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Khirbet Jaddalah and its land. A study of the military landscape in the eastern part of the Kingdom of Hatra (2nd - 3rd cent. AD)

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Keywords: Khirbet Jaddalah, Hatra, Parthian Empire, Roman Empire, Lanscape Studies, Defense in-depht.

Parole chiave: Khirbet Jaddalah, Hatra, Impero Romano, Impero Partico, Studi sul paesaggio, difesa in profondità.

Abstract:
This paper concerns a general revaluation of the 'fortified palace' of Khirbet Jaddalah (Iraq), constructed between Hatra and Ashur during the 2nd and 3rd cent. AD. The site has been studied in strict relation with its close landscape (20 x 20 km) for the presence of many archaeological occurrences, especially square forts. The settlement pattern, the location of the fortified structures, the characteristics of the society and of the environment of the Kingdom of Hatra support the employment of a defence in-depht strategy against the idea of a borders' linear defence.

L'articolo riguarda una rivalutazione generale del "palazzo fortificato" di Khirbet Jaddalah (Iraq), costruito tra Hatra e Ashur durante il II e III sec. d.C. Il sito è stato studiato in stretta relazione con il paesaggio circostante (km 20 x 20) per la presenza di molte attestazioni archeologiche, specialmente forti quadrangolari. Il modello di insediamento, l'ubicazione delle strutture fortificate, le caratteristiche della società e dell'ambiente del Regno di Hatra sostengono l'impiego di una strategia di difesa in profondità piuttosto che l'idea di una difesa lineare di confine.

Introduction[1]

Khirbet Jaddalah is located in north Iraq close to the Qayara's village, about 51 km north-east from the ancient site of Hatra and 40 km from Ashur (fig. 1). The site, composed by almost three different archaeological occurrences (a, b, c)[2], according to the Iraqi archaeologists who accomplished the survey during the 70s[3], was already identified in 1938 by Sir Aurel Stein[4]. The Hungarian explorer discovered on the ground a first archaeological squared site (61 x 61 m) west of the wadi Jaddalah with a high mound, named later Khirbet Jaddalah (a), and a 'Roman castle' - Khirbet Jaddalah (c) - located slightly south on the eastern bank of the wadi[5] (fig. 2).

The archaeological site was of late Parthian period, following the materials and objects discovered on the ground, while the ruined structures of Khirbet Jaddalah (a) were identified as a temple for the recovery of several column drums close to the wadi. According to Stein, the site corresponded probably to the rest point of *Ad Herculem*, drawn on the *Tabula Peutingeriana*, and quoted before by Tolomeus with the Greek name of *Herakleous Bomoi* (*Geog*. V.18.1), where was probably built a shrine/temple dedicated to this god[6].

Stein thought that the site was also part of a huge and articulated defense system, comprehending numerous forts constructed until Tell Afar, placed to the north of these lands - a sort of Parthian *limes*, a long lasting definition in the scientific community[7].

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[1] I would like to thank for her constant help and support in all my works Roberta Ricciardi Venco, Director of the Italian Archaeological Expedition at Hatra (Torino).

[2] In this paper has been used the proposal made by Ibrahim of naming the occurrences at Khirbet Jaddalah with letters.

[3] Ibrahim 1983; 1986, pp. 141-153;.

[4] Stein 1941.

[5] Stein 1941, pp. 308-310.

[6] Stein 1941, pp. 299, 313; Ibrahim 1983, p. 219; 1986, pp. 52,143; Kennedy, Riley 1990, p. 232.

[7] Stein 1941, pp. 309-310; Aggoula 1987, p. 229; Hauser 2000, pp. 192-193; Gregoratti 2013, pp. 49-50.

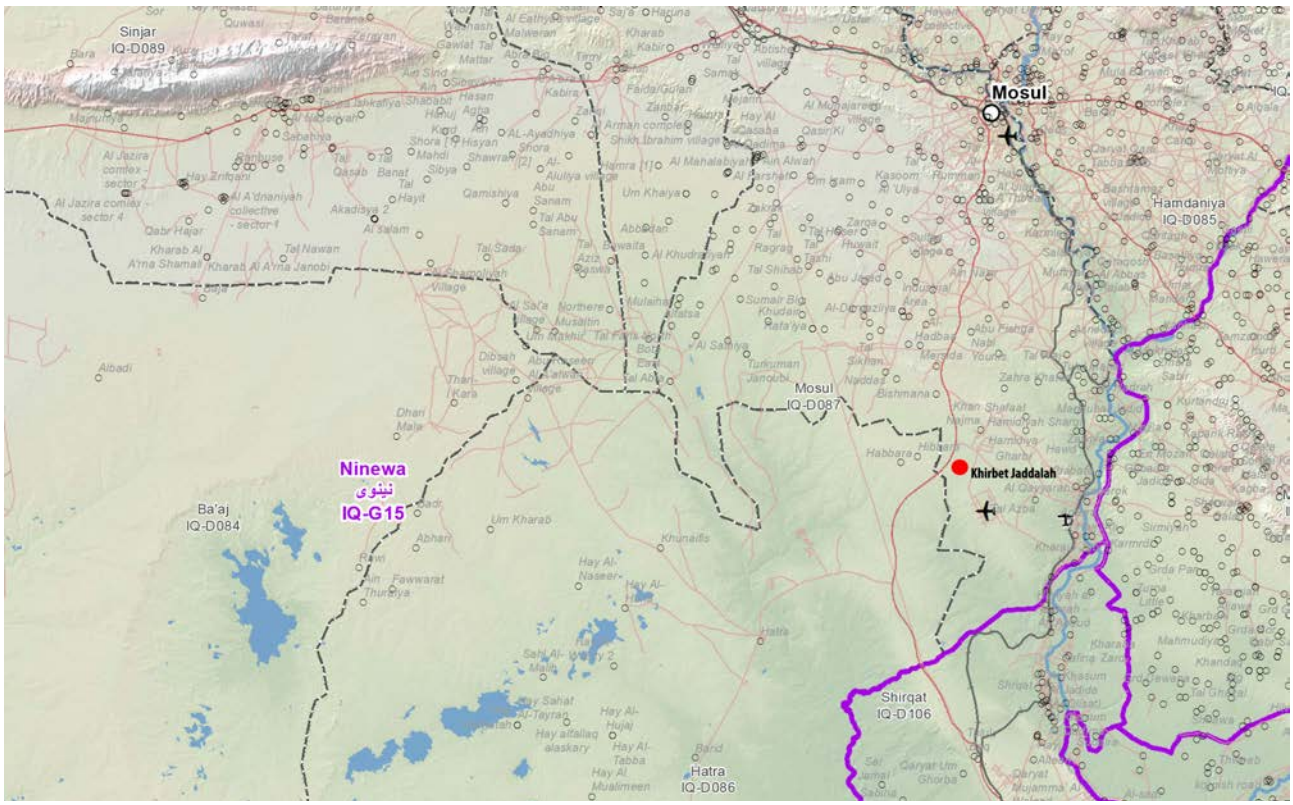

Fig. 1. Location of Khirbet Jaddalah (from MA012, Iraq – Niniwa governorate; OCHA).

Fig. 2. Khirbet Jaddalah a, b, c (Bing catalogue ©Maxar 2020).

The State Board of Antiquites and Heritage (SBAH) begun to excavate Khirbet Jaddalah (a) during the '70s, starting from the outer enclosure, where towers and rooms were firstly cleared, and proceeding with the main building, identified by the first archaeologists and scholars as a fortified palace. The excavation was published by J. Ibrahim in a long paper published in 1983 on the journal Sumer and in his Phd thesis.

The four inscriptions recovered at the site, also indicating the year of erection of the central building, the structure's owner and some members of his family, were published for the first time on the journal Sumer by Ibrahim[8] and republished by different epigraphists, who worked on the *corpus* of Hatran inscriptions[9] and in a dedicated paper published by F. Pennacchinetti[10].

The purpose of this article concerns a partial reevaluation of the excavation data published by the Iraqi archaeologists, and a new study of the landscape close to the site of Khirbet Jaddalah, focusing mainly on the military aspects of this area, where are recognizable many archaeological occurrences. The aim is to better identify and contextualize the function of this interesting territory, which laid in a strategic position between the two important centres of Hatra and Ashur, both politically related to the Kingdom of Hatra during the 2nd and 3rd cent. AD.

[8] Ibrahim 1984.
[9] Vattioni 1994, App. pp. 12-13; Beyer 1998, 27.
[10] Pennacchietti 1988.

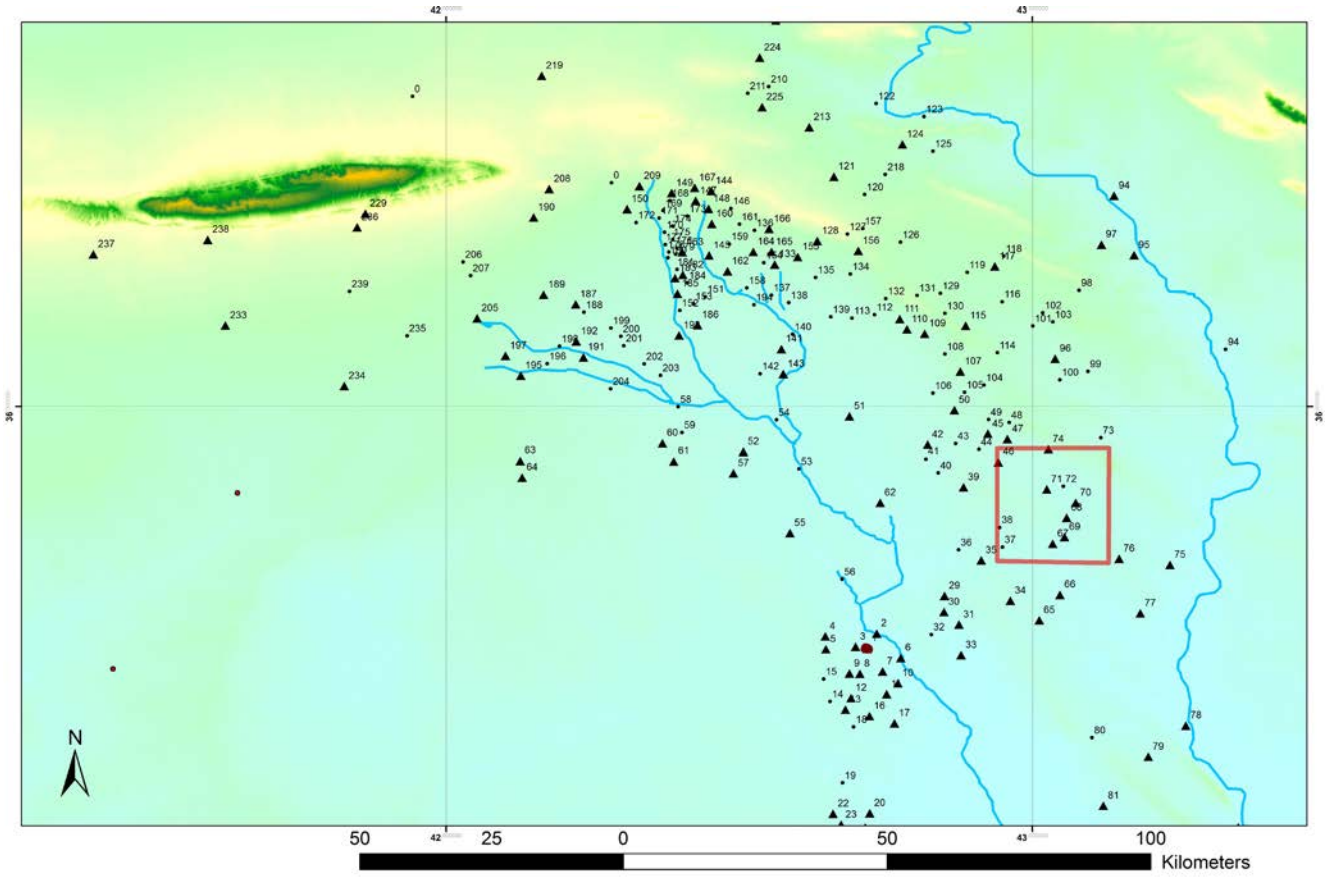

Fig. 3. Location of the analysed area (©HatraGIS).

The landscape of Khirbet Jaddalah: morphology, hydrology and main archaeological occurrences

The research for practical and methodological reasons have been limited to a square of 20 x 20 km, in which is located in the south-eastern part the site of Khirbet Jaddalah[11] (fig. 3). Scientific and archaeological information has been acquired using recent scientific publications, while anomalies, tells and mounds have been identified employing remote sensing techniques through satellite and aerial images[12]. This area was already preliminarly studied by the author in papers and publications regarding the regional landscape of the Kingdom of Hatra during the 2nd-3rd cent. AD, which has been the starting point for this 'fresh' research[13]. A new DSM 30 m (ALOS World 3D – 30 m AW3D30)[14] of the delimited zone has been processed in the regional GIS (HatraGIS) to achieve a better and easy interpretation of the CORONA[15] and satellite/aerial images.

From a morphological point of view, the zone is characterized by the presence of the Jabal Jāwan, localised slightly north of the studied area. It is a low hills-chain north-west/south-east, from which started several wadi with an approximatively north-south direction. The main wadi of the studied area is the wadi Jaddalah, flowing with a north-west/south-east direction. The wadi al-Rugai, the second stream of the area, flows almost parallel to the wadi Jaddalah in the analysed zone, while south of it joints the wadi Jaddalah, originating the wadi Muwaith, flowing south until the Tigris[16].

[11] A square of 20 x 20 km has allowed a precise remote sensing analysis focused to a delimited area in which the main excavated site is located. The placement and dimension of the square has been chosen according to the already known archaeological occurrences and the environment features. Frame and Regional studies have been already published and has been used as starting point for this work (Foietta 2020a; 2020b)

[12] Some aerial image of Khirbet Jaddalah taken in 1938 by the RAF have been very important for this work (figs. 8a, 10).

[13] Foietta 2018, pp. 141-150; 2020a; 2020b. Researches about the regional landscape have been published by R. Venco Ricciardi, S. Hauser and R. Palermo (Venco Ricciardi 2008; Hauser 1998; 2000; 2009; 2013; Palermo 2019).

[14] See https://www.eorc.jaxa.jp/ALOS/en/aw3d30/index.htm.

[15] For the georeferencing process of the 1008 CORONA images of 1967-1969 in the CORONA Atlas and declassification: Casana, Cothren 2013. See also the site: http://corona.cast.uark.edu/.

[16] General description of the environment has been published by Ibrahim 1983, 217; 1986, 143. Pennacchietti 1988, 139-140. The Russian 1:150000 (I-38-02) and American 1.250000 (NI-31-1) plans have been used.

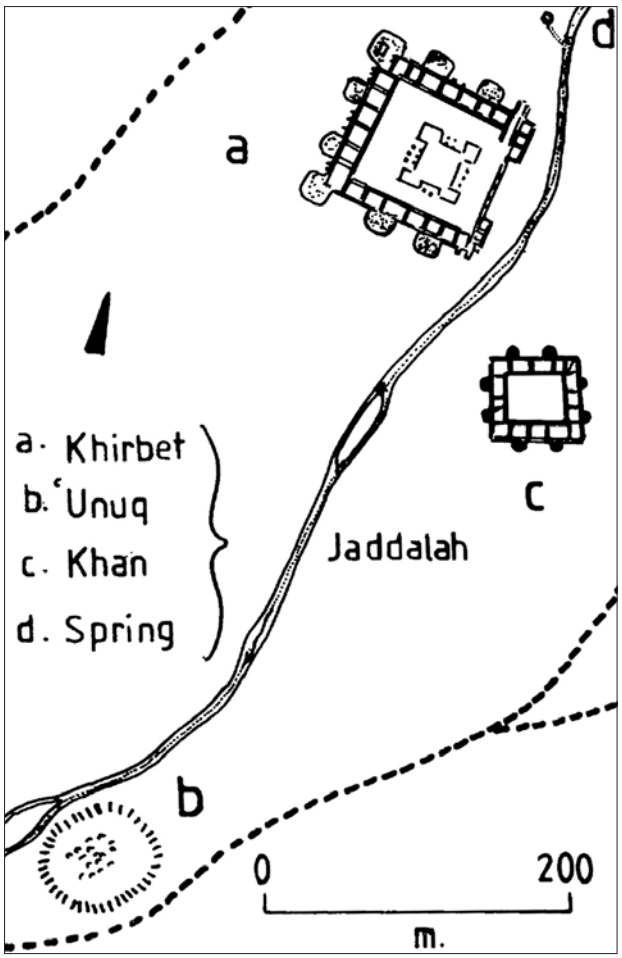

Fig. 4. Iraqi sketch of the area of Khirbet Jaddalah (Ibrahim 1986, 268, pl. 20).

Fig. 5. Khirbet Qbr Ibn Naif (Bing catalogue ©Maxar 2020).

The zone is placed from a geo-morphological point of view inside the so-called Hadhr Plain, characterized here by the Injiana Formation, with cyclic layers of sandstones, siltstones and claystone, and by the Fatha Formation, with regular cyclic layers of limestone, gypsum and hanydrites[17].

The entire landscape is karst, even if in a lower degree compared with Hatra's lands, for its location in a transitional zone between the main morphological areas of the Injiana and Fatha formations. Hence, sinkholes and dolines are easily detectable on the support of aerial and satellite images and on the terrain[18].

Several karst springs are also identifiable, as the one discovered north of Khirbet Jaddalah (a), reported in an interesting Iraqi sketch[19] (fig. 4). This spring is now difficultly detectable on satellite images, because of the progressive growth of the closest village from the '50s, which has probably encircled it. However, numerous water sources are identifiable thanks to the Russian and American historical maps[20]. Several of them, characterized by salty water, is reported close to the Jabal Jāwan and in the west part of the studied area.

The springs close to Khirbet Jaddalah (nos. 68/69 of J. Ibrahim's enumeration) show better quality water, which was tapped directly from the aquifer layer, and was used both for people, grazing and possibly for a subsistence agricultural production. During the 19th cent., the Shammar tribe camped here regularly for this reason as also attested by Stein, who identified the remains of a tent camp south of Khirbet Jaddalah[21].

Numerous archaeological occurrences have been discovered on the ground; the Iraqi survey directed by J. Ibrahim identified approximatively 10 sites in the square zone. The Hellenistic and Parthian ones are seven (nos. 46, 67-71, 74). Other three sites (nos. 37, 38, 72) are related to more ancient or later periods[22].

[17] Foietta 2018, pp. 58-59.
[18] Foietta 2018, pp. 59, 77. For a description of the phenomenon: Bakose 1994.
[19] Ibrahim 1986, p. 143, pl. 20.
[20] Russian Map (I-38-14) 1:150000; American Map 1998 1:250000.
[21] Stein 1941, p. 309.
[22] The enumeration of the sites follow that used in Ibrahim's publications.

Iraqi Survey no.	Description	Date	'Squared structures'	Bibliography
46 Tell Al-Thaya	Low mound of rectangular shape l. 180 m, w. 175 m, h. 2 m. Square tell 40 x 40 m, h. 2-2.50 m. On the corners are recognizable small mounds, probably identifying as towers. The foundation and basement are in blocks of limestone and plaster identified in the South/East area. The general shape of the mound is square, built probably on a lower mound of 2 m high.	Parthian/ Sasanian	X	Ibrahim 1986, p. 49
67 Tell Umilih	Five tells are identifiable in close proximity. The semi-circular tell is 65 m ø. It is 3-4 m high.	Assyrian, Parthian, Sasanian, Islamic		Ibrahim 1986, p. 52.
68 Khirbet Jaddalah (a)	See the description in the dedicated paragraph.	Parthian	X	Ibrahim 1986, p. 52.
69 Tell 'Unuq Jaddalah (b, c)	Two important tells located close to Khirbet Jaddalah, see the description in the dedicated paragraph.	Parthian/ Sasanian	X	Ibrahim 1986, p. 52.
70 Tell Jaddalah 'Uliya	Circular shape 140 m ø and 5 m high with two main mounds, one at the North-West side and a second one in the center.	Assyrian/ Parthian		Ibrahim 1986, p. 52
71 Khirbet Qbr Ibn Naif	Enclosure with a rectangular shape 100x100 m, h. 2 m. At each corner there is a mound, maybe identifiable as a tower. The whole structure is built on a low mound of 2 m in height. A Hatran iscription has been recovered here.	Parthian - possibly earlier evidence on the low mound	X	Ibrahim 1986, pp. 52-53
74 Khirbet Bashmanah	Two tells are located between the Bashmanahan Tulul Bashmanah. The first mound is rectangular in shape l. 30 m, w. 21 m, h. 1.50-2 m with a depression on the eastern part, perhaps interpreted as a gate; the second mound is square in shape 100x100 m and h. 2 m with a tell placed at each corner (towers ?). At the center of the enclosure is placed a square tell 30x30 m, h. 3 m.	Parthian/ Sasanian	X	Ibrahim 1986, p. 53
37 Tell Al-Rugh'ai	two tells: the first is ovoidal in shape (140 m ø) and 3 m high ***in comparison*** to the land; b) circular tell (100 m ø and 3 m high); c) semicircular tell 95 m ø and h. 4 m high with small hillocks close to it.	Assyrian, Sasanian, Islamic		Ibrahim 1986, p. 47.
38 Tell Bhutat Al-Rug'ai	Tell of irregular shape (l. 200 m x 95 w. and 7 m high).	Mittanian, Assyrian, Hellenistic		Ibrahim 1986, p. 47.
72 Tell Aswad	Tell of semicircular shape - 70 m ø and 5 m height from the **campaing** level. Another small mound is located in the North part.	Assyrian, Sasanian, Islamic		Ibrahim 1986, p. 53.

If we exclude the epigraphical occurrences of Khirbet Jaddalah (a), which will be discussed in detail in the next paragraphs, Hatran inscriptions have been discovered at only two sites placed inside a little wider area from that of the square we are dealing with. These inscriptions have been detected at Tell Saadya al Gharbi (no. 35)[23], a site closer to Hatra and slightly west from the interested area, and Khirbet Qbr Ibn Naif (no. 71), approximatively in the middle of the square.

[23] Beyer 1998, 116.

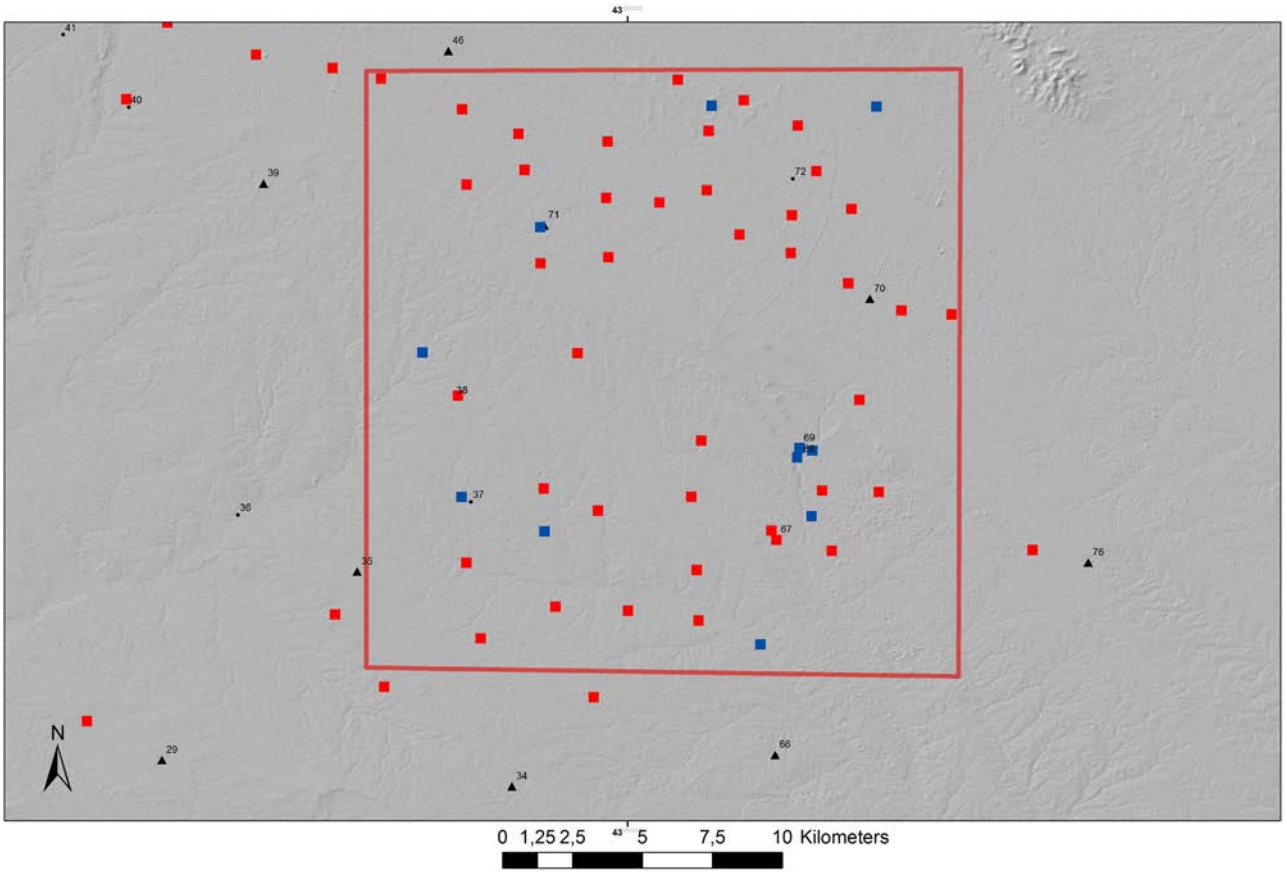

Fig. 6. Studied area with in red the archaeological anomalies and in blue the square archaeological anomalies (background).

Tell Sadya Gharbi (no. 35) is a subcircular tell of ab. 60 m ø and 5 m high, encircled by smaller tell located close to the so-called wadi Ahmar[24]. Khirbet Qbr Ibn Naif (no. 71), as reported in the chart, is a square fort site ab. 100 x 100 m and 2 m high from the closer lands. A mound is placed at each corner, identified possibly as an ancient tower. The central part of the site, as before the excavation of Khirbet Jaddalah (a), stands lower. The entire site is built on a low mound 2 m high, related probably to a more ancient archaeological phase[25] (fig. 5).

The only archaeological site excavated in the area is the main site of Khirbet Jaddalah (a), while other 52 archaeological occurrences and ruins, besides the Iraqi survey already mentioned, have been gathered interpreting aerial and satellite images - mainly CORONA images (figs. 6, 16). Most of these anomalies are tell of medium-small dimension with irregular or circular shape, while 11 cases (marked in blue in the map) are structures of approximatively square shape, preliminary identifiable as 'playing card forts', whose chronology is uncertain, because of the impossibility of conducting a new survey on the ground.

Settlements of medium-large dimension lack, but Tell Aswad (no. 72) and a new un-surveyed site close to it can be identified, perhaps as small settlements (fig. 7).

Khirbet Jaddalah (a, b, c)

Few kilometres from the main site of Khirbet Jaddalah (a), unearthed by the SBAH archaeologist, are located two other ruins. Khirbet Jaddalah (c), placed east of the wadi, is a square structure with a side of 75 m (fig. 8a,b). According to Ibrahim, this building must be identified possibly as a *khan* - a trade structure, used perhaps for caravans during the main period of Khirbet Jaddalah (a)[26]. A second rectangular mound, called Khirbet Jaddalah (b), is located south of the quoted structures and is 45 x 35 m and 4 m high above the ground (fig. 9). The Iraqi archaeologists have identified these ruins as the Roman *castrum*, proposed by A. Stein[27].

[24] Ibrahim 1986, p. 47.
[25] *Ibidem*, pp. 52-53.
[26] *Ibidem*, p. 52.
[27] *Ibidem*, p. 52; Kennedy, Riley 1990, p. 211.

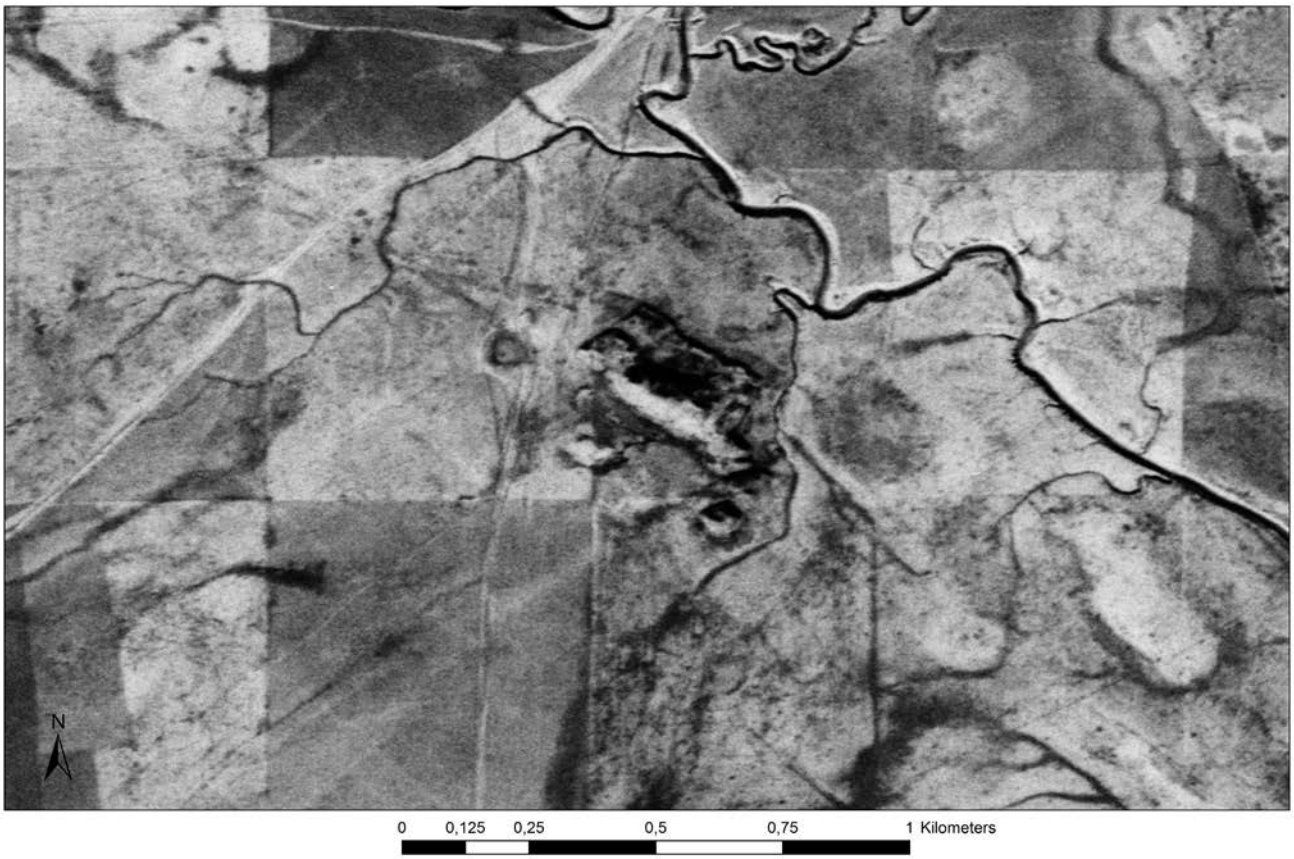

Fig. 7. Settlement of medium-small dimension close to Tell Aswad (no. 72).

Before the excavation, the main site of Khirbet Jaddalah (a) showed the presence of several tells along with a squared enclosure (105 x 105 m), opened exclusively on the east side[28] (fig. 10). The archaeological site was entirely founded at about 8 m from the riverbed of the wadi Jaddalah, whose riverbanks are too steep here. Five Roman oriental attic type basements in limestone (h. 40 cm) laid on the ground before the digging, as several column drums nearby the wadi[29]. The remains of an ancient imposing structure of 35 x 40 m were identified approximatively in the centre of the enclosure[30].

The excavation regarded the north-north/east part and the eastern front of the enclosure, and almost the central building (fig. 11). The enclosure curtain-wall showed towers with smoothed corners and small rectangular buttresses (1.95 x 1.95 m) built at regular distances, which supported arches in mud-bricks melted with plaster (fig. 12). The buttresses were all built in stone, while the remains of the arches in bricks have been found during the fieldworks. The west front, which is the only entirely cleaned by the Iraqi archaeologists, was 91 m long[31]. Inside the enclosure along this side were identified regular square rooms (4.70 x 4.70 m). Room no. 3 is an exception, measuring 4.70 x 6.70 m[32]. The wall is built with a basement in limestone blocks and mud-bricks, using exactly the same technique employed for the fortifications of Hatra[33]. Arrowslits were opened into the towers and along the walls in the added inner rooms. The arrowslits were placed at constant distance between the rectangular buttresses, which sustained the arches on the façade[34]. This complex system of defense allowed good control of the area in front of the enclosure with archers, who patrolled inside the chambers and on the towers' top. In front of the enclosure, a ditch, whose remains are scanty, strengthened also the defense.

The towers are rectangular with smoothed corners built entirely in stone. This building technique is different in comparison with the towers of the curtainwall and, also, of the massive towers of Hatra's fortifications[35] (fig. 13). The only chamber excavated belongs to Tower A at the north-west corner, measuring 9.60 m along the northern side,

[28] Ibrahim 1983, p. 217; 1986, p 143.
[29] *Ibidem*, p. 230.
[30] *Ibidem*, p. 217; 1986, p.143.
[31] *Ibidem*, pp. 220-223; 1986, pp. 144-146.
[32] *Ibidem*, p. 221.
[33] For the fortifications of Hatra: Gawlikowski 1990; 1994; al-Salihi 1980; 1991; Foietta 2015; 2016; 2018, pp. 397-420.
[34] Ibrahim 1983, p. 223, pl. 10; 1986, p. 146.
[35] Foietta 2015, pp. 295-297; 2016, pp. 238-240.

Fig. 8a. Aerial photograph of Khirbet Jaddalah c, looking west from a height of 150 ft. Royal Air Force no. 13842 (10.45; 10 November 1938. Stein Archive. Kennedy, Riley 1990, p. 211).

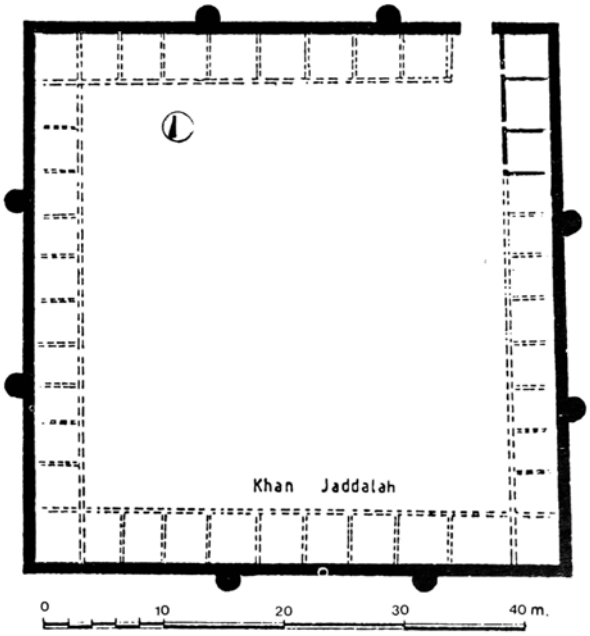

Fig. 8b. Plan of Khirbet Jaddalah c (Ibrahim 1986, 269, pl. 21).

Fig. 9. CORONA image of the area of Khirbet Jaddalah.

6.60 m along the east side, 11.60 m along the west side and 7 m along the south side[36]. Similar towers in dimension, only partially cleared for defining their walls limit, have been identified along the west front (Towers E, G, I)[37]. Even if slightly smaller, a similar tower has been unearthed on the northern front (Tower B). On the northern and southern fronts, there was probably a similar layout with towers and buttresses. The dimension and building features of towers, with one or two floors, allowed probably the emplacement of artillery machines, maybe as the ballista discovered at

[36] Ibrahim 1983, p. 220; 1986, p. 144.

[37] Tower B: 6.80 x 8.20 m; Tower E: 9.70 x 8 m; Tower G: 9.70 x 7.40 m; Tower I: 9.60 x 7 m.

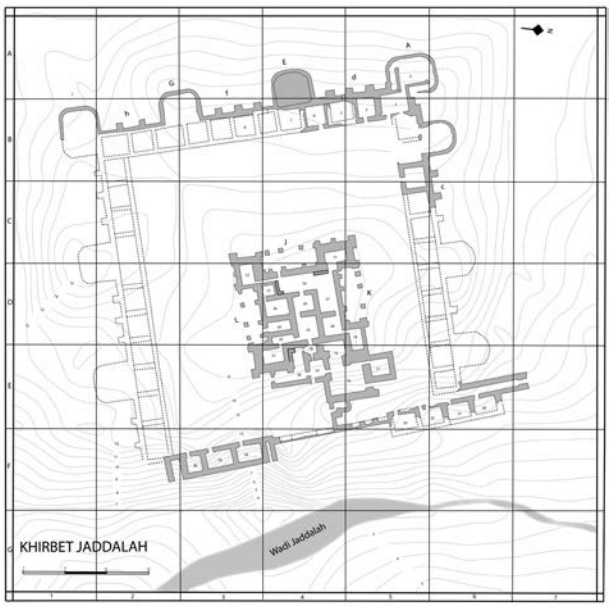

Fig. 11. Plan of Khirbet Jaddalah (from Ibrahim 1986, 370, pl. 122).

Fig. 10. Aerial photograph of Khirbet Jaddalah a, oblique view looking east from a height of 200 ft (60 m). Royal Air Force no. 13861 (12.22; 14 November 1938. Stein Archive. Kennedy, Riley 1990, p. 231).

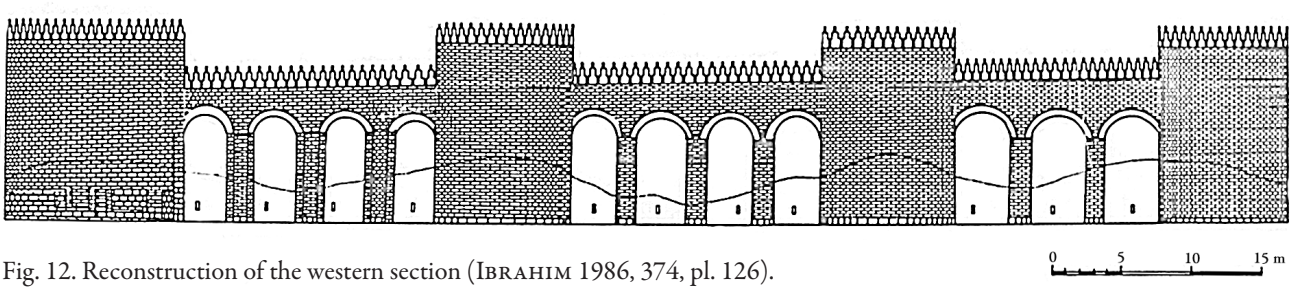

Fig. 12. Reconstruction of the western section (Ibrahim 1986, 374, pl. 126).

Fig. 13. Massive Tower at Hatra, close to the North Gate (Archivio della Missione Archeologica Italiana a Hatra – Torino).

Hatra, at one of the chambers' top[38]. The lack of a built stairway inside Tower A, supports the idea of a wooden floor with wooden or rope stair for reaching the top. According to the lack of stairways added to the inner wall, the walkway height is difficult to suggest, which would allow a more precise evaluation. A similar height to the defensive walls of Hatra (8-9 m) is likely, assessing the dimension of the fallen arches recovered during the excavation and the distance between the buttresses. For this reason, the reconstruction of the façade proposed by the Iraqi archaeologists is still correct in its general layout (fig. 12). The towers reached in the view 10 m high; close for dimension, but not for building technique, to the massive towers of Hatra[39].

The central building is composed of several chambers and courts. A first building phase comprehended probably the most part of the uncovered structures. It can be reconstructed as an almost square building with four towers at the corners, characterized by the presence of buttresses. The corner towers (ab. 5.35 x 2.80 m), according to the complete clearance of two of them in the western area (nos. 11 and 11a, 12 and 12a)[40], had almost two floors, reached by outer built stairways – see room 10 (13.35 x 4.20 m)[41]. According to its dimension and existence of the stairway, room 10 must be identified probably as an open court[42]. The outer door, giving one of the accesses to the building, was covered with a lintel on which is engraved an interesting Hatran inscription, where is reported the date of construction (AD 141/2) of the *byrt'*, translated according to Pennacchietti as 'fortified palace', and the name of the owner, a certain *'gy*, son of *'b'*[43].

bšnt IIIC XX XX XIII b'drn' dy 'lh' klhwn
bn' 'gy br 'b' byrt' lnpšh

In the year 453 (e.s. = AD 141/2) with the help of all the gods
Aggay son of Abbā built the fortified palace for himself[44]

According to the Iraqi archaeologists, during this building phase along the eastern front, quite far from the structure, a colonnade watching directly to the wadi, whose function is still uncertain, was erected. The contemporaneity of the palace and colonnade is uncertain if we considered that they are not in direct stratigraphic relation[45].

On each front of the building between the corner towers, a portico made by two or three pillars was erected. These pillars have been preserved on the northern, western, and partially on the southern fronts. They sustained vaults, which originally covered these 'filter' spaces[46]. During the first phase, the eastern front had a similar articulation to the others; the pillars were later incorporated in the walls of the second building phase, which will be analyzed in detail in the next paragraphs[47]. The main entrances to the buildings were opened west, east and south, while there is no door on the north front, where is placed the Portico K.

The rooms 15-20 and 29 have been added eastward during the second building phase. These were part of a defensive annex, which has incorporated the original Portico E[48]. Room 20 shows a 'L shape' and was probably the main entrance to the building during this phase[49]. The door is opened to the south and was covered with a lintel, where was engraved a building inscription similar to that recovered in room 10[50] (fig. 14a).

bšnt IIIC XX XX XIII b'drn' dy
'lh' klhwn bn' 'gy br 'b'
byrt' lnpšh 'l ḥyhy wḥy' bnyhy
w'ḥyhy wḥy' 'wydšr ddh wplty' klhwn

In the year 453 (e.s. = AD 141/2) with the help
of all the gods Aggay son of Abbā built
the fortified palace for himself and his life (and) the life of his sons
and his brothers and the life of his uncle 'Awīd-I*šš*ar and of all the attendants of the house[51]

This lintel has been reemployed on the door of the second building phase and was possibly placed before at the top of the previous east gate, behind the portico E.

[38] Gawlikowski 1994, 180; Foietta 2015, p. 296; 2016, pp. 239-240.
[39] Foietta 2015, p. 296; 2016, pp. 239-240.
[40] Ibrahim 1983, pp. 24-25; 1986, pp. 146-147.
[41] A second stairway is suggested by the Iraqi archaeologists on the west wall.
[42] Ibrahim 1986, p. 146.
[43] Pennacchietti 1988, pp. 141-142. For the translation of *byrt'*: Pennacchietti 1988, p. 142; Beyer 1998, p. 27.
[44] Pennacchietti 1988, p. 141.
[45] Ibrahim 1983, pp. 230-231; 1986, pp. 150-151.
[46] Porticos J, K, L (Ibrahim 1986, 147).
[47] Ibrahim 1986, p. 149.
[48] Ibrahim 1983, pp. 232-233; 1986, pp. 151-152.
[49] *Ibidem*, pp. 227-228.
[50] *Ibidem*, p. 223; 1986,pp. 149, 204; Pennacchietti 1988, p. 142.
[51] Pennacchietti 1988, p. 142. For the name 'Awīd-I*šš*ar: Marcato 2018, p. 104.

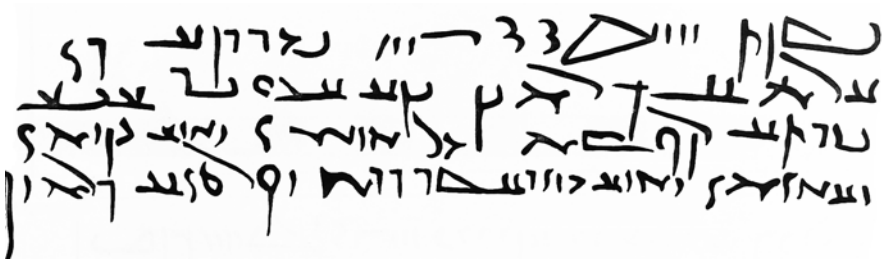

Fig. 14a. Inscription on the lintel of the outer door of room 20 (Ibrahim 1983).

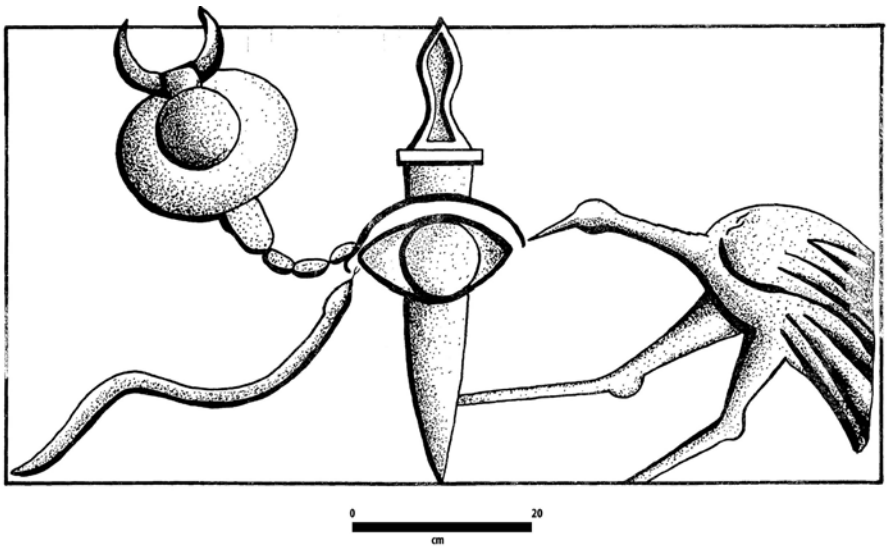

Fig. 14b. Lintel with the representation of the evil-eye (Ibrahim 1986, 381, pl. 133).

The room 20, probably identified as a courtyard for the lack of roof remains, shows a 90° degree way, similarly to the barbican city gate of Hatra[52]. This plan was chosen to strengthen the defensive purposes on this side of the building. Several arrowslits were opened on the outer wall of room 20, allowing good control of the area through the colonnade. These arrowslits show different features in comparison with that employed at Hatra, allowing a single direction shot, while the Hatrean type was possibly used at the same time by two archers with two-shot possibilities. A stairway is located on the western part of room 20; it starts on the western side on a ramp and ends on the south wall, sustained by an arch in stone and plaster - a common technique widespread at Hatra[53]. A niche (75 x 68 x 59 cm) has been detected on the west wall along the stairway at 2.24 m high[54]. A small basement of a statue has been recovered on the floor of the room and belonged probably in origin to this niche. The inner walls of the niche were decorated with mural paintings, two representing *'gy*, quoted in two painted inscriptions - builder and owner of the fortified palace[55]. Some arrowslits were opened in this room on the walls delimiting room 22 and tower 21, permitting better control of this crucial point for the circulation in the building. The stairway gave access to a second floor, which was installed on the top of tower 21.

Inside the small room 18 (2.45 x 2.05 m) along the western wall was identified a door with a lintel in limestone (2 m long, 32 cm high) on which is represented the symbolic and apotropaic scene of the evil eye[56] (fig. 14b).

To sum up, three main building phases are detectable (fig. 15):

The first, coloured in light grey, concerned the main core of the fortified palace, showing an approximatively square shape palace with porticos on each side and a 'strange' isolated colonnade along the east front. This phase was dated to AD 141/2, thanks to the inscription on the outer door of room 10, reporting also the owner of the building and part of his family[57].

During the second phase, coloured in dark grey, were added the defensive annexe with the barbican wall (rooms 15-20 and 29), erected the outer enclosure and closed the colonnade, incorporated in the latter construction[58]. Its

[52] Foietta 2015, pp. 298-299; 2016, pp. 243-246; 2018, pp. 398-399.
[53] This building technique is used both in public and private structures.
[54] Ibrahim 1983, pp. 228,229, fig. b.
[55] Ibrahim 1983, p. 228; 1986, pp. 205-206.
[56] *Ibidem*, p. 227; 1986, p. 148.
[57] *Ibidem*, pp. 230-231; 1986, pp. 150-151.
[58] *Ibidem*, p. 232; 1986, pp. 151-152.

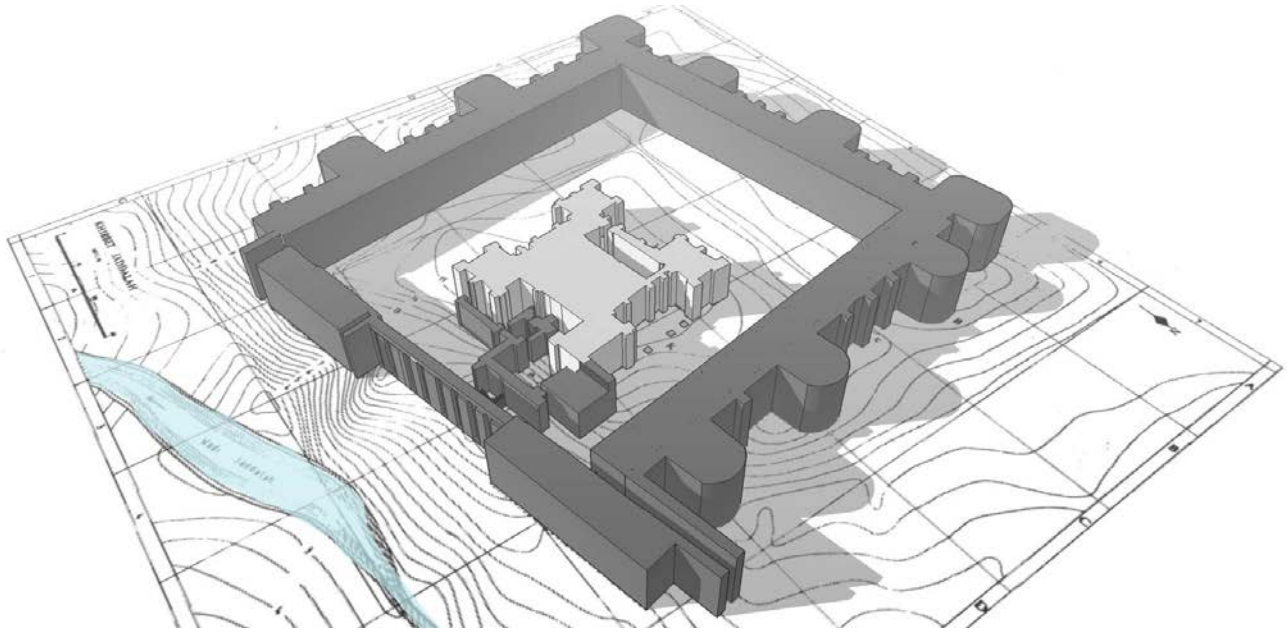

Fig. 15. 3D Reconstruction of Khirbet Jaddalah A. In light grey the first phase; in dark grey the second phase.

dating is uncertain, even if Ibrahim suggested correctly that it can be dated to the same years of the addiction of the barbican walls to the city gate of Hatra[59]. The last phase (third building phase) very restricted, comprehended the construction of a low wall, connecting the group of rooms 15-20 with the colonnade[60].

Several sub-phases existed, testified for instance by the discovery of different floors and restorations in many rooms[61]. The entire structure was destroyed probably by an enemy attack, for the discovery of wide burnt and ash layers discovered in some rooms[62]. Ibrahim suggested the possibility of a Roman attack, probably during the campaign of Septimius Severus, who sieged Hatra in AD 198/199, or the result of a Sasanian assault, maybe during the raid of Ardashir I or the final onslaught to the Kingdom of Hatra and its capital in AD 240/1[63].

Given the strategic location of Khirbet Jaddalah in the Kingdom of Hatra, it is more likely that the fortified palace was destroyed by the Sasanians during the raids and campaigns in North Mesopotamia of Ardashir I or Shapur I. Destruction accomplished by the Romans would have left in fact a gap of almost 20 years, when the Hatreans would have the possibly of rebuilt or restore the building. The construction of the first fortified palace, confirmed by the two Hatran inscriptions engraved on stone, happened probably in AD 141/2 during the reigns of Wolgosh (140-170 d.C.) and Sanatruq I (140-176/177 d.C.) at Hatra and the *pax adrianea* with the Roman Empire. Together with the reign of the predecessor Nasru *marya*, this period corresponded to a vast construction program of fabrics and buildings at Hatra and a general expansion of the Kingdom, with a new assessment of the territory testified for instance by the inscription of Khirbet Qbr Ibn Naif.

The function of the main building of Khirbet Jaddalah is testified also by the term *byrt'*, fortified palace[64], employed in two of the building inscriptions related to a local chief (*'g'*), who administered these lands for himself and probably for Hatra. Given the lack of medium size settlements in the studied area, it is possible that these lands were not firmly settled and that the local chief controlled and also ruled semi-nomadic and nomadic groups, as happened at Hatra[65]. From a political and military point of view, Khirbet Jaddalah was probably under the direct yoke of Hatra, but for the strict administration, it could be also related to Ashur, considering the similar distance between the two main cities. Unfortunately, administrative documents of the Kingdom of Hatra have not been discovered until now, which would be useful for understanding the control, taxation and administration of the lands under Hatra's rule.

[59] For the chronology of the barbican before or after the siege of Septimius Severus at Hatra: Foietta 2016.
[60] Ibrahim 1983, p. 233.
[61] See for instance the seven floors discovered in the court 10 (Ibrahim 1983, p. 223).
[62] Layers of burnt and ashes are detectable in rooms 1, 10, 19, 21.
[63] Ibrahim 1983, p. 233; 1986, p. 153.
[64] See Pennacchietti 1988.
[65] For the relation between nomads and settled at Hatra: Dijkstra 1990, Bertolino 2016.

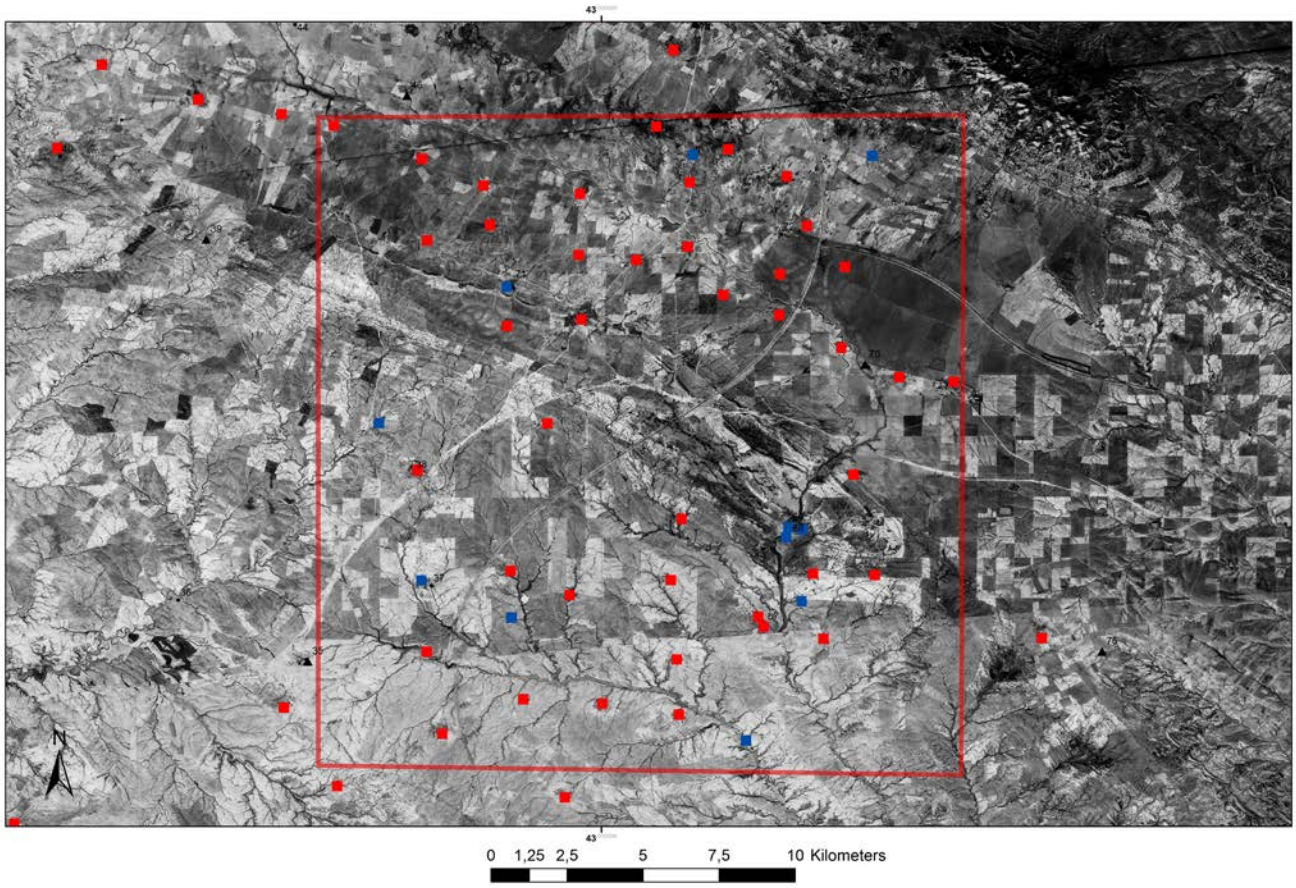

Fig. 16. Studied area with in red the archaeological anomalies and in blue the square archaeological anomalies (CORONA image on the background).

The regional system of defence and forts of the Kingdom of Hatra vs the studied area of Khirbet Jaddalah. Models and comparisons

The landscape taken in consideration in this paper is extremely interesting, not only for the excavation made by the Iraqi archaeologists at Khirbet Jaddalah (a) but also for the presence in a relatively small area (20 x 20 km) of a high number of defensive structures, easily detectable thanks to their shape. Given a total of 52 archaeological occurrences, 11 are in fact square structures which can be related to the type known in the literature as 'playing card fort'. In this group, three sites have been surveyed by Iraqi archaeologists and are surely related to a Parthian chronology (nos. 68, 69, 71) (fig. 16).

So, why such a high concentration of these structures in the studied area? The studied area is clearly characterized by favourable environmental features as the presence of good springs for the water supply and two main wadi, allowing probably the beverage for flocks, horses and perhaps some small areas devoted to fields[66]. The presence of so many forts in an area far from the 2nd and 3rd cent. AD borders, between Hatra and Ashur, respectively the capital (300 he) and the second main center of the region (75 he)[67], requires however a more articulated explanation. The detected forts are located along the two main seasonal rivers of the area and their secondary wadi, without defining a clear line of fortification. They are all distant between 2-8 km, permitting a quick control and communication between them.

A similar concentration of military structures, clearly identifiable through remote sensing technique, also lacks in the northern border zone, previously analyzed in a devoted paper[68], where for the Roman threat many forts or defensive occurrences would have been expected. During the second half of the 2nd cent. AD and the first half of the 3rd cent. AD, between the Khabur, the mountain-chain of the Sinjar and the Tigris, ran, in fact, the border with the Roman Empire and the Kingdom of Hatra, which fluctuated several times for the Roman military campaigns of Trajan

[66] For the agricolture and productions in the Kingdom of Hatra: Foietta 2018, 101-108.

[67] For Ashur during the Parthian period: Andrae, Lenzen 1933; Hauser 2009, 73-77. For the extension of the city: Foietta 2018, 143.

[68] Foietta 2020a.

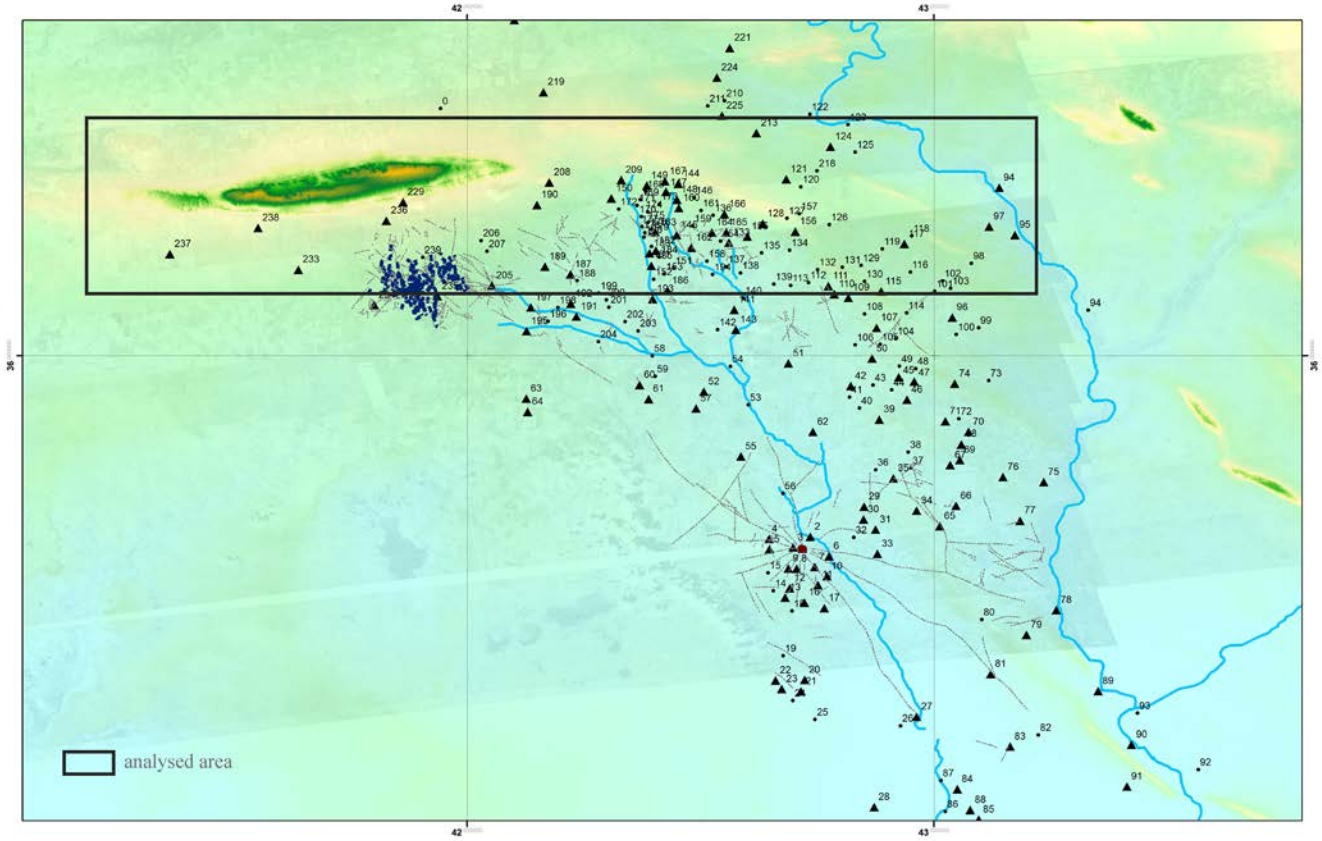

Fig. 17. HatraGIS map: Parthian and Roman sites marked with triangles, re-edited from the Iraqi survey published by J. Ibrahim in 1986. Location of the studied northern area between the Roman and Hatrean borders.

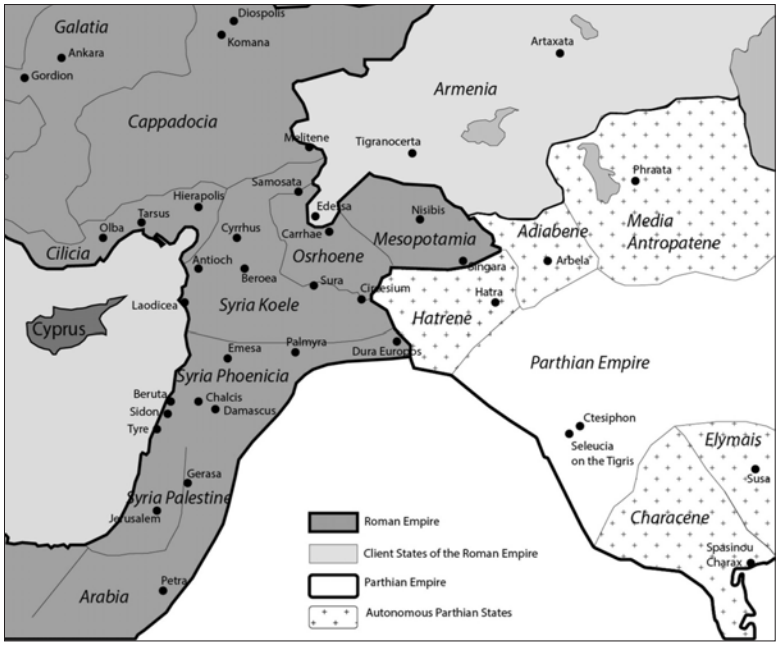

Fig. 18. Map of the Near East, c. AD 200, Severan period (re-edited from Sommer 2003, Abb. 20).

and Septimius Severus in Mesopotamia. In the Sinjar area two Roman milestones have been found, which testified the construction of roads, fortified settlements and forts[69].

The Hatrean side of the border was not a defensive fortified line, a sort of limes, which would have left more anomalies and ruins on the ground, but an area where were located a series of settlements and fortified centres and forts, one (Tell Abrat al-Saghira, no. 209) partially surveyed by an archaeological expedition (figs. 17-18).

[69] Cagnat 1927; Dillemann 1962, pp. 203-206; Oates 1968, pp. 97-108; Oates 1968, p. 74, footnote 3; Ibrahim 1986, p. 76; Palermo 2019, pp. 29-31.

This site is interesting because an Hatran inscription has been recovered here. The shape of the mound and the unearthed structures show some similarities with that of Khirbet Jaddalah (a) before the excavation[70].

If a linear system of defence lacks in the Kingdom of Hatra, also in the more dangerous zones, it is possible however to recognize maybe a system similar to that of the defense in depth, following a definition proposed by E. N. Luttwak, used for the Roman Empire of the 3rd cent. AD [71]. The system is related to the employment of self-contained strongholds with mobile forces deployed between or behind them.

'Under this method, which has many variants, both ancient and modern, warfare is no longer a symmetrical contest between structurally similar forces. While only the offense has the advantage of full freedom of concentration, the defense has the advantage of mutual support between self-contained stongholds and mobile forces in the field. If the strongholds are sufficiently resilient to survive attack without requiring the direct support of the mobile elements, if the mobile elements in turn can resist or evade concentrated attacks in the field without needing the shelter of the strongholds, and finally, if the offense must eventually reduce the strongholds in order to prevail, then the conditions are presented for a successful defense-in depth. Sooner or later, the offense will be faced by the superior strength of both fixed and mobile elements acting in combination'[72].

The landscape of the defence-in depth is organized with different size strongholds, walled settlements, farms, granaries, planned to face against the enemy without artillery machine. In the area were placed also mobile forces, which can fight directly on the field, but always with the support of fortified structures nearby. E.N. Luttwak identified for the fortified structures a multiple function:

- to supply depots to allow constant food and water sources;
- the forts erected along the borders have not the strength to deny the enemy passage, but they helped to obstacle a massive attack. In a rational scheme of selective fortification in-depht , the goal is to equalize the barrier effect of terrain across the sector as a whole by denying free use of the easier passage points[73];
- provision of rear-area security and rear-area intelligence. The forces have to move as quickly as possible to achieve the rapid concentration of forces required by the new strategy, so they could not afford to interdict their own communications in order to slow the enemy[74]. To sum up to maintain good communication and a street network;
- the use of strongholds as starting points for raids and the return of troops when the enemy answer is in strength with a higher force concentration;
- the strongholds allowed to preserve the mobile forces under stress by offering them temporary refuge. In this way the defensive forces outnumbered by the enemy were not entirely defeated or widely dispersed[75].

The environmental and social features of the Kingdom of Hatra fitted perfectly with the employment of the technique of the defense in-depth, because of a concentration of natural and environmental sources (i.e. drinkable water, fodders and food) in particular points of the landscape, but also for the presence of a dimorphic society, composed nomads and settled people, which allowed easy recruitment of fast mobile forces, as cavalry troops, but also with several fortified settlements and forts.

Moreover, also the Roman historical sources seems to testify the use of this type of defense employed in the Kingdom, because they stressed mainly two military corps for the Hatrean army: the archers, as especially skilled and professional, related mainly to stronghold and walled cities, and the cavalry mobile and rapid troops, used for raids and to patrol the landscape[76].

At this point, If we considered the 'rules' for the defense in-depth presented, it is more easily understandable why so many forts and fortified buildings were erected in the studied area during the interested period (figs. 2, 16). The purpose was to protect natural important resources as fodder, fresh water and maybe bitumen[77] gathered here between Hatra and Ashur, but mostly, the zone was placed at the crossroad of the two main road-axes of the Kingdom. The east-west axe, which linked the two major cities of the Kingdom, even if also a second road existed, located slightly south and connecting Hatra and Ashur[78], and a north-south axe, which brought to Tell Afar from Ashur and the zone of Khirbet Jaddalah until the north-eastern area with the border of the Roman Empire[79]. The defense and maintenance of

[70] Al-Alousi 1954; Ibrahim 1986, p. 73; Foietta 2020a, pp. 162-166.
[71] Luttwak 1976, pp. 127-190.
[72] *Ibidem*, p. 131.
[73] *Ibidem*, p. 133.
[74] *Ibidem*, p. 133.
[75] *Ibidem*, p. 134.
[76] Herodian reports that Barsemios, King of Hatra, supplied archers to Pescenninus Niger to contrast Septimius Severus (Herodian III. 1, 2-3). For the cavalry troops see: Cassius Dio. 67.11. See also: Sommer 2013, pp. 33-35.
[77] The area is exploited now for petrol, while in ancient times probably bitumen sources were present on the ground.
[78] See Foietta 2018, pp. 117-152.
[79] For the road network in the Kingdom of Hatra: Altaweel, Hauser 2004; Foietta 2018, pp. 117-152.

the road network was, as reported by Luttwak, a main element of the defense in-depth. With the erection of defensive infrastructures, this important crossroads was in this way strongly secured. Moreover, the area is located sufficiently in depth in the Kingdom to allow to weaken and stress for many kilometers with raids and fortified pit-stops the enemy armies who passed the borders and guaranteeing the assemblage of Hatrean forces to attack strong forces through north and east, when the Kingdom of Adiabene became allied with the Sasanians[80]. For this reason, the area was considered a fundamental hub for the movement in the Kingdom and the concentration of goods and resources.

It is possible that some forts identified on satellite and aerial images in the area were related to later periods, notably Sasanian and Islamic, and some of them could be of Parthian-Roman period, but built by Romans during the short-lived alliance between Hatra and the Romans. The presence at Hatra of Roman troops, probably settled in the Qasr-e Shimali, who has left some inscriptions and dedications in Small Shrine 9[81], must be evaluated in any case with care, especially in the territory of the Kingdom. Nevertheless, it is clear from our preliminary research the strategic will of protecting these crucial lands during the 2nd and 3rd cent. AD.

Only new surveys and wide archaeological studies on the terrain could clarify better the site of Khirbet Jaddalah and its lands. The nearness of Khirbet Jaddalah to the progressively growing village of Qayara impose in any case a schedule of a well-balanced project for the protection and enhancement of the ancient site, in order to involve local community in a perspective of public archaeology. Moreover, new assessments would be useful to evaluate if ISIS/Daesh had accomplished damages at the site and in the area.

[80] For the Kingdom of Adiabene during the 2nd and 3rd century AD: Read 2001; Marciak 2014; 2017.

[81] Oates 1955; Jakubiak 2015.

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