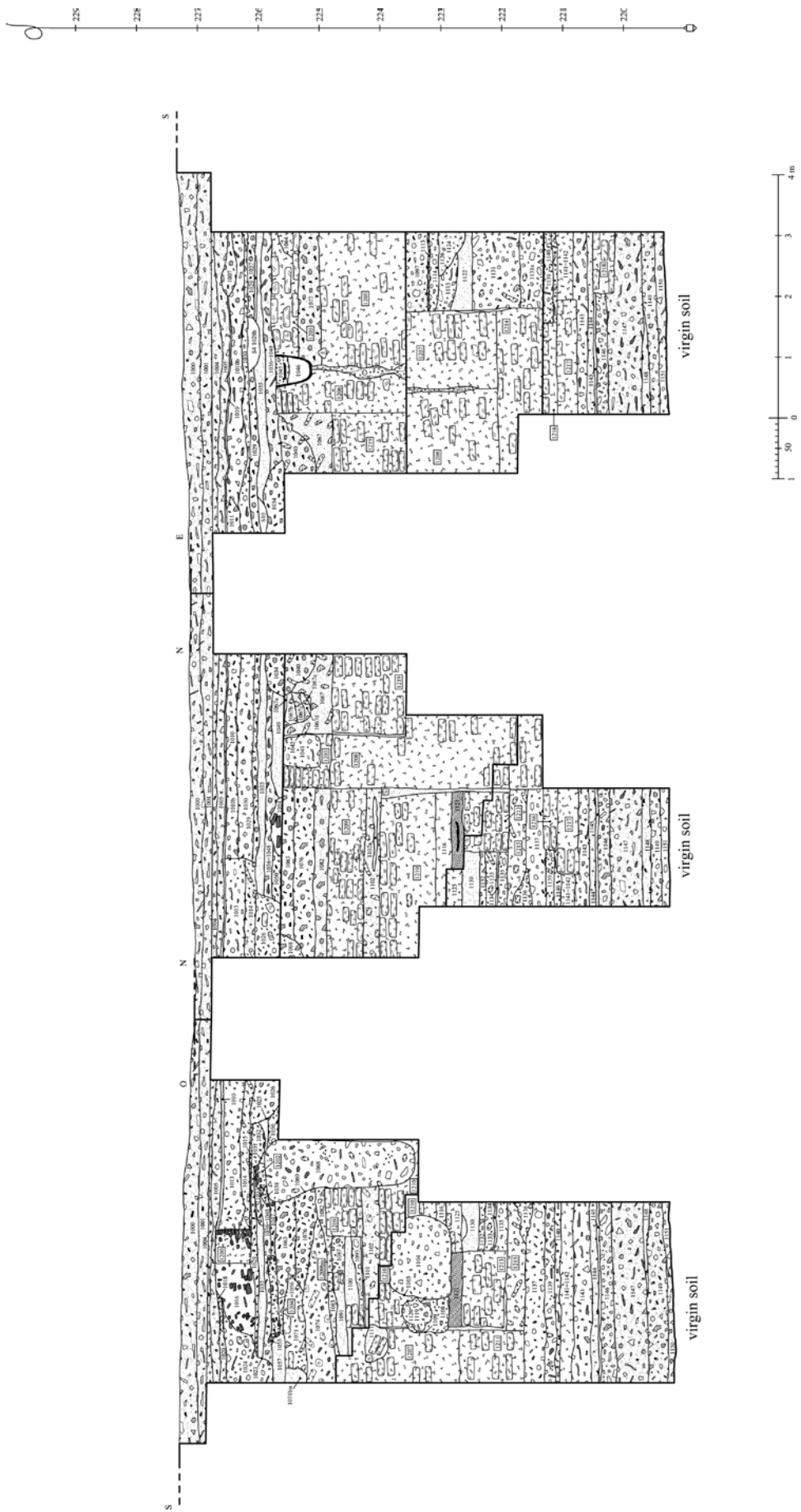


FIGURE I53 Ramitan, Trench F, cross section  
BROGLIA DE MOURA, RILIEVI SRL, RANTE 2013

This state of the city corresponds to the vestiges visible today. Inevitably, the floor of the new city was raised – to get away from the water table and to find sufficient space for circulation inside the city – between the ancient and the new fortifications (fig. 154d). The city's main gate seems to have existed in the western part of the rampart, between two towers, later filled by a structure composed of a smaller tower. This epoch was probably also marked by an important migration of people, which left traces of changes in terms of military construction, as will be shown below, as well as on ceramic production. In this later case, this period corresponds to the appearance of the coarse pottery with black splash decorations for jars.

The following urban phase (4th century CE) corresponds probably to the main change in the city (fig. 155a). Due to its demographic weight, a shahrestan was built directly leading on to the southern rampart of the square city. The irregularities of the southern and a part of the eastern rampart of the square city show this. Not only that, a large fortress-palace was built in the central part of the square city (fig. 155b), although an earlier fortified political residence probably existed, as shown by the few structures found during the excavation. Between the 4th and 5th centuries CE, the areas already occupied outside the walled city, especially those in front of the supposed main gate of the square city, began to organise themselves into well-defined suburban entities (fig. 155c). The excavation indicates that these suburban areas were occupied by habitable structures, artisanal quarters and commercial spaces, of which some have been brought to light.

From the 5th century CE, therefore, Ramitan comprised several urban entities, defining a well-structured city covering circa 24 ha. Paykend, in the 6th–7th centuries CE, extended over circa 23 ha, if one includes its artisanal and commercial quarters; and Bukhara, if Semenov's suggestion (1989: 128–40) is correct, at that epoch extended over circa 25–30 ha,<sup>5</sup> thus determining a kind of urban standard for the main capitals of the oasis.

This urban organisation remained unchanged until the early Islamic period. Between the 8th and 9th centuries CE, the south-western part of the site was occupied by a further new urban entity (fig. 155d). A citadel, unwallled, was erected along the watercourse, and the shahrestan settled north of it, covering a part of the pre-Islamic artisanal quarter, as the excavations and the modern destructions brought to light. This new city covered 6 ha. Its citadel rose to a height of 227 m, thus 6 m above the plain. The shahrestan, on the other hand, was at a height of 225–26 m.

<sup>5</sup> This area presents such a large interval because dimensions of the artisanal and commercial quarters are unavailable.

The stratigraphy recuperated after the destruction of the citadel offers the sequence of the whole Islamic epoch, up to the Timurid period.

At that time, in fact, the square city was abandoned. Its function likely remained purely military. Timurid and 16th–17th-century layers were observed above it, as well as in the large quadrangular western suburb, which later was occupied by the cemetery.

The Islamic city, therefore, provided evidence of the missing Islamic material culture, thus completing the chronological sequence of Ramitan from the 3rd–2nd centuries BCE until the 17th century CE. The other mound, east of the watercourse, was not thoroughly investigated. The pottery collected showed occupation that could cover a chronology from at least the 9th century. It is impossible to give more detail, but these parts may have been occupied also during the pre-Islamic epoch.

The latest occupations of the square city are dated to the 20th century, when a potter settled there with his workshop.

## 6 Main Monuments

### 6.1 *The Palace Complex*

After the interesting results obtained by the stratigraphical trench within the square fortified city (trench A), in 2014 I decided to open a larger excavation on the top of the small mound at the centre of the square city. This part of the city was completely submerged by soil, and all archaeological traces were more or less homogeneously levelled, an important detail that I understood only later. Basically, the first problem was a strategic one: which location to choose for the excavation in an area of circa 4,500 m<sup>2</sup>. Two trenches were thus opened, the first one to the north, the second one to the south. Both revealed themselves to be interesting and parts of the same context, although they were physically separated, as shown by the southern excavation, which finally was the more extensive, in depth also. The whole complex, with all the phases, rose to a height of circa 6.50 m.

6.1.1 An Overview of the Architecture of the Complex  
The monument brought to light corresponds to a large building that, thanks to its characteristics, has been interpreted as a palace. The large complex was built on a rectangular platform measuring 61.50 × 65.17 m (cf. the palace of Akchakhan-kala, Kidd and Betts 2010: 653–654). The upper floor is at a height of circa 231.37 m. According to the results of the stratigraphical trench dug in the square city, at the foot of the western side of the citadel (trench A), the platform was built exactly above the ruins of structures belonging from the second half of the 3rd century

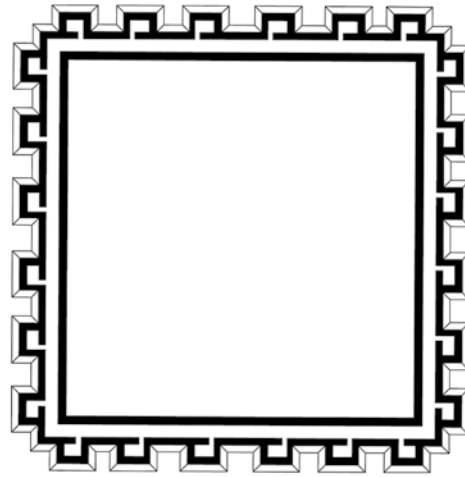
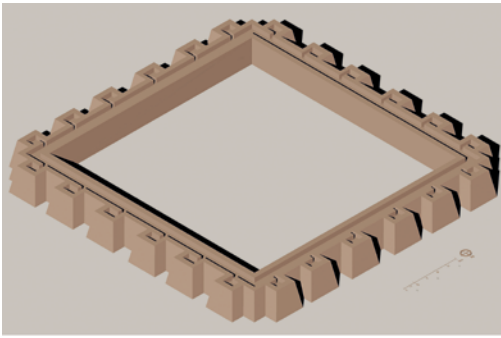


FIGURE 154A Ramitan, plan and axonometric projection of the 1st century CE city  
RILIEVI SRL 2017 AND RANTE 2018

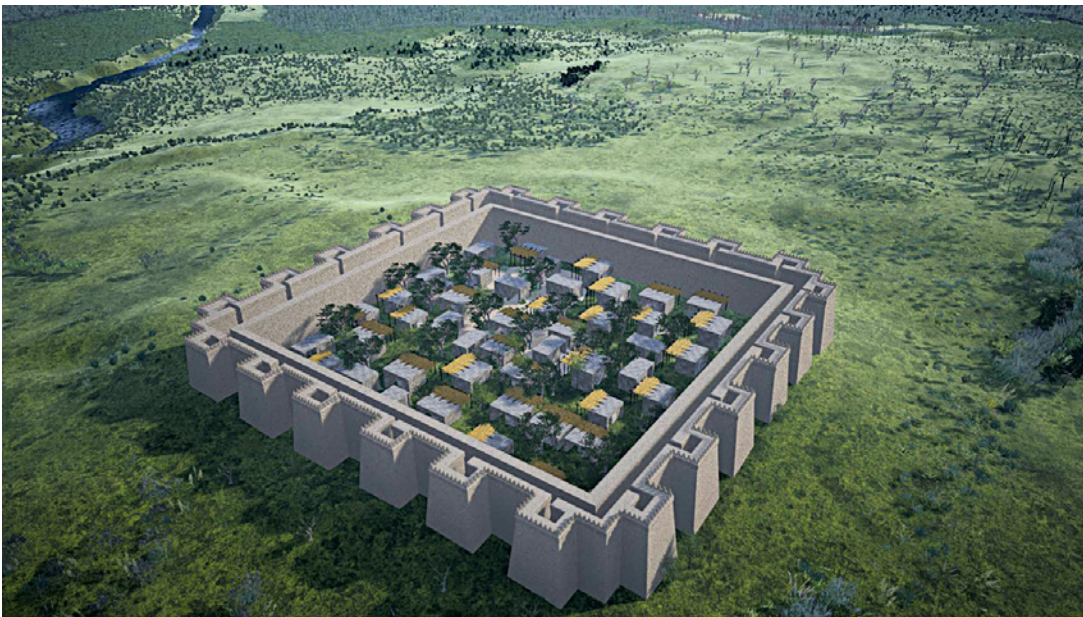


FIGURE 154B Ramitan, 3D reconstitution of the 1st century CE city  
SANCHEZ CALERO 2018

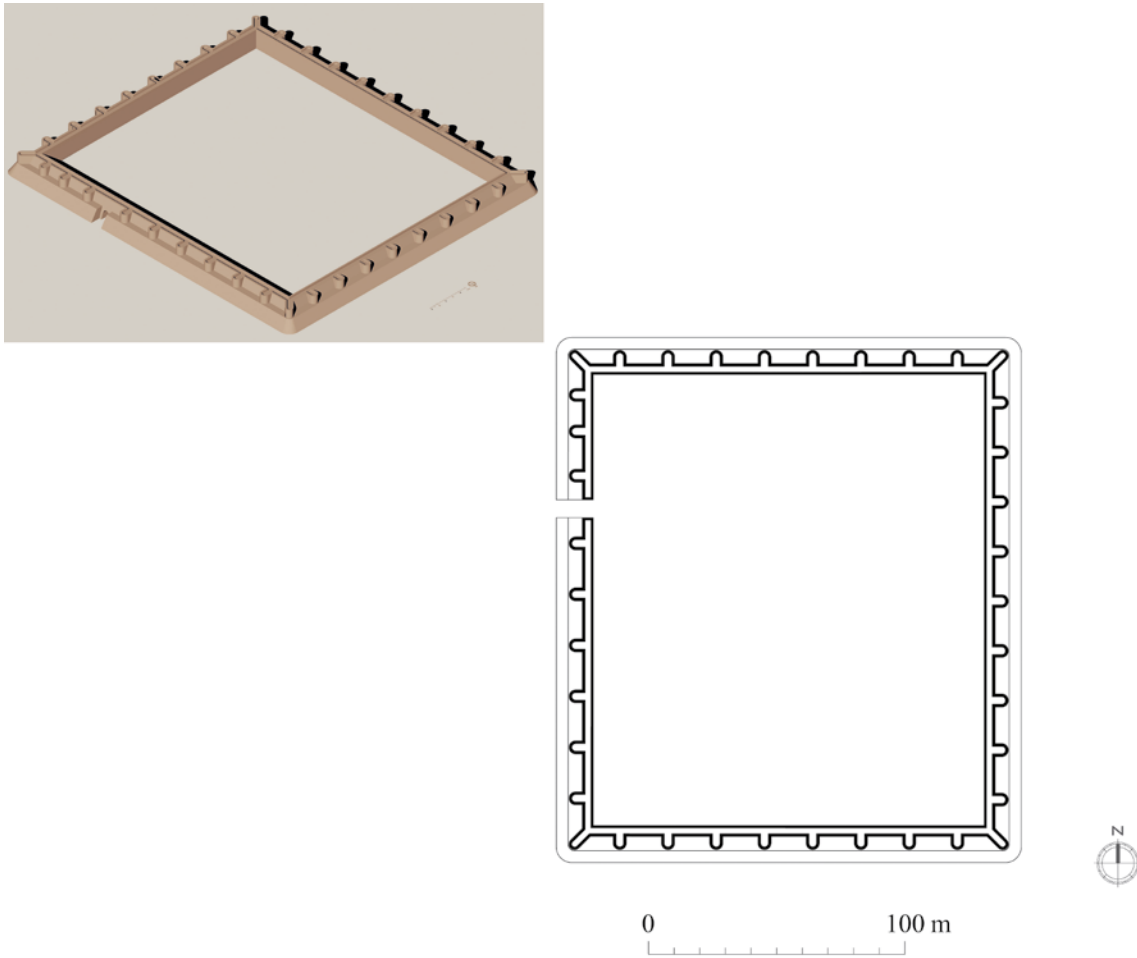


FIGURE 154C Ramitan, plan and axonometric projection of the 3rd century CE city  
 RILIEVI SRL 2017 AND RANTE 2018



FIGURE 154D Ramitan, 3D reconstitution of the 3rd century CE city  
 SANCHEZ CALERO 2018

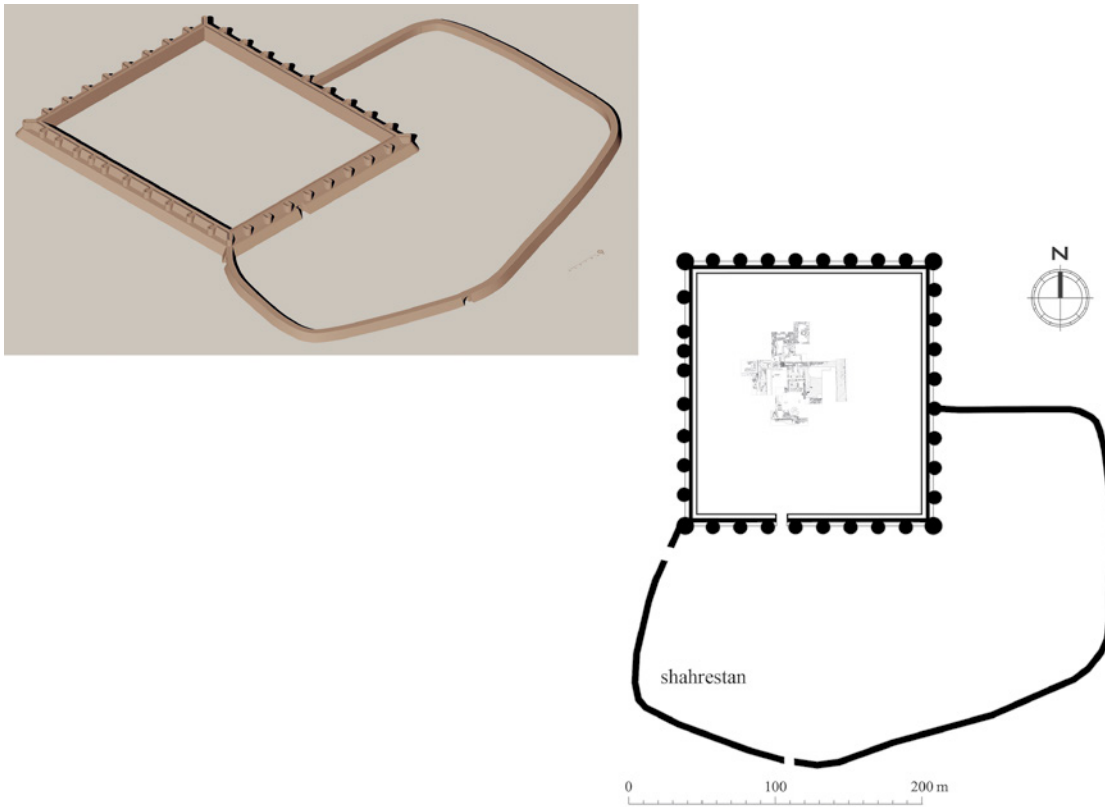


FIGURE 155A Ramitan, plan and axonometric projection of the 4th century CE city  
RILIEVI SRL 2017 AND RANTE 2018



FIGURE 155B Ramitan, 3D reconstruction of the 4th century CE city  
SANCHEZ CALERO 2018



FIGURE 155C Ramitan, 3D reconstruction of the 4th century CE city viewed from the western suburb  
SANCHEZ CALERO 2018



FIGURE 155D Ramitan, 3D reconstruction of the 8th–9th century CE city  
SANCHEZ CALERO 2018

to the first half of the 4th century CE, according to the C<sup>14</sup> analyses.<sup>6</sup> The changes in the ceramics identified in other contexts and in other sites of the oasis are dated to the 3rd century CE, probably mostly in its second half, thus refining the former chronology from the second half of the 3rd to the early 4th centuries CE. The construction of the palace can thus be dated to this epoch.

The layout corresponded to a sort of citadel, or fortified residence, within the square city. Two walls (USM 3047 and USM 2561) run north-south, thus framing and protecting the whole complex. The rampart was probably defended by towers, even if the high degree of destruction prevented us from observing any traces of these. The geomagnetic survey carried out in 2014 showed evidence of several anomalies all around the citadel, which may suggest this kind of fortification (fig. 156).

The excavation of the western side showed the presence of later quadrangular buildings distributed along the rampart, but at a distance of 1–1.30 m from it. In the centre of the complex, a large wall (USM 830) is oriented north-south, separating it into two main parts. The wall is connected to two peripheral walls running to the south (USM 3047 and USM 2561). The southern side of wall USM 830 is more homogeneous. Once the deep and hard layer of mud-brick filling was excavated, the architecture presented quite an accurate organisation. The central area is composed of different small and rectangular rooms (A–E). This nucleus is encircled by larger rooms of high-ranking character (F, square Room 1 and 2). The southern part of the complex is characterised by a fortified complex. Beyond wall USM 830, further to the north, evidence of another complex was found. The architecture is a little less accurate, and more recent structures and destruction also contribute to making a reading of the area difficult. The north-western side is characterised by a defence system constituted of a sequence of two massive square towers (USM 816a–b). Several large walls (USM 815, USM 819 and USM 800a–b) roughly define this extensive area. This feature is due mainly to a further phase of occupation, as will be discussed below. The north-eastern side also presented rough, strong structures. A relatively large room (G) was recently destroyed. It presents at its centre a silo. Small 18th–early 20th-century kilns were dug into these layers around it.

#### 6.1.2 The Second Half of the 3rd–early 4th Centuries Complex (phase 1)

The complex (fig. 151), as previously observed, is divided into two parts, not equally, but quite close in size. These

have their bases on the same platform described above. A number of episodes of destruction over the centuries have rendered excavation and understanding difficult. But once the general context was understood, the strategy for digging was better directed and the structures better defined. Within the rampart, the buildings were integrated in different ways. It seems, in fact, that the southern side was built on an upper platform, thus imposing its status.

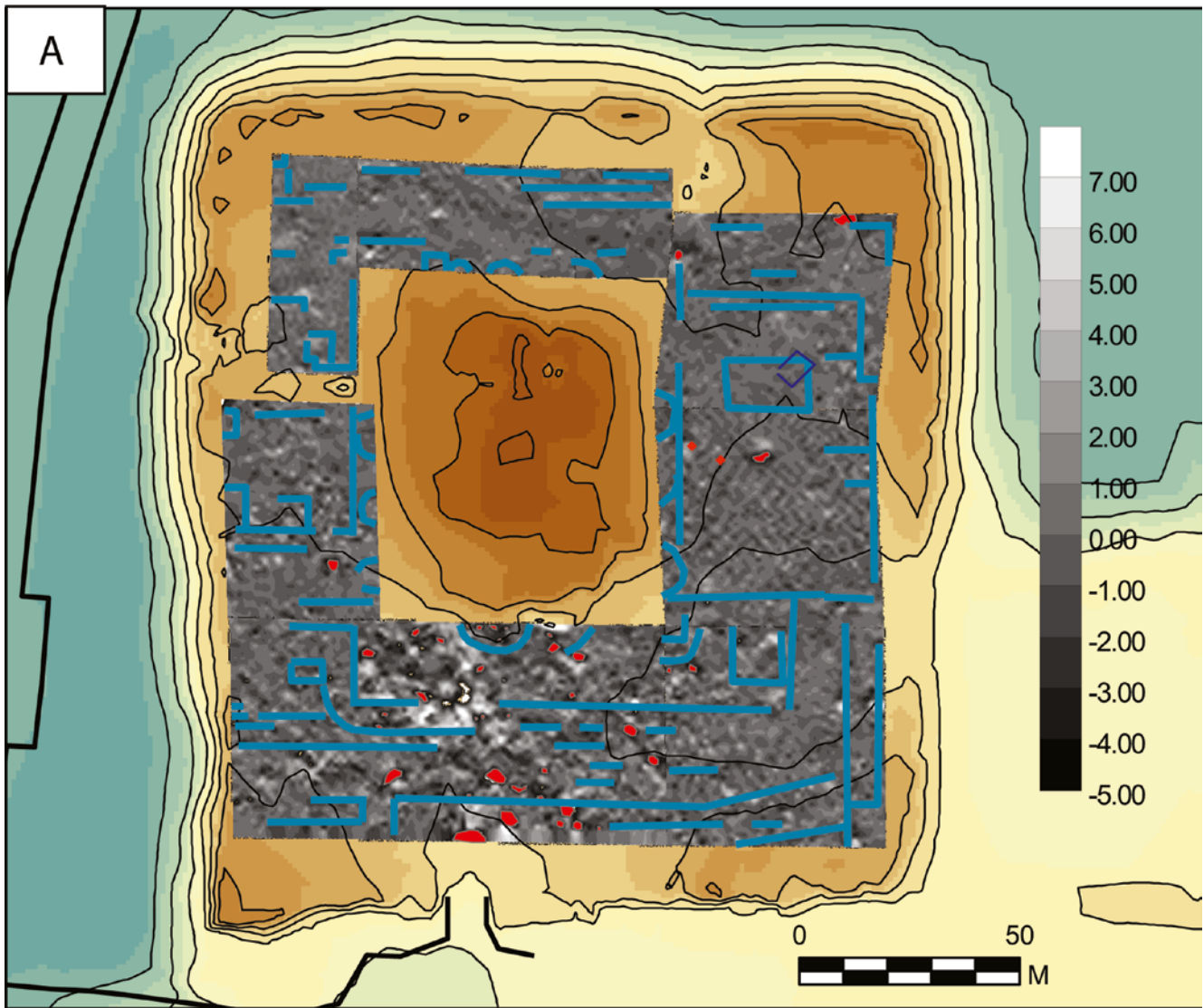
The whole complex was protected by a single large and regular fortified wall that surrounded the whole complex from the eastern (USM 3047) to the western side (USM 830W), where it did not join, but turned the two axes north and south towards the east, thus leaving an access in the middle. To the south, despite a number of destructions and reconstructions of the fortified structure, this main wall followed a homogeneous orientation east-west, as shown by the lower ranges of mud bricks. The northern corners were not excavated; the south-western one was excavated but could not be identified, because of its complete destruction. Slight traces of the south-eastern corner can be observed on plan, even if there, also, the destruction has rendered excavation and identification difficult.

Wall USM 830, oriented east-west, is in a way enclosed by the larger rampart and divides the complex into two parts, as previously observed. This wall was found at a height of 237.48 m for its western side and 235.44 m for its eastern side, showing a destruction layer interface sloped to the east. Moreover, this wall, as well as the whole southern complex, was extensively destroyed on its western side, presenting a high slope east-west of circa 2 m. Wall USM 811, to the north, is the next structure of external rampart USM 3047 enclosing USM 830. Between wall USM 830 and the northern building, there is a space measuring circa 2.50 m at a height of 237.24 m. This corridor, several times destroyed by 18th–20th-century reconstructions, represents the corridor dividing the two buildings of the same complex.

##### 6.1.2.1 *The Southern Building*

The southern building is framed by walls USM 830 to the north, USM 3047 to the east, USM 823 to the west and USM 2519 to the south. The whole building measures circa 39.10 m × 31.50 m and covers an area of circa 1,235 m<sup>2</sup>. The walls are massive and are composed of well-organised mud-brick rows. They are conserved at a height of circa 1.50–2 m. Thanks to elaborate calculations (crossing the volume mass of the material filling the whole complex with its physical consistency and the height of the conserved walls), the physician Dr Georges Lampel estimated that

<sup>6</sup> Report n. 25121, C2RMF, Paris.



Altitude (m)

- 179
- 179 - 180
- 180 - 181
- 181 - 182
- 182 - 183
- 183 - 184
- 184 - 185
- 185 - 186
- 186 - 187
- 187 - 188
- 188 - 189
- 189 - 191
- 191 - 192
- 192 - 193
- 193 - 194
- 194 - 195
- 195 - 196
- 196 - 197
- 197 - 198
- 198 - 200

Légende

Interprétation des cartes géomagnétiques

- 2ème phase de construction
- 1ère phase de construction
- Anomalie magnétique ponctuelle
- Pollution métallique

FIGURE 156 Ramitan, geophysical survey and interpretations

VELLA AND RANTE 2015

the original height of the complex was circa 3–3.50 m.<sup>7</sup> The building was erected first over a massive foundation circa 3 m high, built directly on the platform of the citadel. The façade of this platform was flat and oblique. The palace was erected above this foundation. Wall USM 830 presented on its façade a cadenced sequence of vertical and oblique slopes to the western side, as well as defensive and decorative semi-columns to the eastern side (fig. 157a).

The southern flank was characterised by two walls (USM 2509 and 2518) presenting a shifted position, thus announcing the presence of a system of chicane. The gate of the palace was in fact found there (fig. 157b-c). This gate presented an entry from the west, then a chicane driving to the north towards the reception hall. Since the gate is in a more elevated position than the city floor, an access ramp has been imagined, of which the slope corresponds to that of the current Ark of Bukhara.

As observed above, this building comprised a central nucleus surrounded by large spaces. From the west, a large but less well-understood room (F, because of the significant degree of destruction) led to a central corridor, the floor of which is at a height of 235.73 m. Its northern side opened into three rectangular rooms (A, B, C) perfectly equal in size 6 × 2.20 m. The three rooms led directly to wall USM 830 to the north. The southern side of the corridor was closed by a wall (USM 2011) that represented the northern limit of rooms E and D, composing a small architectural complex. These two rooms were also framed by walls USM 2012 to the west, USM 2013 = 2042 to the south and USM 2047 to the east. Room D, measuring 4.13 × 3 m, represented the antechamber of this small architectural complex. Room E was characterised by a bank (USM 2057) all around the walls, 35 cm high, and a set fireplace of approximately rectangular or trapezoidal shape (fig. 158). It measured 117 × 95 × 20 cm. Its western, southern and northern sides (probably also the eastern one) were framed by thin, crooked mud bricks protecting the fire inside. In the western side was located a crooked mud brick of a classic thickness of 15 cm. The upper face of this mud brick presented two square traces of charcoal. At the time of its discovery, the floor of the fireplace was covered by a thick layer of ash (US 2030), flattened by the destruction layer. The charcoal was dated by C<sup>14</sup> (BETA Analysis Report 2017- sample 462637) analysis to the mid-6th century CE, the moment of its last use. Several centimeters of ashes

also covered the floor in different micro-layers, evidence that the ashes had been thrown out on the floor over a long period. Few ceramic fragments were found, and all of them were of very thin and fine fabric. The antechamber (room D) opened on two sides, the southern and the eastern ones. Both doorways were characterised by a wooden threshold that has since disappeared, but whose trace was observed.

The southern doorway led to a large room, called square Room 2, measuring 15.89 × 15.78 m. A bank (USM 2014 = 2056) was situated in its northern part, and the remains of another bank were observable on the eastern side (USM 2047a). The room was extensively destroyed, only the ancient floor (US 2054) being observable over 2.50 m (north-south) from the northern bank. It was at a height of 235.49 m. Several small kilns had been dug after this extensive destruction, evidence of later scattered occupation. Although presenting significant destruction, the north-western side of this room displayed no direct connection with room F. Its western wall limit was the larger USM 823.

The eastern doorway of the antechamber (room D) and the end of the corridor led to the eastern room, called square Room 1, measuring 18.77 × 19.23 m, the biggest and most important room. Its clay floor, at a height of 235.47 m, was intact over 80 per cent of its surface area. It was accurately set and presented different thin micro-layers, testifying to its long use. It was framed by walls USM 2047 = 836 to the west, USM 830 to the north, USM 3049 = 3057 to the south and USM 3047 to the east. USM 3047 and USM 830 were also the walls of the global architecture, while the others were thinner mud-brick walls. Although some destruction of the inner structures was present, no bank would seem to have been present in this space, except perhaps the remains of a structure observed in the northern side of the room. Instead, on the western side, a kind of pedestal of approximate trapezoidal shape had been erected, attached to the western wall (USM 2047). It was characterised by three steps on the northern side only. In front of it, on the floor, some grouped baked-brick fragments had been disposed. At 3.14 m from the pedestal, a mud brick (55 × 45 cm) appeared on the floor. It was characterised by baked red-orange traces on its surface. The same fired traces were scattered around the mud brick. Although the excavation was detailed and exhaustive, no other similar elements were found over the whole of square Room 1. My first impression was that we had brought to light a classic wooden column base, presenting the classic burnt traces after a destruction and blaze. The absence of other similar structures, however, in a covered room of 364 m<sup>2</sup>, widened the range of my hypotheses. Its morphology, location and

<sup>7</sup> I thank Georges Lampel, who listened to my questions and helped me to elucidate the hypotheses linking the filling of the complex and the destroyed part of the walls. I remember our pleasant discussions and his calculations on a napkin during our travels in Uzbekistan.



FIGURE 157A Ramitan, 3D reconstitution of the royal palace  
SANCHEZ CALERO 2018



FIGURE 157B Ramitan, 3D reconstitution of the royal palace, detail on the gate of the palace  
SANCHEZ CALERO 2018



FIGURE 157C Ramitan, 3D reconstitution of the royal palace, view from the east  
SANCHEZ CALERO 2018



FIGURE 158 Ramitan, room E, rectangular fireplace, probably private altar  
RANTE 2015

context would lead me rather to interpret this structure as the base of an altar, similar to that observable in a wall painting from the Palace of Varakhsha (fig. 159), of which the whole representation is today conserved in the State Artistic-Architectural Museum of Bukhara. A clay slab only 17 cm to the east made me curious. The careful excavation of it brought to light engraved or printed traces (fig. 160). Different hypotheses have been formulated, such as engraved symbols or letters, traces of cord producing an alternation between empty and engraved lines, or a bur-lap print off, the latter of which seems to be less probable in producing a fully printed surface without empty lines. I leave it to the specialists to pronounce their final verdict on this matter.

Furthermore, the recent excavations of the northern wall (USM 830) have brought to light characteristics that complete this framework. The very accurate cleaning of the large wall brought to light the layout of a sequence

of seven arches, of which the mud-brick composition is perfectly englobed into the architecture of the wall (fig. 161). These elements were observed at a maximum altitude of 235.70 m and a minimum of 235.49 m, following the wall's west-east slope. In plan (fig. 162), the arches are constituted of a semicircular row of mud bricks, the centre of which was filled by one or more entire mud bricks and also fragments of these. A straight line of mud bricks formed the base of the arches. Vertically, remains of external ribs (engaged mud-brick columns) cadenced the external façade, not only of Room 1 but also, most probably, of the palace's whole perimeter.

The ribs were constructed at the same time as the wall, in a technique that horizontally organised the whole and complex distribution of every mud brick, thus raising the wall and the projecting structures at the same time. Their construction began at a height of circa 235.4 m, therefore approximately at the same height as the first floor of



FIGURE 159 Ramitan, square Room 1, view of the probable base of altar and the small podium  
RANTE 2016

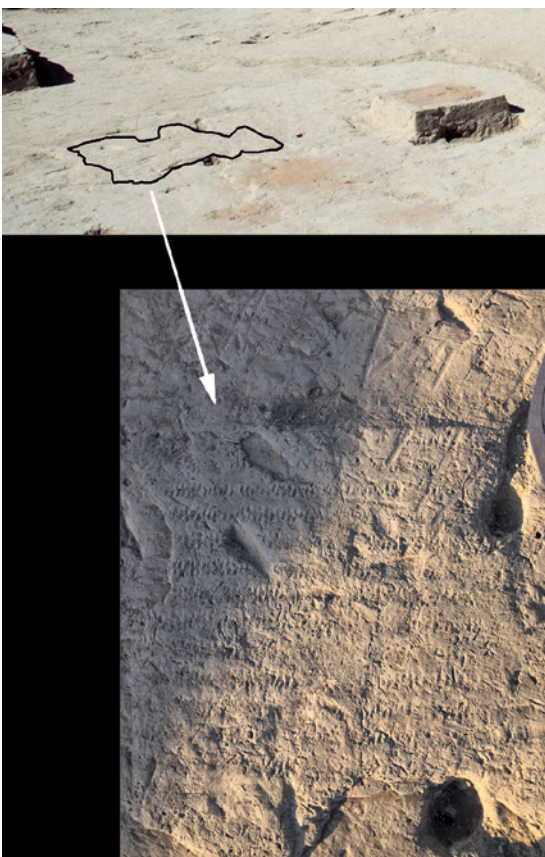


FIGURE 160  
Ramitan, square Room 1, view of the probable base of altar and the clay slab with engravings  
RANTE 2016



FIGURE 161 Ramitan, square Room 1, photo of the semicircular projecting columns  
SAGORY 2017

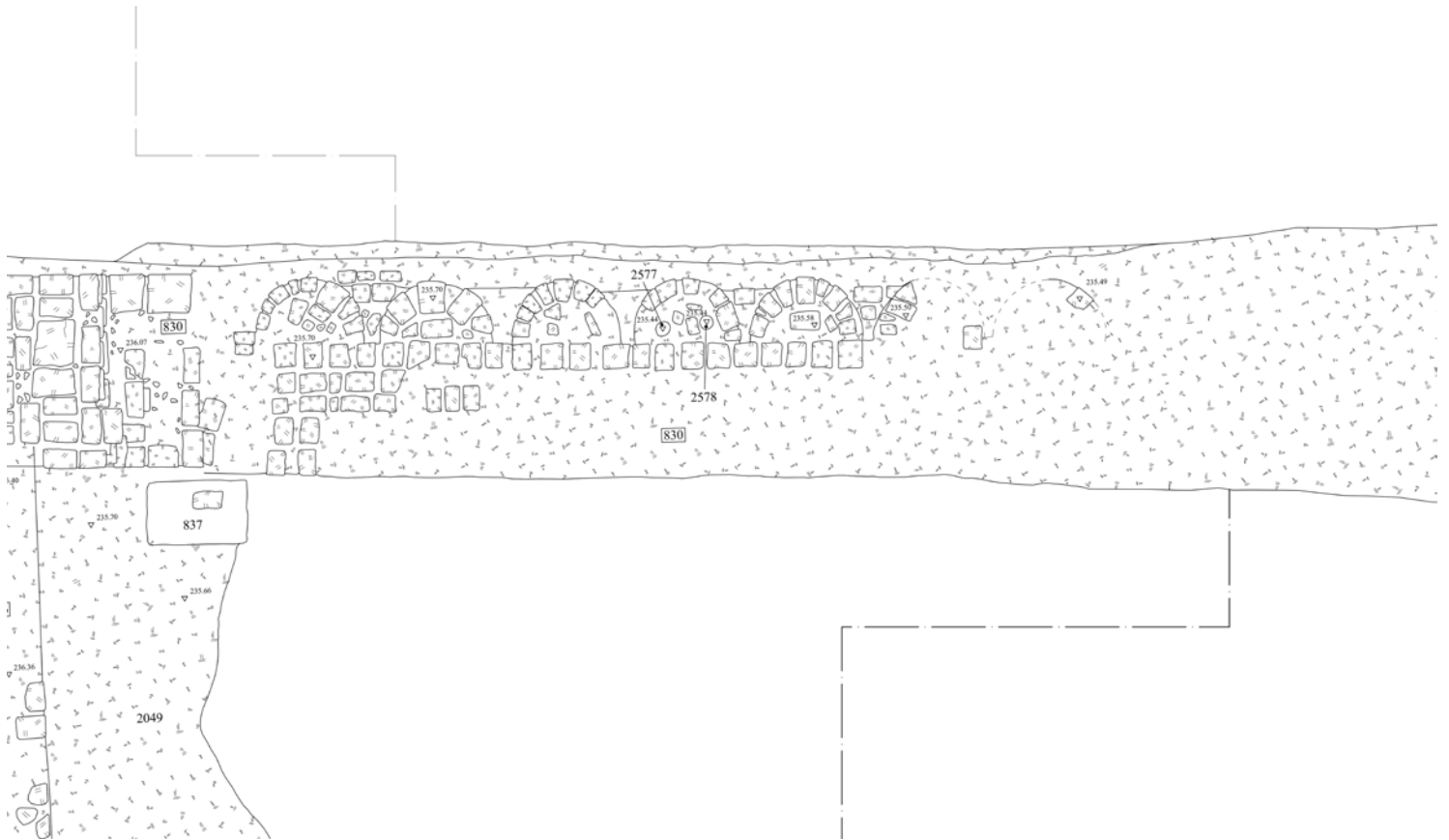


FIGURE 162 Ramitan, square Room 1, plan of the semicircular projecting columns  
SAGORY 2017

square Room 1. Because these structures, with both defensive and decorative functions, were built on this side of the palace, this side was visible, thus no structure existed on this northern side, at least of the same height. As will be demonstrated below, the northern side seems to have been lower than the palace.

The whole building was probably either entirely or partially covered by a roof. I cannot give further details about the covering, because of the absence of substantial archaeological elements.

During the excavation, aside from the pottery, numerous fragments of wall paintings were found. Too scattered and too fragmented, these numerous elements are, however, evidence to their existence and their employment as architectural decoration. The fragments were constituted of blue, red and white clay and paint.

Globally, the southern building can be considered the complex's main palace building. Clearly, its function revolved around the political sphere, because of the complex's location and its architectural structure, as well as the several elements found associated with it. Nor can it be excluded that the palace also operated some religious practices, although certainly of a private nature. Some scholars have suggested to me that the fireplace room (E) corresponds to a "guest room". Although difficult to formulate such hypotheses, I refute this interpretation because of the room's location and its architectural environment, which makes me decline the "guest" function, suggesting rather, in my opinion, elements relating to a private ritual function. Moreover, many other cases are available with which to compare it. Filanovic (1983: 110), for example, described the altar at Ak-tepe as possibly used in two ways – as a ritual structure for conserving and preparing the fire, and as an altar on which the "celebrant" prepared specific foods and beverages for selected people. The same hypothesis is also given by Chiara Silvi-Antonini (2015: 106), who described the small rectangular structure of room A38 at Uch Kulakh as an altar. Of the same kind, but square and slightly different in size, is also the altar brought to light by Suleymanov (2000: fig. 51).

#### 6.1.2.2 *The Northern Building*

The complex of the citadel presents, as previously observed, a northern side that has been investigated to a lesser extent and that also presents more evidence of destruction. The main feature to observe relates to its organisation, which differs from that of the southern building, as well as the lower quality of construction. Structures USM 816, US 730 and US 743, to the western side, would suggest quadrangular rooms divided by large walls. The

westernmost wall, USM 815 = 819, would correspond to the western limit of the northern building. More irregular than the southern walls described above, this one is, however, of a significant breadth, testifying to its defensive function.

The north-eastern side of the building dating from this period is still unknown, but the excavation of the upper occupation levels demonstrated that the floor of this side probably was situated slightly lower than that of the global complex. Other and deeper excavations are needed to better understand this area.

#### 6.1.3 New Fortifications for the Palace Complex (phase 2)

Within the same time interval of phase 1 (4th–mid-6th centuries CE), the palace complex was subjected to global restructuring of the rampart. This event not only gave a new aspect to the fortification, consolidating the defensive features, but also closed the gate of the complex on the western side.

Wall USM 2561, only 1.50 m wide, was attached to the earlier walls (fig. 163). Traces of this wall were found in the western and southern ramparts. It comprised a 1.33 m deep section of pakhsa on which rested a single line of baked bricks of a width of 7–10 cm, vertically distributed in five rows. The whole wall comprised alternate layers of mud brick and pakhsa.

In the western part, this wall USM 2561 did not follow the earlier USM 830, turning to the east, but continued further to the north, heralding the abandonment of this western gate.

The southern part of the rampart showed evidence of a significant destruction, involving the mud-brick wall of phase 1 (USM 2509 = 2518). This wall presented serious damage, which was not repaired homogeneously. In fact, the western section (USM 2518) had been reconstituted with the same mix of baked bricks and pakhsa (USM 2530 = 2561) which, in approximately the middle of the length of the wall, turned to the south and suddenly disappeared, probably later destroyed, forming a kind of zig-zag. The eastern section did not present such restructuring, exhibiting repairs with mud bricks irregularly disposed, probably belonging to a later intervention.

Since the earlier western gate was closed, could it be that this southern structure was the result of a new entrance? It is as yet impossible to give more elements or an answer to this question. It is possible, however, to say that the palace at that epoch was still functioning, and that once an entrance was closed, another would have been constructed, except if another gate was still



FIGURE 163 Ramitan, views of the baked-brick walls  
RANTE 2017

in existence elsewhere around the perimeter of the complex.

#### 6.1.4 The Mid-6th-century Destruction of the Palace Complex and Further Urban Organisation (phase 3)

The excavation brought to light a large, wholesale destruction of the palace complex, especially relating to the southern building. Here, the last use of the rectangular fireplace was dated by C<sup>14</sup> and by the stratigraphical sequence to the middle of the 6th century CE. After the destruction of the complex, the conquerors decided to cover the whole complex with the destroyed materials. It is curious to observe that in relation to the most important southern building, they destroyed the walls at the same height, retaining everywhere only 1.50 m. Furthermore, they methodically filled every room with entire or fragmented mud bricks from the destruction, to the same height as the destroyed walls. It permitted the creation of a strong substrate and the levelling of the whole southern building to the same height, thus generating a floor on which to settle.

Moreover, as noted above, numerous fragments of wall paintings were found. The fact that no *in situ* traces were

observed in the entirety of the excavated areas, can in my opinion be the consequence of the objective of destroying and erasing the palace.

The intention for the northern building was different. In fact, it also presented filled rooms, but not with the intention of covering and abandoning every space. While in the north-western side the space was filled (although not to the same level as to the south), in the north-eastern side of the building, a large room (G) presented occupations dated by C<sup>14</sup> (C2RMF report 27177) to the post-destruction period (between the mid-6th century and the mid-7th century CE). At the centre of this room, a silo was brought to light. Its bottom was discovered to 3 m in depth (fig. 164). It was constructed through two architectural phases, the first one composed of fragments of baked bricks methodically cut, disposed all around the perimeter of the circle, which has a diameter of 1.90 m. The second phase was comprised of mud bricks arranged all around this first nucleus, probably ensuring the correct preservation of the food. The walls framing room G were USM 800b to the west, USM 801 to the north and USM 802 to the south. The eastern wall has not yet been investigated. The construction method of the walls is of mediocre quality, far removed from the well-finished structures of



FIGURE 164 Ramitan, photo of the silo  
MOUTON 2013

phase 1. After the construction of the silo, the room was filled by whole and fragmented mud bricks, thus generating a floor associated with the silo at an approximate height of 236.60 m.

Having abandoned the palace, the new occupants organised the northern part of the citadel differently and erected buildings around it, as well as within the square city. On the western side of the rampart of the citadel (fig. 165), two rectangular buildings were brought to light (I and J). Only on their upper eastern side, the mound of the citadel presenting a slope running westwards is preserved. The northern building comprised walls USM 2543 to the south, USM 2545 to the north, and USM 2564 to the east. The southern one was constituted of walls USM 2544 to the north and USM 2570 to the east. Although only 8.50 m east-west of the structures have been preserved, no useful material was found to provide us with data to interpret these architectural structures. The northern building (I) presented inside a baked-brick arrangement made up of

seven trapezoidal elements (US 2565), of the typology of those used to construct the silo. As previously observed, they were separated from the rampart of the citadel by some centimetres, showing on the one hand the abandonment of the earlier fortifications, and on the other, their possible function in this precise location, so close to the buildings. Moreover, the abandonment of the southern building limited the occupation space on the citadel, which generated a dynamic of construction around it.

6.1.5 The 14th–15th-century Occupation (phase 4)  
The history and the urban evolution of Ramitan show that the citadel remained uninhabited for several centuries. After the destruction and the partial filling of Ramitan's buildings, the excavation showed scattered occupations around the citadel, within the square city and the shahrestan, as well as in the western suburb. These occupations extended from the mid-6th until the early 8th centuries CE. It was, in fact, with the arrival of the Islamic armies



FIGURE 165 Ramitan, photo of the two external buildings  
MOUTON 2017

that the citadel and the square city were clearly abandoned. As noted above, the new Islamic city rose up in the south-western area of ancient Ramitan, and the shahrestan continued to be inhabited. Over the whole citadel, and the investigated areas of the square city, no traces datable to the 9th–13th century could be observed.

Clear traces datable to the late 14th–15th centuries, on the other hand, could be observed. Pottery belonging to the Timurid period was found in large quantities in the upper layers of the square city and the citadel, as was demonstrated by the structures and the finds brought to light, especially above the southern building, which has now disappeared. Moreover, numerous fragments of wall paintings were also found. These fragments were totally different from the 4th–6th centuries ones. The painting, in fact, was applied not directly to the clay but over

a white plaster, 2–3 mm thick, that separated it from the clay. The pigments were red, blue, green and gold. Vegetal motifs were clearly visible: fruits, pomegranates, flowers and branches of three with leaves. In one fragment, an inscription was dated by Charlotte Maury to the 15th century.<sup>8</sup>

The considerable destruction suffered by these upper structures rendered their interpretation difficult. Undoubtedly, they could be related to an important building, which seems to have been small, and which probably occupied a part only of the southern area of the citadel.

<sup>8</sup> I would like particularly to thank Charlotte Maury, assistant curator of the Department of Islamic Arts of the Louvre Museum, who helped me to analyse this inscription and the decorative motifs.

### 6.1.6 The 18th–early 20th-century Occupation (phase 5)

The last occupation of the citadel was scattered, and dated by C<sup>14</sup> (C2RMF report 27177) to a period between the 18th and early 20th centuries. This occupation was especially observable from the several pits dug over the citadel and from the single structure found. The latter was located approximately on the middle of the mound. The structure comprised material reused from earlier buildings. The single room was rectangular and corresponded to the workshop of a potter. Traces of the potter's wheel were found, as well as traces of production. Further mud-brick and pakhsa structures were observed slightly to the east, but their state of conservation was so bad that interpretation was impossible. In addition, Shishkin (1940: 36; fig. 17) made a drawing of the ancient city, in which he identified a small mosque above the ruins of the citadel.

## 7 Fortifications

The detailed study of the topography of the square city, carried out by Danilo Rosati (Rilievi srl) in 2013, showed interesting areas around the city. In relation to its fortification, the western side in particular was characterised by a relatively straight line of rampart, from the south to the north, except in the second half northwards, in which a projecting zone announced some structural differences

from the remainder of the rampart. This section is 58.73 m long (north-south).

The excavation of this area revealed itself interesting not only for the fortification itself but also for the sequence of phases characterising it, which were followed by unexpected discoveries. The rampart that was brought to light is composed of a series of three towers, of which the middle one is smaller. The sequence has been divided into two major phases, dated to different periods.

### 7.1 *The Earliest Fortification of Ramitan*

The earliest fortification of Ramitan, as indicated above, was square and was defended by square towers (fig. 166). It was dated to the 1st century CE. The stratigraphical details are treated in the chapter dealing with the stratigraphy, trench A. Here, I would like to elucidate only some data that were brought to light in close collaboration with Shukrat Adilov and Abdisabur Raimkulov.

Following the results obtained with trench A and the discovery of this earliest fortification of Ramitan, another excavation was opened in the lower south-eastern depression of the square city to investigate the upper layers of these earlier structures. The rampart was 7.50 m wide in the upper part and comprised an inner corridor 3.52 m wide. The square towers measured  $8.84 \times 7.40$  m. From the corridor, a lateral vaulted door 1.30 m wide gave access to the room inside the tower, which had a surface area of  $14.72 \text{ m}^2$ .



FIGURE 166 Ramitan, 3D reconstitution, view of the fortification of the 1st century CE city  
SANCHEZ CALERO 2018

Overall, the earliest city comprised six towers on the eastern and western sides, and six towers on the northern and southern sides, although the measurements showed that the latter sides were 5 m shorter than the others, which can also be the result of the measurements being made over the irregular relief.

### 7.2 *The Western Fortification of the Square City*

As previously noted, the second square city and its rampart were founded during the 3th century CE. The first trench was opened in the northern part of the area referred to above. The excavation rapidly showed us the presence of the upper part of a large tower, as well as the inside of the tower – the room for the soldiers. The following trenches brought to light the other parts of the fortification (fig. 167).

The rampart comprised a strong mud-brick wall that measured at its base circa 6.30 m, and at the upper interface of the destruction layer, circa 4 m (fig. 168). The rampart comprised an external wall (USM 404), an inner corridor (US 350) and an internal wall (USM 405 = 406). A strong semi-ovoid tower leaned directly onto its upper part. The tower comprised a room inside for soldiers (US 319, the floor) (fig. 169), also semi-ovoid, and a massive mud-brick structure inclined to the exterior (USM 403). Two slits on the southern side were observed. The others had been destroyed or filled, so were difficult to identify. This upper part of the fortification leaned directly on a substructure oriented north-south (USM 410) at a height of 227.40 m, which seems to have had its base on the plain. Finally, a further inclined structure (USM 400), the rampart, also projecting slightly to the exterior, completed this strong fortification and rested on the plain. Substructure USM 410 did not simply stop in the tower section, but continued southwards until it reached the other twin tower. Between the two inclined semi-ovoid structures (USM 403 and USM 400), there is a corridor, US 326, which seems to have been uncovered and only partially protected. Here, whole jars and other whole potteries were found, evidence that this path was used and lived in by soldiers. This was constituted of ground.

The external depth of the tower structure that projects from the rampart onto the plain is 12.70 m, evidence of the massive fortification enjoyed by Ramitan in this period. The architectural sequence of its construction began with the erection of the rampart (USM 404), encircling the square city. Subsequently, projecting wall USM 400 was erected with an exactly calculated distance from the rampart. The area in the middle, between structure USM 400 and the rampart, was filled by soil and pakhsa, although scattered mud bricks were also observed. Above

this massive structure, tower 403 and the other structures were erected, leaving enough space between them for corridor US 326.

The southern side of this area of the rampart was also fortified by another tower, the twin of the earlier one. Although on the plan the towers appear not to have been similar, they are identical. Every alignment of the walls was the same, as also for rampart USM 404, the limits of the tower and the following projecting structures. This tower comprised, as did the previous one, an upper tower (USM 411), a corridor (US 326) and a semi-ovoid structure (USM 400) that was more projecting and leaned out onto the plain (fig. 170). In addition, for this upper tower, a slit on the northern side was observed.

Between the two large twin towers, a smaller tower was excavated (fig. 171). This tower was differently shaped. In fact, it was not semi-ovoid, presenting a more flattened shape. It also was sloped, but the inclination was lesser than in the previous ones. It also seems that the mud bricks changed their size and were slightly smaller than the others.

This smaller tower (USM 412) did not present a room for soldiers, nor evidence of any slits. It was encircled by a massive wall circa 2.50 m wide (USM 413–14) that directly leaned onto rampart USM 404. This small tower seems not to have had any active military functions, but only one of protecting or reinforcing the functions of the earlier rampart (USM 404).

Stratigraphically, this tower and its wall were added later. In fact, the global structure totally covered the slits of the earlier larger towers, thus erasing any defensive functions of the more ancient fortification.

### 7.3 *The Eastern Fortification of the Square City*

In this case also, the first trench was located above a tower, although the current mound did not display any possible element that would allow one to identify the subjacent structures. The eastern side of the 3rd-century square city was much more homogeneous than the western side, referred to above (fig. 172). The north-south oriented rampart (USM 900) presented a straight profile. Its upper part was 3.80 m wide, and from the plain the rampart would have measured circa 7.50 m, approximately the same as the western rampart (fig. 173). Furthermore, the projecting structures of the global fortification would have measured approximately 11 m.

The rampart was excavated over a length of 24.80 m. It was excavated in its outer and inner parts. The outer façade was cadenced by two rows of slits (fig. 174). The upper ones were true slits; the lower ones seem to have been blind slits, although only two successive slits, an

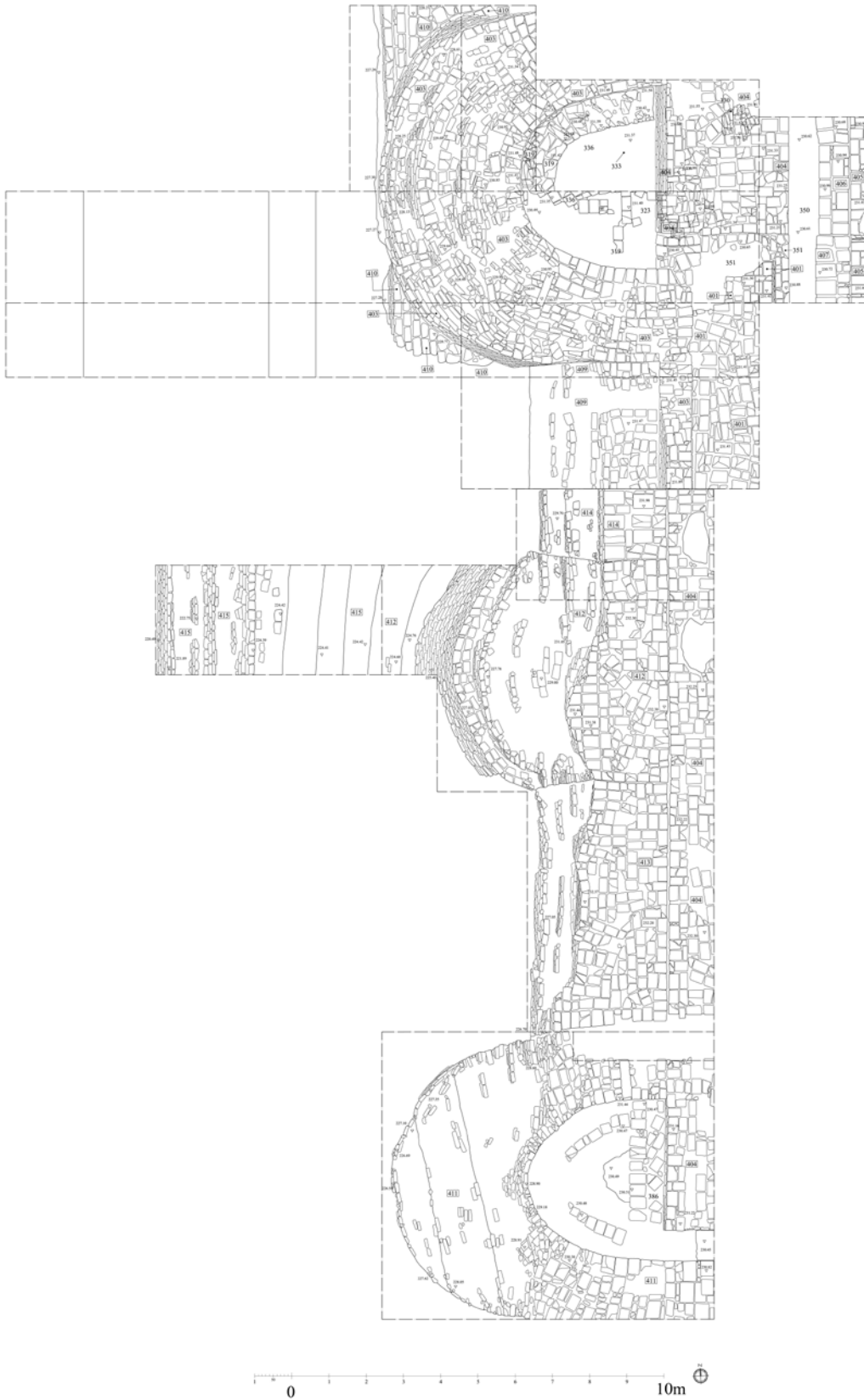


FIGURE 167 Ramitan, trench B, plan of the 3rd century CE western fortification  
CRUSCO, RILIEVI SRL AND RANTE 2014

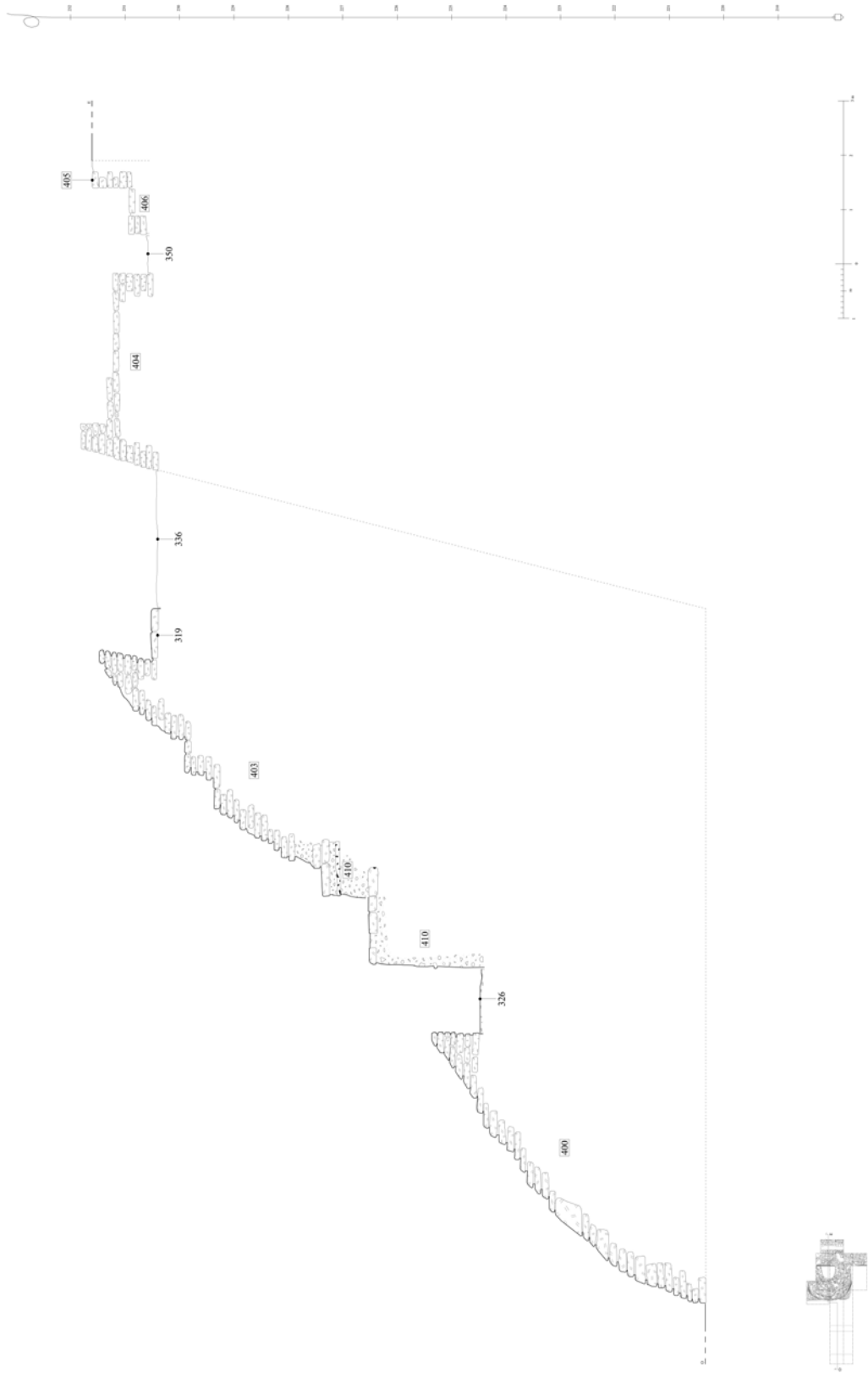


FIGURE 168 Ramitan, trench B, cross section of the northern tower of the 3rd century CE western fortification  
CRUSCO, RILIEVI SRL AND RANTE 2014



FIGURE 169 Ramitan, trench B, photo of the soldier room inside the tower of the 3rd century CE western fortification  
CRUSCO 2014



FIGURE 170 Ramitan, trench B, cross section of the southern tower of the 3rd century CE western fortification  
CRUSCO, RILIEVI SRL AND RANTE 2014



FIGURE 171 Ramitan, aerial photo showing the western fortification of the city and its towers  
ICONEM 2014

upper and a lower, have been tested. It is not excluded that other lower slits were in fact true ones. It is also possible that, because of the extreme hardness of the sediment accumulated inside the corridor, the excavation was not completed. In the upper row, six slits were observed. In the lower row, eight slits were observed (fig. 175). In the north-eastern corner, rampart USM 900 rests on the northern rampart (USM 901).

In the southern part, a semi-ovoid tower (USM 907) also rested on the rampart. The profile of this tower leaned towards the plain. As the destruction of the towers was on this side, it is hazardous to try to reconstruct the entire architecture. Certainly, however, as was the case with the western towers, these ones also were built on a substructure that rested directly on the plain.

Tower USM 907 was preserved over circa 6 m. The excavation brought to light the architectural technique of construction. First, a massive semi-ovoid nucleus was constructed leaning onto the rampart, with a maximum distance of circa 2.50 m from it. Then, another semi-ovoid

massive structure was added to the first one, with a maximum distance from the rampart of circa 4.50 m. Finally, a last semi-ovoid structure was added to complete the tower, having a maximum distance from the rampart of 6.50 m. The architects of that epoch calculated always a distance of 2 m to erect the different semi-ovoid structures of the tower.

The north-eastern corner was characterised by the presence of an angular tower presenting the shape of a three-quarter circle (USM 905). Architecturally, the tower was conceived in the same way as USM 907, but presenting a three-quarter ring more than USM 907. The tower also abutted the rampart, but probably it did not rest on a substructure. Most likely, it was built directly on the plain.

The significant destruction of the tower prevented us from identifying slits, but they certainly rhythmically marked the surface of the defensive structure. The excavation also brought to light the piece of corridor leading inside the tower. It comprised walls USM 909 and USM

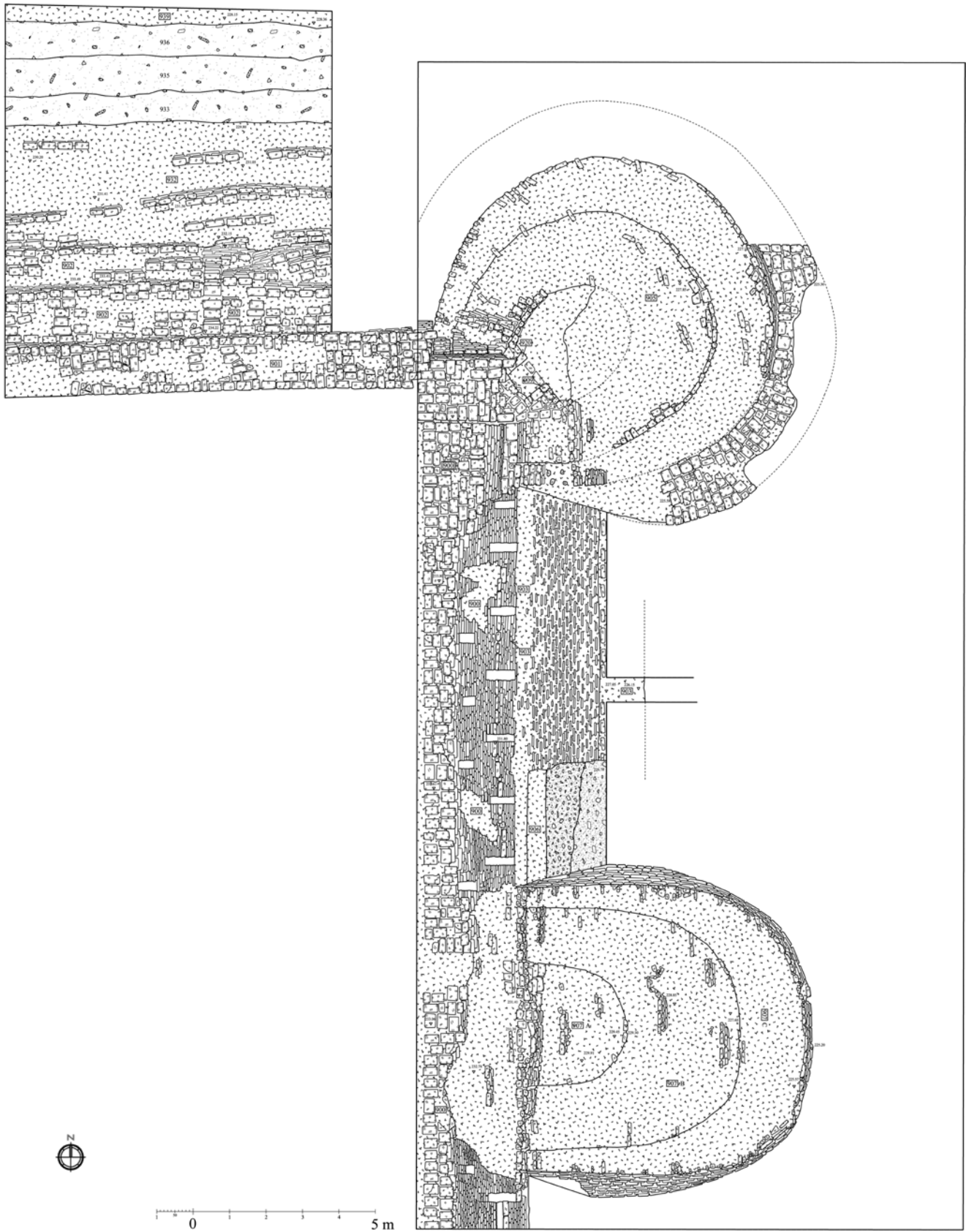


FIGURE 172 Ramitan, trench E, plan of the 3rd century CE eastern fortification  
CRUSCO, RILIEVI SRL AND RANTE 2015

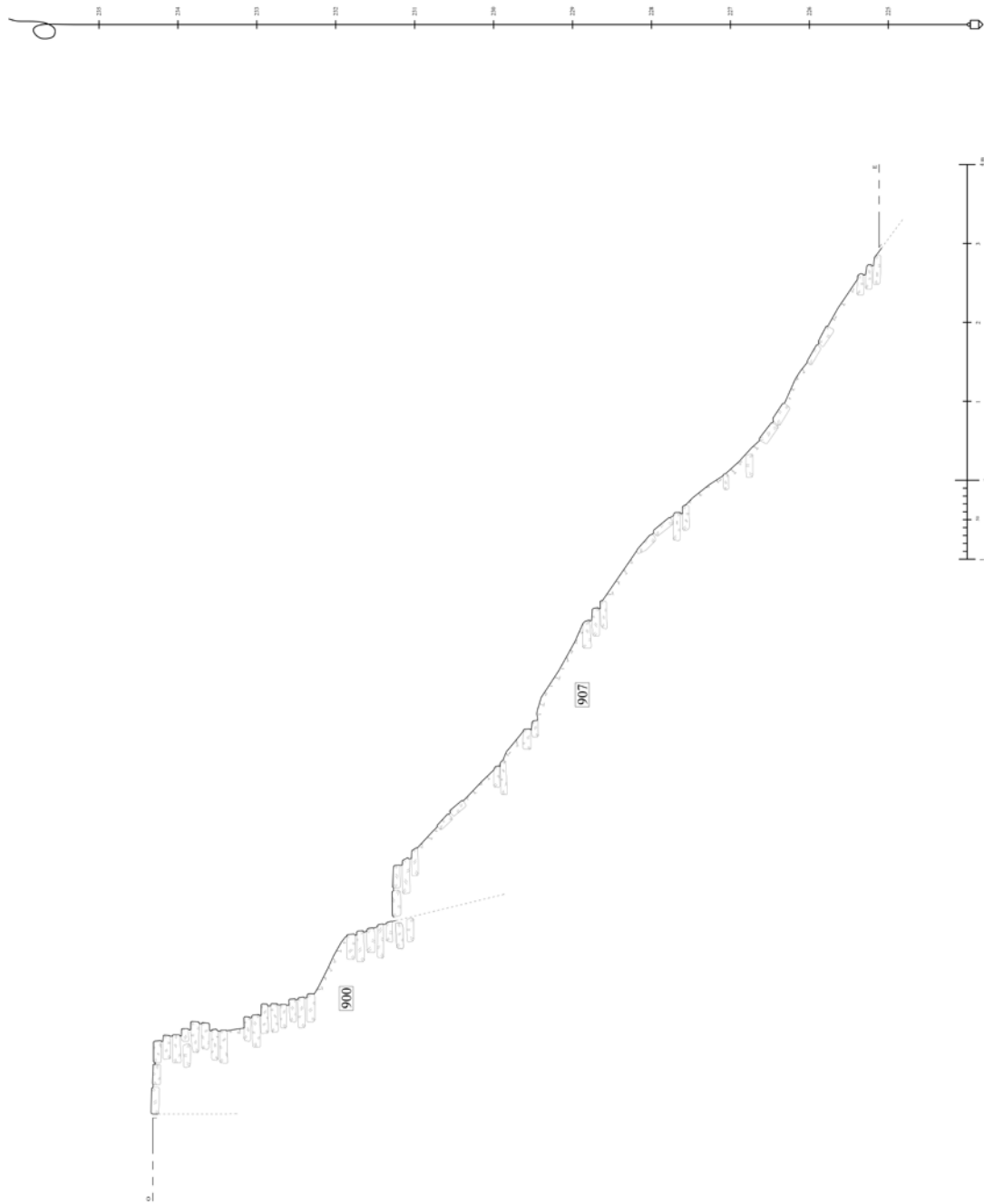


FIGURE 173 Ramitan, trench E, cross section of the southern tower of the 3rd century CE eastern fortification  
CRUSCO, RILIEVI SRL AND RANTE 2014

920, which formed a passage leading from the corner of ramparts USM 900 and 901.

Later, probably at the time of the construction of the shahrestan, in the 4th century CE, during a possible global restructuring of the rampart of the square city, the eastern rampart was protected by a further wall (USM 906), only circa 40 cm large. It was constituted of raw material, a mix of soil, pieces of mud brick and pakhsa. This structure leaned on tower USM 907, as well as on the same floor on which the tower was erected.

#### 7.4 *A Western Gate?*

The western rampart studied was located, as previously observed, in a slightly projecting zone of the western rampart of the city. This fortified structure shows that the twin towers rested on a massive substructure at a height of 227.40 m, which was circa 2 m higher than the substructure of the eastern side of the city, which was at a height of 225.20 m.

Moreover, this side overlooks the current road, dividing the ancient city from the 5th-century CE suburb. It would mean that the suburb, and the earlier scattered constructions, as well as the possible commercial and production areas, settled in front of the western side of the square city.

All these elements seem to suggest the presence of a gate in this part of the city, which would have opened above the massive projecting wall (USM 400 = 410), above which rose the two semi-ovoid twin towers, approximately at the height of corridor US 326 (fig. 176). Access to this gate was made possible via a ramp, with an inclination similar to that of Bukhara, and approximately 17 m long. If we calculate this same distance for the ramp of Bukhara, one arrives at the beginning of the road.

The whole structure containing the two towers measured circa 17 m in length. The main gate of Bukhara was of the same order of measurement. The global structure of Bukhara containing the towers measured in fact, circa 16 m in length. At the moment of the construction of the shahrestan to the south, and of the opening of at least two gates (south and west), this gate was probably closed. The rampart, keeping its function as a fortification, was reinforced with the further wall (USM 412) and the smaller massive tower.

## 8 *The Suburb (rabad)*

The suburb of Ramitan, before it was organised, and before the arrival of Islam, was intended to cover the whole area included between the northern side of the square

tepe and the watercourse. The excavation of the western suburb of Ramitan, as observed above, brought to light a chronological sequence beginning in the late 5th century CE and lasting until the 14th century CE. Before the 5th century, this area was already occupied, but in a “nomadic” organisation. From the 5th century, the northern side was organised into a suburban plan, and the southern side into an artisanal, and possibly commercial, area.

### 8.1 *The Suburban Habitat*

The excavation in the suburban area, west of the ancient square city, was carried out over a tepe that is today partially covered by modern tombs. Moreover, this is the place where stands the mausoleum of Ali Ramitani, one of the most important Sufis of Central Asia. But, as will be demonstrated below, the presence of tombs date not to the present day but to several centuries ago. The choice of the area to excavate was therefore implemented respecting the presence or absence of tombs, with the supervision and the agreement of the religious and municipal authorities.

The early occupation of this area, dated to the 5th century by C<sup>14</sup> (C2RMF report 30082), has not been drawn because of its seriously compromised condition, and also because of the upper water table, which disturbed the excavation, rendering the lower layers wet.

### 8.2 *5th–6th Centuries CE*

#### 8.2.1 Phase 1

The early suburban identifiable phase, dated by C<sup>14</sup> to the 5th–early 6th centuries (BETA Analysis 2016 – sample 462635), was characterised by well-finished buildings of mud brick. Part of a habitation was brought to light, constituted by a long wall (USM 1920 = 6047), of which the limits have yet to be identified. It is 1.40 m wide. At the present state of research, its length is 21 m, keeping this characteristic for the following centuries. No other limits of the habitations have yet been found. Behind the wall, to the north, a street (US 1955 = 1729) oriented east-west, and a larger urban street more to the north (see above), has been found at a height of circa 223.50 m, giving us some elements regarding the urban organisation. It can thus be supposed that the urban layout was constituted of orthogonal streets. The street is composed of clay. No ditch-street has been observed, but the street has only been partially excavated, over 1.70 m, which inevitably reduced the chances of identifying all the characteristics of the street.

At that epoch, a habitation mostly comprised several large rooms equipped with a well-finished fireplace. The easternmost room was framed by a northern wall (USM

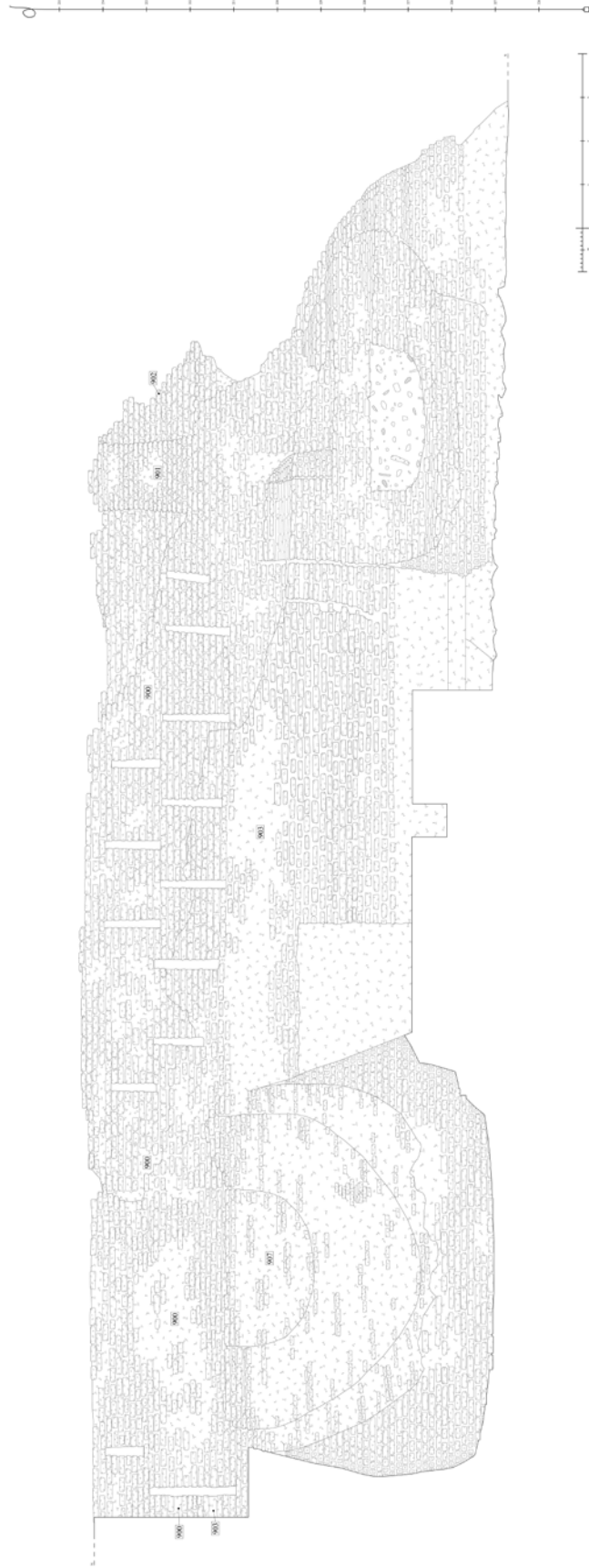


FIGURE 174 Ramitan, trench E, relief of the eastern fortification  
CRUSCO, RILIEVI SRL AND RANTE 2015



FIGURE 175 Ramitan, photo of the eastern fortification  
CRUSCO 2015



FIGURE 176: Ramitan, 3D reconstitution, view of the western gate of the city, view from the suburb  
SANCHEZ CALERO 2018

1920 = 6047), a southern wall (USM 6046, 90 cm wide), a western wall (USM 1946 = 1922, 90 cm wide) and an eastern wall that has probably been observed at the limit of the trench, so is not presented in the plan. The main entrance of the habitation penetrated through the northern wall precisely into this room. The entrance in that period was not as well finished as it was in the following phases. The room was equipped in its south-western corner with a well-structured fireplace (US 6050) encircled by a square mud-brick structure. The room covered an area of approximately 30.74 m<sup>2</sup>.

From this room, a door led to the west to another room, framed by wall USM 1922 = 1946 to the east, wall USM 6046 to the south, wall USM 1920 = 6047 to the north and wall USM 1715 (95 cm wide) to the west. It was also equipped with a well-finished fireplace (US 1953). This was constituted of a square mud-brick base on which the fire was lit, encircled by a rectangular mud-brick structure open on its western side. No door has been observed in its western side, but a door gave access to the southern room. This room seems to be the largest one. The limits have not yet been identified, but its north-south axis is at least 10.37 m long. Just after the door, located in its north-western side, a further fireplace (US 1944) has also been observed. As with the previous ones, it has a square, well-finished

mud-brick structure as its base and is encircled by a structure that has today disappeared (US 1946b, 1949).

These rooms were also characterised by the collection of significant quantities of tools such as spindle whorls, counterweights, nails and glasses, as well as tokens – evidence of an artisanal or domestic space.

The western part of the habitation is less clear, and no evident limits have as yet been found. Nevertheless, a curved corridor (US 1722 and US 1741) is framed by walls USM 1723 = 1749, USM 1715 and USM 1741. Two other rooms, probably smaller than the eastern ones, have been observed to the north-west (US 1727) and to the south-west (US 1739). In this last room a pit (US 1737) was excavated.

### 8.2.2 Phase 2

Phase 2 was characterised by only a few structural modifications in the western part of the habitation. The northern wall of the building still separated it from the street, and so for the following centuries. The entrance was still located in its eastern side.

The approximately square eastern room kept the same frame and size, and probably function. A set tandoor (US 6055) was excavated in its eastern side. A fragmented steatite located near the tandoor was probably used for grinding. The same door as in the previous phase led to

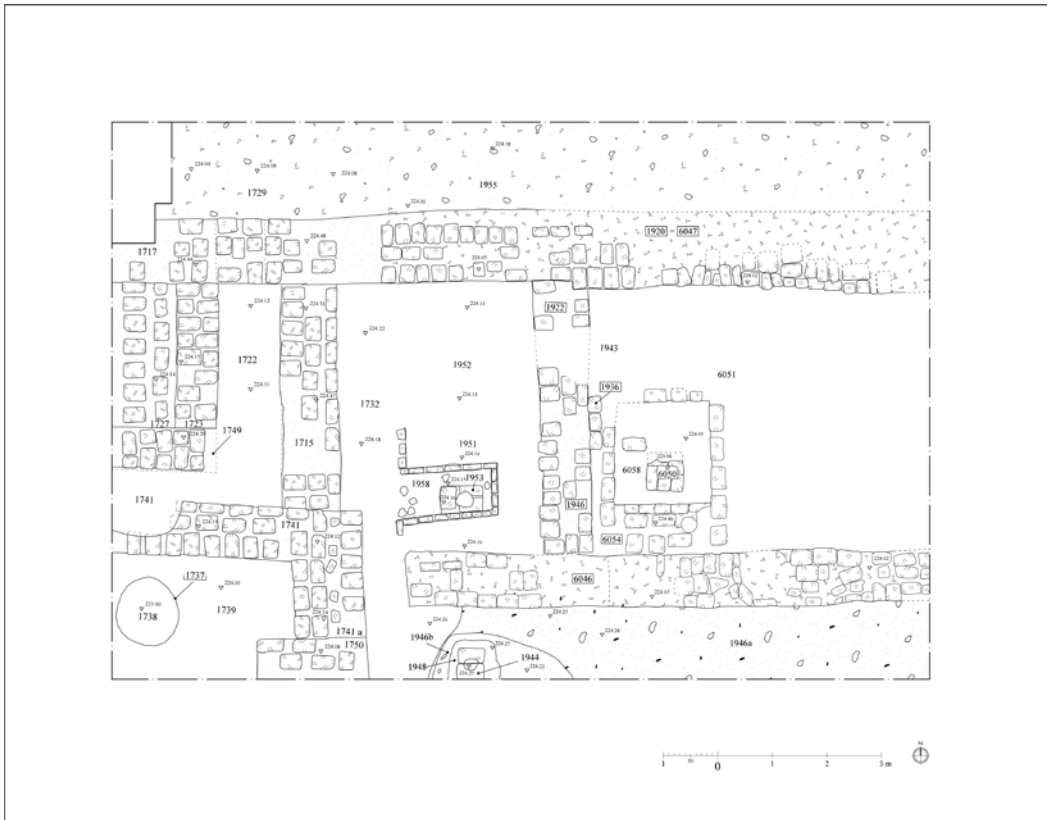


FIGURE 177A Ramitan, trench G, phase 1, plan of the commercial and artisanal complex  
RILIEVI SRL AND RANTE 2015

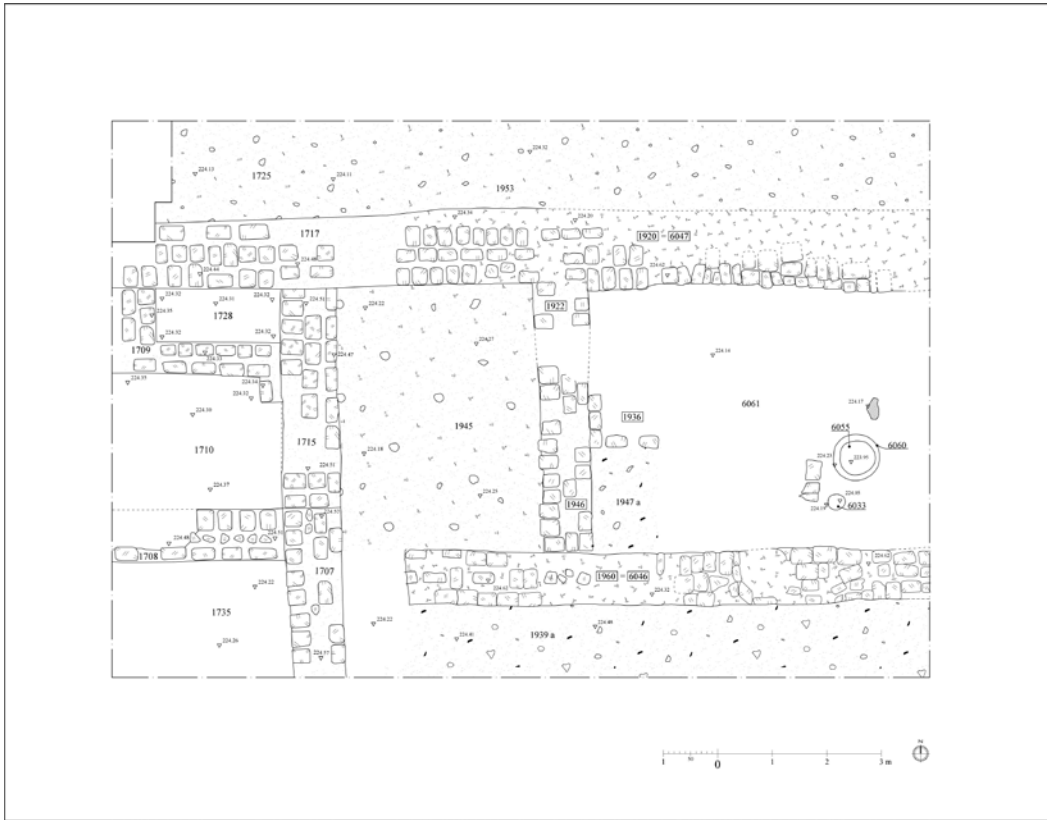


FIGURE 177B Ramitan, trench G, phase 2, plan of the commercial and artisanal complex  
RILIEVI SRL AND RANTE 2015

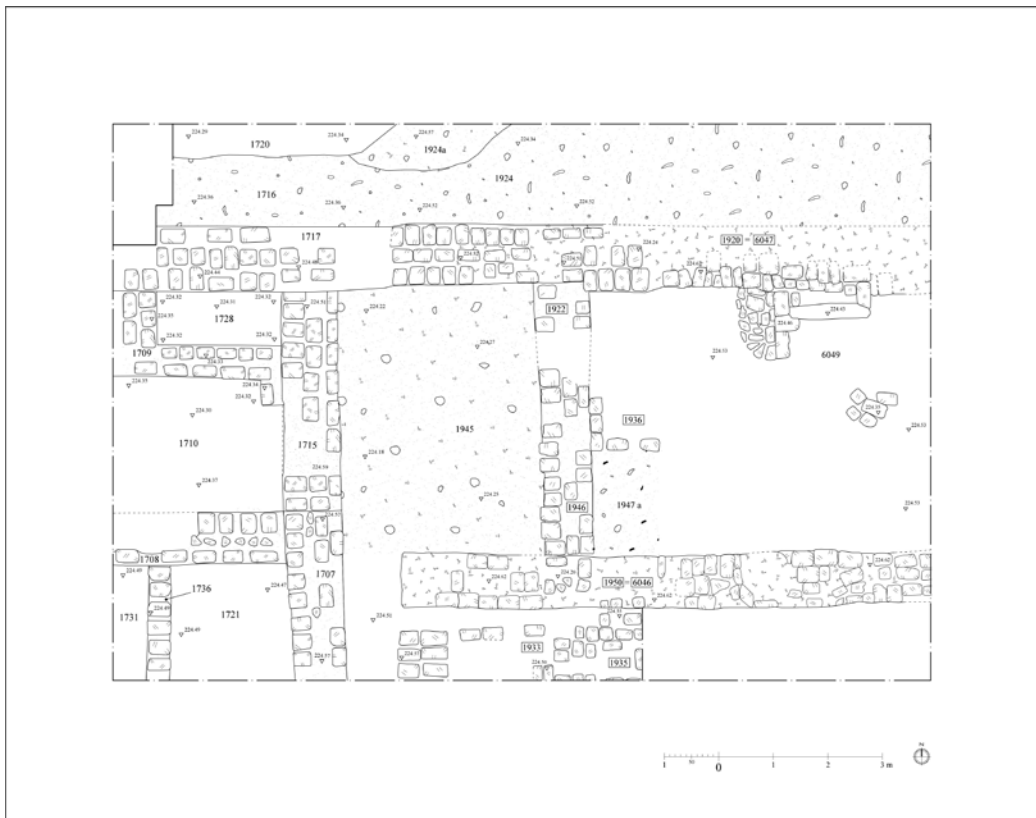


FIGURE 177C Ramitan, trench G, phase 3, plan of the commercial and artisanal complex  
RILIEVI SRL AND RANTE 2015

the western room, in which the fireplace had disappeared. From here, the same southern door opened to the larger room to the south.

The western side of the habitation was characterised by a series of three rooms on a north-south axis. The northern one was rectangular and was the smallest, and was probably used as storage. The southern rooms that follow seem not to have had direct access to the east.

### 8.2.3 Phase 3

Phase 3 also presented very few modifications of the space. Nevertheless, it should be noted that the north-eastern entrance was reconstructed and provided now with a wooden threshold and two steps. The room seems to have kept its function as an entrance hall, although the fireplace had disappeared. The same is the case also for the other southern and western rooms, which moreover retained the same sizes. However, the southern room was at that period paved with mud bricks. The fireplaces had also disappeared in both rooms. The western side of the habitation did not change substantially, although a thin wall (USM 1736) divided the space of the southern room.

## 8.3 6th–8th Centuries CE

### 8.3.1 Phase 4

Phase 4 was characterised by important structural changes to the habitation space. Although the northern wall kept the same morphology, as well as the entrance, in which the wooden threshold disappeared, preserving its traces on the ground, the hall presented a thin wall in its centre (USM 1946), of which the limits were destroyed and thus difficult to identify conclusively. It was probably a wall that did not separate the two rooms completely. The hall was also shortened by wall USM 6044 = 6045, which framed the space in its eastern side. In contrast, wall USM 1913 = 6017 framed the same room on its southern side, slightly enlarging it. This wall presented a structure constituted of mud bricks limiting the wall filled by blocks of pakhsa. Its eastern limit only was constituted of mud bricks, which probably reconnected with a further wall oriented to the south. The remains of a mud-brick floor were observed scattered in this hall, as well as in the western room. Inside the hall, a large fireplace (US 6040) was observed. Close to it, a clay figurine representing a horseman was uncovered. In the northern part of the hall, another smaller fireplace was observed.

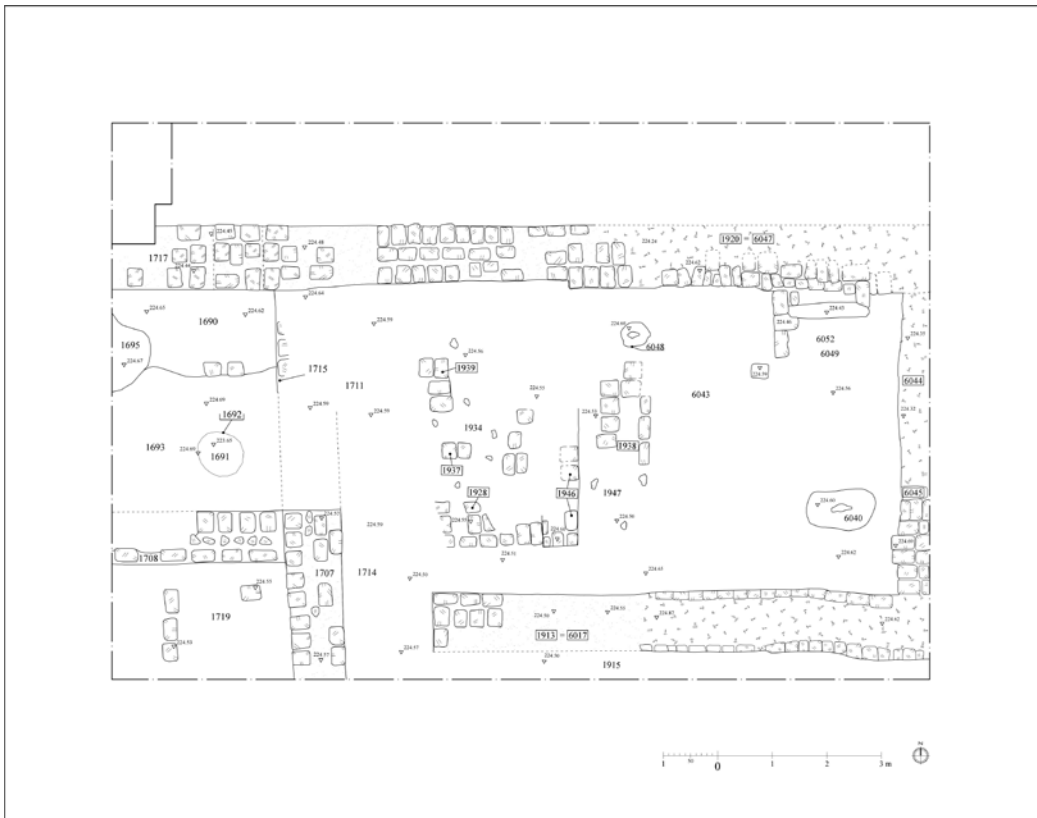


FIGURE 178A Ramitan, trench G, phase 4, plan of the commercial and artisanal complex  
RILIEVI SRL AND RANTE 2015

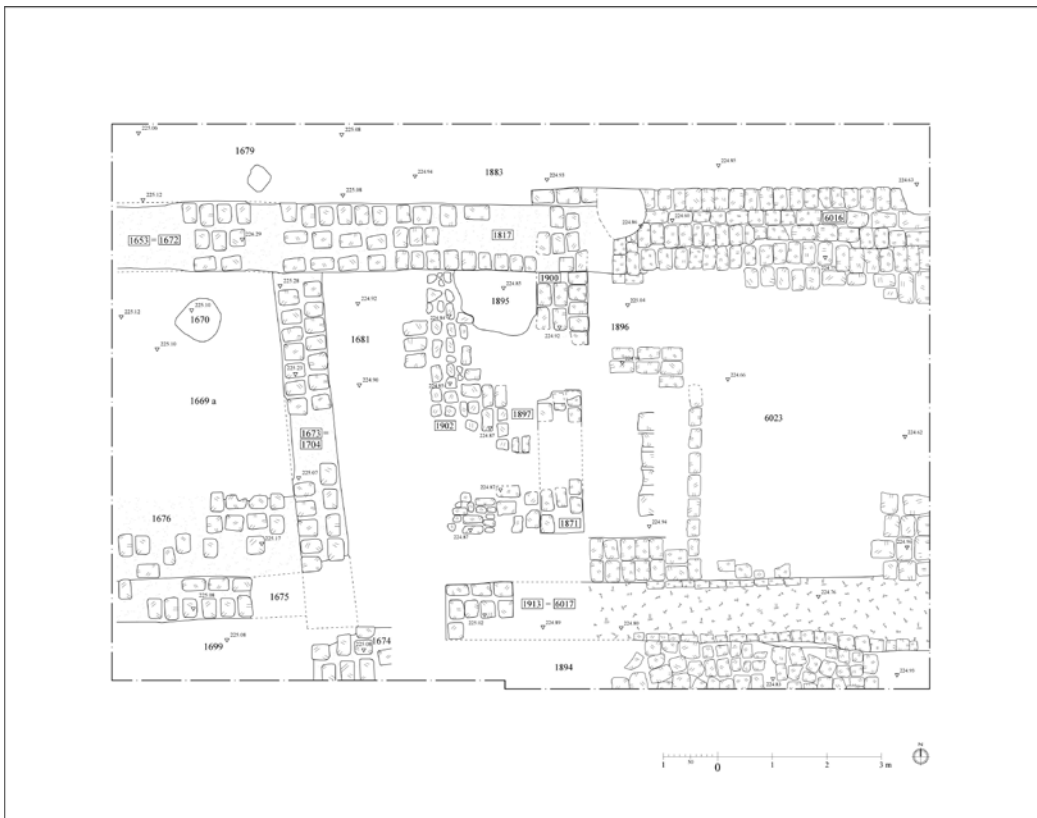


FIGURE 178B Ramitan, trench G, phase 5, plan of the commercial and artisanal complex  
RILIEVI SRL AND RANTE 2015

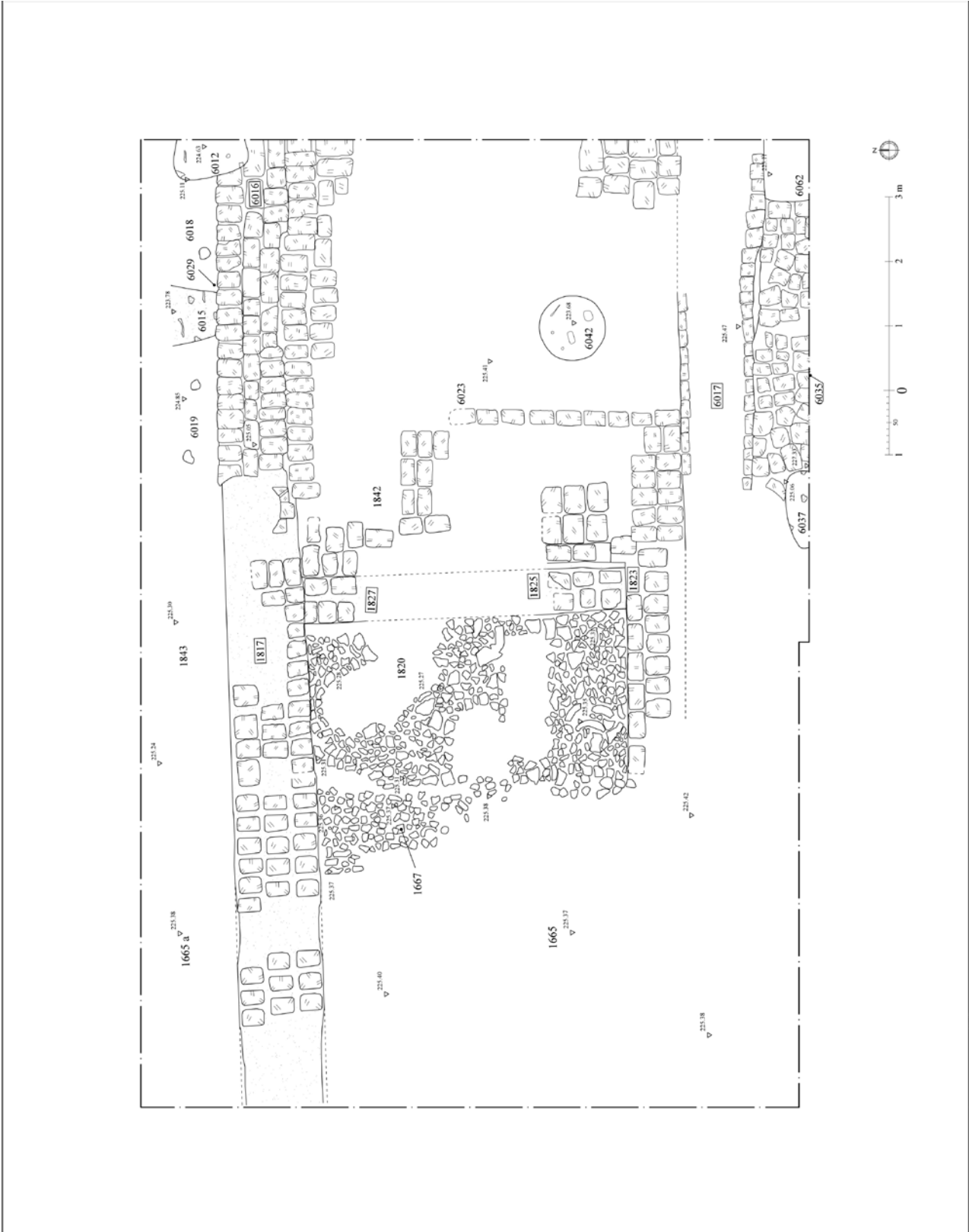


FIGURE 179 Ramitan, trench G, phase 7, plan of the commercial and artisanal complex  
RILIEVI SRL AND RANTE 2015

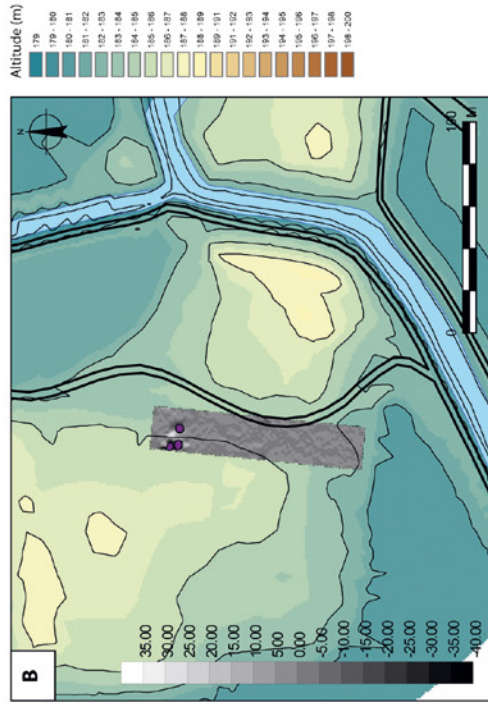


FIGURE 180 Ramitan, western suburb, pottery kilns  
VELLA AND RANTE 2015

A wall (USM 1707 = 1715) dividing the western part of the habitation is still present, even if much destroyed. Wall USM 1708, oriented east-west, limited the south-western room.

### 8.3.2 Phase 5

Phase 5 presented less important modifications compared to the previous one. The northern wall (USM 1817 = 6016 = 1653 = 1672) and the street limited the northern side of the excavation. The large wall presented, nevertheless, some structural modifications. Its eastern side, USM 6016, was enlarged on its northern side. Probably, the entrance was still located there. The eastern limit of the room had disappeared, but the southern wall kept the same characteristics as previously. Wall USM 1871 = 1900 divided this eastern room from the western one, respecting the more ancient morphology of the space. A door could have been opened south of this one. Wall USM 1913 = 6017 still separated the southern room. The floors were paved with mud bricks.

A large room appeared in the western side, still separated by a slightly oblique wall (USM 1673 = 1704). In the northern part of this substantial room, a large fireplace was observed (US 1670). This room also was paved with mud bricks. To the south, wall USM 1675 divided the latter from a less well-known space.

## 8.4 9th–13th Centuries CE

### 8.4.1 Phase 6

As observed in trench F, more to the west of the mound, phase 6 was characterised by the depopulation of this part of the suburban area. The possible displacement of this population towards the south, to the new Islamic city, has been pointed out. And it is also possible that since the 7th century, and especially in the beginning of the Islamic era, people migrated to the capital of the Khorasan, Bukhara, which rapidly absorbed populations coming from Khorasan and Transoxiana, as well as from the cities and villages within the oasis.

Scattered fragments of pottery dating from the 10th to the 11th centuries testify to human occupation during that epoch, but clear layers associated to this period were not observed. It also testifies, however, that phase 5 of the building was weakly occupied, reusing the earlier structures.

## 8.5 Late 13th–14th Centuries CE

### 8.5.1 Phase 7

Phase 7 represents the last occupation before the mound was abandoned and left to the making of the cemetery.

Basically, the northern side of the building kept the same structures, such as the strong wall (USM 6016=1817). The location of the entrance seems to have been changed.

The hall presented the same structural characteristics as before, but apparently its function changed. In fact, a series of five pits hosting *badrabs* were excavated, evidence of the change from its earlier function as an entrance hall. This was separated from the western side by wall USM 1825 = 1827, which still exists. A passage between this latter wall and the southern one (USM 6017) led to the larger western room, of which the floor was constituted of a layer of pottery fragments, *coccio-pesto*,<sup>9</sup> covered by a thin layer of clay and then covered again by rectangular baked bricks definitively paving the space. The ceramic fragments constituting the *coccio-pesto* can be easily distinguished by their characteristic decorative motifs – monochrome black splashes – belonging to the last pre-Islamic occupation. These characteristic potteries were certainly produced in Ramitan, as is shown below.

### 8.5.1.1 The Artisanal Area

In 2013, work to reorganise the hydrographic network began in the area of Ramitan. It had as its aim to clear the drainage network that flowed around this area. The new canal, unfortunately, crossed the very middle of the high tepe of the citadel of the Islamic city, cutting it into two parts (fig. 180). Earlier, however, another site had been chosen to host the canal, a few metres to the north, between the citadel and the shahrestan, and this had been partially dug by the bulldozers.

After the destruction, I tried to survey this large area and collect material. The vertical section realised by the bulldozers, despite allowing me to have an idea of the sequence of occupation of the citadel, made it impossible to draw what I saw because of the work in progress.

9 I have chosen the term *coccio-pesto* exactly in order to point out this specific technique employed for its property of impermeability. Probably originating in the Roman Empire, this technique came to the Bukhara Oasis as early as the 10th century, at least, as established by the discoveries in Paykend. In Ramitan, and the same is true for Paykend, this technique was employed for the same reasons that it had been used in Roman lands. The people of Ramitan tried to protect themselves from the water table, which seasonally could rise strongly to the surface. This is proven by the fact that this *coccio-pesto* layer was not a floor, but was covered by a first layer of clay, on which was overlaid the baked-brick floor. Thus, the humidity coming from the ground was impermeabilised by the *coccio-pesto* layer, and did not reach the upper, baked-brick floor.

The initial partial digging of the area between the shahrestan and the citadel left evidence of several burnt structures of rectangular and circular shapes. The survey showed the existence of a complex of pottery kilns. One of them has been excavated. Only its furnace is preserved, more or less intact. It is rectangular. The preserved structure is over 30 cm high. Its surface and wall were entirely burnt. The furnace was totally filled by ceramic fragments.

The ceramic fragments found were characterised by jars of medium-coarse fabric. Several fragments of monochrome black splash pottery were collected, suggesting a

pre-Islamic date for the kiln, which could be situated between the 6th and the early 8th centuries CE.

In 2014, a geomagnetic survey was attempted in this area. The aim was to survey and visualise the whole artisanal quarter. Unfortunately, the continuation of the drainage works covered a large part of this area. The geomagnetic survey gave, however, some interesting results, showing three large circular anomalies. These anomalies were compared with those found in Paykend, indicating the same typology. Unfortunately, the rest of the area was covered with a deep layer of soil, rendering impossible the detection of the substructures.

## Paykend

### 1 Landscape and Archaeological Vestiges

The site of Paykend rises up in a tongue of greenery in the east of the Zerafshan Valley before spreading into the micro-oasis of Qaraqöl to the south-west. It is framed by desert lands to the south, east and north-east, and by the irrigated lands of the narrow valley of the Zerafshan to the north and west. According to our recent studies, the canal still visible today was not the earliest one, which, although it flowed with the same orientation, flowed westwards from the current one (Rante 2018).

Approaching the site from the current road, from the west, the first encounter with the site is very impressive. A high mound, still with strong, fortified towers, rises in

front of the visitor, already showing the power of the city. The narrow street leads near to the current canal, which flows close to the citadel. This high mound still shows some parts of its fortification (fig. 181).

Having climbed to the top of the mound, the visitor can visualise the expanse of the ancient city, as well as the landscape surrounding it, and also can understand the geological relief on which Paykend was erected. The citadel has been extensively excavated. Since 2016, our colleagues have been carrying out an important reorganisation of the soil ejected during the excavations, which until that moment had remained spread out everywhere. The excavated structures of the citadel are still visible today, but they have been left derelict. Vegetation



FIGURE 181 Paykend, southern fortifications  
RANTE 2012

and animals have reappropriated this area. The northern side of the citadel presents a large terrace before sloping down to the plain. This area has been excavated recently.

From the citadel, towards the west, a large and long mound rises up. It is divided in the middle by a narrow groove, which is the vestige of the ancient separation between shahrestans 1 and 2. The eastern one, shahrestan-1, also presents evidence of several earlier excavations, still visible today and also left derelict. Today, new excavations in this area are also visible. The fortifications of this mound have disappeared underground. It is today difficult to decipher the towers and the rampart.

Towards the west, shahrestan-2 presents many fewer excavations and extends over a smaller area than shahrestan-1. This part of the city presents better preserved fortifications and comprises still visible ramparts and strong towers, although in a fragile state of conservation. A topographical depression almost at the centre of the western rampart seems to indicate one of the gates of the city, although it has yet to be excavated so has not yet been verified.

Today, the whole walled city is covered by a thick layer of sand coming mostly from the south.

While this part of the site is totally fortified, the remains are unwallled. The southern area of the city has been excavated and shows interesting vestiges, which seem to correspond to the commercial area of Paykend, the bazaar. A few metres to the south, the geological relief descends to the cultivated plain.

On the eastern part of the canal a large mound corresponds to the eastern rabad. This area extends over approximately 60 ha and represents the largest occupied area of the site. Here, different excavated buildings correspond to the Ribat of the city. Other unexcavated buildings, of which traces are nevertheless visible on the ground, complete this inhabited area. To the south, still on this relief, the occupations belong to ancient epochs, but the overlapping of layers being weak, it is difficult exactly to estimate their chronology. As will be detailed below, however, the function of this large area was important for the development of the city.

Further to the east, a strongly fortified building appears on the horizon. Called Bad-Asija (Shishkina 1963: 87–109), this square fortress along the canal of Paykend, through the path leading to the irrigated lands of the oasis, is probably to be connected with the city.

The northern side of the site is the lower one. Here, people today cultivate grapes and other kinds of fruit. This area appears to be very close to the water table, thus being fertile for cultivation.

## 2 Earlier Works

The site of Paykend has been well studied. Numerous and exhaustive historical and archaeological works have been undertaken since the end of the 19th century, even if sometimes they have been only in a mapping context, in order to understand the complexity and the importance of this city. Obviously, the methods and the techniques employed today differ from those employed in the past, thus the results issuing from recent studies have the merit of completing and – why not? – at times redirecting the earlier considerations.

I will not present here the whole bibliography relating to this ancient site. The intention is briefly to retrace the works that follow one another in the archaeological context, from the earliest field operations.

Although the territory had already been explored, it seems that the first programmed excavation was carried out by L.A. Zimin in the early 1910s (Zimin 1913, 1914, 1915). Zimin provided the historical and archaeological premises to this ancient city, which were also provided a few years later by P. Kesati (1940) and V.N. Kesaev (1948). An interesting drawn map was also made by A. Ju. Yakubovskii (1940), in which the scholar drew the site of Paykend at that epoch. Interestingly, the author drew no watercourse; the place where the canal flows today was represented only filled with sand. The neighbourhood of Paykend was also considered, as shown by Shishkina (1963). With regard to the material culture, the early ceramic studies were also published very soon after (1949). Later, the study of the pottery was rigorously treated by the Uzbek archaeologist Djamal Mirzaakhmedov (1998).

The short but intense book *Gorodishe Paykend* (Mukhamedjanov et al. 1988) retraced the systematic excavations of the Hermitage Museum since the 1981 in a close collaboration between Uzbek and Russian scholars, and became the reference until the present day.

From that period until today, a long list of excavation reports has been edited, in which different directors alternated in the scientific program.<sup>1</sup> Not only Uzbek and Russian researchers focused on this precise site. In 2008, Etienne de la Vaissière published an interesting article on the Ribat of Central Asia, in which after a very useful reminder of the meaning and sense of “Ribat”, the author

<sup>1</sup> Torgoev, Asan I. and Mirzaakhmedov, D.K. 2006–2009. *Raskopki v Paikende, Bukharskaja Expedizija*, Saint Petersburg; Omelchenko, Andrey. B. and Mirzaakhmedov, D.K. 2011–2017. *Raskopki v Paikende, Bukharskaja Expedizija*, Saint Petersburg.

focused on the case of the Ribat of Paykend, as a kind of specific case study in Central Asia.<sup>2</sup>

More recently, I have published a short and what is perhaps a still raw article after the request to participate to a book on French excavations in Central Asia,<sup>3</sup> in which I only gave the still preliminary results of the still fresh excavation in Paykend, which I have directed since 2009 (Rante and Raimkulov 2013).<sup>4</sup>

Lately, in an edited volume on the Bukhara Oasis in the collection Trudi Gosudarstvennogo Ermitaga,<sup>5</sup> several articles deal with Paykend, focusing on the excavation of the military structure of the citadel (Omelchenko 2015), on the unglazed pottery of the last level of the city (Smirnova 2015) and a very interesting article about the southern rabad of Paykend, in which the Uzbek-Russian teams brought to light the commercial quarter of the city (Sobirov 2015). An interesting article has also been published by Siroj Mirzaakhmedov on the eastern rabad of the city, in which he is excavating the Ribat 4 (Mirzaakhmedov 2015). At the end of the volume, Natalia Shagalina published a historiography of the archaeological investigations of Paykend (Shagalina 2015).

The archaeological mission of the Louvre Museum has been working in Paykend since 2009, in a large geoarchaeological programme dealing with the whole Bukhara Oasis. Thanks to the numerous publications on this site, and thanks to the further discoveries realised in these years by the French mission, I attempt here to reconstruct the history of this site from its earliest settlements to its abandonment.

### 3 Plan of the City

The topography of the site was carried out in 2010–12. As a result of the numerous changes observed in the field as compared to the previous topography of the walled city (Mukhamedjanov et al. 1988: 77, fig. 1, unchanged until 2015; Omelchenko 2015: xx, fig. 1), I decided to generate a new topography of the walled city, completing it with the outer city (fig. 182). The previous topography of the citadel

helped us to eliminate the many rejected ground reliefs, which confused the global view of the city.

The site of Paykend comprises six urban entities: a citadel of 1 ha, shahrestan-1 of 13 ha, shahrestan-2 of 7.5 ha, a southern rabad of circa 1 ha, an eastern rabad of circa 61 ha and an artisanal area covering circa 5,000 m<sup>2</sup>, of which I could only measure the preserved structures, the remaining ones having been destroyed during the 1960s and 1970s to permit the extension of the canal. The left riverbank also presented structures linked to this artisanal quarter, but because of the significant destruction, I am unable to give its surface area.

The earliest human occupations settled on the Neogene substrate (fig. 183), of which the altitude cannot be determined. Probably, the citadel and its platform were founded not directly on that substrate but above a layer of grey sediment coming from the canal, at an altitude of circa 200 m. Today, the exposure level is at an altitude of circa 202.80 m. The highest topographical point of the citadel is at a height of 221.60 m, meaning that this mound rises up over circa 21 m. Because of the extensive excavation of this part of the city, it is impossible to give more data relating to the topography.

Shahrestan-1, which leads onto the citadel on its western side, as will be shown, was founded above the geological substrate and rises up over 5.50 m, from a height of 212.30 m to a height of 217.80 m. This part of the city is interesting because of its heterogeneous topography. This is due, first, to the shape of the natural substrate, but also to the different densities of occupation. It is interesting to note that the data show an overall weak slope north-south, which was also observed within the walled city. A marked depression was observed southwards, in which the excavation brought to light one of the gates of shahrestan-1. The highest part is the central western mound, in which first Zimin, and later MAFOUB, began their excavations. Curiously, the altitude of this highest part corresponds to that of the highest level of the citadel today, thus showing the high degree of occupation within shahrestan-1 from its foundation several centuries later than the citadel.

Shahrestan-2 was founded at the western limit of the previous shahrestan. It is difficult to determine if the former leads onto the latter, but in my opinion it is possible that, because of the number of centuries separating the two foundations, the later part of the city did not rest on the older one, but was probably attached. In fact, it can be shown that both shahrestans were founded approximately at the same altitude, directly above the natural substrate. Within this later urban entity, no true topographical anomalies have been observed. The northern side presents a slightly higher mound, which also probably

2 De la Vaissière, E. 2008. "La Ribat d'Asie centrale", in *Islamisation de l'Asie centrale, Processus locaux d'acculturation du VIIe au XIe siècle*, E. De la Vaissière ed., Cahier *Studia Iranica* 39: 71–94.

3 *L'archéologie française en Asie Centrale, nouvelles recherches et enjeux socioculturels*, J. Bendezu-Sarmiento ed., De Boccard 2013.

4 This article was published in 2013 but sent in 2011, only 2 years after the first excavation.

5 *Bukharskii oazis i ego sosedi v drevnosti i srednevekove*, in *Trudi Gosudarstvennogo Ermitaga (LXXV)*, Omelchenko, A.B. and Mirzaakhmedov, Dj. K. eds, Saint Petersburg 2015.

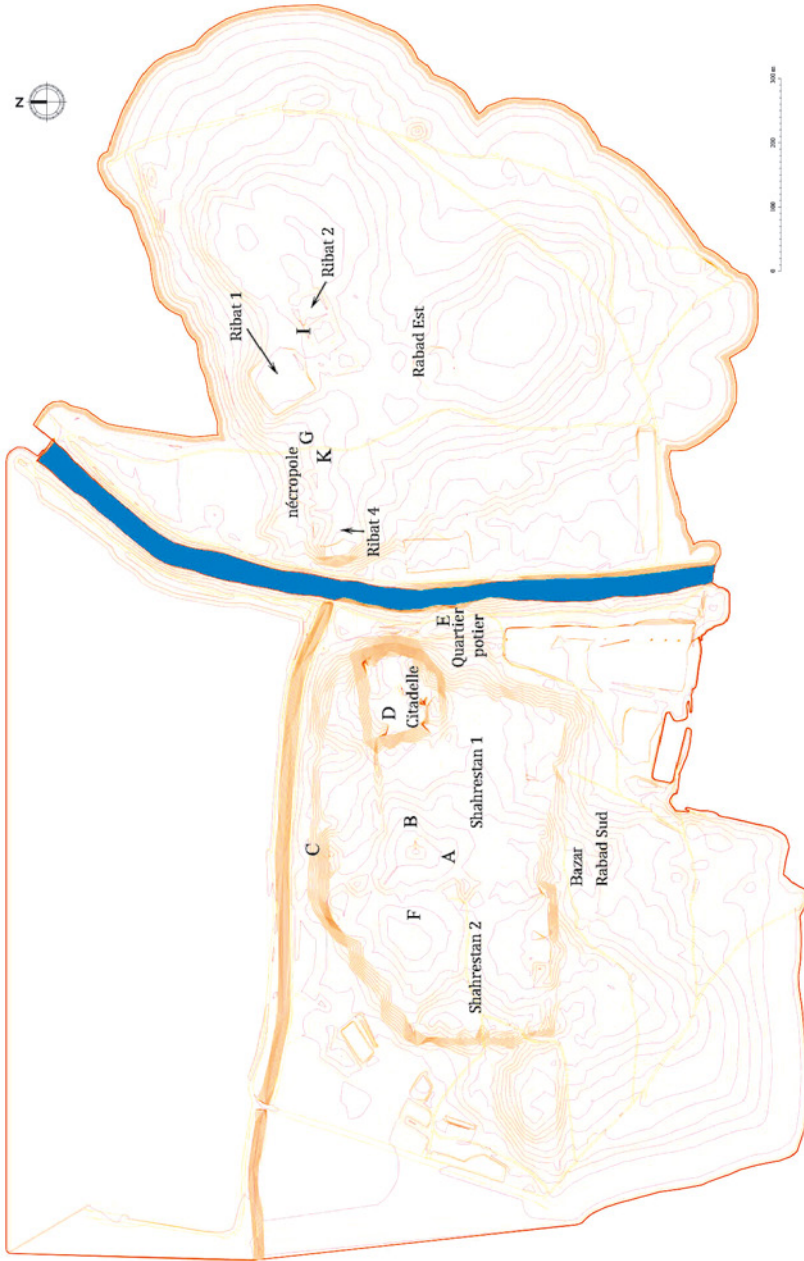


FIGURE 182 Paykend, topography with excavated areas  
RILIEVI SRL AND RANTE 2011

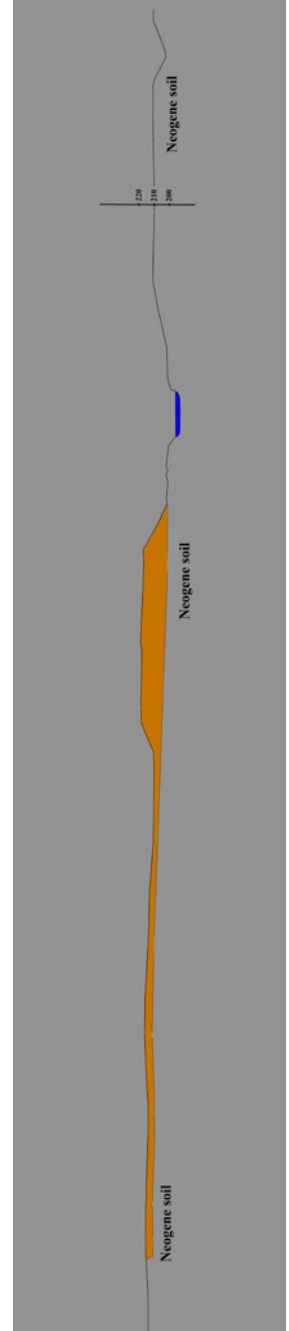


FIGURE 183 Paykend, cross section of the city showing the Neogene soil level  
RILIEVI SRL 2011

reflects the natural slope. Also here, on the southern side, a topographical depression crossing the rampart probably would show the presence of a gate. It is, therefore, not impossible that every gate of the city, of which one has been brought to light by the Uzbek-Russian teams, opened on the southern side of the city.

This urban area rises up over 4.50 m from the natural substrate, showing a difference of 1 m of overlap with shahrestan-1, chronologically corresponding to circa two centuries according to our data.

Further to the south-west, outside the ramparts, a small but high mound (10 m high) gives the idea of a structure that has collapsed in that place. Probably, it formed part of the city rampart, or else it is the result of collapsed towers.

The southern mound, outside the ramparts of both shahrestans, covers an area of circa 2.5 ha on its upper level. Approximately in the middle of this zone, the Uzbek-Russian team has recently brought to light the commercial area of Paykend. The zone excavated covers only the mound's upper and central part (Sobirov 2015: 267–77). The topography shows that the westernmost part of the mound links with the western part of shahrestan-2, wrapping around the small external mound. In the southern part, the mound falls towards the plain, which at that point has an altitude of circa 202 m.

Towards the east, the natural substrate – and thus the artificial mound – fall abruptly away towards the canal.<sup>6</sup> Having crossed it, from the left riverbank the mound also suddenly rises up over 11 m, corresponding to the eastern rabad. It extends, as noted above, over an area of circa 61 ha, although with considerable topographical differences. The higher part is the northern one, where several large monuments, ribat, have been and are being excavated. Following round to the south, a large topographical depression has been identified as a street communicating with the canal, and thus the other side of the riverbank. Again towards the south, the mound climbs up until it reaches a large “plateau”, which very slowly falls towards the south and south-east. This area has been till now, in my opinion, underestimated and wrongly interpreted. It extends over circa 18 ha, and its elevated position, its surface and the surrounding landscape are important elements also involved in the urbanism of the city. I will try to show below how this area was important for the economic and social growth of Paykend.

<sup>6</sup> As described above, the early canal, today dry, flowed along the natural relief. Later the current canal was dug, which flows a few metres to the east.

## 4 Stratigraphy

The site of Paykend corresponds to one of the more extensive urban areas within the oasis. As we have been reminded above, over its long chronology the city scattered into several urban parts, constituting an interesting and different urban model compared with the others of the oasis. I reiterate that this dynamic is due mainly to its geomorphological peculiarity.

Basing the excavation strategy on the works carried out by the joint Russian-Uzbek teams, I decided to open different test pits in the whole and different urban areas of the city, *intra* and *extra muros*. Four stratigraphical trenches were thus opened: trench A, in shahrestan-1; trench D, on the citadel; trench F, in shahrestan-2; and trench G, in the eastern rabad.

With regard to trench D, on the citadel, agreeing with our Russian colleagues who are still there now, I opened a trench with the aim of completing their previous stratigraphy (Mukhamedjanov et al. 1988: 36), which began on a more ancient level compared to the global occupation of the citadel.

Overall, the site of Paykend suffered from serious and extensive illegal excavations, especially concerning the walled city, over its entire surface. The damage is significant. Adopting the same digging method, over the period of a century, treasure hunters destroyed almost the first metre of human occupation. Today, we would also be able to determine a “stratigraphy of illegal digs”.

### 4.1 Trench A

Trench A was opened in the highest central part of shahrestan-1. This area was also explored in the 1910s by Zimin, a Russian archaeologist who excavated a large area close to the western limit of this part of the city. As the large “crater” is still visible, the trench was opened at quite a distance, towards the south, to avoid any older pollution.

The earliest occupations rested on the Neogene geological substrate that, as previously noted, characterised the site of Paykend (fig. 184). This substrate is made up of a very hard and cemented mix of gravels and clay. After a first layer composed of pottery fragments and earth, the first structures and their destruction rapidly appear. The destruction layer (US 768) testifies to a first architectural phase rapidly destroyed, over which rests US 769, like a pit, and above which was placed a mud-brick floor (US 765). This floor and its following interface, US 764, were framed by walls USM 755 and 772. This phase of the dwelling was dated by coins to the 4th century CE. The pottery seems to show that it had also been occupied in the 5th century CE. As will be shown later, the early foundation



FIGURE 184 Paykend, trench A, cross section  
CRUSCO, RILIEVI SRL AND RANTE 2010

of the fortification of shahrestan-1 was also dated by C<sup>14</sup> (C2RMF report 2011) to the same epoch.

The occupations that follow were characterised by well-conceived floors, globally reusing the previous structures. US 763 and 761, dated to the 5th–6th and early 7th centuries CE, are still framed by the earlier walls (USM 772 and 755). US 752 and 757 represent the destruction layers of these structures. From this moment, the occupation of shahrestan-1 seems to fall. The construction of shahrestan-2, dated by C<sup>14</sup> (C2RMF report 23836) to the 7th century CE, generates a little depopulation of the earlier shahrestan to the advantage of the second, western one, in which, as will be shown below, there was a growth in population. The layer corresponding to that period would have been US 761.

This trend is also visible during the 8th and early 9th centuries CE. Layer US 760 was conceived to hold two canalisations (US 758 and 762) for waste water. Above that layer, floor US 753 was made up of a thick layer and baked bricks and was framed by a large wall (USM 743). The latter was characterised by a mix of structures in mud brick and pakhsa. From this level appear the first monochrome green ceramics, dating this phase to the 9th–10th centuries CE.

Unfortunately, the later layers are more or less destroyed, or at least too significantly damaged to be able to identify their stratigraphical sequence. The very large, illegal pit (US 706–708–709–711) clearly shows the sequence of the different pits, of which the sole aim was to find objects to sell in antiquarian markets.

The ceramic fragments found in these disturbed layers were characteristic of different periods, covering the 12th–15th centuries CE. A few porcelain sherds have also been observed, testifying to the contacts and exchanges with China. Porcelain is very difficult to find within the oasis. Until now, this is the sole example of this typology of Chinese pottery.

#### 4.2 Trench D

Trench D was opened on the citadel and measures 5 m on each side. As noted above, an area was found quite distant from the excavations of our Russian colleagues, so as to avoid all possible pollution from earlier digs. The trench was therefore opened between the vestiges of the ancient mosque and the western rampart of the citadel (fig. 185). The aim of this trench was to complete the stratigraphy of the citadel published in the monograph of Paykend (Mukhamedjanov et al. 1988).

The layers corresponding to the early phase excavated in this trench, which does not correspond with the early phase of occupation, could be associated with pits with irregular form, US 547, 556 and 558. These pits were realised

between the rampart and the inhabited area, suggesting a massive filling operation, perhaps carried out in several stages, which allowed the levelling to settle. The upper layers of this filling were composed of earth and mud-brick fragments. In contrast, the lower ones were mostly composed of earth and sand, probably marking a long period of abandonment of this part of the citadel.

After (and above) this long period of filling and abandonment, this area was once again inhabited, as shown by the mud-brick walls discovered *in situ*. USM 518 and 545 were associated with floor US 514 and in phase with layers US 512, 519, 523, 527, as well as with a fireplace (US 515, 516). The floor was pierced by several holes for wooden posts, probably testifying to the presence of a tent and thus of an area not covered by a roof. After the destruction of wall USM 545, layer US 528 comes to cover the latter but remains in phase with wall USM 518. Probably at the same time, or a little later, a pakhsa wall (USM 504) was erected. After a first accumulation of layers (e.g. US 513), these structures were definitively abandoned and covered by a last overlapping of layers (US 517, 501, 500).

As part of the inhabited space, in which no clear layers have been brought to light for all contexts, it can however be attested that after a long period of scattered filling datable to the Islamic period, this specific area was consistently inhabited after the 10th century CE, showing substantial occupations dated to the Timurid period. It is not excluded that this dynamic of filling this peripheral area generated a solid platform on which the mosque was then built. The later structures could thus be associated to the external constructions around the religious monument. Further excavation results of our Russian colleagues will give us new and interesting interpretations.

#### 4.3 Trench F

Trench F was opened in shahrestan-2, in the highest topographical zone, at a height of 216.56 m. It measured 5 × 5 m. As will be shown below, here also illegal digs are numerous and have totally disturbed the upper layers.

Virgin soil was reached at a height of 212.04 m (fig. 186). Above it, layers US 1414, 1415, 1416, 1420 are a mix of ground and Neogene substrate (virgin soil). A pit (US 1418) at the centre of the trench, marks the earliest occupation of this area, which as previously noted, was created in the 7th century CE. The earliest mud-brick wall (USM 1417) seems to have been built with the help of a foundation pit (US 1421) and is oriented, like the other walls, north-south. A pit that directly cuts through the mud-brick floor (US 1402), later destroyed, completes this early phase.

The small wall USM 1401 marks the beginning of the following phase, in which it was erected on the floor corresponding to the interface of layer US 1409. Different

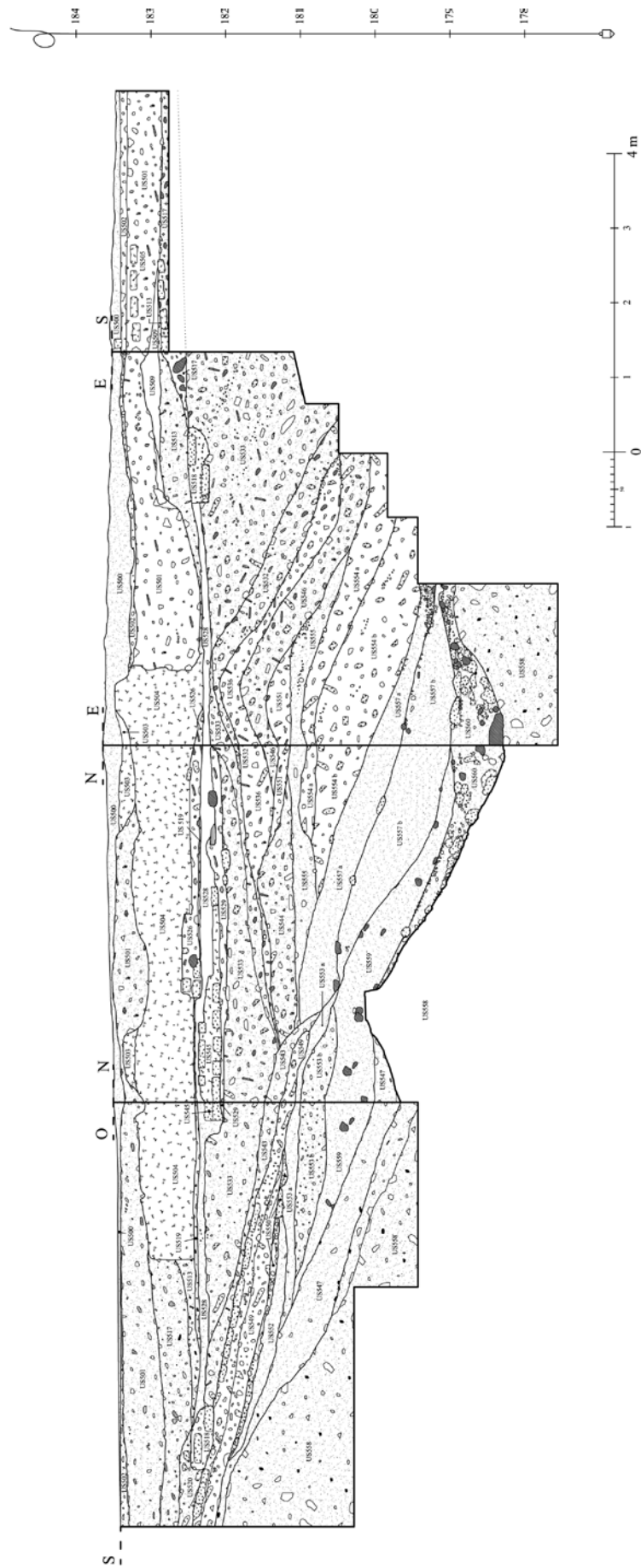


FIGURE 185 Paykend, trench D, cross section  
TUIL, RILIEVI SRL AND RANTE 2010



FIGURE 186 Paykend, trench F, cross section  
CRUSCO, RILIEVI SRL AND RANTE 2010



FIGURE 187 Paykend, trench F, fork-spoon  
RANTE 2013

layers of destruction rested on this small structure, marking two different spaces in the same dwelling. A discovery was made in the layer of destruction US 1400, which also marks the end of the use of wall USM 1401: a fork-spoon (rather like a Swiss Army knife, fig. 187) in copper alloy with silver and with an engraved decoration of floral and zoomorphic motifs encircled with a Gordian knot.

Layers US 479, 481, 485 mark the destruction of these most ancient structures and prepare the level for the next phase. Wall USM 491 presents the same orientation as before. To it are associated floors US 471, 477 and 484. Floor US 477 presents a fireplace, in which remains of coal and bones have been found. From this level, different layers overlap differently in the western and eastern part of the central wall referred to above. Both spaces can be interpreted confidently as domestic areas of a dwelling and dated to the 7th–8th centuries CE. In the western part of wall USM 491, a fireplace (US 478), confirms this function, as well as a tandoor (US 474) in the eastern side, which might be slightly earlier. Later, this was abandoned and reused as a rubbish dump, as the different materials found inside show.

Wall USM 499, 476<sup>7</sup> was built towards the east to reorganise the space, thus cutting it into two parts: an external space and a room oriented south-east. After an overlapping of layers, showing different destruction levels, floors US 461 mark the beginning of another phase of habitat, which is associated with wall USM 441. It is a new wall, erected above USM 491, keeping the same orientation. From this level, baked brick was used for the internal structures.

<sup>7</sup> Although the cross-section shows the wall covering the tandoor US 474, it is not the case because the tandoor rests on it.

This phase corresponds to the 9th–10th centuries, as shown by numismatic discoveries.<sup>8</sup> In the western side of the domestic space, the overlapping of layers appears quite significant, as are also the destruction layers relating to the walls resulting from illegal digs, which create a “stratigraphical” sequence of pits from the upper level of the trench. With regard to the former side, different floors have been observed through this sequence of occupation, US 461 and the interface of US 458, in which a fireplace was dug. Above it, the baked-brick floor (US 451) covers the whole space and marks the beginning of another phase, datable by numismatic data<sup>9</sup> to the 11th century CE. The last floor, US 430, also dates to the 11th century CE and marks the end of the occupation in this part of the city. As has been shown, the city of Paykend was inhabited until the Timurid period, showing a demographic decline between the 12th and 14th centuries CE. Nevertheless, as observed above, the latest occupations of this trench were disturbed by illegal digs, making it impossible to identify the successive occupations.

## 5 Evolution of the Urban Plan

According to the results of the topography and the stratigraphy, as well as to the results of earlier publications, it has been possible to retrace the evolution of the urban setting from the earliest occupations until the total depopulation of the city.

<sup>8</sup> A. Atakhodjaev 2011.

<sup>9</sup> A. Atakhodjaev 2011.

As we are reminded by Mukhamedjanov et al. (1988: 8–17), the earliest occupations must be considered as agglomerations of houses, a kind of unwalled village. MAFOUB's recent data show that the first settlement of Paykend was located south of a topographical depression that benefited from the periodic flooding of the Zerafshan. For this reason, the area was ideal for agriculture, as well as for settlement. North of this micro-oasis, a *talweg*, of which the profile is in equilibrium with the Kashka Darya paleochannel, seems to have flowed at least until the Bronze Age into the plain south of Paykend. The arrival of the Zerafshan, around the 4th century BCE, closed this *talweg*. It also constantly raised its bed and banks, transforming the *talweg* upstream into a basin (topographical depression). Before the widening of the Paykend canal (flowing north-south) in the early 1960s, the only possibility of transporting water from the Zerafshan was a canal bringing water from the Zerafshan's left bank (today observed at Yangimazar), circumventing the basin from the north, still visible today, and flowing then towards the south, up to the fortified city and further to the south to irrigate the cultivated lands south of the city.

It is not yet clear when this early agglomeration was turned into a fortified entity. If one compares it with the other main cities of the oasis, such as Ramitan or Iskijskat – for which strong archaeological data are available (e.g. precise stratigraphy, recognition of well-determined C<sup>14</sup> contexts) – it might be possible to estimate the erection of the first walled entity to a period between the 1st century BCE and the 1st century CE (fig. 188a), a little later than suggested by previously published data, which dated it to the 3rd–2nd centuries BCE (Mukhamedjanov et al. 1988: 38). According to the earlier publications, it seems, moreover, that the erection of the fortified citadel began with the construction of a very high platform (Mukhamedjanov et al. 1988: 33–8, fig. 2). The citadel has been excavated entirely by the Uzbek-Russian teams, MAFOUB only completing the work on the stratigraphy showing the latest occupations, which indicate that it was inhabited until the Timurid period.

In the 4th century CE, several centuries later, a number of factors related above accelerated the demographic growth of the city (fig. 188b). The *extra muros* inhabitants, most probably numerous at that epoch, were finally integrated within a well-defined walled area, shahrestan-1. This urban entity was rapidly organised to host people and urban structures in a precise orthogonal urban layout, characteristic of the earlier Hellenistic urban plans. As will be detailed below, the excavation of the dwelling permitted me moreover to extrapolate the density of the population in this area, showing the high demographic increase relative to that epoch.

This trend did not stop. In fact, between the 6th and 7th centuries CE, even after the collapse of the Hephtalite kingdom, the expansion of the city with the erection of shahrestan-2 was evidence of the continuity of demographic growth (fig. 188c).

Both shahrestans were fortified, testifying to the need to protect – an important consideration for a city that was located outside the core of the oasis, at the border of the deserts, and through which passed a main caravan route.

Although Uzbek-Russian results of the excavation of the southern rabad mention only Islamic levels, I am quite convinced that more ancient settlements were located there. The difference is that in this potentially earlier epoch, the structures were made from wood or were temporary, which would entail their easy destruction. In contrast, the excavations show solid 9th–10th-century architectures, which have been preserved until the present day. This large southern area was occupied not only on this side; the most southern parts also seem to have been inhabited (fig. 188d).

In the same period, more precisely in the beginning of the 9th century, at the foot of the eastern rampart of the citadel, between the latter and the canal, an artisanal quarter was brought to light. In current research conducted by MAFOUB, only pottery production has been identified, but the numerous glass fragments found within the city are evidence of the production of different materials, including glass and probably also metal. In the middle of the excavated area, a street running east-west represents the vestige of the ancient passage crossing the canal and reaching the street of the eastern rabad.

In this eastern area, also born in the 9th century, several excavations and surveys of its northern side show the presence of several *ribat*, attesting to the existence of a social life around these structures, which in my opinion were military but also hosted structures. In fact, this huge area should be considered, in my opinion, in its entirety. The southern and eastern zones seem to be sparsely populated, but the topography and the surveys lead me to suggest that these areas were consecrated to the stopping over of caravans. The area was sufficiently extensive to host caravans, and the surrounding steppe sufficiently rich in saxaul to permit cattle to browse. The *ribat* were thus not only military resources, as De la Vaissière (2008: 71–94) attested, but also caravanserais at which travellers remained for a few days before continuing their journey towards the north-east or south-west.

As was stated earlier, the city of Paykend did not benefit from a classic and easy village network around it to enable its economic growth. A few villages can be identified at a standard distance, so as to have had constant



FIGURE 188A Paykend, 3D model of the citadel  
SAGORY AND SANCHEZ CALERO 2018

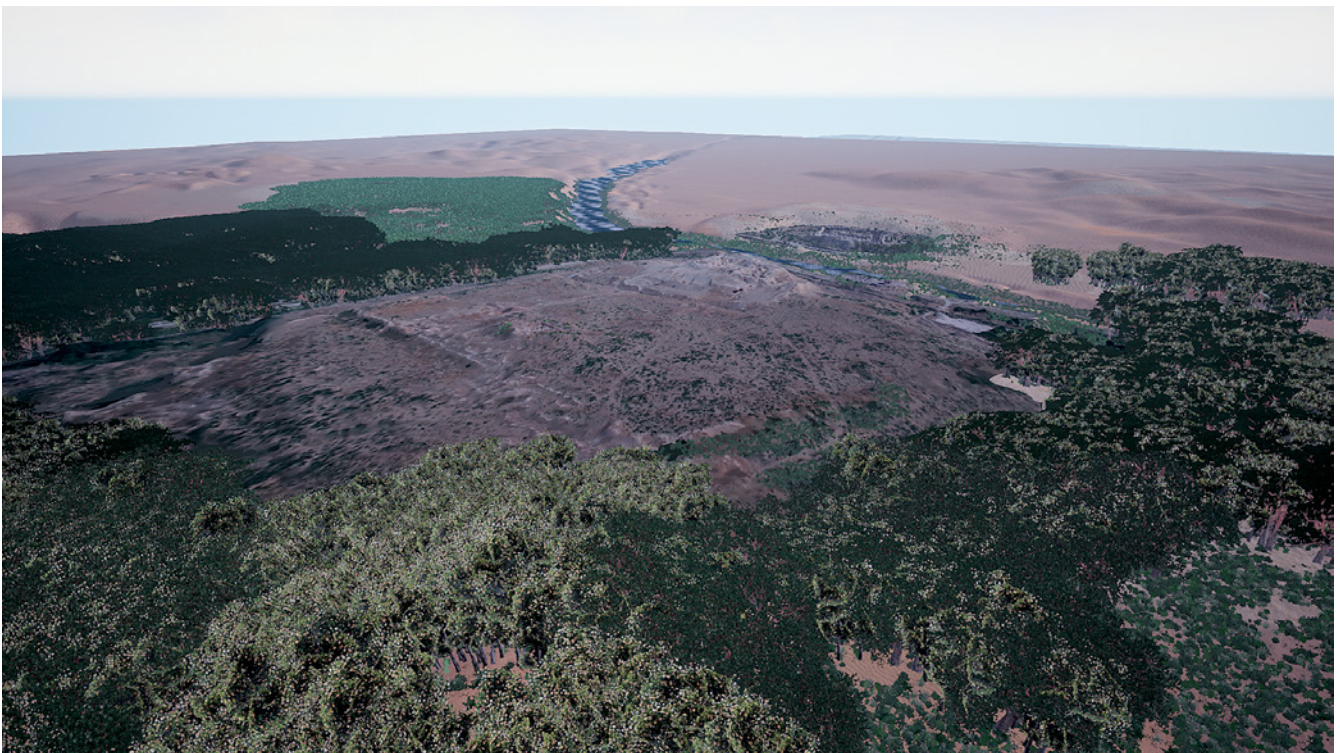


FIGURE 188B Paykend, 3D model of the citadel and shahrestan-1  
SAGORY AND SANCHEZ CALERO 2018



FIGURE 188C Paykend, aerial photo of the old fortified city and the bazaar area  
SAGORY 2018

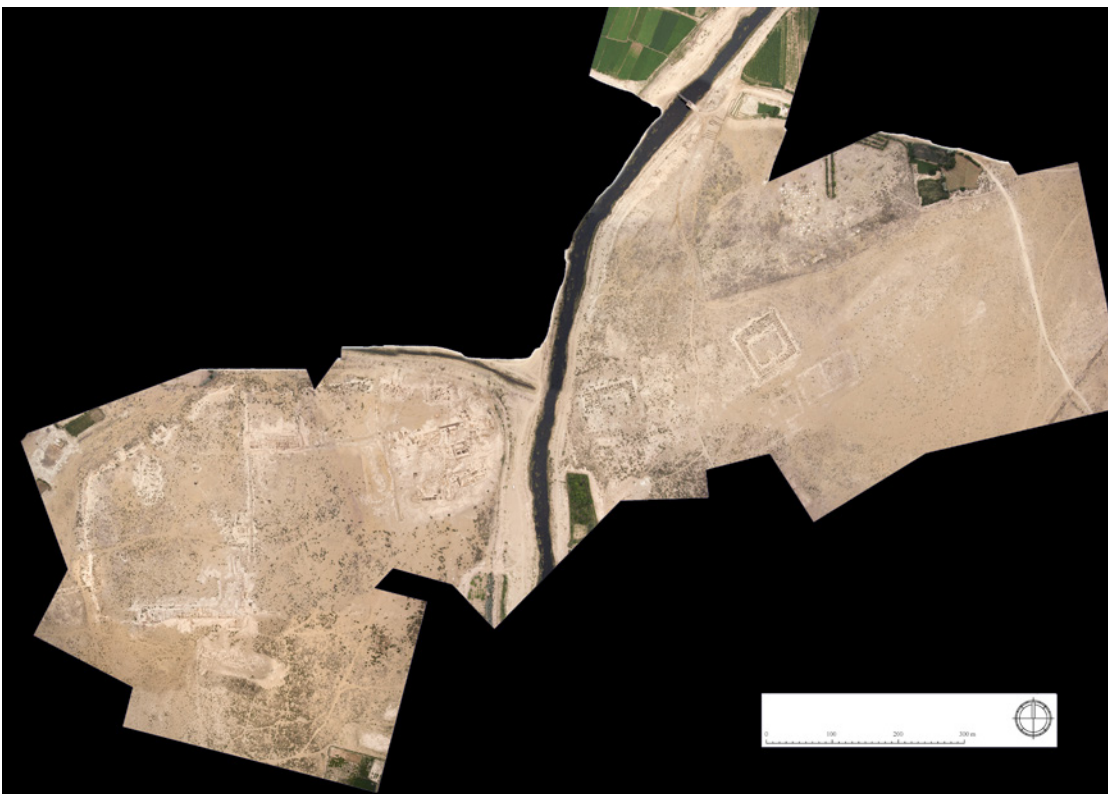


FIGURE 188D Paykend, aerial photo of the whole city  
SAGORY 2018

socio-economic contact with it. The cities of the micro-oasis of Qaraqöl were involved most probably in a socio-economic link with Paykend, but over a large timescale, while within the oasis, cities benefited from several weekly contacts. The economic growth of the city depended mostly on the trade along the Khorasan Road, which connected the city not only with Samarkand to the east and further to China, but also to the Khorezm to the north-west, and to the oasis of Karshi to the south-east. The city was thus probably well-equipped with services and areas to host and entertain people, animals and every element of a caravan. In the 9th–10th centuries Paykend presented the maximal extension of its urban layout.

According to MAFOUB's excavations, the following centuries, in the Qarakhanid period more precisely, did not represent a time of crisis for the city or for the oasis. On the contrary, pottery production and commerce were still active. According to the excavation and the C<sup>14</sup> (C2RMF report 30082) results relating to the activities of the kilns, pottery production in Paykend continued until the early 13th century. In addition, excavations of the dwellings and other monuments testify to a certain wealth. Moreover, according to Chinese sources (Biran 2001: 79), the Qarakhanids were very active on following caravans from Transoxiana to China. Moreover, Duturaeva (2016: 183–96; forthcoming) clearly shows how the Qarakhanids were one of the fulcra of a vast trade network between the western Islamic world, China and India. It has also been clear that the eastern rabad began to be occupied by a cemetery composed of individual inhumations as well as of small constructions. However, this does not exclude a continuation of life within the ribats, of which the chronology continues until the 15th century.

Very little is known archaeologically concerning the Mongol invasion. No true traces can be deciphered in the field, at least in the Bukhara Oasis. Instead, what is certain is that from that period the ancient settlements began to depopulate. This was also the case for Paykend, even if a large and quite significant Timurid occupation, although reduced, can be observed especially within the two shahrestans, but also on the citadel, as observed above, and on the eastern rabad. After that, almost the totality of the sites analysed were totally depopulated, people moving mostly around them. From the 13th century, it is also possible that trade slowed, but there is no consistent evidence as yet to prove this.

## 6 Main Monuments

### 6.1 *The Dwelling*

The first centuries of the 1st millennium CE witnessed an exponential dynamic of human occupation and

urbanisation which, according to historical information (Frye 1992: 164–69; Grenet 1996: 371; De la Vaissière 2005),<sup>10</sup> was characterised by several migrations by north-eastern populations occupying and settling into the oasis, especially in Bactria and Sogdia. In the Bukhara Oasis, these migrations took place from the 3rd–2nd centuries BCE, generating evolutions in social behaviour and culture. Some features have been observed in material culture, especially through the study of pottery. But questions remain about how social behaviour developed. How, for instance, did urban life develop, and how, therefore, did the habitat evolve?

Within this framework, and in order to answer these questions, one case has been analysed: the habitat of Paykend. The results acquired at Paykend can provide a global, detailed view of the evolution of the habitat and of social and domestic behaviours. The habitat of Paykend has been studied between the 4th century CE and the 12th–13th centuries. But first, let me rapidly remind you that the city of Paykend has been excavated since the 1980s by the Hermitage Museum. Different publications are available, as well as a long series of excavation reports. In this context, an article dedicated to the excavation of a dwelling structure in the walled city was also published by Semenov in 2003, in which the author only brought to light the 7th–8th century phase of the house.

According to our studies, as observed above, the early settlement of Paykend was located south of a topographical depression that benefited from the periodical flooding of the Zerafshan. For this reason, the area was ideal for agriculture, as well as for settlement. Once the Zerafshan switched its orientation towards the south-west, a canal was dug from its left bank, circumventing the topographical depression to the north and then orienting towards the south to flow on the eastern side of the city.

According to the topographical plan, the urban occupation extended over 82.5 ha (Rante 2013: 237–58), which does not mean that every urban entity was occupied by the same density of population. The eastern suburb, in fact, presented a less significant population density compared with the walled area.

One of the main points pertaining to the occupation of Paykend is that, contrary to some other cities, over the centuries people occupied and lived inside the walled city, the southern and eastern urban parts being consecrated to different kinds of occupation (e.g. a bazaar, a pottery quarter, an area for caravanserais and also some sporadic habitations). It means that within the walled city, human behaviour adapted over the centuries to this very limited urban space. This substantial population density

<sup>10</sup> I am giving here only a short list of the main references explaining one of these moments. See also Buryakov 1991: 197–204.

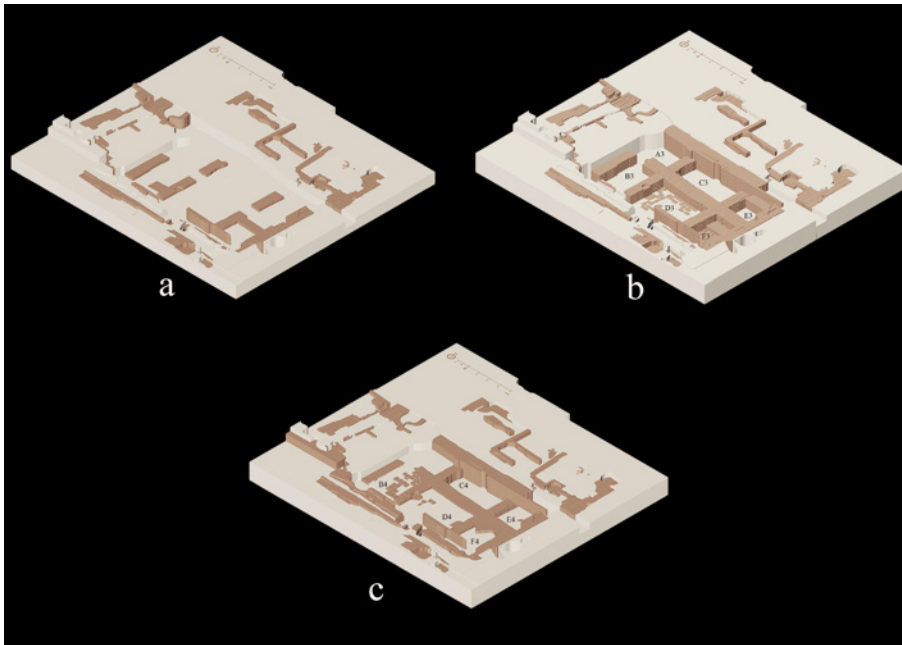


FIGURE 189 Paykend, shahrestan-1, axonometric projection of the phases of the pre-Islamic dwelling  
RILIEVI SRL AND RANTE 2018

has been observed until at least the 12th century. From this period, more significant occupations have been observed within the suburbs, as testified by the rich pottery found during the excavation of the several ribats. It is precisely within the more populated area that we focused our research.

#### 6.1.1 The Pre-Islamic Dwelling

The archaeological investigations were concentrated in different parts of the city. The excavation in shahrestan-1, of which the foundation has been dated to the 4th century CE, in an interesting higher section, brought to light a wealthy dwelling. According to the current state of research, the dwelling covers a surface of circa 350 m<sup>2</sup>. This measurement only takes into consideration the habitable areas. In this case, it could be defined as a household cluster of an average of 4–6 individuals.<sup>11</sup>

##### 6.1.1.1 Phase 1

One of the earliest occupations identified was dated to the second half of the 4th century CE (fig. 189). Although the excavation of this phase has not yet been completed, some interesting data should give a general architectural view of the dwelling. This domestic space is framed by a

northern wall, a southern wall (USM 2666) and western and eastern walls (USM 5209 and USM 5210). At that period, the walls are made up of a mix of mud-brick and pakhsa. Both present a very dense and hard consistency. They are composed of a mix of earth and the natural Neogene substrate on which Paykend was founded (see above). As will be stressed below, from the time of the Islamic occupation, the fabrication of architectural material changed. Two ditch-streets frame the eastern and southern sides of the dwelling. These ditch-streets are rather narrow and present a declivity towards the east and the south respectively. The ditch in the centre of the narrow street was wider during earlier times, and shrank slightly over the centuries because of the overlapping of layers.

This early phase comprises a single large space, the function of which has not as yet been defined. Soil at a height of circa 178.00 m completely covers this space. This soil is made up of the mix of earth and natural substrate noted above, which renders it hard and solid. The entry was probably situated on the northern side. The western wall, composed of a mix of pakhsa and mud brick, was coated with a fine layer of pisé (rammed earth used as a daub layer), on which no paint traces were observed. Two inner mud-brick walls (USM 5167 = 5160 and USM 5122 = 5115), oriented north-south, divide the space into three rectangular long rooms. Between them a passage runs east-west. On the southern side of the western part, a partial mud-brick floor has been found, testifying to the

<sup>11</sup> I considered a reference quoted in Renfrew and Bahn 2016: 199, in which the authors dealt with household settlements during the Bronze and Iron Ages. In this particular case, a slightly higher average could also be considered.

presence of some brick pavements in this phase. The architecture of the space, and the presence of fine-daubed walls and a mud-brick floor on this side of the dwelling, seem to suggest its formal function.

## 6.2 Phase 2

This phase, dated to the 5th century CE, has been identified at a height of circa 178.30 m over the whole dwelling and was characterised by a major event (fig. 189). The walls enclosing the dwelling are the same as in the previous phase. The soil covering the dwelling is made up of a mix of earth and natural substrate. The main entry was still situated on the north-eastern side. A large mud-brick wall was built to fill the central corridor (USM 5103), and another wall (also USM 2666) was built to separate the large space into two parts – southern and northern – thus changing the modulation of the space within the house. Six independent rooms are thus articulated in this space. Two rooms (A3 and B3) communicate thanks to a doorway on the western side. They seem to retain their previous formal function. The larger central rooms communicate via a doorway almost in the middle of the central east-west oriented wall. While the northern room (C3) presents a floor of earth and natural substrate, the southern one (D3) presents a well-made mud-brick floor, into which a small ovoid hearth has been dug. The two more eastern rooms were equipped with benches, also revealing their formal function. The northern room's floor is made up of earth and natural substrate; the southern one's, mud bricks. Interestingly, the whole southern part of the complex presents more carefully made floors, covered in mud-brick pavements, which would suggest a general formal function for this side of the dwelling.

### 6.2.1.1 Phase 3

This phase is dated to the 6th–8th centuries (fig. 189). It was characterised by an important overlapping of the floors. The space has not changed since the previous phase, with the main entrance still situated on the north-eastern side. Transformations have been observed only inside the rooms. In that epoch, all the walls of room B4 were covered with a daub layer. A well-made mud-brick floor covers the space. The central rooms (C4 and D4) present the same characteristics as before. To the east, in room E4, the bench has disappeared, leaving room for a larger space, in the centre of which a small fireplace was dug. In room F4 also, the bench and the mud-brick floor had disappeared, and the whole space was covered with a layer composed of earth and natural substrate, in which traces of the previous pakhsa structures could be observed. The excavation of the room showed the presence



FIGURE 190 Paykend, shahrestan-1, typologies of doors of the dwelling  
RILIEVI SRL AND RANTE 2016

of a door (fig. 190), constructed using a wooden threshold, between rooms E4 and F4.

### 6.2.2 The Islamic Dwelling

The next phase observed followed the Arab conquest, and dates to the 8th–early 9th centuries. The excavation of the dwelling is much more complete, also including the whole northern side of the house (fig. 191).

#### 6.2.2.1 Phase 4

(fig. 192). The two ditch-streets, oriented north-south (US 3877) and east-west (US 3934), framed the dwelling, as in earlier epochs. Obviously, their altitude changed following the constant overlapping of the layers of the house. This vast zone is at an altitude between 179.80 m and 179.95 m, inclusively.

The whole dwelling is composed of three housing areas: a kitchen-storage area and latrine, a private quarter and a courtyard. This morphology of the space would be preserved in the following centuries. Every space was covered by a layer of clay, abandoning the use of the earth and natural substrate mix of the previous epochs.



FIGURE 191 Paykend, shahrestan-1, general photo of the dwelling from the west  
RANTE 2016

The kitchen-storage area and latrine are framed by large walls to the north (USM 5016) and east (USM 3981 = 3951) and by a court to the east. At that time, the entry of the dwelling was located to the east, a threshold leading onto a corridor 50–60 cm wide that runs westwards up to the court. The corridor is framed to the left by wall USM 2666, the northern wall of the private quarter, and several rooms on the right side. In room G6 the rest of a tandoor was found, as well as a large hole for conserving food. Westwards, two rooms constituted the latrine zone. The first of these rooms (H6) contained a large jar on the right side; the second one (K6), a latrine in the north-eastern corner. Continuing towards the west, a large room could be considered as a part of the western court.

The court area has not yet been totally excavated, because of its extensive surface. Several light structures rise up on the western excavation limit, probably evincing some farm characteristics. The southern side is occupied by a large rubbish hole (US 5051), in which a huge quantity of ceramic fragments have been found.

From the corridor a door (fig. 190) to the south enabled one to pass into the private quarter. This area changes the morphology of the space but respects the formal function that existed during the pre-Islamic epoch. It is framed by walls USM 2666 to the south, to the north and to the west, USM 3951 to the east. Instead of consisting of six rooms, the space was reduced in comparison with the pre-Islamic occupation, and divided in four rooms. These were divided by walls USM 3969, running east-west and overlapping the previous pre-Islamic USM 5145, and walls USM 3919 and USM 3893. All rooms were covered by a clay soil. Rooms A6 and B6, on the west side, did not present any structure that might suggest their function. They communicated through a door in the middle of wall USM 3969. Half of the north-eastern room (C6) has been destroyed by a very large hole, thus erasing any hope of better defining its function. Room D6, in the south-eastern corner, contains a small fireplace and a quadrangular structure, probably for water.

#### 6.2.2.2 Phase 5

This phase dates to the 10th century (fig. 192). Several destruction layers are present, as also in the following phases, as a result of illegal excavations by treasure hunters. The implication of this is that some parts of the dwelling cannot be read. The complex is divided, as in the previous phase, into three main parts: a kitchen-storage area, a private quarter and a court. The two ditch-streets (US 3877 and US 3934) framed the dwelling.

The entry to the kitchen-storage area was always situated in the eastern part, giving access to the kitchen-storage area, through the corridor oriented east-west and bordered by walls USM 2640 to the left and USM 2691 to the right. The walls of the corridor are covered by a layer of ceramic fragments and baked-brick fragments (fig. 193), also called *coccio-pesto* (US 3628; ceramic fragments mixed with mortar, usually employed in Roman lands for its waterproof properties). The northern side leads to several rooms. The first room (E7) also presents walls covered with *coccio-pesto*; a large jar is situated in the western side. In the northern room (F7), the latrine has disappeared. In the middle of the space a large tandoor has been dug. The next room (G7) presents a large hole, probably to stock food, and a tandoor on the left side. Northwards, beyond a wall (USM 2691a), a narrow rectangular room (H7) was covered by a mud-brick soil (US 2621). The massive wall USM 2613 limits the northern side of the dwelling. The western side of this kitchen-storage area, which previously opened onto the court, was closed in the 10th century by another massive wall (USM 2639), definitively separating the court. This clear division is evidence of a need to separate the habitable areas from what are probably the exterior areas.

With regard to the function of the pottery-fragment layer, covering some walls on the northern side of the dwelling, which I call *coccio-pesto* only in terms of the technique, different hypotheses exist. Some see in it the effects of an economic decline, obliging people to decorate with poor material, which in my view cannot be the case in this wealthy period (10th century), during which Bukhara was the centre of a vast territory reaching from the Khorasan to the Ferghana. Moreover, even in other epochs I could not identify an economic decline through the decoration of walls with pottery fragments in dwellings. It might be the case, perhaps, in a royal palace, where the decoration was intended to be eternal – thus obliging people to decorate at all costs – but not in a dwelling, in which there were no “decorative obligations”, and even less so in periods of crisis, even if that dwelling belonged to a rich merchant.

This is not the only case within the Bukhara Oasis. In Ramitan, a *coccio-pesto* pavement has been brought to light and dated to the 14th century CE. Here also, even if historians were able to find in this chronology a time of crisis, the aim was not to decorate at all costs, even during economic decline. Moreover, since this part of the city is very close to the Holocene plain, so that the water table is very close to the surface – a fact clearly tested during excavation – the intention behind using this technique

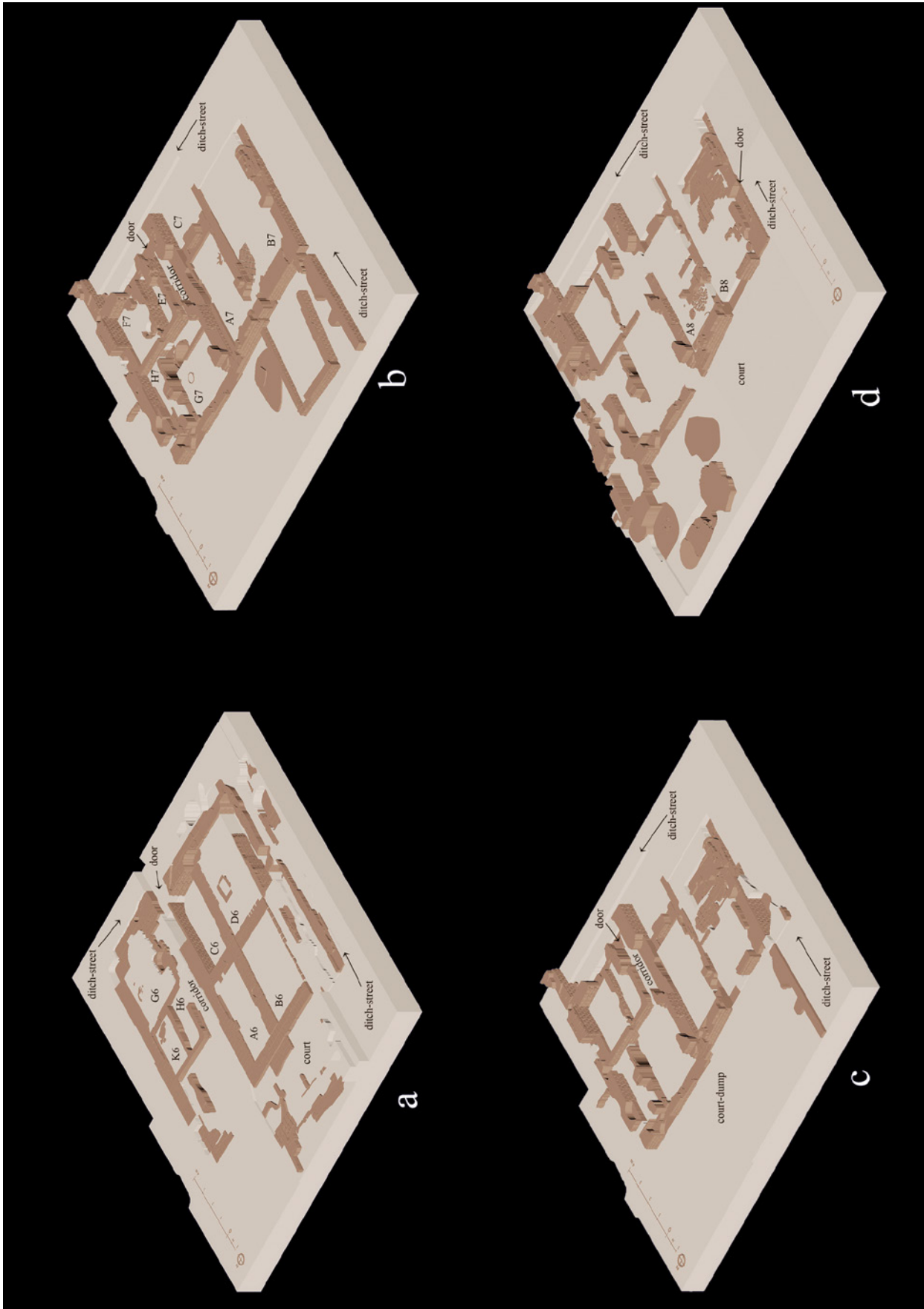


FIGURE 192 Paykend, shahrestan-1, axonometric projection of the phases of the Islamic dwelling  
RILIEVI SRL AND RANTE 2018



FIGURE 193 Paykend, shahrestan-1, Islamic dwelling, photo of the coccio-pesto walls  
RILIEVI SRL AND RANTE 2018

here clearly seems to be to avoid the proximity of the water, better to preserve the mud-brick structures and render the room less damp. Additionally, in this case the *coccio-pesto* layer was covered by a thin clay layer, rendering the surface flat, thus without the intention of decorating the room.

The court area was occupied, on its southern side, by a rectangular structure (USM 1633 = USM 3622) built with very thin walls, leading directly onto wall USM 2645. Some reports of areas of thin sheets of clay – indicating the presence of stagnant water – might suggest that this area was uncovered, or certainly only partially covered. This vast area did not preserve its character of a court, whether it were roofed or not. During the 10th century itself, it was rapidly transformed into a vast rubbish-court.

The private quarter is framed by walls USM 2640 to the north, USM 2645 = USM 2644 to the west and USM 2668 to the south. The eastern part was closed by wall USM 3951, which is not represented in the plan because it was totally destroyed in the 20th century and covered by a thick layer

of sand. Some observations in the area where it crosses the east-west ditch-street suggested to me the existence of this structure closing the eastern part of the house. This roofed area was divided by a massive wall running east-west (USM 2674). The northern side is divided into two rooms (A7 and C7) by wall USM 2675. The former room is covered by a clay soil; the second one was too much destroyed to make observations. The southern side is also divided into two parts, of which the eastern one was also too much destroyed for observations. The western one (B7) was characterised by a very highly finished square baked-brick floor. The eastern side of the room is occupied by a mud-brick bank leading to wall USM 2671. The elements characterising this room suggest it functioned as a reception room.

#### 6.2.2.3 Phase 6

This phase was dated to the 10th–11th centuries (fig. 192). As in the earlier phases, as well as in the following ones, several destruction levels are present due to the illegal

digs of treasure hunters. The complex is still divided into three main parts: a private quarter, a kitchen-storage area and a court-rubbish dump. The two ditch-streets (US 3877 and US 3934) still frame the dwelling.

The private quarter was framed by walls USM 2645 to the west, USM 2651 = USM 2661 to the north (both leading to the earlier USM 2674) and USM 3951 to the east (not in the plan), of which, as previously noted, nothing remains.

This part of the dwelling was paved with rectangular baked bricks, another brick model from the 10th-century phase. Moreover, this room presented in its centre a system for water evacuation, or *badrab*. Probably keeping the same function as before within a global view of the whole dwelling, this large room displays several changes. The *badrab*, the fireplace (US 636) and the jar for water (US 670) indicate that this place became either a workshop-atelier room or, perhaps, a bathroom, although it seems to keep its private side in relation to the rest of the house. The two rectangular rooms northwards, of which the formal function does not seem to change, completed the architecture of the private quarter.

The kitchen-storage area presents, as also later, defined limits, but no elements that clearly distinguish its function. The presence of numerous fragments of a tandoor, however, provided me with the elements to suggest the continuity of its previous function as a kitchen-storage area.

From this time, the court area was committed to being a large rubbish dump. The excavation showed that the dynamic was well organised. In fact, the entire surface was several times flattened and covered with a thin clay layer, to again be employed, at least three times over, as a rubbish dump, until the total abandonment of the dwelling. To this phase 6 corresponds the first rubbish-dump layer, above which was laid a thin clay layer and was built a very fragile mud-brick structure. Later, the court was rapidly re-employed for rubbish disposal.

#### 6.2.2.4 Phase 7

This phase dates to the 11th–12th centuries (fig. 192). The complex is still divided into three main parts: a private quarter/entrance hall, a storage area and a court-rubbish dump. The two ditch-streets (US 3877 and US 3934) still frame the dwelling.

In this epoch, the main change in the dwelling concerns the entry, which was located in the southern part, through wall USM 2667. A baked-brick threshold (US 2671) connects to a one-step stair, and then to the reception hall (B8). It was framed by walls USM 2645 to the west, USM 2651 = USM 2661 to the north (both leaning on the earlier

USM 2674) and USM 3951 to the east, of which as previously noted, nothing remains. Room B8 was characterised by a highly finished baked-brick floor (US 639) limited to the eastern side by wall USM 2671. This floor covers a thick clay layer that completely covers the previous *badrab*, and thus changes the function of the room. Since the main entrance is now to the south, this room became the entrance hall, losing its earlier utilitarian function.

The northern room (A8) is divided into two parts by a thin wall (USM 2677) that separates an empty eastern side from a western side composed of a baked-brick bank (USM 2661) and a baked-brick floor (US 1654). This space, and its location following on from the entrance hall, undoubtedly was used to entertain guests.

The court area was once again filled with a thick layer of ceramic fragments and other materials. The three coins found in this layer all date to the Qarakhanid period. In the northern part of the court, several well-conceived pits of different forms, all covered with a thin layer of plaster, suggest the existence of an area dedicated to work. Other interpretations would see in them the constitution of a private hammam.<sup>12</sup>

The storage area is at this altitude totally deprived of structures, all destroyed by pillaging. Only the walls separating the space follow the same directions as before.

#### 6.2.3 Final Remarks

The evolution of the habitat of Paykend over a long time-scale generally demonstrates a need to expand, and at the same time to fragment, the spaces involved. It also evidences a desire to better manage habitable spaces.

While phase 1 was characterised by large rectangular spaces, traversed east-west by a corridor, phase 2 marks the first fragmentation of the spaces and shows the first human behavioural changes in relation to the domestic space. A wall oriented east-west filled the previous corridor, dividing the space into six smaller rooms. Rooms were therefore independent of each other and communicated by means of doors provided with wooden thresholds between the structures. The western side presented walls covered with a fine *pisé* layer, giving a residential function to this side. Phase 3 is very close to the earlier one, probably stressing more the formal function of the southern part of the dwelling.

<sup>12</sup> I am proposing here the suggestion of Djamal Mirzaakhmedov and Shukrat Adilov (oral communication), which connect it with other similar structures brought to light in Bukhara.

Unfortunately, comparisons dated to this period in the oasis are rare.<sup>13</sup> Semenov (2003<sup>14</sup>) published the results of the excavation of a dwelling house in the shahrestan-1 of Paykend. Although the article is hard to understand because of the absence of clear and distinct plans showing the several architectural phases,<sup>15</sup> and because of the lack of clarity in the arguments given for dating it precisely, it is nevertheless an important piece of social-historical evidence. Amongst the four periods, Period II seems to be the most complete on the axonometric plan shown in figure 1. Globally, the house is externally framed by streets, and internally it is divided by a corridor into two parts, a northern and a southern one. The former comprises an entrance from the northern street, different small rooms and a reception hall with four columns. The southern part comprises different small rooms, with a sofa around the walls and a central fireplace. Interesting decorated stucco materials, found in one of the smaller rooms, as well as other decorated objects, gave to this house a residential function.

Comparing it with phases 2 and 3 in the same urban area, similarity of some architectural structures is evident. The division of the dwelling into two sides is the first. Both dwellings divided a more residential and “reception” side

from a more household one. Both houses show a fragmentary organisation into small to medium-sized rooms. Differences are also easily identifiable. While Semenov’s architectural axonometric plan presents several rooms containing a centrally constructed fireplace, in the other cases there is no evidence of them having been found, although rudimentary hearths dug into the soil have been observed. Moreover, while in the former case a large reception hall is identified in the north-western part of the dwelling, in the latter case no evidence of this type of room has been found. It is possible to suggest that in both cases the architectural and social background of the domestic space is similar.

The Islamic phase began with a consistent transformation of the domestic space, although the urban framework remained the same. The dwelling is still surrounded by ditch-streets on two sides. The north-eastern main entrance directly leads to the central corridor, which clearly divided the two different functions and sides of the house, the private quarter and the kitchen-storage area (and latrine for the earliest phase), to which can be added the court to the western side. The next phases show substantial changes in the domestic space in terms of construction material and conception of space. Between the 10th and 11th centuries, the southern formal side was, apparently for a very short time, used as a workspace or bathroom. A little later, it returns to the same morphology as before. During that epoch, the court definitely was employed for rubbish disposal, keeping however the same function of a court.

Leaving behind for a while Central Asian culture, and looking rather towards Iran, in a period during which the Bukhara Oasis was the political centre of the vast Samanid emirate encompassing Transoxiana and Khorasan, two examples amongst others could be taken into consideration in an attempt to make some comparisons. In Nishapur, Wilkinson (1986: 220) excavated a vast dwelling at Sabz Pushan dated to the 10th–11th centuries CE, of which I tried to extrapolate a part that, in my view, seems to be homogeneous and to belong to the same context. In Siraf, Whitehouse (2009: 39, fig. 31) excavated a vast area of dwellings dated to between 800 and 1000 CE, of which I selected two. Although the Siraf dwelling is more clearly defined – it is a solid structure built with stone and mortar rather than with mud brick as in Nishapur – the global framework seems to show that while in Siraf the organisation of the house developed around a central court, in Nishapur and for the same period in Paykend, the organisation was more scattered. Moreover, while in Nishapur one could attempt to identify a kind of central larger space (9F) around which the organisation of the rooms

13 In terms of comparisons in Central Asia, I would like to mention only a few cases which, however, remain quite far-removed from our discovery. The Uzbek archaeologist A. Anarbaev published in 2013 the very interesting results of the excavation at Akhsiket, in Ferghana. He brought to light and presents in this monograph an urban architecture (fig. 83) constituted of several domestic entities. The one referred to as “complex I” (fig. 84) is constituted of several quadrangular rooms well organised within a square perimeter. As, probably, the excavation has not as yet been completed, it is difficult to find comparisons with the dwellings in Paykend of the same epoch, 11th–12th centuries CE. In 1973, G. Shishkina published the plan of a structure in Samarkand dated to the 8th–11th centuries CE (fig. 1), of which, according to the article, the function seems to be other than that of a dwelling, at least in its best-known phase.

14 Article online (<http://www.transoxiana.org/Eran/Articles/semenov.html>). In the excavation report of seasons 2004–2007 (see particularly Semenov and Mirzaakhmedov 2005: 20–5; Turgoev and Mirzaakhmedov 2008: 13–7), the excavation results have been published of two houses (VIII–VIIIa) dating to the 10th–11th centuries CE (report 2005) and to the 6th–7th centuries CE (report 2008). Although it is useful to have at one’s disposal further plans, the synthesis of the dwelling and its evolution do not seem as yet to have been completed. With the exception of some rooms, and despite lacunae in the excavations in the southern part, the global organisation seems not to have changed from the pre-Islamic to the Islamic period.

15 The detailed sequence of periods is in fact presented in only one plan (Semenov 2003: fig. 1), which assembled four periods, even if the author situated them in the same epoch.

could be imagined, in Paykend the organisation occurred in relation to a corridor for the pre-Islamic period to the 9th century CE.

Finally, the material culture of this long period shows a large range of different customs. The discovery of the pottery quarter outside the walled city in the rabad, as well as a large commercial area (the bazaar), testifies to the city's activity and economic rise. Further studies are proving that these dynamics were stimulated by a substantial increase in long-distance commerce, which strongly linked the Bukhara Oasis to neighbouring regions. These factors generated social changes, not only in Paykend but also in the other main cities of the oasis, changes that are clearly observable in the increase in the population's wealth and in the services that the city offered.

### 6.3 *The Pottery Quarter*

In 2010, during a walk along the left riverbank of the canal, I was wandering by some destruction layers along the slope of the other riverbank. These destruction layers were represented by burnt-brick slag, baked brick and ceramic fragments. Intrigued by this, I began a rapid cleaning of the slope with a simple trawl as a tool. In very little time I observed not only the details referred to above but also clear horizontal layers of baked-brick structures and sherds of ceramic layers. Subsequent cleaning, more accurate and with the help of two workmen, brought to light a huge baked-brick structure, of which the vertical section clearly showed the shape of a kiln.

It is not unusual to find isolated kilns within the city; still today, later structures can be observed. The first observations during these cleaning operations convinced me of the presence of something different. The first results of the excavation showed, in fact, the presence of a large circular kiln with a central pillar and three radiuses. The continuation of the excavation finally revealed the existence of several baked-brick constructions, confirming the presence of a complex of structures revolving around the production of pottery.

The excavation of this pottery quarter, carried out with the collaboration of Sophie Berthier, continued over the subsequent years, and it is still being excavated at present. Since the archaeological operations were complex, one of the first requirements was to try to define the limits of the area. Because of the high magnetism of this material, a large geomagnetic survey was carried out in 2011 (Rante 2013: 251–53, fig. 13).

#### 6.3.1 *The Geomagnetic Survey*

The geomagnetic survey was realised by Claire Brinon and François-Xavier Simon, in collaboration with the

University of Pierre et Marie Curie (Paris VI).<sup>16</sup> Globally, the whole survey concerned 6.5 ha of the ancient city, divided into different urban entities, of which the pottery quarter covered circa 6,000 m<sup>2</sup>.

Overall, the investigation brought to light quite distinct results as a result of the strong anomalies exhibited by the material underground. In fact, the heating of the materials associated with kilns, fireplaces or simply baked bricks can generate the appearance of thermoremanent magnetisation when a certain critical temperature is exceeded. On geomagnetic maps, globally, these types of anomalies could have a north-south orientation, which is distinct from metallic objects, which do not present an orientation within the terrestrial magnetic field (fig. 194).

Since the structures of this part of the city are quite close to the surface, and because of their specific material, the survey brought to light good quality data. A group of strong isolated anomalies have been detected over a length of circa 250 m north-south, along the canal. These are associated with lower amplitude anomalies, probably characterised by baked bricks and groups of pottery fragments, in which the zone is rich. Some metallic elements have also been clearly identified. They represent the memory of past Soviet irrigation works in these areas.

The map resulting from the interpretation identifies a zone of circa 3,000 m<sup>2</sup> contained many anomalies. The excavation confirmed that the presence of materials included in ateliers is identifiable not only by simple magnetic anomalies, strong isolated anomalies and strong magnetic anomalies, but also by weak anomalies, mostly identifying layers of ceramic fragments or groups of scattered baked bricks, resulting from the destruction of structures. Some interesting signals also originated in the far southern survey limit. These signals probably correspond to the remains of a kiln. The few linear anomalies identify baked-brick walls, forming the global organisation of the workshop-ateliers.

Unfortunately, the proximity of the canal bank prevents an understanding of the whole expanse of the area. It can be estimated that from this side of the canal circa 10 m of structures have been destroyed.

## 7 *Trench E*

The area excavated for trench E extends over circa 500 m<sup>2</sup> and is located along the right side of the canal bank (fig. 195). Some of the structures are today destroyed on

<sup>16</sup> UMR 7619, Sisyphé.

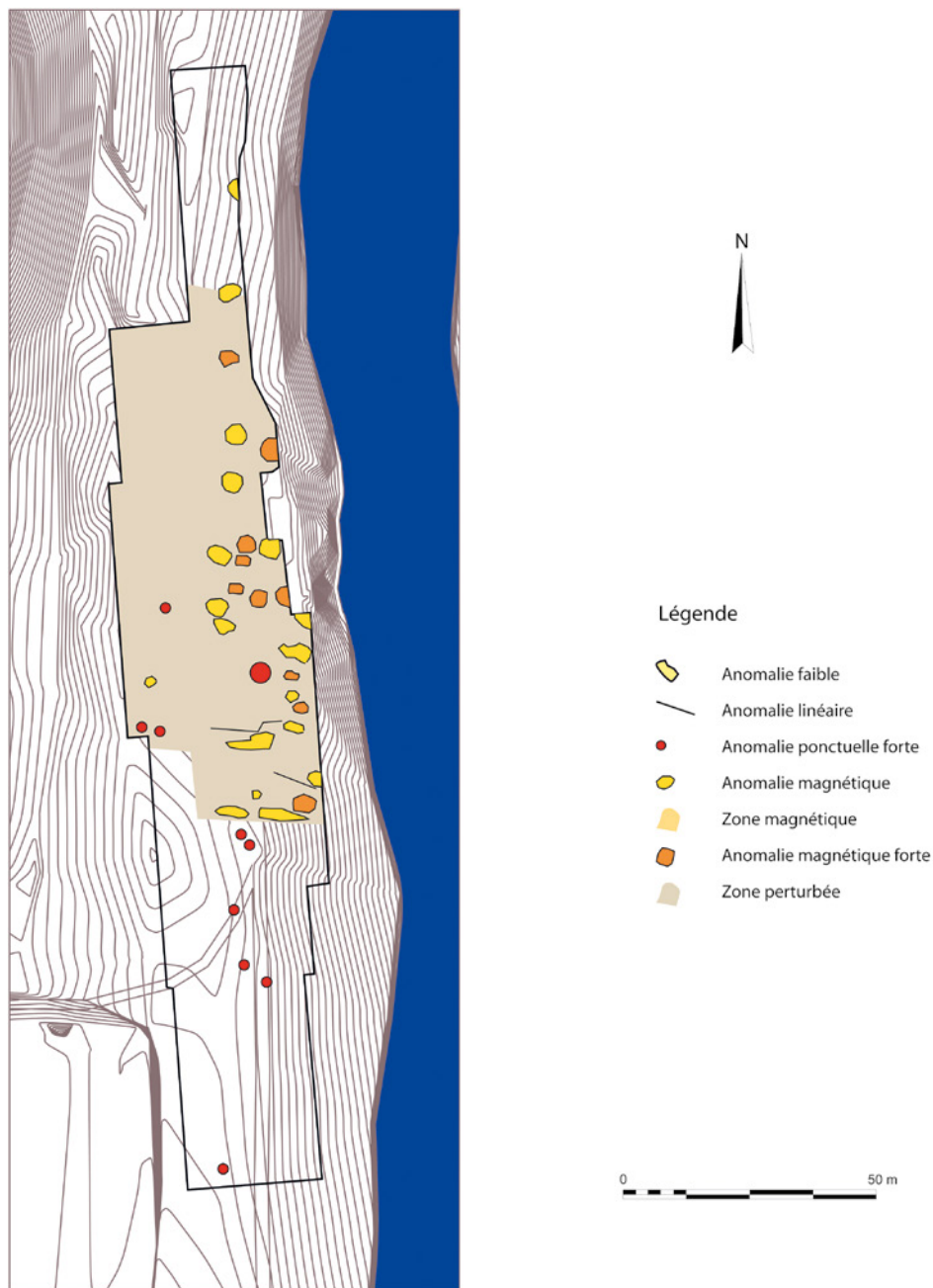
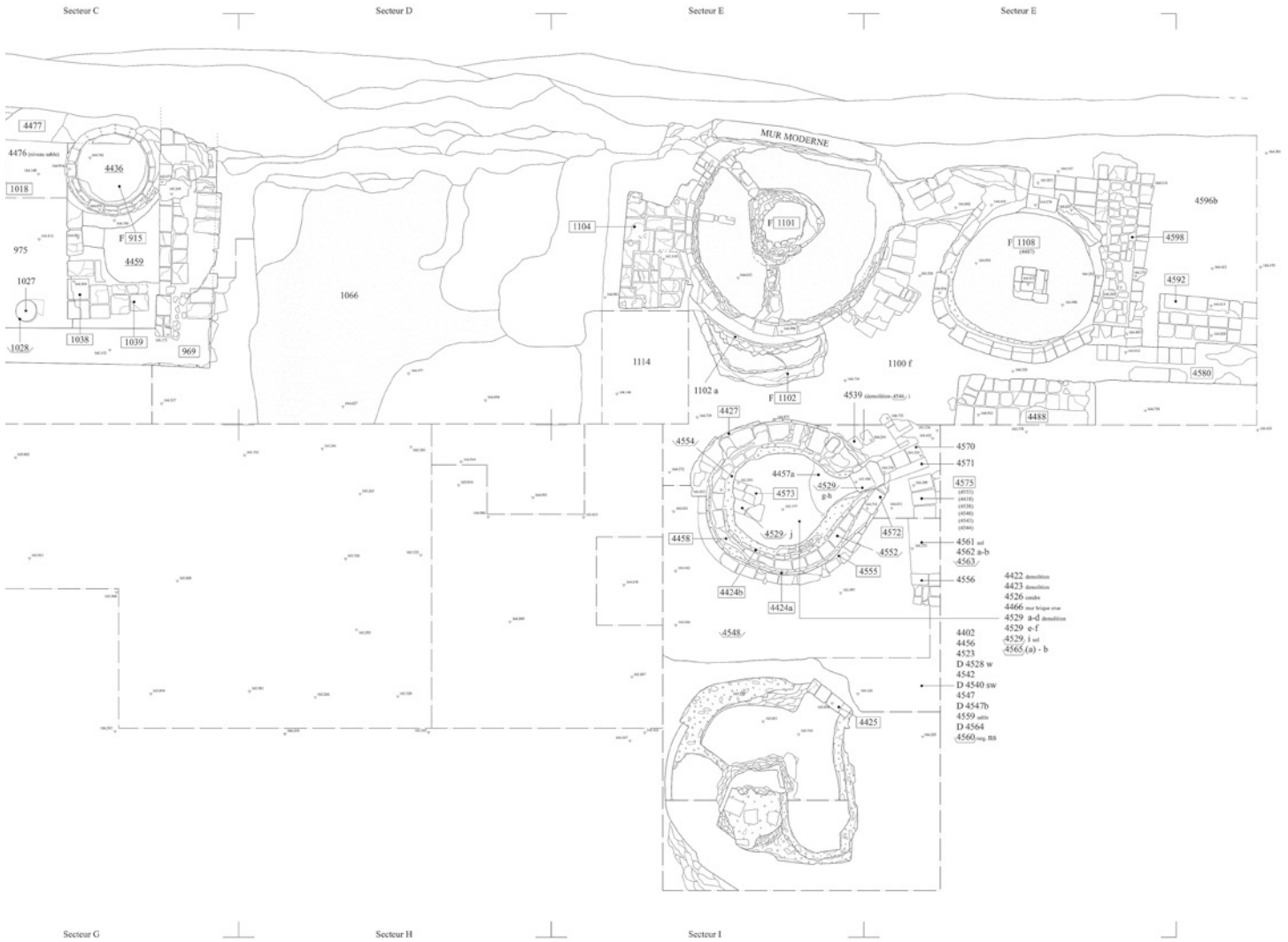


FIGURE 194 Paykend, geophysical survey of the pottery quarter  
BRINON AND SIMON 2011

their eastern side, rendering the study of this part of the quarter impossible. As a whole, this area of production was built above the embankment of the canal. It is not yet clear when this was realised. One of the hypotheses is that this one represents the preparation of the base above which the pottery quarter was constructed. The other hypothesis is also that this embankment could represent the result of several embankments erected during the century in the context of water supply, probably to clean the canal.

This embankment did not lack for anthropogenic material. A few fragments of pottery and bones were observed, testifying to the presence of earlier occupations also in this area. The earliest constructions were dated by  $C^{14}$  (C2RMF report 23836, 27177, 30082) and TL (C2RMF report TL 2017) to the end of the 8th century and the very early 9th century, confirming that this area of pottery production was built at the beginning of the Islamic occupation, that earlier occupations settled here and – why not? – perhaps also pre-Islamic productions.





Because of its large area, trench E has been divided by convention into nine sectors, A–I.

## 8 Sector A

### 8.1 Phases Belonging to the 9th–early 10th Centuries CE

#### 8.1.1 Phase 1

The early floor on which this part of the pottery quarter was built is at a height of 199.58 m and was characterised by the interface of the embankment (US 4633, 4629, 4605 for sector A) made up of a crammed level of very hard not-detritic sediment deriving from the canal. Originally, this space was demarcated by two walls, USM 4513 to the south and another wall to the north, of which no traces have been found. Wall USM 988, which is visible on the map and which delimits the space, was most probably constructed a little later, since it covers one of the earliest structures to the west. Both walls were constructed directly above the embankment. The wall demarcating the space to the east is now impossible to find because of the recent destruction. The wall delimiting this space to the west was probably found in 2014 (USM 4513a). In fact, a north-south row of mud bricks is associated with wall USM 4513, and probably also with wall USM 988. The northern part of this space was occupied by one basin for decanting clay, for which no structure has been observed, only the negative prints of the baked bricks making up its bottom (US 1035). The bottom of this basin is at a height of circa 199.10 m, which includes the estimated thickness of the baked bricks. It was probably conceived slightly encased into the sediment of the embankment. Chronologically associated to it is USM 4631, located to the western limit of the trench. The excavation of this mud-brick circular structure was difficult because of its hard sediment composition, which sealed its bottom. In its centre was a small circular heap of this hard grey sediment, earlier wrongly interpreted as the central axis of the furnace of small kilns. The pursuit of the excavation brought to light its true nature. In its centre appeared the upper part of a camel or horse tibia, which presented in its centre a well-defined hole. The tibia – circa 30–35 cm long – was inserted into the hard sediment. It was the support for the axis of a potter's wheel (fig. 196), of which only the upper flat part came to the surface, thus permitting greater stability. Once the use of this potter's wheel had ended, the entire structure was abandoned. A layer of hard beige ground covered the circular space, which was transformed into a rubbish dump. Inside, numerous brick slags were found, probably deriving from the destroyed part of a kiln. To complete the analysis of this early phase, a small test pit measuring 1.20 × 1.20 m was opened close to this potter's

wheel. No further and lower structures were observed. The sediment excavated presented, however, fragments of bones and small ceramic sherds.

This early phase might be completed by a further structure, brought to light approximately at the centre of the area, and recorded as USM 4627. This ovoid mud-brick structure did not present any central axis to lead to its identification as a potter's wheel. Considering the extreme hardness of the sediment, it is in my opinion unthinkable that somebody took out the bone axis. Moreover, at a distance of only 0.20 cm from it, a bone axe belonging to a subsequent phase constituted the mechanism of a later potter's wheel. This structure may have been the place for kneading, manipulating and maturing the clay. After its abandonment, this structure was used as a dumping ground for waste pottery (US 4624), later covered by 15 cm of sand-clay hard sediment. The material found inside it allows for the hypothesis that this place should be considered as a structure for kneading clay before shaping it.

#### 8.1.2 Phase 2

The following phase showed no important changes. The location and architectural framework remained the same. Instead, because of the extreme fragility of the mud-brick structures and their frequent use, these were closed and new ones were opened nearby. This organisation of the ateliers apparently depended on a rigorous organisation of the space, and this is the case not only in Paykend but also in the other cities of the oasis.

In this phase, the basin for decanting clay was probably the same (1035). A few centimetres east of the early potter's wheel (USM 4631), another potter's wheel was brought to light (USM 1036). In this latter one, no bone axis was found. The structure for kneading clay (USM 4627) was still in use, and structure USM 4631 was probably transformed into a dump.

#### 8.1.3 Phase 3

This phase was characterised by the destruction of structure USM 1036. This space became a further dump (US 4549), in which many ceramic fragments were found, as well as bones and charcoal. Because of the fragility of this rubbish layer, structure USM 4521 very probably was constructed a little later above it. Structure USM 4627 was still in use during this phase.

#### 8.1.4 Phase 4

This phase was characterised by the construction of another potter's wheel (USM 4508) and the destruction of the previous structure (USM 4521). Probably at that moment, both USM 4521 and 1036 became a single dumping area. Excavation of this new structure did not bring to

light the bone axis in the middle of the circle, but it did reveal the location of the pivot bearing in which the axis of the wheel was encased. The northern side of the circular structure was characterised by a small baked-brick bank on which the potter would have sat. The kneading structure (USM 4627) may still have been in use.

## 8.2 *Phases Belonging to the 10th Century CE*

### 8.2.1 Phase 5

This phase was characterised by several changes. It seems that at this moment the baked brick is vigorously introduced constituting a structural element for specific structures. First, the early decanting clay basin disappeared and another basin was constructed on the southern side of sector A (USM 4428). Another potter's wheel (USM 1037) was constructed, wholly encircling the earlier USM 4627. But before this, the same hole was filled by a layer of hard grey sediment and used as a secondary dump (US 4624), in which several whole examples of pottery have been brought to light. The later potter's wheel (USM 1037) was also characterised by a bank of one row of baked bricks (USM 4461) slightly inclined to the centre of the structure, for the potter, as in USM 4508. The earlier structure (4508) became at this time the dump.

### 8.2.2 Phase 6

This phase was characterised by the construction of a new typology of potter's wheel, completely built out of baked bricks (USM 4511). As for structure USM 4508, also here the place for the pivot bearing was brought to light. The basin (USM 4428) preserved its function. The manipulations of the clay were probably carried out around the new basin.

### 8.2.3 Phase 7

In this phase, the basin for decanting clay (USM 4428) preserved its function. The layer US 4512, composed mostly clay covering the potter's wheel (USM 4511), shows that it has been abandoned. It is partially above it that structure USM 4457, a baked-brick bank consecrated to drying clay and its first manipulation, was constructed. The base (US 4517a–b) is a small structure on which this first manipulation of the clay was probably carried out. At this time USM 1021 constituted the new potter's wheel. As for some other structures, also here a bone axis for the wheel was brought to light.

### 8.2.4 Phase 8

This further phase is mostly characterised by the absence of space in this quite small area, at least in this northern side. In order to build an additional potter's wheel, the potter – lacking space – covered the first central axis and conceived another bone axis only 0.20 cm to the south,

probably reusing the same circular structure (USM 1021). Most probably at this moment, the clay basin (USM 4428) was destroyed and the new basin (USM 963) constructed, partially on top of the earlier one.

## 8.3 *Phases Belonging to the End 10th–early 11th Centuries CE*

### 8.3.1 Phase 9

The last phase of Sector A was characterised by the construction of a further and final potter's wheel (USM 1023), which was located, however, on the opposite side of the area, because of the absence of space on the northern side. Here also, the remains of a pivot bearing were brought to light in the centre of the mud-brick structure. Its depth is greater than in the other earlier structures. The secondary dump found after its abandonment testifies to the existence of further potters' wheels. These wheels have not been excavated. The clay basin (USM 963) was still in use.

## 9 Sector B

Sector B is by convention divided following the division of the mud-brick structures, USM 1017 and USM 961. While the latter divided Sectors A and B, USM 1017 was constructed later, separating Sectors B and C. Sectors B and C, therefore, have to be considered as a single large space.

### 9.1 *Phases Belonging to the 9th Century CE*

#### 9.1.1 Phase 1

The early phase of Sector B was characterised by the construction of a mud-brick floor (US 1042), still visible in the section of the canal's embankment. Because of the conservation of some structures, the excavation did not investigate these lower layers. Since the discovery of unfired modelled clay in US 981, it seems that this first phase was characterised by a pottery – making activity, of which very few traces have been observed.

#### 9.1.2 Phase 2

The second phase of Sector B was characterised by a double kiln (909E and 909W),<sup>17</sup> which was directly encased into the sediment embankment (fig. 197). Although both kilns date to the 9th century CE, kiln 909E was constructed earlier. Its fireplace hole was oriented to the south. Irregular and small, this kiln was used for specific firing. More damaged than its western twin, it cannot give us more information.

17 The kiln has been called double kiln 909E-W only by convention. Actually, the structure can be considered as constituted of two different kilns.



FIGURE 196 Paykend, pottery quarter, view of bone axes of the potter's wheel  
RANTE 2015

9.1.3 Phase 3

The third phase was characterised by the construction of kiln 909W, which still is visible today. This one also is small and irregular. Inside the kiln, traces of green monochrome glaze were observed, as well as some remains of small, thin kiln bars with green glaze splash. Clearly, this kiln was used for firing small glazed material. The museum of Paykend shows a reconstruction of a small circular kiln in which the same bars encased into the holes of the kiln wall support small lamps. This kiln also presents its fireplace hole oriented to the south.

9.1.4 Phase 4

Above the filling (US 1016), dated to the 10th century by coins, composed of a substantial quantity of pottery sherds, kiln USM 4472 was constructed. It is localised south-west of the earlier kiln (USM 909W). This new kiln is rectangular and is oriented east-west. The longer walls, north and south, presented six small irregular holes on each side, corresponding to the supports for bars on which the pottery is distributed. Careful excavation has shown the presence of various repairs to these holes; the fireplace hole, oriented to the west, was very burnt. Both elements testify to the intense and long use of this kiln. The layer corresponding to its last employment (US 985) is constituted of ash remains and has been dated by C<sup>14</sup> (C2RMF report 23836) to the end of the 9th century.<sup>18</sup>

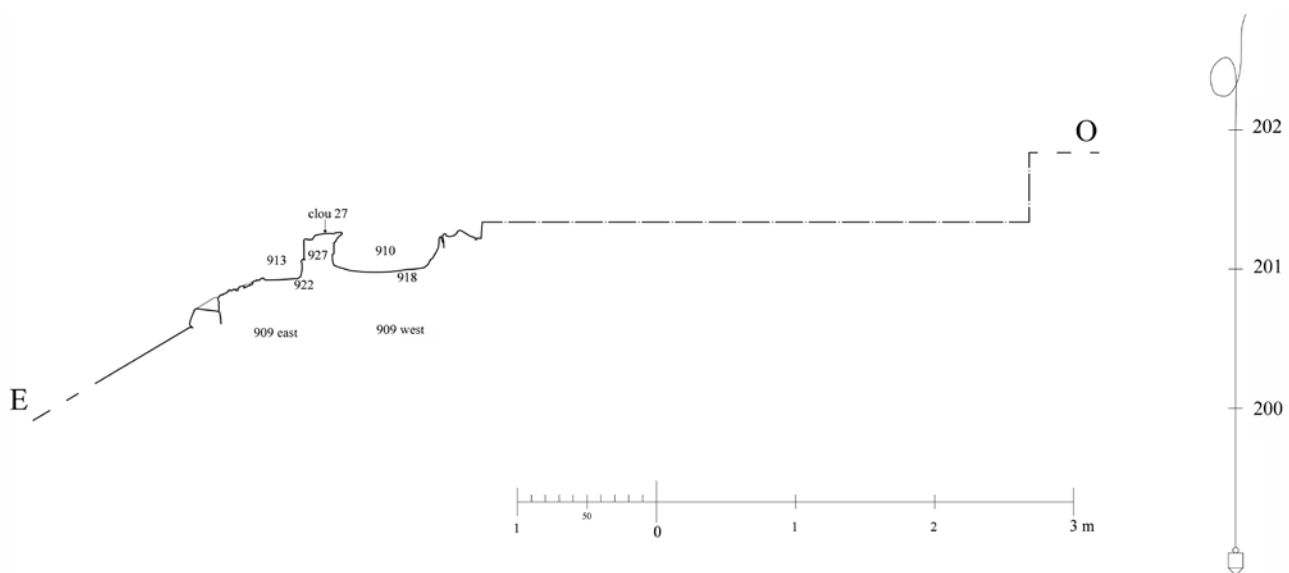


FIGURE 197 Paykend, pottery quarter, east-west cross section of sector B  
BERTHIER, RILIEVI SRL AND RANTE 2017

18 Pascal Richardin and Nathalie Gandolfo, C2RMF report 2012.

## 9.2 *Phases Belonging to the 10th Century CE*

### 9.2.1 Phase 5

This phase was characterised by the destruction of kiln USM 4472 and the construction of another kiln (USM 987) above it. This later structure was located approximately in the same place as the previous one, the fireplace hole oriented as before. The vestiges brought to light show that it was probably thinner than the previous one.

## 10 Sector C

This sector was enclosed by walls USM 969, 963 and 1017.

### 10.1 *Phases Belonging to the Mid-9th–early 10th Centuries CE*

#### 10.1.1 Phase 1

The early phase of this sector would correspond to that of Sector B, of which few data are at my disposal (fig. 198). As for the northern sector, here also the early phase was characterised by the creation of a mud-brick floor (US 1042) at a height of circa 199.60 m. And as for Sector B, here also an initial pottery activity can be observed with layer US 4433, which corresponds to a filling of destruction material of this nature. No other elements of this phase were brought to light, because of the conservation of the structures. To this phase also belongs layer US 4459, to the southern

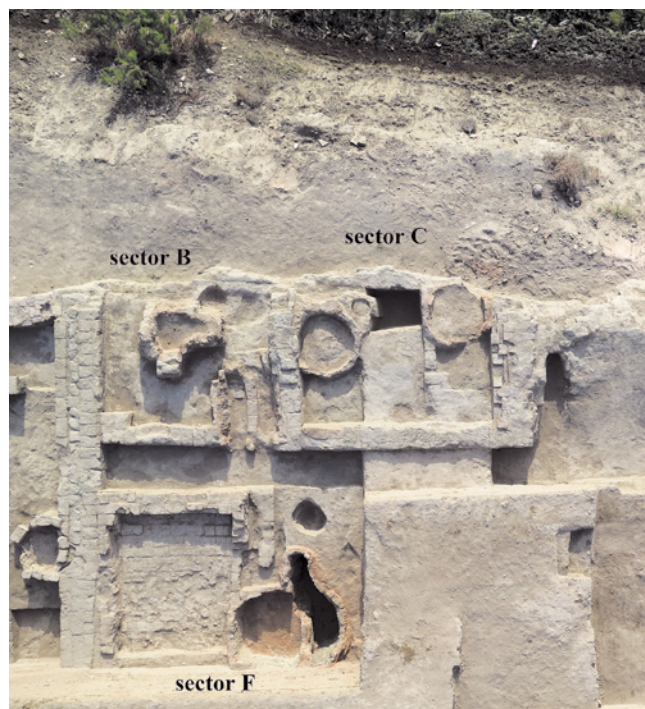


FIGURE 198 Paykend, pottery quarter, aerial photo of sectors B and C  
SAGORY 2017

part, corresponding to the floor of the embankment of the canal.

Since wall USM 1017 was constructed after potter's wheel USM 995, this latter structure possibly was associated with the earlier activity of Sector B. The potter's wheel, as some others in Sector A, presents a hole at its centre, corresponding to the location of the pivot bearing. It was impossible to observe the bank-seat of the potter because of its destruction by wall USM 1017.

To this phase also belong structures USM 1038 and 1039, corresponding to two small walls, the function of which is associated to the earliest pottery activity of this space. They are covered by an ash layer (US 990) dated to the 9th century by a coin well situated within the layer; this layer was covered by layers US 977 and 984. These two latter layers delivered an enormous quantity of common and glazed pottery, of which some characteristics belong to the 9th century.

### 10.2 *Phases Belonging to the 10th–early 11th Centuries CE*

#### 10.2.1 Phase 2

To this phase belongs kiln USM 915 and potter's wheel USM 995, even if, as was stressed above, this latter structure could have been constructed in relation with the earliest structure of Sector B. However, it is certain that it continued its function also in this separate context corresponding to Sector C. Kiln 915 was directly encased into the previously mentioned layers of ash and pottery-dump (US 977 and 984).

## 11 Sector F

### 11.1 Phase 1

An earliest phase was characterised by the mud-brick wall USM 4467, of which unfortunately no further traces were brought to light because of the several destruction layers.

### 11.2 *Phases Belonging to the Late 9th–late 10th Centuries CE*

#### 11.2.1 Phase 2

The first phase of this conventional sector was characterised by a large rectangular structure constructed with baked bricks (USM 957). This large structure would correspond to a basin for the drying of pottery after its modelling and before firing. The layer covering this basin, corresponding to its abandonment, can be dated by two coins to the end of the 10th century, determining thus that the basin was in use at least before this date. Considering, moreover, that its northern side is partially covered by

wall USM 961 of Sector A, it may already have been functioning at the end of the 9th century at the latest, and certainly from the beginning of the 10th century.

### 11.3 Phases Belonging to the 10th–11th Centuries CE

#### 11.3.1 Phase 3

This phase was characterised by the construction of kiln USM 4464 (= USM 4469). The structure has a classic piri-form shape, with the fireplace hole oriented to the east. The furnace has been dug to a depth of 1.50 m. This kiln presented several layers of ash and destroyed materials, testifying to its long-time employ.

To the same phase seems to belong the later kiln USM 4450 (= USM 4470), which cut the former one on its northern side. This new kiln, of which the furnace has also been discovered, presents a square framework and an ovoid inner profile. Its fireplace hole was probably oriented to the west, and thus was not excavated.

Curiously, hole US 4504 was probably realised to employ the sediment of the canal embankment for making the pottery or the structures.

### 12 Sector D

Further to the south, a large space of approximately 6 m corresponds to the street leading to the bridge crossing the canal. It comprises different layers of the grey sediment of the embankment. Several reconstitutions of it can be observed.

### 13 Sector E

#### 13.1 Phases Belonging to the 9th–early 10th Centuries CE

##### 13.1.1 Phase 1

The single phase present in this chronological context was characterised by the construction of a large kiln (USM 1102, fig. 199). This structure is quadrangular and is oriented approximately east-west. Only the western side has been brought to light. The other part, in fact, was destroyed during the construction of another kiln (USM 1101). As with all kilns observed, only the furnace has been preserved. The



FIGURE 199 Paykend, pottery quarter, aerial photo of sectors E and I/K  
SAGORY 2017

bottom of the furnace of USM 1102 is 78 cm deep. Due to the exiguous space preserved, very few sherds were found during excavation that could be dated to the early Islamic period.

### 13.2 *Phases Belonging to the 10th Century CE*

#### 13.2.1 Phase 2

This phase was characterised by the construction of kiln USM 1101. This circular kiln, with a diameter of 1.80 m, presented a central pillar with radial branches of which only the northern one has been found. This earlier phase of the kiln apparently lasted only a short time, evident in the destruction of the central pillar due to overheating.

#### 13.2.2 Phase 3

In this phase, another central pillar was constructed, above the previous one, only shifted by some centimetres to the south. The circular perimeter remained the same. The first excavation of this kiln (USM 1101) was entrusted to Jacques Thiriot, an expert of pottery production in ancient times. His interpretation attested to the presence of a lime kiln. This interpretation revealed itself to be totally wrong. The more accurate excavation of Sophie Berthier, who continued the excavation below the initial hard white lime-like surface, showed the presence of different layers (US 4641 a–d) of hardened ashes mixed with pottery sherds. The fragments of burnt-brick slag testified to different cleaning operations of the inner kiln walls, often carried out in order to reuse the structure.

## 14 Sector I

### 14.1 *Phases Belonging to the Early 8th Century CE*

#### 14.1.1 Phase 1

This phase was characterised by the interesting vestiges of kiln USM 4575, which seems to be, through the stratigraphy, the most ancient kiln of this southern part, in which only large kilns can be noted. Only some ruins located south of this sector have been brought to light. It was cut by the later kiln (1102) to the east and by kilns 4424a and 4424b to the north. The overheated brick inside kilns 4424a–b could belong to this earliest structure. Its diameter – reconstructed – measures approximately 4.50 m. It is encased into the canal embankment. The existence of this kiln is confirmed in particular by the discovery of a production slag layer (US 4649) found in relation to this structure, and lower than the other later structures. This layer leads directly onto the canal embankment. This layer of pottery and kiln slag is covered by a layer of natural origin constituted of pebbles and grey sediment, most

probably originating from the canal, through the effects of a canal flood. This natural event could have caused the destruction and abandonment of the large kiln, followed by the construction of the others.

### 14.2 *Phases Belonging to the Late 8th–9th Centuries CE*

#### 14.2.1 Phase 2

This phase was characterised by the activity of kiln 4424a. With a diameter of 2.10 m, this structure presents a long phase of activity, as shown by the severe slagging of its inner walls. After the abandonment of the kiln and its careful cleaning, a further kiln was constructed just inside it. Its fireplace hole, destroyed by the later one, is oriented towards the south-east.

#### 14.2.2 Phase 3

Kiln 4424b is conceived in the same context as 4424a, concentric to it. The thin space between both kilns has been filled with earth and small pebbles, as well as with small fragments of overheated brick. Its diameter measures 1.70 m. US 4529a–c corresponds to the destruction *in situ* of the vault of the kiln, and US 4529d to the destruction also *in situ* of the furnace, with a significant quantity of pottery fragments. The latter led onto an ash layer (US 4529e), which corresponds to the last firing of this kiln. The floor of the furnace corresponds to US 4529f. Also the inner walls of this kiln were characterised by an advanced state of overheating, testifying to its long usage for firings.

## 15 Sector K

### 15.1 *Phases Belonging to the Late 11th–12th Centuries CE*

#### 15.1.1 Phase 1

Very poorly known, this phase was characterised by the presence of a small structure (USM 4616) constructed directly above the canal embankment and found inside the later kiln (USM 4425). This structure, of which no serious interpretation can be given, is built of a row of three mud bricks. This has been destroyed by a recent disturbance (US 4614), corresponding to a large burrow. Inside it, a considerable quantity of sand sediment was observed.

To this phase also belongs US 4648, which contained overheated pottery fragments, some kiln brick slag and one ceramic sherd covered by a monochrome turquoise glaze.

#### 15.1.2 Phase 2

Above the unknown structure (USM 4616), kiln USM 4425 was constructed. It was built by cutting the canal

embankment. It is circular, its diameter is circa 2.70 m and its furnace comprises a central pillar with three radial branches.

The ash-tray of the kiln corresponded to a layer (US 4637) of earth and many pottery fragments, mixed with several decorated moulds for lids. The abandonment of this kiln was characterised by the destruction of the central pillar, as is also the case for kiln USM 1101. US 4620 is composed of overheated materials and earth surrounding the remains of the pillar, testifying to this event. This context was covered by US 4621, a filled layer deriving from the destruction of a structure, constituted of fragments of baked bricks and overheated kiln walls, but also of mud-brick fragments deriving from the external architecture of the kiln. This layer was also constituted of three fragments of fritt-ware covered by a monochrome turquoise glaze. This destruction material could belong to a second collapse, probably occurring shortly after an earlier one.

## 16 Sector J

### 16.1 *Phases Belonging to the Early 11th–12th Centuries CE*

#### 16.1.1 Phase 1

The first phase in Sector J is not completely documented because of the presence of the large kiln (USM 1108). The phase was characterised by the presence of a baked-brick platform (USM 4598) sunk in its centre. The baked bricks are square and rectangular. This structure is evidence of the presence of a place of pottery activity before the construction of the large kiln. The structural deformation of the platform may have caused its abandonment.

Probably also in this period, this space was used as a dump for pottery (US 4586 and US 4596b). The numerous fragments of ceramic and slag mixed with baked-brick fragments attest to this.

### 16.2 *Phases Belonging to the Early 13th–14th Centuries CE*

#### 16.2.1 Phase 2

The dumps of the earlier phase were cut by kiln USM 1108. Its shape is not circular, but quite ovoid. Its fireplace hole, which has today disappeared because of the recent work for enlarging the canal, was oriented towards the east. The kiln, of which only the furnace is preserved, was partially encased in the canal embankment. It comprises a central pillar, to which were connected the branches supporting the floor of the kiln, where the objects were fired. This central structure presents less slagging than that found in kilns USM 1101 and USM 4425. It would testify to a sudden

abandonment of the kiln, which was apparently still in good condition. Moreover, the layers excavated inside the kiln (US 4585a–c), down to the bottom (US 4585d), presented no clear trace of slagging material deriving from the destruction of the furnace. The kiln was connected with the small western mud-brick wall (USM 4580), oriented north-south, and the pavement (US 4592), built of mud and baked bricks.

## 17 Sector L

### 17.1 *Phase Belonging to the Early 14th–15th Centuries CE*

#### 17.1.1 Phase 1

The most recent structure of this excavated pottery quarter is represented by kiln USM 9609, located in the northern part of the area. It is also the largest kiln. Rectangular, it measures 12.80 × 10 m. Here, not only the furnace is preserved but also a small part of the beginning of the upper section used in firing (fig. 200). The furnace of the kiln was composed of eight small vaults, today collapsed and thus slightly displaced in plan, probably because of ancient seismic events, as well as more recent works in this area. The bottom of the kiln (US 9615 = 9617) is at a height of 199.10 m, which corresponds approximately to the furnace bottom of other kilns (e.g. USM 4424). The last layer above the bottom is constituted of ash layers (US 9613a–b) and a few materials. The filling of the kiln is made up of two important layers. The lower one corresponds to the early destruction of the kiln, constituted of baked bricks, slag and fragments of ceramic (US 9612a–e). The upper one corresponds to a levelled filling of a later destruction. Globally, the destruction is located stratigraphically under the collapsed vaults, evidence of its relative chronology, corresponding to the last firing of the kiln. This thick layer (US 9612a–e) has been divided in several parts, following the differences in the nature of the materials observed in the cross-section. The lower one, US 9612e, which is located directly above the bottom of the kiln, is constituted of a dense quantity of baked-brick fragments deriving from the furnace and kiln architecture. Within this layer, pottery sherds datable to the late 14th–15th centuries were found, determining the last usage of this kiln in that period, and thus attesting that the kiln was in use before this date. Upper layers US 9612b–d are composed of a mix of earth, a few baked-brick fragments and pottery sherds. Upper layer US 9612a also presents a dense quantity of baked-brick fragments, with fewer pottery fragments, probably testifying to an artificial last destruction. US 9611 represents the last filling of the kiln, reaching the level of the current floor.

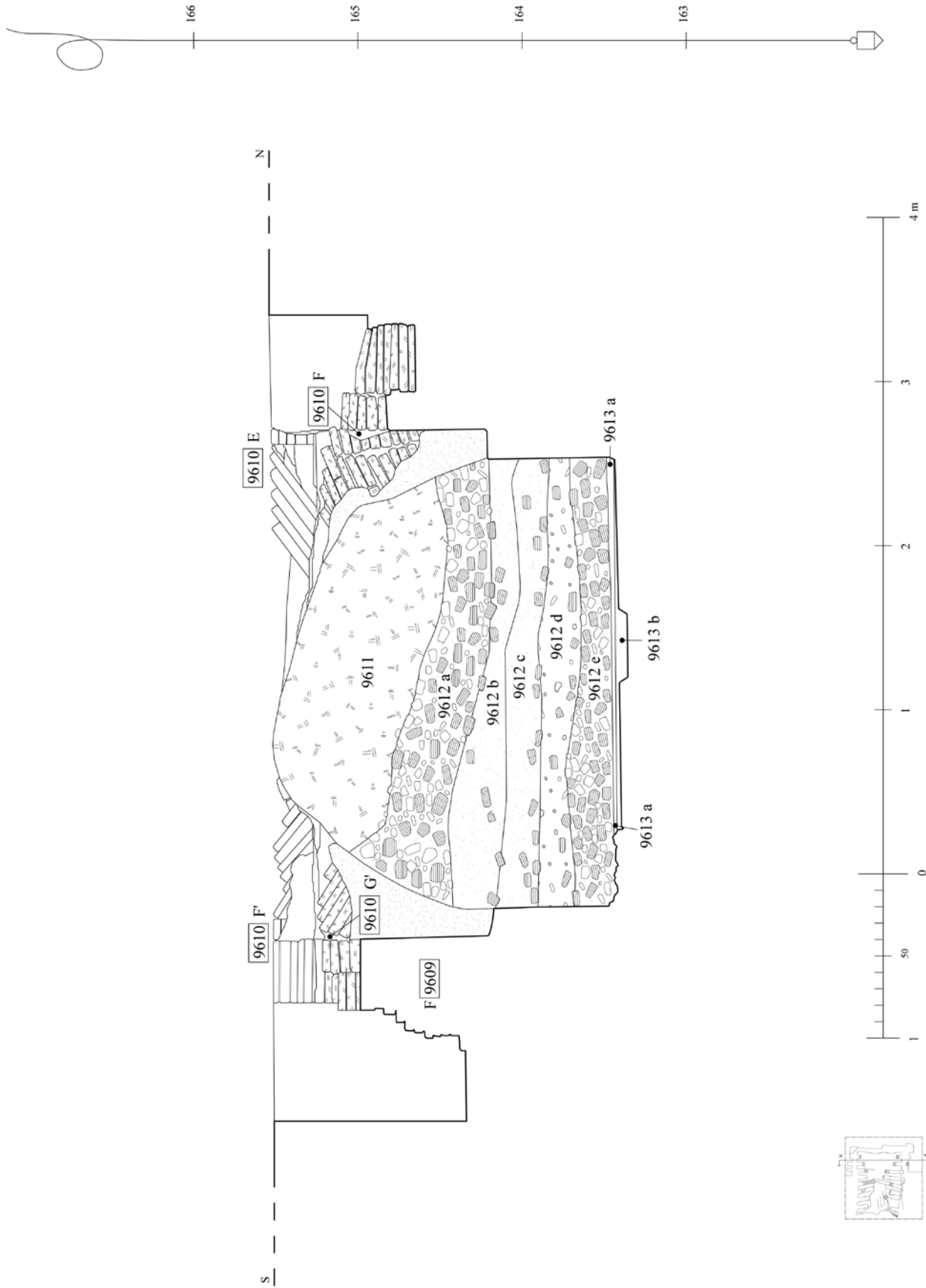


FIGURE 200 Paykend, pottery quarter, north-south cross section of kiln 9609  
BESSARD, RILIEVI SRL AND RANTE 2017

### 17.1.2 Some Considerations on Circular Kilns

In view of the discoveries regarding the large circular kilns, clearly the potters were confronted with a problem of material resistance to the heating of these. In fact, the inner walls of the furnaces were often restructured in order to perpetuate the life of the kiln. Between the two typologies of furnace observed – with and without central pillar – the former suffered most from the heating for firing. They, in fact, present fewer inner-wall repairs, unnecessary because of the rapid destruction of the structure in the furnace, and then the collapse of the kiln. The choice of the potters to erect a central pillar to construct a larger and resistant kiln revealed the weakness of this typology of kiln. Instead, the advanced state of slagging of the inner walls of the other kilns (USM 4424 and 4464) testify to their long activity.

### 17.1.3 The Global Organisation of the Pottery Quarter

According to the data brought to light, as referred to above, the pottery quarter of Paykend, located outside the walled city, far from any inhabited centre, extended over quite a small area in relation to the whole city and was characterised by a high density of structures. These accumulated in an excavated area of approximately 500 m<sup>2</sup>, cutting the older ones or encasing each other like matryoshkas, and only overlapping over a few metres, taking into consideration, however, the several recent campaigns of destruction caused by the expansion of the canal. This phenomenon is due mainly to the strong constraints of the urban space, which was managed with a rigorous urban administration. Despite the nature of this very dense panorama, below I attempt to reorganise the numerous data and to propose the sequence of activity in a chronological framework.

#### 17.1.3.1 8th–9th Centuries

This period corresponds to the earliest phase of the pottery quarter. It does not mean that no previous occupations are to be noted. On the contrary, the early pottery quarter floor, the canal embankment constituted of grey and hard sediment, was mixed with pottery fragments belonging to a period that predates the 8th century CE.

At that time, the quarter comprised an area to the north for producing clay objects. It contained a baked-brick basin for decanting clay (US 1035), a potter's wheel to mould the objects (USM 4631) and a structure for kneading, manipulating and maturing the raw clay object (USM 4627). The potter's wheel of this period is particular for its central bone axis for the wheel. During the same period, the earlier potter's wheel was abandoned and another was constructed (USM 1036). This dynamic continued with the

destruction of the latter, which became a dump for pottery (US 4549), followed by the construction of a further one (USM 4521). This latter one was, finally, destroyed and the new potter's wheel USM 4508 was constructed. The previous structures (USM 1036 and 4521) were re-employed as a pottery dump. The place for kneading the clay objects remained the same. Further to the south, another potter's wheel (USM 99) was also functioning, a little bigger than the others.

At the same time, once the objects had been moulded and dried, they were fired in different places. Kilns 909E and 909W were employed for small objects, like lamps, glazed and unglazed. Further to the south, an area framed by small walls (USM 1038 and 1039) corresponded to a pottery dump in which several 9th-century glazed potteries have been found. To the west there is also evidence of pottery activity, indicated by the vestiges of mud-brick walls (USM 4467). However, further to the south, to the other side of the large street leading to the bridge that already existed at that epoch, a large part of the production involved the larger quadrangular kiln (USM 1102) and the largest kiln (USM 4575), of which few traces have been brought to light. In this period, strong flooding of the canal apparently destroyed this latter kiln, which was rapidly replaced by kiln 4424a, concentric to it. The 9th century was characterised by the full activity of this kiln and the construction of another one, still concentric to it, kiln USM 4424b.

#### 17.1.3.2 10th Century

This period corresponds to the widespread use of baked brick. The earlier basin for clay decanting was destroyed and a new one built (USM 4428). Another potter's wheel (USM 1037) was also constructed, wholly encircling structure USM 4627. This last potter's wheel was built out of a baked-brick bank slightly inclined towards the centre to permit the potter to sit. This moment in time is also characterised by the conception of another typology of potter's wheel, built entirely of baked brick, USM 4511, and it is also the period during which the bone axis for the wheel was almost abandoned, replaced by a pivot bearing encased into a hard sediment. This baked-brick potter's wheel was rapidly abandoned and USM 1021 corresponded to the new structure for moulding pottery. Around the basin for decanting clay, a sort of platform (US 4517) was made for kneading the clay. Apparently during this period, the intensity of production wore out the structures. The basin (USM 4428) was destroyed, and the new basin (USM 963) was constructed.

With regard to the firing, the small quadrangular kiln (USM 4472) was destroyed and the new quadrangular

kiln (987) built above it. At that time, wall USM 1017 was erected to divide two spaces, corresponding to our Sectors B and C. It seems, however, that potter's wheel USM 995 was still in activity, but associated to the southern kiln (USM 915), thus constituting a separate, quite small, atelier.

Because of the intense production that characterises this period, to the western side of our excavated area, which would also approach the western limits of the pottery quarter, a large rectangular baked-brick basin for drying pottery was built (USM 957). This basin was definitively abandoned at the end of the 10th century. Probably during the late 10th century, kiln 4464 was built, continuing its activity also into the early 11th century.

To the southern side of the quarter, occupied by the largest kilns, circular kiln USM 1101 was constructed to support this intense production period, which was also supported by the construction of kiln 4424b, concentric and smaller than the earlier one (4424a).

#### 17.1.3.3 11th Century

This period can be divided into two periods: the end of the 10th century and the early 11th centuries; and the rest of the 11th century. In the former period, the Samanids were superseded by the Qarakhanids, changing the political dynamics of the oasis over a longer period. With regard to pottery production, a kind of decline can be observed, which however does absolutely not mean that the activity came to a halt.

In more detail, this period was characterised by the abandonment of the northern side of the room on which the potter's wheels succeeded each other, because of the absence of space. Another potter's wheel (USM 1023) was constructed in the southern side, constituted of a system with a pivot bearing. The clay basin, in the same area, was still in use.

In the southern rooms, in which production was by means of the smaller kilns, activity stopped. In this northern part of the quarter, only the new kiln (USM 4450) was in activity. The largest kilns, in the southern part of the quarter beyond the street, were abandoned. In the more western side of this area, however, traces of pottery activity are clear and show that at that time ceramic production existed. Not only this, but in the southern part of the excavated area, the several baked-brick structures (US 4586, US 4596b), as well as the large quantity of pottery sherds collected, are evidence of this production.

#### 17.1.3.4 12th Century

In this period, production seems to have increased. Traces of activity from this period were observed only within the southern area, beyond the street. In the

western part, layer US 4648, containing kiln slag and numerous pottery sherds and baked-brick fragments, shows the earlier intense production of this period, followed by the construction of circular kiln USM 4425, which seems to have functioned over a period of some decades. The southern part was also characterised by production by US 4586 and US 4596b, also referred to above, in the earlier 11th century.

#### 17.1.3.5 13th–14th Centuries

Over this long period, pottery production considerably declined, but once again it did not stop. This is demonstrated by the construction of kiln USM 1108, in the southern part of the quarter, attesting to a significant production, perhaps only to sustain the inhabitants of the city of Paykend, a trend that probably began at the end of the preceding century.

#### 17.1.3.6 14th–15th Centuries

This last phase of production, at least in terms of our discoveries, was characterised by the construction and activity of the largest kiln in this area, USM 9609. This quadrangular kiln ensured the production of pottery over a long period, its destruction dating to the Timurid epoch, as can be seen thanks to the clear pottery sherds found in these layers filling the furnace.

#### 17.1.4 Some Final Remarks

The pottery quarter of Paykend shows evidence of activity over almost seven centuries. Although only a "small" part of 500 m<sup>2</sup> of the quarter has been excavated, it speaks of long-term production and tells us also about the nature and type of production and its evolution, across several different historical moments that characterise both the Bukhara Oasis and, more broadly, Central Asia.

The work is, in conclusion, not complete. Another ten years or more of excavation are needed completely to uncover the entire quarter. But the discoveries and data collected are, in my opinion, sufficient to give a concrete and well-determined context for pottery production in Paykend.

Interestingly, these several centuries of activity do not extend to any great degree either vertically or horizontally, as the territory was controlled by a strong administration. The strength of this urban and extra-urban administration – as well as the great ability of the potters of different epochs to manage this limited space continuously and over that long period – results in their strong knowledge of the territory, their capacity to manage it and organise their artisanal activity. It also suggests they had a deep knowledge of their social environment.

To conclude, two elements that were not found left me with a bitter taste. This very long pottery production only shows quite small and fine quality objects. No coarse material has been observed. Moreover, no production can be dated to before the 8th century, nor to pre-Islamic periods, as has been the case in Ramitan.

### 17.2 Fortifications

This chapter is not dedicated to the whole fortification of Paykend. Earlier excavations and studies have been carried out by the Russian and Uzbek teams, from the beginning of the 20th century. Moreover, very useful publications, cited above, have given the global framework, as well as the detailed description of the different fortifications of the city. In addition, Semenov also extrapolates the characteristics of the defensive system of Paykend to compare it with other cases in Central Asia. There is thus no other substantial information that I can contribute, because no excavation of the global fortification has been carried out to provide further elements, and a resumé therefore becomes redundant.

The intention, here, is to bring to light the excavation of the rampart of shahrestan-1, which was carried out better to understand the sequence of urban evolution, comparing it with the trenches inside shahrestan-1, and more generally with the other cases within the oasis. It has also been a useful operation to then compare the results with the earlier excavation (Mukhamedjanov et al. 1988: 82–5).

As shown by the archaeologists who previously excavated the fortification of shahrestan-1, the rampart presents several phases. MAFOUB's excavation brought to light four main phases, in quite a precise and short chronology.

The first phase is dated by C<sup>14</sup> to the 4th century CE (CzRMF report 2011).<sup>19</sup> It was characterised by the construction of a strong rampart composed of a nucleus of

pakhsa mixed with the geological substrate (see above) and an external armour of a single row of mud bricks (circa 41 × 27 × 9–10 cm) that entirely covered the nucleus. The width of this first construction at its base is still unknown. Its interface of destruction has, however, been excavated over a width of circa 3 m.

The second phase is datable to between the 5th and 8th centuries CE. It was characterised by a general restructuring of the previous mud-brick armour, and by the addition on the façade of another, thinner armour of mud bricks. The mud bricks seem to be the same size as the earlier ones.

The third phase was dated to the 9th–10th centuries CE. It was characterised by a significant degree of destruction, which involves the upper two-thirds of the rampart. This destruction layer leaned on the preserved structure below and was covered by a sand layer. The rampart probably lost its military function.

The last phase was dated by C<sup>14</sup> to the 18th century CE (CzRMF report 2011). This fourth phase was characterised by the occupation of the façade by a cemetery, constituted of several inhumations oriented north-south, perpendicular to the rampart. The tombs leaned on the rampart, and sometimes a tunnel was dug to host them.

I would just like to give my opinion in relation to the ramparts of shahrestan-2, based on archaeological data and supported by some earlier studies. Shahrestan-2 was dated by absolute dating to the 7th century, probably late 6th century CE, according to our stratigraphy. Its ramparts and towers were dated to the same chronology. This date is corroborated by Nilsen (1966: 17) and Yakubovski (1940b: 53), who date it to the 7th century CE.

19 P. Richardin and N. Gandolfo, CzRMF Report 2011.

# Iskijkat

## 1 Landscape and Archaeological Vestiges

Iskijkat is located approximately in the core of the oasis, in a zone south-west of the branching of the main arm of the Zerafshan River and the watercourse that irrigates the city of Bukhara southwards, also called Rud-i Zar by medieval historical sources. Here, as shown by recent geomorphological investigations, the water table is very close to the surface. This area, precisely because of its geographical situation, thus benefited from ample water resources, and at the same time suffered from the proximity of the water, which damaged its mud-brick and pakhsa structures. It seems, moreover, that it was slightly swampy. Still today, it is very rural. No modern cities are visible within a radius of approximately 7.5–10 km around it. The land comprises large agricultural fields

and small villages, the area of which does not exceed 250 ha (fig. 201).

The main water resource was the main course of the Zerafshan River, which with its numerous meanders contributed to the swampy and marshy character of the area. This geomorphological setting is also due to the fact that the Zerafshan Valley is here situated at an altitude of circa 238.50 m, which is the lowest area in this landscape, the area of the Rud-i Zar being at approximately 240–245 m. However, the foundation of settlements along these meanders, from the 3rd century BCE, testifies that, at least in certain zones, the riverbanks were accessible to human occupation.

This idea is validated by the presence of the city of Shargh on the opposite bank of the Zerafshan, as is also noted in the historical sources: “Between them [Iskijkat



FIGURE 201 Aerial photo showing the landscape of Iskijkat  
ICONEM 2014

and Shargh] is neither garden nor vacant lot but a large river called the Samjan river" (Frye 2007: 15). Today totally destroyed, but still visible in the 1970s thank to the Soviet military map, the city of Shargh was also situated along the meanders of the Zerafshan River, but on the northern side. Today, an elevated, narrow and straight canal has taken the place of the ancient watercourse, thus stiffening the ancient landscape.

The mound of Iskijkat is difficult to reach by traditional transport. It is close to a small village called Pushemon, to the south-east, of which the main activity is agriculture. This latter is held between the Zerafshan to the west and the Zar-i Rud to the east. 800 m to the west, a small and square tepe seems to be linked with it.

Visually, the mound comprises several parts that, also because of several campaigns of destruction in order to procure earth from the mud structures, are difficult to decode and interpret. However, the topography and the lengthy surveys carried out in the field helped me better to determine the different urban entities.

## 2 Some Data from Earlier Historical Studies

Concerning the toponym, in the 10th century CE, the historian Narshakhi (Frye 2007: 14) described the city of Iskijkat; Muqaddasi wrote about Sishakas among the villages within the Bukhara oblasti (province); Markwart mentioned it as Sikidjkas (Markwart 1938: 146; Yusupova et al. 2011: 186); in the 12th century CE, Sa'mani called it Iskijkas or Sikijkas; and in the 13th century CE, Yaqut called it Sakajkas. Of Sogdian root, Pavel Lurje (2004: 16) translated it as *'sk(y)* (big, high, elevated) and *kaš/kanδ* (city), which in my opinion mostly refers to its "high" geographical location within the oasis. The toponym could also refer to Askadj or Iskidj, which were within the sphere of Bukhara (Frye 1954: n. 32).

Narshakhi writes of a large citadel, and the social condition of its inhabitants, who were all merchants. They were rich, and he specifies that this wealth comes not from the agricultural lands around but rather from commerce. The city produced and exported cloth. Every Thursday there was a market.

In the 9th century, relates Narshakhi, Iskijkat belonged to the ruler Abu Ahmad al-Muwaffaq bi'llah, premier of the caliph. Later, the city was left to Muhammad ibn Tahir, the amir of Khorasan who rapidly, it seems, sold it to Sahl ibn Ahmad al-Daghuni al-Bukhari. The latter erected a palace there, which is said to be located "in a bend on the lower bank of the river" (Zerafshan). He also constructed a hammam. People payed the ruler 10,000 dirhams per year.

The city first hosted a mosque (in contrast to the city of Shargh) only in the 11th century CE, when one of the city's tax collectors, called Khwansalar, built it. Nevertheless, the mosque remained abandoned until the end of the 11th century because the imam of Bukhara forbade Friday prayer there.

## 3 Plan of the City

In the highest and south-central part of the topography of the mound, four more important reliefs are just visible. These four reliefs are disposed at the corners of a perfectly square structure (fig. 202), each side of which measures circa 70 m, as is the case with several other fortified cities of the oasis. This structure is easily confirmed as the citadel of Iskijkat. Cleaning of the northern side to a depth of 40 cm confirmed the existence of a large rampart, which still today remains unexcavated. As is now more visible, the citadel was oriented north-east/south-west, in front of the Zerafshan.

The north-eastern area was occupied by the shahrestan, also encompassing the northern side of the mound, directly connected to the river. It comprised a large area of circa 2.2 ha. The shahrestan was characterised by a large depression, which probably was the result of illegal excavations to acquire fertile earth, in an area that perhaps already from the beginning presented a lower altitude. Further to the north-east, the end section of the shahrestan presents a small summit at its centre.

The western side, just behind the citadel, comprised a 2,600 m<sup>2</sup> depression going down to the level of the river-bank and, further to the north-west, a relief of 1,800 m<sup>2</sup>, which because of its location and topography seemed to be a separate monument of quadrangular shape. Is this the famous palace erected by Sahl ibn Ahmad al-Daghuni al-Bukhari at the end of the 9th century, as attested by Narshakhi (Frye 2007: 14)? Only an excavation can provide the answer to this question, but the historian's description seems to be close to its location and morphology.

South of the large mound, a vineyard is visible today. This space covers an area of circa 4.3 ha and is approximately 2–3 m higher than the altitude of the surrounding fields. The surveys of this area, which obliged us to follow the already traced corridors between the rows of vines of the vineyard, brought to light sufficient ceramic material to suggest that it was the suburb of the city. Moreover, the old people of the nearby village attested that here, during Soviet times, there had been a market. It is not absurd to imagine that this space was dedicated to hosting the commercial and artisanal entity of Iskijkat.

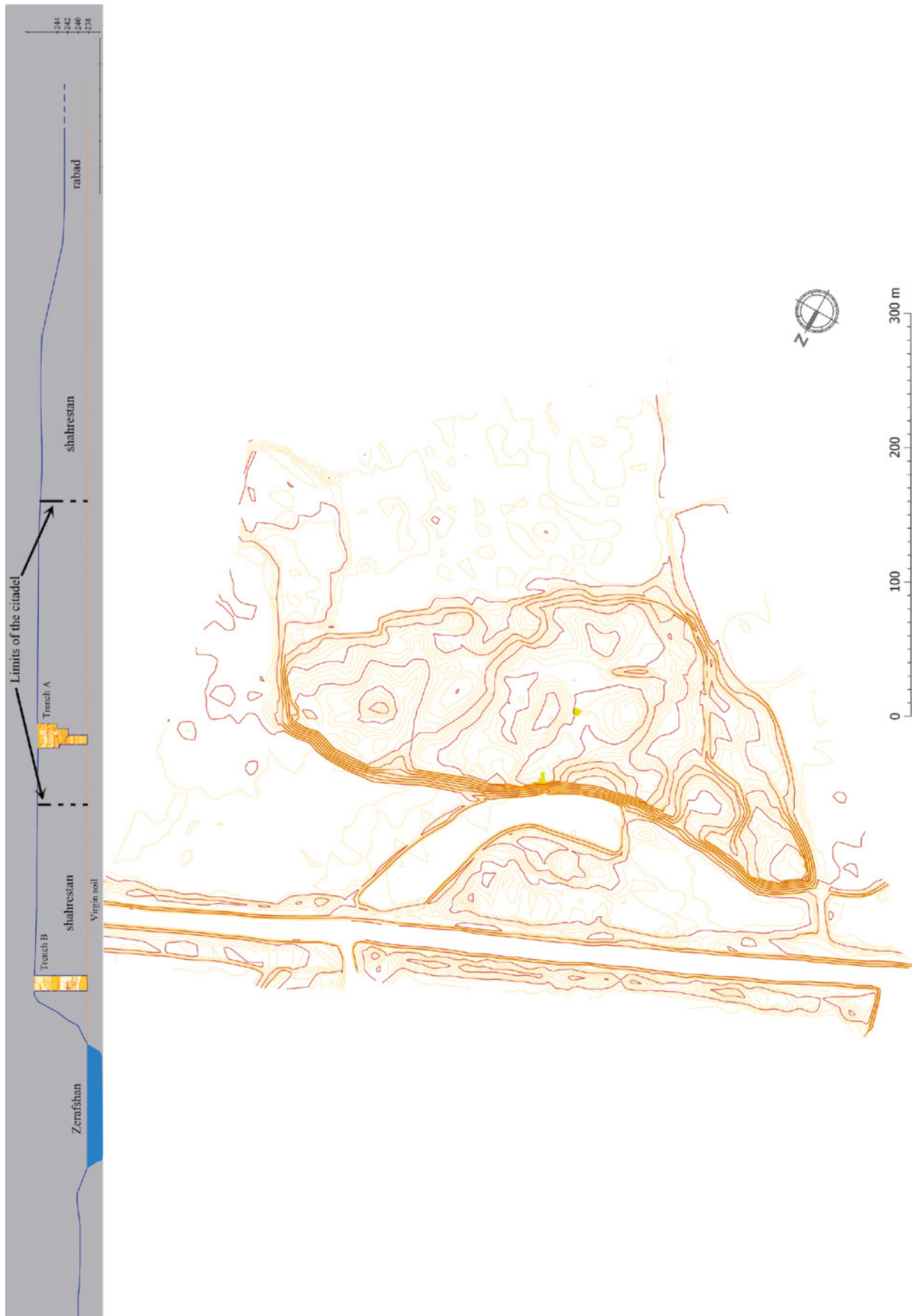


FIGURE 202 Iskijkat, plan and cross section of the city  
RILIEVI SRL AND RANTE 2015

## 4 Stratigraphy

Initially, the survey did not reveal the different urban entities, which are often easily distinguishable elsewhere. This compact mound presents, however, a topography that allowed me to identify several interesting parts, the first one corresponding to an upper area (but not the highest), which seemed to be encircled by slightly elevated parts. A first trench, trench A, was thus opened in this central part to try and verify the entire stratigraphical sequence of the ancient city.

Following the results and discoveries from the earlier excavation, a second trench, trench B, was dug outside the square citadel of Iskijkat, in the shahrestan. It was opened along the north-western slope of the mound, just above the ancient meander of the Zerafshan. I chose this location for a variety of reasons: to identify the rampart of the shahrestan, to verify and compare the stratigraphy of trench A in terms of human occupation in the whole urban network, and to identify the stratigraphical sequence in relation to the Zerafshan in order to identify the connection between the city and the river.

### 4.1 Trench A

The trench was opened in the centre of the site, within the square citadel that is visible today, as noted above. The dig measured  $5 \times 5$  m and started at an altitude of 248.08 m. The excavation brought to light a stratigraphical sequence of human occupation down to the virgin soil attained at a height of 238.54 m (US 397). The excavation continued for circa 40 cm into very humid layers containing no anthropogenic material (fig. 203).

The earliest occupation was represented by a thick layer (US 396) and comprised dark and humid earth, coals, ceramic sherds and pebbles coming from Zerafshan sediments. The upper layer (US 395) also comprised the same materials, but with a lower frequency of coals and pebbles. This first human occupation, which was not in an architectural context as the other stratigraphical trench confirmed, was dated by C<sup>14</sup> analyses to the 3rd–2nd centuries BCE (C2RMF report 30082). This chronology globally marks the earliest human occupations within the Bukhara Oasis. Excavating for some lower layers in a reduced space because of security reasons, it becomes difficult and useless to try to identify the type of occupation. Therefore, I am limiting my reflections to the description of the stratigraphical sequence and the identification of human traces.

The upper layers, from US 392, showed a different type of occupation, comprising a sequence of destruction layers and well-finished floors (US 386, 381 and 376), with

coals and ceramic sherds on top of them, and interesting layers such as US 384, which presented a higher frequency of coals. Moreover, a *khum* belonging to this layer was filled with pebbles from the Zerafshan, and a jar (US 385) was also part of this phase. This could correspond to the epoch in which the rampart of the city was erected and thus the urbanism defined, but this cannot at present be verified. In any case, the stratigraphical sequence and the material discovered show a well-determined organisation of the space, which was certainly part of an architectural complex. This sequence has been dated by C<sup>14</sup> to the 2nd–1st centuries BCE (C2RMF report 30082).

The upper layers (US 377 and 375) represented a change in this dynamic of occupation. They were thicker and represented destruction layers composed of very few charcoal fragments, ceramic sherds and compact clay fragments similar to pakhsa fragments. On top of a floor represented by the interface of US 375, layer US 373 was constituted of a mix between earth and sand, in which no anthropogenic traces were observed. This layer, 40 cm thick, marked a kind of abandonment of this space, leaving it to a consistent accumulation of wind sediments and earth. This epoch, which could be interpreted as scattered occupations, can be dated between the 1st century BCE and the 1st century CE.

The next phase was again characterised by a dynamic occupation of the space. Three thin floors (US 371, 370 and 369) from an altitude of 241.90 m, delivered an important quantity of material – ceramic sherds, charcoal, bones – attesting to a high degree of human activity. USM 117 was the first pakhsa structure met in this trench. It leaned directly onto layer US 369. After its destruction, several layers (US 368, 365, 362, 363, 361, 358, 359 and 356) accumulated on both sides of the wall. Floor US 354 definitively covered this phase of the habitat, which was dated by C<sup>14</sup> to the 2nd–3rd centuries CE (C2RMF report 30082).

From the next epoch until the abandonment of the city, the dynamics of occupation were less important, mostly characterised by few changes within the urban space. This phenomenon, as can also be attested in the other trenches outside the citadel, could be explained by a probable better organisation of the shahrestan and the other urban entities of the city. A solid mud-brick and pakhsa structure (USM 116) defined this moment in time, leaning on layer 347. US 341 represented the main floor of this phase, on which smaller structure USM 338 was erected, probably as support. US 336, 337 and 340 represented destruction layers and marked the end of this phase, dated to the 4th century CE.

Above these later layers, three other walls were erected: USM 110, USM 119 (running perpendicular to USM 110)



and USM 108. Wall USM 111, founded on the initial floor (US 328, 323), was connected to wall USM 108. This phase was dated to the 5th–6th centuries CE. Although wall USM 110 was quite rapidly destroyed, wall USM 108 was reused until the 9th century CE, and then destroyed and abandoned.

The 7th–9th centuries CE were characterised by a rapid overlapping of layers US 316, 308, 297, and floors US 313, 304 and 296. Wall USM 108 is still functioning, and small wall USM 112 leans on its eastern side, probably belonging to another adjacent structure.

The following phase, dated to the 10th century CE, showed an increase in the dynamics of construction, which lasted through the next epochs. On the eastern side, the internal one, different layers and mud-brick floors (US 295, 293, 292 and 289) alternate. The interface of this last layer served as floors for the construction of walls USM 109 and 279, perpendicular to walls USM 108 and 105, the latter of which was built above the former one, and respecting the same orientation. The external side, the western one, was constituted of an overlapping of thick layers, US 276, 277 and 260 and floor US 273, on which wall USM 268 was built, contemporaneous with walls USM 109 and 279. Probably, it was the moment when wall USM 108 was destroyed and wall USM 105 was built to reconstruct the same division of space in the complex.

The following period, dated with C<sup>14</sup> to the 11th–12th centuries CE (C2RMF report 30082), directly leads on to the destruction of the structures referred to above. The central wall (USM 108, 105) collapsed and was reconstructed with the same orientation becoming in the cross-section USM 100. At the same time, to the west, wall USM 106 was also built as well as USM 234, perpendicular to the latter. To the east, the rapid overlapping of layers US 267, 265, 264, 257 and 253 is evidence of a strong dynamic of occupation. To layer US 265, at a height of 245.84 m, a badrab (US 266, 298) was dug to expel dirty water. It was dug down to an altitude of 244.10 m, to a depth of 1.74 m. As the pit deviated slightly from the eastern excavation limit, the pit does not appear for its whole depth in the cross-section illustration. The destruction layers (US 244, 242 – a compact sediment of clay deriving from the destruction of mud-brick structures – and 235, which is dated by C<sup>14</sup> to the 12th century CE) mark the end of this phase (C2RMF report 30082).

US 219, 222 and 225 begin the following phase, dated by TL to the 13th–early 14th centuries CE. These floors, partially destroyed, are made of mud bricks, and the central wall (USM 100) was probably still in use. Although the western side presented an overlapping of thin layers, the eastern one showed a dynamic of habitat represented by

the digging of a badrab pit (e.g. US 240, 274) and probably a traditional refuse pit (US 244bis).

The following and last phase, datable to the Timurid period, was represented by the construction of walls USM 100 and 101 to the western side and wall USM 102 to the eastern side. The subsequent destruction layers could belong to the same period and mark the last occupation of this city, which, thanks to its geographical location and situation, remained quite distant from the more inhabited areas of the oasis, and therefore far from the attentions of treasure hunters.

#### 4.2 Trench B

A trench measuring 3 × 5 m and oriented, as are the others, north-south was opened at an altitude of 248.60 m (fig. 204). I began this excavation with the assumption that the shahrestan, because of its proximity to the river, was encircled by a rampart, as was the case for other cities (e.g. Termez). This conjecture was totally wrong. No traces of any sort of rampart were observed during the excavation. The shahrestan was, in fact, unwalled, as with the greater part of the cities within the oasis. The absence of a rampart between the city and the river generated tools to protect the habitats and the population from the dangers arising from the water, and at the same time gave the people easier access to it.

Moreover, the landscape surrounding the large, no longer visible city, displays the mound following the southern bank of the river, of which the bed is at an altitude of circa 241–42 m. The other bank is constituted of an artificial mound dividing the river bed from the agricultural fields. All these elements lead one to believe that the earliest occupations settled at this altitude, it being unimaginable to settle beneath a river, as was instead the case. The final data showed that the landscape, in fact, had changed considerably as a result of human activities in the area, because of the construction of the new “Zerafshan” canal and the reorganisation of the agricultural fields all around. Thus, the bed of the river resulted below, and the earliest human occupations were identified at more or less the same altitude as those of trench A, at circa 239 m. The virgin soil corresponded to a moist dark earth, through which it was not difficult to imagine the proximity of the water table beneath.

These earliest occupations were constituted of similar layers, impossible to better define because of the very small trench, and because of the humidity of the ground. They were constituted of bones, charcoal and ceramic sherds, identifying human occupations that could be dated easily to the end of the 3rd–1st centuries BCE. It is evidence that the population in that period settled across



FIGURE 204 Iskijkat, trench B, cross section  
GLANVILLE-WALLIS, RILIEVI SRL AND RANTE 2015

a large area, extending from the riverbank to at least the centre of the present mound.

The identification of better preserved human occupations began at an altitude of 241.52 m, with layers US 609–10 and 613–16. Here, bone and ceramic fragments also were numerous. The most ancient mud-brick structure, wall USM 608, was discovered at an altitude of 241.97 m. In phase with it were two floors, US 606 and US 607. This latter layer was also identifiable in the northern façade of the cleaned mound.

Above these layers two pakhsa walls appear, USM 601 and 603, which leans on this latter one. The destruction layers (US 599, 598, 596) form the base of other pakhsa structures, USM 618, and once again US 595, 594 and 586 are the base to a series of pakhsa walls (USM 587, 585, 582 and 578). This phase seems to correspond to a settlement composed of modest structures, close to and probably connected with the river. Their destruction layers (US 583, 581, 579, 573, 576 and 577) and their subsequent levelling (US 571, 570, 569, 567, 566, 565 and 564) were composed of thin layers and floors.

The following layers showed the same density of human occupation, constituted of charcoal, plaster specks and ceramic fragments (US 559, 556 and 557). Above them, wall USM 545 was built of pakhsa blocks and was oriented, as were the others, north-south. The compact layer (549 = 551) represents the destruction of the previous wall. Both were levelled and had become the base for the erection of wall USM 542, which was a mix of pakhsa and mud bricks.

The following phase was constituted of the overlapping of layers of destruction presenting fragments of mud bricks and pakhsa (US 547 = 544 and 543) and layers constituting the living floor (US 539, 534 = 536, 532, 529 and 526), which present many ceramic and charcoal fragments, plaster specks and animal bones.

All this stratigraphical sequence, which includes layers from US 615 and 616 to layer US 526, through different typologies of architectural structures in which that in pakhsa were mainly employed, was dated with C<sup>14</sup> to the 1st century CE (BETA Analysis 2017 – sample 462640).

Therefore, the earliest human occupations were identified in an area that has not as yet been demarcated, but which extended over a large part of the land bordering the river. This first occupation covered a period from the 3rd–2nd centuries BCE to the 1st century CE and showed a homogeneity of ceramic typologies in the 3rd–1st centuries BCE, and a change of characteristics from the 1st century CE.

At an altitude of circa 245.30 m, a new phase was observed. The dwelling space was divided into four rooms by walls USM 500, 521, 520 and 518. The floors were made from compact brown earth with plaster specks, fragments of charcoal and ceramics, and animal bones. The destruction layers (US 519, 517 and 511) leaned on walls USM 520 and covered floors 522 and 525. Layer US 498 definitively covered this phase, marking a moment of change, or domestic abandonment, of this space. A large pit (US 499) was dug in the centre of the trench, at an altitude of 245.78 m. US 492 = 497 and 494 covered this area, and prepared the laying of further dwelling structures.

Walls USM 476, 496 and 495 framed a large space. Although wall USM 476, oriented east-west, remained present for the whole phase, the other walls (USM 496 and 495) disappeared, giving the feeling that a further larger space was conceived. The overlap of layers US 478 and 475 still marked the use of those structures. In this period, wall USM 472 was added to the eastern side of wall USM 476, probably to consolidate the latter. Another, most important wall (USM 473) was erected, oriented east-west, flanking walls USM 472 and 476, by now destroyed and abandoned. Finally, layer US 471 covered the entire area and only led to wall USM 473, which will be the new wall-reference for the other structures.

This short occupation, compared to the long 1st century CE occupation of the site as a whole, concerns instead a long chronology lasting from the 2nd–3rd centuries CE to the 6th century CE.

The following phase was characterised by the destruction of wall USM 473, the levelling of the space with layer US 432 and the construction of wall USM 456 = 454, still oriented east-west, which took advantage, as was the tradition, of the earlier solid structures. On the south-eastern side, wall USM 466 was erected parallel to USM 456 = 454, constituting thus a kind of corridor (US 467 = 469). The north-eastern side represented a large room (US 462). Different layers (US 455, 443, 444 and 446) and floor (US 452) characterised the habitat in this epoch, with the addition of smaller structures (USM 453 and 450).

This phase was dated by C<sup>14</sup> to the 7th–8th centuries CE (BETA Analysis 2017 – sample 462639), and corresponds to the last pre-Islamic occupation of this area.

The final occupation concerned only the beginning of the Islamic epoch. The material discovered could be dated easily to the 9th–10th centuries, not beyond. It was characterised by a large central wall (USM 416) oriented east-west and two walls (USM 400 and USM 420 = 427), both leaning on wall USM 416 and oriented north-south. The best

preserved floor (US 431 = 432) was partially made of baked bricks measuring  $34 \times 34 \times 3.4$  cm, as also was floor US 435.

## 5 Evolution of the Urban Plan

The earliest human occupation of Iskijkat took place in the area along the southern riverbank of the Zerafshan, which sinuously meanders across this region, in the 3rd–2nd centuries BCE. According to the excavation, it seems very probable that in that period the settlement was not encircled by ramparts. Both trenches, A and B, have shown that the occupation was homogeneous between the riverbank and the southern areas until the 1st century BCE. From the 1st century CE, while in the southern areas the occupation and the overlap of layers follow a constant increase, in the areas along the riverbank the occupation increased during the 1st century CE and strongly declined later. It seems that at that moment the southern areas followed a separate dynamic of occupation, probably marked by the erection of the ramparts of the earliest walled city. In fact, during the 1st century CE the occupation along the riverbank overlapped from an altitude of circa 241 m up to an altitude of 245.40 m, that is circa 4.50 m. But within the walled city, or the citadel, this period corresponded to an overlap of layers from circa 241 m up to a height of 241.90 m, that is less than circa 1 m. This testifies, first, to the well-organised occupation within the ramparts, because of the limited inhabitable area. At the same time, it testifies to the high degree of occupation outside the citadel during

the 1st century CE. From the 2nd century CE, while the occupation remained constant within the citadel, it declined considerably along the riverbank. There, the overlapping of layers corresponded to circa 1.50 m between the 2nd and 6th centuries CE. In fact, this phenomenon does not correspond to a real social dynamic – these areas along the river were mostly depopulated from the 4th to the 5th centuries CE, when the shahrestan and the suburbs were organised in the western and southern areas respectively around the citadel.

During the 7th and 8th centuries CE, the other areas around the now tripartite city again increased their occupation, probably due to a demographic increase, as was also the case at Paykend, thus showing the necessity of settling also outside the city.

During the early Islamic period, between the 9th and 10th centuries CE, the zones along the river reorganised in different structures of habitat. The global architecture shows, in fact, a better organised space, considerably differentiated from the earlier structures.

From the 10th century, the population seems to concentrate mostly within the citadel and the shahrestan. The rabad, according to the written sources and the archaeological data, seems to be active with the market and the production quarter.

In the current state of research, the occupations relative to the 12th–early 16th centuries CE were identified only within the citadel. This long period, however, showed a significant decline in occupation, especially from the 13th century CE.

## Kakishtuvan

### 1 Landscape and archaeological vestiges

The ancient city of Kakishtuvan<sup>1</sup> is located at the north-western limit of the oasis of Bukhara. Behind the city, to the west, the dry steppe inexorably begins (fig. 205). This area was irrigated by one of the numerous branches of the Khitfar Zandana, continuing further to the west. The farther western watercourses of this branch slowly drained away after the Last Glacial Maximum, offering, however, periodic rising up of the water table, allowing seasonal settling. As observed above, the early settlement took place around the 1st century CE, testifying that this dynamic of river desiccation must have ended at around that time, thus permitting people to settle, at least by that epoch. This site is also located at the beginning of the road leading to Khorezm, as also indicated by the 19th-century

map (see above). This main road directly joined Bukhara to Kakishtuvan, passing through Ramitan and other main cities. This geographical setting was thus important for different reasons: control of the water resources, trade towards the oasis and Khorezm, and socio-economic dynamics with the nomads living outside the irrigated lands. All of these contributed to making the city rich and prosperous.

Once arrived at the site proper, a huge fortress rises up in front of us – the citadel. The vestiges of the square towers are still massive and impressive. It is not yet clear where the main gates were located, probably to the eastern and western sides of the mound, where still today the topography shows slight depressions. The citadel was probably originally square, and today the vestiges show a quadrangular mound. The shahrestan rises up to the southern side



FIGURE 205 Aerial photo of Kakishtuvan  
SAGORY 2017

<sup>1</sup> Concerning the toponym, see Lurje 2015: 137.

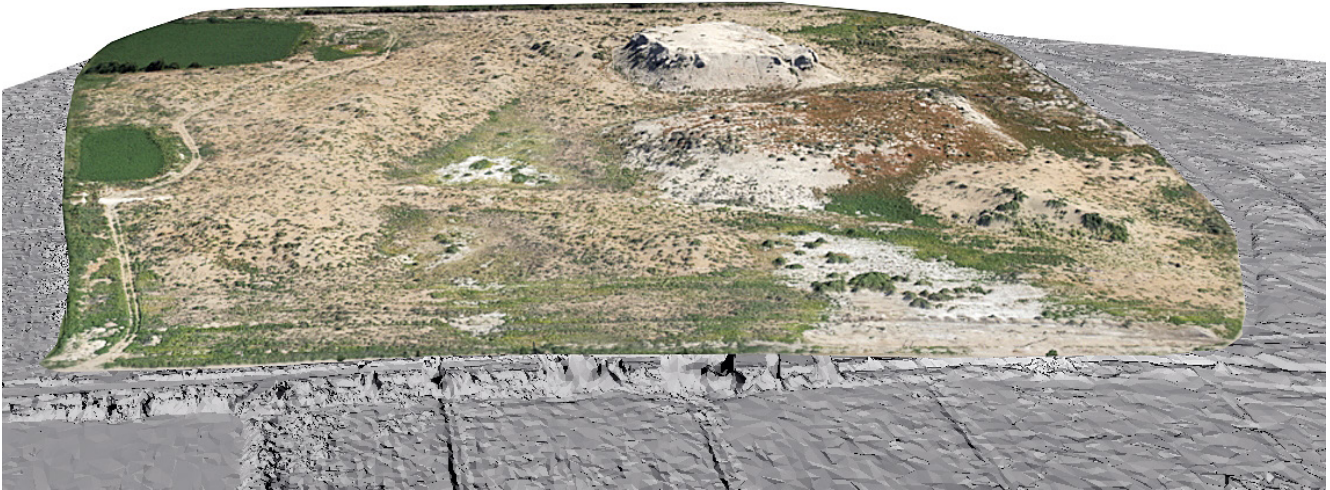


FIGURE 206 3D model of Kakishtuvan  
SAGORY AND SANCHEZ CALERO 2017

of the citadel, at a distance of approximately 20 m. It is rectangular and unwalled. It is high enough to show how significant the human occupation was there also. Pottery fragments covered the surfaces of both mounds.

These two urban entities are well framed by a quadrangular area, today almost totally covered with sand brought by the desert wind. In this area diverse small and medium-sized mounds are visible, also covered by sand, but of sufficient height to testify that the city was encircled by a suburb. It covers an area of approximately 9.60 ha, thus permitting the settling of production and commercial quarters. The suburb has not yet been excavated, and thus no traces of these activities are available, but the discovery of a substantial quantity of ceramic and glass slag strongly supports the hypothesis of its existence.

Not only this, but behind the small path that people take to reach the ancient site, to the north-east, an area composed of several smaller mounds is also evidence of a further suburban area, which is – in my view – a strong possibility. In view of its distance from the citadel (circa 200 m), it could have been intended as a further urban entity of the city. Today totally covered by houses and agricultural fields, this area has not been the object of a topographical survey. The entire area has a surface of circa 12 ha.

The whole site is framed to the north by a modern straight water canal, with a reasonable water capacity,

probably replacing the ancient one. However, to the south, traces of smaller watercourses are also evidence of the existence of other water resources.

## 2 Plan of the City

The earliest settlements in this area seem to take place around the first centuries CE, probably also a little earlier, according to the dynamics of occupation of the oasis. These first occupations settled directly on the geological plain, at an altitude of circa 213 m (fig. 206). The first structures of the city also were founded at this altitude.

The early settlement was located where today the citadel rises up, near the small road and the canal on the northern side. The fortified citadel was erected rapidly over an area of circa 2,500 m<sup>2</sup>, also taking into consideration the parts destroyed, and at a height of 13 m. Taking into account the highest point of the ramparts, its altitude attained 226 m. Its original shape was rectangular, even if the several campaigns of destruction make the study of the original fortress difficult. The side most affected by the destruction is the south-western one. The topography does not permit the identification of the structure of the towers, but with the help of the aerial photographs and photogrammetry, it is possible to suggest with some confidence that they were square.

To the south, a rectangular mound is oriented approximately east-west. It represents the shahrestan of the city. This occupation also began at an altitude of 213 m, but it extended over circa 5,000 m<sup>2</sup>, excluding the destruction debris, and at a maximum altitude of circa 220 m, rising up over circa 6 m in height. The topography did not show any traces of fortification.

The remains of this area have been considered as the suburb of the city, also thanks to the numerous suburban traces that are visible, although the area is largely submerged by desert sand. Pottery fragments, as well as fragments of glass and baked bricks, have been observed. The southern and western sides are characterised by relatively high small mounds, circa 4–6 m above the plain, which are the vestiges of ancient structures. The latter have not as yet been excavated, but a simple cleaning of the southern highest small mound allowed one to observe the completely molten state of the remaining mud-brick structures. Pottery and baked-brick slags also suggest the presence of production quarters. However, a rigorous study of the suburb first requires the whole area to be cleaned of desert sand. It might be enough to provide much more data relating to this important area encircling the citadel and the shahrestan.

### 3 Stratigraphy

The study of this site aimed, above all, to determine its stratigraphy. The reasons were various: to understand the sequence of human occupation; to compare this sequence with that of the other excavated sites of the oasis, as well as with the ceramics collected through the surveys of the other sites; and to comprehend the socio-economic rank of the site comparing it with its geographical location at the limits of the irrigated lands. A survey of the whole site was realised in order to collect the ceramics and verify which urban entity showed the broader chronological sequence. Thus, a trench was opened above the citadel, containing pottery fragments covering a chronological sequence from the first centuries CE to the Timurid period.

#### 3.1 Trench A

Trench A was opened in a central south-eastern zone of the citadel and measured 5 × 5 m (fig. 207). The earliest occupation (US 302 and US 301), dated to the 1st century CE, consists of two layers recovered at a maximum altitude of 214.86 m, in which ceramic fragments with black slip were found. Below, the absence of material was clear and the ground began to be very swampy. Considering the relatively small area of the trench, it is not excluded

that other occupations might be observed elsewhere; they should nevertheless be scarce and modest, in any case not concerned by the fortified structure of the citadel. It is, therefore, not excluded that the earliest settlements can be dated slightly earlier, to around the 1st century BCE, of which no traces are at our disposal, and the 1st century CE.

These initial layers are covered by a sequence of layers (US 298–300), on which two walls (USM 279 and USM 294) are erected on the later layer (US 298), at an altitude of 216.51 m. This phase has been dated by C<sup>14</sup> to the 2nd–3rd centuries CE (BETA Analysis 2017 – sample 462642). Wall USM 279 was oriented north-west/south-east abutting USM 294, oriented north-east/south-west. These represent the earliest structures recovered. These two walls are leant on by different layers of destruction of very compact soil, overlain by alternating layers of sand and sandy clay.

The next phase consists of two layers of wall destruction material (US 291 and US 293) from wall USM 294, overlain by an occupation exposure level (US 286 = 289), leaning on the remaining northern part of wall USM 294, and still in phase with wall USM 279. This occupation level, recovered at an altitude of 218.30 m, consists of a layer of mineralised green soil, with surface specks of charcoal and plaster, testifying to a time of abandonment or use as a dump. Leaning on the northern side of USM 279, and on the western side of the northern remains of USM 294, is a layer of sandy clay (US 271) overlain by a layer of grey sand (US 270). Covering the occupation layer (US 286 = 289) is another occupation exposure level (US 287) containing ceramics with black slip, leaning on a hearth (US 285), possibly a layer of earth thrown over the hearth subsequent to its use. The hearth itself leans on a layer of wall destruction US 290 from the southern section of wall USM 294. These are then covered by layers US 284 and US 282 constituting the base of a floor (interface of US 282), levelled for the construction of a new wall (USM 280) datable to the late 3rd–4th centuries CE, at an altitude of 218.45 m, also oriented north-east/south-west. To the east, wall USM 280 is leant on by a layer of pinkish, sandy soil (US 283) with areas of rubified earth to the north of the layer. Together with wall USM 279, wall USM 280 is also leant on to the west by an occupation exposure level (US 277 and US 276) at an altitude of 218.67 m. The northern side of wall USM 279 and the western side of wall USM 280 are leant on by a layer of sandy clay (US 269) and an overlying layer of grey sand (US 266).

US 277 and US 276 (probably a soil) are covered by a layer of friable, orangey-brown soil (US 273) leaning on the western side of wall USM 280, which forms, together with wall USM 279, the foundation for a new wall (USM 253) at an altitude of 219.02 m, oriented north-west/south-east.

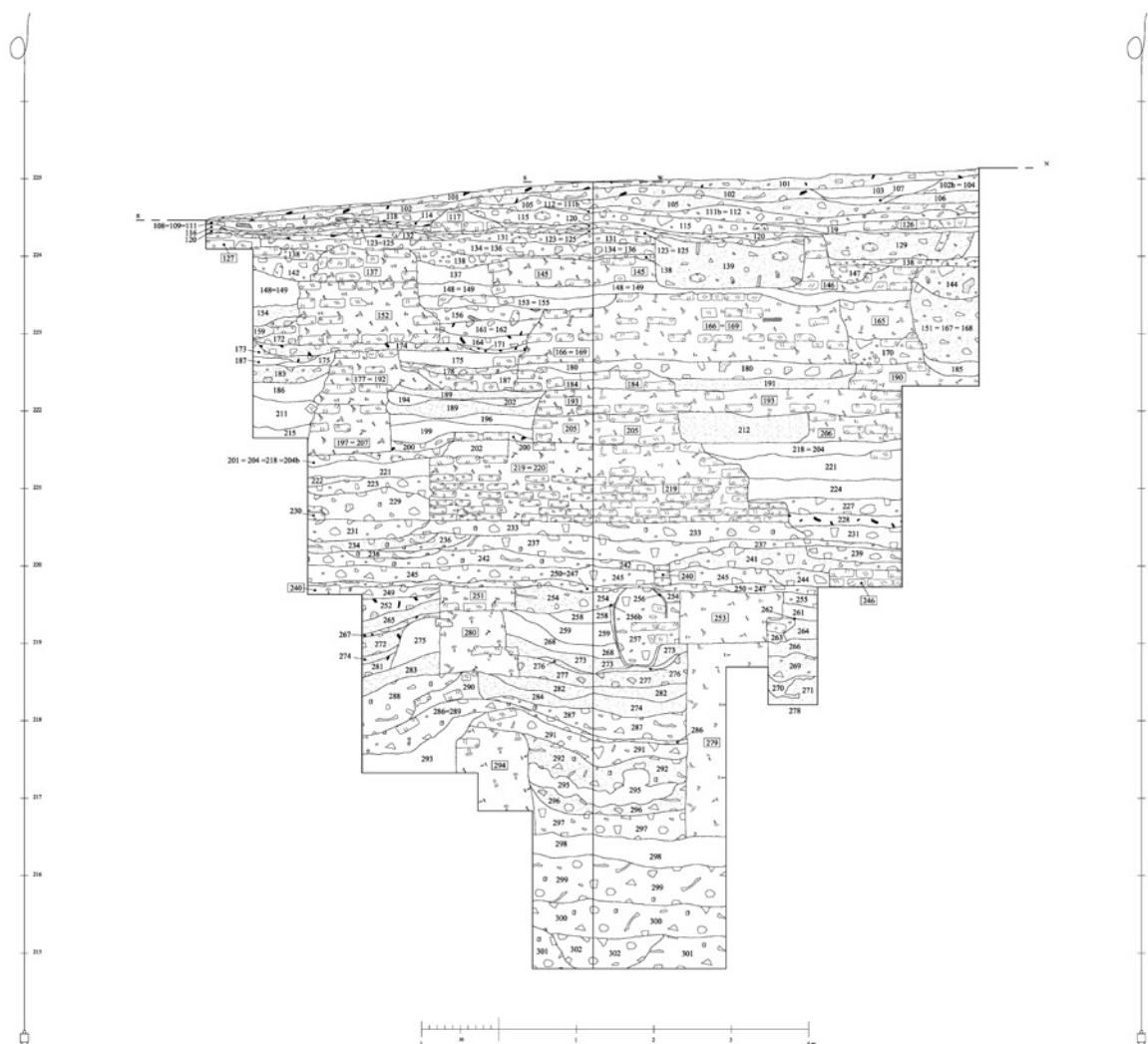


FIGURE 207 Kakishtuvan, trench A, cross section  
GLANVILLE-WALLIS, RILIEVI SRL AND RANTE 2016

To the east is a layer of compact soil (US 275) leaning on wall USM 280, probably a support for the wall, and the layer itself is leant on by a sequence of layers, two consisting of charcoal and plaster specked soil (US 272 and US 281), and a third intermediary ashy deposit (US 274). Running along the northern side of wall USM 253 and the western side of the northern section of wall USM 280 is a channel of pebbles of variable size, 30 cm deep, cut into an earlier layer (US 264) with a greenish tinge and a rubified area. The channel of pebbles, in addition to US 264, are covered by two subsequent layers containing pisé-type material, and the earlier of the two (US 261) containing two flat-laid mud bricks and a deposit of ash (US 260). Leaning on soils US 276, and then US 273, is a storage jar 1 m high and

68 cm at its widest point, which is in phase with these soils and with walls USM 280 and USM 279, probably later also with wall USM 253.

In the south-western corner of the trench, walls USM 253 and USM 280 are leant on by a layer of wall destruction (US 268), overlain by an occupation exposure level (US 259) at a maximum altitude of 219.41 m, itself leant on by a layer of ash with charcoal specks, mineralised by water (US 258).

Wall USM 280 forms the foundation for a new wall (USM 251), in phase with two occupation exposure levels – to the west, US 259, on which it is also erected; and, to the east, US 267, containing plaster specks, a spread of ash deposits and rubified earth. Oriented north-east/south-west, with

an altitude of 219.40 m, wall USM 251 abuts the earlier wall (USM 253). Measuring 1 m wide, USM 253 forms a corridor with another wall (USM 248) to the east (altitude 219.74 m), although the area of the trench was reduced upon the discovery of wall USM 248, thus its foundation remains unknown. These two walls are leant on by an occupation exposure level (US 265) at 219.58 m and by two successive layers (US 252 and US 249).

The large storage jar (US 256) was filled (US 257) at that epoch by 27 cm of friable, soft reddish soil overlain by a later fill of whole and fragmented mud bricks placed within and around the broken areas of the top of the jar. The fragmented top part of the jar, and the upper parts of walls USM 251 and USM 253, are leant on by a layer of wall destruction (US 254), which closes this phase.

The next phase consists of a wall oriented east-west (USM 246) at an altitude of 220.06 m, and a small wall running north-west/south-east (USM 240) at an altitude of 220.13 m, both constructed upon a soil consisting of clayey soil with plaster specks (US 247 = 250) at an altitude of 219.84 m. These two walls are leant on by successive clayey layers. Covering wall USM 246, and leaning on the upper section of small wall USM 240, are two clayey layers (US 241 and US 242), succeeded by an area left opened and depopulated, or an area functioning as a waste disposal site, consisting of an earlier deposit (US 238) followed by a later one (US 236) of grey/green colour with frequent ceramic and bone fragments.

The next phase is dated to the 5th century CE and consists of a layer of compact clay, with grey and yellow patches (US 233) onto which two walls (USM 219 and USM 220) are constructed at an altitude of 220.61 m. A third wall USM 226 is constructed at an altitude of 220.57 m. Walls USM 219 and USM 220, located in the south-west corner of the trench, and USM 226 delimit a room. USM 219 and USM 220 form a corner, and an entrance measuring 95 cm wide is located between walls USM 226 and USM 219. In the area of room delimited by these walls lies an occupation exposure level (US 228) at a maximum altitude of 220.68 m, and to the east of walls USM 220 and USM 226, a layer of compacted clay (US 229). These are then followed by a subsequent layer of wall destruction (US 225) overlying wall USM 226, and successive layers of clay (US 229, US 223, US 222, US 221), most likely also layers of wall destruction as they are made up of the same clay modules that constitute the mud bricks used in the construction of the walls.

Layer US 221, the earliest of the above layers of wall destruction, is backfilled by a layer of soil (US 201 = 204 = 218), levelled for the construction of a new wall (USM 197 = 207) at an altitude of 221.39 m, and a further wall (USM 205),

constructed directly above the interface of the destruction layer of wall USM 219 at an altitude of 221.38 m. Wall USM 205 leans on another wall (USM 206) constructed at an altitude of 221.39 m, together possibly forming a small room (US 212), later filled with earth and sand. To the east, wall USM 197 = 207 is leant on by two small walls (USM 208 and USM 209), also constructed upon US 201 = 204 = 218, both at an altitude of 222.00 m.

The area between walls USM 197 = 207 and USM 205 later formed a rubbish disposal site, with the earliest layer of waste disposal beginning at a minimum altitude of 221.49 m and the latest layer at an altitude of 222.28 m. The earliest layer (US 200) contains charcoal and ash deposits, ceramic and bone fragments and rubified mud-brick fragments, followed by US 199, a greenish brown layer with ceramic and bone fragments with charcoal and ash on the surface, suggesting the layer was burnt following its deposition. The latter layer is then overlaid by US 196; a reddish brown, clayey layer leant on by two smaller layers; US 195 – a deposit of pisé-type material and US 198, which also leans on US 195 – a deposit of yellow and grey clayey soil.

A later wall (USM 193) is then built directly above walls USM 205 and USM 206, also covering US 212, at an altitude of 222.00 m. The area between this new wall and USM 197 = 207 continued to be used as a rubbish disposal site, and consists of two intertwined layers of sand with pebbles (US 194) and a green layer with charcoal and plaster specks and frequent bone and ceramic fragments (including a sherd with red slip), and a ground-stone quern. Cutting wall USM 197 = 207 is also a pit (cut US 217) filled by an earlier deposit of compacted sand (US 216) and a later deposit with rubified mud-brick fragments (US 213).

In the next phase, the uppermost part of the rubbish disposal layers leans on a layer of compact pisé-like material (US 192b) with frequent pebble inclusions, laid on top of USM 197 = 207 and pit US 217, which forms the foundation of another wall (USM 177 = 192) constructed at an altitude of 222.24 m. Constructed above the interface of the destruction layer of wall USM 193 at an altitude of 222.24 m is another wall, USM 184. These two walls are leant on by a layer likely to be a combination of wall destruction and rubbish disposal consisting of loose, brown soil with plaster specks and areas of green-coloured soil mineralised by the deposition of water. To the west, wall USM 184 is leant on by another wall, USM 190 constructed at an altitude of 222.25 m, together forming a possible room (US 191). To the east, wall USM 177 = 192 is leant on by two successive layers (US 186 and US 181), the former containing pisé-like material and evidence of burning (rubified mud-brick), whilst the latter, and later, layer consists of compact soil leant on by a hearth (US 183).

This further phase is dated by C<sup>14</sup> to the 6th century CE (BETA Analysis 2017 – sample 462641) and is comprised by the construction of wall USM 166 = 169, over the interface of the destruction layer of wall USM 184, covered by a preparatory layer (US 180). This new wall was erected at an altitude of 222.60 m. It is possible that wall USM 177 = 192 was in phase with wall USM 166 = 169, forming an area used for the disposal of rubbish, constituted of a layer of green-coloured soil (US 178) with frequent bone and ceramic fragments.

Wall USM 166 = 169 is then leant on by a subsequent layer of wall destruction from wall USM 177 = 192 and backfill (US 175), with some mud bricks from USM 177 = 199 remaining *in situ*. This layer is leant on by a layer in which many plaster fragments have been observed (US 182) and an overlying hearth (US 173) in the south-east corner of the trench. In the north-west corner of the trench, wall USM 166 = 169 is leant on by a layer of wall destruction (US 170).

The next phase consists of occupation exposure level US 174, at an altitude of 222.85 m, covering wall USM 177 = 192 and layers US 175, US 173, US 187. It leans on wall USM 166 = 169, and above it another wall (USM 152), oriented north-east/south-west, has been constructed. The area between the two walls (USM 152 and USM 166 = 169) forms a space, later probably used for the disposal of refuse (US 164 = 163). Above it, an occupation exposure level (US 162 = 161) is superimposed at an altitude of 223 m, onto which wall USM 150 (altitude 223.30 m) was constructed, abutting wall USM 166 = 169, itself abutted by another wall, USM 165 at an altitude of 222.87 m. The latter is constructed upon the levelled layer of wall destruction US 170, likely to be an earlier collapse or destruction of the northern part of wall USM 166 = 169. In phase with walls USM 166 = 169, USM 150 and USM 152 is an occupation exposure level (US 156), of which the maximal altitude is 223.31 m with a hearth (US 157). The numerous bone fragments recovered suggest the area was used not only for cooking but also for the disposal of associated waste. To the east, wall USM 152 is leant on by successive layers of wall destruction and backfill (US 172, US 159 and US 154).

The next phase is datable to the 7th–early 8th centuries CE and consists of an earlier layer of wall destruction (US 153 = 155) leaning on the western side of USM 152 and covering wall USM 166 = 169, followed by a later, heterogeneous layer (US 148 = 149), onto which two walls were built. Both, like the earlier walls, are oriented north-east/south-west and run parallel to each other, with USM 145 located in the western part of the trench and founded at an altitude of 223.62 m, and USM 137 founded at an altitude of 223.71 m in the eastern part, above the earlier wall (USM 152). US 148 = 149 also acts as the foundation

for wall USM 146, a small destroyed wall abutting the western side of wall USM 145. The three walls described above are leant on by the layer of wall destruction (US 142) and pits US 147 and US 151b (interface) filled by the layers US 144 = 151 = 167 = 168 = 185. US 138 covers the whole surface of the trench, evidence of the beginning of another phase.

The next phase shows the erection of another poorly preserved and largely destroyed wall (USM 127), though the size of the trench was reduced at this point, thus the foundations of the wall remain unknown. This phase consists of an occupation exposure level (US 134 = 136), at an altitude of 224.19 m, leaning on wall USM 127. This layer consists of mid-yellowish brown soil with yellow-orange clay modules, and charcoal and plaster specks and a baked brick laid flat in the north-east corner of the trench and is leant on by a hearth (US 135). Layer US 134 = 136 also acts as the foundation of a small wall (USM 128) at an altitude of 224.41 m, the orientation of which, due its poor state of preservation, is unclear.

A subsequent occupation level then follows, also leaning on wall USM 127 and USM 128, consisting of two levelled layers (US 131 and US 132), at an altitude of 224.26 m, associated with a small hearth (US 130) and a pit (US 140), filled by US 139.

The last phase of occupation of the citadel is datable to the early Islamic period and is characterised by layer US 123 = 125 acting as the foundation, at an altitude of 224.32 m, for a new wall (USM 117). This poorly preserved and partly destroyed wall is leant on by a layer (US 120) into which two pits are dug. The first one (US 122), filled by US 121, is a shallow pit, seemingly used for the disposal of waste, and the second one (US 133), filled by US 129, a deeper pit, in which ceramic and glass fragments were recovered, in addition to pieces of baked brick.

A small wall (USM 126) was constructed above US 129 at an altitude of 224.37 m, with mud bricks having been altered by water. This wall is leant on by a layer (US 119) also altered by water. To the south, wall USM 117 is leant on its western side by a layer of wall destruction (US 115) and to the north and east by US 116. This latter layer, and the upper part of USM 117, are cut by a pit (US 118), filled by a deposit of ash with ceramic and burnt bone fragments (US 114). Layer US 111b = 112, with a post-hole (US 113) leans on a layer to the east containing deposits of baked-brick fragments (US 108 = 109 = 111). This deposit is leant on by a hearth (US 110), as well as successive layers altered by water in the northern part of the trench, with a clear absence of ceramic fragments (US 107, US 106, US 102b = 104, US 103). These lean on US 102 to the south at an altitude of 225.04 m, a layer containing ceramic and bone fragments,

pieces of baked brick, schist and charcoal. Finally, this last phase is overlain by the topsoil (US 101) and US 100 (surface), at an altitude of 225.15 m.

#### 4 Evolution of the Urban Plan

As observed above, the earliest settlement would have been devoid of any significant architecture, but probably consisting in agglomerations of dwellings, as in other examples within the oasis. It seems, however, that the fortified structure of the citadel was rapidly erected, around the 1st century CE.

The presence of pottery fragments, collected during the survey and now easily datable, permits us to date the shahrestan to at least between the 3rd and 4th centuries CE. Since these data derive from the survey, it is not excluded that it could be dated earlier. Moreover, the stratigraphy of the citadel shows an increase in the occupation dynamics during this time.

Certainly, the suburb offers insufficient data to be able to date it in the global urban framework. However, in addition to comparisons with the other cities, it is possible to compare it with the other significant moment brought to light in the stratigraphy of the citadel. In fact, the 5th century CE phase also shows an increase in occupation, through construction activity, but it also seems to show a greater quantity of ceramic sherds in its layers. This phenomenon can possibly be interpreted as an increase of production, exchange and commerce due

to the evolution of the activity of the city, which mostly concerned the suburban areas, possibly datable to the 5th century CE.

The stratigraphy seems to show a decline of occupation within the citadel during the 6th–7th centuries CE. This epoch corresponds to the erection of the *Kampir Duval*, which encircled the whole oasis and which seems to cross the area of *Kakishtuvan*. Since one of the original functions of this city was to defend the irrigated areas of the oasis, as its strong and massive fortifications clearly show, it might be that at the moment of the construction of the oasis wall, the city lost one of its particularities. It cannot, obviously, be the only explanation, as its location at the entry of the irrigated areas remained strategic, but it can suggest a decrease in military activity and thus justify the depopulation of the citadel. In any case, this sociopolitical phenomenon inevitably negatively influenced the economic trend of the city.

The citadel was slowly depopulated during the first years after the Islamic conquest. While 9th–12th centuries CE ceramic typologies are little represented within the citadel, the shahrestan shows significant quantities of these chronological elements. At that time, the city lost its political and military importance. Nevertheless, according to *MAFOUB*'s results, production of glass and ceramic can be observed also during that period, evidence at least of the continuity of economic life within the city. A very few Timurid sherds were observed through the survey, enough to attest to a short 15th-century occupation of the areas around the citadel.

## Site 250

As previously mentioned, the study of this site, which has been identified as bipartite, concerns *in primis* its relations with Ramitan, and *in secundis* its chronology compared with the other bipartite sites. Globally, this case answers questions such as when the bipartite sites were founded, what relations they had with the closest tripartite sites and how this micro-system, composed of a tripartite site and the other sites surrounding it, was organised. The intention of this chapter is to present the site, its stratigraphical sequence and its urban evolution. The other answers will be discussed in depth in the second volume in this series, in which, in collaboration with the historian Florian Schwarz and the sociologist Luigi Tronca, we will study the relationships between the sites.

### 1 Landscape and Archaeological Vestiges

The landscape of site 250 comes directly from Virgil's *Bucolics*, every feature reminding one of peace, silence,

savage nature and nostalgia (fig. 208). The path leading to the site is awkward; small and derelict routes cross small villages and agricultural fields, until a flat and quite marshy area is reached, where the site rises up. For generations, farmers have lived at the northern foot of the site. Sheep are the first, and the most ancient, food resource. The wool is sold mostly to the market of Ramitan. For several years now, the present farmers have profited from the natural swampy landscape to open large rectangular water basins to breed fish, which is also sold mostly to the market of Ramitan. Rushes grow in a large area extending around the site, and a family of five hawks completes the landscape.

The site rises up in the middle of this Virgilian scene. Two large mounds can be distinguished rapidly, the one to the north-east higher than the other, to the west. The higher one, the citadel, is constituted of two entities, one higher than the other. The village, the mound to the west, is smaller than the previous mound.

The site is located at the crossroads of two watercourses, branches of the Khitfar Ramitan, flowing from the



FIGURE 208 Aerial photo of site 0250  
SAGORY 2017



FIGURE 209 Site 0250, topography  
RILIEVI SRL AND RANTE 2017

north-east and north-west, and joining together to form a single canal flowing to the south, after the settlement.

## 2 Plan of the City

As referred to above, site 250 comprises a citadel and a shahrestan (fig. 209). The former was constructed above a platform, which is directly based on the plain, at an altitude of circa 222–23 m, the water table situated only a few metres below. It is not yet clear if the shahrestan also was founded on a platform, but this is highly likely in view of this typical marshy landscape.

The citadel comprises two parts. The larger one is on the northern side and represents the citadel itself. The topography shows that it could be square, each side measuring

circa 35–40 m, for a whole area of circa 1225–1600 m<sup>2</sup>. The site was unwalled, but the citadel would have presented strong ramparts, characteristic not of an urban defence but of a residential-palatial defence, which are steeply inclined on the northern and eastern sides, from the top to the plain. In contrast, the southern and western sides seem to lean on a terrace, which indicates a further urban basement, most probably occupied by different buildings associated with the main one. The other part is located to the south, and is 3.50 m higher than the former. It is surely connected with it, but it also presents a steep northern side, suggesting its military nature, probably a keep.

The south-western side of the citadel presents a gentle slope, directly connecting it with the shahrestan. This urban entity is approximately 7 m high, from an altitude of 222–23 m up to 230 m, and covers an area of approximately

6,000 m<sup>2</sup>. The mound is relatively homogeneous, apart from some old areas of destruction, which slightly modify its present perimeter.

### 3 Stratigraphy

#### 3.1 Trench A

Trench A was opened on the lower northern part of the citadel, at an altitude of 233.66 m. It measured 5 × 5 m, dimensions that were reduced during the excavation for evident structural and safety reasons. Overall, the trench reached virgin soil after circa 10 m of excavation (fig. 210).

The earliest occupation of this area has been dated by C<sup>14</sup> to the early 1st century CE (BETA Analysis 2017 – sample 468800) and has been identified at an altitude of circa 223 m. This first occupation is very difficult to identify in its every specific detail because of the nature of the landscape and the fragility of the mud-brick structures, which were not observed. What is sure, however, is that a pakhsa platform was rapidly constructed on which to erect the city proper. This platform would have measured circa 2 m in height. The 2nd century CE has not been well defined, stratigraphically too poor in indices, and very similar to the earlier century.

The change is clearly visible from the 3rd century CE, approximately beginning at an altitude of 227.32 m. New typologies of ceramics appear, such as the black splash motifs on large storage jars. The 3rd–4th centuries CE are characterised by a dynamic of human occupation, in which several floors and remains of buildings were observed. Although the trench was small, it was possible to observe a significant occupation of what was probably a wealthy dwelling from floor US 214, on which leans wall USM 213. After the destruction of the latter, floor US 210 must have been associated with other walls, which have not been observed because they are outside of the trench limits, but it also yielded significant quantities of ceramics and artefacts.

The next phase was dated to the 5th–6th centuries by C<sup>14</sup> analysis (BETA Analysis 2017 – sample 468801). This occupation is, as was the previous one, characterised by vigorous construction activity, and by important quantities of ceramics and other materials. After a sequence of destruction layers, floor US 192, on which wall USM 183 leans, includes a well-structured hearth. The floor was also constituted of numerous pottery sherds. The next one, US 174, is also characterised by a well-finished hearth, placed additionally over a mud-brick base. Around it, several whole potteries were. The upper layers of this phase also

show the presence of the first baked bricks, as in similar layers in Ramitan or Paykend.

The late 6th–8th centuries CE are less clear with regard to the degree of occupation, as well as the quality of it. A well-finished mud-brick floor (US 162) seemed to herald a wealthy occupation, which in fact revealed itself to be less so than expected with regard to the material found, and without architectural structures, at least in that area. The upper layers (US 158 and 151) also seem to be characterised by mud-brick floors. This structure and the decrease in materials could also suggest a considerable change in the type of occupation, previously characterised by habitation, now perhaps by outside spaces.

The next phase was dated to the 9th–10th centuries CE by the presence of a large well, which was excavated down to the plain, from an altitude of circa 232.40 m to circa 223 m, but which probably descended further to reach an area close to the water table. But this phase begins at an altitude of circa 231.90 m and is characterised by a large wall (USM 138), of which layers US 140 and US 147 mark the destruction layers. Above, US 201 marks the floor into which the large pit (US 156) was dug. Typical pottery datable to the late 9th–10th centuries CE, as for example the slip-painted black on white glaze, was found in substantial quantities.

Floor US 122 covered almost the totality of the trench, on which walls USM 111 and USM 118 were erected. The pits (US 106 and 114) and the filling (US 109) mark the last occupation of this phase, later sealed by the exposure level (US 102), covering the totality of the trench, and representing the last occupation of the citadel. Sgraffito sherds were found in layer US 108, sealing pit US 106 and covered by US 102, the last occupation of the citadel, recorded at an altitude of 233.40 m.

### 4 Evolution of the Urban Plan

From the stratigraphical sequence of the site and its topography, once analysed and included into a wider regional context, it appears clear that the history of site 250 cannot be told separately from that of its economic centre, Ramitan. During this working process, it has been surprising, albeit logical, to have such a connection between these two sites.

The area in which site 250 was founded was occupied during the early 1st century CE, or probably some years earlier. Because the land was swampy, at least seasonally, a pakhsa platform was erected to host the urban agglomeration. It is not clear if the citadel and shahrestan benefited from the same platform or were they erected over two

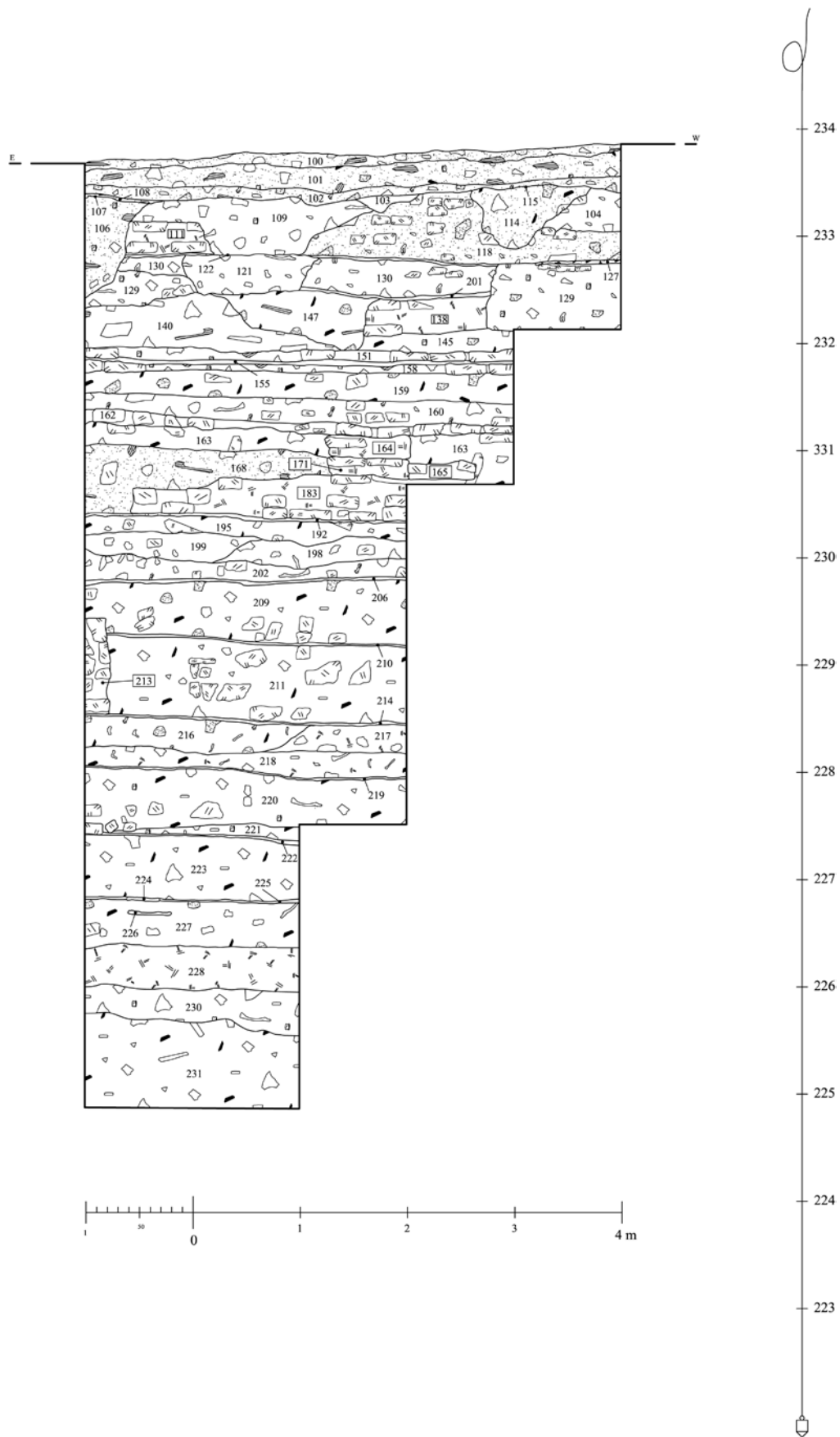


FIGURE 210 Site 0250, cross section  
RILIEVI SRL AND RANTE 2017

different platforms. From this time until the 6th–7th centuries CE, the citadel hosted the princely residence with its court. These centuries show strong economic growth, which also corresponds to that of Ramitan. The 4th–5th centuries CE were characterised by the urbanisation of the lower village, most probably drawn by the demographic and economic growth of Ramitan. The large quantity of material found in Trench A of site 250 belonging to the 5th–early 6th centuries CE should also probably be linked to the creation of a well-organised commercial and production space in Ramitan, enabling it to increase also the economic growth of the rural lands surrounding it.

The following two centuries are more difficult to decipher. The pottery does not seem to change, which would give a clear element of a cultural change. In fact, although de facto this epoch was characterised by important politico-cultural changes, they concerned primarily

the main cities, and to a lesser extent the rural areas. The citadel and the shahrestan continued, however, to be inhabited.

The 9th–10th centuries mark a clear change in relation to material culture, showing different typologies of pottery characteristic of that epoch, as well as an economic growth especially generated and drawn along by the power of Bukhara. It does not mean that the city grew over its territory. On the contrary, the urban occupation of the land came to a halt and declined between the 11th and 12th centuries.

Although the citadel shows a considerable overlapping of layers, its urban function did not change until its abandonment. While in other cities, such as Ramitan, the citadel became depopulated for different reasons and other areas inhabited with the Islamic occupation, the rural sites were less concerned by this dynamic.

## Bukhara

### 1 Landscape and Archaeological Vestiges

According to Gangler's assessment (Gangler, Gaube, Petruccioli 2004: 10), "the building fabric of the old city of Bukhara dates from the Uzbek period. Anything built prior to this has to be analysed retrospectively through the traces left on the urban layout by a typological process". Bukhara belongs, in fact, to those cities in which the urbanisation process never moved elsewhere, and in which people have continued to live, within the same urban framework, up to the present day. The old centre is, therefore, covered by a significant number of overlapping layers belonging to successive epochs. Although the origin of the city has been widely discussed chronologically, it is possible today to recognise the later monuments and urban structures, distinctive from the late medieval and modern periods.

The oldest part of Bukhara is characterised today by the citadel of the city, recently reconstructed respecting, it seems, the ancient morphology of the architectural features, rising up in a large space, called Registan. It is framed by the old shahrestan to the east, still densely inhabited, with different modern buildings and quarters flanking the other sides.

The eastern part is crossed by a wide street, traversing the whole shahrestan and dividing, according to Narshakhi (Frye 2007: 72–8), after the Islamic conquest, the native and Arab communities. This part of the city still preserves the old urban layout of a dense network of narrow winding streets. Once outside the old city, which today would correspond to the ring road, the streets become wider and more orthogonal. Although the northern side is characterised by this labyrinthine network of streets, the southern part is occupied mostly by religious complexes, in which the visitor can today admire a splendid madrasa, the main mosque, the famous minaret and other old buildings that have escaped destruction or savage restoration.

The suburbs of the city can only be imagined. Beleniskij, Bentovic and Bolshakov (1973: 232–55), through their suggestions, which seem to approximate to the true morphology when we look at the modern urban plan, help us to imagine how these suburbs might have appeared. It is, nevertheless, still very difficult to be more precise about the inner urban layouts, which are described as being at the origin of the earliest suburb, as also with regard to the sequence of the other extensions, of which nothing remains today.

Because of the current nature of Bukhara, it is difficult to provide more information on the ancient city landscape and its layout.

### 2 Earlier Works

The present volume will be followed by a more specific historical and social study, based on the new archaeological discoveries, in which, in collaboration with the historian Florian Schwarz and the sociologist Luigi Tronca, we will study the toponyms of the major cities of the oasis, and develop models of the social connections that link them. As far as the toponymic study is concerned, Bukhara occupies a substantial place within it as a result of Florian Schwarz's major recent discoveries. We will leave, therefore, further new historical information to this later publication. Here I will provide only a short list of the most important studies, followed by the new stratigraphy of the citadel, bringing to light new data on the chronology of the city.

As is the case with Paykend, Bukhara has been one of the best studied cities of the oasis, and of Central Asia in general. The scientific literature is packed with articles and books, as well as references to this city. Moreover, more recent specialised monographs have also included an exhaustive bibliography, among the most complete being Petruccioli (1999) and Gangler, Gaube and Petruccioli (2004). Specific historical references and material from Narshakhi have been published by Frye (2007), and in this volume the annexes by Heinz Gaube and Alexandr Naymark are very useful for an overall understanding of the city and its history.

In addition to the references above, I would like to refer also to other earlier studies that deserve to be mentioned. In 1936 Shishkin published a small monograph on the subject of the major monuments of Bukhara. Pugachenkova and Rempael (1958) and Rempel (1982) dealt with urban plans and more generally life, daily practices and the buildings of Bukhara, while the lacunas in the maps provided by Sukhareva (1976) have been completed with more recent studies, such as those by Gangler, Gaube and Petruccioli (2004) and Nekrasova (2015: 359–76). As far as material culture is concerned, Mukhamedjanov, Mirzaakhmedov and Adilov (1982), but also Nekrasova (1999: 37–54), have provided useful information regarding the archaeological discoveries made in the 1980s and 1990s.

The archaeological framework is destined to change thanks to the acquisition of further archaeological data resulting from the more recent excavations of the citadel of Bukhara.

### 3 Stratigraphy

In 2017, a stratigraphical sounding was opened in the Bukhara citadel, more commonly called the Ark. The main objective was to study the chronological sequence, and to obtain as much material as possible in order to also define the typo-chronology of the city. The reasons for this interest lie in the general confusion that reigns today between the historical sources and archaeological research, especially with regard to the origin of the citadel, as well as its development. As the history of Bukhara is crucial for an understanding of the oasis globally, I considered an in-depth study of its stratigraphy a priority, despite the existence of earlier studies, as mentioned above. In addition, modern methods and technologies have the advantage of guaranteeing robust data.

A sounding of 6 × 6 m was opened in a large central area, previously excavated, representing the lowest area of the citadel, with the knowledge that the highest point of the citadel is at 206.52 m (fig. 211). The excavation began in this large lower area, at a height of 199.91 m. Virgin soil was reached at an altitude of 183.80 m, although the excavation continued further into this, until a height of 183 m was reached. The depth of the sounding was thus 16.91 m. The total depth of the overlapping layers of the citadel, from the top of the citadel down to the start of the virgin soil, is therefore 22.72 m (fig. 212).<sup>1</sup>

The earliest human occupations occurred on a loess soil. This first occupation is constituted of layers (US 274–275) with quite an abundance of pottery fragments, traces of charcoal and a few animal bones. These were dated by C<sup>14</sup> to the 3rd century BCE (BETA Analysis 2017 – sample 496819). As far as ceramics are concerned, the pottery belonging to the early layers is characterised specifically by a red or rose body, covered with a red slip. Some fragments of beige ceramics were also observed. The most characteristic form is the red or rose bowl with introflexed rims and carinated bowls, with or without a foot-stem (fig. 213), such as the type found at Iskijkat (US

384). In the stratigraphical sounding carried out in the 1980s, our Uzbek colleagues also found this type of pottery (Mukhamedjanov 1999: fig. 11).<sup>2</sup> They are usually covered by a red or dark-red slip. No black slip appeared in our material, or among the material previously discovered in the Bukhara citadel (Mukhamedjanov, Mirzaakhmedov and Adilov 1982: 83–4).

It is possible to observe similar typologies in Afrasyab (Lyonnet 2013: fig. 8<sub>1-3</sub>), although dated slightly later (not prior to the 2nd century BCE), which globally also present black slips covering the potteries, totally absent in Bukhara.<sup>3</sup> Further closely related material can be noted at Old Termez (Houal 2013: fig. 1<sub>1-2</sub>), which is dated slightly earlier (“Hellenistic period”), among which the black slip seems to be absent, as is the case in Bukhara. In Erkurgan, instead, Suleymanov (2000: 165) brought to light black-slip potteries from complex EK-6, dating them to the 2nd century BCE. Might it be possible to suggest, basing ourselves solely on the archaeological data and material, that Bukhara and its province only (within the oasis) were first occupied by populations coming from the south-eastern regions around the 3rd century BCE, which did not employ this type of slip? I am certainly tempted by this solution, even if very few we know about the whole province. It has to be remembered that, not only did our Uzbek colleagues also not find any black-slip pottery, but in the other even smaller soundings of Kakishtuvan and Iskijkat, or Ramitan, the black slip was always present. This material has been repeatedly found up to layers US 270, including the presence of other types of ceramics, which incline me towards a date of 3rd–2nd centuries BCE.

In US 269, different types of structures were observed. A small mud-brick wall on the eastern side of the trench delimited a room, of which no other elements were visible. The ceramic finds presented no further carinated bowls, probably marking a change in pottery production. The material associated with layers US 269–266 is comparable with the evolutions that marked the 1st century BCE–1st century CE.

The upper layers were characterised by structural changes, with the appearance of baked bricks (fig. 214).<sup>4</sup> First, USM 261 corresponded to a large, solid mud-brick wall, oriented north-south, constituted of mud bricks whose size (30–35 × 20 × 12 cm) was much smaller than those employed at the

1 With the deontological intent of giving the reader all the elements to better understand our approach and our results, I must make clear that the earlier stratigraphical sounding (Mukhamedjanov 1999: fig. 3) calculated 42 horizontal levels between the highest point to the virgin soil (50 cm/level), corresponding to a total depth of 21 m.

2 This pottery is dated by the archaeologists in charge of this study – through comparison – to the 4th–3rd centuries BCE.

3 This absence is also noted by Mukhamedjanov (Mukhamedjanov, Mirzaakhmedov, and Adilov 1982: 83).

4 At Ramitan baked bricks were also brought to light and dated to the 2nd–3rd centuries CE.



FIGURE 211 Aerial photo of the Ark (citadel) of Bukhara  
SAGORY 2017

same period elsewhere within the oasis (around  $40\text{--}50 \times 22\text{--}30 \times 10\text{--}15$  cm). In the upper layers, a wall of pakhsa and square baked bricks was also oriented north-south. The material and the  $C^{14}$  measurements carried out for these layers dated them to the 2nd–3rd centuries CE (BETA Analysis 2017 – sample 496820). The ceramics followed a path of slow change, and the presence of some characteristic shapes with extroflexed rims dated at Iskijkat and Kakishtuvan to the same period, strengthen our global research within the oasis.

This wall is leant on by another with the same characteristics, but which is constituted of trapezoidal baked bricks (fig. 215). These were dated generally by other specialists to the 5th–7th centuries CE. Our excavations showed that this type of structural object was in use earlier, around the 3rd century CE, probably brought here by new populations settling in the oasis. It is interesting, in fact, to note that at Ramitan, trapezoidal baked bricks appeared on the floor of the 4th-century royal palace (Square Room), and in the 6th-century CE only appeared as reused material to erect a food silo. Not only this, but this phase

was characterised by the presence of a large ceramic tube (US 256) horizontally placed and leaning slightly to the north, for water, or most probably for soiled water. The same type of pipe was found in Paykend (trench A), and it testifies to the integration of urban features brought by new populations, which – at least at the present state of research on the Bukhara Oasis – seem to have been absent earlier. The upper layers (US 253–251) can be dated to the 4th–5th centuries.

US 251 is composed of sand and earth, characterising a levelling of the floor. Above it, a collapsed burnt baked-brick structure (US 250) left a red trace in the section. On floor US 251, smaller baked bricks were accurately disposed so as to support a structure, probably a large quadrangular kiln. A coin found in these layers, although fragmented, seems to confirm at least a *terminus post quem*, dating these to circa the late 5th–7th centuries CE. Here, the material follows the sequence already observed in the previous period, up to US 247.

The upper layers indicate a functional change characterised by the dense overlapping of thinner burnt layers

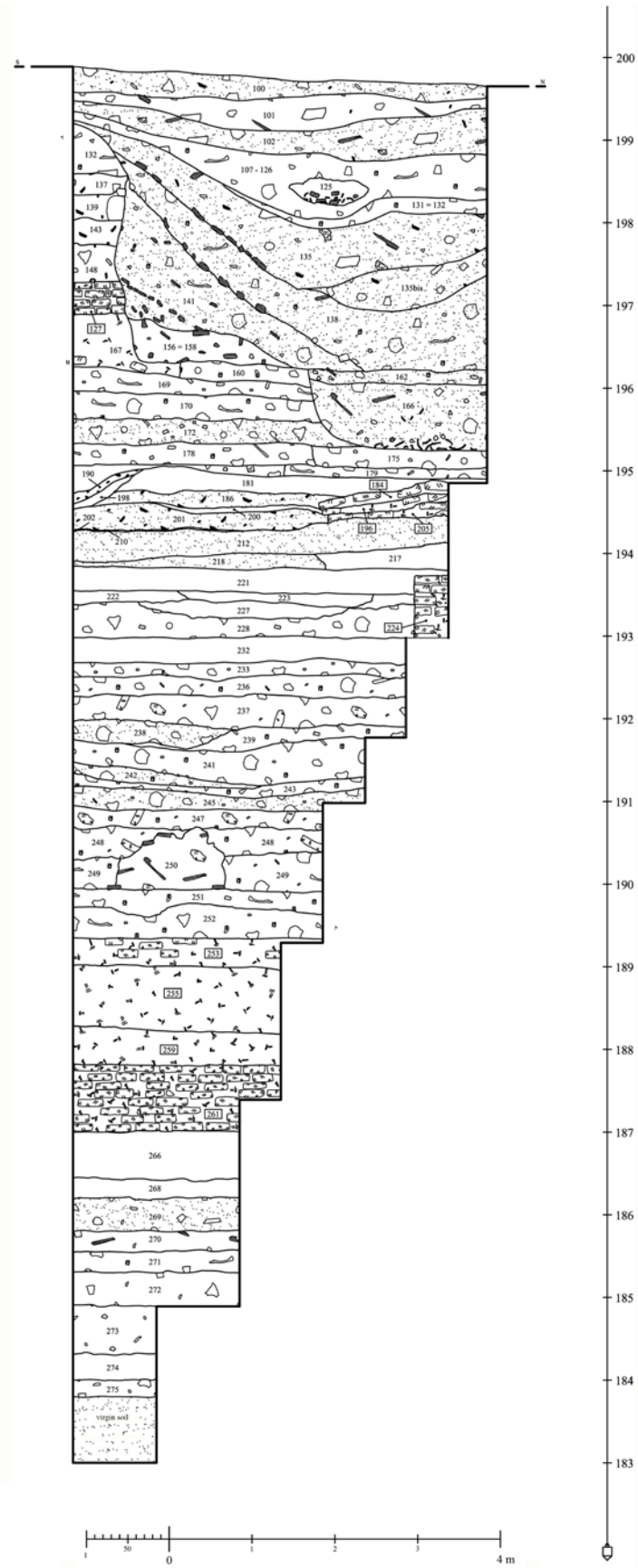


FIGURE 212 Bukhara, trench A, cross section  
CRUSCO, RILIEVI SRL AND RANTE 2018



FIGURE 213 Bukhara, trench, A, ceramic sherds belonging to the earliest layers  
GILBERT 2018



FIGURE 214 Bukhara, trench A, view of the square baked-brick wall  
CRUSCO 2018



FIGURE 215 Bukhara, trench A, view of the trapezoidal baked-brick wall  
CRUSCO 2018

with traces of gypsum, and greener layers with many traces of charcoal and also gypsum (US 245–242). A deeper layer of earth (US 241) levelled the area, above which two other layers (US 239–238) were composed again of many traces of gypsum and charcoal. Rather than layers corresponding to a filling, it seems more probable that these were the result of a change in function, switching from a residential function to a working one. The period of this phase is uncertain, but since the upper layers were dated to the early 10th century, this phase probably belongs to the 8th–9th centuries CE.

The Samanid epoch began with US 237. Stratigraphically, this layer was characterised by a great depth of overlapping layers in which the finds and the structures on mud and baked bricks were numerous. A pit 4 m deep was observed from floor US 232. This pit is in phase with mud-brick wall USM 224. The upper layers were a sequence of

filling and levelling, partially reusing the same eastern wall.

US 221–215 were characterised by a sequence of mineralised layers in which there were numerous traces of gypsum and charcoal. A sequence of mud-brick walls on top of one another was constructed on the eastern side of the sounding. Different floors characterised by the presence of fireplaces were excavated, up to US 195, which corresponds to a sand layer probably used to level the floor. Above it, a mud-brick platform covered a large part of the sounding (US 194), on which a wall (USM 185) was constructed, delimiting an area in which different well-finished fireplaces were once again observed. This archaeological evidence, also found in the upper layers, and in agreement with the pottery brought to light, characterised the function of this area as that of a kitchen, and can be dated to the late 10th–11th centuries.

The following phases showed a dense overlapping of inhabited layers constituted of a mix of mud and baked-brick structures, the former essentially employed for the skeleton of the habitat, and the latter for the inner architecture. This is the case with the baked-brick floors and small walls (USM 159, US 163–164) that composed a bathroom complex in which a hole was located in the centre of the small quadrangular room. According to the material found, this phase still belongs to the 11th century CE.

Above, the subsequent layers were strongly disturbed by a large pit (US 135–158) circa 2 m deep, situated in the central and western part of the sounding, in which material datable from the 12th to the 15th centuries CE could easily be recognised. The eastern side of the sounding was, instead, occupied by solid baked-brick structures datable to between the 13th and 15th centuries CE. Here, a large silo (USM 103) and a smaller quadrangular structure (USM 113) were brought to light, in which material dated to the 14th–15th centuries could be observed.

#### 4 A New History of Bukhara

I consecrate this section to a new history of Bukhara, in line with the latest archaeological discoveries made by MAFOUB. The history of Bukhara will be treated not in isolation but within a larger context corresponding to the whole of the oasis, and it will deal with the evolution of its plan, basing itself solely on interpretations ensuing from the new, as well as earlier, archaeological data.

As mentioned above, the earliest occupations of Bukhara, observed in the Ark, date to the 3rd century BCE (fig. 216). Considering our earlier geomorphological and archaeological data from the oasis, I exclude any more ancient occupation anywhere in this area. Figure 216 takes into consideration the evolution from the earliest occupation, which was located inside the current Ark but which is still to be determined more precisely, and the ensuing development of the urban layout up to the 1st century CE. It was in this period that the early settlement was structured; part of the population also settled in the eastern part of the settlement, without ramparts. The pottery from these settlements includes different typologies of vessel, supporting the hypothesis of a rich milieu, at least in this zone. It can be assumed, in my opinion, that this area kept its role as the main part of the city.

In the beginning, Bukhara would have covered an area of circa 1–2 ha, also according to Nekrasova (1999b: 62). In the following centuries, the population certainly increased within this zone and most probably also a little

further to the east, over a weak plateau, and later became the shahrestan. At the end of the 1st millennium BCE and the beginning of the 1st millennium CE, Bukhara would have extended over 11–12 ha, keeping a political nucleus of circa 1–2 ha.

The material culture and the structures found, also in comparison with the data from previous excavations as well as the pottery preserved in storage in the Bukhara Museum, show that during the 3rd–2nd centuries BCE the settlement did not change its sociopolitical features. The settlement was probably without walls, since no pottery exactly comparable to that of this period was found directly in the rampart.<sup>5</sup> I would situate the occupation of the other areas around the ancient nucleus in the last portion of this period.

The new archaeological evidence shows a decrease in the intensity of the occupation during the 1st century BCE and the 1st century CE. The very few overlapping layers, in addition to a change in pottery – with a greater number of coarse than fine storage vessels – testify to this decrease in sociopolitical rank. Probably at this time, the settlements around the ancient nucleus intensified. This period corresponds to the political evolution of Ramitan, which probably at that moment imposed itself as the main city of the oasis.

The 2nd–3rd centuries CE certainly testify to an increase in occupation, probably with the arrival of new populations, also bringing new cultural features, especially in terms of architectural material and ceramics. I have no archaeological information relating to this period, but I am inclined to suggest that an important sociopolitical increase began in Bukhara. The material from the excavation of the rampart shows clear similarities with the material found from this period, testifying that at least at that time, but most probably even earlier, Bukhara was fortified with strong ramparts. It is from this period that square baked bricks were found covering the eastern façade of mud-brick walls, and only a little later, that trapezoidal baked bricks were also observed, dated to the 3rd century CE. As observed above, baked bricks were found inside the strong rampart of Ramitan, dated by absolute dating to the 2nd century CE. According to our recent observations of the pottery brought to light in previous excavations of the western and northern façade of the

<sup>5</sup> Nekrasova (1999b: 63) published a short list of the main typologies of ceramic dating to the 3rd–2nd centuries BCE, in which no carenated fragments were mentioned, characteristic typology dated to that earlier period. The characteristics described by Nekrasova were in use for several centuries, until the medieval period.

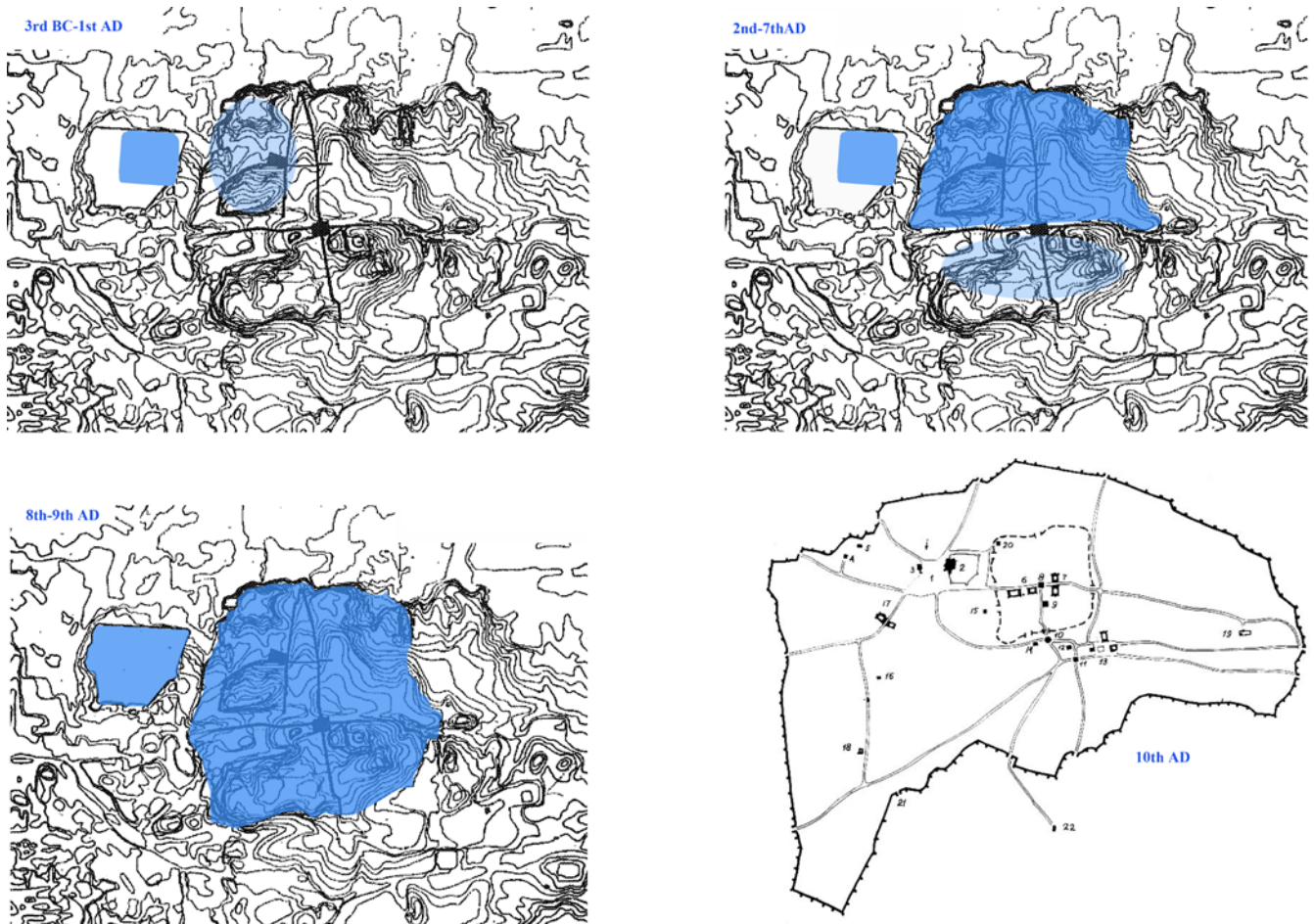


FIGURE 216 Evolution of the human occupation of Bukhara  
GAUBE 1999: 20; RANTE 2018

Friday Mosque, ceramics datable to this period have been found.<sup>6</sup>

Probably at this time, the city of Bukhara structured its shahrestan, extending the occupation over the following centuries further to the east. In this same period, there was a strong sociopolitical increase in Ramitan, most probably confirming its main role within the oasis.

According to an initial study of the ceramics, the layers corresponding to the 4th–5th centuries have shown the previously observed continuity of human occupation. The 6th–8th centuries CE also seem to show the same dynamic. In fact, no true archaeological traces relating to the urban evolution can be noted for this period, but I would like to suggest that other populations settled south of the shahrestan and near the main watercourse, as shown in

figure 216. This is also the reason why this part was, in the early Islamic period, rapidly occupied.

According to the written sources (Frye 2007: 147–50), the arrival of Islam generated an extension of the shahrestan, which expanded to the south, almost doubling its size, although, as previously observed, these areas were already partially and unstructurally occupied. If I consider the citadel in its earlier, less extensive phase, the area of Bukhara between the 8th and 9th centuries CE spread over approximately 46 ha. With regard to the early suburb, the latest studies indicate that it should be considered as having been conceived in two steps, an “inner” rabad and an entire 10th-century Samanid rabad. All speculation about the real span of the Bukhara suburbs before the 10th century is difficult to verify and validate. If I refer to the suggestions proposed by Gaube (Gangler, Gaube and Petruccioli 2004: 38, 40), according to other scholars such as Barthold, Sukhareva and Bolshakov, the “inner” rabad would have included the citadel and the shahrestan, and would have

6 Nekrasova (1999b: 66) dated them to the 1st century BCE–3rd century CE.

covered an area of approximately 100 ha. However, these are only hypotheses, and it is impossible today to search for the limits of the early rabad of Bukhara, which – moreover – was most probably not walled.

Bukhara received water from a main natural canal flowing south of the early settlements. The canal is one of the main arms of the Zerafshan delta and flows past the citadel at a distance of circa 100 m, and circa 400 m from the early shahrestan, a distance reduced to circa 100 m from the later shahrestan. Smaller canals, resulting from human modifications in order to better supply the city with water, flowed and still flow within the city today.

So many scholars have treated this topic in its archaeological and historical aspects that 10th-century Bukhara needs no other description. I would like only to make clear that the city during this period developed to such a degree that it played the role of a kind of “metropolis”, or Greek “mater polis”, not only concentrating within the city all kinds of production and trade but also starting an important dynamic of depopulation of the neighbouring cities and villages. The city at that time extended over an area of around 1,000 ha, if we simply follow the perimeter of the 10th-century ramparts geo-referenced over a satellite map.

## Conclusion

The archaeological study of the oasis of Bukhara, and its historical reconstruction, cannot ever be considered as finished. As mentioned in the introduction, the merit of this book is that it shows the evolution of human occupation and behaviour in its own natural and socio-economic environment, and the characteristics of urban and material cultures in a vast area, in which the dynamics of transformation began as early as the Bronze Age and still continue today. To this can be added the important results obtained in the geomorphological study, which retrace the history of the water resources of the oasis, as well as the climatic change and its impact on Central Asia.

The paleo-environmental data obtained bring us back to very ancient epochs, or even farther, to the Middle Pleistocene. Although this is not the final aim of the book, it is part of the evolution of this territory and because of this, without however lingering unnecessarily, I would just like to make a few comments in conclusion, with the indulgence of the Prehistorians. As shown by the geomorphological results, at least since the Middle Pleistocene, the delta of the Zerafshan spread out towards the north and the west, probably also reaching the Oxus. Recent archaeological discoveries (Slon et al. 2017: 605–8) from the excavation of the Denisova cave in the Altai Mountains, attested to the existence of hominid bones dated between -40,000 and -30,000. Further research generally confirmed the hypothesis that the vast territory of Central Asia was occupied by groups of *Homo altaiensis* (at least since -400,000 to -300,000). This hominid branch – today also called Denisovian hominids, as distinct from *Homo neanderthalis* and *Homo heidelbergensis* – separated and migrated from Africa towards the east. The archaeological traces available show settlements of probably these specific groups especially in Altai regions, but also in Ferghana, the Hissar Mountain range, Pamir and further south-east (Ranov, Dorj, and Lü Zun-E 1996: map 3).

This succinct archaeological-prehistorical introduction gives an idea of the human settlement framework from which the earliest climatic changes have been identified in Central Asia. According to recent studies analysing the accumulation of loess in western Central Asia (Wang et al. 2016: 1–9), it is demonstrated that since the Early Pleistocene the transition of shallow marine sediments to loess attests to a dramatic change that confirms the switch from a humid, marine-influenced climate to a semi-arid one. Moreover, comparisons with sediments in eastern Europe suggest an extension towards the west of this climatic phenomenon between the Early and the Middle Pleistocene.

One of the hypotheses affirms that this was due to the expansion of the ice sheet in the northern hemisphere, cooling the North Atlantic Ocean, which engendered an increase of continentality in inner Asia, rendering the climate more arid. The second hypothesis takes into consideration the effects caused by the Mongolian-Siberian high-pressure system.

It is in this broad time span that the early hydrographic changes of the delta of the Zerafshan have been observed. At least since -188,300 and continuing until circa the Neolithic, the northern branches of the Zerafshan began a slow process of desiccation. This climatic phenomenon continued for the whole of the Late Pleistocene until our Interglacial period (Wang et al. 2016: 9), as also shown by the persistence during the Last Glacial Maximum of the territorial aridity that also characterises the desiccation of the north-western and western branches of the delta.

This phenomenon did not completely erase the presence of water. During later periods, approximately from the Upper Pleistocene-Neolithic, the reappearance of a slightly humid and stationary climate – as is shown also by the temperature map realised by Jeremy Shakun and colleagues confirming a stagnation of temperature until the Iron Age (Maslin 2014: 41, fig. 10) – would have generated the formation of lacustrine zones, probably seasonally, thus rendering possible human settlements, such as have been identified north of the oasis (Brunet 2011) and westwards (Ranov et al. 1996: map 3). It is not excluded at all, however, that the most ancient phenomenon of desiccation had already entailed the presence of lacustrine zones.

Even during the climatic fluctuations between the Late Pleistocene-Neolithic and Bronze Age, this phenomenon of desiccation was inexorable. The Bronze Age also marked the drying out of several western canals, as well as the desiccation of the farther western branches of the Kashka Darya, which flowed approximately parallel with those of the Zerafshan, and also probably flowed into the Oxus. The areas south and south-west of the oasis were concerned by these events, with marshy and swampy zones. The areas bordering the northern limits of the irrigated lands of the oasis, which still today are a tangle of paleochannels in an alternately swampy milieu difficult to cross even with jeeps, or the areas south of the oasis, are clear evidence of the consequences.

By the 4th century BCE a catastrophic event completely changed the landscape. I will not dwell on this phenomenon, previously explained and published in different articles (Fouache et al. 2016; Rante, Fouache and

Mirzaakhmedov 2016), but I would like to stress that, beginning with climatic changes that inevitably engendered the melting of ice and permafrost, this event would have been characterised by the arrival of a huge quantity of water from the upper stream of the Zerafshan, transforming the hydrographic network of the delta. Thus, while the channels flowed over the plain and perhaps modified their course without any observable evidence, the southern area was concerned by Neogene reliefs that are composed of only two narrow depressions, of which the eastern one, before unirrigated, was suddenly inundated by the water of the main branch of the Zerafshan. Obviously, purely seismic events are not excluded at all. The fault cutting the area of Paykend east-west might also be the cause of this rapid transformation, which however does not exclude the climatic trend explained above, which redrew the geographical setting of this region. Since that event, the global landscape has not changed, showing an oasis oriented towards the south-west rather than west and north.

According to these data, it seems that the history of the oasis of Bukhara originated in “common” climatic, and perhaps also geological, phenomena. It also seems that the current climatic trend, now also generated by human activities around the world, accelerates artificial transformations of the landscape for different reasons, which are at the origin of a general decline in water resources. This last phenomenon will have an impact on productivity, which could generate a rise in food prices. Not only that, it could in turn generate crazy speculations affecting populations around the world, and this is not only hypothetical, as earlier studies have already brought to light (Maslin 2014: 83–85; fig. 24).

Returning to the primary aim of this book, namely the historical and cultural reconstruction of the oasis of Bukhara, the new geography of the region inevitably led to anthropological<sup>1</sup> changes. It is impossible to date them with any degree of precision. But, it can be stated that it occurred around the 3rd century BCE. It is in fact to this epoch that were dated the earliest occupations within the oasis proper, largely differing from the past ones, during the Neolithic-Bronze and Iron Age, which were characterised by settlements around lacustrine areas, as well as along the ends of the water channels. This period is crucial for the cultural formation of the population of the oasis. The data on material culture show its membership of the Scythian groups. According to the archaeological evidence dated to that epoch, these populations settled along the main channel of the Zerafshan and

more densely in the western areas of the oasis, probably searching for less impetuous watercourses at the margins of the irrigated lands, but also probably repeating their own customs, which situated them between the irrigated lands and the desert. Early on, they agglomerated into villages, most probably devoid of general ramparts. Their pottery production was of medium-good quality – turned, polished, sometimes covered with red or black or beige slip, sometimes painted with well-defined black lines (although very damaged, traces of probable tamga<sup>2</sup> can also be observed) – and characterised by goblets with a stem-foot; goblets carenated with or without a stem-foot, as has been also found in Samarkand (Lyonnet 2013: 269, fig. 6); and jars and cooking pots, which were often moulded, dated between the 4th and mid-2nd centuries BCE (Lyonnet 2013: 268). This culture continued also over the subsequent two centuries. From a historical point of view, according to the learned synthesis of Claude Rapin (2001: 86), these cultural elements would suggest that this earliest occupation of the oasis could be that of the Sacaraucae populations, who migrated from the north and occupied Central Asia, and, finding in the oasis of Bukhara large spaces and good pasture, were encouraged to settle. According to our archaeological data, although it is not yet possible to definitely determine if they corresponded precisely to the Sacaraucae, these Scythian populations introduced into the oasis of Bukhara not only the goblet with foot-stem, but also the technique of the black slip, which has also been identified later (2nd or 1st centuries BCE) in Samarkand, in Akhsiket (see above) and in Kobadian (phase II).<sup>3</sup> Maxwell-Jones (2015: 497) reminds us that in Bactra the goblets with stem-foot appeared in the mid-1st century BCE, along with the eggplant slip. Lyonnet (1997: 165–167) suggests that the stem-foot goblet is clearly linked to Saka populations and spread out around the mid-2nd century BCE to Northwestern India. She attests, moreover, that in Ai Khanoum in that precise period (mid-2nd century BCE) this typology of vessel is totally absent.<sup>4</sup> From a purely archaeological point of view, close comparisons with eastern populations of “Saka” are difficult to observe. Debaine-Francfort (1990: 92) reminds

2 Tamga painted on pottery of this period are also identified at Kobadian II. Djakonov 1953: 282–87.

3 At this state of research, I have found no reference to the black-slip technique in Khorezm datable to the 3rd century BCE.

4 In a recent article (2013: 273) Lyonnet extends the chronology for the Afrasyab material: 2nd century BCE – 2nd century CE. These vessel characteristics are dated earlier in the Bukhara oasis, and a comparison of the earlier data with the new data seems to show that an earlier arrival of these characteristics concerned at least the whole territories of Sogdiana and Northern Bactriana.

1 I take here into consideration the global meaning of “anthropological”, characterising it through biology, culture etc.

one how arduous it can be to try to define precisely the characteristics of these populations, although the several examples she gives in her articles can in part be compared with the discoveries in the oasis of Bukhara dated to those epochs, as for example the pointed hat or the painted pottery that appear only one century later within the oasis. Examples of close Saka traditions can also be found as far as in a prince's kurgan in Ukraine dated to the 13th century CE (Holod and Rassamakin 2012).

But, the cultural framework seems to have not been the same within the oasis, at least according to the current state of research. The main features recorded for the pottery found in Bukhara differ from those found in Ramitan, Kakishtuvan and Iskijkat, but also for the surveyed sites of Ramish tepe, as well as for the previous excavations of Karmana.<sup>5</sup> In this fragmentary tableau two main areas seem to rise up, divided by the main course of the Zerafshan. The first one concerns the whole western and north-western side, probably also Karmana. The second one concerns the south and south-eastern side, all around Bukhara. As far as the main features are concerned, these two areas did not share, for example, the technique of black slip or crenated shapes in the same epoch. Can this cultural framework within the oasis be translated as being the earliest occupations of different people coming from different regions? Avoiding any speculation, but giving only some elements for further reflection, it could be that populations coming from the north and north-east following the Zerafshan Valley settled along the main arm of the river and in its western and north-western side; and that populations coming from Surkhandaria before the 2nd century BCE (the 2nd century BCE being the moment when black-slip pottery is also found at Erkurgan) settled in Bukhara and around it. However, a Bukhara origin of this specific technique, which later expanded towards the east, cannot be excluded.

During the late 1st century BCE – when the politico-military power of the Sacaraucaes splintered – and the early 1st century CE, a true anthropological and urban change occurs. First, the earlier settlements were at that epoch more homogeneously distributed within the whole oasis, although the western border was once more occupied. They were structured into well-organised sites, constituted of a quadrangular<sup>6</sup> fortress provided of strong ramparts, later called tripartite sites. Also at the advent of the 1st century CE, further settlements appear, later called

bipartite sites. They were organised around the main sites in a well-conceived sociopolitical system. The dynamic of occupation of the territory was to such an extent active that other sites were born within these systems, here called unique tepe.<sup>7</sup> It is not yet archaeologically clear if they were already organised into a well-defined economic system. According to the archaeological observations, it seems more probable that at this early epoch the sites lived off their own production, and that the lords of the villages sent the rent from their fields to the main city hosting the prince (*azat*). Finally, people appropriated the whole irrigated area, linking the organisation to the dense water network and parcelling out the oasis in city-state systems. The distribution of this epoch shows a good organisation of villages and smaller entities (here called unique tepe) around a main city.

The pottery is in general of fine quality, medium-fine for jars of medium size. Numerous are also the sherds of red-rose fabrics covered with a black slip, finer than that used in the previous centuries, over small and medium-sized cups. Dark-red slip is also used, as also observed in Samarkand (Lyonnet 2013: 274, fig. 9b). Also dated to the 1st century CE is a typology well-known in the Kurgan, excavated around the oasis of Bukhara, Kyzyl tepe complex (Obelchenko 1992: 68–90), and at Koktepe in the Samarkand oasis (Rapin 2001: fig. 12), characterised by a broad painting over the body of the pottery, with splash motifs further down. This typology differs from a later one, in which the body was mostly covered by thinner splash traces. Similar typologies of shapes and decorations are also observable for the ceramic of Kushans. In Termez (Houal 2013: 427–29), some assemblages depict characteristic shapes of goblets and bowls with introflexed rims, but also jars and pots, sometimes covered with black and red of mediocre quality.<sup>8</sup>

According to the historical studies, Sogdia was included in Kangju State, a people of nomadic origins centred in the middle the Syr Darya and controlling a vast territory that extended from the Bukhara Oasis to Kazakhstan and Ferghana. The discovery of the Kultobe inscriptions can give an idea of the political and military organisation

5 In Karmana, the excavations brought to light pottery with black slip (Grizina and Khujanazarov 2005: 45–46).

6 The only site, in the current state of research, presenting a round citadel is site 0513.

7 In my opinion, it is to this period that the occupations of the other oases of Sogdia should be seen as belonging. These are, in fact, often interpreted as belonging to the 5th–6th centuries CE (de la Vaissière 2011), in which certainly there was a significant occupation engendered by human migrations, but they were most probably not the earliest ones.

8 In the Bukhara Oasis, while the red slip seems to have been of good quality, the black slip appears much more fragile, due to the salty environment, which seriously damaged the slip.

and importance of Sogdia (Grenet, Podushkin and Sims-Williams 2007). Now, according to recent archaeological discoveries, the high level of urban distribution, the dynamics of urbanisation and the high level of urban organisation, as well as the high quality of the material culture, should lead us to reconsider the “nomadic” cultural term assigned to the Kangju, or else to reconsider the population living at that period within the oasis, which should probably be assimilated to Saka groups. Moreover, such cultural dynamics and the similarities with Kushan material culture, as well as with Samarkand, lead us to give strong consideration to the fact that similar populations migrated at that time from the northern and north-eastern regions, driven there by the same dynamics as those that are well known for the Kushans. As suggested for Samarkand (Lyonnet 2013: 273; Rapin 2001: 87–88), the material culture also seems globally to attest to the presence of Scytho-Sarmate groups settling within the oasis. In my opinion, based on archaeological facts, these new populations would rather have been assimilated to sedentary groups, preserving nomadic behaviour, especially in relation to funerary traditions (Obelchenko 1992; Rapin 2001), who lived in symbiosis with already sedentary populations settling within the oasis.

Since this epoch, the north-eastern arm of the Silk Road was opened, directly linking Merv to the oasis. It is difficult to find material traces of this trade, and the written sources do not mention this specific route for trading. It is, however, quite possible that such a strong and dynamic urbanisation as this was engendered by strong economic growth, also produced by the passing through of caravans. As referred to above, however, this itinerary would have been less travelled, since the written sources, even until the first centuries of our era, referred to the itinerary through Bactra.

According to the archaeological discoveries, the 3rd century CE showed no clear increase in urbanisation.<sup>9</sup> Although the results of this investigation cannot give a complete chronology of the more than a thousand sites, they show an evolution in the urban plans and architectures, at least for the main sites, as well as a clear evolution in material culture. Ramitan represents an emblematic case in which, at that epoch, the square fortress protected by square towers was expanded, keeping approximately the same geometrical form. The new site was then protected by circular towers, of the same typology as those still visible today around the citadel of Bukhara. Varakhsha also presents circular towers, even if they seem of a

different typology, dated to no later than the first centuries of our era (Shishkin 1963: 109). As far as the Iron Age is concerned, Koktepe also displays semicircular towers, which seems to demonstrate the extreme fragility of the typology of the towers. The site of Paykend was also defended by square towers from its foundation, but they remain of the same shape also in subsequent centuries (Omelchenko 2015: 38–39, figs. 1–2).

The pottery shows some changes, such as the appearance of a type of large storage jar, or *khum*, sometimes decorated with splash from the shoulder to the base. They have until now been dated too late, and have sometimes been taken as chronological markers. The archaeological discoveries also brought to light grey pottery, absent until now. The black slip over a red fabric is still used, although it is much less frequent. Among these elements, the more interesting seems to be the appearance of the grey pottery. Some grey fragments of storage jars also present black splash motifs over the body. This typology of ceramics was already in use under the Kushans in Bactria (Houal 2013: 426), but it was also widely produced by the Parthians.<sup>10</sup>

These cultural elements testify that the oasis was from this period occupied by other populations. The important evolutions in urban and material culture, their quality and especially their continuity over the next centuries lead one to suggest that the so-called Chionite invasions have to be dated circa one century earlier than attested until now.<sup>11</sup> Grenet (2010: 269) attests that a migration of Sarmato-Alanian populations from Dzhety-asar, in the lower Syr Darya, took place around the 3rd–4th centuries CE, which in part confirms the arrival of further cultural components in Sogdia, even if they could also have began earlier, from the 1st century CE, at least for the Bukhara Oasis<sup>12</sup>. This moment is marked, too, by the collapse of the Kushan Kingdom, which also could have caused the migration of populations. It can be noted, as well, that slowly, the direct connections between the Partho-Sasanian Khorasan and the oasis increased. Probably dating from this period, is the perception by the Sogdian populations of their strategic position within the Silk Road framework, also resulting from the decline in use of the route crossing

<sup>9</sup> By “urbanisation” I intend the urban occupation of uninhabited or rural lands.

<sup>10</sup> I thank Jacopo Bruno for having shown me some pottery assemblages of this category found at Nisa.

<sup>11</sup> Their appearance is often dated to the 4th century CE (see, among others, Zeimal 1996: 123), a period that is rather marked by their first appearance in written sources relating a specific historical event (Ammianus Marcellinus 16.9.4, 1968; Felix 2011: 485).

<sup>12</sup> Concerning the cultural elements of the Chionites, see also Grenet and Khasanov 2009: 69–82.

Bactra, because of its now political instability after the disappearance of the Kushan Kingdom.

It is not clear if these migrations also continued during the 4th century CE, but it is not to be excluded. Certainly, however, important urban developments followed this phenomenon. The main cities of the oasis were equipped at this epoch with a walled shahrestan, which does not mean the absence of a village around the walled fortress. On the contrary, people had already settled around the castle, as in a village, as demonstrated at Iskijkat and Ramitan. The innovation was to encircle it with ramparts, which reflected a need to protect the population of the main cities, like Ramitan, Paykend, Bukhara, Varakhsha and probably many others. Clearly, this need was translated into the need not only for military defence but also to protect and better organise specific social sections of the population, like merchants or artisans, who played a most important role in the Caravan Road framework and in the economic growth of the oasis.

This trend continued also into the 5th century, when the oasis was ruled by the Hephtalites. In this period no true evolution in ceramics, whether in shapes or decorations, can be observed. On the contrary, typologies such as the storage jars with splashed motifs and the bowls with introflexed rims and red slip continued to be produced, sometime varying in size. Nevertheless, an increase in production can be observed, at least in the quantity of ceramic sherds collected and dated between the 5th and the early 6th centuries CE. And although no new foundations were noted within the oasis, the main cities structured and better organised the suburban areas. The suburb of Ramitan, for example, shows a well-framed space, also constituted of a network of roads presenting a Hippodamian plan, in which stood strong mud-brick buildings, probably of different natures, of which the commercial one seems to be plausible. If Ramitan can be taken as a reference, it could be stated that the main cities began to equip the urban structure of suburban spaces consecrated to dwellings for temporary or permanent sojourns, to commerce, and to production.

The late 6th–early 8th centuries were also marked by a general continuity in material culture and, it seems, by no other urban foundations. Moreover, after the destruction of the royal residence in Ramitan, resulting from the conquest of the Turkic dynasties and probably by the same prince Tardu who later ruled in Bukhara,<sup>13</sup> the city seems to have declined politically, although it continued to be inhabited, and in which active pottery production has

clearly been observed. This is also the case with Kakishtuvan and Iskijkat. According to earlier studies, numismatic above all, this period was marked by active coinage by the Bukhara Khudat. By this time Bukhara extended over an area that approximated that of Ramitan, but from that moment Bukhara seems to have increased politically and economically, not only absorbing the population coming from the oasis itself but also increasing its productive and commercial character. At this time, Paykend also reorganised its urban structure, with the construction of a further urban walled space to the west – shahrestan-2 – driven by its strategic geographical location at the crossroads of the Silk Roads. From now on, of the few cities to show strong economic growth, Bukhara and Paykend showed the strongest.

Historically well known, the early 8th century CE has been characterised by the Islamic conquest of Sogdia. Islamic armies definitively entered into Bukhara around 709. This century was mainly characterised by the military control of the cities within the oasis, and by sociopolitical restructuring, which entailed neither global depopulation nor a strong decline in productivity, as has at times been understood (Frye 2007: 162–63), at least according to our archaeological data. In the current state of archaeological research, it is difficult to give concrete data about demography or the level of production of goods, but urban society seemingly reorganised itself quite rapidly, at least in the main cities. The early elements of this new cultural era can be truly deciphered from around the end of the 8th century. This period, but especially from the 9th century CE, is characterised by clear evidence of production, construction, and socio-economic changes, but by no new urban foundations, as the surveys of several hundred sites can testify.<sup>14</sup> Urban changes are, rather, observed in the suburban areas, where a sort of “revolution” took place. Worried about the continuity of trade between China and the Mediterranean Sea, and conscious of that trade’s economic importance to the oasis, Islamic urban policy proceeded to reorganise the areas around the urban centres. They were already inhabited in earlier times – productivity had been noted in Ramitan before Islam – but from now on the space was better organised, and solid and structured commercial areas appeared. Paykend is an emblematic case, which shows the strategic importance of the city over the centuries in this context of trade. Here, not only a pottery quarter and a bazaar were constructed, but further spaces for military defence and for caravans were built, as in the eastern rabad, totally covering circa 61

13 I have no material to confirm this hypothesis, but it cannot either be excluded.

14 Here, I am considering the foundation of a city as constituted of different urban entities.

ha and in which were also planned open spaces or temporary constructions for caravans. At that time, Bukhara definitively acquired its political leadership, continuing and increasing the process of centralisation. It is not by chance that the large, later province of Bukhara was constituted of almost no main cities with quarters of production or commercial areas. The city kept its ancient centres and was subjected to strong social change, and the division of the shahrestan into two parts, separating Muslims from Zoroastrians, represents one of the main ones. A different system of organisation has been identified at Ramitan, in which the ancient political centre was clearly abandoned and a new Islamic centre born, in the south-western area. The shahrestan and the rabad, instead, continued to be inhabited and kept their functions. Globally, however, the cities and villages within the oasis show a halt in urban development, caused by a decline in demography and productivity, except in only a few cities, such as Vardana, Karmana, Vobkent, Tavovis, Iskijkat, Zandana, Afshana, Ramish tepe, Sivanj and Khatta. All these cities benefited from a privileged geographical location, which guaranteed them intense commercial activities, while some others benefited from cultural or political features.

This epoch is also characterised by the advent of technological innovation, especially relating to ceramics, with the appearance of the first glazed objects, among which the earliest ones seem to be the monochromatic green pottery, and the so-called *ishkornaia*. As regards glass, until now, only clear finds deriving from Islamic layers have been attested. However, in view of the frequent economic and also diplomatic contacts between Iran and Sogdia, a total absence and lack of knowledge of this material in pre-Islamic times is quite unthinkable. Because of its physical characteristics, it may be that it was not produced, and was probably only known through caravans or diplomatic gifts.

This epoch also corresponds to social urban changes, especially observed through the excavation of the dwellings of Paykend and the buildings of Ramitan in the western rabad. The general trend is to separate the space completely into private and kitchen-storage (or other house activities). Moreover, while in the Islamic period a court outside the domestic space was clearly attested by the excavations, in the pre-Islamic period this is still unclear. Could the conception of a courtyard outside the domestic walls, probably also used as a private garden, be an Islamic innovation? Only further excavations focusing on this aspect can give other and more precise data to answer this question.

From the urban point of view, it is important to stress that the arrival of Islam did not change any urban layout,

which kept its orthogonal grid. Moreover, the orientation of the buildings also kept their earlier and pre-Islamic characteristics, except for the mosques.

The 10th century CE is characterised by the economic and political zenith of Bukhara. Within the oasis the smaller sites began a slow dynamic of depopulation of the rural lands to reach Bukhara, which played the role of “metropolis”, or “the mother city” (taking on the ancient Greek meaning). The formation of a “metropolis” can be seen as a global anthropological change that welcomed new people, generated new urban entities (often surrounding the urban nucleus) and deeply changed the culture. Bukhara at that period can be seen in these terms, of course adapted to that specific epoch. Its area exploded, reaching more than 500 ha, like the other main cities of Khorasan. Because of these demographic and economic dynamics, the city was encircled by a strong defensive wall over a perimeter of circa 11 km, protecting its population, its political centre and its economic growth. Beyond its military function, the rampart also played a role of slowing down the demographic increase.

At that time Bukhara was also the political centre of a large Islamic emirate, Samanid, which covered the whole Khorasan (Khorasan-e Bozorg) and Sogdiana, upto Chach. It does not mean that the main cities of this large territory declined economically; on the contrary, cities like Nishapur, Balkh, Merv and Samarkand continued to be economically powerful, also keeping their regional political authority. Culturally subjected by the earlier Irano-Khorasan Tahirid influences, the oasis and particularly Bukhara appropriated further technologies and traditions, developing specific patterns that rapidly spread to the other countries of the Islamic Empire.

This strong political stability also engendered military inactivity, which can be observed clearly through the archaeological data. In Paykend, for example, according to the excavation, in this period some destruction of the rampart of shahrestan-1 could be observed. These destructions were covered by sand layers, evidence of the abandonment of this structure. The rampart, at least in the excavated section, was never repaired. Moreover, as we are reminded by Frye (2007: 165), some 10th-century wells were dug just over the ramparts of shahrestan-1, testifying to its uselessness. To corroborate this politico-military trend, in Ramitan the new Islamic city was totally deprived of ramparts, although the residential buildings were most probably defended by strong walls.

The late 10th and 11th centuries CE were characterised by the arrival of the Qarakhanids, the first Muslim Turkic dynasty, who ruled from the Tarim basin to the Oxus until approximately the early 13th century CE. During this time,

the slow process of depopulation of the rural areas to the benefit of Bukhara persisted, although the main cities continued to be inhabited, to produce and to have a solid function in long-distance trade (Duturaeva 2016: 173–212; forthcoming). The intense life observed in the dwellings of Paykend, as well as in the pottery quarter, testify to a period of economic solidity, at least for its first phase, the second half of the 12th century CE being less clear in their stratigraphy. The characteristic pottery dated between the late 11th and the 12th centuries CE covered with a thick turquoise opaque glaze, sometimes over a red slip, was observed almost in every site of the oasis, characterising the upper layers. Of the sites excavated, Paykend and Ramitan presented the most significant quantity of this type of ceramic, associated with other common ware pottery. The urban characteristics of this period do not present considerable variations, pursuing the same cultural model of the Samanid epoch. On the eastern rabad of Paykend, the Ribat 4 showed significant quantities of ceramics belonging to this period, also mixed with other 12th century CE typologies (i.e. the black motifs over a thick blue-turquoise glaze). From this time, this area of Paykend was occupied by a cemetery, which also presented important tombs, sometime provided of stele with inscriptions. The cemetery slowly occupied the sides along the main roads leading from the rabad to the canal. Every tomb was oriented north-south, keeping the sides of the road as its limit. Much later, the cemetery moved towards the northern slope, where it is visible today. Today the cemetery is located at the extreme southern side of the eastern rabad.

The 13th–early 14th centuries clearly show a scarcity of traces of human occupation, at least in the main cities, except for Bukhara, in which the stratigraphical test realised by MAFOUB showed layers dating to this short epoch. On the other hand, pottery was very scarce, and only common wares were observed. Nevertheless, a strong depopulation of the rural areas, accompanied by a slow depopulation of the main sites, clearly was in progress. Although the Mongol invasions may have been truly destructive, it does not mean that people left the oasis of Bukhara. Plausibly, it began to occupy the areas outside the ancient cities, by

now presenting above all serious difficulty in water supply. These new areas could represent the current urbanised zones of the oasis.

The Timurid epoch (late 14th–15th centuries) was characterised by a demographic recovery, even if scattered, at least concerning the main – and oldest – sites of the oasis. The pottery was characteristic of that period and was present in stratigraphy, as well as on the surface. In Paykend, rectangular buildings of pakhsa were excavated in shahrestan-1, showing for the first time an orientation south-west/north-east, towards Mecca. Furthermore, a large kiln was still functioning at that epoch. Also in Ramitan, the ancient square city was occupied again. If it is true that this Timurid occupation was short and sometimes composed of fragile constructions, it is also true that it covered the whole oasis, presenting pottery of quite good quality.

In the following centuries, some of the ancient sites like Ramitan presented scattered pottery that can testify to such an occupation. Nevertheless, these occupations were ephemeral, peoples had already started a slow but massive relocation in nearby areas, of which the results are clearly visible in the 1893 map.

To conclude, the regional study of the oasis brought to light a new chronology and new dynamics of occupation that were still unknown, completing earlier investigations that were indispensable for this research. The delta of the Zerafshan has been a land of welcome, only possible thanks to natural phenomena, which rendered this vast region inhabitable and rich in pasture, especially within the limits of the oasis, rather than the nearby areas. Although it has been already written in earlier studies, since its early formation and urbanisation, but much more since the 3th–4th centuries CE, the oasis of Bukhara acquired its economic growth from its geographical location and from the abilities of the populations that succeeded each other over the centuries. The cultural background of these earlier populations guided the cultural behaviour in following epochs, always developing the sense of commerce.

## Заключение

Археологические исследования оазиса Бухары и его историческую реконструкцию никогда нельзя считать завершенными. Как указано во введении, данный труд интересен тем, что в нем показана эволюция человеческих поселений и поведения человека в его собственной природной и социоэкономической среде, а также – характеристики городской и материальной культуры в обширном регионе, где динамика преобразований началась еще в бронзовом веке и продолжается по сей день. К этому следует добавить важные результаты, полученные в ходе геоморфологического исследования, в котором отслеживается история водных ресурсов оазиса, а также изменение климата и последствия этого явления для Центральной Азии.

Полученные палеоэкологические данные отсылают нас к весьма древним эпохам, вплоть до среднего плейстоцена. Хотя конечная цель настоящего труда заключается не в этом, речь идет об эволюции данной территории, а раз так, то, не вдаваясь в излишние подробности, позволю себе в заключение сделать несколько комментариев, надеясь на снисхождение специалистов по доисторической эпохе. Как показывают геоморфологические результаты, по крайней мере со времен среднего плейстоцена, территория дельты реки Зеравшан расширялась к северу и к западу, по всей вероятности, вплоть до Амударьи. Недавние археологические открытия (Slon *et al.* 2017: 605–608) после раскопок в Денисовой пещере на Алтае позволили обнаружить кости гоминидов, относящиеся к периоду с -40000 до -30000 гг. Дальнейшие исследования в целом подтвердили гипотезу о том, что на обширных территориях Центральной Азии обитали племена *Homo altaiensis* (по крайней мере в период с -40000 до -30000 гг.). Эта ветвь гоминидов, которых сегодня называют также денисовцами, отличная от *Homo neanderthalis* и *Homo heidelbergensis*, отделилась и мигрировала из Африки на восток. Имеющиеся археологические данные свидетельствуют о вероятном существовании поселений именно этих племен особенно на Алтае, а также в Фергане, в районе Гиссарского хребта, на Памире и далее к юго-востоку (Ranov *et al.* 1996: карта 3).

Таким образом, это краткое археолого-доисторическое введение дает представление об ареале человеческих поселений, где были выявлены самые ранние изменения климата в Центральной Азии. Недавние исследования, в которых анализируется скопление лёсса в западной части Центральной Азии (Wang *et al.* 2016: 1–9), наглядно показывают, что со времен раннего

плейстоцена переход от морских осадочных пород неглубокого залегания к лёссу свидетельствует о радикальных климатических изменениях, подтверждающих, что на смену влажному морскому климату постепенно стал приходить полусухой климат. Более того, сравнения с осадочными породами восточной части Европы дают основания полагать, что подобные климатические явления в период с раннего до среднего плейстоцена распространялись к западу. Согласно одной из гипотез, это объясняется распространением ледяного покрова в северном полушарии, которое привело к охлаждению северной акватории Атлантического океана, что породило более ярко выраженный переход к континентальному климату во Внутренней Азии и сделало климат более засушливым. Во второй гипотезе учитывается воздействие Монголо-Сибирской области высокого давления.

Именно в таких широких временных рамках наблюдались ранние гидрографические изменения дельты реки Зеравшан. В течение периода с 188300 г. до нашей эры и приблизительно вплоть до неолита начался медленный процесс иссыхания северных рукавов Зеравшана. Это климатическое явление продолжалось на протяжении всего позднего плейстоцена вплоть до начала межледникового периода (Wang *et al.* 2016: 9) в Северном полушарии, как об этом свидетельствует, в частности, устойчивая засушливость данной территории на протяжении последнего ледникового максимума, характеризующаяся также иссыханием северозападного и западного рукавов дельты.

Это явление не привело к полному исчезновению воды. В ходе последующих периодов, приблизительно от верхнего плейстоцена до неолита, климат вновь становится слегка влажным и устойчивым, о чем свидетельствует, в частности, карта температур, подготовленная Джереми Шакуном (Jeremy Shakun) и его коллегами, подтверждающая стабильность температуры вплоть до начала железного века (Maslin 2014: 41, рис. 10). Это, предположительно, привело к образованию озер, вероятно в определенное время года, что дало человеку возможность заселить данные территории: следы человеческих поселений были найдены к северу (Brunet 2011) и к западу (Ranov *et al.* 1996: карта 3) от оазиса. Вместе с тем, отнюдь не исключено, что наличие озер объясняется более ранним иссыханием.

Даже в ходе климатических флуктуаций в период между поздним плейстоценом-неолитом и бронзовым веком явление иссыхания неуклонно продолжалось. Бронзовый век был также отмечен высыханием ряда

западных каналов, а также дальнейшим иссыханием западных рукавов реки Кашкадарья, русла которых пролегли примерно параллельно по отношению к руслам рукавов реки Зеравшан; эти рукава, предположительно, также впадали в Амударью. Такие явления имели место в районах, расположенных к югу и юго-западу от оазиса, что приводило к образованию заболоченных и болотистых зон. Об их последствиях можно судить по районам, прилегающим к северным границам орошаемых земель оазиса, или по районам к югу от оазиса, которые и сегодня представляют собой сплетение палеоканалов, перемежающихся с болотистыми участками, где трудно проехать даже на внедорожнике.

К 4 веку до н.э., ландшафт полностью изменился вследствие природной катастрофы. На самой катастрофе я в деталях останавливаться не буду, поскольку ей уже было посвящено несколько подробных статей (Fouache et al. 2016; Rante et al. 2016), но хотел бы подчеркнуть, что катастрофа эта началась с изменения климата, которое неизбежно привело к таянию льда и вечной мерзлоты, и, по всей вероятности, характеризовалась притоком огромных объемов воды с верховьев реки Зеравшан, что изменило гидрографическую сеть дельты. Таким образом, в то время, как на равнине каналы текли по-прежнему, и их русло может быть изменялось без каких-либо заметных последствий, рельеф южной области стал характерным для неогенового периода: образовались две узких впадины, причем восточная впадина оказалась неожиданно затопленной водами основного рукава Зеравшана, хотя ранее воды в ней не было. Совершенно очевидно, что нельзя исключить чисто сейсмическое явление. Однако причиной столь быстрых преобразований мог стать и разлом, перерезавший район Пайкенда с востока на запад, что, впрочем, не исключает и вышеупомянутый климатический тренд, который привел к изменению географической обстановки данного региона. Со времен упомянутой природной катастрофы общий ландшафт не менялся, и с тех пор оазис ориентирован не на запад и на север, а на юго-запад.

Согласно этим данным, как представляется, история Бухарского оазиса началась с «обычных» климатических, а может быть также и с геологических явлений. Представляется также, что нынешний климатический тренд, усугубляемый сегодня деятельностью человека во всем мире, по целому ряду причин ускорил искусственные изменения ландшафта, в связи с чем уменьшился общий объем водных ресурсов. Последнее явление также скажется и на продуктивности хозяйственной деятельности, что может привести к росту цен на продовольствие. Это, в свою очередь,

может дать толчок безудержной спекуляции, что скажется на населении всей нашей планеты. И, как об этом свидетельствуют более ранние исследования (Maslin 2014: 83-85; рис. 24), это не просто одна из теоретических гипотез.

Возвращаясь к исходной цели данного труда, а именно к исторической и культурной реконструкции Бухарского оазиса, следует отметить, что географические изменения в регионе неизбежно повлекли за собой и антропологические изменения<sup>1</sup>. Датировать их с какой-либо степенью точности невозможно. Однако, можно утверждать, что речь идет о 3 веке до н.э. Дело в том, что именно к этой эпохе относятся самые ранние человеческие поселения в пределах собственно оазиса, которые значительно отличались от тех, что существовали в эпоху неолита-бронзового века и железного века, когда люди селились вокруг озер или в конце водных каналов. Этот период имеет решающее значение для формирования культуры населения оазиса. Сведения о материальной культуре свидетельствуют о принадлежности жителей оазиса к скифским племенам. Согласно археологическим данным, относящимся к этой эпохе, в те времена люди селились вдоль главного русла Зеравшана, причем плотность населения была более высокой в западных районах оазиса. Это может объясняться тем, что для своих поселений люди искали места на границе орошаемых земель, где течение реки было менее бурным; однако не исключено, что они воспроизводили привычные им схемы поселений между орошаемыми землями и пустыней. Ранее люди селились в деревнях, скорее всего, без укреплений. Качество гончарных изделий той эпохи можно охарактеризовать между средним и хорошим. Гончарные изделия изготавливали на гончарном круге, шлифовали, а затем иногда покрывали красным, черным или бежевым шликером, а иногда раскрашивали черными полосами с четкими очертаниями (порой присутствуют следы, похожие на тамги<sup>2</sup>); это были кубки на ножках с подставками; кубки обтекаемой формы как на ножках с подставками, так и без них, подобно тем, что были найдены в Самарканде (Lyonnet 2013: 269, рис. 6); кувшины и горшки для приготовления пищи, часто лепные, которые датировались периодом от 4 века до н.э. до середины 2 века до н.э. (Lyonnet 2013: 268). Эта культура

1 В данном случае термин «антропологический» применяется мною в своем широком значении, характеризующим через биологию, культуру и пр.

2 Тамги нанесенные на гончарные изделия, относящиеся к данному периоду, обнаружены также на объекте Кубадия II (Djakonov 1953: 282–287).

просуществовала в течение еще двух столетий. С исторической точки зрения, согласно отлично обоснованным сводным материалам Клода Рапена (Rapin 2001: 86), данные культурные элементы хотел бы предложить, что ранее оазис был заселен саками, которые мигрировали с севера и заняли Центральную Азию. Саков привлекли обширные территории и хорошие пастбища Бухарского оазиса, что побудило их осесть здесь. Согласно имеющимся у нас археологическим данным, благодаря этим племенам скифский в Бухарском оазисе появились не только кубки на ножках с подставками, но и техника черного шликера, следы которой были также обнаружены задний (II в. – I в. До н.э.) в Самарканде, в Ахсикете (см. выше) и в Кубадиане (этап II)<sup>3</sup>. Максвелл-Джонс (2015: 497) напоминает нам, что в Бактриане кубки появились в середине 1-го века до нашей эры, как баклажан ангоб. Lyonnet (1997: 165–167) предполагает, что кубок пьедестала явно связан с населением саков и распространился около 2-го века до нашей эры на северо-запад Индии. Это также свидетельствует о том, что в Ай-Хануме в этот период (половина II в. До н.э.) эта типология блюд полностью отсутствует. примечание нижняя страница: в недавней статье (2013: 273) Лионет расширил эту хронологию для материала Афрасиаба: 2-й век до н.э. – 2-й век н.э. Эти характеристики блюд датируются ранее в Бухарском оазисе, и предыдущие данные по сравнению с новыми, по-видимому, показывают, что более раннее появление этих объектов касалось, по крайней мере, территорий Согдианы и северной Бактрии. С чисто археологической точки зрения, проводить сравнения с проживавшими на востоке саками здесь трудно. Корин Дебен-Франкфор (Debaine-Francfort 1990: 92) напоминает, насколько сложно порой определить точные характеристики этих племен, хотя несколько примеров, которые она приводит в своих статьях, можно в какой-то степени сопоставить с относящимися к той же эпохе открытиями, сделанными в Бухарском оазисе: например, островерхие головные уборы или раскрашенные гончарные изделия появлялись на территории оазиса лишь сто лет спустя.

Однако, как представляется, по крайней мере, исходя из нынешнего состояния научных исследований, культурные рамки в пределах оазиса были несколько иными. Гончарные изделия, найденные в Бухаре, по своим основным характеристикам отличаются не только от тех, что были обнаружены в Ромитане,

Какиштуване и Искийкате, но и от тех, что были найдены на объекте Рамиш тепе (*Ramiš tepe*), а также – в ходе предыдущих раскопок, например, в Кермане<sup>4</sup>. Как представляется из этого разрозненного описания, было два основных района, разделенных главным руслом Зеравшана. Первый – на западе, северо-западе и далее к востоку, включая Керман. Второй – на юге и юго-востоке, вокруг Бухары. При этом, данные районы отличались друг от друга по своим основным характеристикам, например, касательно техники черного шликера и существования гончарных изделий обтекаемой формы. Нельзя ли сделать вывод, что упомянутые культурные рамки в пределах оазиса свидетельствуют о том, что ранее здесь жили другие племена, пришедшие из других регионов? Не прибегая к домыслам, а исходя из теоретических рассуждений, можно предположить, что племена, пришедшие с севера и северо-востока по долине Зеравшана, осели вдоль главного русла реки, а также к западу и северо-западу от нее, вытеснив племена, прибывшие из района Сурхандарьи до 2 века до н.э. (именно ко 2 веку до н.э. относятся гончарные изделия, покрытые черным шликером, которые можно найти и в Еркургане), и поселились как в самой Бухаре, так и вокруг нее. Вместе с тем, нельзя исключить и то, что эта своеобразная техника зародилась в Бухаре, а позже распространилась на восток.

Именно в период с конца 1 века до н.э., когда ослабла военно-политическая мощь саков, и началом 1 века н.э. произошли серьезные изменения в плане антропологии и градостроительства. Прежде всего, более ранние поселения в ту эпоху более равномерно распределялись по всей территории оазиса, хотя на его западной границе плотность населения была выше. По своей структуре эти поселения были хорошо организованы: крепости четырехугольной<sup>5</sup> формы представляли собой мощные укрепления, которые позже стали называть «трисоставными городищами». На заре 1 века н.э. появились также и новые поселения под названием «двусоставные городища». По своей организации они представляли собой хорошо продуманную социополитическую систему. Динамика заселения территории была столь активной, что в рамках тех же систем появились и другие городища

3 На данном этапе исследований мне не удалось найти никаких ссылок на технику черного ангоба в Хорезме, датируемую 3 в. до н.э.

4 В ходе раскопок в Кермане были обнаружены гончарные изделия, покрытые черным шликером (Grizina and Khujanazarov 2005: 45–46).

5 Единственное городище с цитаделью округлой формы, обнаруженное на данном этапе исследований, известно как объект 0513.

под названием тепе<sup>6</sup>. С археологической точки зрения, пока еще не совсем понятно, представляли ли собой эти городища уже на том этапе хорошо продуманные экономические системы. Согласно археологическим наблюдениям, как представляется, люди вели натуральное хозяйство, а правители деревень отправляли часть собранного урожая в основной город, где проживал князь, или азат. В конце концов, были заселены все орошаемые земли, причем, имелся доступ к плотной сети водоснабжения, и вся территория оазиса была разбита на города-государства. Распределение человеческих поселений в эту эпоху свидетельствует о хорошей организации деревень и более мелких поселений вокруг основного города (в настоящем труде такую организацию называют едиными тепе).

Гончарные изделия, как правило, отличаются высоким качеством, однако качество кувшинов среднего размера не столь высокое. Найдены многочисленные черепки из красно-розовой глины, покрытой более тонким слоем черного шликера, чем в предыдущие столетия. Использовался и темно-красный шликер, в частности, в Самарканде (Lyonnet 2013: 274, рис. 9b). К 1 веку относится также и хорошо известная в Кургане типология, выявленная в результате раскопок курганов в районе Бухарского оазиса, а также археологических комплексов Кызылтепе (Obelchenko 1992: 68–90) и Коктепе В оазисе Самарканда (Rapin 2001: рис. 12), особенность которой заключается в том, что краска разливалась по корпусу гончарного изделия, оставляя брызги в нижней его части. Эта типология отличается от более поздней, где большая часть корпуса покрыта более тонкими брызгообразными следами. Аналогичную типологию форм и декоративных мотивов можно также наблюдать на примере керамических изделий эпохи Кушанского царства. В Термезе (Houal 2013: 427–429), в некоторых подборках артефактов можно найти кубки и миски характерной формы с загнутыми внутрь краями, а также кувшины и горшки, иногда покрытые черной и красной краской посредственного качества<sup>7</sup>.

Согласно историческим исследованиям, Согдиана входила в состав Кангюйского государства, население

которого, кангюи, вело кочевой образ жизни. Кангюи проживали вдоль среднего течения Сыр-Дарьи и контролировали обширную территорию от Бухарского оазиса до Казахстана и Ферганы. Некоторое представление о политико-военной организации и о значении Согдианы может дать открытие древних писем в районе Культобе (Sims-Williams et al. 2007). В таких обстоятельствах, учитывая недавние археологические открытия, многочисленность городского населения, динамику урбанизации, высокий уровень городской организации, равно как и высокое качество материальной культуры, следовало бы пересмотреть отнесение кангюев к кочевым народам или сделать вывод о том, что население, проживавшее в тот период в пределах оазиса, было сродни племенам саков. Более того, такая культурная динамика и сходство с кушанской материальной культурой, а также с Самаркандом, вплотную подводят нас к выводу о том, что в те времена с севера и северо-востока под влиянием той же хорошо известной динамики, которая привела к миграции кушанцев, мигрировали и другие схожие народности. Как и в Самарканде, по мнению ряда специалистов, (Lyonnet 2013: 273, Rapin 2001: 87–88), материальная культура в целом свидетельствует о том, что на территории оазиса обосновались скифо-сарматские племена. Как мне представляется на основании археологических данных, эти вновь прибывшие племена вели скорее оседлый образ жизни, сохраняя некоторые особенности поведения, свойственные кочевникам, что особенно заметно по их похоронным обрядам (Obelchenko 1992; Rapin 2001), и с оседлым населением оазиса они жили в симбиозе.

В эту эпоху был проложен северо-восточный маршрут Великого шелкового пути, напрямую связавший город Мерв с оазисом. Материальные следы торговли, осуществлявшейся по этому маршруту обнаружить сложно; не упоминается этот торговый путь и в письменных источниках. Вполне возможно, однако, что столь мощная и динамичная урбанизация, как в данном случае, вызвана бурным экономическим ростом, который объяснялся, в частности, прохождением караванов. Вместе с тем, как отмечалось выше, по данному пути караваны, по всей вероятности, проходили реже, поскольку в письменных источниках вплоть до первых веков нашей эры упоминается маршрут через столицу Бактрии Балх.

Судя по археологическим данным, в 3 веке явной интенсификации урбанизации<sup>8</sup> не наблюдалось. Хотя

6 На мой взгляд, именно к этому периоду следует относить поселения и других оазисов Согдианы. Зачастую их датируют 5–6 вв. н.э. (De la Vaissière 2011), когда несомненно – как следствие миграционных процессов – существовали довольно крупные поселения, но скорее всего эти поселения были не самыми ранними.

7 На территории Бухарского оазиса красный шликер, как представляется, был хорошего качества, а вот качество черного шликера было намного хуже, что объясняется высоким содержанием соли.

8 Под «урбанизацией» здесь я имею в виду городские поселения на незаселенных сельских землях.

в результатах настоящего исследования невозможно привести полную хронологию тысячи с лишним городищ, по крайней мере, по основным из них прослеживается эволюция городских планов и архитектуры, равно как и явная эволюция в материальной культуре. Это четко видно на примере Ромитана, где в ту эпоху, крепость квадратной формы, защищенная четырьмя квадратными башнями, расширилась, сохранив при этом примерно ту же геометрическую форму. Новое городище было защищено башнями округлой формы той же типологии, что и существующие по сей день башни вокруг Бухарской цитадели. Башни округлой формы, хотя и несколько иной типологии, можно видеть и в Варакше, и датируются эти башни периодом не позднее первых веков нашей эры (Šiškin 1963: 109). В железном веке в Коктепе также были башни полукруглой формы, и это, как представляется, свидетельствует о том, что типология башен явно не устоялась. Со времен своего основания Пайкенд был также защищен квадратными башнями, но они сохранили свою форму и в последующие столетия (Omelchenko et al. 2015: 38–39, рис. 1–2).

Некоторые изменения наблюдаются и в гончарных изделиях. Так появился кувшин большой вместимости под названием хум; иногда хумы отделявали брызгообразным орнаментом от горловины до основания. Вплоть до недавнего времени хумы датировали слишком поздним периодом, и иногда они служили хронологическими маркерами. Археологи обнаружили также гончарные изделия серого цвета, которые до сих пор не встречались. Черный шликер на красном фоне применяется и сегодня, хотя намного реже. Из всех этих артефактов наиболее интересными представляются гончарные изделия серого цвета. На некоторых серых черепках хумов также видны черные брызгообразные мотивы. Керамическая посуда такой типологии применялась еще кушанцами в Бактрии (Ноуал 2013: 426), а также в широких масштабах изготавливалась парфянами<sup>9</sup>.

Данные культурные элементы свидетельствуют о том, что, начиная с этого времени, на территории оазиса жили другие племена. Значительная эволюция городской и материальной культуры, ее высокое качество, а главное – ее преемственность на протяжении последующих веков позволяют сделать вывод о том, что так называемые «нашествия хионитов» следует датировать приблизительно на один век раньше, чем

считалось до сих пор<sup>10</sup>. Франц Грене (Grenet, 2010: 269) подтверждает, что миграция сармато-аланских племен из Джетгысарских городищ в низовья Сырдарьи имела место примерно в 3–4 вв., что частично подтверждает появление в Согдиане последующих культурных компонентов, хотя не исключено, что они датируются более ранним периодом, начиная с 1 века, по крайней мере, применительно к Бухарскому оазису<sup>11</sup>. Этот период отмечен также падением Кушанского царства, что также могло привести к миграции народов. К тому же, постепенно укреплялись прямые связи между парфяно-сасанидским Хорасаном и оазисом. Вероятно именно в этот период народы, проживавшие в Согдиане, начинают осознавать свою стратегическую значимость в масштабах Великого шелкового пути, и эта значимость в еще большей степени возросла в связи с тем, что после падения Кушанского царства и последовавшей за ним политической нестабильностью маршрут через Бактрию стал применяться реже.

Неизвестно, продолжались ли эти миграционные процессы в течение 4 века, но исключить этого нельзя. Очевидно лишь то, что они повлекли за собой существенное развитие городов. Основные города оазиса в те времена представляли собой обнесенный стеной шахристан, что не означало отсутствие за стенами крепости деревень. Наоборот, люди уже обустроились и жили как вокруг крепости, так и в деревне, что наглядно видно на примере Искийката и Ромитана. Новое в градостроительстве заключалось в наличии вала, что отражало стремление защитить население таких крупных городов, как Ромитан, Пайкенд, Бухара, Варакш и, по всей вероятности, многих других. Очевидно то, что это стремление объяснялось не только военными соображениями, но и необходимостью защиты таких городских сословий, как, например, купцы или ремесленники, игравших весьма важную роль для Великого Караванного маршрута и для экономического роста оазиса, а также желанием более рационально организовать указанные сословия.

Такая тенденция прослеживается и в 5 веке, когда оазисом правили эфталиты. В этот период никакой реальной эволюции в области керамики не наблюдалось, ни в форме изделий, ни в их отделке. Производились керамические изделия прежней типологии, хотя

9 Приношу благодарность Джакомо Бруно (Jacopo Bruno) за то, что он показал мне некоторые подборки гончарных изделий этого типа, найденные в Нисе.

10 Их появление часто датируют 4 веком н.э. (см. в частности, Zeimal 1996: 123); именно в этот период они впервые упоминаются в письменных источниках, относящихся к конкретному историческому событию (Ammianus Marcellinus 16.9.4, 1968; Felix 2011: 485).

11 Относительно культурных элементов хионитов, см. также Grenet and Khasanov (2009: 69–82).

порой иных размеров: декорированные брызгообразными мотивами хумы и отделанные красным шликером миски с загнутыми внутрь краями. Тем не менее, наблюдается рост производства керамики, по крайней мере, судя по количеству собранных осколков и черепков, относящихся к 5 - началу 6 века. Хотя новых строений в пределах оазиса не отмечалось, сам город был лучше оформлен по своей структуре, а прилегающее к городу пространство – лучше организовано. Например, предместья Ромитана представляют собой хорошо спланированные территории с сетью проложенных по гипподамовой системе дорог, и на этих территориях находились прочные строения из глинобитного кирпича, имевшие, вероятно, разное, но скорее всего, коммерческое назначение. Судя по Ромитану, можно сказать, что под влиянием основного города прилегающие к нему пространства начинают приобретать околгородскую структуру с постройками для торгово-производственных целей, предназначенными для временного или постоянного пребывания.

Период с конца 6 до начала 8 веков в целом был также отмечен преобладанием материальной культуры и, как представляется, отсутствием новых городских построек. Более того, когда город был захвачен тюрками – вероятно, князем Тарду (прим. переводчика: в советской и российской научной литературе князь Тарду известен под своим тюркским именем Кара-Чурин-Тюрк), позже ставшим правителем Бухары<sup>12</sup>, в политическом плане он пришел в упадок, хотя в нем оставалось население и наблюдалось активное производство гончарных изделий. То же самое относится к Какиштувану и Искийкату. Согласно более ранним исследованиям, прежде всего нумизматическим, этот период характеризуется активной чеканкой монет правителями Бухары. К тому времени Бухара занимала площадь, сопоставимую с территорией Ромитана, однако, как представляется, в этот период ее политическое и экономическое влияние усилилось, и она поглотила население, прибывавшее из оазиса, причем, доля ремесленников и торговцев среди населения возросла. В ту же эпоху произошла реорганизация городской структуры Пайкенда: ввиду стратегического географического положения города, находившегося на пересечении нескольких маршрутов Великого шелкового пути, городское пространство, обнесенное стеной – шахристан-2 – расширилось в западном направлении. С этого момента среди немногих городов, где отмечался мощный экономический рост, особенно бурно развивались Бухара и Пайкенд.

Как хорошо известно из истории, начало 8 века прошло под знаком завоевания Согдианы мусульманами. К 709 году исламские воины окончательно захватили Бухару. 8 столетие главным образом характеризовалось взятием под военный контроль Бухары в пределах оазиса и изменением социополитической структуры города, что, вопреки распространенному ранее мнению (Frye 2007: 162–163), не повлекло за собой ни общего уменьшения численности населения, ни резкого снижения производительности труда, по крайней мере, согласно нашим археологическим данным. При нынешнем состоянии археологических исследований сложно привести конкретные сведения в отношении демографии или уровня производства продукции, однако, как представляется, городская жизнедеятельность реорганизовалась довольно быстро, по крайней мере, в основном городе. Ранние элементы новой культурной эпохи по-настоящему можно расшифровать примерно с конца 8 столетия. Весь этот период, особенно, начиная с 9 века, характеризуется явными признаками производства и строительства, а также социоэкономическими изменениями, однако новые города не строятся, как об этом свидетельствует обзор нескольких сотен городов<sup>13</sup>. Изменения наблюдаются скорее на прилегающих к городам территориях, где происходит своего рода «революция». Стремясь сохранить торговый обмен между Китаем и Средиземноморьем, осознавая экономическую значимость торговли для оазиса, исламские правители по-новому организовали городские районы, прилегающие к центру. Эти районы были заселены и ранее, и производство в Ромитане существовало до ислама, однако теперь улучшилась планировка городского пространства и появились мощные, хорошо оформленные по своей структуре торговые районы. В этом отношении показателен пример Пайкенда, ибо он подчеркивает стратегическую важность города на протяжении веков с точки зрения торговли. Здесь не только появился квартал гончаров и был обустроен базар, но и была расчищена дополнительная территория для оборонительных сооружений и для караванов, как в восточном предместье – или рабаде – общей площадью приблизительно 61 гектар, где также были предусмотрены открытые площадки или временные постройки для караванов. К тому времени Бухара окончательно утвердила свою ведущую роль в политическом плане, продолжая и наращивая процесс централизации. Не случайно, что на той территории, которую позже стали называть провинция

12 Материалов, подтверждающих эту гипотезу, у меня нет, но и исключить ее нельзя.

13 Здесь я имею в виду основание города, состоящего из различных городских структур.

Бухара, практически не было основных городов с ремесленными кварталами или торговыми площадями. Центры в Бухаре сохранялись с древних времен, и в городе имели место значительные социальные перемены, главной из которых был раздел шахристана на две части, в одной из которых жили мусульмане, а в другой – зорастрийцы. В Ромитане наблюдалась иная система организации города: прежний политический центр был явно заброшен, и в юго-западной части города появился новый исламский центр. При этом, жители шахристана и предместий оставались на местах и продолжали заниматься своими привычными делами. В целом, однако, наблюдалось замедление развития города и деревень в пределах оазиса в связи с уменьшением численности населения и снижением производства, за исключением нескольких городов, таких, как Варданзи, Кармана, Вабкент, Тавовис, Искийкат, Зандана, Афшана, Рамиш-тепе, Сивандж, Хатта. Отличительной особенностью всех этих городов было их выгодное географическое положение, обеспечивавшее им интенсивную торговую деятельность, а некоторые из них имели также определенные преимущества в культурном или политическом отношении.

Эта эпоха характеризовалась также рядом технологических нововведений, особенно в керамике: впервые появились глазированные предметы, самыми ранними из которых были, как представляется, монохромные гончарные изделия зеленого цвета, а также ишкор. Все найденные вплоть до настоящего времени стеклянные изделия относятся к исламской эпохе. Однако, зная о частых экономических и дипломатических контактах между Ираном и Согдианой, невозможно представить себе, что в доисламские времена о стекле ничего не было известно. Учитывая его физические характеристики, не исключено, однако, что стекло не производилось, а было известно лишь благодаря караванной торговле или дипломатическим дарам.

В ту же эпоху имели место социальные изменения и в городской жизни, что особенно заметно благодаря раскопкам жилищ в Пайкенде и строений Ромитане, в западном предместье. Общая тенденция заключалась в том, что пространство было четко разделено на жилые и кухонно-складские помещения (или помещения, предназначенные для иной хозяйственной деятельности). Кроме того, тогда как в исламский период в ходе раскопок были обнаружены прилегающие к дому дворники, до сих пор неясно, существовали ли такие дворники в доисламский период. Нельзя ли предположить, что двор за пределами стен дома, который,

вероятно, служил и садом, представлял собой одно из исламских нововведений? Ответ на этот вопрос можно получить только благодаря новым, более точным данным, которые можно будет собрать в ходе дальнейших раскопок.

Важно подчеркнуть, что с приходом ислама городская планировка не изменилась, и города сохраняли свою прямоугольную конфигурацию. Более того, по сравнению с доисламским периодом не изменилась и ориентация зданий, за исключением мечетей.

10 век ознаменовал собой экономический и политический расцвет Бухары. Жители окрестных, более мелких, селений начинают покидать сельскохозяйственные земли и переселяться в Бухару, которая играет роль метрополии, что в буквальном переводе с древнегреческого означает «мать городов». Образование метрополии можно рассматривать как глобальное антропологическое изменение: население города растет, появляются новые городские кварталы, нередко прилегающие к центру, глубоко меняется городская культура. Именно так следует рассматривать тогдашнюю Бухару, учитывая, конечно, специфику той эпохи. Площадь города значительно увеличилась и превысила 500 га, как и территория другого крупного города того времени, Хорасана. Вследствие столь динамичных демографических и экономических процессов город был обнесен мощной оборонительной стеной, периметром приблизительно 11 км, которая защищала население и политический центр, а также гарантировала дальнейший экономический рост. Помимо чисто военных функций, стена способствовала также замедлению притока в город новых жителей.

В то время Бухара была также политическим центром большого исламского эмирата, которым правила династия Самонидов. Территория эмирата охватывала весь Хорасан-э Бозорг и Согдиану, вплоть до Шаша. Это не означает, что основные города, расположенные на этой обширной территории, пришли в экономический упадок. Наоборот, такие города, как Нишапур, Балх, Мерв, Самарканд по-прежнему сохраняли свою экономическую мощь и политическую значимость в регионе. В культурном плане оазис находился под ирано-хорасанским влиянием династии Тахиридов; на всей территории оазиса и особенно в самой Бухаре наблюдалось дальнейшее развитие технологий, развивались и традиции, в результате чего сложилась самобытная модель, которая быстро распространилась и на другие страны исламской империи.

Такая ярко выраженная политическая стабильность привела к определенной пассивности в военном

плане, что легко проследить на основании археологических данных. В Пайкенде, например, раскопки показали, что в тот период вал вокруг шахристана-1 был частично разрушен. Разрушенные участки вала покрыты слоями песка, а это означает, что оборонительное сооружение было заброшено. Вал, по крайней мере, в раскопанной части никогда не восстанавливался. Более того, как отмечает Ричард Фрай (Frue 2007: 165), в 10 веке над некоторыми валами шахристана-1 были вырыты колодцы, и это доказывает, что валы не использовались. Данную политико-военную тенденцию подтверждает и тот факт, что в Ромитане вокруг нового исламского города никаких валов не было, хотя жилые дома, скорее всего, были защищены прочными стенами.

Конец 10 и весь 11 век были ознаменованы прибытием Караханидов, первой мусульманской тюркской династии, которая вплоть до начала 13 века правила территориями от бассейна реки Тарим до Амударьи. На протяжении этого времени, продолжался приток сельского населения в Бухару, хотя население по-прежнему проживало в основном городе, занимаясь кустарными промыслами и караванной торговлей, как отмечает Дилноза Дутураева (2016: 173–212; 2017 скоро выйдет в свет). Интенсивная жизнь в жилых кварталах Пайкенда, а также в квартале гончаров свидетельствует об экономической стабильности, по крайней мере, на этом первом этапе, тогда как, исходя из данных стратиграфии, положение во второй половине 12 века представляется не столь определенным. Практически в каждом городище оазиса при раскопках в верхних слоях находили характерные гончарные изделия, датированные периодом конец 11 – 12 вв., покрытые толстым слоем непрозрачной бирюзовой глазури, иногда поверх красного шликера. Среди исследованных в ходе раскопок городищ больше всего керамики такого типа – наряду с обычными гончарными изделиями – находили в Пайкенде и Ромитане. Существенных различий в характеристиках городских поселений этого периода не наблюдалось, и здесь прослеживается та же культурная модель эпохи саманидов. В восточном предместье Пайкенда, в рибате-4, обнаружено немало керамики этого периода, наряду с другими типами керамики, относящимися к 12 веку, например, керамика с черным орнаментом поверх толстого слоя сине-бирюзовой глазури. В те времена в этой части Пайкенда находилось кладбище, отличительной особенностью которого были массивные надгробья, иной раз в виде стел с надписями. Постепенно кладбище расширилось и заняло обочины основных дорог, ведущих из рабада к каналу. Гробницы были

ориентированы с севера на юг, а границей кладбища служила дорога. Намного позднее кладбище переместилось к северному склону, где его можно видеть и сегодня. В настоящее время кладбище расположено на самой южной окраине восточного предместья.

В 13 – начале 14 вв. следов человеческих поселений явно мало, по крайней мере, в основной части города; исключение составляет лишь Бухара, где в результате стратиграфического исследования, выполненного специалистами Археологической миссии в оазисе Бухары (АМОБ), были обнаружены слои, относящиеся к этому короткому периоду. Следует отметить, что гончарных изделий было обнаружено очень мало, и они относились к наиболее распространенным типам. Однако совершенно очевидно, что продолжался мощный отток населения из сельских районов наряду с медленным оттоком населения из основных городищ. Хотя монгольские нашествия были весьма разрушительными, это не означало, что люди покинули Бухарский оазис. Вполне можно предположить, что оазис по-прежнему занимал территории за пределами древнего города и что к тому времени начались существенные трудности с водоснабжением. Не исключено, что в новых районах оазиса стали появляться постройки городского типа.

Эпоха Тимуридов, конец 14 – 15 вв., характеризовалась восстановлением численности населения, хотя плотность его была невелика, по крайней мере, на территории основных и самых древних городищ оазиса. Гончарные изделия характерны для этой эпохи, и их можно найти, как в старых слоях, так и близко к поверхности. В Пайкенде на территории шахристана-1 в ходе раскопок были обнаружены постройки прямоугольной формы из пахсы, и они впервые были ориентированы с юго-запада на северо-восток, в направлении Мекки. Кроме того, в то время еще работала большая обжигательная печь. В Ромитане вновь была заселена древняя часть города квадратной конфигурации. Хотя правление Тимуридов длилось недолго, и постройки той эпохи были порой непрочными, следует отметить, что именно тогда была заселена вся территория оазиса, и изготовлявшиеся в тот период гончарные изделия отличались довольно высоким качеством.

На территории некоторых древних городищ, например, в Ромитане, находили разрозненные гончарные изделия, относящиеся к последующим столетиям, и это свидетельствует о том, что люди здесь по-прежнему жили. Тем не менее, данные человеческие поселения носили недолговременный характер, и уже начался медленный, но массовый отток населения в

близлежащие районы, результаты которого явно видны на карте, датированной 1893 годом.

Таким образом, в результате исследования региона вокруг оазиса можно сделать вывод о новой хронологии и новой динамике человеческих поселений. Эти неизвестные ранее данные дополняют прежние исследования, на которые в весьма существенной степени опирается настоящий материал. Благодаря благоприятным природным явлениям население богатого своими пастбищами обширного региона дельты Зеравшана продолжало расти особенно в пределах

оазиса, и люди, прибывающие из близлежащих областей, оседали здесь. Как уже отмечалось в более ранних исследованиях, Бухарский оазис с момента своего зарождения и начала урбанизации, но особенно, начиная с 3-4 вв., продолжал развиваться в экономическом плане благодаря своему географическому положению, а также – навыкам и мастерству жителей, которые на протяжении веков сменяли друг друга. Культурное наследие, оставленное этими первожителями, предопределило культуру последующих эпох, которая всегда опиралась на торговлю.

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